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STATUTORY ENVIRONMENTAL ASSESSMENT APPROPRIATE ASSESSMENT SCREENING AND NIS REVIEW FOR VERMILLION INSPECTION/MAINTENANCE OF PIPELINE AND SUBSEA STRUCTURES 2021

STATUTORY ENVIRONMENTAL ASSESSMENT VERMILLION INSPECTION/MAINTENANCE OF PIPELINE AND SUBSEA STRUCTURES 2021

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EXECUTIVE SUMMARY

Ramboll UK Limited (herein referred to as Ramboll) was commissioned by the Department of the Environment, Climate and Communications (herein referred to as DECC) to provide assistance with regards to the statutory assessment of an application by Vermillion Exploration & Production Ireland Ltd (referred to herein as the applicant), submitted in respect of an offshore pipeline and subsea structure inspection, to include repair and maintenance work as necessary, and a nearshore pipeline inspection.

The application relates to proposals for an inspection of the facilities within the Corrib Petroleum Lease, namely the Corrib offshore pipeline and subsea structures. The application includes for associated repair and maintenance work as necessary in the Corrib Gas Field. The proposed survey programme will include geophysical and visual inspection of the bulk of the subsea marine infrastructure between the Corrib Field and the landfall at Glengad. The proposed work scope comprises two main components:

- Offshore pipeline and subsea structure inspection and associated repair/maintenance work from the construction/ROV vessel *Edda Sun*. This vessel will be responsible for the survey and maintenance works covering the area of the Corrib offshore field assets as well as seabed infrastructure as far inshore as Broadhaven Bay. Some limited maintenance works will be undertaken where necessary to ensure pipeline integrity and stability on the seabed. This may include localised areas of seabed sediment dredging (using a mini-dredge tool) as well as the placement of rock filter bags onto the pipeline; and
- Nearshore pipeline inspection using the survey vessel *Leah-C*. This vessel is responsible for the survey covering the area primarily within Broadhaven Bay as far as the inshore limit of safe navigation.

The competent authority (DECC) is required to consider the potential effects of such activities on the integrity of Natura 2000 sites, with respect to Article 6(3) of Council Directive 92/43/EEC which is transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011-15 as amended (the Birds and Natural Habitats Regulations).

An Appropriate Assessment Screening Determination was made by the Environment Advisory Unit of DECC on 3rd February 2021, which concluded that an Appropriate Assessment would be required in respect of the activities the subject of the application.

This report provides a review of the Appropriate Assessment Screening, the Natura Impact Statement (NIS) and a review of information supplied by the applicant in regard to the assessment of impacts on Annex IV species contained within the EIA Screening and Environmental Risk Assessment for Annex IV species. Both the NIS and the EIA Screening and Environmental Risk Assessment for Annex IV species were prepared by RSK on behalf of the applicant and submitted with their application.

Public consultation on the application has been undertaken by DECC, including for the purposes of Appropriate Assessment. No submissions were received from the public.

Ramboll confirms that the information provided by the applicant is considered to be adequate, up to date and that no other information is required to carry out an Appropriate Assessment. The applicant has provided adequate, up-to-date, best scientific information so as to enable the DECC to undertake an Appropriate Assessment to determine whether the integrity of a European site is likely to be adversely affected by the proposed project.

This report concludes that the proposed project, either alone or in combination with any other plan or project, will not have an adverse effect on the environment or on the integrity of any European site in view of its conservation objectives and will not cause any significant disturbance

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to the Annex IV species described, subject to the mitigation described in Section 5 of this report being implemented in full.

1. INTRODUCTION

Ramboll UK Limited (herein referred to as Ramboll) was commissioned by the Department of the Environment, Climate and Communications (herein referred to as DECC) to provide assistance as competent experts for the statutory assessment of an application by Vermillion Exploration & Production Ireland Ltd (herein referred to as the applicant), submitted in respect of an offshore pipeline and subsea structure inspection, to include repair and maintenance work as necessary, and a nearshore pipeline inspection. The authors hold undergraduate and postgraduate qualifications in environmental science (or related disciplines), professional qualifications including chartered status with the Society for the Environment and full membership of the Institute of Environmental Management and Assessment (IEMA) and have long standing experience as expert practitioners within the fields of offshore development, environmental impact assessment and the appraisal of applications in the context of the Birds and Natural Habitat regulations.

1.1 Documents Reviewed

The following documents have been reviewed to inform this report:

- Application to conduct an offshore survey form. Completed by Vermillion Exploration & Production Ireland Ltd.
- Corrib subsea infrastructure inspection, and maintenance surveys. EIA screening and environmental risk assessment for Annex IV species. Report prepared by RSK on behalf of Vermillion Exploration & Production Ireland Ltd. Project Number 660841. Dated 13 November 2020.
- Corrib subsea infrastructure inspection, and maintenance surveys. EIA screening and environmental risk assessment for Annex IV species. Updated Report including requested additional information prepared by RSK on behalf of Vermillion Exploration & Production Ireland Ltd. Project Number 660841. Dated 12 January 2021.
- Corrib subsea infrastructure inspection and maintenance surveys - 2021. Natura Impact Statement. Report prepared by RSK on behalf of Vermillion Exploration & Production Ireland Ltd. Project Number 660841. Dated 13 November 2020.
- Corrib subsea infrastructure inspection and maintenance surveys – 2021. Natura Impact Statement. Updated Report including requested additional information prepared by RSK on behalf of Vermillion Exploration & Production Ireland Ltd. Project Number 660841. Dated 02 March 2021.
- Corrib Field Subsea inspection & maintenance works 2021. Method Statement. Revision 01.
- Notification of Application to Conduct Corrib Gas Field Offshore Works 2021. Submitted by Vermillion Exploration & Production Ireland Ltd.

This report provides a review of the Appropriate Assessment Screening Report, an assessment of the NIS Report and the EIA Screening and Environmental Risk Assessment for Annex IV species report submitted by the applicant, prepared and approved by Ramboll as competent experts having relevant qualifications and experience.

1.2 Project Background

The competent authority (DECC) is required to consider the potential effects of such activities on the integrity of Natura 2000 sites, with respect to Article 6(3) of Council Directive 92/43/EEC which is transposed in to Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011-15 as amended (the Birds and Natural Habitats Regulations). Additionally, as required by Article 12 of the Habitats Directive, the potential impact on the favourable conservation status of species listed in Annex IV of the Directive must also be assessed.

2. TERMS OF REFERENCE

2.1 Legislative context

This report has been prepared having regard to EC Directive 2009/147/EC¹ on the conservation of wild birds (commonly referred to as the Birds Directive) and EC Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (commonly referred to as the Habitats Directives), the European Communities (Birds and Natural Habitats) Regulations 2011-15 (the Birds and Natural Habitats Regulations) as amended and relevant jurisprudence of the EU and Irish courts.

The NIS submitted by the applicant confirms that the Project has been screened having regard to the Birds and Habitats Directives and the Birds and Natural Habitats regulations and relevant jurisprudence of the EU and Irish courts.

2.2 Relevant guidance

This report has been prepared having regard to guidance on appropriate assessment for planning authorities, published by the Department for Environment, Heritage and Local Government (DEHLG) in 2009². In addition, the structure and content of this report is based upon the methodology published by the European Communities in 2002³ and Commission notice C (2018)⁴.

2.3 Consultation

2.3.1 Notified Bodies

Notification of the application was issued to the following organisations:

- National Parks and Wildlife Service;
- Irish Maritime Administration, Department of Transport;
- Ship Source Pollution Prevention Unit, Irish Maritime Administration, Department of Transport;
- Irish Coast Guard (& National Maritime Operations Centre), Department of Transport,
- Sea Fisheries Protection Authority;
- Sea Fisheries Policy Division, Department of Transport;
- Department of Defence;
- Mission Support Facility, Irish Air Corps;
- Naval Headquarters;
- Marine Institute; and
- Commissioners of Irish Lights.

Two responses were received as follows:

- Response from the Maritime Safety Policy Division of the Department of Transport dated 18 November 2020; and
- Response from the Aviation & Maritime Unit, Executive Branch of the Department of Defence dated 23 November 2020.

¹ Amending Directive 70/409/EEC

² DEHLG (2009) Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities, Revision Notes added 2010, URL: <https://www.npws.ie/protected-sites/guidance-appropriate-assessment-planning-authorities> (accessed 15/03/2019)

³ European Communities (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/EE, URL: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm (accessed 15/03/2019)

⁴ C (2018)4 7621 final "Managing Natura 2000 sites The provisions of Article 6 of the Habitats Directive 92/43/EEC. URL: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/Provisions_Art_.nov_2018_endocx.pdf (accessed 17/05/2019)

The following observations were made:

- (Department of Transport) Prospective licensees and their employees and contractors are reminded that they should be aware of ship-source pollution prevention provisions which are in place to protect human health and the marine environment and apply to all shipping activity. These provisions are obligatory independently of particular licence terms and conditions. Under the MARPOL Convention and EU law as applicable in national law, ships may not cause pollution either by discharge to water or emissions to air, when at sea or when at berth in port. Ships include Floating Production and Offloading vessels (FPSOs) also called a "unit" or a "system", and Floating Storage Units (FSUs). Ships berthed at terminals at sea are also obliged to conform to the law.
- (Department of Transport) Management of ship waste (mainly oil, hazardous and polluting substances, sewage, garbage and polluting emissions to air) and of all cargo residues must be ensured as required under international (IMO), EU and national law. Under existing provisions ships are obliged to discharge waste and cargo residues at port and ports are obliged to provide adequate facilities for their reception from ships.
- (Department of Defence) Once it has been confirmed, could you pass on the commencement and end date of the survey in addition to the name of the vessel carrying out the survey.

On 3 February, 2021, a determination was made by the Environment Advisory Unit (EAU) in the DECC, following screening under Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) as amended, that a Stage 2 Appropriate Assessment was required in respect of this application, as it could not be excluded on the basis of objective scientific information that the proposed survey, inspection and maintenance programme, either individually or in combination with other plans or projects, would have a significant effect on a European site. Additional information required for the purposes of carrying out a Stage 2 Appropriate Assessment was also sought from the applicant by the EAU. When received, the additional information was published on the DECC website and a public consultation was carried out in respect of the application for the purpose of carrying out a Stage 2 Appropriate Assessment. The above referenced notified bodies were also informed and invited to make observations. No additional responses were received from notified bodies.

Appropriate regard has been given to the issues raised in the submissions received from notified bodies, including whether appropriate mitigation measures have been suggested that address the observations made or whether additional mitigation would be required to address those observations. The mitigation proposed is set out in Section 5 of this report.

2.3.2 Public Consultation

Following receipt of the application from the applicant, it was advertised by the DECC on their website on 20 November 2020. Invitations for submissions were advertised by DECC to be received by close of business on 20 December 2020 to ensure consideration by the Minister. No responses were received from the public in response to this consultation.

As described above, when making a determination on the Appropriate Assessment Screening on 3 February 2021, the EAU requested additional information required for the purposes of carrying out a Stage 2 Appropriate Assessment from the applicant. Following receipt of additional information requested from the applicant, the information was published on the DECC website on 08 March 2021 and a public consultation was carried out in respect of the application to 29 March 2021, for the purposes of carrying out a Stage 2 Appropriate Assessment. No responses were received from the public in response to this consultation.

3. REVIEW OF APPLICANT AA SCREENING REPORT

Table 3.1 provides a summary of the key project information.

Table 3.1: Project Information

Project Title:	2021 Offshore pipeline and subsea structure inspection and associated repair / maintenance using geophysical and visual survey techniques
Project Type:	Geophysical Survey / Repair / Maintenance
Applicant:	Vermillion Exploration & Production Ireland Ltd
Exploration Licence Reference:	Corrib Petroleum Lease
Date AA Screening Report Received:	18 November 2020

3.1 Determining whether a Project should be subject to an Appropriate Assessment

Under Paragraph 42(6) of the Habitats Regulations, the DECC (as the relevant competent authority) shall determine that an AA is required, where it cannot be excluded, on the basis of objective scientific information following screening, that the project, either individually or in combination with other plans and projects, would have a significant effect on a European Site.

Where it is determined that AA is required for the project, the applicant must submit a Natura Impact Statement (NIS).

3.2 Description of the Project

The AA screening process involves describing the individual elements of the project that are likely to give rise to impacts on the conservation objectives and/or qualifying features of a Natura site.

Table 3.2 provides a review of the applicant's description of the project.

Table 3.2: Description of Project AA Checklist

<p>Brief Project Description:</p> <p>The proposed work scope will comprise two main components:</p> <ul style="list-style-type: none"> Offshore pipeline and subsea structure inspection and associated repair / maintenance work from the construction / ROV vessel <i>Edda Sun</i>. This vessel will be responsible for the survey and maintenance works covering the area of the Corrib offshore field assets as well as seabed infrastructure as far inshore as Broadhaven Bay. Some limited maintenance works will be undertaken where necessary to ensure pipeline integrity and stability on the seabed. This may include localised areas of seabed sediment dredging (using a mini dredge tool) as well as the placement of rock filter bags onto the pipeline. Nearshore pipeline inspection using the survey vessel <i>Leah-C</i>. This vessel will be responsible for the survey covering the area primarily within Broadhaven Bay as far as the inshore limit of safe navigation. <p>The surveys of the pipeline, sections of umbilical, the BBGT treated surface water outfall pipeline and in-field subsea assets will investigate features such as free-spanning and scouring, and pipeline burial depth and integrity. The survey will be carried out using two vessels; the <i>Edda Sun</i> will survey the offshore sections, while the <i>Leah-C</i> will survey inshore in the vicinity of Broadhaven Bay. The survey will run between the Corrib Field along the overall extent of the route of the offshore pipeline and BBGT treated surface water discharge pipeline and the landfall at Glengad. In addition, sections of the offshore umbilical will also be inspected.</p> <p>The survey will utilise a range of acoustic survey techniques, namely multibeam echo sounder (MBES), sub-bottom profiler (SBP), and side-scan sonar (SSS). In addition, a visual survey using vessel deployed underwater video/stills imagery (inshore) and ROV (offshore) will also be undertaken. A range of other sensors may also be used as part of the survey including: Sound Velocity Probes (SVPs) (used to calibrate acoustic survey equipment; pipe tracker, imaging sonar and Obstacle</p>
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Avoidance Sonar; as well as navigation / positioning sensors including a subsea Ultra Short Baseline (USBL) beacon system, an altimeter, Inertial Navigation System (INS), Doppler Velocity Log (DVL), pathfinder laser profiler, Tracerco Discovery tool or ARTIMIS Halfwave tool and a STS 8" E Piranha Dredger. Details on the proposed equipment is provided below:

- MBES equipment will be hull mounted on the *Leah-C* for the inshore survey in the confined waters of Broadhaven Bay, while it is likely to be mounted to the ROV of the *Edda Sun* for the offshore survey. The preferred option for the MBES system onboard the *Leah-C* will operate between 350 kHz and 400 kHz. Alternative systems operate between 190 kHz to 420 kHz, with these typically operating between 350 kHz and 400 kHz. The bathymetric system onboard the ROV will operate at a frequency of 500 kHz.
- The SBP will only be used on the inshore component of the survey, deployed from the *Leah-C*. The preferred and alternative options of the SBP's operating frequency is between 3 kHz and 8 kHz.
- The SSS will only be used on the inshore component of the survey, deployed from the *Leah-C*. The preferred option of the SSS's operating frequency is between 300 kHz and 600 kHz. The alternatives will operate between 400 kHz and 900 kHz. The obstacle avoidance sonar operating on the ROV of the *Edda Sun* will have a frequency of 675 kHz.
- A SVP will be deployed occasionally throughout the surveys to provide salinity, conductivity, temperature and sound velocity depth information. These probes operate at an extremely high frequency of around 2.5 MHz at a very low level of intensity. This allows periodic calibration of the primary acoustic survey sensors. The SVP will operate at a frequency of 2.5 MHz.
- Both vessels are likely to have single beam depth echosounders (operating at around 50 kHz) and ultra-short baseline acoustic profiling systems (USBL) for maintaining position and communications with any deployed equipment. The USBL system on the ROV of the *Edda Sun* will operate at a frequency at between 19 kHz to 34 kHz.
- The offshore vessel will also utilise a doppler velocity log (DVL) for accurate positioning and speed determination. This operates at an extremely high frequency of 1,200 kHz at a very low level of intensity.
- The ROV deployed from *Edda Sun* will be integrated with a laser and imaging system with stills and video camera for pipeline integrity and seabed inspection work.
- The Tracerco Discovery tool or ARTIMIS Halfwave tool will be used for checking pipeline wall thickness and integrity deployed from the ROV of the *Edda Sun*.
- The STS 8" E Piranha Dredger will be mounted to a standard STS dredge deployment frame and will be used where pipeline spans have been identified using the equipment described above. The mini dredger will undertake limited reprofiling of the seabed in those areas required to ensure full pipeline stability. The mini dredge tool will be deployed from the ROV of the *Edda Sun*. In addition to some limited dredging of the seabed sediments in the pipeline span locations, it may also be necessary to place rock filter units onto the pipeline as well to provide additional stability and scour protection. These placements will be limited in number and will use appropriately sourced rock.

A soft-start procedure for acoustic surveys will be implemented as per the NPWS "Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters" (2014) for both the inshore and offshore surveys.

The *Edda Sun* will also undertake limited maintenance activities where required along the route of the pipeline route in the offshore survey area. These works will involve the placement of rock filler units as well as some dredging of seabed sediments using a mini dredge tool deployed from the survey vessels ROV. These works are to ensure pipeline integrity and stability on the seabed by correcting areas of free-spanning.

The determination of "offshore" and "inshore" areas for the purpose of this report has assumed a boundary at a water depth of approximately 20 m below Chart Datum, however, the location of this boundary may be refined closer to the time of survey. The *Edda Sun* would therefore be responsible for the survey of the subsea infrastructure between the Corrib Field to Broadhaven Bay, while *Leah-C* would limit its survey operations to within the Bay itself in depths of 20 m or less and would cover the section of the routes close to the landfall.

It is anticipated that the overall programme will be approximately 20 days in duration (dependent on weather conditions) with operations taking place for both vessels from the summer to autumn months of 2021 (between May and September). It is likely that the offshore and inshore elements will overlap

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during this time period. During data acquisition, the vessels will follow a pre-determined survey programme that may be subject to change depending on the prevailing current and wind conditions.	
Project Element	Have these features of the project been identified by the applicant? (If not, please provide details)
Spatial Extent (size, scale, area etc)	Yes – the applicant proposes to conduct a geophysical survey (MBES, sub-bottom profiler, SSS) along the pipeline running from Corrib Field (65 km offshore) to the limit of navigational safety in Broadhaven Bay.
Supporting Infrastructure	Not applicable – no supporting infrastructure is directly required for this project. The Corrib infrastructure is already in place.
Transportation Requirements	Yes – two survey vessels will be used, the <i>Edda Sun</i> in water depths >20 m and outside Broadhaven Bay, and the <i>Leah-C</i> in water depths up to 20 m in Broadhaven Bay.
Physical changes that will result from the project (e.g. from excavation, dredging)	Yes – physical changes are expected to be of limited spatial extent and only in locations where seabed requires using a mini-dredging tool during / after reprofiling to reduce free-spanning of the pipeline or where rock filter units are placed to prevent future scouring. Physical changes in terms of underwater noise emissions have been characterised.
Emissions and Waste	Yes – the main output from the surveying equipment and vessels is underwater noise emissions, which have been detailed for the preferred and alternative equipment; no waste is expected to be released into the marine environment and will be appropriately disposed of onshore; leakages / spillages are highly unlikely to occur.
Resource Requirements (e.g. water abstraction)	Yes – the resource requirements are standard for survey vessel operations and are considered to be minimal.
Duration of each phase e.g. <ul style="list-style-type: none"> Phase 1 Construction Phase 2 Operation Phase 3 Decommissioning 	Yes – the works will take place over a 20-day period (dependent on weather conditions) between May and September 2021.

The AA screening must consider the effects of the project in combination with other plans and other projects in making the screening assessment.

Table 3.3 provides a review of the in-combination assessment undertaken by the applicant.

Table 3.3: In-combination Assessment

Brief Description of identified plans / projects that might act in-combination (Operational, Consented and Proposed projects) with the proposed project:
<p>The applicant's AA screening report considers the following projects that might act in-combination with the proposed project:</p> <ul style="list-style-type: none"> Corrib Field P6 Flexible Flowline Installation 2021 (Vermillion) between the P6 wellhead and the Corrib central manifold within the offshore Corrib field. Involves a single vessel and utilises MBES, sound velocity probe, navigation / positioning sensors including subsea USBL, obstacle avoidance sonar, altimeter and doppler velocity log. The work will take place for approximately 6 days from May to September 2021; Corrib Field central manifold / P1 wellsite Channel B EDU and electrical jumper repair programme. Taking place over approximately 5 days from April to September 2021. Proposed

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<p>to take place immediately prior to the proposed pipeline inspection and maintenance survey programme and will use the same support vessel (<i>Edda Sun</i>). The Channel B works will be carried out using ROVs and any surveys required will be by underwater video. No acoustic survey sensors are proposed;</p> <ul style="list-style-type: none"> Geotechnical Investigation Irish Atlantic Margin 2021 (Woodside Energy Ireland). Involving collection of 22 shallow boreholes along the Irish Shelf and Porcupine Basin. The closest sample is approximately 30 km north of the export pipeline survey area. The geotechnical survey will involve on vessel and will utilise USBL acoustic equipment to assist with the positioning of the boreholes and identification of hazards. Work will take approximately 40 days and take place between July and early August 2021. 		
Project Element	Is the predicted magnitude / extent of identified likely in-combination effects considered by the applicant?	Summary
Spatial Extent (define boundaries for examination of in-combination effects)	Yes	The applicant has not explicitly stated the distance used for screening of other plans and projects. Though it states that the study area for the project and cumulative effects encompasses typical foraging and migratory ranges for qualifying features of European designated sites. Although the explicit distance should be detailed, the current study area is sufficient to screen in/out in-combination effects for the purposes of the review of the applicant's AA Screening Report.
Impact Identification (e.g. noise, chemical emissions etc.)	Yes	The applicant has identified underwater noise as a potential in-combination effect with the Woodside geotechnical investigation.
Pathway Identification (e.g. via water, air etc)	Yes	The pathway is via water, i.e. underwater sound.

3.3 Identification of relevant European sites and species

The applicant's AA screening report considers the designated European sites that may be impacted by the project, including consideration of direct, indirect and in combination effects. As projects that lie out with European sites may still have an impact upon their integrity, particularly in a marine environment where the environment is extremely dynamic and species may be highly mobile, identifying potential zones of influence surrounding the European sites is a key component.

Table 3.4 identifies the relevant European Sites and species that might be impacted by the project.

Table 3.4: Identification of Relevant European Sites/Species AA Screening Checklist

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
1. Broadhaven Bay SAC (IE0000472)	0.0 (overlap)	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
2. Glenamoy Bog Complex SAC (IE0000500)	0.0 (overlap)	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
3. West Connacht Coast SAC (IE0002998)	~1	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
4. Erris Head SAC (IE0001501)	2.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
5. Mullet / Blacksod Bay Complex SAC (IE0000470)	10.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
6. Mullet / Blacksod Bay Complex OSPAR MPA (O-IE-0002972)	10.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
7. Owenduff / Nephin Complex SAC (IE0000534)	16.5	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
8. Inishkea Islands SAC (IE0000507)	19.5	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements
9. Duvillaun Islands SAC (IE0000495)	26.5	Yes	No	Yes	Yes	Yes	Yes	Applicant has not listed common bottlenose dolphin <i>Tursiops truncatus</i> as a qualifying feature of this SAC; however West Connacht Coast SAC is closer to the survey area and has been used as a worst-case for the species. Therefore no further information is required from the applicant to support a screening determination.
10. River Moy SAC (IE0002298)	30.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
11. Killala Bay / Moy Estuary SAC (IE0000458)	39.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
12. Newport River SAC (IE0002144)	40.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
13. Clew Bay Complex SAC (IE0001482)	42.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
14. Mweelrea / Sheefry / Erriff Complex SAC (IE0001932)	61.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
15. Cummeen Strand / Drumcliff Bay (Sligo Bay) SAC (IE0000627)	73.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
16. Cummeen Strand / Drumcliff Bay (Sligo Bay) OSPAR MAP (O-IE-0002973)	73.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
17. Inishbofin and Inishshark SAC (IE0000278)	74.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
18. The Twelve Bens / Garraun Complex SAC (IE0002031)	74.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
19. Ballysadare Bay SAC (IE0000622)	76.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
20. Maumturk Mountains SAC (IE0002008)	76.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
21. Slieve Tooley / Tormore Island / Loughros Beg Bay SAC (IE0000190)	82.5	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
22. Lough Corrib SAC (IE0000297)	86.0	Yes	No	No	No	No	No	Applicant has not listed brook lamprey <i>Lampetra planeri</i> as a qualifying species. This species has been listed and assessed for other SACs, and therefore this site should also be included in that assessment. However, no further information is required from the applicant to support a screening determination.

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
23. Lough Gill Sac (IE0001976)	87.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
24. Connemara Bog Complex SAC (IE0002034)	89.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
25. Slyne Head Islands SAC (IE0000328)	94.0	Yes	No	Yes	Yes	Yes	Yes	Applicant has not listed common bottlenose dolphin <i>Tursiops truncatus</i> as a qualifying feature of this SAC; however West Connacht Coast SAC is closer to the survey area and has been used as a worst-case for the species. Therefore, no further information is required from the applicant to support a screening determination.
26. Kilkieran Bay and Islands SAC (IE0002111)	100.0	Yes	No	Yes	Yes	Yes	Yes	Applicant has not listed Annex I reefs [1170] as a qualifying feature of this SAC; however there is no direct overlap between the

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
								site and the project area, and the site is sufficiently distanced from the SAC to eliminate secondary effects to this habitat type. Therefore, no further information is required from the applicant to support a screening determination.
27. Kilkieran Bay and Islands OSPAR MPA (O-IE-0002979)	100.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
28. Lough Melvin SAC (IE0000428)	99.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
29. West of Ardara / Maas Road SAC (IE0000197)	101.0	Yes	No	Yes	Yes	Yes	Yes	Applicant has not listed European otter <i>Lutra lutra</i> as a qualifying species of this SAC. Although the species is unlikely to be affected, it has been included in other SACs and therefore should be listed. However no further information is required

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
								from the applicant to support a screening determination.
30. Donegal Bay (Murvagh) SAC (IE0000133)	111.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
31. Rutland Island and Sound SAC (IE0002283)	112.0	Yes	No	Yes	Yes	Yes	Yes	The applicant has not listed "Annual vegetation of drift lines" is a qualifying interest, however it is noted that due to the distance between the site and project, this does not alter the assessment made. The feature should be added to the list for inclusivity. However, no further information is required from the applicant to support a screening determination.
32. Lough Eske and Ardnamona Wood SAC (IE0000163)	118.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
33. Galway Bay Complex SAC (IE0000268)	130.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
34. Galway Bay Complex OSPAR MPA (O-IE-0002969)	130.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
35. Horn Head and Rinclevan SAC (IE0000147)	150.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
36. Lower River Shannon SAC (IE0002165)	166.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
37. Blacksod Bay / Broadhaven SPA (IE0004037)	0.0 (overlap)	Yes	No	No	No	No	No	The applicant has not listed red-throated diver <i>Gavia stellata</i> or Slavonian grebe <i>Podiceps auritus</i> as a qualifying feature. Red-throated diver is known to be sensitive to disturbance / displacement caused by vessel presence and therefore should be considered in the assessment. Red-throated diver is included in the

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
								text of Section 4.3.2.1, however is not included in Table 4-1. The feature should be added to the table. However, no further information is required from the applicant to support a screening determination.
38. Termoncarragh Lough and Annagh Machair SPA (IE0004093)	9.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
39. Mullet Peninsula SPA (IE0004227)	9.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
40. Stags of Broadhaven SPA (IE0004072)	9.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
41. Illanmaster SPA (IE0004074)	11.5	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
42. Inishglora and Inishkeeragh SPA (IE0004084)	13.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
43. Inishkea Islands SPA (IE0004004)	19.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
44. Duvillaun Islands SPA (IE0004111)	22.0+	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
45. Clare Island SPA (IE0004136)	50.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
46. Bills Rocks SPA (IE0004177)	50.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
47. Ardboline Island and Horse Island SPA (IE0004135)	73.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
48. Inishmurray SPA (IE0004068)	76.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
49. West Donegal Coast SPA (IE0004150)	78.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
50. Cruagh Island SPA (IE0004170)	86.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
51. Inishduff SPA (IE0004115)	89.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
52. Connemara Bog Complex SPA (IE0004181)	89.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
53. Donegal Bay SPA (IE0004151)	98.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
54. Inner Galway Bay SPA (IE0004031)	123.0	Yes	No	Yes	Yes	Yes	Yes	The applicant has not listed black-throated diver <i>Gavia arctica</i> as a qualifying feature of this SAC. This feature should be listed, however due to the distance of the SAC from the project area, it is unlikely this species will be affected and therefore no further information is required from the applicant to support a screening determination. The applicant has listed shoveler <i>Anas clypeata</i> as

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
								a qualifying species, however NPWS does not; however this does not affect the assessment outcome.
55. Inishmore SPA (IE0004152)	125.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
56. Cliffs of Moher SPA (IE0004005)	145.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
57. Tory Island SPA (IE0004073)	148.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
58. Horn Head to Fanad Head (IE0004194)	150.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
59. Mid-Clare Coast SPA (IE0004182)	160.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
60. River Shannon and River Fergus Estuaries SPA (IE0004077)	188.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
61. Loop Head SPA (IE0004119)	189.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
62. Kerry Head SPA (IE0004189)	201.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements. Note: the applicant has the site code as "004153", the correct code is "004189", as per NPWS.
63. Inishtrahull SPA (IE0004100)	208.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
64. Dingle Peninsula SPA (IE0004153)	220.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
65. Blasket Islands SPA (IE0004008)	243.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
66. Iveragh Peninsula SPA (IE0004154)	248.5	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
67. Puffin Island SPA (IE0004003)	273.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
								Note: the applicant has the site code as "00403", the correct code is "004003", as per NPWS.
68. Skelligs SPA (IE0004007)	281.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
69. Deenish Island and Scariff Island SPA (IE0004175)	283.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
70. Beara Peninsula SPA (IE0004155)	289.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
71. The Bull and the Cow Rocks SPA (IE0004066)	300.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
72. Irish Sea Front SPA (UK9020328)	308.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
73. Treshnish Isles SPA (UK9003041)	321.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
74. Rum SPA (UK9001341)	358.0	Yes	No	Yes	Yes	Yes	Yes	The applicant has not listed common guillemot <i>Uria aalge</i> , or black-legged kittiwake <i>Rissa tridactyla</i> as a qualifying feature. Due to the distance from the project area it is unlikely these species would be affected; however they should still be listed for the site. The applicant has given the wrong Latin name for red-throated diver, which should be checked and corrected throughout the report. However, no further information is required from the applicant to support a screening determination.
75. Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA (UK9013121)	364.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements. Note: the applicant has the site code as

STATUTORY ENVIRONMENTAL ASSESSMENT

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
								"UK901321", the correct code is "UK9013121".
76. Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA (UK9014051)	397.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

3.4 Screening of Likely Significant Effects on Natura sites and adverse effects on Annex IV species.

Table 3.5 provides a summary of the likely significant effects identified for the project alone and in combination with other projects considering, *inter alia*, the characteristics and specific environmental conditions of the sites concerned by the relevant project and the project location.

Table 3.5: Assessment of Likely Significant Effects AA Screening

Summary of LSE
<p>The applicant's AA Screening Report identified the following impact sources for further consideration in the determination of LSE:</p> <ul style="list-style-type: none"> Physical presence of survey vessels and equipment; Underwater noise from the operation of geophysical survey equipment and survey vessels and any noise/disturbance from the operation of the pipeline mini-dredger; Localised disturbance to seabed sediments during operation of the pipeline mini-dredger; Routine emissions and discharge during vessel and mini-dredge tool operations; Accidental events; and Cumulative effects. <p>The applicant has used a screening distance of 200 km, as this is expected to encompass foraging distances for resident and semi-resident species, and have also taken habitat connectivity into account. Sites within 25 km have been given particular consideration, and seabird foraging ranges (Woodward <i>et al.</i>, 2019) have been used for SPAs >200 km from the project area.</p> <p>Physical Presence of the Survey Vessels and Equipment</p> <p>The applicant has identified collision and disturbance as potential effects associated with vessel presence and has determined that these may impact the following receptors: marine mammals, and seabirds.</p> <p>Due to the short duration (20 days), small spatial scale (in comparison to the foraging range of receptors), and limited number of vessels (2) proposed for the project, the spatial scale and magnitude of effect are considered small. Disturbance effects on marine mammals will be limited to behavioural, and the population will recover (i.e., individuals can return to the region) immediately following the cessation of works. The likelihood of collision is also considered extremely low as the vessels will operate in accordance with codes of conduct and at low speed. Interaction (entanglement) is also unlikely to occur.</p> <p>The applicant has identified that seabirds (from both near and far-ranging SPAs) utilise the area and has considered them as a potential receptor for disturbance effects. Similarly, to marine mammals, seabirds have an extensive foraging habitat available, with high connectivity; and the survey will take place over a short duration and spatial extent. The applicant has given greater consideration to the sites / qualifying features closest to the survey works (within 25 km). Further assessment determined that these species may be temporarily disturbed and displaced from local foraging habitat. However, a wide extent of habitat remains available, with high levels of connectivity. The applicant concluded that the physical presence of the vessel and survey equipment will be unlikely to displace seabirds permanently.</p> <p>Underwater Noise from the Operation of Geophysical Survey Equipment and Survey Vessels</p> <p>The potential impact mechanism from underwater noise is acoustic disturbance/injury resulting from use of the survey equipment (MBES, positioning equipment, SSS, sub-bottom profiler, USBL, and mini-dredge tool). The relevant receptors to this impact are seabirds, marine mammals, fish, and prey species.</p> <p>The survey area overlaps with one SPA designated for seabirds; however a wide number of SACs and SPAs are within screening (marine mammal/seabird foraging) distance of the works. The auditory range of the marine mammal and fish species in the region has been compared with the sound emissions of the vessel and equipment. The equipment specifications and outputs have been described to a high level of detail and overlaps with the hearing ranges of sensitive species have been identified. The initial assessment could not conclude no likely significant effect, and therefore the applicant has conducted a Stage 2 Appropriate Assessment.</p>

Several SACs designated for migratory fish species were within screening distance, and thus have been assessed for likely significant effect. The species are migratory and have large ranges, and the fact that the species groups in question (salmonids and lampreys) are insensitive to sound. This, combined with the relatively small project area, means that the applicant has concluded there may be some small-scale disturbance associated with the mini-dredge tool, however there will be no likely significant effect.

The project area, particularly the offshore proportion, has a low density of diving seabirds, and therefore the applicant has determined that the proposed activities are unlikely to result in any significant effect on these species.

Routine Emissions and Discharges during Vessel and Mini-dredge Tool Operations and Localised Disturbance to Seabed Sediments during Operation of the Pipeline Mini-Dredger

Atmospheric emissions (primarily exhaust gases) and routine marine discharges (macerated food, grey water, bilge water, and ballast water) will be released from the vessel. This may result in localised decreases in air and water quality, however, due to the rapid dispersion, the effect will be temporary and very short term.

Use of the mini-dredge tool will be limited to isolated locations along the pipeline, where reprofiling of the seabed may be required to reduce pipeline free spanning. Use of the tool will produce a suspended sediment plume, resulting in light smothering of benthic species and seabed change over a small spatial scale.

The applicant concluded that these effects will not be significant, and thus have been screened out of further assessment.

Accidental Events

The applicant notes the possibility of a fuel oil spillage, however, explains that in the rare event a spillage occurs, contaminants would rapidly disperse, and preventative measures used on board during surveying reduce the risk of occurrence.

The applicant concludes the potential for impact on European sites is considered to be low.

Cumulative Impacts

The applicant has identified that there are three known projects that will occur within a similar timescale to the proposed works and have the potential to act cumulatively with the effects from the project:

- Corrib Field P6 Flexible Flowline Installation 2021 (Vermilion);
- Corrib Field central manifold / P1 wellsite Channel B EDU and electrical jumper repair programme;
- Geotechnical Investigation, Irish Atlantic Margin 2021 (Woodside Energy Ireland).

The applicant has determined that there is potential for these other plans and projects to result in a cumulative effect on European sites. However, the likelihood of such an eventuality occurring, is considered to be very low in terms of the potential for impact on or affecting the integrity of any European sites and their qualifying interests.

Do you agree with the applicant's AA screening assessment? Why?

It is concluded that a Stage 2 AA is required as it is not possible to exclude on the basis of the information provided by the applicant that the project will have a likely significant effects (LSE) either individually or in combination with other plans or projects on European sites.

Additional information will be required to ensure that all pathways that need to be taken forward to Stage 2, are taken forward, and to make a robust assessment of the applicants NIS.

It is noted that the applicant's underwater noise assessment is comprehensive and considers all species likely to be in the area, including diving seabird species. Appropriate sources and references have been used throughout the assessment. We agree with the pathways that have been identified and agree with the applicant's conclusion of no LSE except for the pathway of underwater noise, based on the information provided in the screening report.

The following additional information is required to inform the Stage 2 review:

Qualifying features

Although the applicant has used a worst-case scenario for marine mammal and migratory fish features, it is noted that qualifying features of some SACs have been missed from the applicant's list

(as noted in Table 3.4). Whilst this is unlikely to alter the outcome of the assessment, it is important the consideration is made for all qualifying features of all SACs within screening distance.

Similarly, qualifying features of some SPAs have also been missed. Most notably, the applicant has not listed red-throated diver *Gavia stellata* as a feature of the Blacksod / Broadhaven SPA in Table 4-1. This species should be included in the assessment, as the SPA overlaps with the project area, and red-throated diver is known to be sensitive to vessel presence (disturbance / displacement effects). The applicant has not included the Blacksod and Broadhaven Bay Ramsar site. It is recognised that this site occupies the same area as the Blacksod / Broadhaven SPA, however it should still be considered.

Additional Sites

Use of Woodward *et al.* (2019) for screening in SPAs is welcomed. The applicant has noted that the mean maximum foraging distance of Manx shearwater *Puffinus puffinus* is 1,347 km, however, has not included SPAs within this screening distance (e.g., those in the English Channel, and on the French and Spanish coasts). It is unlikely that the proposed works will have significant effect on these sites, however they should be included in the assessment as they are within species-specific foraging range. We request that the applicant ensures that all sites within all species-specific foraging ranges are included.

Assessment

The applicant has identified that the Broadhaven Bay SAC overlaps with the survey area, and has listed benthic habitats, including Reefs [1170], as qualifying features. It is not clear whether the applicant has assessed potential effects, such as introduction of hard substrate (rock filter units) or alteration of seabed (sediment plume dispersion), on these habitats. The applicant states that no habitats are likely to be affected, however, it would be beneficial to include an assessment of the Broadhaven Bay SAC habitats.

3.5 Screening Determination

If significant effects are certain, likely or uncertain then the DECC must request the applicant to provide a NIS in order for the DECC to undertake an AA as the competent authority. The applicant may also choose to recommence the screening process with a modified project that removes or avoids elements that posed risks of LSE.

Table 3.6 and 3.7 provide a summary of Ramboll's recommendation to enable DECC to make a screening determination.

Table 3.6: Summary of Applicant's Screening Report Review

Is the plan or project directly connected with or necessary to the nature conservation management of the Natura site?	No
Is the project or plan likely to have significant effects on the environment?	Yes.
Is an AA required? (Yes / No / More Information Required?)	Yes - the applicant could not determine No Likely Significant Effect on marine mammals from underwater noise sources, therefore an AA is required.
What further information is required to inform AA Screening Opinion (if any)?	None. Information was provided by the applicant to be able to conclude that an Appropriate Assessment is required. However, additional information was requested to be included in the NIS submitted by the applicant as detailed below.

STATUTORY ENVIRONMENTAL ASSESSMENT

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Table 3.7: Recommendation of Screening Determination

Outcome of Screening Report Assessment	Overall Screening Opinion / AA Required?
No Likely Significant Effects on Natura Sites identified, or project is directly connected with or necessary to the nature conservation management of the Natura site.	No likely significant effects on European Sites have been identified, having had regard to the potential connectivity with sites, relevant conservation objectives and the potential for in combination effects and will not cause significant disturbance to Annex IV species described. Appropriate Assessment is not required.
Likely or Potential Likely Significant Effects on Natura Sites identified, and project is not directly connected with or necessary to the nature conservation management of the Natura site.	Appropriate Assessment is required because it cannot be excluded on the basis of the information provided by the applicant that the project will have either individually or in combination with other plans or projects a likely significant effect on European sites.

4. STAGE 2 APPROPRIATE ASSESSMENT

4.1 Natura Impact Statements

A NIS⁵ is a scientifically robust examination of a proposed plan or project, which is used to characterise any possible implications of the project on the conservation objectives of any relevant European site(s). The primary purpose of the NIS is to provide the competent authority with the information required to complete an AA.

Following the receipt of a NIS, the DECC (as the competent authority) will undertake an AA to determine whether the proposed project is likely to have an adverse effect on the integrity⁶ of any relevant European sites with regards to their conservation objectives, both individually and in combination with other plans or projects. On completion of the AA, the DECC will produce an AA Conclusion Statement.

The applicant's AA screening report identified potential LSE associated with underwater noise generated from the acoustic surveys and associated vessel activity on key receptor species (qualifying interests). The potential for LSE on habitats was screened out.

Therefore, the potential effects of underwater noise were assessed for the key receptor species listed as qualifying interests of designated Natura 2000 sites or listed as Annex IV species to the Habitats Directive. The conclusion of the applicant's AA screening report was that LSE cannot be excluded for these species.

As described above, on 3 February 2021, an AA Screening Determination was made by the EAU in respect of the applicant's AA screening report, which concluded that an Appropriate Assessment was required. At the same time as making a determination on the applicant's AA screening report, the EAU made a request for additional information to be provided to support the completion of an AA. Table 4.1 provides a list of the additional information requested:

Table 4.1: Additional Information Required

Additional Information Requested	Additional information required:
	<p>Potential effects on the qualifying habitat features of the Broadhaven Bay SAC associated with the mini-dredging tool and placement of rock filter units should be assessed, or, if there is no interaction between feature and pressure, screened out.</p> <p>Qualifying features have not been included for several SACs/SPAs, despite being listed on the NPWS/ScotLink websites. These features (noted in Table 3.4 and listed below) should be included:</p> <ul style="list-style-type: none"> • Common bottlenose dolphin <i>Tursiops truncatus</i>, of the Dullivaun Islands SAC; • Brook lamprey <i>Lampetra planeri</i>, of the Lough Corrib SAC; • Common bottlenose dolphin, of the Slyne Head Islands SAC; • Annex I Reef habitat [1170], of the Kilkieran Bay and Islands SAC; • European otter <i>Lutra lutra</i>, of the West of Ardara / Maas Road SAC; • Annual vegetation of drift lines, of the Rutland Island and Sound SAC;

⁵ Note - Natura Impact Statement (NIS) is an Irish specific term used following transposition of the Birds and Habitats Directives into national legislation.

⁶ Ecological integrity has been defined in as 'the coherence of the site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or populations of species for which it is classified' (Managing Natura 2000 sites, EC, 2000)

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	<ul style="list-style-type: none"> • Red-throated diver <i>Gavia stellata</i>, of the Blacksod Bay / Broadhaven SPA; • Slavonian grebe <i>Podiceps auritus</i>, of the Blacksod Bay / Broadhaven SPA; • Black-throated diver <i>Gavia arctica</i>, of the Inner Galway Bay SPA; • Common guillemot <i>Uria aalge</i>, of the Rum SPA; • Black-legged kittiwake <i>Rissa tridactyla</i>, of the Rum SPA. <p>The applicant has described using the mean maximum foraging range for seabirds species from Woodward <i>et al.</i> (2019), however the furthest SPA from the project area considered is located 397 km away (southwest Wales). Using Manx shearwater <i>Puffinus puffinus</i> as an example (1,347 km), we would expect sites on the coast of mainland Europe to be considered within the document, such as those on the French and Spanish coasts. Whilst, it is noted that there is no direct line of sight between these SPAs and the project area, they should still be included for consideration.</p> <p>The minor errors with regard to site codes/features highlighted in Table 3.4 of the report should be rectified, as follows:</p> <ul style="list-style-type: none"> • Correction to remove shoveler <i>Anas clypeata</i> as a qualifying species, of the Inner Galway Bay SPA; • Correction of the Latin namesite code for Kerry Head SPA, from "004153" to "004189", as per NPWS; • Correction of the site code for Puffin Island SPA, from "00403" to "004003", as per NPWS; • Correction of the Latin name for red-throated diver, of the Rum SPA; • Correction of the site code for Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA, from "UK901321" to "UK9013121"; <p>Clarification should be provided on the operating frequency of the doppler velocity log (DVL), as there is inconsistency in the document.</p> <p>The applicant has not explicitly stated the distance used for screening of other plans and projects. Though it states that the study area for the project and cumulative effects encompasses typical foraging and migratory ranges for qualifying features of European designated sites, the explicit distance should be detailed.</p> <p>Abundance / distribution maps of sensitive marine mammal species.</p> <p>Inclusion of all qualifying features of all sites within area of effect.</p> <p>Conservation status of all features of all sites screened into Stage 2.</p> <p>Inclusion of a statement noting that there are no management plans for the sites screened into assessment.</p>
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Following a review of the further information submitted by the applicant on the 8th March 2021, it can be confirmed that sufficient information has been provided by the applicant to be able to

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complete the AA, with all information gaps identified in table 3.4 of this report having been addressed.

Table 4.2 provides an update to the table reviewing the identification of relevant European sites (only rows identified at the screening stage as having information gaps are included in this table).

Table 4.2: Identification of Relevant European Sites/Species AA Screening Checklist Update

Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
9. Duvillaun Islands SAC (IE0000495)	26.5	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
22. Lough Corrib SAC (IE0000297)	86.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
25. Slyne Head Islands SAC (IE0000328)	94.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
26. Kilkieran Bay and Islands SAC (IE0002111)	100.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
29. West of Ardara / Maas Road SAC (IE0000197)	101.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
31. Rutland Island and Sound SAC (IE0002283)	112.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Natura site/ Annex IV species identified by assessor	Distance from Project Site (km)	Are the Natura site / Annex IV species identified by the applicant?	Are all the qualifying interests / Annex IV species listed by the applicant?	Are direct impacts to the Natura Site / Annex IV species considered by the applicant?	Are indirect impacts to the Natura Site / Annex IV species considered by the applicant?	Are Potential Zones of Influence on the Natura Site / Annex IV species considered by the applicant?	Are in combination effects considered by the applicant?	Briefly summarise whether the applicant's consideration of relevant Natura sites / Annex IV species which may be affected by the proposed project, meets the requirements for a screening opinion:
37. Blacksod Bay / Broadhaven SPA (IE0004037)	0.0 (overlap)	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
54. Inner Galway Bay SPA (IE0004031)	123.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
62. Kerry Head SPA (IE0004189)	201.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
67. Puffin Island SPA (IE0004003)	273.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
74. Rum SPA (UK9001341)	358.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.
75. Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA (UK9013121)	364.0	Yes	Yes	Yes	Yes	Yes	Yes	Applicant meets requirements.

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Table 4.3 provides a checklist of information that should be provided by the applicant's NIS (or supporting documents), with regards to European site(s) and/or species that may be affected by the proposed project, in order for the DECC to undertake an AA.

Table 4.3: Summary of European site information to be included in a NIS (or supporting documentation)

NIS Content	Does the applicant's NIS provide the following information? (Y/N)	Briefly Explain Answer:
The Conservation Status of relevant Habitats and Species listed under Annex II of the Habitats Directive;	Yes	The conservation objectives, which is to maintain or restore the favourable conservation conditions of the Annex I habitats or Annex II species for which the site has been designated, has been provided by the applicant. This is considered sufficient to inform a decision.
The Conservation Status of relevant Species listed under Annex I of the Birds Directive;	Yes	The conservation objectives, which is to maintain or restore the favourable conservation conditions of the Annex I species for which the site has been designated, has been provided by the applicant. This is considered sufficient to inform a decision.
The baseline conditions of any relevant European site(s);	Yes	The applicant has given a brief description of the European sites within screening distance, including baseline condition, such as population estimates.
The conservation objectives and qualifying features of any relevant European site(s);	Yes	The applicant has noted the relevant conservation objectives for each SAC/SPA identified within screening distance.
Any management plans associated with relevant European site(s);	Yes	The applicant has stated that there are no management plans available for the marine features of any sites screened in by the applicant.
Details on each species and habitat type for which relevant European site(s) are designated and spatial mapping of the distribution and temporal mapping, including lifestyle stages;	Yes	Adequate information has been provided by the applicant in this regard.
Information on population profile of the species and their conservation status (e.g. size, population structure etc.);	Yes	Population estimates have been included by the applicant where they are a designated feature of an European site. Conservation objectives have also been provided.

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NIS Content	Does the applicant's NIS provide the following information? (Y/N)	Briefly Explain Answer:
Ecosystem structure and functioning of the site and its overall conservation state;	Yes	The applicant has included a description of each European site, and has included the management objectives inferring overall conservation state.
The role of the site within the ecosystem region and the Natura 2000 network;	Yes	The applicant has included information on European site connectivity, and use of sites by features of other sites.
Any other aspects of the site or its wildlife that is likely to have an influence on its conservation status and objectives (e.g. current management activities, other developments etc.)	Yes	The applicant has noted the conservation objectives for each site. There are no management plans available for any screened in sites that are likely to affect marine features. The applicant has included information on site connectivity and the use of the site, other important, non-qualifying species where applicable.

Table 4.4 provides a checklist of information that should be provided in the NIS (or supporting documents), in order for the DECC to complete an AA.

Table 4.4: Summary of information to be included in a NIS (or supporting documentation) for consideration in AA

NIS Content	Does the applicant's NIS provide sufficient detail to inform an Appropriate Assessment? (Y/N)	Briefly Explain Answer:
A description of size, scale and objectives of the proposed plan or project;	Yes	The applicant has provided information on the proposed project activities, survey objectives, equipment, and duration which is considered adequate.
A description of the pressures of the proposed plan or project, its likely impacts on the conservation objectives and local site characteristics;	Yes	The applicant has provided a detailed description of the project and has characterised the likely impacts that have resulted in the need of an Appropriate Assessment.
Identification of all European sites located within the zone of influence of the proposed plan or project, together with qualifying interests and conservation objectives;	Yes	The updated information supplied by the applicant (as published 8 th March 2021) has listed all the sites deemed relevant for the project. The NIS considers the nearest site for each designated feature species group; it does not specifically detail all sites that may be affected. It is assumed therefore that all sites with

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NIS Content	Does the applicant's NIS provide sufficient detail to inform an Appropriate Assessment? (Y/N)	Briefly Explain Answer:
		designated features carried forward to the NIS have the potential to be affected by the project. The applicant's assessment shows no adverse effect on the integrity of the nearest sites. Ramboll agrees with this conclusion and notes that based on the nature of the likely effects (i.e. effects associated with underwater noise or disturbance) this can be taken as a proxy to support the conclusion that there would be no adverse effect on the integrity of all of the sites detailed in Table 3.4 of this report, as amended and re-appraised in Table 4.2 of this report.
Methodologies, analysis and data sources utilised to demonstrate use of best scientific knowledge;	Yes	The applicant has used a variety of reputable and recent studies in order to substantiate the assessments made, such as Southall <i>et al.</i> (2019) to inform marine mammal hearing thresholds, and Woodward <i>et al.</i> (2019) to inform the bird foraging ranges.
A scientific assessment, analysis and statement of the significant effects including direct, indirect, cumulative and in combination effects of the relevant European site(s) and/or species which are expected to occur as a result of the development;	Yes	The applicant has provided a detailed assessment of the effects associated with the pressures brought forward, and has included a concluding statement on the assessment outcome: proposed survey operations either individually or when taken in combination with other plans or projects, are not likely to have a significant effect on a European site.
Details of any appropriate mitigation measures undertaken, or proposed to be undertaken by the applicant to mitigate any significant effects on the environment or on the European site(s) and/or species, and the period within which any such measures shall be carried out by the developer;	Yes	The applicant has detailed mitigation measures, both embedded (industry standard, best practice, e.g. soft starts, monitoring by MMO, adherence to Vessel Operators Code-of-Conduct guidance) and additional (project-specific, e.g. use of linear routes to minimise exposure, coordination with operators responsible for any potential overlapping works).
An assessment of the scope and scale of residual effects after mitigation (including direct, indirect, cumulative and in combination effects);	Yes	The applicant has included assessment of residual effects after taking mitigation into account (described by the applicant as 'best environmental practice protocols'), including direct, indirect, cumulative and in combination effects.
A conclusion in relation to whether or not the project would	Yes	The applicant has included a concluding statement on the assessment outcome:

NIS Content	Does the applicant's NIS provide sufficient detail to inform an Appropriate Assessment? (Y/N)	Briefly Explain Answer:
adversely affect the integrity of any European site (either individually or in cumulation with other existing or consented developments)		<p>proposed survey operations either individually or when taken in combination with other plans or projects, are not likely to have a significant effect on a European site.</p> <p>The applicant goes on to add that, if it is decided that it is necessary to carry out an appropriate assessment under Article 6.3 of the EU Habitats Directive, it is the view of the authors of the NIS that based on the scientific evidence presented that the proposed project will not adversely affect the integrity of the European sites in the vicinity and in the wider location or on any other designated site, when taken individually or when taken in combination with the other plans or projects and there is no reasonable scientific doubt in this regard.</p>

4.2 Article 12 Assessment in relation to Annex IV species

The Applicant's NIS makes cross reference to the EIA screening and risk assessment for Annex IV species that accompanies the application, which provides further characterisation of the baseline for Annex IV species of marine mammals and sea turtles in the area. The assessment provided supports the conclusion that the proposed project will not cause any significant disturbance to Annex IV marine mammal species, with other qualifying features screened out.

4.3 Stage 2: Appropriate Assessment Determination

Tables 4.5 and 4.6 provide a summary of Ramboll's recommendation to enable DECC to undertake an AA to determine whether the integrity of a European site is likely to be adversely affected by the proposed project.

Table 4.5: Stage 2 Appropriate Assessment Determination Checklist

Does the NIS (and supporting documentation) contain adequate information to complete an AA and to prepare an AA Conclusion Statement?	Yes
Does the NIS conclude that the proposed project or plan will have an adverse residual effect on the integrity of any European sites or species?	No –The applicant concludes that following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted impacts from the proposed works and with the implementation of best environmental practice protocols (taken for the purposes of this report to be mitigation), that the project will not adversely affect (either directly or indirectly) the integrity of any

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	European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.
Do you agree with the conclusion(s) of the applicant's NIS? (Briefly explain answer)	Yes – the applicant has provided sufficient detail on the project and associated works and has identified all possible receptors within the project area. Potential effects on receptors have been identified and assessed appropriately, both for the project alone and in combination with other plans and projects. The NIS has considered the likely significant effects associated with underwater noise. The applicant concludes that, with the proposed mitigation measures, noise would be below the threshold likely to cause injury and the receptors would be sufficiently mobile to temporarily leave any areas where injury/disturbance could occur. On this basis there would be no adverse effect on the integrity of European sites having had regard to their Conservation Objectives. Ramboll agrees with this conclusion.

Table 4.4: Summary of Stage 2 Appropriate Assessment

Outcome of Stage 2 Appropriate Assessment	Stage 2 Appropriate Assessment Determination
AA determines that the proposed plan or project is likely to have an adverse effect on the integrity of an European Site(s) or species	Refuse planning consent or proceed to Stage 3 Appropriate Assessment: Alternative Solutions
The applicant's NIS does not contain sufficient information to determine whether the proposed plan or project is likely to have an adverse effect on the integrity of an European Site(s) or species	Request further information from the Applicant
AA determines that the proposed plan or project alone or in combination with any other plan or project will not have an adverse effect on the environment or on the integrity of any European site in view of its conservation objectives and will not cause any significant disturbance to the Annex IV species described	This report determines that the proposed project alone or in combination with any other plan or project will not have an adverse effect on the environment or on the integrity of any European site in view of its conservation objectives and will not cause any significant disturbance to the Annex IV species described, subject to the mitigation described in Section 5 of this report.

5. MITIGATION AND MANAGEMENT COMMITMENTS

The applicant's NIS makes reference to following industry standard best environmental practice protocols at all times required by the statutory agencies. The conclusions of this report are made on the basis that the following mitigation and management commitments, including measures required to address the issues raised in observations following the consultation with notified bodies and the general public, are implemented in full. Table 5.1 documents the required mitigation and management measures:

Table 5.1: Mitigation and management measures

Discipline	Commitment proposed
General Mitigation	Use of the lowest equipment output possible in order to obtain the required data quality
	At the start of proposed activities, power will increase slowly from a low intensity (a 'soft start') to encourage avoidance reactions by marine mammals, fish and marine reptiles.
	<p>A qualified and experienced Marine Mammal Observer (MMO) will be present onboard both the nearshore and offshore geophysical survey vessels.</p> <ul style="list-style-type: none"> The MMO will have undergone marine mammal observation training (JNCC or equivalent) and have spent a minimum of six weeks of marine mammal survey experience at sea over a three-year period; The MMO will be responsible for monitoring the appropriate mitigation zone prior to the dredging works commencing and also monitoring the zone during survey operations; The MMO must submit a report, as outlined in NPWS code of practice, within 30 days of completion of the proposed activities to the relevant Licensing Authority, and copy the report to the NPWS; The geophysical vessel operator must provide a report (including a daily log) on the operation of survey equipment that will indicate the soft starts and their duration to the MMO. This information will be made available to NPWS; and The MMO must use a distance measuring stick, reticle telescope or binoculars to ascertain distances to marine mammals.
	Adherence to Vessel Operators Code of Conduct (Document No. VIE-HS-PR-0032, 2020), and Code of Conduct for Inspection and Maintenance Surveys (Document No. COR-14-SH-0227, 2018).
Cetaceans, seals and other marine megafaunal species	<p>Pre soft start scans (pre-start monitoring)</p> <ul style="list-style-type: none"> Sound-producing activities will only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible the sound-producing activities shall be postponed until effective visual monitoring is possible. Effective visual monitoring determines the presence or absence of megafaunal species before sound-producing activities commence, and should be undertaken in good weather conditions, where the sea state is low and visibility is good (no fog, heavy rain). MMOs should survey the area for the presence of species 30 minutes before the onset of the soft start.

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Discipline	Commitment proposed
	<ul style="list-style-type: none"> A minimum distance of 500 m is required between the centre of the sound source and the nearest species before soft start can commence. If species are seen within 500 m of the centre of the sound source the start of the sound source(s) should be delayed until they have moved away, allowing adequate time after the last sighting for the animals to leave the area(30 minutes). If species do not leave the area it is recommended that the survey vessel alters course to ensure that the animals are outside the 500 m exclusion zone when soft start commences (This measure may not be implementable, as survey operations will be undertaken while the vessel is stationary with equipment deployed to the seabed at the Corrib Field). An agreed and clear on-site communication signal must be used between the MMO and the Works Superintendent as to whether the relevant activity may or may not proceed, or resume following a break (see below). It shall only proceed on positive confirmation with the MMO. Soft start should commence after a 500 m area around the vessel has been confirmed clear of species for 30 minutes. It is not thought possible that soft start can be applied to the use of the mini dredge tool <p>Soft start / ramp up procedure</p> <ul style="list-style-type: none"> In commencing an acoustic survey operation using the above equipment, the following soft start (or ramp up) must be used, including during any testing of acoustic sources, where the output peak sound pressure level from any source exceeds 170 dB re: 1µPa @1m: <ul style="list-style-type: none"> a) Where it is possible according to the operational parameters of the equipment concerned, the device's acoustic energy output shall commence from a lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20 minutes. b) This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period (e.g., output peak sound pressure level of 170 dB->180dB->190 dB->200 dB->200+ dB over 20 minutes). c) Where the acoustic output measures outlined in steps (a) and (b) are not possible according to the operational parameters of any such equipment, the device shall be switched "on" and "off" in a consistent sequential manner over a period of 20 minutes prior to commencement of the full necessary output. In all cases where a ramp up procedure is employed the delay between the end of ramp-up and the necessary full output should be minimised to prevent unnecessary high-level sound introduction into the environment. Once the ramp up procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if species occur within a 500 m radial distance of the sound source, i.e., within the Monitored Zone. <p>Break in sound input</p>

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Discipline	Commitment proposed
	<ul style="list-style-type: none"> • If there is a break in sound output for a period greater than 30 minutes (e.g., due to equipment failure, shut-down, survey line or station change) then all pre-start monitoring and a subsequent ramp up procedure (where appropriate following pre-start monitoring) must be undertaken. • For higher output survey operations which have the potential to produce injurious levels of underwater sound there is a regulatory requirement to adopt a shorter 5 - 10 minute break limit, after which period all pre-start monitoring and subsequent ramp up procedure (where appropriate following pre-start monitoring) shall recommence as for start-up.
Emissions	<p>Regular maintenance of all onboard engines to minimise emissions, in line with:</p> <ul style="list-style-type: none"> • Maritime Registry of Shipping (MRS); • MARPOL 73/78 Annex VI (as appropriate); and • Any other similar requirements.
Discharges Measures are in line with ship-source pollution prevention provisions, as required by the Department of Transport	<p>Management of discharges in accordance with the requirements of MARPOL 73/78 as appropriate, with the biochemical oxygen demand of sewage and galley waste discharges reduced to 50 mg/l and macerated to less than 25 mm, using a treatment process before release</p>
Accidental Events	<p>Refuelling of vessels will not be undertaken at sea, but in port where spills, although unlikely to happen, can be responded to more easily, and will reduce the risk of any exposure to marine life. The fuel to be used by vessels is regular marine grade oil (MGO) and not heavy fuel oil (HFO) that could represent a greater environmental hazard if spilled</p>
	<p>The vessels will operate with strict safety, navigational, operating and communications procedures in place in order to avoid collisions. These will include use of Automatic Identification System (AIS) tracking, adherence to the Collision Regulations, communication with other vessels, and 24 hour look ahead plans</p>
	<p>The Edda Sun has a deck drainage containment and separation system in the event of a spill of oil on deck. Hydraulic fluids used by the ROV and ROV handling equipment have been selected partly based on their environmental credentials, being inherently rapidly biodegradable and having passed stringent LC 50 and EC 50 tests to determine their toxicity to aquatic life.</p> <ul style="list-style-type: none"> • Onboard the vessel, the valves between fuel tanks will be kept closed, thereby minimising potential for complete fuel loss. Refuelling will occur according to a specific procedure; and • Maintenance, audits and inspection plans will be in place to mitigate the potential risk of an oil leak at an early stage.
	<p>Shipboard Oil Pollution Emergency Plans (SOPEP), spill mitigation equipment and other facilities are kept onboard all vessels in order to contain or minimise spills; all the vessel crews have been trained in the use of the plans and equipment.</p>
	<p>The Emergency Response Plan will set out how all spill response resources (personnel, command structure, equipment, etc.) will interface, including co-ordination between other seismic survey operators, if applicable.</p>

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Discipline	Commitment proposed
Interactions with other users (including fisheries)	Communication between operators will ensure that operations are coordinated to limit noise exposure.
	There will be fisheries liaison procedures in place to mitigate interaction with fisheries or other maritime organisations to communicate the survey schedule and enable activities to be planned accordingly.