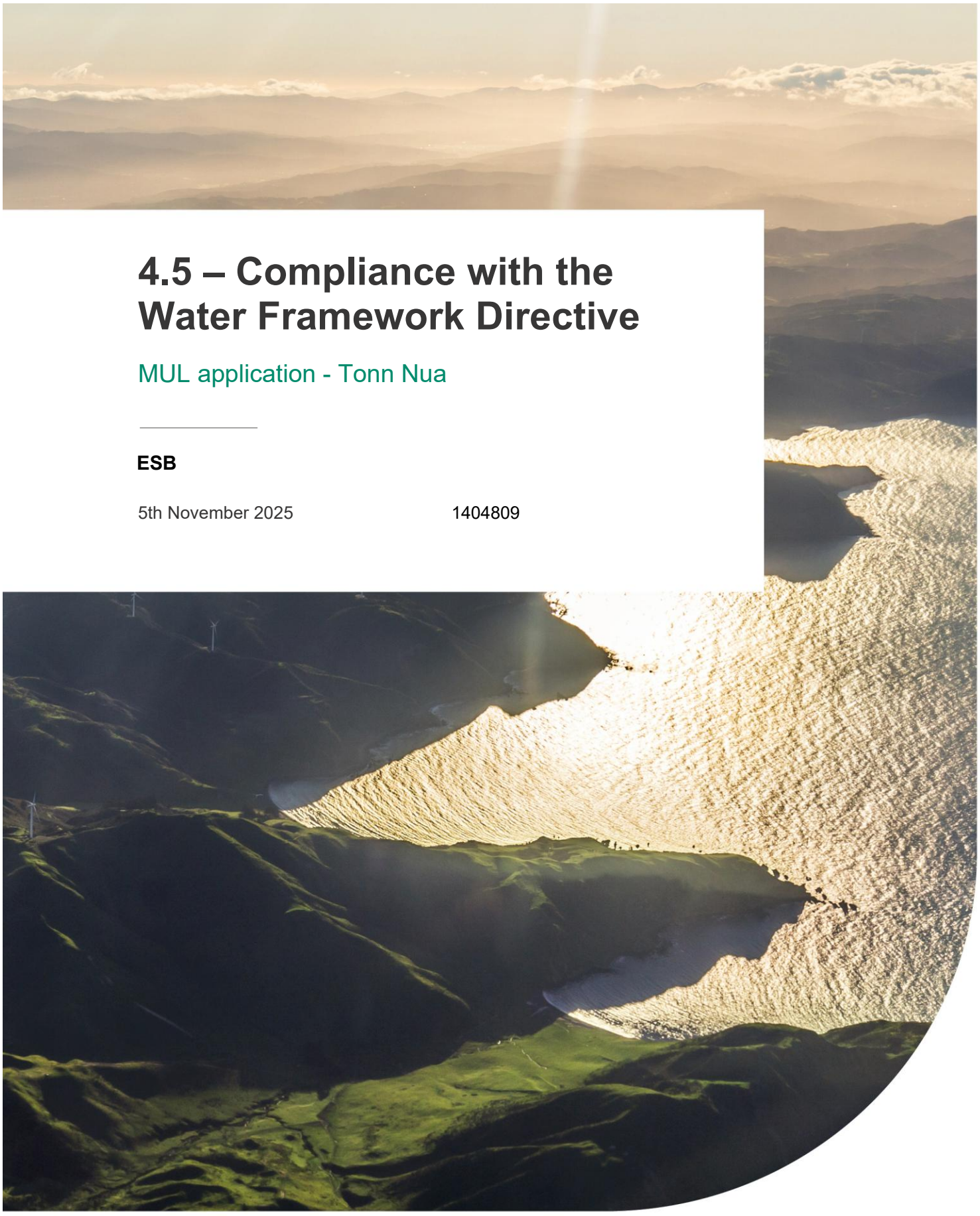

4.5 – Compliance with the Water Framework Directive

MUL application - Tonn Nua

ESB

5th November 2025 1404809

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Document history

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Contents

Glossary

Term	Definition
Baseline	Reference condition against which deterioration or improvement in waterbody status is measured.
Chemical Status	Assessment of concentrations of pollutants compared to environmental quality standards.
Coastal Waters	Marine waters extending to one nautical mile from the baseline.
Deterioration	Any downward change in ecological or chemical status of a waterbody compared with its baseline condition, which the WFD prohibits for all surface and groundwater bodies.
Ecological Status	Measure of the structure and functioning of aquatic ecosystems, incorporating biological, hydromorphological, and physico-chemical quality elements.
Natura 2000	A Europe-wide network of protected areas established under the Birds Directive and Habitats Directive, aimed at ensuring the long-term survival of Europe's most valuable and threatened species and habitats.
Overall WFD Status	The lower of the ecological or chemical status, as defined by the WFD classification system.
Programmes of Measures (PoM)	Actions defined under RBMPs to ensure water bodies achieve or maintain good status.
River Basin Management Plan (RBMP)	Six-year planning cycle under the WFD that sets out measures to protect and improve water quality.
The Regulations	Refers to the European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003) as amended, which transpose the WFD into Irish law.
Transitional Waters	Estuarine waters, intermediate between freshwater and marine conditions.
Water Framework Directive (WFD)	EU Directive (2000/60/EC) requiring all Member States to protect and improve water quality and achieve good ecological status by 2027.
Waterbody	A discrete and significant element of surface water (such as a lake, river, estuary, or coastal water) or groundwater, as defined by the WFD.
Zone of Influence (ZoI)	The spatial area within which the SI works could cause environmental effects, either directly or indirectly.

Abbreviations and Acronyms

Abbreviation or Acronym	Meaning
ADCP	Acoustic Doppler Current Profiler
CPT	Cone Penetration Test
CV	Curriculum vitae
EC	European Communities / European Commission (context-dependent)
EPA	Environmental Protection Agency (Ireland)
ESB	Electricity Supply Board
EU	European Union
JASPERS	Joint Assistance to Support Projects in European Regions
MAC	Maritime Area Consent
MAP	Maritime Area Plan
MARA	Maritime Area Regulatory Authority
MBES	Multibeam Echosounder
MUL	Maritime Usage Licence
NIS	Natura Impact Statement
NM	Nautical Mile
ODAS	Ocean Data Acquisition Systems
O&M	Operations and Maintenance
RBMP	River Basin Management Plan
ROV	Remotely Operated Vehicle
ROTV	Remote Operated Towed Vehicle
SBP	Sub-Bottom Profiler
SI	Site Investigation
S.I.	Statutory Instrument
SISAA	Supporting Information: Screening for Appropriate Assessment
SSS	Side Scan Sonar
UHRS	Ultra-High Resolution Seismic
USV	Uncrewed Surface Vehicle
UXO	Unexploded Ordnance
VC	Vibrocore
WFD	Water Framework Directive
ZoI	Zone of Influence

1. Introduction

This document forms Attachment 4.5 – Compliance with Objectives of the Water Framework Directive (WFD).

In accordance with the Maritime Area Planning Act 2021 (the MAP Act), as amended, the Maritime Area Regulatory Authority (MARA) is required to have regard to Directive 2000/60/EC — the EU Water Framework Directive (WFD) — together with the associated implementing national legislation, namely the European Communities (Water Policy) Regulations 2003 and the European Communities Environmental Objectives (Surface Water) Regulations 2009, before determining a Maritime Usage Licence (MUL) (MARA, 2025).

A suite of embedded mitigation measures has been incorporated into the design and delivery of the site investigation (SI) works to avoid or minimise risks to water quality. These measures are summarised in Section 5 of the Marine Planning and Environmental Considerations (Attachment 4.0) document and are further cross-referenced within topic-specific assessments (e.g. Supporting Information: Screening for Appropriate Assessment (SISAA), Natura Impact Statement (NIS), Annex IV Risk Assessment).

The purpose of this WFD Assessment is to demonstrate that the proposed SI works at the Tonn Nua site are fully consistent with the objectives of the Directive and will not result in any deterioration in the status of relevant water bodies. The assessment has been prepared by Natural Power Consultants on behalf of the applicant. Details of the author's qualifications and experience are set out in Section 4 of the Marine Planning and Environmental Considerations document, with full CVs provided in Appendix C.

1.1. Water Framework Directive

The EU Water Framework Directive (2000/60/EC) requires all Member States to protect and improve water quality in all waters in order to achieve good ecological status by 2027 (MARA, 2025).

The WFD came into force in 2000 and was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003, as amended) (the 'Regulations'). It applies to rivers, lakes, groundwater, and transitional and coastal waters. The Regulations provide the mechanism for implementing the WFD in Ireland and set out governance arrangements, characterisation of water bodies, quality standard criteria, environmental objectives, and programmes of measures for the protection, improvement, and maintenance of water quality.

The objectives of the WFD are:

- To protect and enhance all inland surface waters (rivers and lakes including artificial waters such as canals and reservoirs), transitional waters (estuaries), coastal waters to 1 nautical mile (NM) and groundwaters (aquifers) in order to reach or maintain 'good' ecological status, and 'good' chemical status to 1 NM;
- To ensure the overall status of each waterbody does not deteriorate relative to the baseline reported in the River Basin Management Plan (RBMP).

1.1.1. The River Basin Management Plan (RBMP)

Implementation of the Water Framework Directive (WFD) in Ireland is delivered through six-year RBMPs. The current Third Cycle RBMP (2022–2027) builds on the first two cycles and sets out the national framework for protecting and restoring rivers, lakes, estuaries, coastal waters, and groundwater in line with WFD objectives.

The Third Cycle RBMP outlines a strengthened approach to achieving good ecological and chemical status by 2027, underpinned by enhanced governance, new regulatory measures, and targeted investment. Key elements include:

- Governance and Oversight: Establishment of a National Co-ordination and Management Committee, a Water Policy Advisory Committee, and Catchment Forums to support implementation, ensure accountability, and facilitate stakeholder participation at local and regional levels.
- Programmes of Measures: Delivery of actions under eleven key EU Directives, including the Nitrates Directive, the Urban Waste Water Treatment Directive, the Drinking Water Directive, and the Habitats and Birds Directives. These measures address significant pressures such as nutrient pollution, hydromorphological alteration, and chemical contaminants.
- New Mandatory Measures: Introduction of legally binding requirements on water abstraction, stricter regulation of physical modifications to water bodies, and strengthened protection for drinking water catchments.
- Catchment-Based Approach: Development of Integrated Catchment Management Plans (ICMPs) for each river basin district to identify pressures, prioritise actions, and co-ordinate delivery of measures across multiple sectors.
- Targeted Actions for Priority Areas: Enhanced monitoring and tailored interventions in at-risk water bodies, including those impacted by agriculture, wastewater discharges, and physical modification.
- Knowledge, Data and Research: Expansion of hydrometric and ecological monitoring networks, improved data sharing, and investment in research to support more accurate pressure assessment and more effective mitigation.

The RBMP confirms that approximately 46% of Ireland's surface waters are currently at "good" or "high" status, with the remainder requiring improvement. The plan therefore adopts a dual approach: to maintain waters already at good status while implementing targeted measures to restore waters at less than good status.

This framework provides the regulatory context for the present WFD Assessment. The SI works at Tonn Nua must demonstrate that they will not cause deterioration of any waterbodies, will not prevent future attainment of good status for any waterbodies and will be consistent with the objectives and measures set out in the RBMP 2022–2027.

1.2. Approach to WFD Assessment

MARA's (2025) guidance requires that sufficient information be provided to demonstrate the consistency of the proposed usage (i.e. the SI works) with the objectives of the WFD. Specifically, the assessment must:

- Identify the transitional and coastal waterbodies within the Zone of Influence (ZoI), i.e. the area over which the proposed activities could affect water quality;
- Provide information on the current hydromorphological, ecological, and chemical status of each identified waterbody;
- Identify any protected areas within the ZoI;
- Assess the effect, if any, of the proposed activities on the ability of the relevant waterbodies to achieve or maintain good ecological and chemical status; and
- Assess the effect, if any, of the proposed activities on relevant protected areas.

The Environmental Protection Agency (EPA) has published an information fact sheet for the assessment of marine water quality (EPA, 2023). However, as there is currently no specific national guidance for project-level WFD assessments in Ireland, this assessment has been undertaken in line with the "Water Framework Directive Project Assessment Checklist Tool" published by the Joint Assistance to Support Projects in European Regions (JASPERS, 2018), supplemented by the UK guidance documents "Clearing the Waters for All" (Environment Agency, 2017) and the Planning Inspectorate (PINS) Advice Note 18: The Water Framework Directive (PINS, 2017). These are considered to represent current best practice in the absence of Irish-specific technical guidance.

1.3. Assessment Methodology

The assessment methodology used here is based on guidance provided by JASPERS (2018), the Environment Agency (2017) and PINS (2017), as follows:

- Stage 1 Screening
- Stage 2 Scoping
- Stage 3 Identification of mitigation
- Stage 4 Impact Assessment
- Stage 5 Article 4.7 Derogation

1.3.1. Stage 1 Screening

1.3.1.1. Screening of Activities

Stage 1 Screening is required to identify activities which have the potential to result in deterioration of a waterbody, prevent the waterbody from achieving good ecological status or good ecological potential, or cause non-compliance with the objectives of that waterbody.

A deterioration is defined as a reduction in waterbody status (e.g. from good to moderate, moderate to poor, or good to fail) or non-compliance with its specific objectives as set out in the relevant RBMP or for associated protected areas.

The Environment Agency's (2017) guidance recommends that low-risk activities can be screened out due to their limited capacity to affect water quality. Categories of activities that can typically be screened out are shown in Table 1-1, alongside the Irish equivalents and rationale. Any activity that clearly does not have the potential to result in deterioration of the waterbody can be screened out and excluded from further WFD assessment. Of the activities described in Table 1-1, only those linked to self service marine licences under the Environment Agency's (2017) guidance are considered similar to those activities included in this MUL application (See section 3 of this document).

Table 1-1: Low risk activities screened out of WFD Assessment

Activity as per Environment Agency (2017) guidance	Irish equivalent	Rationale
A self-service marine licence activity, including: • Burial at sea[1]; • Markers (e.g. posts, buoys); • Minor removals (litter, discreet minor objects/debris – recent and archaeological, boreholes, trial pits, grab samples; • Removal or replacement of a single pile; • Maintenance (scaffolding, repainting of existing structures, sand or grit blasting, removal of marine growth, rendering, resurfacing or repointing of existing structures or slipways, ladder installation and other minor repairs).	Maritime Usage Licence	Activities are typically small-scale and temporary, with limited potential to affect water quality.

[1] Burial at Sea is permitted under Section 66 of the Merchant Shipping (salvage and Wreck) Act, 1993, no specific licence or permit is required. Burial at sea guidelines have been issued by the Department of Transport (2023).

Activity as per Environment Agency (2017) guidance	Irish equivalent	Rationale
Accelerated marine licence for dredging activity (500–3,000 cm³ per campaign; <10,000 cm³ per year), subject to site-specific criteria	Dumping at Sea (DAS) Permit	Only inert/natural material permitted in absence of suitable reuse/disposal alternatives. EPA may require Appropriate Assessment (AA) screening and a Natura Impact Statement (NIS). Suitability confirmed through application process.
Regular maintenance at pumping stations	Compliance with planning permission	Routine works undertaken under existing licence for operational functioning.
Removal of blockages or obstacles (e.g. litter) from within 10 m of an existing structure to maintain flow	Compliance with planning permission	Required for normal functioning of drainage systems
Replacement or removal of existing pipes, cables or services crossing over a waterbody (not including any new structure or supports, bed or bank reinforcement	Planning permission / Maritime Area Consent (MAC)	No change or improvement to water environment
Over-water replacement or repairs to bridge, pier or jetty surfaces (or similar structure) where bank or bed disturbance is minimised	Planning permission / Maritime Area Consent (MAC)	No change to water environment

1.3.1.2. Defining the Zone of Influence (ZoI)

To identify the relevant waterbodies and assess whether the proposed activities could affect the ability of a waterbody to achieve or maintain its WFD status, it is necessary to define the Zone of Influence (ZoI).

The ZoI is considered to include not only the physical footprint of the activity but also any indirect effects, such as sediment plumes, temperature changes, noise or vibration, and potential chemical releases. In particular:

- For hydromorphological and water quality assessments, the ZoI may extend to areas affected by sediment suspension, plumes, or discharges.
- For biological receptors (e.g. fish), the ZoI may also extend to areas influenced by underwater noise and vibration.
- For compliance with WFD-protected areas, sites within 2 km of the proposed activities are screened to ensure that no adverse effect arises.

This approach follows Environment Agency (2017) guidance while also aligning with Irish RBMP requirements, ensuring that all potential pathways of effect relevant to WFD classification are captured.

1.3.1.3. Screening of Waterbodies

Stage 1 requires the identification of relevant waterbodies within the ZoI under the following criteria:

- All surface waterbodies that could potentially be directly impacted by the proposed activities;
- Any surface waterbodies that have direct connectivity or which could be indirectly affected (e.g. upstream and/or downstream from the proposed activities); and
- Any groundwater bodies that underlie the project area and therefore have the potential for direct impacts, as well as any hydraulically connected groundwater bodies that may receive indirect impacts.

For this WFD Assessment, the Proposed Activities will be undertaken entirely in the marine environment, with no connectivity to terrestrial surface waterbodies or groundwater bodies, and therefore these do not require assessment. This assessment will apply to coastal waters and transitional waters only.

For the purposes of this assessment, 'coastal water' means surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters, and 'Transitional waters' are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows (Directive 2000/60/EC, Article 2).

Waterbodies currently at moderate, poor, or bad ecological status require mitigation and restoration measures in order to achieve the WFD's good status objective. Additional measures apply to protected areas under the WFD.

The following quotation from the MARA Guidance (2025) identifies the categories of protected areas which may be relevant to the proposed activities:

Protected areas which may be relevant to the proposed activities, include:

- *Areas designated for the protection of economically significant aquatic species under the Habitats Directive,*
- *Bodies of water designated as recreational waters, including areas designated as bathing waters under the revised Bathing Water Directive (2206/7/EC)*
- *Nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC*
- *Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under the Habitats Directive or Birds Directive.*

Application of these criteria to the proposed SI works is set out in **Section 3** (Screening of Activities and Waterbodies), which identifies the specific transitional and coastal waterbodies within the ZoI and assesses their status, pressures, and potential interaction with the works.

1.3.1.4. WFD Protected Areas

Protected areas are those listed in Article 7(1) and Annex IV of the WFD. Each member state is required to establish a register or registers of all protected areas lying within in each River basin district with water-dependent features. The EPA (2022) GIS Portal Map lists the following on the WFD Register of Protected Areas:

- Drinking Water;
- Bathing Water Areas;
- Shellfish Areas;
- Salmonid River Regs (S.I. 293 only);

- Nutrient Sensitive Areas;
- SAC with Water Dependent Habitats/Species;
- SPA with Water Dependent Habitats/Species; and

A register of protected areas is required to be produced by the State under Article 6.

1.3.2. Stage 2 Scoping

The purpose of Stage 2 Scoping is to identify potential risks to WFD waterbody status arising from the proposed activities that were screened in at Stage 1. This process considers the relevant waterbodies and their quality elements (ecological, chemical and hydromorphological), including current status and objectives, as set out by the EPA (2016; 2022).

The scoping exercise has been undertaken with reference to:

- The Water Framework Directive Project Assessment Checklist Tool (JASPERS, 2018); and
- Clearing the Waters for All (Environment Agency, 2017).

These provide a structured set of criteria to assess whether an activity could have a significant, non-temporary effect on WFD quality elements. The scoping template has been adapted for Irish waters and applied to the specific context of the proposed SI works.

Scoping outcomes are determined as follows:

- Where a risk is identified (i.e. the response to a scoping question is “yes”), the relevant quality element is scoped in for detailed Impact Assessment at Stage 3; and
- Where no risk is identified (i.e. the response to a scoping question is “no”), the quality element is **scoped out** of further assessment.

The scoping questions are set out in Table 1-2, with application of the scoping template to each relevant waterbody presented in Annex A of this document.

Table 1-2: Scoping questions for transitional and coastal water bodies, adapted from Enviroment Agency (2017) Guidance

No.	Parameter	Scoping Questions
1	**Biology**	
	Habitats[2]	Will the footprint[3] or Zone of Influence (ZoI)[4] of the activity cover an area of 0.5 km^2 or larger?
		Will the footprint or ZoI of the activity cover 1% or more of the total waterbody area?
		Will any higher sensitivity habitat be within 500 m of the footprint of the footprint or the ZoI?
		Will the footprint or ZoI of the activity cover 1% of lower sensitivity habitats in the waterbody?

[2] Habitats include ‘lower’ and ‘higher’ sensitivity habitats as defined by Environment Agency’s (2017) UK Guidance, compared to Irish legislation for habitat protection.

[3] The footprint of the activity is considered to be the area of direct disturbance caused by the proposed activities and is summarised in Section 1.3.1.2.

[4] The Zone of Influence (ZoI) of the activity is defined as the area of potential impact beyond the footprint of the works, and is considered to be the footprint plus 2 km, as recommended Environment Agency’s (2017) UK Guidance.

No.	Parameter	Scoping Questions
	Fish (transitional water bodies only)	Is the activity in an estuary and could it affect fish in the estuary, outside the estuary but could delay or prevent fish entering it, or could affect fish migrating through the estuary?
		Could the activity impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)?
		Could the activity cause entrainment or impingement of fish?
2	**Hydromorphology**	
	Hydromorphology	Could the activity impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high status?
		Could the activity significantly impact the hydromorphology of any waterbody?
		Is the activity in a waterbody that is heavily modified for the same use as the activity?
3	**Water Quality**	
	Physicochemical and phytoplankton	Could the activity affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)?
		Is the activity in a waterbody with a phytoplankton status of moderate, poor or bad?
		Is the activity in a waterbody with a history of harmful algae?
	Chemistry	Could the activity release chemicals that are on the Environmental Quality Standards Directive (EQSD) list?
		Will the activity disturb sediment with contaminants above Irish Lower Action Levels (ALs) or Cefas AL1?
		If the activity has a mixing zone, are the chemicals released on the EQSD List?
4	**WFD Protected Areas**	
	Protected Areas	Are there any WFD protected areas within the impact footprint or ZoI of the activity?
5	**Invasive Non-native Species (INNS)**	
	INNS	Could the activity introduce or spread INNS to a waterbody?

The decisions recorded in the scoping tables are based on expert judgement, informed by available data. The result of Stage 2 Scoping will be a list of waterbodies, activities and quality elements to be carried forward for further consideration in the Stage 4 detailed impact assessment.

1.3.3. Stage 3 Impact Assessment

Where assessment has been considered necessary at Stage 2 Scoping, an impact assessment is carried out for each aspect identified. The assessment will establish whether there is potential for:

- Deterioration of WFD status (ecological, chemical or potential ecological status) sufficient to affect the classification of the relevant waterbody;

- Prevention of the waterbody to obtain good ecological or status or good potential ecological status in the future (other than for heavily modified water bodies, which, as a result of physical alterations by human activity, are substantially changed in character and cannot, therefore, meet "good ecological status"); or
- Non-compliance with the specific objectives of the WFD as set out in the RBMP or for advice for the associated protected areas for water-dependent features.

The assessment clearly defines the spatial and temporal scale of potential impacts in order to determine their significance, and whether any mitigation measures are required to ensure compliance. The aim is to prevent deterioration in WFD status, avoid hindering the attainment of good ecological status or potential, and ensure compliance with RBMP objectives.

In addition, potential interactions with other European legislation are considered, in line with Articles 4.8 and 4.9 of the WFD. This includes the Habitats Directive (92/43/EEC), Birds Directive (2009/147/EC), Shellfish Waters Directive (2006/113/EC), and Revised Bathing Water Directive (2006/7/EC). Where necessary, reference is made to supporting assessments contained in the Marine Planning and Environmental Considerations document (e.g. SISAA [Attachment 4.3.1], NIS [Attachment 4.3.2], and Annex IV Risk Assessment [Attachment 4.4]) in relation to Natura 2000 sites and other protected areas.

1.3.4. Stage 4 Identification of mitigation

Where detailed Impact Assessment (Stage 3) identifies that proposed activities could give rise to risks of deterioration in WFD status, or prevent achievement of good ecological or chemical status, appropriate mitigation measures are identified and applied. Mitigation is developed with reference to best practice guidance (e.g. JASPERS, 2018; Environment Agency, 2017) and align with the objectives and measures set out in Ireland's River Basin Management Plan (RBMP) (2022–2027).

Following application of mitigation, any residual impacts will be re-assessed to confirm that:

- No deterioration in WFD status will occur;
- The ability of a waterbody to achieve good status in the future will not be compromised; and
- There is no conflict with the objectives of the RBMP or the requirements of protected areas.

1.3.5. Stage 5 Article 4.7 Derogation

Where potential deterioration of a waterbody has been identified, or it has been determined that a waterbody would likely be prevented from achieving good status, an assessment will be carried out in consultation with the relevant regulators in accordance with Article 4(7) of the WFD to ensure the following conditions are met:

- All practicable steps are taken to mitigate the adverse impact on the status of the body of water;
- The reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 of the WFD and the objectives are reviewed every six years;
- The reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 of the WFD are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development, and
- The beneficial objectives served by those modifications or alterations of the waterbody cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option, which would need to be set out in the next RBMP.

A successful derogation may include additional mitigation or monitoring measures being implemented during construction and operation.

2. Project summary

The following activities relevant to the WFD assessment are summarised from the SI Schedule of Works (Attachment 3.1).

SI surveys comprise the following activities:

- Geophysical campaigns
- Geotechnical campaigns
- Metocean surveys
- Environmental / Ecological and Archaeological surveys

A summary of proposed activities is provided below, and screening of activities is set out in Section 3.1.

2.1. Geophysical Survey

Geophysical surveys will provide detailed mapping of the seabed and shallow sub-seabed to inform design and consenting. Techniques include;

- Multibeam echosounder (MBES);
- Side-scan sonar (SSS);
- Sub-bottom profiling (SBP) / Ultra-high-resolution seismic (UHRS); and
- Magnetometer surveys.

This equipment will either be hull- or pole-mounted or towed behind the vessel. These are predominantly non-intrusive acoustic methods, supplemented by occasional ground-truthing through grab sampling or drop-down video. Subsurface navigation systems[5] (ultra short baseline (USBL)) will also be used.

The surveys will identify:

- Bathymetry and seabed morphology;
- Sediment distribution and shallow geology;
- Potential hazards (e.g. obstructions, Unexploded Ordnance (UXO), shallow gas hazards);
- Archaeological and cultural heritage features; and
- Habitat features relevant to ecological assessment.

2.2. Geotechnical Survey

Geotechnical investigations will provide data on the engineering properties of seabed sediments and underlying strata. These are intrusive surveys carried out from specialist vessels and may include:

- Cone Penetration Tests (CPTs), including seabed and downhole testing (10–40 locations);
- Sampling/ coring boreholes (5–15 locations, to depths of up to 70 m);
- Vibrocores (or piston cores) (30–60 samples, up to 6 m depth);
- In situ thermal conductivity testing; and
- Laboratory testing of recovered samples.

These works will refine a 3D ground model of the site to support foundation and cable design.

[5] Transmitter located on towed equipment, receiver mounted on vessel.

2.3. Metocean Survey

Metocean campaigns will capture long-term datasets on wind, wave, current, and water properties (all mooring systems will be temporary and fully removed at the end of deployment). This will include deployment of:

- Acoustic Doppler Current Profilers (ADCPs) for current profiling;
- Wave buoys for directional wave and surface current data;
- Floating LiDAR buoys for wind resource assessment (12–36 months); and
- Autonomous Floating Platform (uncrewed surface vessels (USVs)) to operate as moored Ocean Data Acquisition Systems (ODAS; metocean) buoy.

Vessels will be used to deploy the metocean monitoring equipment.

2.4. Environmental and Ecological Baseline Surveys

Environmental baseline surveys will inform assessment of benthic habitats, marine mammals, birds, and fisheries. These will include:

- Benthic sampling (grab samples, box corer, sediment analysis, seabed photography);
- Static acoustic monitoring (deployment of C-POD/F-POD recorders for cetaceans);

Other environmental and ecological baseline surveys that will be carried out for the project include but are not limited to the following;

- Ornithological and Marine Mammal surveys (aerial/vessel-based and vantage point observations);
- Shipping and Navigation surveys ; and
- Consultation-led fisheries surveys (methods to be agreed with Sea Fisheries Protection Agency (SFPA) if required).

2.5. Archaeological Survey

Archaeological investigations will primarily utilise data collected through geophysical methods (e.g. side-scan sonar, magnetometer) to identify potential cultural heritage features. Where required, these will be followed up with targeted diver or Remotely Operated Vehicle (ROV) inspections.

2.6. Duration and Phasing

The indicative programme is as follows:

- Geophysical surveys: 2–5 months (Commencement estimated Q2/Q3 2026–2027);
- Geotechnical surveys: 2–5 months (Commencement estimated Q2/Q3 2026–2027);
- Environmental/ecological and archaeological surveys: periodic, over 12–24 months (Commencement estimated 2026 or 2027);
- Metocean surveys: 12–36 months continuous deployment (Commencement estimated 2026, 2027 or 2028).

These durations represent active survey time only and will not be continuous across the five-year MUL period. The schedule is subject to change depending on weather, seabed conditions, and stakeholder consultation.

3. Stage 1 Screening

3.1. Screening of Activities

Table 3-1 summarises the conclusions of the activity screening which is based upon the guidance described in Section 1.3 of this document..

Table 3-1: Screening or activities for potential water quality impacts

Activity	Screened In/Out	Justification (with supporting evidence)
Geophysical Surveys		
Multibeam Echosounder	Out	Non-intrusive; no seabed interaction. Acoustic output outside the sensitivity range of marine mammals/fish (Annex IV RA, 4.4). No deterioration of WFD status expected.
Side Scan Sonar	Out	As above: no seabed interaction; acoustic output not considered a risk. Confirmed negligible risk in SISAA (4.3.1).
Sub-Bottom Profiler / UHRS	In	Potential behavioural disturbance to fish and marine mammals due to frequencies within hearing range. Mitigation (MMO/PAM, ramp-up, power reduction) secured (Annex IV RA, 4.4; NIS, 4.3.2). Residual impacts are temporary and localised.
3D UHRS Seismic	In	As above: acoustic output overlaps with fish/marine mammal sensitivity. Embedded mitigation ensures no AEOSI (NIS, 4.3.2).
Magnetometer Survey	Out	No seabed interaction; non-intrusive. Frequencies outside sensitive ranges (Annex IV RA, 4.4).
Subsurface Navigation Systems	In	Acoustic sources overlap with sensitive frequency ranges. Mitigation as above. Temporary, reversible effects only (SISAA, 4.3.1).
Geotechnical Surveys		
Boreholes	Out	Small-scale, localised seabed disturbance. Temporary and not significant relative to WFD status objectives.
Cone Penetration Tests (CPTs)	Out	As above. Confirmed negligible in SISAA (4.3.1).
Vibrocores	Out	Temporary, minor seabed disturbance at limited stations (n=30-60). No deterioration of ecological or chemical status
Down-the-hole testing	Out	Small-scale, localised. No long-term effect.
Metocean Surveys		
Equipment Deployment & Recovery (Anchoring)	In	Localised seabed disturbance from anchors/moorings. Temporary and small-scale; managed through controls (EMP, Annex IV RA, 4.4).
ADCPs, Wave Buoys, Floating LiDAR, Autonomous Platforms	In	Anchored deployments may cause localised disturbance; some units emit low-level acoustic output within fish/marine mammal hearing range (Annex IV RA, 4.4). Effects temporary, mitigated, and not significant.

Environmental / Ecological Surveys		
Benthic Grab Sampling	Out	Limited footprint (approx. 100 grabs). Disturbance is small-scale, localised, and reversible. No deterioration of WFD status (WFD, 4.5).
Drop-Down Video (DDV) / ROV / ROTV	Out	Minimal seabed contact (camera landings). Deployment and retrieval temporary. No risk to WFD objectives.
Fisheries / Fish & Shellfish Surveys	Out	Small-scale; negligible seabed interaction. No deterioration of WFD status.
Aerial / Boat-based Surveys	Out	Visual-only, non-intrusive. No interaction with WFD parameters.
Static Acoustic Monitors	Out	Passive devices; no acoustic output. Anchoring impacts small-scale and temporary.
Archaeological Surveys		
Data Analysis (from Geophysics)	Out	No physical interaction with environment.
Diver / ROV Inspections	Out	Localised, temporary activity with no risk of deterioration of waterbody status.

3.2. Screening of water bodies

The Environment Agency (2017) guidance recommends that water bodies and relevant protected areas within 2 km of the activities should be screened for WFD assessment.

WFD waterbodies in the vicinity of the search areas is presented in Figure 3.1. The distance to the nearest WFD water bodies and Protected Areas are presented in Table 3-2. There is no direct overlap with the proposed survey area. Only one waterbody lies within the ZoI of the survey area:

- Eastern Celtic Sea (HAs 13;17) (ID: IE_SE_050_0000)

While this waterbody is associated with several protected areas (see Figure 3.1), only one is within the ZoI:

- Seas off Wexford SPA.

All other protected areas are beyond 2km, and as such screened out from further assessment.

Table 3-2: WFD Water bodies and Protected Areas within the ZoI for the Tonn Nua Project

SITENAME	Sitecode	Distance (km)	Screened In/Out	Justification
WFD Water body				
Eastern Celtic Sea		0	In	Overlaps MUL Application Area
SPA				
Seas off Wexford	004237	0.05	In	Within 2 km of Proposed Activities.

7°42'W
7°24'W
52°12'N
7°6'W
6°48'W
52°12'N
52°0'N
51°48'N

Mid-Waterford Coast SPA
Helvick Head
Helvick Head to Ballyquin SPA
Eastern Celtic Sea
Hook Head
Seas off Wexford
Ardmore Head
Western Celtic Sea

Project:
Tonn Nua Offshore Wind

Title:
Figure 3.1: WFD Water bodies and Protected Areas relevant to the MUL Application Area

Key

- MUL Application Area
- 2 km buffer of MUL Application Area
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Water Framework Directive (WFD) Coastal Waterbodies

Scale @ A3:1:225,000

Coordinate System: ETRS 89 UTM 29N
Graticules: WGS 84

0 2 4 6 8 km

N

Date: 17-10-25	Prepared by: NN	Checked by: EL
Ref: IE211913_M_002_A		

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4. Stage 2 Scoping

This section summarises the findings of the scoping of the WFD assessment. A detailed consideration of the risks to the waterbody for each parameter is provided in Annex A and summarised in Table 4-1.

Table 4-1: Summary of Stage 2 Scoping

Waterbody	Receptor	Potential Risk to Receptor?	Risk Issues for Impact Assessment
Eastern Celtic Sea	Biology: habitats	No	Footprint of activity does not exceed 1% of the waterbody's area and is not within 500 m of a higher sensitivity habitat. Footprint will not exceed 1% of lower sensitivity habitats present within the waterbody. .
	Biology: fish	No	Noise produced by certain geophysical and metocean equipment is within the hearing range of noise-sensitive species. However, this has been assessed as not significant due to the short duration and localised nature of surveys. No effects on fish migration, entrainment, or impingement are anticipated.
	Hydromorphology	No	Activities are small-scale and temporary, with no modification to flow, sediment transport, or morphology that could affect waterbody status.
	Water quality	No	Proposed SI works are small-scale, temporary, and localised and not expected to affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle, not affect phytoplankton or harmful algae. No discharges or other pressures on water quality are anticipated.
	Protected areas	Yes	Seas off Wexford is 0.05 km from Proposed Activities.
	INNS (Invasive Non-Native Species)	Yes	Vessel and equipment movements from outside the local area have the potential to introduce or spread INNS. This risk is managed through biosecurity protocols and cleaning procedures (see Section 5, Marine Planning and Environmental Considerations).

Based on the screening undertaken in Table 4-1, impacts can be summarised into the following:

- Risk of introduction of INNS through use of equipment that have come from, had use in or travelled through other water bodies.

All other potential risks — including seabed disturbance, suspended sediment concentrations, release of contaminants or nutrients, and underwater noise — were screened out on the basis that they are temporary, small-scale, and effectively controlled through embedded mitigation (see Section 3.1 above and Section 5 and supporting assessments: SISAA, NIS, Annex IV RA, WFD).

5. Stage 3 Impact Assessment

5.1. INNS

The INNS can occur directly through the release of individuals of INNS species into the environment via activities, e.g. through use of contaminated equipment (e.g. attached to the hull of a ship or release of ballast water), or indirectly by creating opportunities for organisms to settle or spread (e.g. habitat creation or disturbance), with ports and harbours being a key donor and recipient for invasive species (Stokes *et al*., 2006; Ware, 2009; International Maritime Organisation (IMO), 2012).

Vessels and equipment used during installation are likely to be internationally sourced, travelling from other water bodies. This creates a potential pathway for the introduction of INNS via ballast water, hull fouling, or contaminated survey equipment (see Compliance with Objectives of the MSFD, Attachment 4.6, *Descriptor D2 – Non-Indigenous Species*).

Due to the unpredictable nature of INNS introduction, it is not possible to fully predict the risk to waterbody's WFD status, therefore it In order to minimise the potential risk, it is considered that appropriate mitigation measures should be identified and applied, and is addressed in Section 6.

5.2. Protected Areas – Seas off Wexford SPA

Seas off Wexford SPA is considered in the SISAA (Attachment 4.3.1) and NIS (Attachment 4.3.2) which confirm that the SI works will not give rise to significant effects on European sites, species, or water-dependent receptors, alone or in combination with other plans or projects, and no deterioration of WFD status and full compliance with WFD objectives is anticipated.

6. Stage 4 Identification of Mitigation

The potential pathway for invasive non-native species (INNS) introduction is through vessel ballast water, hull fouling, and survey equipment transferred from other water bodies (Compliance with Objectives of the MSFD, Attachment 4.6, *Descriptor D2 – Non-Indigenous Species*). To address this risk, all vessels and equipment will comply with national and international standards, including:

- Anti-fouling and biosecurity measures, ensuring hulls and submerged equipment are free from fouling organisms prior to mobilisation;
- Ballast water management protocols, in line with the IMO Ballast Water Management Convention;
- Cleaning and inspection procedures for survey equipment prior to deployment, as required in project Environmental Management Plans (EMPs).

These measures are embedded in the project and summarised in Section 5 of the Marine Planning and Environmental Considerations report (Attachment 4.0), which sets out controls applied across all SI works.

With these measures in place, the Compliance with Objectives of the MSFD (4.6, *D2*) concludes that residual risks of INNS introduction are negligible, ensuring no deterioration of WFD status and full compliance with WFD objectives.

7. Summary and Conclusion

The assessment confirms that the only potential pathway for risk is the introduction of invasive non-native species (INNS) through vessels and equipment sourced from outside the local area. However, with embedded biosecurity and ballast water management measures in place (see Section 5 and Attachment 4.6 – Compliance with Objectives of the MSFD, *Descriptor D2*), this risk is negligible.

Accordingly, the proposed SI works will not cause deterioration in the status of any transitional or coastal waterbody, nor will they prevent the achievement of good ecological or chemical status under the Water Framework Directive. The conclusions are fully consistent with the objectives and measures set out in Ireland's RBMP 2022–2027, which provides the national framework for WFD implementation.

This outcome is also aligned with the findings of the SISAA (Attachment 4.3.1), NIS (Attachment 4.3.2) and Annex IV Species Risk Assessment (Attachment 4.4), all of which confirm that, with embedded mitigation in place, the SI works will not give rise to significant effects on European sites, species, or water-dependent receptors, alone or in combination with other plans or projects.

8. References

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Annexes

A. WFD Scoping Tables

A.1. Eastern Celtic Sea

Table A 1: Eastern Celtic Sea coastal waterbody

Waterbody	Description/ Notes	
WFD waterbody name	Eastern Celtic Sea (HAs 13;17)	
Waterbody ID	EA_050_0000	
Waterbody type (estuarine or coastal)	Coastal	
Waterbody total area (ha, km^2)	79879.2 ha	798.8 km^2
Heavily modified waterbody and for what use	Not heavily modified	
Higher sensitivity habitats present	Subtidal rocky reef; Intertidal seagrass (*Zostera* beds); Saltmarsh	
Lower sensitivity habitats present	Cobbles, gravel and shingle; Intertidal soft sediments; Subtidal soft sediments; rocky shore	
History of harmful algae	Yes – occasional phytoplankton blooms recorded in Celtic Sea coastal waters (EPA, 2023)	
WFD protected areas within 2 km / ZoI	There are several Protected Areas associated with the water body, only one is within 2 km of the Proposed Activities: • Seas off Wexford SPA	
Overall Waterbody Status	High	
Ecological status	High	
Chemical status	High	
Hydromorphology Status	N/A	Not at Risk
Quantitative Status	N/A	
Phytoplankton status	High	
Target waterbody status and deadline	N/A – Good status achieved	

A.1.1. Section 1: Biology

Table A 1: Biology

Habitat			
Consider if the footprint of your activity is:	**Yes**	**No**	**Biology habitats risk issue(s)**
0.5km^2 or larger	Impact assessment required		The MUL Application Area directly overlaps the Eastern Celtic Sea waterbody, however interaction is limited to localised seabed disturbance from anchors/moorings with a typical seabed footprint of 1 m^2 (based on the Site Investigation Schedule of Works (Attachment 3.1). The footprint of the Proposed Activities is therefore less than 0.5 km^2. Benthic habitats are not sensitive to noise and vibration impacts.
1% or more of the waterbody's area	Impact assessment required		The area of direct overlap of the MUL Application Area accounts for less than 0.4% of the waterbody's area, 3.6% where the 2 km buffer is included, however as above, interaction is limited to localised seabed disturbance from anchors/moorings with a typical seabed footprint of 1 m^2. The footprint of the Proposed Activities is therefore less than 1% of the waterbody's area. Benthic and water column habitats are not sensitive to noise and vibration impacts.
0.5km^2 or larger		Impact assessment not required	There is no direct overlap with the water body. Footprint of works does not exceed 0.5 km^2 of the water body area.
1% or more of the waterbody's area			There is no direct overlap with the water body. Footprint of works does not exceed 1% of the waterbody area
Within 500m of any higher sensitivity habitat			All known higher sensitivity habitats associated with this waterbody are located close to the shore and are more than 500 m of the works.
1% or more of any lower sensitivity habitat			As above, while it is possible that 1% or more of any lower sensitivity habitat lies within the overlap between the MUL Application Area buffer, however as above, interaction is limited to localised seabed disturbance from anchors/moorings with a typical seabed footprint of 1 m^2. The footprint of the Proposed Activities is therefore less than 1% of any lower sensitivity habitat. Benthic habitats are not sensitive to noise and vibration impacts.

Habitat			
Consider if the footprint of your activity is:	**Yes**	**No**	**Biology habitats risk issue(s)**
Fish			
Consider if your activity:	**Yes**	**No**	**Biology habitats risk issue(s)**
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary		Go to next section	Waterbody is not an estuary. No estuaries associated with this waterbody are within the ZoI of the works.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)		Impact assessment not required	Potential impacts on fish could arise from underwater noise generated during geophysical surveys (e.g. sub-bottom profiling, UHRS) or from temporary seabed disturbance during sampling. These pathways were considered at SISAA (Attachment 4.3.1) and scoped out on the basis that effects would be temporary, localised, and not significant. Accordingly, fish were not taken forward for detailed assessment in the NIS (Attachment 4.3.2). No significant effects on fish behaviour, spawning, or migration are predicted.
Could cause entrainment or impingement of fish		Impact assessment not required	Marine activities are in open water or are undertaken on the seabed. Activities do not have the potential to cause entrainment or impingement of fish.

A.1.2. Section 2: Hydromorphology

Table A 2: Hydromorphology

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a waterbody at high status		Impact assessment not required	Waterbody is high status, however the proposed SI works (geophysical, geotechnical, metocean and environmental surveys) are small-scale, temporary, and localised. They will not involve dredging, reclamation, or construction of permanent structures. Interaction with hydromorphological features will be limited to temporary seabed contact from sampling equipment or moorings. These interactions are highly localised, short in duration, and will not cause significant alteration to morphology, tidal, or current

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
			patterns. On this basis, an impact assessment is not required.
Could significantly impact the hydromorphology of any waterbody		Impact assessment not required	The proposed SI works (geophysical, geotechnical, environmental and metocean surveys) are small-scale, temporary, and localised. They will not involve dredging, reclamation, or construction of permanent structures. Interaction with hydromorphological features will be limited to temporary seabed contact from sampling equipment or moorings. These interactions are highly localised, short in duration, and will not cause significant alteration to morphology, tidal, or current patterns. On this basis, an impact assessment is not required.
Is in a waterbody that is heavily modified for the same use as your activity		Impact assessment not required	Waterbody is not classified as heavily modified.

A.1.3. Section 3: Water quality

Table A 3: Water Quality

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)		Impact assessment not required	Proposed SI works (geophysical, geotechnical, environmental and metocean surveys) are small-scale, temporary, and localised, limited to temporary seabed contact from sampling equipment or moorings, not expected to affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle.
Is in a waterbody with a phytoplankton status of moderate, poor or bad		Impact assessment not required	Phytoplankton status not provided for this water body however activities are not anticipated to affect phytoplankton status.
Is in a waterbody with a history of harmful algae		Impact assessment not required	History of harmful algae is not provided for this waterbody, however activities are not anticipated to affect algal complement in the waterbody.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the EQSD list		Impact assessment not required	No chemicals on the EQSD list are intended for use during these works.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The activity will disturb sediment with contaminants above Irish Lower ALs or Cefas AL1?	Requires impact assessment		Proposed SI works (geophysical, geotechnical, environmental and metocean surveys) are small-scale, temporary, and localised, limited to temporary seabed contact from sampling equipment or moorings, not expected to result in significant sediment disturbance. The chemical status of this waterbody is High, indicating low background contaminant concentration. Proposed activities are not anticipated to disturb sediment with contaminants above Irish Lower ALs or Cefas AL1
Where the activity has a mixing zone (like a discharge pipeline of outfall), the chemicals released are on the EQSD list		Impact assessment not required	The works do not include a discharge pipeline or outfall.

A.1.4. Section 4: WFD protected areas

- **Table A 4: WFD protected areas**

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within the ZoI of any WFD protected area	Yes		There are several WFD protected areas with water-dependent features associated with the Eastern Celtic Sea waterbody, however only one is within the ZoI: Seas off Wexford SPA.
SPA	Yes		Within ZoI: • Seas off Wexford SPA

A.1.5. Section 5: Invasive non-native species (INNS)

- **Table A 5: Invasive non-native species (INNS)**

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	Requires impact assessment		Works require use of marine vessels and equipment originating from areas outside the waterbody.

A.1.6. Summary

- **Table A 6: Summary**

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Biology: habitats	No	Footprint of activity does not exceed 1% of the waterbody's area and is not within 500 m of a higher sensitivity habitat. Footprint will not exceed 1% of lower sensitivity habitats present within the waterbody.
Biology: fish	No	Activities are not anticipated to delay or prevent fish entering an estuary, impact normal fish behaviour, or cause entrainment or impingement of fish.
Hydromorphology	No	Interactions with hydromorphology features are highly localised, short in duration, and will not cause significant alteration to morphology, tidal, or current patterns.
Water quality	No	Proposed SI works are small-scale, temporary, and localised and not expected to affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle, not affect phytoplankton or harmful algae.
Protected areas	Yes	The Seas off Wexford SPA is within the ZoI.
Invasive non-native species	Yes	Activities require the use of marine vessels and equipment from outside the local area which could increase the risk of introduction or spread of INNS.

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