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N11/N25 Oilgate to Rosslare Harbour Scheme River Slaney MUL Application

**Attachment 4.4 - Risk Assessment for Annex IV
species**

June 2026

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1 Introduction

1.1 Project Overview

Mott MacDonald Ireland Limited, on behalf of Wexford County Council (WCC) ('the Applicant'), are submitting a Maritime Usage Licence (MUL) application for site investigation surveys at the River Slaney, northwest of Wexford town. The MUL is being sought solely to facilitate site investigation surveys associated with the proposed N11/N25 Oilgate to Rosslare Harbour Scheme ('the proposed scheme').

A description of the surveys proposed to inform the design of the scheme, specifically works in/near the crossing of the River Slaney is provided in Section 2 of this report.

This report screens potential effects of the proposed surveys on species listed under Annex IV of the EU Habitats Directive arising, in line with Question 4.4 of the Maritime Usage Licence (MUL) General Application Form (MUL1).

1.2 Survey Location

The proposed surveys will be undertaken below the high water mark within the River Slaney, west of Wexford town, Co. Wexford. The MUL application area is approximately 2.49km², as shown in Figure 1.1.

The western extent of the MUL area is approximately 4.8km west of the existing Ferrycarrig bridge (along the river), near the townlands of Carigmannon and Newtown Lower. The eastern extent of the MUL area is approximately 3km east of the Ferrycarrig bridge (along the river), near the townlands of Park and Crosstown. The Ferrycarrig bridge carries the existing N11 over River Slaney.

Figure 1.1: Proposed Maritime Usage Licence Area



Source: Mott MacDonald, 2026

1.3 Statement of Competence

Authors

Ryan Boyle: BSc (Hons), MSc Senior Ecologist, Mott MacDonald. Ryan is a qualified Senior Ecologist with ten years of experience in the ecological, environmental and conservation sector. Experience in conducting a number of surveys such as bat activity, Phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys and river fly surveys. Experienced in species identification, management and mitigation, badger surveys, otter surveys, biodiversity checklists, bat roost potential surveys, newt surveys, lizard surveys, pine marten surveys, breeding bird surveys, winter bird surveys, vantage point surveys, collision risk assessments, Ecological Clerk of Works duties supervising works close to sensitive ecological receptors. Experience on working on a wide variety of projects of varying scale across Northern Ireland, the Republic of Ireland and England and carrying out Appropriate Assessment Screening reports, Natura Impact Statements, Strategic Environmental Assessment and biodiversity chapters for larger EIA submissions. Training as an Ecological Detection Dog Handler and proficient in the use of infra-red/night vision camera equipment and thermal imaging technology.

Roger Macnaughton: MSc, BSc (Hons), MCIEEM (Senior Associate Ecologist. Mott MacDonald). Roger is a qualified and experienced environmental consultant specialising in ecology. He has over twenty-three year's professional experience in the environmental consultancy sector and an additional seven years of primarily research-based experience in freshwater and marine ecology. He specialises in the delivery of Ecological Impact Assessment (EclA) and Appropriate Assessment (AA) for a broad range of projects potentially affecting; terrestrial, freshwater and marine ecology. His project related experience to date includes; two

400kV overhead lines, five 110kV overhead lines, overhead line up-rates, electricity substations, underground power cables, 35 terrestrial wind farms, two marine wind farms and five solar farms. Roger has extensive experience carrying out and co-ordinating walkover field surveys for protected species (birds, mammals, amphibians), along with Fossitt (2000) botanic/ habitat surveys, aquatic and fishery assessment, and targeted invasive species surveys.

2 Description of Proposed Surveys

The proposed surveys are described in the following sections and locations of surveys indicated in Figure 2.1.

2.1 Hydrographic Survey (Bathymetric Survey)

2.1.1 Survey Description

The hydrographic survey will map the physical features of the River Slaney, such as depth, tides, currents, and the profile of the riverbed. The extent of the survey area is outlined in Figure 2.1, the bathymetric survey area is shown in orange hatch, with indicative locations of current measurements shown in green.

Survey works will be undertaken from a dedicated survey vessel. The equipment will be deployed from either a boat or a Remote Operated Vehicle (ROV). In the case of a ROV, a support boat would still be required.

Sonar equipment (multi-beam sonar or a side-scan sonar) will be deployed to develop a bathymetric survey of the riverbed profile. A current meter will be used to measure river velocity at five locations within the survey area (as shown in Figure 2.1) and at up to 5m depth intervals. The riverbed material build-up will be mapped using a sub-bottom profiler. Measurements will be undertaken over several tidal conditions to ensure full coverage of the riverbed bathymetric survey area and record variance in current velocity between high and low tides. The hydrographic survey will be used to inform a hydraulic model of the River Slaney, specifically in the vicinity of the proposed bridge crossing.

2.1.2 Survey Timeline

The surveys will commence as soon as feasible following the grant of a MUL and appointment of a contractor. The exact mobilisation dates will not be known until the maritime usage licence has been obtained and the process of procuring a contractor is complete. It is estimated that the proposed surveys will take approximately four weeks to complete in the field.

Map Legend:

- Proposed Maritime Usage Licence Area
- + Coordinate Intersects
- Archaeological Wade and Metal Detector Survey Area

NOTES:

- Co-ordinates to Irish Transverse Mercator (ITM)
- Where the MAC/MUL area abuts the land, the boundary of the MAC/MUL area should coincide with and follow exactly the High Water Mark as defined by the Chief Boundary Surveyor

Benthic Surveys

- Points for Survey
- Intertidal transects
- Benthic Survey Area

Bathymetric Surveys

- Bathymetric Survey Area

Map Labels:

- Area A:** 2.49km²
- Locations:** Ballygoman, Newtown (Fd Carrick), Coolcotts, Ballindinas, Wexford, Crosstown, Ardavan, Part Of Castlebridge, Cornwall.
- Roads:** R730, R738, N11, N25.
- Coordinates:** 698000, 627000 (top left); 705000, 627000 (top right); 698000, 621000 (bottom left); 705000, 621000 (bottom right).

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, OpenStreetMap contributors, DeLorme, GeoEye, AerialPhotos, Community, Microsoft, Vantor

Source: Mott MacDonald, 2026

2.2 Archaeological Wade and Metal Detector Survey

2.2.1 Survey Description

In October 2024, an intertidal walkover survey and geoarchaeological assessment of the Ground Investigations (GI) results was undertaken, investigating a c.190m stretch of the north bank of the River Slaney at spring low tide. Following this survey, as discussed with the Transport Infrastructure Ireland (TII) Project Archaeologist and the UAU at the NMS, archaeological wade and metal detector surveys were recommended to further understand the archaeological potential of this area along the River Slaney and to fully interpret the impact of the proposed Scheme.

The survey area for both the wade and the metal detector survey will be finalised in consultation with the TII Project Archaeologist and the UAU at the NMS but will likely cover the same area as the 2024 intertidal walkover survey. This indicative area is shown in Figure 2.1 in blue. The surveys will be performed within this survey area., where this can be achieved. Allowances will be made for immovable obstacles or areas unsuitable for survey.

The survey area will be subject to a systematic wade survey and inspection at low tide to identify any evidence for archaeological remains (structures/ features/ deposits) and archaeological objects located in/ on/ adjacent to it. Any identified or potential archaeological remains or objects will be described, recorded, photographed and their location and extent surveyed. Their condition will also be recorded.

The metal detector survey is designed to record the location of ferrous and non-ferrous metal objects/ material contained on/ within sediments on the nearshore. The objective of the metal detector survey is to provide a quantitative estimation of the amount of metal finds in the development area and to record their locations. The survey will be undertaken using a metal detector suitable for use in a nearshore environment.

The locations of all archaeological remains or objects identified will be recorded using EDM (Electronic Distance Measurement) and/ or DGPS (Differential Global Positioning System), as appropriate. All archaeological remains or objects identified will be photographed in-situ with a scale and north point. Any submerged remains/ objects observed will be photographed using a bathyscope or an underwater digital camera.

Any constraints encountered (e.g. immovable obstacles or areas unsuitable for survey etc.) which impede completion of the survey will be recorded and described, and the locations shown on a drawing.

A full descriptive report of the survey will be produced following completion of the surveys. As the wade and metal detection survey will be carried out under a Detection Device Consent and Dive Licence issued by the NMS, a standalone report will need to be submitted to the Licensing Authorities, as part of their conditions.

The key aim of these surveys is to inform any further mitigatory works that will be carried out in advance of the commencement of construction of the proposed scheme. The surveys will also aid in describing the nature of the sediments present within the riverine environment of the study area, and inform the Cultural Heritage Impact Assessment in the Environmental Impact Assessment Report for the proposed scheme.

2.2.2 Survey Timeline

These surveys are proposed during Phase 5 of the proposed scheme, so the exact dates are not currently known. It is estimated that the proposed surveys will take approximately one day to complete in the field.

2.3 Subtidal and Intertidal Surveys

The benthic surveys are proposed to provide a comprehensive and up-to-date description of the species and habitats found within subtidal and intertidal areas of River Slaney, in vicinity of the proposed scheme. The extent of the benthic survey area is outlined in Figure 2.1, shown in pink hatch.

The benthic surveys will be carried out by AQUAFACT. AQUAFACT has in-house standard operational procedures for benthic sampling, and these will be followed for this project. Additionally, the NE Atlantic Marine Biological Analytical Quality Control (NMBAQC) "Guidelines for processing marine microbenthic invertebrate samples" (Worsfold, T. and Hall, D., 2010) will be adhered to.

2.3.1 Subtidal Survey Description

A stainless steel 0.025m² Van Veen grab sampler will be used to recover undisturbed sediment samples from the River Slaney riverbed at a total of ten (four upstream and six downstream of the proposed River Slaney bridge) faunal grab stations. The indicative locations of these are shown in Figure 2.1 in red. Triplicate samples will be collected at each station. An additional grab will also be collected for particle size analysis (PSA) and organic carbon at each station.

A Rigid Inflatable Boat (RIB) will be used to deploy the grab sampler. The Van Veen grab sampler comprises of a steel bucket with hinged access flaps, that is deployed in an open position, but which shuts when the sampler is in contact with the riverbed. In closing, sediment and biological material are retained inside the sampler. On arrival at each pre-selected survey station, the location will be recorded using DGPS. Additional information (such as date, site name, sample code, water depth at each replicate, type and specification of the sampler, anchorage, weather, quality of the sample, penetration depth, description of the sediment and mesh size) will be recorded if possible. The samples will be sieved on a 1mm mesh sieve. Following a successful grab, photographs of the sample (including sample label) and notes on sediment type, texture, grain size, colour, odour (H₂S), residues, layering, volume, presence of fauna/tubes, algae, surface features etc, will be taken.

A sample of 500ml will be collected for PSA and organic carbon using a plastic scoop and labelled sediment sample will be stored in a cool box prior to PSA analysis in the laboratory. Each faunal sample will be stored and documented separately. All samples will be labelled and the information on the labels will be sufficient to identify the sample with certainty (e.g. date, location, station, job number, client, survey name etc). The labelling will be done on waterproof chemical resistant paper using a soft carbon pencil that will not fade in the fixing or alcohol solutions. These labels will be placed in the bucket with the sample, and the bucket will also be labelled on the outside using a waterproof marker.

2.3.2 Intertidal Survey Description

A survey of the intertidal zone upstream and downstream of the proposed Slaney River crossing will be undertaken. This will involve a Phase 1 Intertidal Walkover Survey and Phase II Intertidal Quantitative Transect Survey.

2.3.2.1 Phase I – Walkover Survey

An intertidal walkover survey will be undertaken prior to the Phase II quantitative transect surveys. The intertidal Phase I Walkover Survey will cover an approximate 1km stretch of the riverbank (north and south banks), dependent on access and local conditions. A Marine Nature Conservation Review (MNCR) Phase I intertidal survey will be completed within the intertidal areas during mean low water spring (MLWS) tidal conditions. The "Common Standards Monitoring Guidance" (Joint Nature Conservation Committee (JNCC), 2004) and "Common

Standards Monitoring Guidance for Littoral Sediments Habitats” (JNCC, Version 4, August 2004) will be followed. In addition, the “CCW Handbook for Marine Intertidal Phase I Survey And Mapping” (Wyn et al., 2000), and the “Guidelines for the Conduct of Benthic Studies at Marine Aggregate Extraction Sites (2nd edition)” (Ware and Kenny, 2011) will be adhered to.

These surveys will take place at or near spring low tide. During the walkover survey any observations that appear to be related to ongoing change to the littoral habitats, will be recorded. These may include saltmarsh encroachment, invasive species, localised erosion and sediment accretion. The distribution of features will be recorded using photographs and GPS fixes. Habitat and biotope boundaries will be mapped using GPS trackers, and detailed notes on biotope (using European Nature Information System (EUNIS) and JNCC guidance) and sediment character/taxa will be recorded in key habitats along the upper, mid and low shore.

This will be supplemented by occasional dig-overs of representative habitats (where required), which will entail digging over approximately 0.1m² of surface sediment and sieving through a 1mm sieve to provide a rapid in-situ assessment of benthic fauna. The survey will also include a record of sedimentary habitat, whereby sediment grain size is assessed in-situ using standardised Wentworth scale sediment comparison guides.

2.3.2.2 Phase II – Quantitative Transect Surveys

Following Phase 1 Walkover Surveys, Phase II Quantitative Intertidal Transect Surveys will be conducted within the benthic survey area as shown in Figure 2.1. The methodology will follow that set out within the *Marine Monitoring Handbook*; “Procedural Guideline No. 3-1 In situ intertidal biotope recording” (Wyn and Brazier, 2001) and “Procedural Guideline No. 3-6 Quantitative sampling of intertidal sediment species using cores” (Dalkin and Barnett, 2001). If rocky shore habitat is encountered, surveying will be adapted appropriately to use quadrats rather than core sampling. Photographic records during surveying will be taken, as appropriate, for recording and reporting purposes.

Four transects running perpendicular to the shoreline will be undertaken (two upstream and two downstream of the proposed River Slaney crossing). The indicative transects are shown in yellow in Figure 2.1. Along each transect, a 0.25m² quadrat will be used to survey at three stations (upper shore, mid shore and lower shore). Salient features will be noted as encountered along each transect and additional notes, supplemental photographs and level readings made where appropriate. Rocks and stones will be overturned, and the algal canopy cover (if present) will be partially removed at each station (where applicable) to investigate for the presence of any faunal species.

Quadrats will also be used to calculate the abundance of lug worms (*Arenicola marina*). In situ dig-overs of each quadrat following initial analysis will be conducted. At each quadrat location, a 15cm diameter core sample (in triplicate) will be taken to a depth of 15cm and preserved in 4% buffered formalin in separate labelled (inside and out) sealed containers. An additional 15cm diameter core sample will be taken at each station for PSA and organic carbon analysis in labelled (inside and out) containers. The anoxic layer depth will be recorded for each sample.

Where any features of conservation interest are identified the boundaries of these will be mapped using GPS in order to provide information on extent. Within each area of conservation, an agreed number of quadrats will also be sited to allow estimates of mean % cover to be calculated for each bed. Station locations will be recorded on a hand-held GPS unit (accuracy 3-5m) and recorded in the survey notebook. A photograph will be taken of each sampling station in order to help visually characterise the sediments and notes will be taken. Any evidence of anthropogenic disturbance or damage at any of the stations will be logged, measured (where relevant) and photographed. This includes activities such as bait digging, fishing activities and coastal defence works.

This methodology will result in 36 intertidal cores and 12 samples for the analysis of PSA and organic content. Due to the nature of the substrate in the intertidal zone of the estuary it may not be feasible from a health and safety perspective to survey the intertidal area on foot. The soft mud in the vicinity of the proposed development may require sampling from a vessel instead. In this case AQUAFACt proposes to sample each transect (upper, mid, and lower shore) from a RIB at high water using a 0.025m² Van Veen grab sampler. Triplicate samples will be collected at each shore height as well as an additional grab for sediment analysis, as outlined in the subtidal methods above.

2.3.3 Survey Timeline

The surveys will commence as soon as feasible following the grant of a MUL. The exact mobilisation dates will not be known until the MUL has been obtained and will be dependent on weather and tidal conditions. The subtidal survey and the intertidal survey will take approximately one day each.

3 Legislation and Guidance

This report seeks to assess the potential for impacts of the proposed works to result in disturbance, injury or mortality to species listed under Annex IV of the EU Habitats Directive (92/43/EEC). Under Article 12 and 13 of the Habitats Directive, Member States must establish systems of strict protection for animal and plant species which are particularly threatened, and which are listed on Annex IV of the Habitats Directive. Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulations 51, 52 and 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended.

Annex IV species are afforded strict protection throughout their range, both inside and outside of designated protected areas. It is an offence to deliberately kill, injure or disturb a specimen in the wild, or damage or destroy a breeding site or resting place of an Annex IV animal species.

All species listed under Annex IV with the potential to be impacted by the proposed site investigation works should be included, even if they have been separately assessed in the AA process.

3.1 International Legislation

The main aim of the Directive is to ensure species and habitat types listed within the Annexes of the Directive are protected. The overall objective is to maintain or restore species and habitat types to a favourable conservation status within the EU whilst taking account of economic, social, cultural requirements and regional and local characteristics. The Directive, in addition to halting the further decline or disappearance of species and habitats, aims to allow them to recover and thrive over the long-term.

The Directive requires all Member States to establish a strict protection regime for species listed in Annex IV, both inside and outside Natura 2000 sites. In particular Member States must prohibit:

- All forms of deliberate capture or killing in the wild.
- Deliberate disturbance, e.g. During breeding, rearing, hibernation and migration.
- Deterioration or destruction of breeding sites or resting places.
- Deliberate destruction of nests or eggs, or picking, collecting, cutting, uprooting or destruction of protected plants in the wild.
- The use of all indiscriminate means of capture or killing capable of causing local disappearance and serious disturbance to populations of such species, and
- The keeping, transport and sale of specimens taken from the wild.

Member States must also take measures, where necessary, to ensure that the taking or exploitation of specimens of species listed in Annex V is compatible with their being maintained at a favourable conservation status.

Member States must designate, protect and manage core areas for habitat types listed in Annex I and species listed in Annex II of the Habitat Directive. Sites are selected on scientific grounds using the criteria laid down in the Directive (Annex III).

All cetacean species are listed on Annex IV (Animal and Plant Species of Community Interest in Need of Strict Protection) of the European Commission's Habitats Directive. Under Annex IV, *the keeping, sale or exchange of such species is banned as well as deliberate capture, killing or*

disturbance. The grey and harbour seal are listed in Annex II of the Habitats Directive under which member countries of the EU are required to *consider the establishment of Special Areas of Conservation (SACs)*. All seal species are listed on Annex A of EU Council Regulation 338/97 and are therefore treated by the EU as *if they were on CITES Appendix I, thus prohibiting commercial trade*.

The directive also requires appropriate assessment of any plan or project not directly connected with or necessary to the management of a European Site, but likely to have significant effects upon a European site, either individually or in combination with other plans or projects.

3.2 National Legislation

S.I. No. 355 of 2015 provides that the following shall be construed together as one:

- Wildlife Act 1976;
- Wildlife (Amendment) Acts of 2000, 2010 and 2012;
- European Communities (Birds and Natural Habitats) (Restrictions of the Use of Poison Bait) Regulations 2010;
- European Communities (Birds and Natural Habitats) Regulations 2011;
- European Communities (Birds and Natural Habitats) (Amendment) Regulations of 2013, 2015; and
- Wildlife Amendment Bill 2016.

3.3 Guidance

This report has been prepared in accordance with the following guidance:

- DAHG (2014) Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters
- MARA (2024) Applicant Technical Guidance (V7) for Maritime Area Consents and Licensing
- EC (2021) Guidance document on the strict protection of animal species of Community interest under the Habitats Directive. Commission Notice (2021) and;
- JNCC *et al.* (2010) The protection of marine European Protected Species from injury and disturbance: Guidance for the marine area in England and Wales and the UK offshore marine areas' published by the Joint Nature Conservation Committee (JNCC), Natural England and Countryside Council for Wales (now Natural Resources Wales).

An overview of the previous literature regarding the Annex IV species baseline in Irish waters, included the following sources:

- Baseline desk studies and field surveys carried out for the proposed project area, including National Biodiversity Data Centre (NBDC) records for otter presence and cetacean sightings. These are supported by national surveys and reports.
- Site Synopsis, Conservation Objective Reports and Natura 2000 forms available from NPWS,
- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports such as Bailey & Rochford (2006) *Otter Survey of Ireland 2004/2005*, Reid *et al.* (2013a) *National Otter survey of Ireland 2010/12*, and Morris & Duck (2019) *Aerial thermal-imaging survey of seals in Ireland*, Species Action Plans and Conservation Management Plans and include NPWS Conservation Status Assessment Report for otter (*Lutra lutra*) [NPWS, 1355] and cetacean management plans.

4 Baseline Information

4.1 Summary of Noise Levels in the Aquatic Environment

Ambient noise in the marine environment is a combination of naturally occurring biological and physical sound sources. Anthropogenic noise sources from human activity are strongly influenced by ambient noise with the level of impact being affected by the level of ambient noise and how the two interact. In a noisy environment the impact is less, compared to a quieter environment. The intensity and frequency of the increased noise compared to the ambient levels is what defines its impact.

The exact manufacturer for the equipment to be used for the proposed works have yet to be determined and therefore proxy values have been provided for the equipment type (Table 4.1). Table 4.1 lists the operating frequency and typical source level (in dB re 1µPa (rms) @ 1m) for the proposed methodologies used in bathymetric surveys in the proposed survey works.

Table 4.1: Generic information on Underwater Noise Levels for Survey Techniques

Method	Operating Frequency	Typical Source Level (in dB re 1µPa (rms) @ 1m)
Sub-bottom Profiler	4kHz/100kHz	210-214
Side-scan Sonar	100kHz and 900kHz	210

The proposed survey area is approximately 4.5km upstream along the Slaney River outside of Wexford Harbour, it is considered that ambient noise would be relatively low in this area due to low levels of anthropogenic and environmental activity that would contribute to ambient noise. However, the survey methods used operate at high frequencies (typically in the range of approximately 100-600kHz). These frequencies are known to attenuate rapidly in the aquatic environment as high frequency sound is absorbed more rapidly over long distances than low frequencies. As such the zone of influence (Zoi) for underwater noise generated by survey vessel and the acoustic equipment is considered to be restricted to a relatively small area surrounding the survey vessel, not extending beyond a few hundred meters. NPWS guidance states that for multibeam, single beam, side-scan sonar and sub-bottom profiler surveys a 500m radial distance of the sound source is required¹. Beyond the Zoi sound levels are not anticipated to be distinguishable from background conditions.

4.2 Cetaceans

All cetacean species are listed under Annex IV of the Habitats Directive, which affords them strict protection within Irish Waters. To date, 25 species of cetaceans have been recorded in Ireland, ranging from resident populations to migratory species. Within the mouth of the Slaney River and Wexford Harbour area, cetaceans are regularly recorded with common dolphin and harbour porpoise occurring throughout the year (NBDC). Larger deep diving cetacean species such as humpbacks, fin and sperm whales are occasionally recorded further offshore or further south along the south coast, where water depths allow them to avoid stranding events, with other records of strandings for species such as minke whales being recorded near the mouth of Wexford Harbour in the estuary. As such these larger species have only been included should a record within Wexford Harbour be identified.

¹ National Parks and Wildlife Service (NPWS) (2014). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

4.2.1 Minke Whale (*Balaenoptera acutorostrata*)

Minke whales are the most frequently recorded baleen whale in Irish waters²³. These whales are often seen off most of Ireland's coastal regions year-round, most sightings are recorded from the south and west coast between May and October when a seasonal inshore movement of the species occurs in summer and autumn⁴. While they are mostly observed in shallow waters between 35-205m deep a lack of sightings in coastal waters in winter suggests an inshore-offshore movement and they are more often observed in deeper offshore waters around continental shelf areas during the winter months⁵. Minke whale sightings have been recorded in the Wexford Harbour area at the mouth of the Slaney River with the most recent sighting being in 2016 and a more recent stranding record from 2019. However, while they are recorded within the main Wexford Harbour area, none have been recorded upstream in the Slaney River.

Given the highly restricted nature of the proposed survey works being located approximately 1.5km upstream from Wexford Harbour, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species it is not considered there will be any potential interactions with this species and no risk of impact from the proposed survey works.

4.2.2 Common Dolphin (*Delphinus delphis*)

Common dolphins are one of the most abundant dolphin species around the Irish coast, inhabiting both continental shelf and offshore waters⁶. This species is strictly protected under Annex II and Annex IV of the Habitats Directive requiring Member States to designate SACs for their protection. However, there are no SACs designated for common dolphin in Ireland due to it being a wide-ranging highly mobile species that spends the majority of its time offshore with no site level core area identified to meet SAC selection criteria. Several recordings of common dolphin occur within the Wexford Harbour area primarily consisting of stranding events with other sighting observations further offshore while additional stranding event records were noted north along the coastline and Raven Point Nature Reserve SAC and south along Rosslare beach and Rosslare Europort areas. However, while they are recorded within the main Wexford Harbour area, none have been recorded upstream on the Slaney River.

Given the highly restricted nature of the proposed survey works being located approximately 1.5km upstream from Wexford Harbour, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species it is not considered there will be any potential interactions with this species and no risk of impact from the proposed survey works.

² Berrow, S.D., Whooley, P., O'Connell, M. and Wall, D. (2010). Irish Cetacean Review (2000–2009). Irish Whale and Dolphin Group, 60pp.

³ IWDG (Irish Whale and Dolphin Group). (2015). Minke Whale. Available from: IWDG - Irish Whale and Dolphin Group Accessed 18 August 2025.

⁴ Wall, D., Murray, C., O'Brien, J., Kavanagh, L., Wilson, C., Ryan, C., Glanville, B., Williams, D., Enlander, I., O'Connor, I., McGrath, D., Whooley, P. and Berrow, S. (2013). Atlas of the distribution and relative abundance of marine mammals in Irish offshore waters 2005 - 2011. Irish Whale and Dolphin Group, Kilrush, Co. Clare. 63pp

⁵ Rogan, E., Garagouni, M., Nykänen, M., Whitaker, A. and Ingram, S., 2018. Bottlenose dolphin survey in the Lower River Shannon SAC, 2018. Report to the National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht. University College Cork. 19pp. Cover image: A group of bottlenose dolphins in the outer Shannon Estuary© DCHG, p.2

⁶ Murphy, S., Pinn, E. H., & Jepson, P. D. (2013). The short-beaked common dolphin (*Delphinus delphis*) in the North-East Atlantic: distribution, ecology, management and conservation status. *Oceanography and Marine Biology: An Annual Review*, 51, 123–280.

4.2.3 Harbour Porpoise (*Phocoena phocoena*)

Harbour porpoise is one of the most widely distributed and observed cetaceans in European waters⁷, inhabiting shallow waters around the northern hemisphere⁸. This species is strictly protected under Annex II of the Habitats Directive and requires Member States to designate SACs for their protection. There are 16 SACs designated for harbour porpoises in Ireland, the closest of these being the Slaney River Valley SAC which has harbour porpoise listed as a QI, this designated site intersects the proposed survey area with survey works taking place within the boundaries of the SAC. Harbour porpoises are regularly recorded as both sightings and strandings in the Wexford Harbour, Rosslare beach, Rosslare Europort and coastal regions by the mouth of the estuary reflecting the species' preference for shallow, productive coastal waters with strong tidal currents and an abundance of prey. However, while they are recorded within the main Wexford Harbour area which forms a part of the Slane River Valley SAC of which they are a QI species, none have been recorded upstream on the Slaney River.

Given the highly restricted nature of the proposed survey works being located approximately 1.5km upstream from Wexford Harbour, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species it is not considered there will be any potential interactions with this species and no risk of impact from the proposed survey works.

4.2.4 Bottlenose Dolphin (*Tursiops truncatus*)

Bottlenose dolphins are one of the most studied species and are widely distributed in both temperate and tropical marine waters globally⁹. They are also among the most commonly recorded cetacean species in Irish waters and are observed year-round⁹. The species is strictly protected under Annex II and Annex IV of the Habitats Directive; member states are required to designate SACs for their protection. There are 12 SACs designated for this QI species in Ireland. Bottlenose dolphins are known to occupy shallow coastal habitats such as bays, estuaries and inlets and are frequently observed foraging close to shore with schools of fish or in areas of tidal mixing. Anecdotal sightings and effort-based survey projects carried out off the west Clare coast²⁵ have confirmed regular presence of this species within near shore waters particularly during the summer and early autumn months when prey availability is highest.

Records of bottlenose dolphins using Wexford Bay are limited and mainly consist of strandings while other records for sightings are located further southeast along Rosslare beach and Rosslare Europort. Sightings at Wexford Harbour are occasional compared to areas such as the Shannon Estuary SAC and Galway Bay, it is considered that the coastal waters near Wexford Harbour and the Slaney River form part of the species' broader foraging and transit range from sites such as Hook Head SAC. However, while they are recorded within the main Wexford Harbour area, none have been recorded upstream on the Slaney River.

Given the highly restricted nature of the proposed survey works being located approximately 1.5km upstream from Wexford Harbour, the short-term and temporary nature of the proposed

⁷ Hammond, P.S., Berggren, P., Benke, H., Borchers, D.L., Collet, A., Heide-Jørgensen, M. P., Heimlich, S., Hiby, A.R., Leopold, M.F., Øien, N., (2002). Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters. *Journal of Applied Ecology*, 39, 361–376.

⁸ Todd, N.R.E., Cronin, M., Luck, C., Bennison, A., Jessopp, M. and Kavanagh, A.S. (2020). Using passive acoustic monitoring to investigate the occurrence of cetaceans in a protected marine area in northwest Ireland. *Estuarine Coastal and Shelf Science*, 232, 106-509.

⁹ Wells, R.S., Scott, M.D. (2009). *Encyclopaedia of Marine Mammals: Common Bottlenose Dolphin Tursiops truncatus*. In *Encyclopaedia of Marine Mammals Second Edition*. (Perrin, W.F., Würsig, B., Thewissen, J.G.M, eds) Academic press. ISBN: 978-0-12-373553-9, 249-250.

surveys and the localised footprint of vessel operations and mobility of this species, with assumed transient individuals being observed, it is not considered there will be any potential interactions with this species and no risk of impact from the proposed survey works.

4.2.5 Summary

Due to the proposed site's location, no cetaceans are envisioned to be within proximity to the development site. Most cetacean sightings in relation to this development are recorded as being sighted within Wexford Harbour where the potential impact from noise and vibration is negligible to none. There is a potential risk of debris reaching Wexford Harbour and impacting sediments, which may affect water quality, however, due to the distance downstream this would need to travel, dilution ratios and deposition this disturbance is again considered negligible at worse for Annex IV cetacean species.

4.3 Other Annex IV Species

4.3.1 Sea Turtles

Four Annex IV species of turtle are known to occur in Ireland (leatherback turtle, Kemp's Ridley turtle, loggerhead turtle and hawksbill turtle). Leatherback turtle (*Dermochelys coriacea*) has been reported on a number of occasions around the Irish coastline and in the Irish Sea, most recently in 2020. Between 2000 and 2018, 198 observations of leatherback turtles were recorded in Irish waters (NPWS, 2019). Leatherbacks are known to have an 'atypical migration pattern', as while they must return to tropical waters to breed and reach preferred nesting grounds, they are known to spend the summer months in productive temperate waters, like Ireland's, feeding on jellyfish and sea squirts (Doyle, 2007). Other turtle species have been less commonly observed in Irish waters. Similarly to cetaceans, given the highly restricted nature of the proposed survey works being located approximately 1.5km upstream from Wexford Harbour, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species it is not considered there will be any potential interactions with this species and no risk of impact from the proposed survey works.

4.3.2 Otter (*Lutra lutra*)

Eurasian otters are considered a top predator in freshwater ecosystems making its presence a significant role in the well-being of these ecosystems and habitats¹⁰. Aquatic prey and shelter availability are two basic requirements for the growth of otter populations. The species is strictly protected under Annex II and Annex IV of the Habitats Directive requiring Member States to designate SACs for their protection. Otters are also designated as a species of conservation concern and high priority due to major declines in numbers from alterations in water quality in riverine and estuary habitats, habitat destruction and the introduction of alien invasive species¹⁰¹¹¹². There are 44 SACs¹³ with otter as a QI with associated habitats ranging from

¹⁰ Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. & Montgomery, W.I. (2013a). National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

¹¹ Gutleb, A.C. & Kranz, A. (1998). Estimation of polychlorinated biphenyl (PCB) levels in livers of the otter (*Lutra lutra*) from concentrations in scats and fish. *Water, Air, and Soil Pollution*, 106, 481-491.

¹² Leppakoski, E., Gollasch, S., & Olenin, S. (2002). *Invasive aquatic species of Europe - Distribution, impacts and management*. Kluwer Academic Publishers.

¹³ NPWS 1355 *Lutra lutra* Conservation Status Assessment Report.
<https://www.npws.ie/sites/default/files/general/otter-conservation-status-report.pdf>

estuaries, lakes, coastal lagoons, dunes and alluvial forests¹⁴. The closest of these being the Slaney River Valley SAC which has otter listed as a QI, this designated site intersects the proposed survey area with survey works taking place within the boundaries of the SAC.

Otter have been regularly recorded along the Slaney River up and downstream of the proposed survey area as well as within the proposed survey area, Wexford Harbour and along coastal areas including Raven Point, Rosslarefort and Rosslare Europort. The presence of otters is further confirmed by historic surveys carried out by Mott MacDonald ecologists as part of the N11/N25 road scheme from 2021 to 2025 which had found evidence of otters along this route. Evidence such as tracks, spraints and potential holts were identified confirming that otters are present in the wider area as well as along the Slaney River utilising hydrological links throughout the wider areas of the river system.

Despite the highly restricted nature of the proposed survey works, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species, it is considered that there will be interactions with this species and a risk of impact from the proposed survey works.

4.3.3 Bats

There are nine species of bats established in Ireland, all nine species are residents in Ireland and are protected under Annex IV of the Habitats Directive. No designated sites were identified with bats as qualifying features within 15km of the site location. No lesser horseshoe bat roosts are present in the area with their population primarily being restricted towards the west of the country.

Preliminary investigations were carried out in April and September of 2022 to assess trees and structures for roosting potential, static loggers were placed out on site in September 2022. Activity and Emergence surveys were historically carried out to determine activity and roost presence between May and September from 2022 to 2024. Bat tree roost surveys were carried out in September 2025.

The surveys identified a healthy level of bat activity throughout the wider area with several roosts identified in structures and trees in the wider area. However, none of the confirmed roosts are located within the proposed survey areas concerning this risk assessment.

4.3.4 Natterjack Toad (*Epidalea calamita*)

The natterjack toad (*Epidalea calamita*) is widespread across continental Europe but lives at the edge of its climatic range in Ireland. It is confined to a handful of coastal sites around the Dingle and Iveragh peninsulas in West Kerry, with one translocated population in Wexford located in Raven Point Nature Reserve SAC. The natterjack toad emerges from hibernation in late March / early April. The protracted breeding season can continue into June.

Due to the highly restricted range of the natterjack toad within Ireland and given the highly restricted nature of the proposed survey works being located approximately 10.06km upstream from Raven Point Nature Reserve SAC, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species it is not considered there will be any potential interactions with this species and no risk of impact from the proposed survey works.

¹⁴ Bailey, M. & Rochford, J. (2006). Otter Survey of Ireland 2004/2005. Irish Wildlife Manuals No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

4.4 Non-Annex IV species of conservation interest (ETP)

4.4.1 Harbour seal (*Phoca vitulina*)

Harbour seals are widely distributed across the northern hemisphere¹⁵ and one of two seal species that inhabit Irish waters. This species is included under Annex II of the Habitats Directive requiring Member States to designate SACs for their protection with Ireland having 13 SACs designated for this species. The closest of these being the Slaney River Valley SAC which has harbour seal listed as a QI, this designated site intersects the proposed survey area with survey works taking place within the boundaries of the SAC.

The designated site is considered to support a regionally significant number of harbour seal where several sandbanks are used for breeding, moulting and resting activity in the Wexford Harbour area¹⁶. While no haul out locations have been identified further upstream, a single record for harbour seal was observed within the proposed survey area approximately 5km upstream from Wexford Harbour and the rest of the observations and records of this species while several other records are noted to be much further upstream along the Slaney River close to Enniscorthy.

Presence of Common Seal in the survey area are considered to be predominantly anomalous events, but they may use the area for foraging on occasion. Despite irregular usage and highly restricted nature of the proposed survey works, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species, it is considered that there could be potential for interactions with this species and a risk of impact from the proposed survey works.

4.4.2 Grey Seal (*Halichoerus grypus*)

Grey seals are the second pinniped species to inhabit the coast areas of Ireland and are also included under Annex II of the Habitats Directive which, similarly to harbour seals, requires Member states to designate SACs for their protections. There are 10 SACs designated for grey seal in Ireland with the closest being the Saltee Islands SAC approximately 17.82km south of the proposed survey area by land.

Presence of Grey Seal in the survey area are considered to be predominantly anomalous events, but they may use the area for foraging on occasion. Despite irregular usage and highly restricted nature of the proposed survey works, the short-term and temporary nature of the proposed surveys and the localised footprint of vessel operations and mobility of this species, it is considered that there could be potential for interactions with this species and a risk of impact from the proposed survey works.

¹⁵ Cronin, M., Duck, C., Ó Cadhla, O., Nairn, R., Strong, D., O'Keeffe, C. (2007). An assessment of population size and distribution of harbour seals in the Republic of Ireland during the moult season in August 2003. *Journal of Zoology*, 273, 131–139.

¹⁶ NPWS. 2015. Slaney River Valley SAC [000781]. Site Synopsis.
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000781.pdf>

5 Potential Impacts

The proposed survey works outlined in Section 2 pose a potential for impacts on the identified Annex IV species both directly and indirectly. Due to the nature of the proposed survey methods the potential impacts on Annex IV species are outlined below:

5.1 Noise and Vibration

5.1.1 Marine Mammals

Generalised hearing ranges for cetaceans has been provided in Table 5.1. The NMFS (2024)¹⁷ guidance identified the received levels and auditory weighing functions, or criteria, at which individual marine mammals are predicted to experience changes in their hearing sensitivity for acute (<24hrs) exposure to underwater anthropogenic sound sources.

The thresholds used are detailed in Table 5.2 for the onset of auditory injury¹⁸ while Table 5.3 shows the onset for temporary threshold shift (TTS)¹⁷.

Table 5.1: Generalised Hearing Range of the cetacean Hearing Groups

Hearing Group	Generalised Hearing Range (kHz)
Low Frequency Cetaceans	0.007 – 36
High Frequency Cetaceans	0.15 – 160
Very high Frequency Cetaceans	0.2-165

Table 5.2: Cetacean Auditory Injury Onset threshold

Hearing Group	Auditory Injury Onset Threshold (dB re. 1 µPa at 1 m)	
	Impulsive	Non-impulsive
Low Frequency Cetaceans	222	197
High Frequency Cetaceans	230	201
Very high Frequency Cetaceans	202	181

Table 5.3: Cetacean TTS Onset Thresholds

Hearing Group	TTS Onset Threshold (dB re. 1 µPa at 1 m)	
	Impulsive	Non-impulsive
Low Frequency Cetaceans	216	177
High Frequency Cetaceans	224	181
Very high Frequency Cetaceans	196	161

Cetaceans being assessed in this report would include those that are considered to fall into the high and very high frequency category¹⁹. Within the immediate vicinity of the proposed survey works auditory injury onset and TTS could occur to very high and high frequency cetaceans with

¹⁷ Defined by NMFS (2024) as a temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level

¹⁸ Defined by NMFS (2024) as damage to the inner ear that can result in destruction of tissue. Auditory injury may or may not result in a Permanent Threshold Shift (PTS). PTS (as defined by NMFS, 2024) is a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level.

¹⁹ Kastelein, R.A., Schop, J., Hoek, L. and Covi, J. (2015). Hearing thresholds of harbour porpoise (*Phocoena phocoena*) for narrow-band sweeps. Journal of Acoustic Society America. 138(4): 2508-2512.

the risk of TTS extending up to 250m with behavioural disturbances can have a potentially greater range.

Due to the proposed survey works location (approximately 4.5km upstream) it is not considered that any cetaceans will be within the immediate vicinity of the proposed survey works or vessel. This is due to the tidal influence and depth of the Slaney River and the distribution of historic records from NBDC showing the nearest cetacean record being approximately 1.5km downstream from the survey area. As such there is no potential risk of significant auditory impact or injury from the proposed survey works as no cetaceans are expected to be within the Zol of the survey works.

Annex IV cetaceans present in the region such as harbour porpoise, bottlenose dolphin and common dolphin and other marine mammals such as pinniped species can exhibit temporary behavioural responses when in close proximity to activities similar to the proposed survey works. Such behaviours may include brief avoidance of areas or minor changes in dive patterns.

The proposed survey works will generate low-intensity underwater noise, primarily associated with a vessel or ROV movements and the use of geotechnical equipment such as multi-beam sonar, side-scan sonar and sub-bottom profiler. Due to how high frequency sounds travel through the aquatic environment and the distances involved, these devices produce sound levels that fall well below thresholds associated with injury or permanent hearing damage to marine mammals and are comparable to, or lower than, noise emitted by routine commercial and fishing vessel traffic which is present and active further downstream along with other recreational crafts/vessels used in Wexford harbour and on the Slaney River. As such, behavioural reactions (as noted above) are expected to be short-lived and non-injurious, reflecting normal behavioural plasticity rather than significant ecological disturbance; should marine mammal species come into close proximity to the proposed survey works.

It is considered that noise emissions will be intermittent, of short duration at each sampling location and restricted to the proposed survey area, limited to a small area surrounding the active vessel. Due to the relatively large area of alternative foraging habitat and shallow waters in which the survey will take place (approximately 4.5km inland upstream on the Slaney River) and the short duration of the proposed survey works; there is no realistic mechanism by which the limited reversible responses could translate into reduced foraging success, displacement from important habitats or population-level impacts.

5.1.2 Otter

Otter is not expected to be affected by underwater noise generated during the proposed survey works. Otter hearing is not adapted to underwater with functional hearing in otters while underwater not being fully understood. However, are more likely to be affected by above water noise disturbances such as that generated from the vessels out board motor.

The above water hearing range is reported to be within the range of 200KHz to 32KHz²⁰, with lowest thresholds around 4KHz. however, behavioural changes have been noted in otters underwater at frequencies of both 1khz and 14khz²¹. In Ireland the territorial range of otters can be extensive with females occupying territories of 7.5 ± 1.5 km in length along a riverine

²⁰ Voigt MB, Hackenbroich C, Krüger HH, Liebau A, Esser KH. The in-air auditory thresholds of the eurasian otter (*Lutra lutra*, L. 1758) as determined by auditory brainstem responses. *Hear Res.* 2019 Sep 15; 381:107774. doi: 10.1016/j.heares.2019.107774. Epub 2019 Aug 2. PMID: 31408801.

²¹ Stepien, E. N. (2020). Testing the Eurasian otter's (*Lutra lutra*) response to underwater frequencies used for acoustic seal deterration devices. The 16th Danish Marine Mammal Symposium, Denmark.

environment and 6.5 ± 1.0 km in coastal environments, while male otter territory along rivers is approximately 13.2 ± 5.3 km in length with a high degree of variability²².

Temporary disturbance to otter may occur, should they be foraging or commuting along the riverine corridor near the survey works or along the riverbanks near the vessel launch sites. Significant impacts are not considered possible due to the short duration of the proposed survey works along with the wide availability of alternative suitable foraging and commuting habitat in the area along the riverine corridor. The proposed survey works are also noted to not have the potential to impact any otter holts or resting sites.

5.2 Pollution/Sediment Associated with Survey Works

5.2.1 Pollution from Spills and Leakages

The proposed survey works will involve the operation of a vessel such as a RIB or solid hull boat as well as potentially a remote operated vehicle (ROV). In the case of the ROV's operation a support vessel will still be required. There is a risk of minor accidental pollution events such as fuel spills or hydraulic fluid leaks. Such events can negatively impact the aquatic environment by reducing water quality, poisoning fauna and flora species which can affect not just the mammal species directly but also indirectly by toxifying their food sources and causing a reduction in fish stock populations.

5.3 Physical Disturbance

Disturbance is localised, short-term and rapidly reversible, with no mechanism for effects to extend beyond the immediate sampling point. However, there is potential for localised, short-term and rapidly reversible physical disturbances within the proposed survey area along the Slaney river due to vessel movements and increased human activity and presence during subtidal and intertidal surveys.

5.3.1 Increased Human Presence

Otter using the riverine corridor and banks areas and shoreline may experience disturbances due to increased human presence and activity in the area which may result in avoidant behaviours or alternatively encourage otters to approach survey works due to their curious nature.

5.3.2 Vessel Movements

While the River Slaney will experience a baseline level of vessel activity and traffic any additional vessel movements on the river will increase the risk of vessel strike should marine mammals be present in the survey area as well as trigger reactive behavioural responses. While the majority of marine mammal sightings and records are approximately 4.5 km downstream in Wexford Harbour where vessel traffic and movement will occur at much higher rates.

This physical disturbance may involve temporary, low-level behavioural responses to the presence or movement of vessels, particularly in areas where vessel traffic would generally be considered low. However, any such responses are considered to be brief, non-injurious and similar to those elicited by more routine vessel traffic as experienced by marine mammals downstream in Wexford Harbour. It is also considered that due to marine mammals not venturing further upstream on a regular basis given the proposed survey areas restricted location

²² Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. & Montgomery, W.I. (2013) National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland

approximately 4.5km upstream from Wexford Harbour; there is no plausible mechanism by which short-duration avoidance behaviour within the survey area could reduce foraging efficiency, alter movement patterns or result in significant disturbance. The absence of haul out and breeding points for pinniped species such as grey and harbour seal within the proposed survey area suggests that no disturbance of ecological function or protected features will occur.

6 Risk Assessment

Several Annex IV species and other protected fauna may occur in or near the proposed survey area either as a resident, transient or on an occasional basis. These species are listed in Section 4.

The potential for significant impacts to these species from the proposed survey works have been considered in relation to three primary potential impacts associated with the proposed survey works.

Due to the short-term and temporary nature of the survey works, the restrictive/localised survey footprint and the small scale of activities, any potential effects are considered to be temporary, highly localised and reversible. Mobile species such as cetaceans and seals are highly mobile, enabling ready avoidance of any localised disturbance or contamination and are unlikely to experience sustained displacement or population-level effects. Less mobile and more site-associated species such as otter using the riverine corridor, may experience short-term disturbance or foraging disruption if works overlap with feeding or commuting areas. However, otters in the area are generally tolerant of localised human and vessel activity and impacts are expected to be of low magnitude.

While there is potential for localised disturbance, the overall risk to Annex IV species from the proposed survey works is considered to be very low. No significant adverse effects on the conservation status of these species are anticipated. A summary risk assessment of the potential impacts for Annex IV species is provided in Table 6.1.

Table 6.1: Annex IV Risk Assessment

Species/Group	Pollution (Spills/Leakage)	Noise & Vibration	Physical Disturbance	Impact Assessment
Minke Whale	N/A	N/A	N/A	Rare inshore occurrence with the only NBDC records identified showing records of stranded individuals in Wexford Bay. No realistic pathway for exposure to survey impacts.
Common Dolphin	N/A	Negligible - Low	Negligible - Low	Due to the nature, scale and location of the proposed survey works it is considered that the potential for impacts to cetacean species is negligible. However, based on the records for observations and strandings from NBDC in Wexford harbour, there is potential for anomalous events to occur where smaller cetacean species may travel further upstream. In these cases. As such should common dolphin travel further upstream it is considered possible that they may exhibit behavioural responses should they be present within close proximity (<500m) of the proposed survey area when acoustic surveys are being carried out. However, it is considered that this species present this far upstream would be considered abnormal and any impact or change in behaviour as a result of the proposed survey work would also be negligible in this context.
Harbour Porpoise	N/A	Negligible - Low	Negligible - Low	Due to the nature, scale and location of the proposed survey works it is considered that the potential for impacts to cetacean species is negligible. However, based on the records for observations and strandings from NBDC in Wexford harbour, there is potential for anomalous events to occur where smaller cetacean species may travel further upstream. In these cases. As such should harbour porpoise travel further upstream it is considered possible that they may exhibit behavioural responses should they be present within close proximity (<500m) of the proposed survey area when acoustic surveys are being carried out. However, it is considered that this species present this far upstream would be considered abnormal and any impact or change in behaviour as a result of the proposed survey work would also be negligible in this context.
Bottle-nosed Dolphin	N/A	Negligible - Low	Negligible - Low	Due to the nature, scale and location of the proposed survey works it is considered that the potential for impacts to cetacean species is negligible. However, based on the records for observations and strandings from NBDC in Wexford harbour, there is potential for anomalous events to occur where smaller cetacean species may travel further upstream. In these cases. As such should bottlenose dolphin travel further upstream it is considered possible that they may exhibit behavioural responses should they be present within close proximity (<500m) of the proposed survey area when acoustic surveys are being carried out. However, it is considered that this species present this far upstream would be considered abnormal and any impact or change in behaviour as a result of the proposed survey work would also be negligible in this context.
Sea Turtles	N/A	N/A	N/A	Although the application does not assess potential impacts to turtles (Stage one screening assessment focuses only on Annex II species), given the low numbers recorded over an 18-year

Species/Group	Pollution (Spills/Leakage)	Noise & Vibration	Physical Disturbance	Impact Assessment
				time period, it is highly unlikely that turtles will occur within the project area. Given the rarity of occurrence of turtles in Irish waters, and distance in-land up-river of the proposed development site along the shallow riverine habitat, it is concluded that there will be no significant disturbance, injury, or death of turtle species as a result of the survey activities. There will be no deterioration or destruction of breeding sites or resting places. The proposed works do not offend the system of strict protection of turtles under Article 12 of the Habitats Directive.
Otter	Low	Low	Low	Identified as a QI species for the Slaney River Valley SAC which is where the proposed survey works are located. Historic walkover surveys have identified evidence of otter presence and activity. However, no holts were identified during these surveys. Works have a very small, short-term duration and highly localised footprint; no holts or resting areas occur near the access point. Any disturbance would be minimal and would not affect commuting or breeding behaviour.
Bats	N/A	N/A	N/A	Due to the nature of the proposed survey works (vessel based underwater acoustic surveys and intertidal zone walkovers and sample collections) there is no perceived risk of potential impacts to bats, their habitats or roost sites in any way.
Natterjack Toad	N/A	N/A	N/A	There is no perceived risk to natterjack toads due to the restrictive range of this Annex IV species on the island of Ireland as the restrictive nature and location of the proposed development.
Harbour Seal	Negligible - Low	Low	Negligible - Low	Identified as a QI species for the Slaney River Valley SAC which is where the proposed survey works are located. However, no haul out points or breeding sites have been identified within the survey area. NBDC records show sightings of harbour seal within the survey area but these are considered to be relatively anomalous events.. Given the nature and location of the proposed works, and the negligible likelihood that any pinnipeds will be present on site, it is considered that there will be no risk of collision, injury, or mortality. The risk of disturbance to life cycle is considered negligible given that there are unlikely to be any pinnipeds in the vicinity of the proposed survey works. As the proposed activity will not cause injury, disturbance, or death to the variety of marine mammal species recorded in Irish waters, given the nature and location of the works and that no pinnipeds are likely to be exposed to the construction works for the proposed development, there is no sensitive time that can be impacted as any disturbance would be temporary in nature. The small numbers that may occur within the site area are likely to be accustomed to human activities, these transient individuals may briefly avoid vessels or sampling points, but no population-level effects anticipated.
Grey Seal	Negligible - Low	Low	Negligible - Low	No haul out points or breeding sites have been identified within the survey area. NBDC records show sightings of grey seal within the survey area but these are considered to be relatively anomalous events..

Species/Group	Pollution (Spills/Leakage)	Noise & Vibration	Physical Disturbance	Impact Assessment
				Given the nature and location of the proposed works, and the negligible likelihood that any pinnipeds will be present on site, it is considered that there will be no risk of collision, injury, or mortality. The risk of disturbance to life cycle is considered negligible given that there are unlikely to be any pinnipeds in the vicinity of the proposed survey works. As the proposed activity will not cause injury, disturbance, or death to the variety of marine mammal species recorded in Irish waters, given the nature and location of the works and that no pinnipeds are likely to be exposed to the construction works for the proposed development, there is no sensitive time that can be impacted as any disturbance would be temporary in nature. The small numbers that may occur within the site area are likely to be accustomed to human activities, these transient individuals may briefly avoid vessels or sampling points, but no population-level effects are anticipated.

7 Mitigation Measures

7.1 Pollution Controls

The proposed survey works do not require the storage or use of bulk hazardous materials due to the nature of the equipment required (namely small outboard motors). Any potential hydrocarbon spill or leak events would involve small volumes that would be restricted to the immediate water surface area around the survey vessel.

Considering dilution ratios and the hydrodynamic conditions of the Slaney River it is considered that these would be rapidly dispersed, Annex IV cetaceans such as harbour porpoise and other marine mammals such as grey and harbour seal are highly mobile, enabling ready avoidance of any localised contamination. Other species such as otter using the shoreline are similarly unlikely to interact with spills due to the limited scale of intertidal activities and routine control of fuels and lubricants.

However, the following standard best practice pollution prevention measures will be implemented on site during the survey works:

- Activities to be planned in advance with all vessels and ROVs to be thoroughly inspected and regular mandatory maintenance to be up to date.
- Vehicles and machinery used on site will have an emergency spill response plan in place and all staff are to be made aware of it.
- Spill kits, drip trays and plant nappies will be present on site with staff trained in their use.
- All hydrocarbons (oils, fuels and lubricants etc) will be stored in containers of up to 110% capacity to ensure there is a reduced risk of overflow spill and will be stored a minimum of 10m from the banks of the Slaney River.
- If possible biodegradable lubricants and hydraulic oil must be used, while less toxic than traditional synthetic oils they must be stored in the same way.
- Any solvent materials, such as sealants, coatings, adhesives or glazing's can be very toxic to flora and fauna when exposed to the environment. As such it is recommended that water-based or low-solvent products are used and stored in safe and secure containers.

7.2 Noise and Vibration

NPWS²³ provides guidance to manage the risk to marine mammals from man-made sound sources in Irish waters. This document provides guidance and mitigation measures to address key potential sources of anthropogenic sound that may impact negatively on marine mammals in Irish waters. The mitigation methods should follow the guidance prescribed by the National Parks and Wildlife Service.

To minimise the potential impact on Annex IV species and other protected marine fauna, the following measures will be implemented as part of the survey activities:

- A suitably qualified Marine Mammal Observer (MMO) will be appointed for the duration of the survey works. The MMO will conduct a 30-minute pre-start watch within 500m of the survey vessel to monitor for marine mammals and to log all relevant events using standardised data forms.

²³ NPWS (2014). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Department of Arts, Heritage and the Gaeltacht

- Unless information specific to the location and/or plan/project is otherwise available to inform the mitigation process (e.g., specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, acoustic surveying using the above equipment shall not commence if marine mammals are detected within a 500m radial distance of the sound source intended for use, i.e., within the Monitored Zone.
- A 500m zone is considered appropriate as empirical evidence²⁴ demonstrates that seals do not abandon their haul out sites unless approached within less than 200m of the site.

7.2.1 Pre-Start Monitoring

- Sound-producing activities shall 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.
- An agreed and clear on-site communication signal must be used between the MMO and the surveyors/supervisor as to whether the relevant activity may or may not proceed, or resume following a break. It shall only proceed on positive confirmation with the MMO.
- If cetaceans, pinnipeds or otter are observed within this zone, start-up will be delayed until the animals have dispersed or left the area or a 30-minute clearance period has elapsed.
- If the vessel is paused or stopped for more than 30 minutes, the pre-start monitoring followed by a “ramp up” or “soft-start” process will be repeated before recommencement.
- Once survey works have commenced, they may continue at night or during poor visibility as continuous activity is considered to be less disruptive than repeated start-ups.

7.2.2 Ramp Up or Soft Start Procedure

- In commencing an acoustic survey operation using the proposed acoustic equipment, the following Ramp-up Procedure (i.e., “soft-start”) 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:
 - 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.
 - 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.
 - 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 must be minimised to prevent unnecessary high-level sound introduction into the environment.

7.2.3 Break in Sound Output

- 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

²⁴ Surveys, conducted on behalf of Bord Iascaigh Mhara, of seal disturbance at haul out sites as a result of fishing activity (potting) at haul out sites in Roaringwater Bay in 2015

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 (see sections 2.4, 3.2) as informed by the associated risk assessment, there is likely to be a regulatory requirement to adopt a shorter 5–10-minute break limit after which period all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) shall recommence as for start-up.

7.3 Physical Disturbance

No specific mitigation is required to avoid significant effects arising from physical disturbance, as the characteristics of the surveys inherently limit effects to small, localised and transient interactions with the riverbed and fauna species. However, the following mitigation will be implemented in accordance with best practice.

7.3.1 Vessel Movements

Physical disturbance associated with the surveys will be controlled through standard best-practice operational procedures, including careful vessel manoeuvring, minimisation of unnecessary seabed contact and adherence to normal marine environmental protection measures. These practices further reduce the already low magnitude of disturbance but are not required to avoid significant effects. Based on the temporary, localised and fully reversible nature of all potential interactions, the survey works will not cause injury, significant disturbance or deterioration of resting/breeding sites for any Annex IV species.

8 Conclusion

This report has considered the potential for the proposed survey works to impact Annex IV species via pollution, noise and vibrations and physical disturbance. The survey activities are considered to be temporary, small in spatial extent and confined to the pre-determined survey area approximately 1.5km upstream on the Slaney River.

The proposed survey area does not spatially overlap with any breeding or resting sites/habitat for any Annex IV species. The proposed survey works themselves are low in intensity, short in duration and will rapidly attenuate.

With the implementation of the prescribed mitigation as outlined in this report, including MMO monitoring and soft-start procedures for relevant acoustic activities, the proposed survey works will successfully avoid injury or significant disturbance impacts to Annex IV cetaceans, otter and non-Annex IV pinniped species.

Due to the location, nature and scale of the survey works being proposed, the high mobility of the species concerned, the limited spatial and temporal extent of potential disturbances with simple precautions and mitigation strategies, it is considered that no disturbance, injury or deterioration of resting/breeding sites is anticipated. A derogation licence is not required.

