Gas Networks Ireland

Strategic Gas Emergency Reserve – Moored Devices Survey Activity

Supporting Information for Screening for Appropriate Assessment (SISAA) Report

RSK General Notes

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1 Introduction

1.1 Overview

During 2022 and 2023, the Department for the Environment, Climate and Communications (DECC) reviewed a range of Ireland's energy security policies and subsequently published 'Energy Security in Ireland to 2030 – Energy Security Package' in November 2023.

Analysis showed that Ireland must enhance its resilience in the event of a disruption to the country's national gas supplies. Policy makers decided that a disruption to Ireland's supplies of gas is an unlikely, but high impact event, and a disruption would lead to unacceptably high economic and social costs.

Action 17 of the Energy Security Package seeks to address the risk to the security of Ireland's gas supply through the implementation of a state-led Strategic Gas Emergency Reserve.

In line with the Government decision to develop a Strategic Gas Emergency Reserve, and as a final part of the review of Ireland's energy security, the Department of Environment, Climate and Communications, in consultation with the gas transmission system operator (GNI), is completing further studies to support this review.

The implementation of a Strategic Gas Emergency Reserve is on a transitional and temporary basis for use in the event of a disruption to natural gas supplies. GNI is undertaking a rigorous assessment, and a number of solutions are currently under consideration, some of which may include the potential for onshore and offshore facilities. The information collated and gathered from this assessment will be returned to Government to help inform the decision-making process.

To finalise the proposal for the Strategic Gas Emergency Reserve, the Department for the Environment, Climate and Communications has instructed GNI to acquire additional information and data which it cannot obtain through publicly available sources.

1.2 Purpose of the report

This document has been prepared by RSK Environment Ltd. on behalf of the GNI in support of the Maritime Usage Licence Application to the Maritime Area Regulatory Authority (MARA). The goal of this report is to provide information for the Appropriate Assessment (AA) process to help inform on decision-making regarding the potential of the proposed activity to impact, either individually or in combination with other project, on the conservation objectives of any designated European Site. This report considers the likely (positive and negative) effects for the proposed maritime activities involved in the deployment, maintenance in situ, and retrieval of up to two temporary moorings equipped with hydrophones and one temporary mooring equipped with an acoustic doppler current profiler (ADCP) at each location to collect baseline data on cetaceans (dolphins, whales, and porpoises) and hydrodynamics (waves and currents). The results of these survey works may be used as part of the site-selection process, as well as providing baseline data for any subsequent Environmental Impact Assessment Report (EIAR) and Appropriate Assessment Natura Impact Statement (NIS) should the development be taken forward to the planning/consenting stage

1.3 Statement of Authority

This report has been prepared by RSK on behalf of the GNI. The technical competence of the authors is outlined below:

[redacted] s Technical Director within the International Projects Group Marine Team in RSK. He has over 20 years of experience in marine environmental surveying and consulting. He holds an honours degree in Marine Biology and Oceanography and a Masters in Marine Resource Development and Protection. He has particular experience in marine ecology surveys, and the subsequent analysis and reporting of marine survey data for EIA projects, including AA and Annex IV species reports.

[redacted] is a Marine Consultant within the International Projects Group Marine Team in RSK. She has over 10 years of experience in the marine ecology field. She holds and honours degree in Marine Science and a Masters in Biology. She has contributed to numerous marine environmental projects including AA, Natura Impact Statements and EIAR chapters.

This Supporting Information for Screening for Appropriate Assessment (SISAA) report has been prepared in compliance with the legislative and policy requirements described below.

1.4 Legislation

1.4.1 European Legislation

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) provides protection for habitats and species of European importance; Council Directive 79/409/EEC (the Birds Directive) aims to protect all 500 wild bird species naturally occurring in the European Union (EU). Areas designated for protection under the Habitats Directive are described as Special Areas of Conservation (SAC) and those designated under the Birds Directive, as Special Protection Areas (SPA) and the sites are known collectively as Natura 2000 sites (see Section 1.4.2.5). As each member of the EU is required to designate areas in their jurisdictions, the establishment of this network of Natura 2000 sites under Articles 3 to 9 of Directive 92/43EEC is the key measure to protect nature and biodiversity in the EU.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of Natura 2000 sites. Article 7 of the Habitats Directive extends the scope of its articles 6(3) and 6(4) to the Birds Directive.

Article 6(3) establishes the requirement for Appropriate Assessment (AA):

“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. Considering the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the public.”

Further detail on the stages of AA is provided in Section 3.2 below.

Each Natura 2000 site has assigned Conservation Objectives (COs) and a list of Qualifying Interests (QI). The CO concept appears in the eighth recital of Directive 92/43/EEC which reads: "whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued". Article 1 then explains that "conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status".

The National Parks and Wildlife Service (NPWS) has established COs for each Natura 2000 site in Ireland. These are published on their website. NPWS advise in the general introductory notes of their site-specific conservation objectives (SSCO) series publications, that an appropriate assessment based on their "published conservation objectives will remain valid even if the CO targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out".

NPWS advise that to assist in that regard, it is essential that the date and version are included when objectives are cited.

1.4.2 National Legislation

1.4.2.1 Maritime Area Planning Act

The Maritime Area Planning Act, 2021 (as amended) established the Maritime Area Regulatory Authority (MARA). One of the functions of MARA is to consider licence applications and the granting of licences.

Schedule 7 of the Maritime Area Planning Act, 2021 (as amended) lists maritime usages which may be undertaken in the maritime area pursuant to licence. Of relevance to this site investigation project are the following items within Schedule 7:

3. Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000.

5. The installation of non-permanent platforms, pontoons, or slipways.

6. The deposit of any substance or object, either in the sea or on or under the seabed, from-

a) a vehicle, vessel (including a craft capable of travelling on, in or under water, whether or not self-propelled), boat, aircraft or marine structure (other than a pipeline).

7. The use of a vehicle, vessel (including a craft capable of travelling on, in or under water, whether or not self-propelled), boat, aircraft, marine structure (other than a pipeline) or floating container to remove any substance or object from the seabed.

11. The deposit, construction or removal of any mooring not requiring authorisation under any other enactment.

12.

a) The removal of beach material from, or the disturbance of beach material in, the maritime area otherwise than in the course of the ordinary or reasonable recreational enjoyment of the maritime area.

b) In this paragraph, "beach material" means sand, clay, gravel, shingle, stones, rocks, mineral

substances, seashells, coral and maerl and any flora, in or on the surface of the seabed or suspended in the water of the maritime area, and includes outcrops of rock or any other mineral substance above the surface of the seabed.

GNI is applying to MARA for the grant of a licence for the above Schedule 7 usages, as more fully described in Section 2 of this report.

1.4.2.2 Requirements in Relation to Appropriate Assessment

The following definitions in relation to AA are included in Section 2(1) of the Maritime Area Planning Act, 2021 (as amended):

"screening for appropriate assessment" shall be construed in accordance with, as appropriate—

a) section 177U of the Act of 2000, or

b) (b) Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)

"appropriate assessment" shall be construed in accordance with, as appropriate—

a) section 177V of the Act of 2000, or

b) Part 5 of the European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011);

where the Act of 2000 refers to the Planning and Development Act 2000 (as amended).

The European Communities (Birds and Natural Habitats) Regulations 2011 have also been amended.

Under Section 112 of the Maritime Area Planning Act, 2021 (as amended), MARA has been designated as a competent authority for the purposes of Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011); and appropriate assessments to which that Part applies.

MARA is required to carry out a screening for AA in accordance with Section 117(4)(a) of the Act.

Where MARA determines that an AA is required it shall carry out the AA in accordance with Section 117(7)(a) of the Act.

1.4.2.3 Screening Out for AA

Under Section 177U (5) of the Planning and Development Act 2000 (as amended), the competent authority shall determine that an AA of a proposed development **is not required** if it can be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

Under Regulation 42(7) of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) the public authority shall determine that an AA of a project **is not required** where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it can be excluded on the basis of objective scientific information following screening that the project, individually or in combination with other plans or projects, will have a significant effect on a European site.

1.4.2.4 Screening In for AA

Under Section 177U (4) of the Planning and Development Act 2000 (as amended), the competent authority shall determine that an AA of a proposed development **is required** if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

Under Regulation 42(6) of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) the public authority shall determine that an AA of a plan or project **is required** where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.

Where the competent authority determines that an AA is required, they shall make a determination under Article 6.3 of the Habitats Directive as to whether or not the proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent/ public authority before consent is given for the proposed development (see Section 177V(1) of the Planning and Development Act 2000 (as amended) and Regulation 42(11) European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

1.4.2.5 European Sites and Natura 2000 Sites

The term European site is defined in the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) as:

"European Site" means—

a) a candidate site of Community importance,

b) a site of Community importance,

c) a candidate special area of conservation,

d) a special area of conservation,

e) a candidate special protection area, or

f) a special protection area.

The term Natura 2000 site is defined in the same Regulations as:

"Natura 2000" means the European network of SACs under the Habitats Directive and SPAs under the Birds Directive, provided for by Article 3(1) of the Habitats Directive and, for the purposes of these Regulations, includes European Sites.

The two terms are often used interchangeably. For the purposes of this report, the term European site is used.

2 Project Description

2.1 Site Locations

The Shannon Estuary forms part of the largest estuarine system in Ireland. The estuary is characterised by large areas of intertidal mudflats and fringing saltmarsh. The sediment in the area is largely coarse sand, with benthic fauna biodiversity increasing in more sheltered area. The area has sheltered conditions and water depths ranging from the intertidal to around 50m below chart datum. There marine study area consists of two study areas to inform baseline for the potential development areas, West Shannon (Area A) and East Shannon (Area B), as described below.

2.1.1 West Shannon (Area A)

To inform baseline for the potential development area, the West Shannon marine study area extends the width of the Shannon Estuary from the townland of Ralappane to the townland Tarbert Island and covers an area of 1661.356ha.

2.1.2 East Shannon (Area B)

To inform the baseline for this potential development area, the marine study area extends across the Shannon Estuary from the townland of Foynes Island to the townland of Ballynacragga, covering an area of 787.526ha (Figure 2.2).

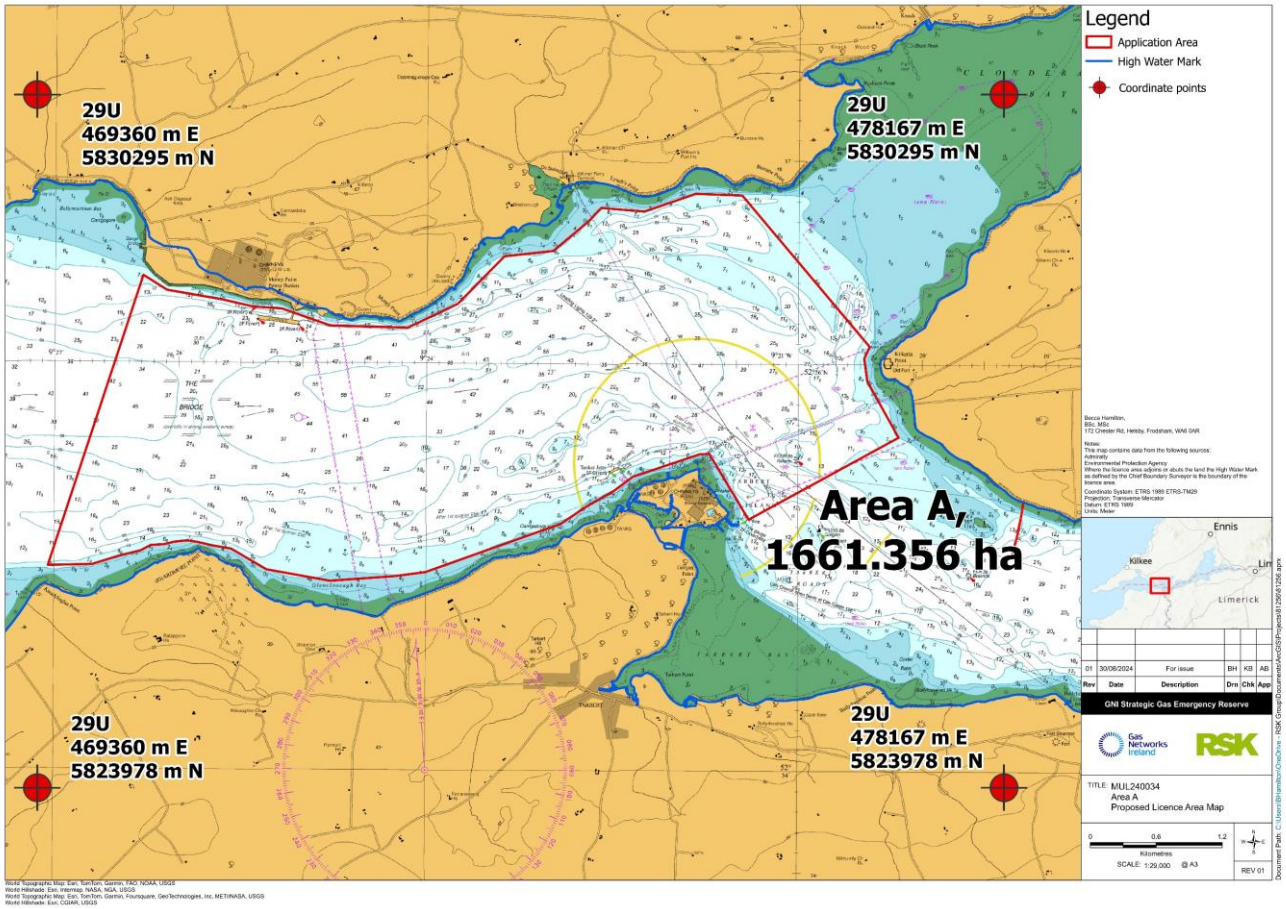

Figure 2.1
Shannon MUL licence area: West Shannon (Area A)

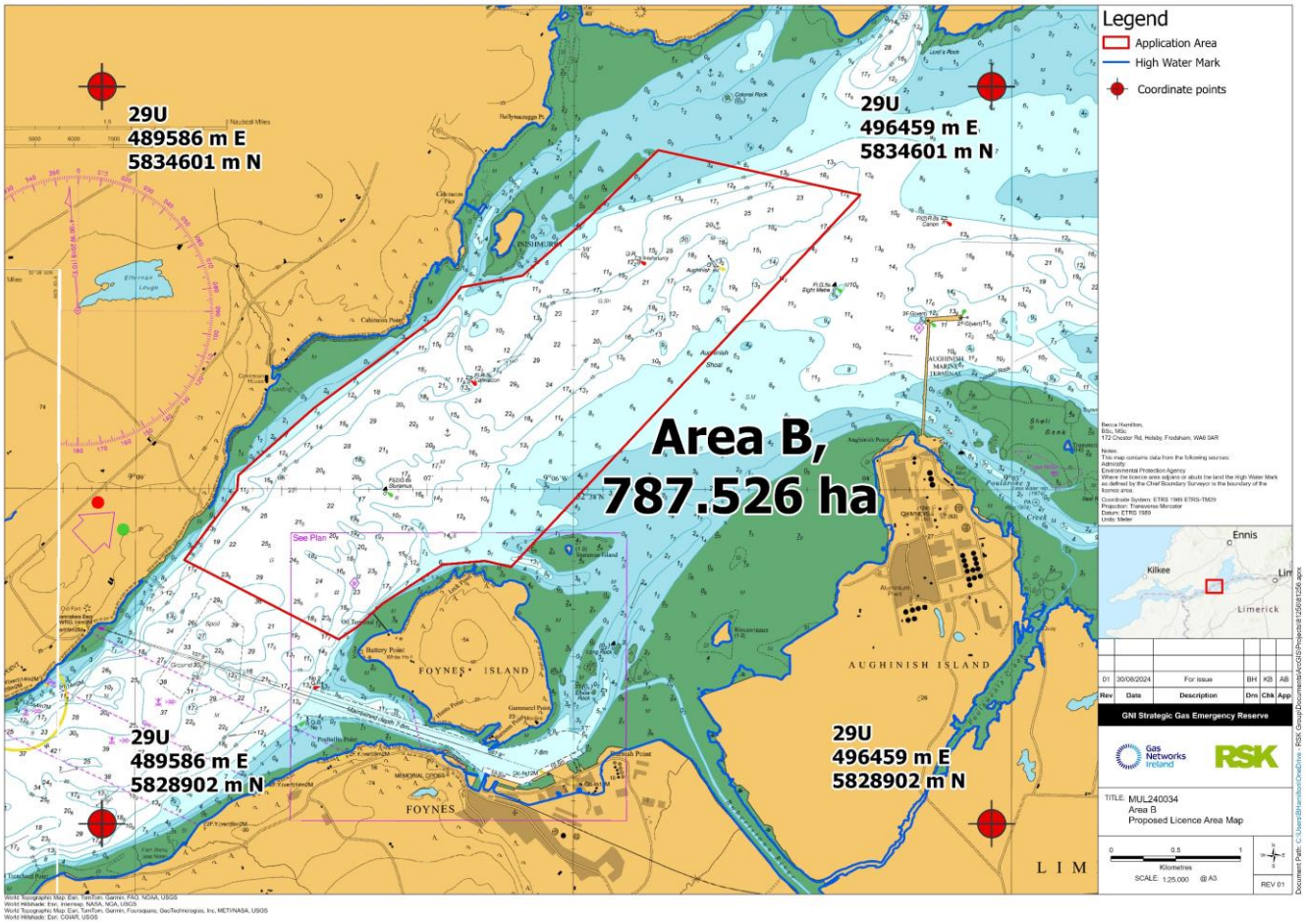

Figure 2.2
Shannon MUL licence area: East Shannon (Area B)

2.2 Description of the Works

2.2.1 Overview

The results of these surveys may be used as part of the site selection process, as well as providing baseline data for any subsequent Environmental Impact Assessment Report (EIAR) and Appropriate Assessment Natura Impact Statement (NIS) should the development be taken forward to the planning/consenting stage. As such, deployment and retrieval of both static acoustic monitoring (SAM) devices and ADCPs within the study areas is considered necessary. The proposed programme of works is presented in Table 2.1.

It should be noted that all locations shown are indicative and may be subject to a degree of change on-site.

The following drawings have been prepared in support of the Maritime Usage Licence application to the MARA:

- Maritime Usage License application area (Figure A1.1, Figure A1.2 and Figure A1.3)
- Indicative device deployment map (Figure A1.4, Figure A1.5 and Figure A1.6).

These figures are included in Appendix 1 of this report.

Each moored device is likely to consist of:

- two mooring weights (circa 20 kg each)
- an acoustic release system
- one or two hydrophones (SAM devices) / one ADCP
- multiple subsurface buoys.

An indicative example moored device setup is shown in Figure 2.3. The exact technical specification of the equipment to be used will be confirmed when the survey contract has been awarded. The vessel for operational activities or company contracted is subject to budget, weather, and vessel availability. The start date for the works would preferably be autumn 2024. Descriptions of typical equipment and survey parameters has been used within this report. Predicted time and footprint for the activities are presented in Table 2.2. Moored devices would be recovered every three to four months for maintenance and redeployments for at least one year, up to two years.

It is noted that the requirement for additional and more refined works may arise as the site selection and site investigation works progress. This may include moving devices to areas of particular interest.

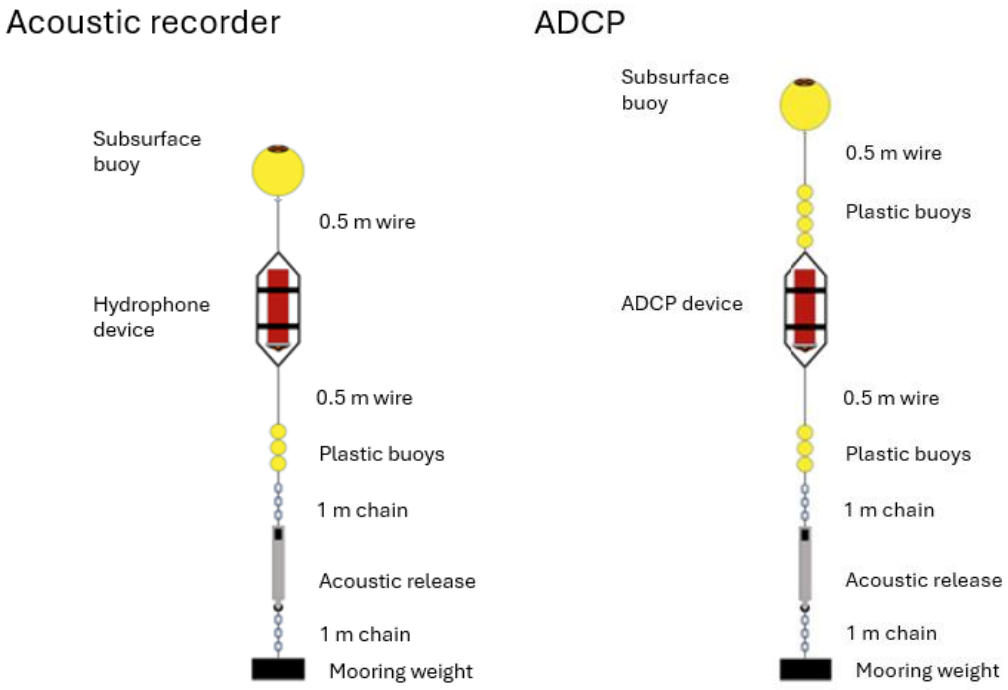

Figure 2.3
Indicative schematics of moored devices

Table 2.1
Proposed programme of works per study area

Survey	Method	Method detail	Purpose	Sampling Effort
Metocean	Acoustic Doppler Current Profiler (ADCP)	An ADCP is a hydroacoustic current meter used to measure water current velocities over a depth range using the doppler effect of sound waves scattered back from particles within the water column. In the present case ADCPs operating in the range of 600 Khz or 1 Mhz will be used. The instrument emits low amplitude "pings" of sound at a sampling rate of 1-minute average every 10 minutes. These pings will be emitted in a narrow sound beam (typically a few degrees in width) with a typical echo intensity profile of 80 dB (+/- 1.5 dB).	ADCPs may be used to examine wave and current conditions in each study area. This equipment is installed on the seabed and anchored with a suitable mooring structure.	A maximum of 2 ADCP may be used to examine wave and current conditions per study area.
Marine Environmental/ Ecological	Marine mammal acoustic monitoring (i.e., SAM)	SAM devices (CPODS or FPODs) are non-invasive underwater sound recorders used to detect the presence/absence of cetacean species (dolphins, whales, and porpoises). The acoustic signature of dolphins can be distinguished from that of harbour porpoise, the two species most likely to be recorded in the study area. An optional SoundTrap device may be deployed to measure overall background noise levels within the study area.	Marine mammal acoustic monitoring using SAM devices (CPODs or FPODs) deployed on the seabed. SoundTrap hydrophones may be deployed alongside the SAM devices for periods throughout the monitoring campaign. Either 2 permanent locations will be selected, or the 2 devices will be relocated during battery changes. The device locations are subject to consultation with an experienced marine mammal ecologist.	A maximum of 3 SAM devices may be used to study cetacean presence per study area.

Table 2.2

Predicted time and footprint of each survey activity per study area

Survey Activity	Typical time period required	Total number of devices per study area	Total time for activity	Footprint affected per activity (m^2)	Total maximum footprint per activity (km^2)
ADCP	4 weeks – 12 months in any one location	1 - 2	1 – 12 months. Deployment will include 1 day to deploy and 1 day to retrieve.	1 - 2m^2	0.000002
SAM	3 months – 2 years in any one location)	2 - 3	12 – 24 months. Deployment will include 1 day to deploy and 1 day to retrieve.	2 - 3m^2	0.000003

2.3 General Survey Requirements

All appointed survey contractors shall obtain and comply with all necessary marine operational permits including routine and customary vessel/crew/equipment clearances from Customs Agencies, Port Authorities, Marine Survey Office, etc.

2.3.1 Quality Assurance

Each of the appointed survey contractors shall comply with the following as a minimum:

- Quality and Environmental Management Systems based on ISO9001:2015
- provision of Quality Management Plans for all the marine operations
- provision of site and activity specific Method Statements for all the marine operations within their scope.

2.3.2 Health & Safety

Health, safety, environment, and welfare considerations will be a priority in the evaluation of possible contractors for the various survey scopes and will be actively managed during the survey work.

Appointed contractors will be required to comply with all legislation relevant to the activities within their scope of work.

Project / survey specific Health, Safety and Environment (HSE) plans will be put in place which will form part of the survey project execution plans.

2.3.3 Working Hours

The working hours for the deployment, maintenance and retrieval of the devices are proposed to be during daylight hours, any day of the week. It is anticipated that deployment, maintenance, and retrieval will each take one day per study area. Assuming a data collection period of two years total and maintenance visits every three months, this would equate to five days of boat activity per study area per year.

Weather conditions and/or sea-state will impact on the working hours, and it may be necessary to temporarily suspend operations when adverse weather conditions and/or sea-state are encountered or forecast. As such, survey plans will remain flexible to take advantage of optimal weather windows. Similarly, equipment or vessel maintenance and repair may impact on survey activities resulting in changes to the survey schedule.

2.3.4 Environmental Procedures

Environmental procedures to be followed by the appointed survey contractors are detailed within the AA report.

2.3.5 Vessels

All vessels will be fit for purpose, certified and capable of safely undertaking all required survey work. Marine vessels will be governed by the provisions of the Sea Pollution Act 1991, as amended. In

addition, all vessels will adhere to published guidelines and best working practices such as: the National Maritime Oil/HNS Spill Contingency Plan (NMOSCP), Marine Pollution Contingency Plan (MPCP), Chemicals Act 2008 (No. 13 of 2008), Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated regulations.

Vessels shall have a Health, Safety and Environmental Managements system which should conform to the requirements of the latest International Maritime Organization (IMO), Safety of Life at Sea (SOLAS) and environmental requirements for their classification and with any national requirement of the territorial or continental /Economic Exclusion Zone (EEZ) waters to be operated in.

The works will be undertaken from vessels in accordance with the relevant guidelines required to manage the risk to marine mammals from man-made sound sources in Irish waters.

3 Methodology

3.1 Appropriate Assessment Guidance

This report has been completed in consideration of the EU and national guidance documents that pertain in relation to Member States' fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this SISAA has had regard to the following guidance:

- EC (2000). Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg
- EC (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission
- EC, (2007). Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. European Commission
- DoEHLG (2009, rev. 2010). Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government;
- EC (2013). Interpretation Manual of European Union Habitats. Version EUR 28. European Commission, Luxembourg
- EC (2018). European Commission Notice C (2018) 7621 'Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg
- OPR (2021). Practice Note PN01: Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin Ireland
- EC (2021). European Commission Notice C (2021) 6913 'Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg.

3.2 Stages of Appropriate Assessment

The AA is a four-stage process with tests at each stage. The four stages are shown in Figure 3.1 below. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

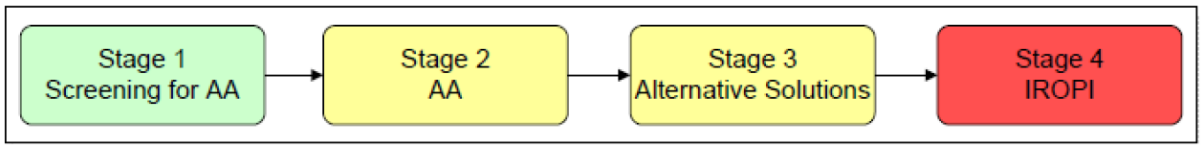

Figure 3.1
Four Stages of Appropriate Assessment

Stages 1-2 deal with the main requirements for assessment under Article 6(3) of the Habitats Directive. Stage 3 may be part of the Article 6(3) Assessment or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

The screening for AA carried out by the public authority/ competent authority (Stage 1), will determine whether an AA (Stage 2) of the proposed project is required. Stage 2 is required if it cannot be excluded, on the basis of the objective information provided at Stage 1, that the proposed project, individually or in combination with other projects or plans, will have a significant effect on a European site, in view of the site's conservation objectives. In this case, a Natura Impact Statement (NIS) must be prepared to assist the public authority/competent authority to conduct the Stage 2 AA. If it is not possible during Stage 2 to reduce impacts to acceptable, non-significant levels by avoidance and/or mitigation, Stage 3 of the process must be undertaken which is to objectively assess whether alternative solutions exist by which the objectives of the plan or project can be achieved. If alternative solutions exist that do not have negative impacts on European sites; they should be adopted regardless of economic considerations. The process must then return to Stage 2, as any alternative proposal must be subject to a Stage 2 AA before it can be subject to the Article 6(4) test. If it can be demonstrated that all reasonable alternatives have been considered and assessed, the AA progresses to Stage 4. This final stage is undertaken when it has been determined that negative impacts on the integrity of a European site will result from a plan or project and there are no alternative solutions. At Stage 4 of the AA process, it is the characteristics of the plan or project itself that will determine whether or not the competent authority can allow it to progress. This is the determination of Imperative Reasons for Overriding Public Interest (IROPI).

While there is no prescribed form or content for reporting (DoEHLG, 2009) the methodology and format adopted in this report has been in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC, 2021) and the European Commission Guidance 'Managing Natura 2000 sites' (EC, 2018), guidance prepared by the NPWS (DoEHLG, 2009) and by the Office of the Planning Regulator (OPR, 2021).

As per DoEHLG (2009):

"The first test is to establish whether, in relation to a particular plan or project, appropriate assessment is required."

In summary, the test for the screening for AA is to assess, in view of objective scientific information, if the proposed development, individually or in combination with other plans/projects is likely to have a significant effect on a European site. The precautionary-principle approach is required where there is uncertainty regarding a likely effect. If there are any significant, potentially significant, or uncertain effects, it will be necessary to proceed to AA and submit an NIS.

3.3 Stage 1 Screening / Test of Significance

This process identifies whether the proposed development is directly connected to or necessary for the management of a European site(s) and identifies whether the development is likely to have significant impacts upon a European site(s) either alone or in combination with other projects or plans.

The screening for AA will incorporate the following steps:

1. determining whether a project or plan is directly connected with or necessary to the conservation management of any European sites
2. describing the project or plan
3. identifying the European sites potentially affected by the project or plan
4. identifying and describing any potential effects of the project or plan on European sites, alone, in combination and cumulatively with other plans/projects
5. assessing the likelihood of significant effects on European sites.

The output from this stage is a determination for each European site(s) of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2.

3.4 Desk Study

Information on the receiving environment was analysed to determine the potential for significant effects to qualifying interests (QI) of the European sites with established connectivity to the works (see Section 4.4). The following publications and data sources were reviewed:

- Environmental Protection Agency (EPA) online interactive mapping tools (https://gis.epa.ie/EPAMaps) and (https://www.catchments.ie/maps/) for water quality data including surface and ground water quality status, and river catchment boundaries
- Information on ranges of mobile QI populations in Volume 1 of NPWS' Status of EU Protected Habitats and Species in Ireland (NPWS, 2019), and associated digital shapefiles obtained from the NPWS Research Branch
- Inland Fisheries Ireland mapping (http://wfdfish.ie/)
- BirdWatch Ireland (https://birdwatchireland.ie/)
- Mapping of European site boundaries and Conservation Objectives for relevant sites, available online from the NPWS included site synopsis, Natura 2000 Data form and Conservation Objective Supporting Documents where available (https://www.npws.ie/protected-sites)
- Distribution records for QI of European sites held online by the National Biodiversity Data Centre (NBDC) (www.biodiversityireland.ie)
- Geohive online Environmental Sensitivity Mapping tool (https://airomaps.geohive.ie/ESM/)
- Geological Survey Ireland (GSI) (https://www.gsi.ie/en-ie/Pages/default.aspx)
- Local surveys of flora, fauna, and habitat available using the Heritage Councils mapping website (https://heritagemaps.ie/WebApps/HeritageMaps/index.html)
- Ordnance Survey of Ireland maps and aerial photography (https://osi.ie).

The identification of relevant European sites to be included in this report was based on the criteria provided in OPR (2021), namely:

- any European site within or immediately adjacent to the project area
- identification of European sites where a Source-Pathway-Receptor (S-P-R) link exists, explained below in Section 3.5.

3.5 Identification of Relevant European Sites

3.5.1 Source-Pathway-Receptor Model

The identification of relevant European sites to be included in this report was based on the identification of the 'zone of influence' of the proposed survey works using a Source-Pathway-Receptor (S-P-R) model where:

- a 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features, and its COs
- a 'pathway' is defined as the means or route by which a source can affect the ecological receptor
- a 'receptor' is defined as QI of SACs or SPAs for which COs have been set for the European site(s) being assessed.

An S-P-R model is a standard tool used in environmental assessment. For an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The S-P-R model was used to identify a list of European sites, and their QIs, to which the proposed works are potentially linked. These are termed as 'relevant' sites/QIs throughout this report.

In terms of describing effects, the terminology used in this report is consistent with that contained in Table 3.4 (pp.50-52) of the EPA publication Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

3.5.2 Zone of Influence

Determination of the project's zone of influence was achieved by assessing the project's requirements and deliverables against the ecological receptors within the project footprint, in addition to the ecological receptors that could be connected to and subsequently impacted by the project through abiotic and biotic vectors.

The proximity of the works to European sites, and more importantly, QIs of the European sites, is of importance when identifying potentially likely significant effects. In accordance with the OPR AA Screening Guidelines (2021), the S-P-R model has been used to identify the zone of influence to ensure that relevant European sites are identified. The S-P-R model minimises the risk of overlooking distant or obscure effect pathways, while also avoiding an over reliance on buffer zones (e.g., 15 km), within which all European sites should be considered. This approach follows the DoEHLG 2009 guidance on AA which states that:

"For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects" (DoEHLG, 2009; p.32, para 1).

The zone of influence of the works on mobile species (e.g., birds, mammals, and fish), and static species and habitats (e.g., saltmarshes, woodlands, and flora) is considered differently. Mobile species have 'range' outside of the European sites in which they are QI. The range of mobile QI species varies

considerably, from several metres (e.g., in the case of whorl snails Vertigo spp.), to hundreds of kilometres (in the case of migratory wetland birds). A project's zone of influence may extend well beyond the project boundary and can impact or have an effect on static species and habitats remote from the proposed works; for example, where an aquatic QI habitat or plant is located many kilometres downstream from a pollution source. In particular, hydrological linkages between the proposed works and European sites (and their QIs) can occur over significant distances; however, any effect will be site-specific depending on the receiving water environment and nature of the potential impact.

To this end, the zone of influence for this project extends outside of the immediate proposed study areas to include ecological receptors connected to the project through proximity and connectivity through features such as watercourses and waterbodies in addition to potential connectivity through land and air. See Section 4.4 for the identification of relevant European sites.

4 Identification of Relevant European Sites

4.1 Assessment of Connectivity

Connectivity is identified via the S-P-R model which identifies the potential impact pathways such as land, air, hydrological pathways etc. which may support direct or indirect connectivity between the proposed works (source) and European sites and their QIs (receptors).

Where it is evident that there is no connectivity between the proposed works and receptors (i.e., European sites and/or habitats and species for which the sites are selected), the receptors are excluded from the AA process. Where connectivity exists between the proposed works and receptors, these receptors are taken forward to the assessment of likely significant effects (Section 5.2).

4.2 Identification of Potential Receptors

Receptors with the potential to be affected by the proposed works are:

- QI habitats of European sites within the proposed study areas, or within an area likely to be affected by the proposed works
- QI species of the European sites within or immediately adjacent to the proposed study areas
- mobile QI species to forage or transit into the proposed study areas or an area likely to be affected by the proposed works (ex situ effects).

Following identification of potential sources of impact, the potential for a pathway to various receptors is considered, followed by the identification of relevant European sites.

4.3 Identification of Potential Sources of Impacts

Identification of a risk of impact does not constitute a prediction that it will occur or, if it does occur, that there is an intrinsic likelihood that it will result in ecological or environmental damage or that it will cause or create a significant effect on the European sites in question. The level and significance of the effect depends upon the magnitude, duration or intensity of the impacts ensuing from the proposal and the existence of a credible or tangible S-P-R link between the proposed works and the European sites. It is also determined by the extent of the exposure to the risk and the characteristics of the receptor.

When assessing impact, the QI habitats and species are only considered receptors where a credible or tangible S-P-R link exists between the proposed works and the receptor. In order for an impact to occur there must be a risk initiated by having a ‘source’ - the origin of potential impacts (e.g., near stream construction works), an impact pathway - the means by which the effect reaches the receptor (air, water, or ground) between the source and the receptor (e.g., a watercourse which connects the development site to the site designated for the protection of a receptor) and a 'receptor' (e.g. a protected species associated aquatic or riparian habitats). If the source, pathway, or receptor is absent, no linkage exists and thus, there will be no potential for an impact to be transmitted.

The potential impacts arising from the proposed works have been identified as follows:

- localised and temporary habitat loss or disturbance

- localised and temporary increase in Suspended Sediment Concentrations (SSC)
- underwater noise, including displacement of Annex II marine mammals, otter (*Lutra lutra*), and fish from underwater noise and/or the presence of increased marine traffic (visual)
- accidental pollution event
- risk of collision.

Table 4.1 identifies the potential impacts associes with the proposed works activities and the receptors with the potential to be affected.

Table 4.1
Source-Pathway assessment for the works

Impact	Potential source of Impact	Description of Effect Pathway	Relevant Receptors
Habitat loss, alteration, and disturbance	Interactions with the seabed associated with bottom-mounted survey equipment.	Potential for direct effects on sensitive habitats and indirect effects to species which rely on those habitats for feeding and/or breeding.	Marine habitats, benthic communities, marine mammals, fish, birds.
Collision with survey vessels	Vessel activity associated with deployment, maintenance, and retrieval of survey equipment.	Potential for direct effects to large species in the marine environment.	Marine mammals and other megafauna.
Underwater noise	Noise emissions and increased marine traffic due to vessels and moored devices (i.e., ACDP). May cause disturbance and/or displacement of Annex II cetaceans, otter, birds and fish.	Potential for direct effects on species in the marine environment including disturbance and/or displacement.	Marine mammals, fish, birds.
Accidental pollution event	Vessel activity associated with deployment, maintenance and retrieval of survey equipment.	Potential for direct effects on marine habitats and species, and indirect effects through contamination of supporting habitats.	Marine habitats, marine mammals, fish, birds
Invasive species	Potential to introduce invasive non-native species into the study areas in association with survey vessels and equipment.	Potential for direct effects on benthic species and indirect effects to species which rely on those benthic species for feeding.	Benthic communities, marine mammals, fish, birds.

4.4 Identification of Relevant European sites

Using the S-P-R model to identify the zone of influence for each impact as outlined in Table 4.1, the following summarises the zone of influence of the project within which relevant European sites will be selected:

- those which occur within or immediately adjacent to the study areas' boundaries
- the water body within which the proposed surveys will be undertaken to capture any hydrological linkages (i.e., the Shannon Estuary)
- foraging ranges of relevant QI species (i.e., potential for ex situ effects).

The proposed licence areas overlap two European sites (Figure 4.1): the Lower River Shannon Special Area of Conservation (SAC) (002165) and the River Shannon and River Fergus Estuaries Special Protection Area (SPA) (004077). Therefore, both sites will be considered in this SISAA. The potential for connectivity with receptors from other European sites is considered in the proceeding sections.

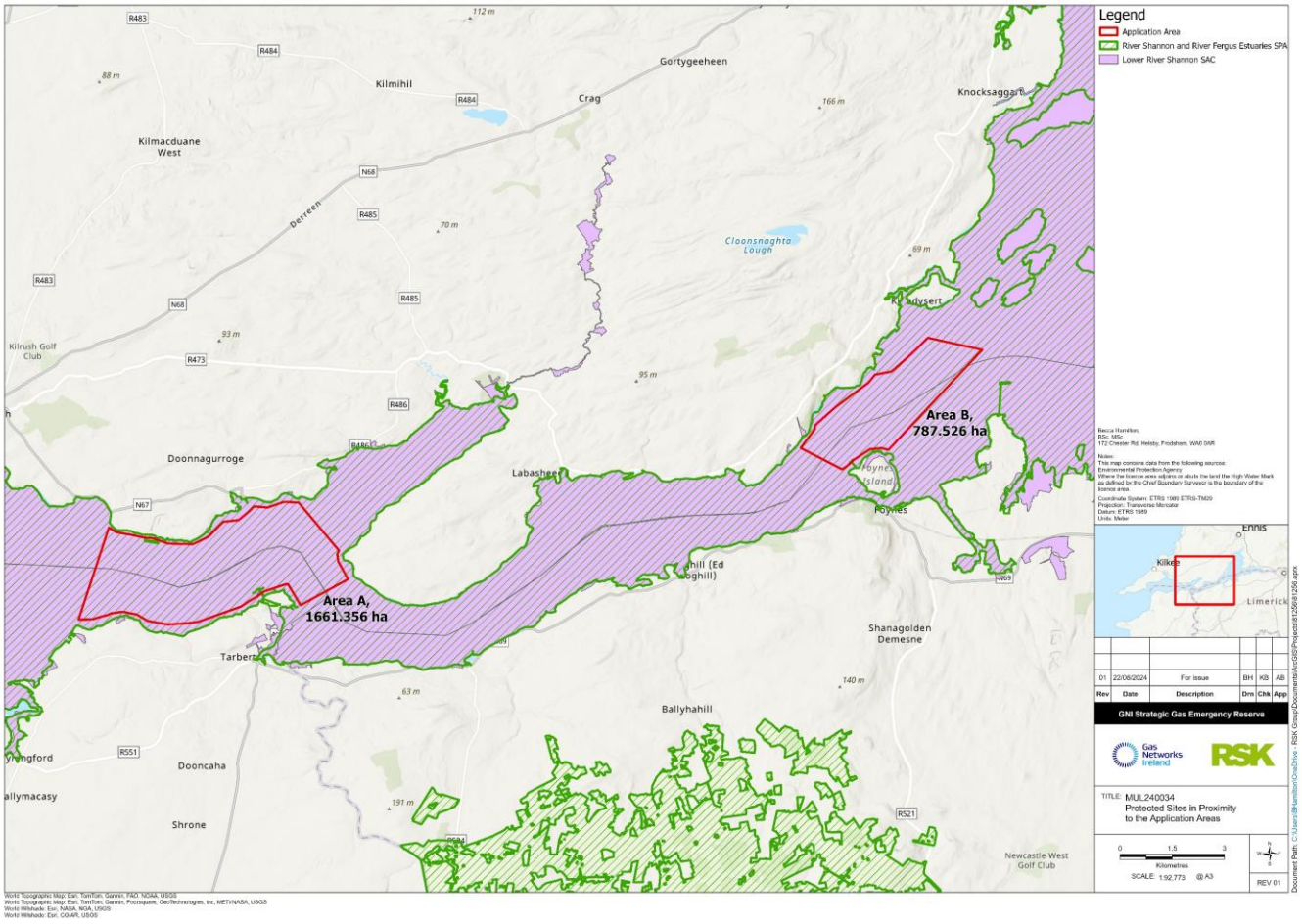

Figure 4.1

Protected areas in proximity to the Shannon study areas

4.4.1 Potential for Connectivity with ex situ Annex II Marine Mammals

Bottlenose dolphin (*Tursiops truncatus*) are a QI of the Lower River Shannon SAC, within which the proposed surveys will occur. Bottlenose dolphins are present throughout the year and are genetically discrete compared to bottlenose dolphins found elsewhere in Irish waters due to geographical and social isolation (Mirimin et al., 2011) and that the estuary is an important calving area (MERC, 2021). The population is estimated at around 145 individuals with only 80 adults (Baker et al., 2018 in MERC, 2021). This small, genetically discrete population is vulnerable to even small increases in adult mortality or a reduction in reproduction rates (Blásquez et al., 2021 in MERC, 2021). An overview of existing data on bottlenose dolphin populations in the Lower Shannon Estuary shows that there is a well-known hotspot for the species in the waters off Moneypoint Power Station (MERC, 2021). Rogan et al. (2000) recorded bottlenose dolphins in the estuary all year round with a peak from May to September and noted the presence of neo-natal calves from July to September as evidence of a well-defined breeding season in the Shannon Estuary. There have been a total of 18 dolphin sightings within the last 12 months along the Shannon Estuary, concentrated in the area of the Shannon Ferry route, within the West Shannon study area. A single dolphin has been sighted within approximately 1 km of the East Shannon study area (IWDG, 2024). Hence, there is potential for them to overlap with survey activities.

Very few sightings of harbour porpoise (*Phocoena phocoena*) have been recorded within the Shannon Estuary with no recorded sightings between November 2022 and November 2023 (IWDG, 2023). There was one sighting adjacent to Moneypoint in 2018 (IWDG), and strandings have been recorded as far up the estuary as Foynes (O'Callaghan et al., 2021). Violent interactions have been recorded between bottlenose dolphins and harbour porpoise (Ross and Wilson., 1996; Gross et al., 2020) and suggested reasons for this aggression include interspecies territoriality, defence of group members, food competition, feeding interference and object-orientated play (Gross et al., 2020). A single sighting of harbour porpoise occurred within the past 12 months, located at the entrance of the Shannon Estuary off Aill Na Brun (IWDG, 2024). From the lack of recorded sightings of harbour porpoise within the Shannon Estuary, it is likely that they largely avoid the area. As a result, spatial overlap with harbour porpoise individuals from other SACs within foraging range is considered highly unlikely, and SACs with harbour porpoise as a QI are not considered relevant for ex situ effects within the Shannon.

Telemetry data indicates that harbour seal (*Phoca vitulina*) foraging trips in the south-west of Ireland extend no further than 20 km from haul-out sites (Cronin et al., 2008). No sightings of harbour seal have been recorded in the Shannon Estuary within the last 12 months (IWDG, 2024). The closest European site designated for harbour seal is the Kenmare River SAC, located approximately 83 km from the proposed study areas. It is therefore highly unlikely that harbour seals from this SAC will be present within the Shannon Estuary and therefore SACs with harbour seal as a QI are not considered relevant for ex situ effects.

Grey seals (*Halichoerus grypus*) have been recorded undertaking foraging trips over hundreds of kilometres, although the mean distance travelled in a telemetry study carried out in 2011 for NPWS was 50.85 km (Cronin et al., 2011). NPWS-funded aerial thermal-imaging of seal in Ireland (Morris and Duck, 2019) shows very low usage of the Shannon Estuary by both harbour seal and grey seal, indicating that

the estuary is not likely to be an important area for hauling out. No sightings of grey seals have been recorded in the Shannon Estuary within the last 12 months (IWDG, 2024). The closest European site designated for grey seal is the Blasket Islands SAC, approximately 112 km distance from the study areas by sea. While it is possible that individuals from the Blasket Islands population may be present in the Shannon Estuary, it is considered unlikely that the proposed study areas represent an important foraging ground and as a result SACs with grey seal as a QI are not considered relevant for ex situ effects.

Four Annex IV turtle species known to occur in Ireland include the leatherback turtle (*Dermochelys coriacea*), Kemp's Ridley turtle (*Lepidochelys kempii*), loggerhead turtle (*Caretta caretta*) and hawksbill turtle (*Eretmochelys imbricata*)[1]. Leatherback turtles have been recorded along the west coast of Ireland and within the Lower Shannon Estuary (at Ballylongford (1970) and at Kilkee (IWDG 2024)); however, no sightings have occurred in the marine study areas within the last 12 months (IWDG, 2024). Kemps Ridley have been recorded along the west coast at Banna Strand in Co. Kerry (approximately 40 km south-west). This is beyond the proposed surveys boundary with no suspected impacts from the proposed surveys; there have additionally been no recorded sightings in the Shannon Estuary within the last 12 months (IWDG, 2024). Loggerheads are also recorded along the west coast of Ireland; one was recorded beyond the Shannon Estuary at Loop Head (approximately 31 km west of the proposed study areas boundary); none have been recorded within the Shannon Estuary within the last 12 months (IWDG, 2024) and therefore no significant impacts are expected. One record of hawks bill has been recorded in the south of Ireland at Cork Harbour as bycatch, no records have been noted along the west coast or in close proximity to the proposed study area. Of the turtle species noted in Ireland Leatherback turtles have the potential to utilise the Lower River Shannon Estuary based on historical records, but as these counts only amount to one or two individuals across many years it is unlikely that they will be present within the study areas during the proposed works.

Basking sharks (*Cetorhinus maximus*) tend to arrive in Irish waters during spring, with numbers peaking in May and June. There have been several sightings of this species in proximity to the Shannon Estuary over the past 12 months, with recordings concentrated to Aill Na Brun and Derrynadivva (IWDG, 2024). Given the lack of sightings within the estuary itself, it is unlikely basking sharks will be present within the study areas during the survey activities.

[1] https://www.npws.ie/legislation accessed 30/05/2024.

4.4.2 Potential for Connectivity with ex situ Annex II Migratory Fish

The Lower Shannon Estuary is used by several of Ireland's native diadromous fish species as they pass through to or from freshwater spawning grounds or use the area for feeding during maturation. These species include twaite shad (*Allosa fallax fallax*), sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*) and Atlantic salmon (*Salmo salar*).

Inland Fisheries Ireland conducted fish stock surveys in the Lower Shannon Estuary in October 2017, recording generally low abundance for most species, with the exception of four species: sprat (*Sprattus sprattus*), common goby (*Pomatoschistus microps*), sand goby (*Pomatoschistus minutus*) and flounder (*Platichthys flesus*) (Coyne et al, 2018). This was consistent with the previous two surveys in 2014 and 2008. Overall, the Shannon Estuary was given a status of "good" for fish populations, an improvement on the previous surveys.

4.4.3 Potential for Connectivity with ex situ Birds

Certain species of seabird can forage considerable distances from their colonies (Woodward et al., 2019), however, given the limited size, scale and duration of the proposed surveys, it is considered unlikely that there is a reasonable impact pathway to SPAs beyond the immediate study areas, as it becomes increasingly unlikely that individuals from distant SPAs will be present. Seabirds are more likely to forage in the open sea where they can access the rich foraging habitat of continental shelf waters (Cummins et al., 2019), as opposed to foraging within estuaries or harbours where availability of fish prey may be more limited.

Wintering waders and wildfowl tend to be sedentary once they arrive in their over-wintering areas; often only moving short distances between roosting and feeding areas. Therefore, it is considered unlikely that wintering birds from other SPAs will travel to/from the Shannon Estuary to feed or roost. As a result, no additional SPAs are considered relevant for ex situ effects.

4.5 Relevant European Sites

Based on the S-P-R model, connectivity has been established between the proposed surveys and the following European sites:

- Lower River Shannon SAC
- River Shannon and River Fergus Estuaries SPA.

These European sites are the only sites considered to be within the Zone of Influence of the proposed works.

Table 4.2 list the QI of these European sites, while Figure 4.1 shows the location of the works relative to these European sites.

Table 4.2
European sites selected for assessment

European Site	Qualifying Interests for which site has been selected[2]	Proximity to study areas
Lower River Shannon SAC (002165)	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons* [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonizing mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Molinia meadows on calcareous, peaty, or clayey-silt-laden soils (*Molinion caeruleae*) [6410] *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] Freshwater pearl mussel (*Margaritifera margaritifera)* [1029] Sea lamprey [1095] Brook lamprey (*Lampetra planeri)* [1096] River lamprey [1099] Atlantic salmon [1106] Common bottlenose dolphin [1349] Otter [1355]	0 km (proposed works take place within and immediately adjacent to the SAC)

European Site	Qualifying Interests for which site has been selected[2]	Proximity to study areas
River Shannon and River Fergus Estuaries SPA (004077)	Cormorant (*Phalacrocorax carbo)* [A017] (breeding and wintering) Whooper swan (*Cygnus cygnus)* [A038] (wintering) Light-bellied Brent goose (*Branta bernicla hrota*) [A046] (wintering) Shelduck (*Tadorna tadorna*) [A048] (wintering) Wigeon (*Anas penelope*) [A050] (wintering) Teal (*Anas crecca*) [A052] (wintering) Pintail (*Anas acuta*) [A054] (wintering) Shoveler (*Anas clypeata*) [A056] (wintering) Scaup (*Aythya marila*) [A062] (wintering) Ringed plover (*Charadrius hiaticula*) [A137] (wintering) Golden plover (*Pluvialis apricaria*) [A140] (wintering) Grey plover (*Pluvialis squatarola*) [A141] (wintering) Lapwing (*Vanellus vanellus*) [A142] (wintering) Knot (*Calidris canutus*) [A143] (wintering) Dunlin (*Calidris alpina*) [A149] (wintering) Black-tailed godwit (*Limosa limosa*) [A156] (wintering) Bar-tailed godwit (*Limosa lapponica*) [A157] (wintering) Curlew (*Numenius arquata*) [A160] (wintering) Redshank (*Tringa totanus*) [A162] (wintering) Greenshank (*Tringa nebularia*) [A164] (wintering) Black-headed gull (*Chroicocephalus ridibundus*) [A179] (wintering) Wetlands [A999]	0 km (proposed works take place within and immediately adjacent to the SPA)

[2] Asterisk indicates a priority habitat under the Habitats Directive.

4.6 Conservation Objectives

The integrity of a European site (referred to in Article 6(3) of the EU Habitats Directive) is determined based on the conservation status of the qualifying interests of these sites.

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status areas designated as SAC and SPA. The government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

Favourable conservation status of a habitat is achieved when:

- its natural range and area it covers, within that range are stable or increasing
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The specific conservation objectives for each European site in Ireland are available on www.npws.ie. These have been accessed for the sites listed in Table 4.2 above on 25/06/2024.

Site specific and detailed conservation objectives documents were available for all sites:

- Lower River Shannon SAC (002165). Published 7 August 2012
- River Shannon and River Fergus Estuaries SPA (004077). Published 17 September 2012.

Management plans were not available for any of these sites.

5 Supporting Information for Screening for Appropriate Assessment

5.1 Management of European Sites

The proposed works are not directly connected with or necessary to the management of any European site(s).

5.2 Assessment of Likely Significant Effects

This section determines whether the impacts identified in Section 4.3 could have significant effects on the qualifying interests (QI) of the European sites identified in Section 4.4 in view of the conservation objectives of the sites. As described in Section 4.3, the potential impacts arising from the proposed works are as follows:

- localised and temporary habitat loss or disturbance
- localised and temporary increased Suspended Sediment Concentrations (SSC)
- underwater noise, including displacement of Annex II marine mammals, otter, and fish from underwater noise and/or the presence of increased marine traffic (visual)
- potential risk of an accidental pollution event
- potential risk of collision.

5.2.1 Habitat Loss or Disturbance

The area of potential impact from the moorings is limited to the area of direct coverage with the unit weights. The potential impacts from this interaction include physical disruption of benthic habitat during deployment and retrieval, and physical disturbance of benthic habitat within the immediate vicinity of the moorings.

The substrate in the study area is dominated by fine sandy habitat with water depths up to 30 m below chart datum. For benthic communities in such habitat, impacts from seabed disturbance are limited to the immediate area of the mooring and recovery from disturbance is typically rapid following removal of temporary moorings.

The Lower River Shannon SAC has one or more Annex I Marine Habitats as qualifying interests that are potentially overlapping with the study area. These protected habitats include reefs, sandbanks, estuaries, and mudflats and sandflats not covered by seawater at low tide (Table 4.2). The moorings will be deployed on subtidal sediment seabed habitats only with the only potential impacts in the immediate vicinity of the anchors, meaning that there will be no potential impacts on Annex I protected habitats. As such, the possibility for significant impacts on Annex I habitats from the proposed works can be excluded from further consideration.

5.2.2 Collision with Survey Vessels

Vessel strikes have been known to cause mortality in marine mammals (Laist et al., 2001) as well as injuries from non-lethal collisions (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It is expected that a maximum of one vessel will be operating at any one time within the study area. Due to the nature of the works, the vessels would be travelling directly to mooring deployment locations and then remaining stationary during deployment, maintenance, and recovery of devices.

The Lower Shannon Estuary is a busy shipping area, and Moneypoint is one of several terminals within the Shannon Estuary that handles up to 1,000 ships carrying 12 million tons of cargo per annum (Clare County Council, 2023).

Dolphins or porpoises in the area are likely to be habituated to marine traffic, and the temporary addition of a single small vessel operating at either low transit speeds or stationary for the proposed works is unlikely to constitute a significant increase in vessel activity given the levels of vessel activity typical for the study area. As such, the possibility for impacts on cetaceans from collisions with survey vessels can be excluded from further consideration.

5.2.3 Underwater Noise

ADCP devices will generate underwater sound of low intensity as part of the data collection process. Typically, these devices produce sound with centre frequencies higher than or equal to 200 kHz (NRW, 2020). This is above the reported hearing ranges of fish, invertebrates, diving birds, and marine mammal groups. The devices do produce some lower frequency sounds that are within the hearing range of high-frequency marine mammal species, such as harbour porpoise. The proposed ADCP device installation will be temporary in nature and will emit a narrow sound beam (typically a few degrees in width) with a typical echo intensity profile of 80 dB (+/- 1.5 dB). Therefore, the potential impact on protected species is considered to be very low. As such, the possibility for impacts on protected species from underwater noise associated with survey equipment can be excluded from further consideration.

5.2.4 Accidental Pollution Event

The proposed works will result in the temporary introduction of one vessel in the study area. Although the increase is slight, this could in theory increase the potential risk of an accidental release of pollutants (e.g., fuels, oils, and lubricants) to the marine environment, which has the potential to result in toxic effects to Annex I benthic habitats and, consequently, on Annex II species that rely on these habitats for food.

This study area lies within a busy shipping area in which a lot of commercial and recreational vessels operate. Given that the survey would amount to, at most, one additional small vessel operating in the area during the survey period, the likelihood of a collision resulting in a pollution event is considered insignificant. The survey vessel will be diesel or petrol, will not use heavy fuel oil, and will operate at a low speed. As vessels are required by law to adhere to regulations governing accidental leakages and

spillages similarly the likelihood of such an occurrence is considered very unlikely. In addition, all substances handled and/or used whilst undertaking the works are required to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given the nature of the works, the limited scale and duration, and the insignificant increase in vessel activity, it is considered highly unlikely that there will be a pollution incident, e.g., accidental spills of small quantities of fuel. As such, the possibility for impacts on protected species from accidental pollution events associated with the proposed works can be excluded from further consideration.

5.2.5 Invasive Species

All vessels have the potential to introduce invasive non-native species. The vessel to be used during the proposed works will be relatively small and already operating within Irish waters, meaning there is no risk of invasive non-native species introduction. All equipment will be cleaned and checked prior to deployment and will only be used for the duration of the project. Therefore, potential impacts from invasive species introduced as a result of the works can be excluded from further consideration.

5.3 In-combination Effects

As part an SISAA, other relevant projects and plans in the region must also be considered for the possibility of the proposed project having significant effects on European sites when combined with existing, ongoing, or foreseeable future plans or projects, even in the case that the project has no anticipated significant effects when assessed in isolation. The in-combination assessment is scoped regarding the site-specific pressures and threats identified for the protected sites identified in Table 4.2.

5.3.1 Plans

The plans that are considered in-combination with the survey works proposed within the Shannon Estuary include:

- Clare County Development Plan (2023-2029)
- Kerry County Development Plan (2022-2028)
- Limerick County Development Plan (2022-2028)
- Draft National Biodiversity Action Plan (2023-2027).

There are no anticipated in-combination effects from plans and therefore in-combination effects are not considered for further assessment.

5.3.2 Projects

Other marine projects, when considered in-combination with the proposed survey activities, could potentially give rise to either direct or indirect impacts. A search of planning authority applications and foreshore applications which could interact with the proposed surveys (within 10 km) was conducted using the planning authority websites (i.e., My Plan.ie, EIA planning portal which include applications from Clare Co. Co. planning website, Kerry Co. Co. planning website, An Bord Pleanála (ABP) website and Department of Housing and Local Government and Heritage (DHPLG) website). Several projects were

identified as having the potential for overlap with the proposed works (Table 5.1).

Table 5.1
Applications within 10 km of the proposed study areas, their current application status, and possible cumulative effects

Application	Project	Status	Cumulative Effects
LIC230008	ESB Moneypoint surveys	Determined	Presence of an additional vessel in the area is not deemed significant.
LIC230014	Shannon Foynes Port Company	Consultation closed	Presence of an additional vessel in the area is not deemed significant.
LIC230004	Aughinish Alumina Ltd	Applied	Presence of an additional vessel in the area is not deemed significant.
MAC20230032	Net Zero Energy Project 4 Limited	Applied	Presence of an additional vessel in the area is not deemed significant.

Considering the level of activity in the vicinity, the temporary introduction of one additional vessel as proposed as part of the proposed survey activities for one day every three to four months is not considered likely to result in a significant impact. The project will also not contribute to any cumulative effects on the conservation objectives of any protected sites in conjunction with the other projects listed above. Therefore, further assessment of in-combination effects is not considered necessary.

6 Summary and Conclusions

A summary of the findings of the preceding section is presented in Table 6.1.

Table 6.1
Summary of SISAA

Impact	Further assessment required per site (Y/N)	
	Lower Shannon SAC (002165)	River Shannon and River Fergus Estuaries SPA (004077)
Habitat loss, alteration, and disturbance	N	N
Collision with survey vessels	N	n/a
Underwater noise	N	N
Accidental pollution event	N	N
Invasive species	N	N
In-combination effects	N	N

6.1 Conclusions

This report has been prepared to provide a sufficient level of information for MARA to complete a Screening for AA of the potential for likely significant effects on European sites, in view of their conservation objectives, arising from the proposed survey works either individually or in combination with other plans or projects. The potential impacts have been considered in the context of the European sites potentially affected, their QIs and their conservation objectives, through the application of the S-P-R model, which considered the potential extent of effects from the survey works and the potential in-combination effects with other plans or projects. The overall findings are as follows:

- The survey works are not connected with or necessary to the management of the nature conservation interest of any European site.
- The likelihood of significant effects on the conservation goals of the identified European sites from the survey works can be safely excluded.
- The likelihood of significant effects on the conservation goals of the identified European sites from the survey works in combination with other plans and projects for the area can be safely excluded.
- The temporary and small-scale nature of the proposed survey works will not give rise to any likely significant effect on any qualifying interests of any protected site, either alone or in combination with other plans or projects.

It is considered, therefore, that there is no need to advance the Appropriate Assessment process further.

7 References

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8 Appendix 1

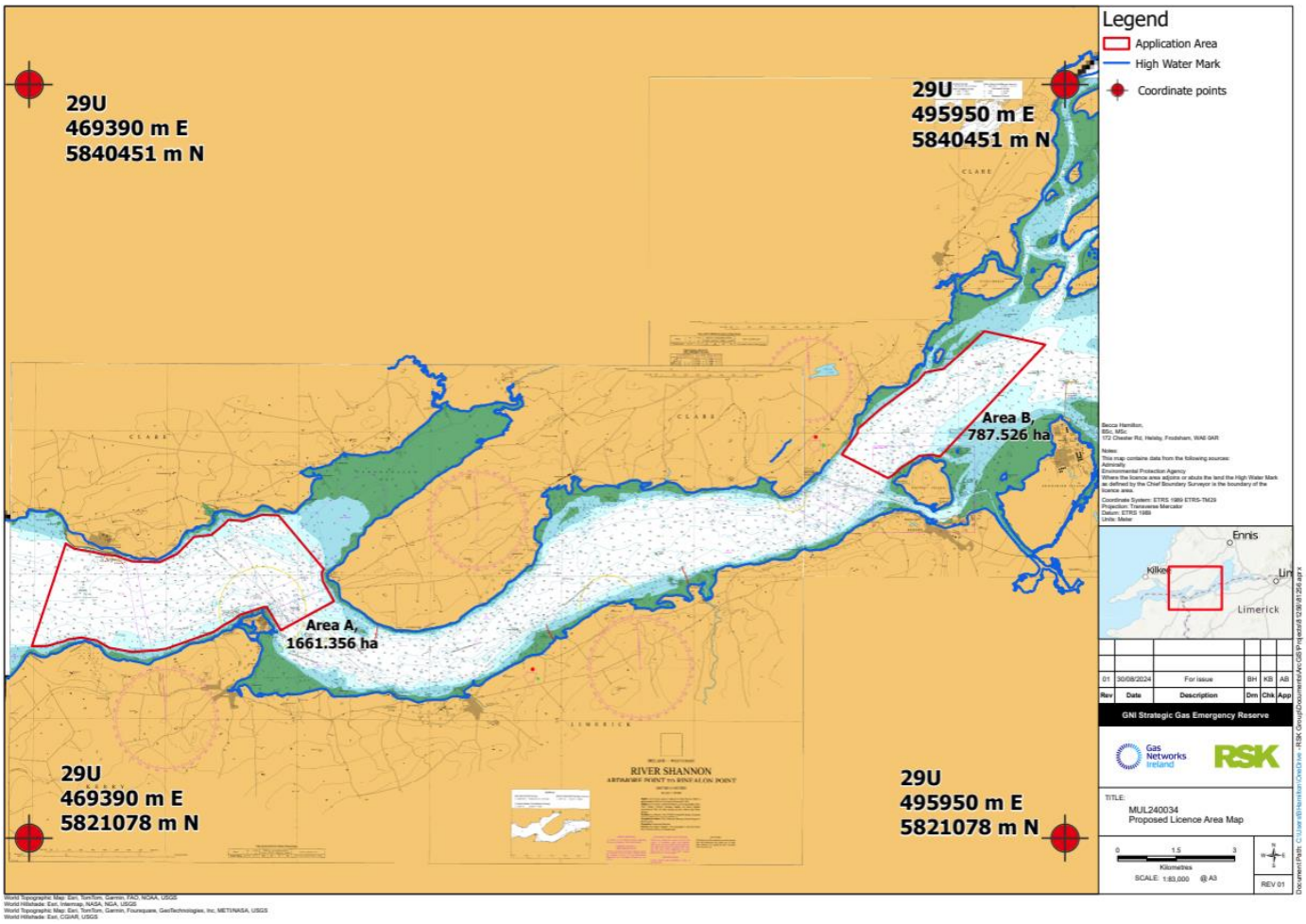

Figure A1.1
Shannon MUL licence area

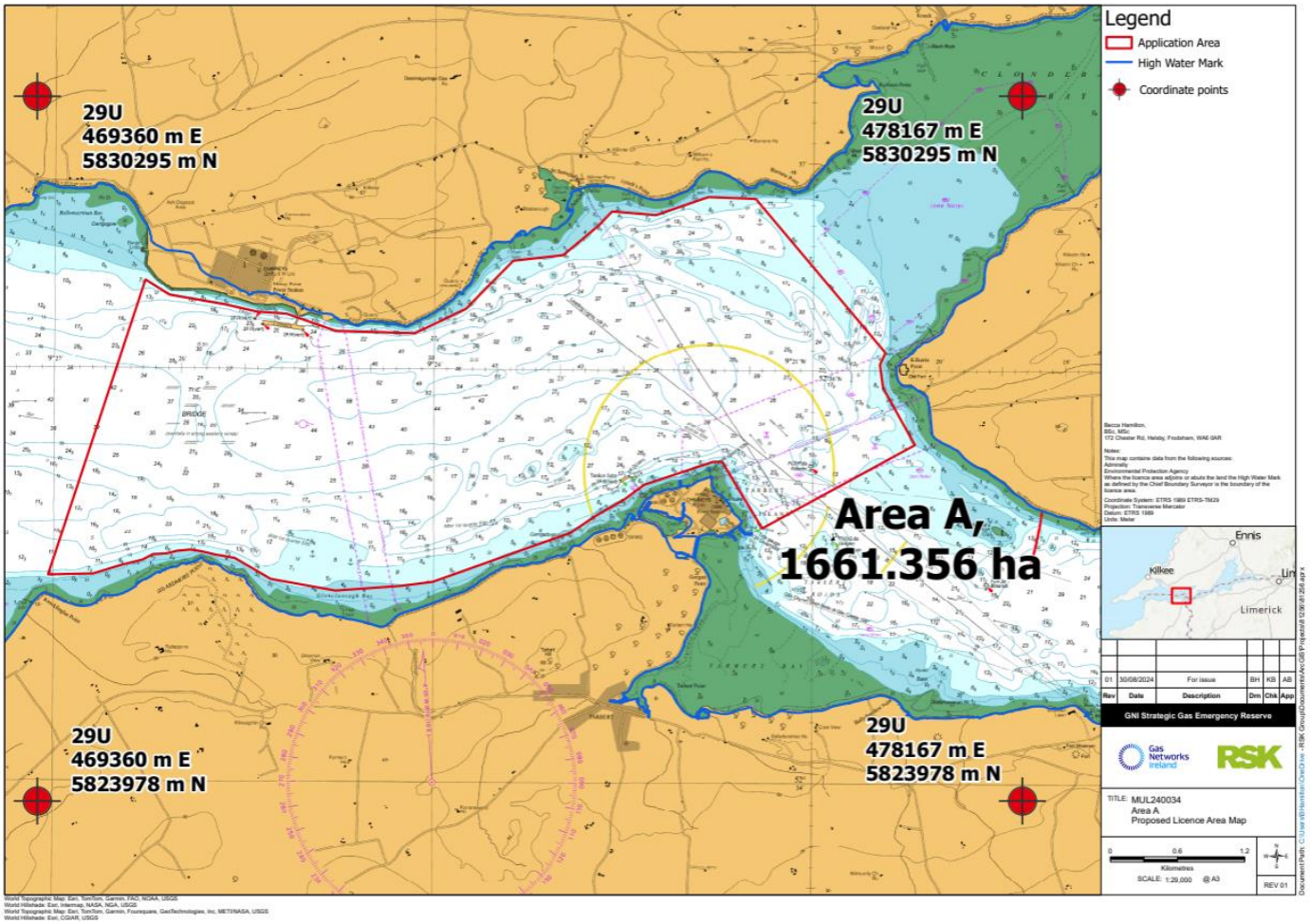

Figure A1.2

West Shannon MUL licence area (Area A)

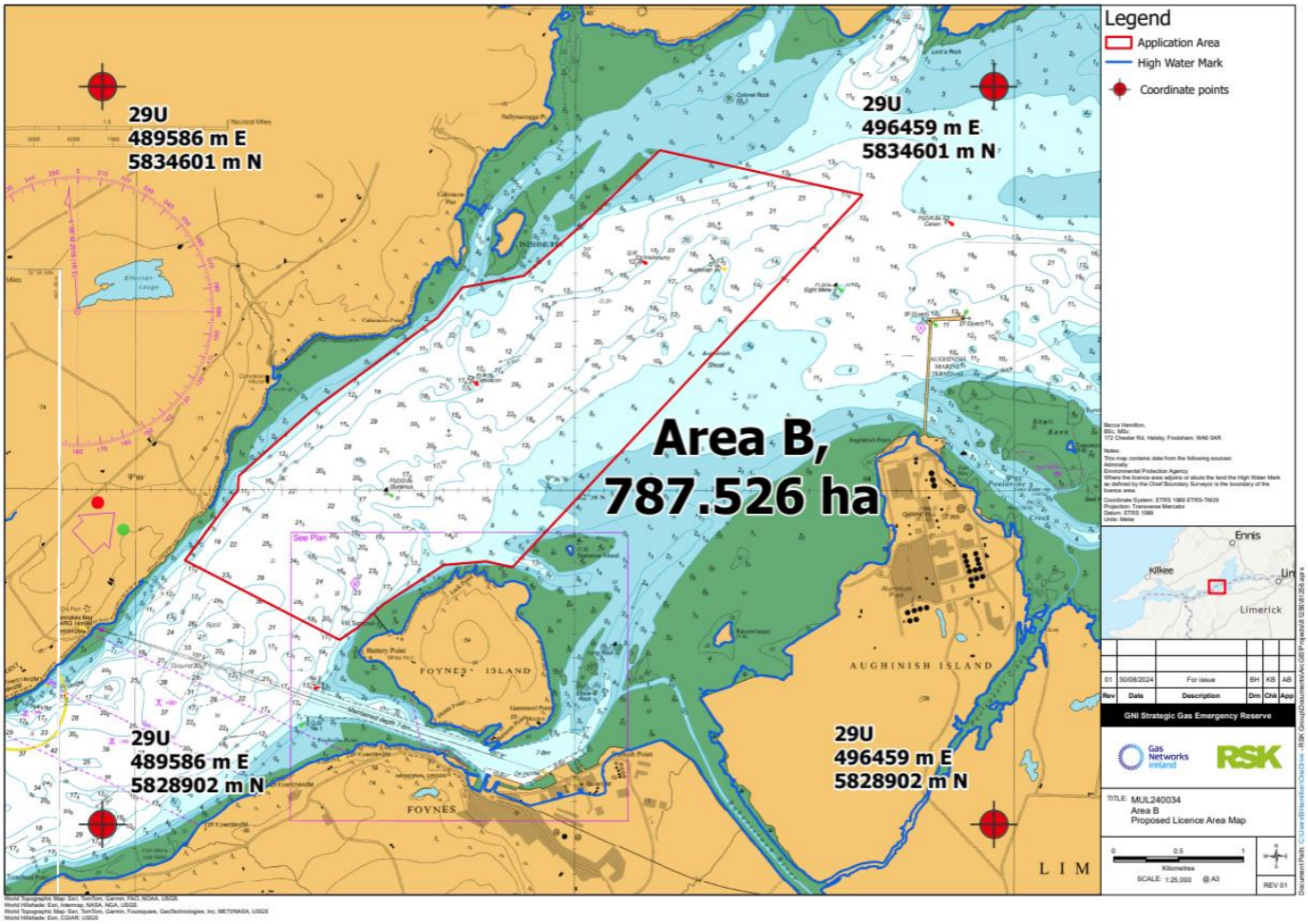

Figure A1.3

East Shannon MUL licence area (Area B)

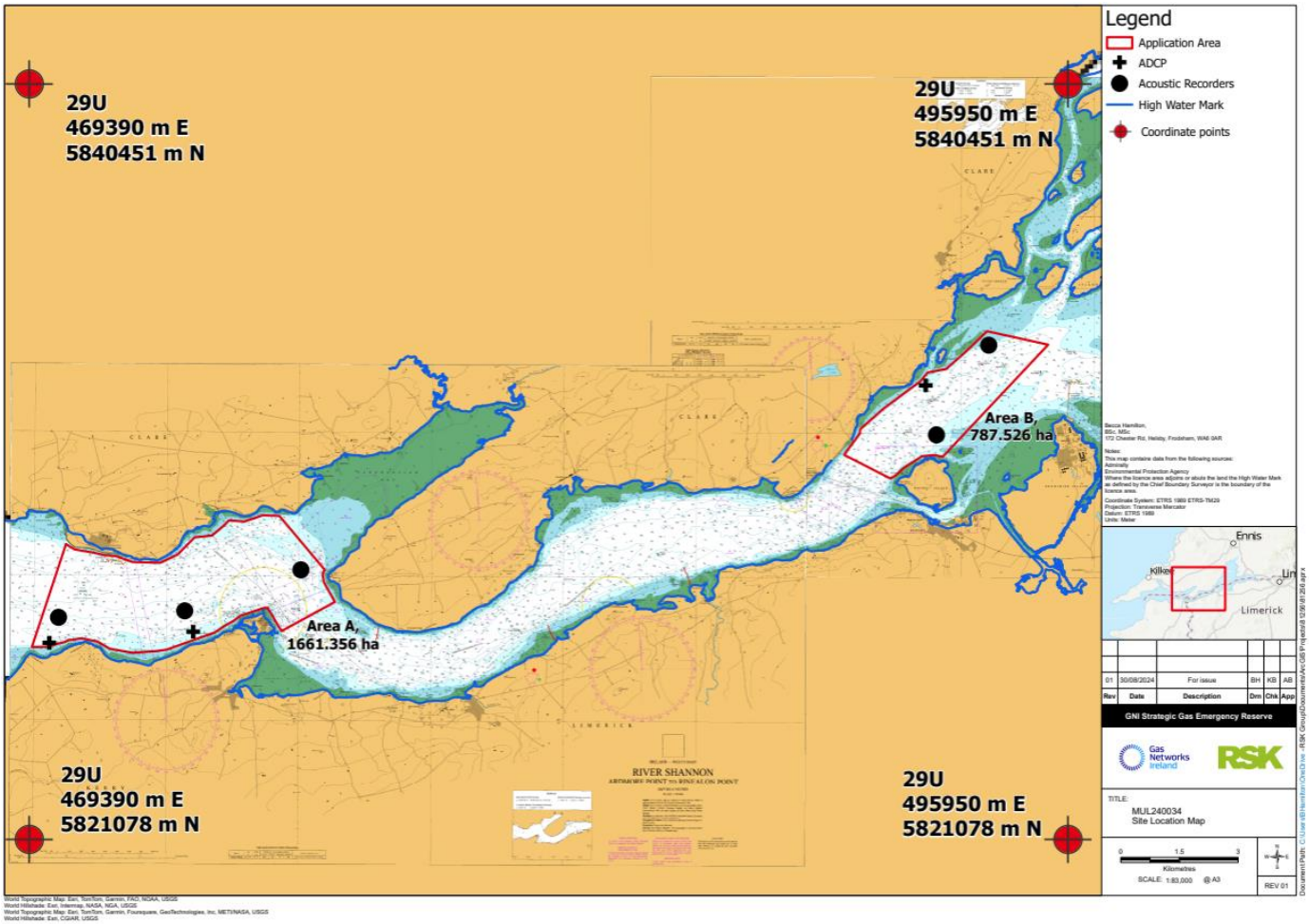

Figure A1.4
Shannon study areas

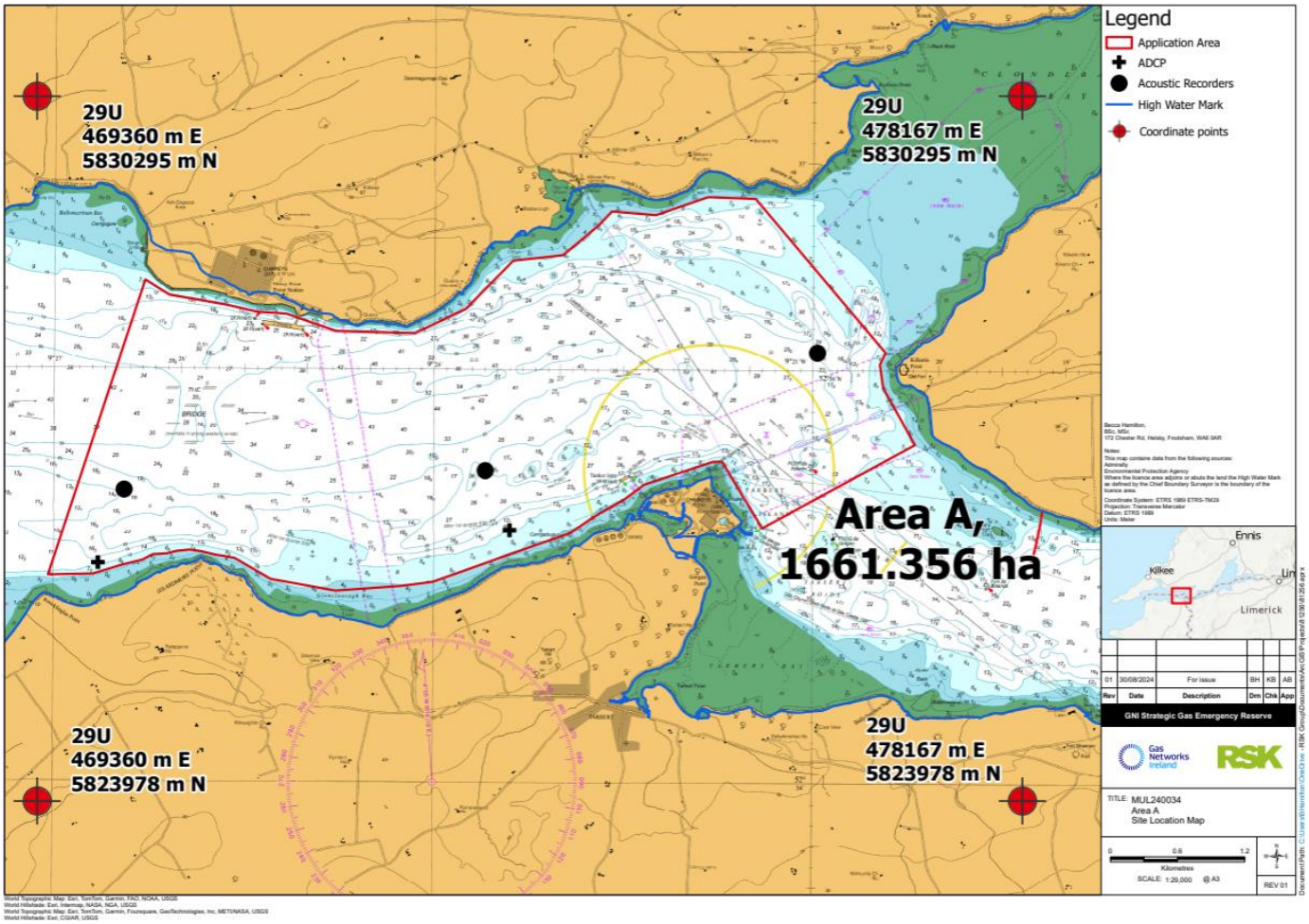

Figure A1.5

West Shannon Study Area (Area A) with indicative device locations

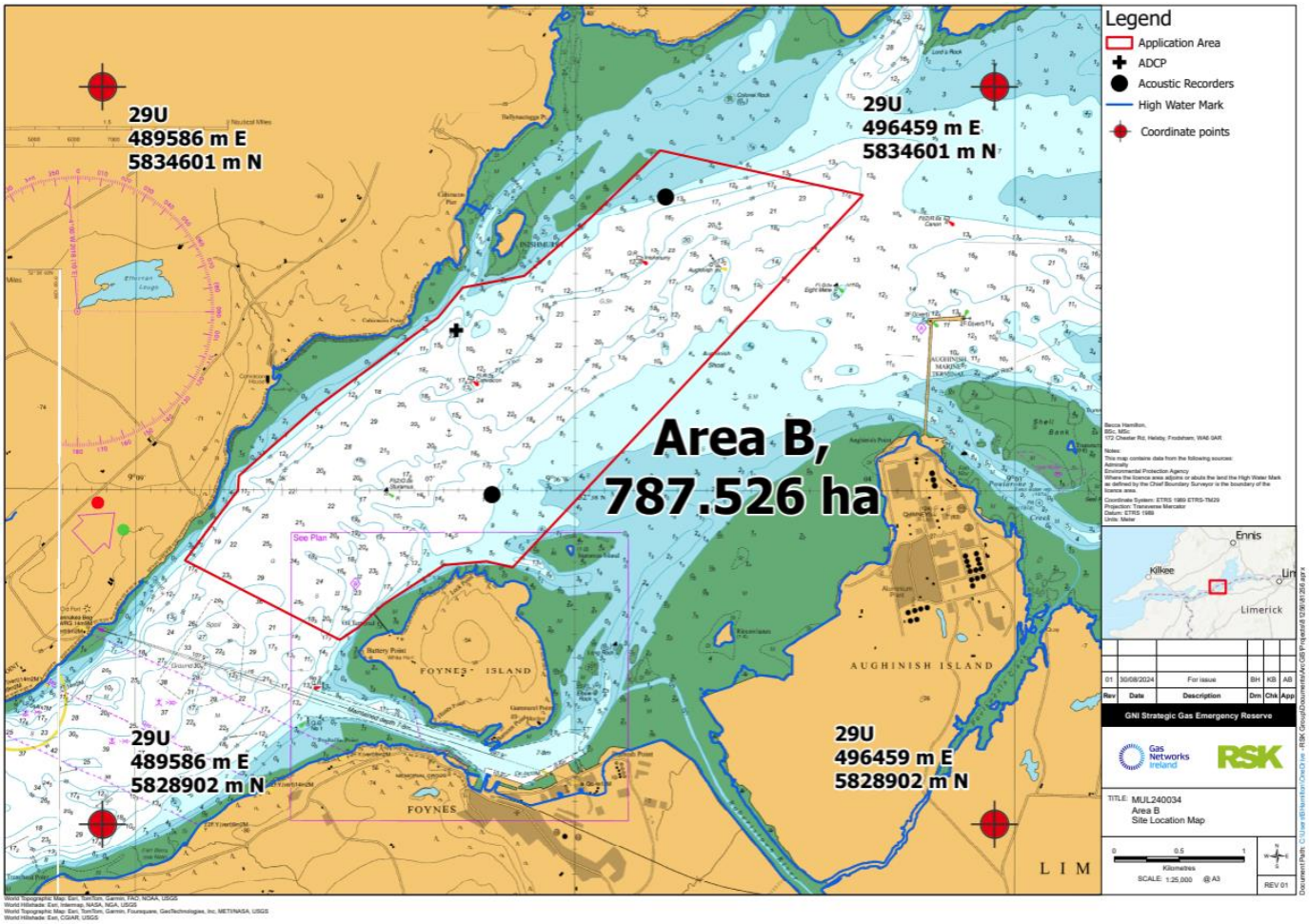

Figure A1.6

East Shannon Study Area (Area B) with indicative device locations