



Technical Appendix 7-4 Water Framework Directive Assessment Report

EIAR – Volume 3

Muingmore Wind Farm

SLR Project No.: 501.065301.00001

April 2026



Water Framework Directive Assessment Muingmore, Co. Mayo

Muingmore Wind Farm

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1.0 Introduction

SLR Environmental Consulting (Ireland) Ltd. (SLR) has been appointed by RWE Renewables Ireland Limited to prepare a Water Framework Directive (WFD) Assessment report for the proposed Muingmore Wind Farm, Co. Mayo. This WFD Assessment report is submitted in support of a Planning Application and accompanying Environmental Impact Assessment Report (EIAR) for the Main Wind Farm Development of a 13 no. turbine wind farm development and associated works on land within the townlands of Muingmore (An Mhoing Mhór) and Doolough (Dumha Locha), County Mayo.

At the time of writing, no specific Irish guidance has been published for conducting a WFD assessment for onshore developments. However, guidance can be taken from a number of established resources from jurisdictions with similarly robust environmental regulatory frameworks. In the absence of specific Irish guidance on undertaking WFD Assessments, this WFD Assessment report has been undertaken with regard to the following guidelines:

- Nationally Significant Infrastructure Projects - Advice Note Eighteen: The Water Framework Directive, Planning Inspectorate for England and Wales (Rev.1, June 2017).

This document, recommended for similar projects in England and Wales, sets out how applicants for Nationally Significant Infrastructure Projects (NSIPs) must demonstrate compliance with the WFD. It explains what information is required, how the WFD assessment process should be undertaken, and how it fits alongside the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA).

Although this guidance is not directly applicable to the Irish context, it has been chosen to complement existing Irish regulations due to the geographical proximity of Ireland and the UK, as well as the considerable experience in incorporating WFD assessments into Environmental Impact Assessment (EIA) processes for onshore projects in the UK. The principles and recommendations from this guidance have been applied where relevant within this document. The guidance is non-statutory in England and Wales. Use of the guidance diverges for the Derogation assessment, which refers to Regulation 19 of the England and Wales 2017 WFD Regulations and is not applicable in an Irish context.

This WFD Assessment report sets out the potential implications of the Proposed Project for the objectives of the WFD, identifies relevant water bodies which may be impacted, and identifies whether the requirements of the WFD are being met and confirms that the Proposed Project will not result in a deterioration in status.

1.1 Site Location and Details

The Main Wind Farm Development Site is located within a coastal area of County Mayo. The Main Wind Farm Development Site is located within the townlands of Muingmore, Doolough and Tristia Co. Mayo and c. 0.5 km north from the village of Gweesalia. The Site is located directly east of the Blacksod Bay and northwest of the Tullaghan Bay, see **Figure 1**.

The Main Wind Farm Development Site is located within the Blacksod-Broadhaven Catchment.

See **Chapter 2** of the accompanying Environmental Impact Assessment Report (EIAR) for a full detailed description of the Proposed Project, and **Chapter 1** of the EIAR for a list of defined terminology.

1.2 Sources of Information for WFD Assessment

The information used in the preparation of this this impact assessment is set out in **Table 1** below.



Table 1: Sources of Information

Data	Dataset
Soils and Subsoil Geology	<ul style="list-style-type: none"> Irish Soils Information System – Teagasc (http://gis.teagasc.ie/soils/map.php); GSI Subsoil Mapping (https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx); EPA Soil/Subsoil Mapping (https://gis.epa.ie/EPAMaps/Water).
Surface Water	<ul style="list-style-type: none"> OSi Discovery Series mapping; Environmental Protection Agency (https://gis.epa.ie/EPAMaps/Water); Water Framework Directive (https://eur-lex.europa.eu/eli/dir/2000/60/oj/eng); Catchments.ie WFD information (Data - Catchments.ie - Catchments.ie); OPW Floodinfo maps (https://www.floodinfo.ie/map/floodmaps/#).
Groundwater	<ul style="list-style-type: none"> GSI Groundwater Data Viewer - bedrock and gravel aquifers, vulnerability, water supplies, groundwater recharge (https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx); GSI Groundwater body description documents (https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx); Environmental Protection Agency water maps (https://gis.epa.ie/EPAMaps/Water); National Federation of Group Water Schemes (NFGWS) Data Viewer (https://nfgws.ie/wp-content/uploads/2020/07/qws-map.html); and Catchments.ie WFD information (Data - Catchments.ie - Catchments.ie).
Protected Areas, Environmental Pressures	<ul style="list-style-type: none"> Environmental Protection Agency (https://gis.epa.ie/EPAMaps/Water); National Parks and Wildlife Service maps and data - conservation objectives for designated Natura 2000 sites with water dependant qualifying interests (https://www.npws.ie/protected-sites); Uisce Éireann - National Water Resource Plan for the protection of designated drinking water protection areas (https://www.water.ie/projects/strategic-plans/national-water-resources).

1.3 Statement of Authority

This WFD Assessment report was prepared by SLR Environmental Consulting (Ireland) Ltd. The project team consists of:

- Michelle Sherry - Project Hydrogeologist, SLR Consulting Ltd, B.Sc. (Environmental Bioscience), MIAH, GCIWEM;
- Dominica Baird - Technical Director (Hydrogeology), SLR Consulting Ltd., BSc. (Earth Science), MSc (Hydrogeology), CGeol, EurGeol, MIAH;
- Peter Glanville - Technical Director (Hydrology), SLR Consulting Ltd, BA (Geography), PhD (Geomorphology), PGeo, EurGeol; and
- Ross Macklin – Principal Ecologist, Triturus Environmental Ltd, PhD (in preparation), B.Sc. (Hons), MCIEEM, MIFM, HDip GIS, PDip IPM.

Michelle is Project Hydrogeologist with the Hydrology and Hydrogeology team based in SLR Consulting Dublin. Since joining SLR in May 2024, some of her roles and responsibilities have included undertaking groundwater and surface quality monitoring, collecting and analysing logger data from a variety of sites, compiling site monitoring data and preparing reports on said data to be sent to clients. She also has contributed to the preparation of EIAR and of



WFD Assessment reports. A First-Class honours degree in Environmental Bioscience (BSc) has provided a solid foundational knowledge in hydrology and the WFD plus the ability to collect, handle and analyses various sets of data and write scientific reports.

Dominica is a Chartered Hydrogeologist with twenty-two years' consultancy experience. Dominica has practised hydrogeology, groundwater risk and contaminated land assessment in London, Edinburgh and Dublin and leads groundwater monitoring, water resources and due diligence projects. Key competencies include hydrogeological assessments and aquifer characterisation, developing conceptual site models, quantitative and qualitative groundwater risk assessments and groundwater investigations. Dominica has presented findings of hydrogeological assessments at oral hearings and prepared briefs of evidence. She has project managed numerous water assessments for EIARs, which have predicted potential impacts on the water environment.

Peter is a technical and project Director in the Water (Hydrology and Hydrogeology) team in SLR's Dublin office. He has over 20 years' experience in environmental consulting including hydrology, geomorphology and geology and is a Professional Geologist (PGeo. EurGeol.) with the Institute of Geologists of Ireland. Peter's specialist experience is in the field of water assessments, hydrological monitoring (hydrology and hydrogeology) and hydromorphology. He has overseen the design and practical implementation of a number of field scientific monitoring programmes, supported the management, analysis and interpretation of the scientific data collected, and written and reviewed the resultant technical reports. Peter has worked on a wide range of projects in the minerals and mining, power, commercial and infrastructure sectors. He leads as project manager on multi-disciplinary projects and also acts as project director for multi-disciplinary teams.

Ross is an ecologist with over 16 years' professional experience in Ireland. He specialises in freshwater fisheries ecology, biology and water quality. He has considerable experience in a wide range of ecological and environmental projects including EIA, Ecological Impact Assessment (EclA), Appropriate Assessment (AA) / Natura Impact Statements (NIS), Construction and Environmental Management Plan (CEMP) reporting, as well as biodiversity, water quality monitoring, invasive species and fisheries management. He also has expert identification skills in macrophytes, freshwater invertebrates, protected aquatic habitats and protected aquatic species including freshwater pearl mussel.

1.4 Consultations

No consultations were undertaken specifically for this WFD Assessment Report, however consultation took place to inform EIAR **Chapter 7** with a number of organisations, including the following relevant bodies:

- Geological Survey Ireland (GSI).
- Environmental Protection Agency (EPA).
- Uisce Éireann.
- Inland Fisheries Ireland (IFI).
- Office of Public Works (OPW).

1.4.1 Zone of Influence

The zone of influence, or study area, for the purpose of this WFD Assessment Report is taken to be a 15 km radius from the Main Wind Farm Development Site boundary, see **Figure 1**. This zone of influence is consistent with the standard zone of influence radius used in the Appropriate Assessment (AA) and Natura Impact Assessment (NIS). The zone of influence will extend beyond 15 km radius from the Main Wind Farm Development Site in certain circumstances where there is a direct hydrological link to a designated site and if it is



considered that the Main Wind Farm Development has the potential to impact on a waterbody. This assessment will also investigate if there are any hydrological links between WFD receptors and the length of the GCR, as well as the three Over-run Areas of the TDR. The three Over-run Areas extend outside the 15km radius of the Main Wind Farm Development Site.

The GCR will follow an existing road with minimal direct impact with water environment receptors and in the context of this WFD Assessment Report, the study area for the GCR is confined to the GCR route only as the **Summary of Predicted Effects** heading in **Chapter 7 of the EIAR** states that “any potential adverse direct or indirect residual effects as a result of the construction of the GCR were assessed as being **not significant** in terms of the EIA Regulations”.

The TDR will follow an existing road network with no direct interaction with water environment receptors, with the exception of Over-run Areas, which will require temporary construction works to ensure the safe delivery of the turbines to the Main Wind Farm Development Site. Therefore, the Over-run Areas of the TDR only are assessed in this WFD Assessment.

The Main Wind Farm Development Site WFD catchment hierarchy is shown in **Table 2** below. The Catchments, Sub-Catchments and River Sub Basins within the study area are listed in **Appendix A** and shown in **Figure 2**. The Main Wind Farm Development Site is located in the Belmullet Groundwater Body (GWB), see **Table 3** and GWBs located within the wider study area are listed in **Appendix A** and shown in **Figure 3**.

Table 2 Site WFD Catchment Areas

WFD Catchment Hierarchy	WFD Catchment Name
Catchment	Blacksod-Broadhaven - Catchment ID. No. 33
Sub-catchment	Glencastle_SC_010 Sub-catchment ID. 33_2 and Owenmore [Mayo]_SC_030 Sub-catchment ID. 33_11
River Sub-Basin	Sub-basin ID. AN_RÁITH _010, TRISTIA_010 and DOOLOUGH STREAM_010

Table 3 Site WFD Groundwater Body

WFD Groundwater Body	WFD Groundwater Body Name
Belmullet GWB	IE_WE_G_0057

1.5 Limitations

No limitations were encountered in the making of this WFD Assessment Report.

1.6 Scope of Work

This WFD Assessment Report sets out the potential implications of the proposed windfarm development on the objectives of the WFD. It identifies the relevant water bodies which have the potential to be impacted by the proposed project, identifies if the requirements of the WFD are being met and assesses whether the proposed project activities will:

- Cause a deterioration in WFD status of a water body; and
- Hinder a programme of measures (PoM) designed to bring about Good Status for a water body.

This WFD Assessment Report has been prepared for the Proposed Project and includes the following stages:



- **Stage 1** - WFD Screening (**Section 4.0** of this report);
- **Stage 2** - WFD Scoping (**Section 5.0** of this report); and
- **Stage 3** - WFD Impact Assessment (**Section 6.0** of this report).

This WFD Assessment Report assesses the Main Wind Farm Development Site in terms of the potential risk to cause or result in a deterioration in the status of any WFD surface or groundwater body, undermine the attainment of any such body of Good WFD status or hinder the effectiveness of the programme of measures¹ (PoM) as set out in the River Basin Management Plan (RBMP) to achieve good status in water bodies.

¹ Department of Housing, Local Government and Heritage. Water Action Plan 2024 A River Basin Management Plan for Ireland. Appendix 1: Programme of Measures: Further information on the environmental measures to 2027



2.0 Water Framework Directive

The Water Framework Directive (WFD)² (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy) was adopted and came into force in December 2000 and sought to align provisions for water resource protection in response to emerging scientific data on widespread degradation of quality and to provide for a single European approach to assessing water quality (Ecological status) and to allow for the comparison of results across Europe. It establishes a legislative framework for the protection of surface waters (including rivers, lakes, transitional waters (Article 2 of 2000/60/EC defines 'Transitional waters' which for the purposes of this Advice Note are referred to as estuarine waters) and coastal waters) and groundwater throughout the EU.

The WFD requires all Member States to protect and improve water quality in all waters to achieve good ecological status by 2015 or, at the latest, by 2027. It was given legal effect in Ireland by the S.I. No. 722 of 2003 European Communities (Water Policy) Regulations (as amended)³. The Directive requires that management plans be prepared on a river basin basis and specifies a structured method for developing these plans.

Surface waters are classified into five quality classes (Ecological status) under the WFD; High, Good, Moderate, Poor and Bad Ecological status. Groundwater is classified into just two quality classes, Good and Poor Ecological status. High Ecological status is when the water is unpolluted, while at the opposite end of the classification Bad Ecological status is when the water is highly polluted.

The Ecological Status is assessed based on a combination of biological, chemical and hydromorphological quality parameters. The overall status sought for all waterbodies under the objectives of the WFD by 2027, at the latest, is based on the combined analysis of these three variables as Good or High ecological status and Good chemical status for surface waters and Good chemical and quantitative status for groundwaters.

The overall aims and objectives of the WFD are to:

- enhance the status and prevent further deterioration of surface water bodies, groundwater bodies and their ecosystems;
- ensure progressive reduction of groundwater pollution;
- reduce pollution of water, especially by Priority Substances and Certain Other Pollutants (Annex II, Environmental Quality Standards (EQS) Directive (2013/39/EC) as amended);
- contribute to mitigating the effects of floods and droughts;
- all water bodies must reach at least 'Good' overall status by 2027, at the latest. For surface waters, good overall status is a combination of good ecological status (or potential) and good chemical status;
- the status of each water body, including all the quality elements which make up the overall status, must not deteriorate relative to the baseline reported in the relevant RBMP; and
- to promote sustainable water use.

² Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

³ European Communities (Water Policy) regulations 2003 (SI No. 722 of 2003).



The WFD identifies where actions are required to achieve Good Ecological status or maintain waterbodies which are already Good or High Ecological status. Waterbodies can be restored to Good and High Ecological status by using targeted actions and measures to reduce the impact of human activities on them.

For heavily modified or artificial water bodies, which are incapable of achieving Good Ecological status without impairing an existing specified water use, the environmental objective is to achieve Good Ecological potential.

The WFD requires that management plans are prepared on a river basin basis and specifies a structured method for developing these plans.

The WFD surface waters classification is shown in **Appendix B** and the ecological status classification is shown in **Appendix C**.

2.1 River Basin Management Plans

The WFD requires the consideration of a single system of water resource management through characterisation, protection and enhancement of water resources considered within the context of a river basin district (RBD) with the production of a River Basin Management Plan (RBMP) by the Environmental Protection Agency (EPA).

The RBMPs describe the current state of the water environment for each RBD, the pressures affecting the water environment, the objectives for protecting and improving it, and the programme of measures needed to achieve the statutory environmental objectives of the WFD. RBMPs are subject to a six-year planning cycle and are to be routinely reviewed and updated to ensure compliance with the overall WFD objectives.

The RBMPs provide a single system of water management based on the natural delineation of river catchments and is the method by which the aims of the WFD are implemented.

For each river basin district in Ireland a RBMP needs to be established and updated every six years, to provide the context for the co-ordination requirements of the WFD, the key aims of which are to:

- provide for protection to all waters, surface waters and groundwater;
- achieving Good Ecological status for all waters by 2027;
- establish water management measures based on river basin catchment areas;
- establish a combined approach of emission limit values and quality standards for waters;
- involving citizens more closely in the WFD and RBMP; and
- streamlining and aligning national legislation.

The RBMP provides a detailed account of how the objectives set for each river basin in terms of ecological status, quantitative status, chemical status and protected area objectives are to be reached within the timescale of the plan. The RBMP include the results of the catchment analysis including the river basin's characteristics, a review of the impact of human activity on the status of waters in the basin, estimation of the effect of existing legislation and the remaining gap to meeting these objectives of the WFD; and establish a set of measures designed to meet the objectives of the WFD.



2.1.1 River Basin Management Plan for Ireland 2022-2027

The current RBMP report⁴ for Ireland states that while substantial progress has been made in the management of water services and how we work together to protect, restore and improve water quality with the improvement in some areas and aspects of water quality, many waterbodies are still subject to mounting environmental pressures and overall water quality is in decline primarily due to nutrient pollution.

The RBMP states that due to the overall decline in water quality, stronger measures are now required which will improve overall water quality. The sustainable management of water resources is important to address and adapt to the impacts of climate change, with many of the required measures having co-benefits for climate mitigation and biodiversity. Protecting and restoring water quality in Ireland will most of all need measures to address:

- the loss of agricultural nutrients to water;
- continue to improve wastewater treatment; and
- to re-establish natural free-flowing conditions in more rivers.

The RBMP states that Ireland's water resources and services face challenges on a number of fronts including a continued need for investment in infrastructure and increasing demand for water services due to urbanisation, population and economic growth. These challenges are set against a backdrop of widespread, rapid and intensifying climate change.

⁴ [River Basin Management Plan 2022 - 2027](#)



3.0 WFD Assessment Methodology

The WFD impacts have been considered in a three-stage assessment process.⁵ The stages in the assessment process are set out as follows:

- Stage 1 WFD screening.** To determine if there are any activities associated with the Proposed Project or non-sensitive receptors within the zone of influence that do not need to go through Stage 2 scoping and Stage 3 impact assessment;
- Stage 2 WFD scoping.** To identify risks of the Proposed Project's activities to identified potential receptors based on the relevant designations and hydrological link using a source-pathway-receptor approach; and
- Stage 3 WFD impact assessment.** An assessment of water bodies and their quality elements that are considered likely to be impacted by the Proposed Project, identification of any areas of noncompliance; consideration of mitigation measures and contributions to the WFD objectives to achieve Good Status

Any mitigation measures implemented to demonstrate compliance at any of the above stages will be appropriately defined in order to ensure securement through any Planning Permission conditions for the Proposed Project.

⁵ <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive>



4.0 Stage 1 - WFD Assessment Screening

4.1 Proposed Project Activities Screening Exercise

The following activities do not require further consideration as they will not adversely impact upon any identified potential receptors:

- Abstraction of groundwater impacts for the excavation of turbine bases will not be significant due to poorly productive aquifer with few private water supply wells registered;
- Discharge of waters to any adjoining water courses will only be required when groundwater inflows need to be pumped and hence, will be minimal;
- There will be wastewater present at the Main Wind Farm Development Site. It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off-site by a permitted waste collector to a wastewater treatment plant. The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying;
- Refuelling of machinery and on-site vehicles will take place on a hard standing refuelling area with a hydrocarbon interceptor and all hydrocarbons and other potential contaminants at the Main Wind Farm Development Site will be bunded to 110% of the maximum tank capacity will be provided;
- Peat restoration works in the northwest area of the Main Wind Farm Development Site. The proposed works are anticipated to not have any adverse impacts on nearby water receptors and will have a positive impact by raising the groundwater levels in the peat and improving baseflow to nearby streams such as the Doolough Stream;
- The construction and decommissioning of Over-run Area 1 of the TDR, seen in **Figure 7-10b**, has been screened out from further consideration as it will not cross any waterbodies and there will be a 50m buffer applied to the Tristia 33 (WFD ID TRISTIA_010) stream;
- The temporary floating track at Over-run Area 3 (**Figure 7-10d**), will be located within the 50m buffer of the OWENMORE_060 WFD river waterbody. It is anticipated the river will not be impacted as the works are temporary and will not involve any modification of the river channel or obstruction of flow. Appropriate construction mitigation measures, outlined further down this report, will be implemented to prevent surface run-off of sediment or potential pollutants into the river. Upon completion of works, Over-run Area 3 will be restored to its existing land use without delay. Hence, the OWENMORE_060 WFD river waterbody and the construction activities associated with it has been screened out from further consideration;
- The construction of Over-run Area 2 of the TDR involves constructing a track over the MUIING_010 WFD river waterbody, see **Figure 7-10c**. It is anticipated the river will not be impacted as the works are temporary and will not involve any modification of the river channel or obstruction of flow. Appropriate construction mitigation measures, outlined further down this report, will be implemented to prevent surface run-off of sediment or potential pollutants into the river. Upon completion of works, Over-run Area 2 will be restored to its existing land use without delay. Hence, the MUIING_010 WFD river waterbody and the construction activities associated with it has been screened out from further consideration; and



- All activities associated with the construction, operation and decommissioning of the GCR have been screened out as the activities are confined within public road and will have a negligible to low potential of impacting surface water or groundwater quality/levels.

As these activities have no potential hydrological link or pollution pathway to any identified potential receptors, they have been screened out and will not be discussed further in Stage 2 scoping and Stage 3 impact assessment.

4.2 Potential Receptor Screening Exercise

The WFD catchments, surface waterbodies and groundwater bodies in the 15 km zone of influence of the Main Wind Farm Development Site are shown in **Figure 2** and **Figure 3**. The ecological designations are shown in **Figure 4** and drinking water supplies within the 15 km zone of influence of the Main Wind Farm Development Site are shown in **Figure 5**.

4.2.1 Surface Water

Screening for WFD surface water bodies has been carried out, identifying all WFD surface water bodies within a 15 km of the Main Wind Farm Development Site or the potential zone of influence, see **Appendix D**. A 15 km area for the zone of influence is used here as this is in line with the study area used for the Appropriate Assessment and Natura Impact Statement undertaken for the Main Wind Farm Development and submitted as part of the planning application. Sites outside 15 km are also assessed where hydrological connectivity provides a potential impact pathway. The GCR water crossings are shown in **Figure 7-1 a-e** in Volume 2 of the EIAR. The Over-run Areas of the TDR are shown in **Figure 7-10 a-d** Volume 2 of the EIAR, and the surface water bodies associated with the Over-run Areas are also listed in **Appendix D**.

The identified surface water bodies within the potential zone of influence and their details are set out in **Appendix D**.

4.2.2 Groundwater

Screening for WFD groundwater bodies has been carried out, identifying all WFD groundwater bodies within a 15 km of the Main Wind Farm Development Site or the zone of influence, see **Appendix E**. A 15 km radius for the zone of influence is used here as this is consistent with the study area used for the Appropriate Assessment and Natura Impact Statement undertaken for the Main Wind Farm Development and submitted in support of the planning application. Sites outside 15 km are also assessed where hydrological connectivity provides a potential impact pathway. The groundwater bodies associated with the GCR and the Over-run Areas of the TDR are also listed in **Appendix E**.

The identified groundwater bodies within the potential zone of influence and their details are set out in **Appendix E**.

4.2.3 Drinking Water Schemes

Screening for drinking water supplies schemes and source protection areas has been undertaken to identify sites within a 15 km of the Site or the potential zone of influence, see **Appendix G**. A 15 km radius for the zone of influence is used here as this is consistent with the study area used for the Appropriate Assessment and Natura Impact Statement undertaken for the Main Wind Farm Development and submitted in support of the planning application. Sites outside 15 km are also assessed where hydrological connectivity provides a potential impact pathway. The drinking water supply schemes associated with the GCR and the Over-run Areas of the TDR are also listed out in **Appendix G**.



The identified designated areas within the potential zone of influence and their details are set out in **Appendix G**.

4.2.4 Ecological Designations

Screening for ecological designated areas has been undertaken to identify sites within a 15 km of the Site or the potential zone of influence, see **Appendix F**. A 15 km radius for the zone of influence is used here as this is consistent with the study area used for the Appropriate Assessment and Natura Impact Statement undertaken for the Main Wind Farm Development and submitted in support of the planning application. Sites outside 15 km are also assessed where hydrological connectivity provides a potential impact pathway. The ecological designated areas associated with the GCR and the Over-run Areas of the TDR are also listed out in **Appendix F**.

The identified designated areas within the potential zone of influence and their details are set out in **Appendix F**.

4.3 Screening Outcomes

Based on the identified potential zone of influence for the Main Wind Farm Development and hydrological links from the Proposed Project, the WFD waterbodies in **Table 4** are screened in and will be discussed further in Stage 2 Scoping.

The remainder of the waterbodies identified in **Appendix D** and **Appendix E**, the ecological designations in **Appendix F** and the drinking water supplies in **Appendix G** are therefore screened out from further consideration as part of this WFD Assessment as there is low potential for a hydrological link to the Proposed Project and hence, low potential for a pollution pathway from the Proposed Project. The waterbodies, drinking water supplies and ecological designations associated with the GCR and Over-run Areas of the TDR, listed in **Appendix D** to **Appendix G**, have also been screened out from further consideration as there will be a low potential for an impact on WFD waterbodies due to the low potential for a hydrological link to the Proposed Project, see **Table 4**.

Table 4. WFD screening outcome

No.	WFD Feature	Reason for Screening In / Out
1	Local Streams on site <ul style="list-style-type: none"> WFD ID AN_RÁITH_010 WFD ID DOOLOUGH STREAM_010 WFD ID. TRISTIA_010 	Potential hydrological link to the Main Wind Farm Development Site given the streams are located in the Main Wind Farm Development Site boundary – Screen In
2	Blacksod Bay (SPA/SAC/pNHA)	Potential hydrological link to the Site as the bay is downstream from the local streams – Screen In
3	Tullaghan Bay (NHA)	Potential hydrological link to the Site as the bay is downstream of the TRISTIA_010 stream – Screen In
4	Belmullet groundwater body (GWB)	Potential hydrogeological link to the Site as it is located within the Belmullet GWB – Screen In
5	Local streams along the GCR	Low – negligible potential for hydrological link to streams along the GCR which could be impacted during trenching – Screen Out
6	Local streams along TDR Over-run Areas	Low – negligible potential for hydrological link to streams at TDR Over-run Areas during temporary construction – Screen Out



No.	WFD Feature	Reason for Screening In / Out
7	Designated sites along GCR	Negligible potential for hydrological link to designated sites along the GCR which could be impacted during trenching – Screen Out
8	Designated sites along TDR Over-run Areas	Low potential for hydrological link to designated sites to impact designated sites during temporary works for three Over-run Areas – Screen Out
9	Groundwater bodies along GCR	Low – negligible potential for hydrogeological link along the GCR which could be impacted during trenching – Screen Out
10	Groundwater bodies along TDR Over-run Areas	Low – negligible potential for hydrogeological link at TDR Over-run Areas during temporary construction – Screen Out



5.0 Stage 2 - WFD Assessment Scoping

All associated activities and water receptors associated with the GCR, peat restoration works and the TDR have been screened out and only activities and water receptors associated with the Main Wind Farm Development Site have been screened in. Hence, the Proposed Project will be referred to as the Main Wind Farm Development Site for the remainder of this WFD Assessment report. This section of the WFD Assessment Report identifies the risks from the Main Wind Farm Development's activities to receptors based on the relevant water bodies and their water quality elements and includes the following:

- Identification of the potential risks from the Main Wind Farm Development on WFD waterbody receptors, public water supplies (PWS) and designated areas within the zone of influence, based on hydrological linkages; and
- identification of those water bodies where a more detailed WFD impact assessment is required.

5.1 Identified Potential Risks from the Main Wind Farm Development

In terms of identified potential impacts on WFD receptors, the key aspects of the Main Wind Farm Development which relate to water are set out here:

- During construction, contamination of surface water runoff from machinery, leakage and spills of chemicals from vehicle use. The construction of hardstanding also has the potential to affect surface water bodies. Potential pollutants include oil, fuels and cement.
- Several activities during the construction phase can result in soil erosion and the release of suspended solids to surface watercourses and could result in an increase in the suspended sediment load, resulting in increased turbidity which in turn could affect the water quality of downstream water bodies. These activities include:
 - Tree felling;
 - Soil stripping, if necessary, to construct the access tracks, site compounds, turbine foundations, hardstands, turbines/hardstanding/tracks and substation;
 - Construction of onsite water crossing culverts at WCX1 and WCX2, seen in **Figure7-1b**, as per **Planning Drawing 501.065301.00001.D17**;
 - Run-off and erosion from soil stockpiles (prior to reinstatement/profiling/side casting);
 - Drainage and seepage water resulting from infrastructure excavation and piling of turbine foundations;
 - Construction of the cable trench as per **Planning Drawing 501.065301.00001.D20** resulting in entrainment of sediment from the excavations during construction; and
 - Erosion of sediment from emplaced/upgraded site drainage channels and at proposed water crossings.
- During operation, maintenance may be required on the turbines, access tracks and drainage which may involve construction type activities and hence, give rise to the potential polluting activities involved with construction listed above.
- The decommissioning activities will involve the use of cranes to disassemble the above ground turbine components which will be removed offsite for recycling. The foundations will be covered over and allowed to re-vegetate naturally and it is proposed that the internal site access tracks will be left in situ. The proposed onsite substation



will be left in place and underground cabling will be cut back and left in situ. These activities will give rise to impacts similar to the construction phase.

5.2 Identification of Receptors

Identified receptors within the potential zone of influence of the Main Wind Farm Development Site will be identified here in Stage 2 Scoping. The potential receptors are set out in **Table 5** below. Identified receptors will be determined using the Source-Pathway- Receptor model.

Table 5: Potential receptors within the potential zone of influence

Receptor Type	Figure	List of Potential Receptors
WFD surface water bodies	Figure 2	Appendix D
WFD groundwater bodies	Figure 3	Appendix E
Designated areas	Figure 4	Appendix F
Public water supply areas	Figure 5	Appendix G

5.3 Source Pathway Receptor Model

Potential impacts from the Main Wind Farm Development Site on potential receptors can be identified using the Source-Pathway-Receptor (SPR) model.⁶

Risk can be defined as “the chance of a defined hazard occurring and achieving its potential”. The Environment Agency in the UK indicates that there must be a pollutant linkage between the source of pollution and the receptor, in order for harm to human beings or the environment to occur. The pollutant linkage comprises:

- A **Source** of potential pollution (contaminant);
- A **Pathway** for the pollutant to move from source to receptor. This can include the transport of contamination via groundwater, and
- A **Receptor** (target), which is affected by the pollutant. According to the EPA, key receptors include groundwater, surface water and protected ecological sites.

This scoping assessment is based on the ‘source-pathway-receptor’ pollution linkage concept. For a potential risk to arise each stage of the pollution linkage must be present.

5.4 Potential Pollution Sources

Potential pollution sources from the Main Wind Farm Development are the decrease in groundwater quality from potential increase in suspended solids and accidental fuel leakage / spillage during construction, operational and decommissioning stages. Migration of a pollution source in the shallow groundwater could then migrate laterally to surface water or could migrate vertically to the underlying bedrock aquifer.

Construction phase activities of the Main Wind Farm Development will require earthworks resulting in the removal of vegetation cover and excavation of subsoils and cut peat. Exposed and disturbed ground, particularly peat, may increase the risk of erosion and subsequent sediment laden surface water runoff. The release of suspended solids is primarily a consequence of the physical disturbance of the ground during the construction phase, if not correctly compacted.

⁶ <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-1-risk-assessment#spr>



The construction phase of the Main Wind Farm Development will involve tree felling and earthworks activities outlined above that could have potential impacts on surface water and groundwater conditions.

Accidental fuel leakage/spillage at the Main Wind Farm Development Site is a potential impact and could also infiltrate into the underlying groundwater body.

5.5 Pathways

Pathways are the means by which a receptor is likely to come into contact with a source via hydraulic connectivity.

Peat / sediment laden surface water runoff could migrate to local streams.

As noted above, peat / suspended solids could migrate laterally in the shallow groundwater to the nearby surface water bodies, including the three streams identified on the Main Wind Farm Development Site. Peat / suspended solids could then migrate from the stream to further surface water bodies downstream i.e. Blacksod Bay and Tullaghan Bay.

Peat / suspended solids in shallow groundwater could also migrate vertically to the underlying bedrock aquifer and groundwater body.

If an accidental spillage occurred, hydrocarbons could also migrate laterally to nearby surface water bodies and further downstream surface water bodies and could migrate vertically to the underlying bedrock aquifer.

5.6 WFD Receptors for Assessment

Based on the screening exercise undertaken in Section 4.0 above and the scoping exercise undertaken in this section, the following surface water, groundwater, public water supplies, groundwater dependant environments and designated areas have been scoped in as identified receptors to the Main Wind Farm Development and will be included in this assessment, as presented in **Table 6**.

5.6.1 Surface Water

The WFD surface water receptors identified and scoped in for this assessment are:

- The Main Wind Farm Development Site is located within the AN_RÁITH_010, TRISTIA_010 and DOOLOUGH STREAM_010 WFD River Sub Basins.
- The AN_RÁITH_010 river flows south through the middle of the Main Wind Farm Development Site to the Blacksod Bay, located c. 200m south of the Main Wind Farm Development Site and the TRISTIA_010 river flows partially to the east of the Main Wind Farm Development Site and then flows in a south easterly direction along the eastern border to Tullaghan Bay, located c. 1.5 km southeast of the Main Wind Farm Development Site.
- The An Mhoing Mhór and Doolough streams (DOOLOUGH STREAM_010) flows in a westerly direction along the northern border of the Main Wind Farm Development Site.

5.6.2 Groundwater

The WFD groundwater receptor identified and scoped in for this assessment is:

- The bedrock aquifer is within the Belmullet GWB, which has a Good WFD status (2019 - 2024) and is 'Not at risk' of achieving it's WFD objectives by 2027.

The aquifer within the Belmullet GWB is classified as being generally a poorly productive bedrock aquifer except for local zones (PI).



5.6.3 Public Water Supplies

While there are two Group Water Schemes (GWS) within the 15 km zone of influence, they are not hydrologically connected to the Main Wind Farm Development Site and there are no Main Wind Farm Development Site activities that have the potential to impact either GWS. Hence, there are no Drinking Water Source Protected Areas (DWSPA) scoped in as part of this WFD Assessment Report.

5.6.4 Groundwater Dependand Environments

There are no Groundwater Dependand Terrestrial Environment (GWDTE) receptors identified within a 15 km radius of or with hydrogeological connectivity to the Main Wind Farm Development Site and therefore, has been scoped out for this assessment.

5.6.5 Ecological Designations

The identified designated sites which are hydrologically linked to the Main Wind Farm Development Site are:

- The Blacksod Bay/Broadhaven SPA (Site Code 004037) and Mullet/Blacksod Bay Complex SAC (Site Code 000470) is downstream of the WFD Streams DOOLOUGH_STREAM_010 and AN_RÁITH_010, which flow in a southwesterly and westerly direction through the Main Wind Farm Development Site.
- Tullaghan Bay and Bog NHA (Site Code 001567) is located downstream of the WFD Stream TRISTIA_010, which flows in a southerly direction along the eastern border of the Main Wind Farm Development Site.

Table 6: Identified receptors within potential zone of influence and their WFD status and risk

RECEPTOR TYPE	RECEPTOR NAME	WFD 4TH CYCLE STATUS (2019-2024)	WFD 3RD CYCLE RISK
WFD River Waterbody	AN_RÁITH_010,	Good	Under review
	TRISTIA_010	Good	Under review
	DOOLOUGH STREAM_010	Poor	At risk due to sediment and nutrient pollution as a result of agricultural and peat extraction / drainage pressures.
WFD Transitional Waterbody	Tullaghan Bay	Good	Under review
WFD Coastal Waterbody	Blacksod Bay	High	Not at risk
WFD Groundwater Body	Belmullet	Good	Not at risk



Ecological Protected Area	Blacksod Bay/Broadhaven SPA (Site Code 004037) / Mullet/Blacksod Bay Complex SAC (Site Code 000470)	N/A	N/A
	Tullaghan Bay and Bog NHA	N/A	N/A



6.0 Stage 3 - WFD Impact Assessment

This impact assessment includes a detailed assessment of the Proposed Main Wind Farm Development Site activities and water bodies identified at the WFD screening and scoping Stages 1 and 2 above.

6.1 Baseline Environmental Conditions

The baseline hydrological and hydrogeological conditions at the Site have been identified from the ground investigations undertaken at the Main Wind Farm Development Site and are presented in **Chapter 6** and **Chapter 7** of the EIAR.

The baseline aquatic ecology in the surrounding watercourses is outlined in the Baseline Aquatic Ecology Survey which is included as **Technical Appendix 5-4 of the EIAR** covering Biodiversity and also in the AA and NIS reports submitted in support of the planning application.

6.1.1 WFD Identified Pressures on Waterbodies

The baseline conditions in the identified surface water bodies and groundwater bodies are set out in **Appendix D** and **Appendix E** including the identification of pressures on the waterbodies and the WFD Third-Cycle risk rating for the water bodies not achieving Good Status by 2027.

A number of pressures have been identified for the Doolough Stream from the WFD Third-Cycle, these are set out in **Table 6** above and are included here:

- Doolough Stream/An Mhoing Mhór (WFD ID DOOLOUGH STREAM_010) identified issues included excess sediment and nutrients as a result of agricultural pressures and peat drainage/extraction.

6.1.2 Baseline Aquatic Survey

Triturus Environmental Ltd. were commissioned by SLR Consulting Ltd. to conduct baseline aquatic and fisheries surveys to inform EIAR preparation for the Proposed Project, as presented in **Technical Appendix 5-4** of Volume 3 of this EIAR. Undertaken on a catchment-wide scale, this report provides a baseline assessment of the aquatic ecology including fisheries, biological water quality, protected species and habitats in the vicinity of the Proposed Project, inclusive of the GCR and the TDR. All aquatic surveys were undertaken in September 2023. A total number of 54 aquatic survey sites were chosen, they are as follows:

- 13 riverine survey sites were chosen within the Main Wind Farm Development Site boundary or within close proximity to it;
- 30 riverine sites were within the vicinity of the GCR;
- 7 riverine sites within the vicinity of the TDR and;
- 4 pond sites within close proximity of the Main Wind Farm Development Site boundary.



Table 7: Locations of the 54 aquatic survey sites within proximity to the Proposed Project

SITE NO.	WATERCOURSE	EPA CODE	LOCATION	X (ITM)	Y (ITM)
Site boundary					
A1	Unnamed river	n/a	Doolough	476621	821708
A2*	Unnamed river	n/a	L1205 road crossing	476276	820290
B1	Unnamed river	n/a	Muingmore	477254	822741
B2	Unnamed river	n/a	Muingmore	476726	822456
B3	Unnamed river	n/a	Muingmore	477114	822551
B4	Unnamed stream	n/a	Muingmore	477522	822770
B5	Unnamed river	n/a	Tristia	477290	822433
B6*	Unnamed river	n/a	L1206 road crossing	477615	821039
C1	An Mhoing Mhór River	33M23	Muingmore	477156	823702
C2	Doolough Stream	33D02	Muingmore	476448	824226
C3	Unnamed stream	n/a	Muingmore	476180	823731
C4	Doolough Stream	33D02	Muingmore	475540	824268
C5*	Doolough Stream	33D02	L1205 road crossing	474976	824774
P1†	Pond	n/a	Doolough	476635	822197
P2†	Pond	n/a	Muingmore	476112	822824
P3†	Pond	n/a	Muingmore	475845	822946
P4†	Pond	n/a	Doolough	477354	821591
GCR crossings					
D1	Unnamed stream	n/a	Goolamore	480285	821634
D2	Goolamore River	33G12	Drumanaffrin	481247	822676
D3	Munhin River	33M03	Kilteany	482176	823361
D4	Unnamed river	n/a	Srahanary	484848	823084
D5	Ballybeg Stream	33B40	Srahanary	486351	823100
D6	Srahanary Stream	33S23	Srahanary	487383	823093
D7	Bellanumera Stream	33B38	Briska	487539	822966



SITE NO.	WATERCOURSE	EPA CODE	LOCATION	X (ITM)	Y (ITM)
D8	Briska River	33B33	Briska	487705	822687
D9	Unnamed stream	n/a	Briska	487788	822587
D10	Unnamed stream	n/a	Briska	487844	822510
D11	Unnamed river	n/a	Briska	490185	822080
D12	Unnamed river	n/a	Largan More	490513	822401
D13	Unnamed river	n/a	Largan More	490568	822412
D14	Unnamed stream	n/a	Largan More	490739	822418
D15	Unnamed stream	n/a	Largan More	490894	822413
D16	Unnamed river	n/a	Largan More	491092	822422
D17	Unnamed stream	n/a	Largan More	491297	822394
D18	Unnamed stream	n/a	Largan More	491335	822381
D19	Unnamed stream	n/a	Largan Beg	491399	822356
D20	Unnamed stream	n/a	Largan Beg	491900	822061
D21	Unnamed stream	n/a	Largan Beg	491988	822011
D22	Unnamed stream	n/a	Tawnaghmore	493063	821706
D23	Unnamed stream	n/a	Tawnaghmore	493360	821686
D24	Unnamed river	n/a	Tawnaghmore	493659	821685
D25	Unnamed river	n/a	Ballymonnelly Bridge	493983	821377
D26	Unnamed stream	n/a	Killsallagh	495239	820469
D27	Killsallagh Stream	33K13	Killsallagh	495346	820428
D28	Unnamed stream	n/a	Killsallagh	495834	820410
D29	Unnamed stream	n/a	Bellacorick	496398	820409
D30	Unnamed stream	n/a	Bellacorick	496504	820323
TDR nodes					
E1	Moneynierin River	33M16	Moneynierin	497643	819577
E2	River Deel	34D01	Crossmolina Bridge	513655	817586
E3	Ballisodare River	35B05	Knoxspark	566745	829045



SITE NO.	WATERCOURSE	EPA CODE	LOCATION	X (ITM)	Y (ITM)
E4	Carrowgobbadagh Stream	35C95	Carrowgobbadagh	567482	830457
E5	Abbeylands Stream	36A15	Coolcholly	588235	862284
E6	Drumgowan Stream	37D49	Tullygallan	593620	875619
E7	Bogside River	37B26	Dunkineely	576176	875950

6.1.2.1 Fisheries

A fish species assemblage typical of Ireland’s north-west – namely Atlantic salmon, brown trout, sea trout, European eel, lamprey (*Lampetra* sp.), three-spined-stickleback, minnow and flounder - were recorded during the electro-fishing survey undertaken between 16th to 19th September 2023, see **Technical Appendix 5-4**.

Although brown trout were relatively widespread in the survey area inclusive of the GCR (recorded at 23 no. sites), Atlantic salmon were more localised and recorded from a total of 10. no sites on an unnamed Tullaghan Bay tributary (B6), Goolamore River (D2), Munhin River (D3), Srahanarry Stream (D6), Broska River (D8), unnamed Owenmore tributaries (D25, D26), Moneynierin River (E1), River Deel (E2) and the Ballisodare River (E3) (**Technical Appendix 5-4**). Fish populations in vicinity of the Main Wind Farm Development Site boundary were dominated by brown trout with Atlantic salmon recorded only from the lower reaches of an unnamed Tullaghan Bay tributary (site B6). Sea trout were recorded from a single site on the Munhin River (D3). Lamprey (*Lampetra* sp.) were also recorded from a single site only (Munhin River at site D3) and this restricted distribution reflected the poor habitat suitability in the survey area (i.e. higher energy and heavily silted peat channels; **Technical Appendix 5-4**). The European eel was recorded in typically low abundances from a total of 9 no. riverine sites on an unnamed river (A2), an unnamed Tullaghan Bay tributary (B6), Doolough Stream (C2, C4), Briska River (D8), unnamed Owenmore River tributary (D18, D25), Ballisodare River (E3) and the Carrowgobbadagh Stream (E4), in addition to pond sites P1, P2 and P3 (eDNA only). The restricted distribution of European eel in the survey area was also primarily due sub-optimal habitat (**Technical Appendix 5-4**). Of the riverine survey sites, 27 of 50 in total did not support fish at the time of survey given poor quality fisheries habitats or dry, ephemeral channels.

6.1.2.2 Annex I Aquatic Habitats

The Annex I habitat ‘Water courses of plain to montane levels, with submerged or floating vegetation of the *Ranunculion fluitantis* and *Callitriche-Batrachion* (low water level during summer) or aquatic mosses (commonly referred to as Floating River Vegetation, FRV) was recorded at sites E3 on the Ballisodare River and E4 on the Carrowgobbadagh Stream (adjacent to proposed TDR). Whilst not representing a diverse example of the habitat, the tidal reaches of the heavily modified Carrowgobbadagh Stream (E4) supported abundant macrophytes including FRV indicators such as *Callitriche stagnalis*, *Potamogeton* sp. & *Ranunculus* sp. (EC, 2013). The Ballisodare River (E4) supported floating river vegetation primarily due to the presence of indicator *Ranunculus* sp. and *Fontanalis antipyretica*.

6.1.2.3 Biological Water Quality & Pressures

No rare or protected macro-invertebrate species (according to national red lists) were recorded in the samples taken from 50 no. riverine or 4 no. pond sites (**Technical Appendix 5-4**). Whilst a low number of sites (11 no. but none within vicinity of the Main Wind Farm Development Site



boundary or turbine array) achieved **Q4 (good status)**, the majority of sampling sites failed to meet the target good status ($\geq Q4$) requirements of the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 and the Water Framework Directive (2000/60/EC). Siltation and less so eutrophication of the watercourses (primarily from peat escapement but also agriculture & forestry) was noted during the surveys and is known to be the primary threat to water quality in the survey area (EPA data), in addition to hydromorphological modifications.

6.2 Designated Ecological Areas

The identified ecological designated areas which have a hydrological link to the Main Wind Farm Development Site are as follows:

- The Blacksod/Broadhaven SPA (Site Code 004037), Mullet/Blacksod Bay Complex SAC and pNHA (Site Code 000470) located downstream of the Main Wind Farm Development Site; and
- Tullaghan Bay And Bog NHA (Site Code 001566) is located c. 1.5 km southeast of the Main Wind Farm Development Site.

The AN_RÁITH_010, TRISTIA_010 and DOOLOUGH STREAM_010 are not drinking water protected rivers under the WFD.

All Groundwater bodies in Ireland have been designated as a DWSPA under the WFD. This designation is based on the possibility of meeting the criteria for water abstraction for human consumption, as defined in Article 7 of the WFD. These DWSPA encompass the complete extent of each WFD groundwater body. However, overall, the aquifer within the Belmullet GWB is classified as a poorly productive bedrock aquifer which is generally unproductive but may be used for local groundwater supplies.

6.3 WFD Impact Assessment Methodology

The methodology used here to assess the nature, scale and magnitude of impact in terms of WFD potential receptors is a qualitative risk assessment in which the potential impacts are described in terms of the character, magnitude, duration, probability and consequence.

First the significance and sensitivity of the receptor is classified and then the description of the potential impact is then screened against the significance and sensitivity of the receiving environment to establish the overall significance of the potential impact. The classification of the impact significance is determined using the matrix from the EPA Guidelines (2022). These can be found in **Appendix I** and **Appendix J**.

The following sections identify the sensitivity of the WFD environmental receptors and potential impacts of the Main Wind Farm Development during the construction stage (site preparation), the Operation Stage (wind energy production) and decommissioning phase (site restoration), as well as a Cumulative Assessment.

All permutations within the approved turbine range (179 m – 180 m) have been assessed in this WFD Assessment Report, as has been done in the EIAR.

6.4 Sensitivity of WFD Receptors

The sensitivity and significance of the identified WFD environmental receptors are outlined in **Table 8** below. For each identified receptor, the significance and sensitivity of the receptor is assessed in **Table 8** and a rating (High/Medium/Low/Negligible) applied, based on the methodology outlined in existing guidance and reproduced in **Appendix I**.



Table 8: Sensitivity and Significance of WFD Environmental Receptors

No.	WFD Environment Receptor	Significance	Sensitivity	Existing Environment Significance / Sensitivity Rating (H/M/L/N)
1	Local Waterbodies	Surface waterbodies: AN_RÁITH_010, TRISTIA_010 and DOOLOUGH_STREAM_010 are located within the Main Wind Farm Development Site.	AN_RÁITH_010 and TRISTIA_010 have a Good WFD status (2019-2024) and are under review for their risk status. Doolough Stream is of Poor WFD status and is at risk due to sediment and nutrient pollution as a result of agriculture and peat extraction. Potential to indirectly impact surface waterbodies via sediment release during construction or from accidental spillage of oil, fuel and cement.	Medium – Attribute has a medium quality or value on a local scale
2	Blacksod Bay which is a SPA (Site Code 004037) and SAC/pNHA (Site Code 000470),	pNHA is a designated area of protection due to its habitat and wildlife. SAC/SPA is a European designated Natura 2000 site.	Blacksod Bay achieved Good status (2019-2024) and is not at risk of not achieving its WFD targets by 2027. Blacksod Bay is located downstream of the local waterbodies on the Main Wind Farm Development Site and hence, is hydrologically linked to the Site.	High - Attribute has a high quality or value on an international (SAC / SPA status) and regional scale (pNHA status)
3	Tullaghan Bay which is a SPA (Site Code 004037) and NHA (Site Code 001567)	NHA is a designated area of protection due to its habitat and wildlife. SAC/SPA is a European designated Natura 2000 site.	Tullaghan Bay achieved Good status (2019-2024) and is not at risk of not achieving its WFD targets by 2027. Tullaghan Bay is located downstream of the TRISTIA_010 stream that flows through the Main Wind Farm Development Site and hence, is hydrologically linked to the Site.	High - Attribute has a high quality or value on an international (SPA status) and regional scale (NHA status)
4	Belmullet GWB	Belmullet GWB is a drinking water protected area under the WFD, as are all GWBs.	Belmullet GWB is of Good status (WFD 2019-2024) and is not at risk of not meeting its objectives by 2027 (WFD).	Low - Attribute has a low quality or value on a local scale as it is a Poor Bedrock Aquifer.



6.5 Water Linkages

Based on the Main Wind Farm Development outlined above and investigations undertaken at the Main Wind Farm Development Site, the following conclusions have been reached in terms of the scoping of local surface water and groundwater within the study area of the Main Wind Farm Development Site:

- i. there is no direct hydrological pathway between the Main Wind Farm Development and the WFD local surface water body receptors as there will be no abstraction of surface water or direct discharge to surface water courses and there will be a 50m buffer between all turbines and construction works to surface water bodies. **No direct hydrological linkage to surface water bodies (AN_RÁITH_010, TRISTIA_01, DOOLOUGH STREAM_010);**
- ii. there is a potential indirect hydrological pathway between the Main Wind Farm Development and the local surface water courses from sediment-laden surface water runoff. **Indirect hydrological linkage to surface water bodies (AN_RÁITH_010, TRISTIA_01, DOOLOUGH STREAM_010);**
- iii. there is an indirect hydrological pathway between the Main Wind Farm Development and the Blacksod/Broadhaven SPA and Mullet/Blacksod Bay Complex SAC through the surface water courses that flow through the Main Wind Farm Development Site (Doolough Stream and AN_RÁITH_010) which flow to the designated area. The Tristia Stream flows directly into Tullaghan Bay which is a SPA and NHA. **Indirect hydrological linkage to the designated areas.**
- iv. shallow groundwater in the poorly productive bedrock aquifer discharges to the local surface waterbodies as baseflow. The groundwater at the site is a WFD water environment receptor. There is also a potential indirect hydrogeological pathway to the surface water via the shallow groundwater in the poorly productive bedrock. **Direct hydrogeological linkage to the Belmullet groundwater body. Indirect hydrogeological linkage to surface water bodies (AN_RÁITH_010, TRISTIA_01, DOOLOUGH STREAM_010).**

Based on the Main Wind Farm Development activities at the Site, there is no direct pathway to surface water courses at the site and a potential direct linkage to the underlying bedrock aquifer. During the construction, operational and decommissioning phase, there is potential to affect surface water and groundwater bodies via a pollution event (sedimentation, leakage and spills etc.) which may impact their water quality, particularly in the local water bodies that flow through the Site or along the Site boundary.

6.6 Mitigation Measures

In terms of the identified WFD receptors and the potential impacts from the Main Wind Farm Development, the mitigation measures which will be implemented as part of the Main Wind Farm Development are summarised as follows:

- Measures are included in the Construction and Environmental Management Report (CEMP), see **Technical Appendix 2-1** of Volume 3 of this EIAR, which are key environmental management measures that will be implemented during the construction, operation, and decommissioning of the Proposed Development. These measures will be implemented to ensure that during these phases of the development, the water environment is protected, and any potential impacts are minimised;
- A buffer distance of 50m will be maintained between watercourses and any proposed construction and decommissioning activities or infrastructure, as outlined in the CEMP;
- A wet weather protocol will be developed and implemented by the Project Supervisor Construction Stage (PSCS) to manage activities during periods of heavy and



prolonged precipitation. The protocol will be approved by Mayo County Council (MCC) in consultation with EPA;

- Sustainable Drainage Systems (SuDS) will be used where applicable, refer to the CEMP (**Technical Appendix 2-1** of Volume 3 of this EIAR) for more details;
- Appropriate design of the drainage system, incorporating sediment traps, attenuation basins and silt fences will be ensured in order to reduce the potential for the increased delivery of sediment to natural watercourses, refer to **Planning Drawing 501.065301.00001.D12** for more details;
- All attenuation basins will be actively managed, with regular inspections and removal of silt build up to control water levels and ensure that any run-off is contained, especially during times of rainfall;
- Refuelling will take place at a dedicated refuelling pad which has an impermeable base and bund with a capacity of 110% with sumps provided such that they do not drain directly into the surface water drains;
- Drip trays will be placed under all machinery to contain minor fuel or equipment leakages and spillages;
- Absorbent spill pads/granules in the case of an accidental leak/spillage will be available at the temporary construction compounds and all maintenance will be conducted on absorbent spill pads to avoid potential water pollution;
- There will be a wash-out facilities within the construction compound consisting of a sump overlain with a geosynthetic membrane. The geosynthetic membrane will filter out the concrete fines leaving water to pass through to the sump. No washing of concrete-associated vehicles will be undertaken outside the wash out facility, and the area will be signposted, with all site contractors informed of the locations;
- Water quality monitoring measures that will be implemented are outlined in Section 8 of the CEMP and in **Chapter 7** of this EIAR. Water quality monitoring will be undertaken for the surface water catchments that serve the Main Wind Farm Development Site, to ensure that none of the tributaries of the main channels are carrying pollutants or suspended solids. Monitoring will be carried out at a specified frequency on these catchments;
- A Water Quality Monitoring Plan (WQMP) will be implemented to monitor surface water quality, fish populations and macroinvertebrate community prior to, during and post-construction. A robust baseline of water quality in surface watercourses/drainage channels downstream of construction works will be established prior to construction commencing and used a benchmark of water quality for the construction phase monitoring;
- During construction of the proposed GCR water crossings WCX 1 and 2 (see **Figure 7-1b**) daily visual inspections will be undertaken for any signs of pollution. If any pollution is observed, all construction works will halt until the source of pollution has been identified and managed;
- All stock piled material will be stored outside of 50m buffers from watercourses and drains;
- All refuelling of machinery and vehicles will be undertaken outside of 50m buffers from watercourses and drains.

The following is a list of peat specific mitigation measures that will be incorporated into the development of construction methodologies for the works in all areas of peat during the



construction stage design, these will support the operational phase of the Proposed Development:

- An appropriately experienced and qualified engineering geologist/geotechnical engineer will be appointed during the construction phase, to provide advice during the setting out and construction phases of the works;
- Geotechnical Risk Register (GRR) will be developed and maintained by the appointed geotechnical engineer;
- Undercutting of peat slopes will be avoided. Where this cannot be avoided, a more detailed geotechnical stability assessment of the area of concern by the geotechnical engineer will be undertaken to include review of site-specific ground investigation data and site inspection. As outlined in the Peat Landslide Hazard & Risk Assessment (PLHRA), found in **Technical Appendix 6-2** of Volume 3 of the EIAR, as a matter of good practice, a geotechnical risk register will be prepared post-consent following location specific stability analyses; and
- Use of floating tracks will be implemented across areas of deep peat.

Notwithstanding any of the above controls and mitigation measures, construction stage design and construction practices will need to consider the particular ground conditions (including weather conditions / weather factors) and the specific works at each location throughout the construction period.

To minimise the risk of potentially inducing peat landslides during construction of the Main Wind Farm Development the following will be implemented:

- Health and Safety awareness will be raised of the peat environment at the Main Wind Farm Development for construction staff by incorporating the issue into the site induction;
- Peat slide risk assessment information will be included (e.g. peat instability indicators, best practice and emergency procedures) in toolbox talks with relevant operatives e.g. plant operatives;
-
- Confirmatory pre-construction surveys and ground investigations will be carried out prior to the commencement of works; and
- Off-track plant movements within areas of peat will be minimised, trackways will be used once constructed.

These mitigation measures for the Main Wind Farm Development will be implemented in accordance with any future planning permission and associated conditions relating to such approval.

6.7 Potential Impacts on WFD Receptors

The potential impacts on the identified WFD receptors during the construction stage are set out in **Table 9** below with the mitigation measures in place. The potential impacts on the identified WFD receptors during the operational stage are set out in **Table 10** below with the mitigation measures in place.

During the operational phase of the Proposed Project, it is anticipated that routine maintenance of infrastructure and tracks will be required across the Main Wind Farm Development Site. This may include work such as maintaining access tracks and drainage and carrying out wind turbine maintenance. There will be a limited number of vehicles required onsite for routine maintenance and operational activities. Given the limited works to be



undertaken during the operational phase, the potential impact on downstream Blacksod Bay and Tullaghan Bay is considered to be negligible.

Based on the Main Wind Farm Development and with the identified mitigation measures in place, the potential effects on the identified WFD receptors will be **Not Significant**.

The impacts on the surface water and groundwater environment of the Proposed Project are assessed in this section without any mitigation measures in place. The potential impacts are evaluated in accordance with the EPA EIAR Guidance 2022 and the IGI Environmental Impact Guidance 2013.

The assessment of risk is based on a matrix on importance of attributes and magnitude of impacts. The criteria tables outline the assessments for the likelihood and magnitude of hydrological and hydrogeological impacts.

Criteria tables from the IGI 2013 Guidance are presented in **Appendix I**. The IGI guidance states that the significance of any impact should be determined based on the importance of the feature to be protected and the magnitude of the impact on the receiving geological / hydrogeological environment, with particular reference to the definitions in **Appendix C** of the guidance, as detailed in **Appendix I**.

Criteria tables from the EPA EIAR guidance 2022 are presented in **Appendix J** (Description of Effects) and **Appendix K** (Classification of the Significance of Impacts). The criteria for the assessment of effects require that likely significant effects are described with respect to their magnitude, frequency, extent, complexity, probability, duration, reversibility, etc. Significance of effects is usually understood to mean the importance of the outcome of the effects (the consequences of the change). Figure 3.4 of the EPA 2022 guidance is presented in Technical **Appendix K** and shows how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.

The methodology applied here is a qualitative risk assessment methodology in which the nature of the potential impacts is described in terms of the character, magnitude, duration, probability and consequence of the impact are considered.

The magnitude of the potential impact is assessed against the significance and sensitivity of the receiving environment to determine the significance of the resulting effect.

This approach provides a mechanism for identifying the areas where mitigation measures are required, and for identifying mitigation measures appropriate to the risk presented by the Main Wind Farm Development.

In addition to their nature and significance, the potential effects will be assessed in terms of their duration, whether they are direct or indirect.



Table 9: Construction Stage WFD Impact Assessment – significance of effects with embedded mitigation measures

No.	WFD Receptor	WFD Receptor Significance / Sensitivity Rating	WFD Status	WFD Risk Status	Potential Impacts	Description of Effects	Significance of Effects
1	Local surface waterbodies within the Main Wind Farm Development Site <ul style="list-style-type: none"> AN_RÁITH_010 TRISTIA_010 DOOLOUGH_STREAM_010 	Medium - Attribute is considered to be of medium quality or value.	Good Status AN_RÁITH_010 and TRISTIA_010 are of Good status (WFD 2019-2024). Poor status DOOLOUGH_STREAM_010 is of Poor WFD status	AN_RÁITH_010 and TRISTIA_010 are still under review for its risk status. Doolough Stream is at risk due to excess sediment and nutrients as a result of agriculture and peat harvesting pressures.	Potential to affect surface water quality in the local waterbodies flowing throughout Main Wind Farm Development Site via sedimentation or accidental spillage/leakage.	Low Indirect effect from a potential pollution incident at the Main Wind Farm Development Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only, if pollution entered the watercourse, it could extend downstream. The duration of any potential pollution event will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given existing and future embedded mitigation measures. The quality of the effect is considered to be neutral on the waters of the local waterbodies.	Not Significant (with mitigation measures)
2	Blacksod Bay which is a SPA (Site Code 004037) and SAC/pNHA (Site Code 000470),	High - Attribute has a high quality or value on an international scale with SAC/SPA/pNHA designated status.	High Status Blacksod Bay is High status (WFD 2019-2024). SAC is a European designated Natura 2000 site and is a protected because it is a Shellfish area and a Bathing area	Blacksod Bay is Not At Risk	Potential to affect surface water quality in Blacksod Bay as there is a hydrological link between the designated site and the An_RAITH_010 and the at risk Doolough Stream.	Low - Negligible Indirect effect from a potential pollution incident at the Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only, if pollution entered one of the watercourses, it could extend downstream to Blacksod Bay. The duration of any potential pollution event at the Main Wind Farm Development Site will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given embedded mitigation measures. The quality of the effect is considered to be neutral on the SAC and pNHA.	Not Significant (with mitigation measures)
3	Tullaghan Bay which is a SPA (Site Code 004037) and NHA (Site Code 001567)	High - Attribute has a high quality or value on an international and national scale as it has a SPA and NHA designated status	Good Status Tullaghan Bay is of Good Status (WFD 2019-2024). SPA is a European designated Natura 2000 site. NHA is a designated area of protection due to its habitat and wildlife.	Tullaghan Bay is still Under Review for its WFD Risk Status	Potential to affect surface water quality as there is a hydrological link between the Tullaghan Bay and the TRISTIA_010 stream.	Low - Negligible Indirect effect from a potential pollution incident at the Main Wind Farm Development Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only, if pollution entered the watercourse, it could extend downstream to Tullaghan Bay. The duration of any potential pollution event at the Main Wind Farm Development Site will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given embedded mitigation measures. The quality of the effect is considered to be neutral on the designated waters.	Not Significant (with mitigation measures)



No.	WFD Receptor	WFD Receptor Significance / Sensitivity Rating	WFD Status	WFD Risk Status	Potential Impacts	Description of Effects	Significance of Effects
4	Belmullet GWB	Low - Attribute has a low quality or value on a local scale as it is a Poor Bedrock Aquifer	Good Status Belmullet GWB is Good status (WFD 2016-2021). Belmullet GWB is a drinking water protected area under the WFD, as are all GWBs in Ireland.	Not at risk of achieving its WFD targets by 2027	Potential to affect groundwater quality in bedrock aquifer underlying the shallow groundwater through vertical migration. Presence of moderate permeability blanket peat.	Low - Negligible Direct effect from a potential pollution incident at the Main Wind Farm Development Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only The duration of any potential pollution event at the Main Wind Farm Development Site will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given embedded mitigation measures. The quality of the effect therefore is considered to be neutral on the bedrock aquifer and Belmullet groundwater body.	Not Significant (with mitigation measures)

Table 10: Operational Stage WFD Impact Assessment – significance of effects with embedded mitigation measures

No.	WFD Receptor	WFD Receptor Significance / Sensitivity Rating	WFD Status	WFD Risk Status	Potential Impacts	Description of Effects	Significance of Effects
1	Local surface waterbodies within the Main Wind Farm Development Site <ul style="list-style-type: none"> AN_RÁITH_010 TRISTIA_010 DOOLOUGH_STREAM_010 	Medium - Attribute is considered to be of medium quality or value.	Good Status AN_RÁITH_010 and TRISTIA_010 are of Good status (WFD 2019-2024). Poor status DOOLOUGH_STREAM_010 is of Poor WFD status	AN_RÁITH_010 and TRISTIA_010 are still under review for its risk status. Doolough Stream is at risk due to excess sediment and nutrients as a result of agriculture and peat harvesting pressures.	Potential to affect surface water quality in the local waterbodies flowing throughout Main Wind Farm Development Site via sedimentation or accidental spillage/leakage.	Low - Negligible Indirect effect from a potential pollution incident at the Main Wind Farm Development Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only, if pollution entered the watercourse, it could extend downstream. The duration of any potential pollution event will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given existing and future embedded mitigation measures. The quality of the effect is considered to be neutral on the waters of the local waterbodies.	Not Significant (with mitigation measures)
2	Blacksod Bay which is a SPA (Site Code 004037) and SAC/pNHA (Site Code 000470),	High - Attribute has a high quality or value on an international scale with SAC/SPA/pNHA designated status.	High Status Blacksod Bay is High status (WFD 2019-2024). SAC is a European designated Natura 2000 site and is a protected because it is a Shellfish area and a Bathing area	Blacksod Bay is Not At Risk	Potential to affect surface water quality in Blacksod Bay via sedimentation or accidental spillage/leakage as there is a hydrological link between the designated site and the An_RAITH_010	Low - Negligible Indirect effect from a potential pollution incident at the Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only, if pollution entered one of the watercourses, it could extend downstream to Blacksod Bay.	Not Significant (with mitigation measures)



No.	WFD Receptor	WFD Receptor Significance / Sensitivity Rating	WFD Status	WFD Risk Status	Potential Impacts	Description of Effects	Significance of Effects
					and the at risk Doolough Stream.	The duration of any potential pollution event at the Main Wind Farm Development Site will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given embedded mitigation measures. The quality of the effect is considered to be neutral on the SAC and pNHA.	
3	Tullaghan Bay which is a SPA (Site Code 004037) and NHA (Site Code 001567)	High - Attribute has a high quality or value on an international and national scale as it has a SPA and NHA designated status	Good Status Tullaghan Bay is of Good Status (WFD 2019-2024). SPA is a European designated Natura 2000 site. NHA is a designated area of protection due to its habitat and wildlife.	Tullaghan Bay is still Under Review for its WFD Risk Status	Potential to affect surface water quality via sedimentation or accidental spillage/leakage as there is a hydrological link between the Tullaghan Bay and the TRISTIA_010 stream.	Low - Negligible Indirect effect from a potential pollution incident at the Main Wind Farm Development Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only, if pollution entered the watercourse, it could extend downstream to Tullaghan Bay. The duration of any potential pollution event at the Main Wind Farm Development Site will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given embedded mitigation measures. The quality of the effect is considered to be neutral on the designated waters.	Not Significant (with mitigation measures)
4	Belmullet GWB	Low - Attribute has a low quality or value on a local scale as it is a Poor Bedrock Aquifer	Good Status Belmullet GWB is Good status (WFD 2016-2021). Belmullet GWB is a drinking water protected area under the WFD, as are all GWBs in Ireland.	Not at risk of achieving its WFD targets by 2027	Potential to affect groundwater quality in bedrock aquifer underlying the shallow groundwater through vertical migration. Presence of moderate permeability blanket peat.	Low - Negligible Direct effect from a potential pollution incident at the Main Wind Farm Development Site. The extent of any effect from a potential pollution incident at the Main Wind Farm Development Site will be over a small area only The duration of any potential pollution event at the Main Wind Farm Development Site will be brief lasting less than a day. The probability of a potential pollution event occurring is considered unlikely given embedded mitigation measures. The quality of the effect therefore is considered to be neutral on the bedrock aquifer and Belmullet groundwater body.	Not Significant (with mitigation measures)





6.8 Risk of Deterioration in Status

The potential risk to the identified WFD receptors as a result of the Main Wind Farm Development is **Not Significant** as set out in **Table 9** and **Table 10** above.

This section of the WFD Assessment Report identifies any risk of deterioration of WFD status as a result of the Main Wind Farm Development with all mitigation measures in place, see **Table 11** below. Based on the project design and mitigation measures, the WFD screening, WFD scoping and WFD assessment, there will be no risk of deterioration in the status of the identified WFD receptors.

Table 11: Risk of deterioration in status of identified WFD receptors as a result of Main Wind Farm Development

WFD Receptor Details				Embedded mitigation measures	Risk of deterioration in Status
No.	WFD Receptor	WFD Status	Identified Existing Pressures		
1	Local Surface Waterbodies AN_RÁITH_010 TRISTIA_010 DOOLOUGH_STREAM_010	AN_RÁITH_010 and TRISTIA_010 are of Good status DOOLOUGH_STREAM_010 is of Poor WFD status	AN_RÁITH_010 and TRISTIA_010 are still Under review for its risk status. Doolough Stream is At risk due to excess sediment and nutrients as a result of agriculture and peat harvesting pressures.	Yes	No
2	Blacksod Bay	High status	Not at risk	Yes	No
3	Tullaghan Bay	Good status	Under review	Yes	No
4	Belmullet GWB	Good Status	Not at risk	Yes	No

Based on the nature of the Main Wind Farm Development and the designed mitigation measures to be implemented, the Main Wind Farm Development will not result in a deterioration in the status of the identified WFD receptors.

6.9 Cumulative Effects

For the assessment of cumulative effects, any other permitted or proposed and unbuilt projects in proximity to the Main Wind Farm Development Site (wind energy or other) have been considered where they have the potential to generate an in-combination or cumulative effect with the Proposed Project.

In terms of all proposed and permitted developments within vicinity of the Main Wind Farm Development Site, the details of projects considered in the cumulative assessment are presented in **Technical Appendix 2-3 of the EIAR 'Projects Considered in the Cumulative Assessment'**. In the context of Water, a search of the National Planning Map Viewer (myplan.ie) indicates that there are no other major planned developments in the vicinity of the Main Wind Farm Development Site, GCR or TDR Over-run Areas or on surrounding lands that have recently been granted planning permission that have the potential to give rise to any significant adverse hydrogeology or hydrology cumulative impacts.



7.0 WFD Compliance Findings

The findings from this WFD Assessment of the activities associated with the Proposed Project are set out here.

Based on the findings from the screening, scoping and assessment undertaken here, it is considered that the Proposed Project:

- i. Will not result in a deterioration of WFD waterbody status;
- ii. Will not compromise the achievement of Good / High Ecological Potential environmental objective of any surface, groundwater or transitional waterbodies;
- iii. Will not compromise the objectives and standards for protected areas;
- iv. The proposed mitigation measures will be implemented at the Main Wind Farm Development Site to prevent any indirect effects on waterbodies or protected areas; and
- v. Will not result in a change in the hydromorphology elements of the water quality for any waterbodies,



FIGURES

Figure 1: Site Location and Zone of Influence

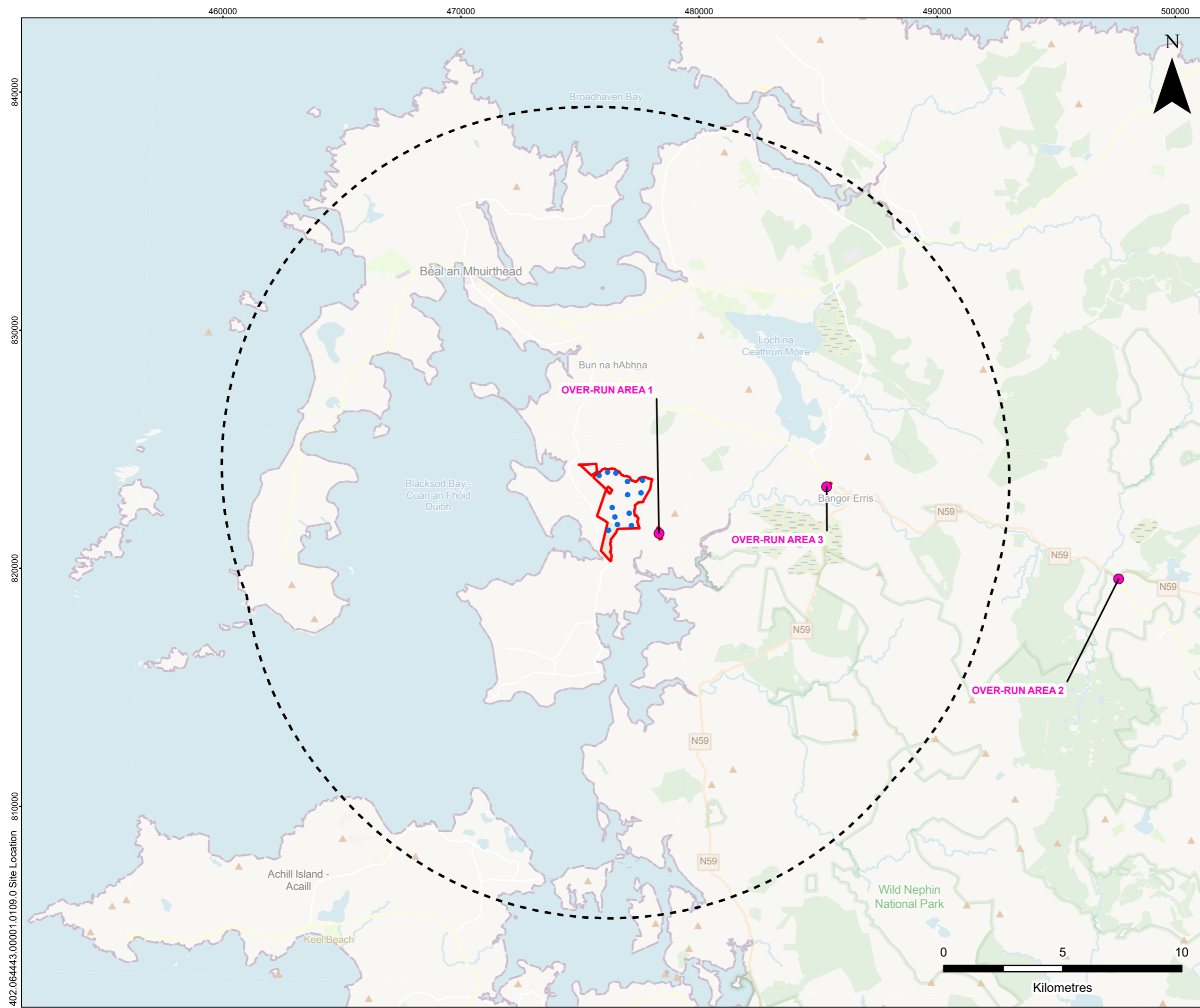
Figure 2: River Sub Basins and Surface Water Bodies

Figure 3: Groundwater Bodies

Figure 4: Ecological Designations and Zone of Influence

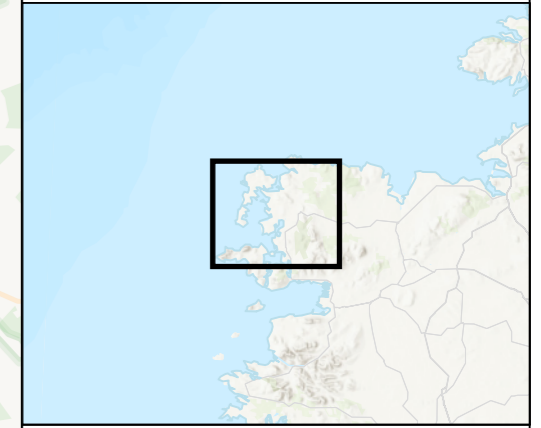
Figure 5: Public Supply Sources Protection Areas





LEGEND

- Proposed Development Site Boundary
- Study Area (Main Wind Farm Development Site Boundary 15 km Buffer)
- Proposed Turbine Location
- Proposed Over-run Area Location

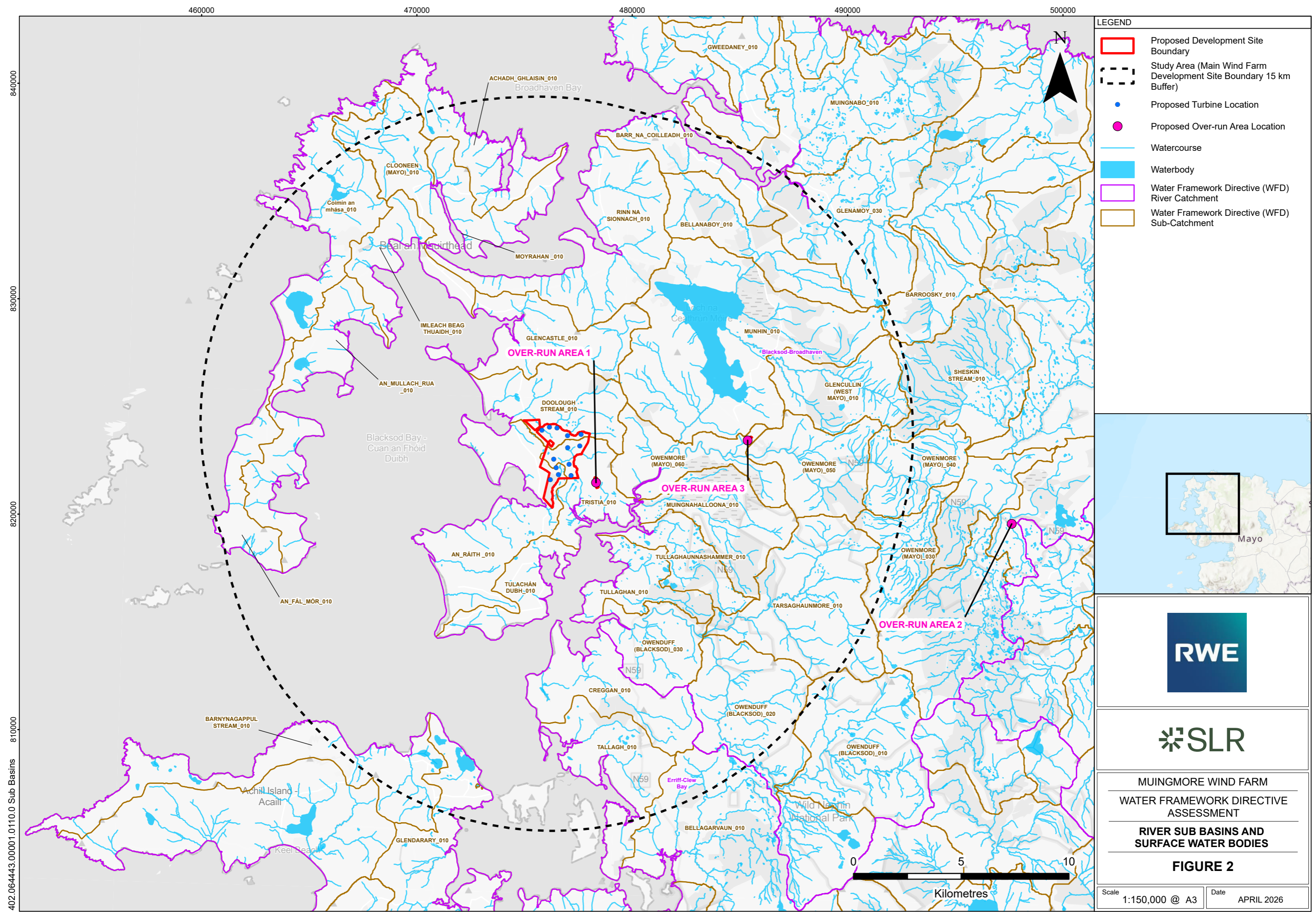


MUINGMORE WIND FARM
WATER FRAMEWORK DIRECTIVE ASSESSMENT

SITE LOCATION AND ZONE OF INFLUENCE

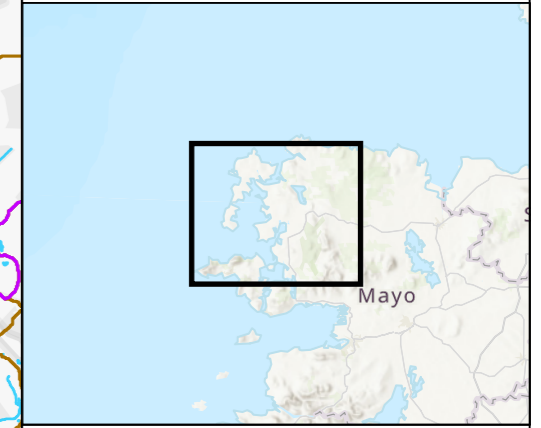
FIGURE 1

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 840000
 830000
 820000
 810000
 402.064443:00001:0110:0 Sub Basins

- LEGEND**
- Proposed Development Site Boundary
 - Study Area (Main Wind Farm Development Site Boundary 15 km Buffer)
 - Proposed Turbine Location
 - Proposed Over-run Area Location
 - Watercourse
 - Waterbody
 - Water Framework Directive (WFD) River Catchment
 - Water Framework Directive (WFD) Sub-Catchment



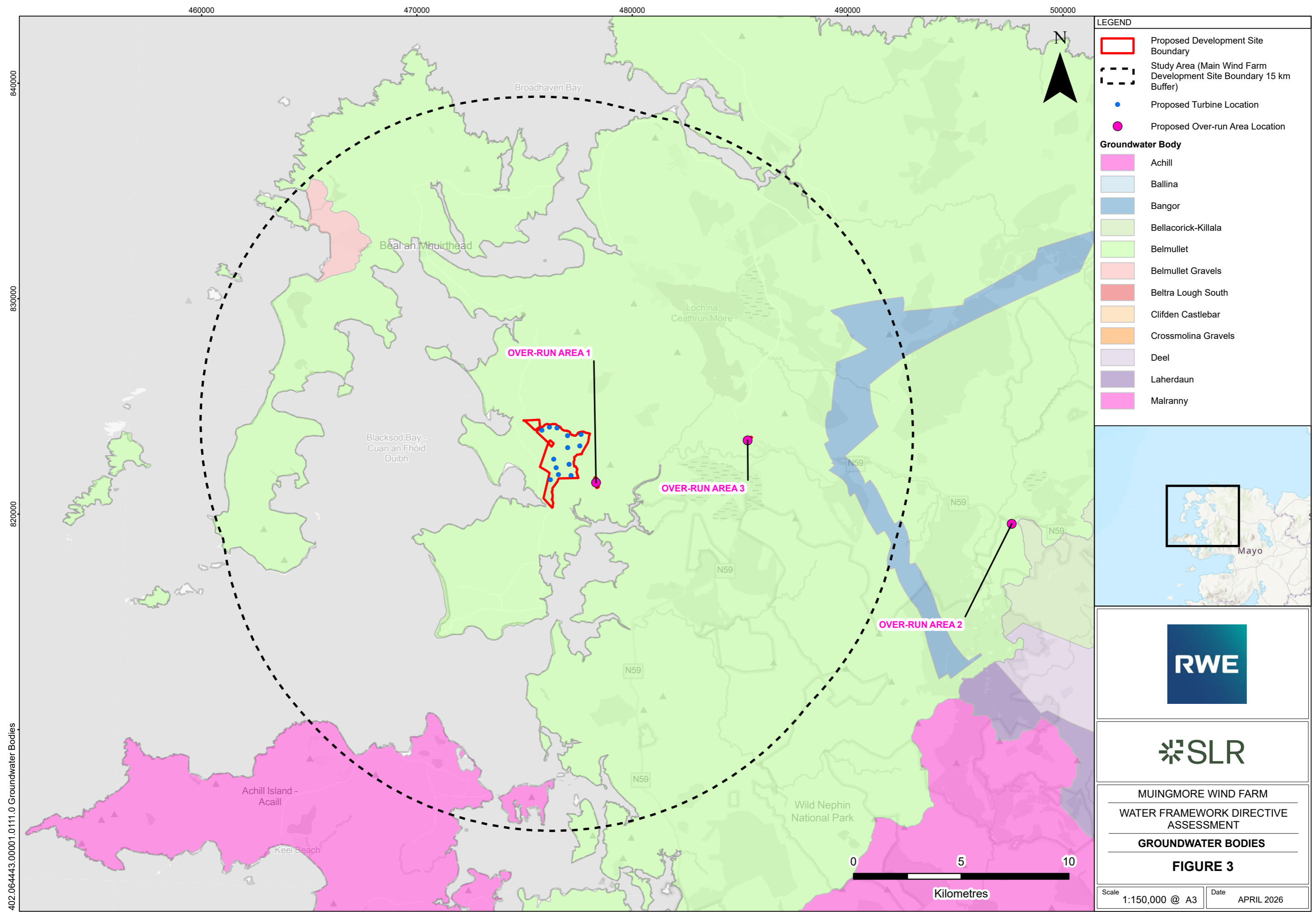
MUINGMORE WIND FARM
WATER FRAMEWORK DIRECTIVE ASSESSMENT
RIVER SUB BASINS AND SURFACE WATER BODIES

FIGURE 2

Scale 1:150,000 @ A3 Date APRIL 2026

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LEGEND

- Proposed Development Site Boundary
- Study Area (Main Wind Farm Development Site Boundary 15 km Buffer)
- Proposed Turbine Location
- Proposed Over-run Area Location

Groundwater Body

- Achill
- Ballina
- Bangor
- Bellacorick-Killala
- Belmullet
- Belmullet Gravels
- Beltra Lough South
- Clifden Castlebar
- Crossmolina Gravels
- Deel
- Laherdaun
- Malranny



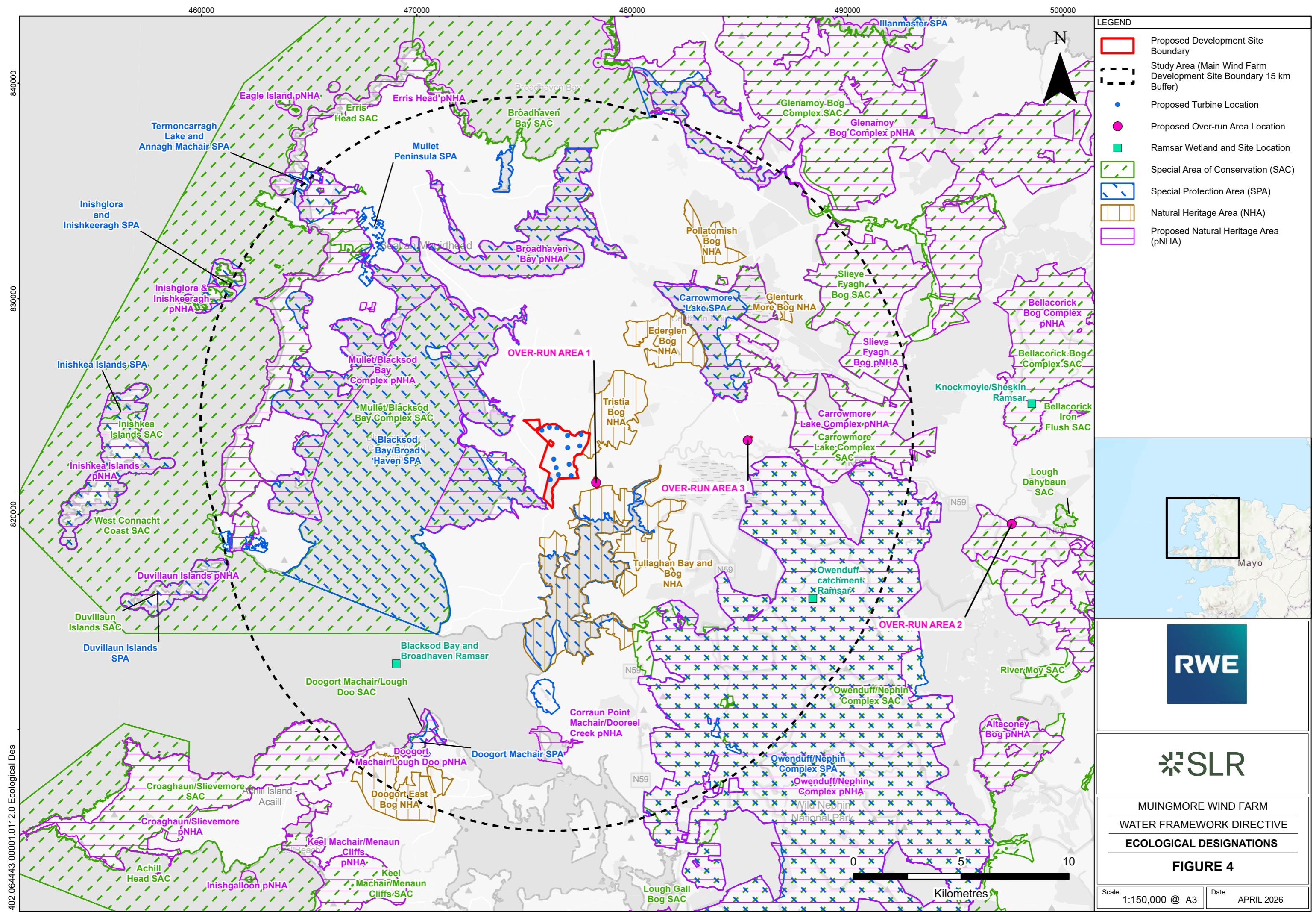
MUINGMORE WIND FARM
WATER FRAMEWORK DIRECTIVE ASSESSMENT
GROUNDWATER BODIES

FIGURE 3

Scale 1:150,000 @ A3 Date APRIL 2026

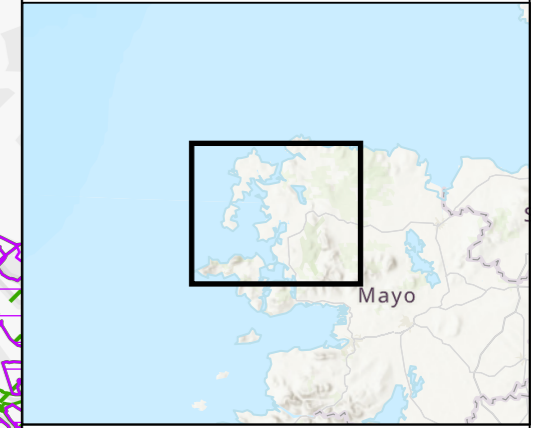
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LEGEND

- Proposed Development Site Boundary
- Study Area (Main Wind Farm Development Site Boundary 15 km Buffer)
- Proposed Turbine Location
- Proposed Over-run Area Location
- Ramsar Wetland and Site Location
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)



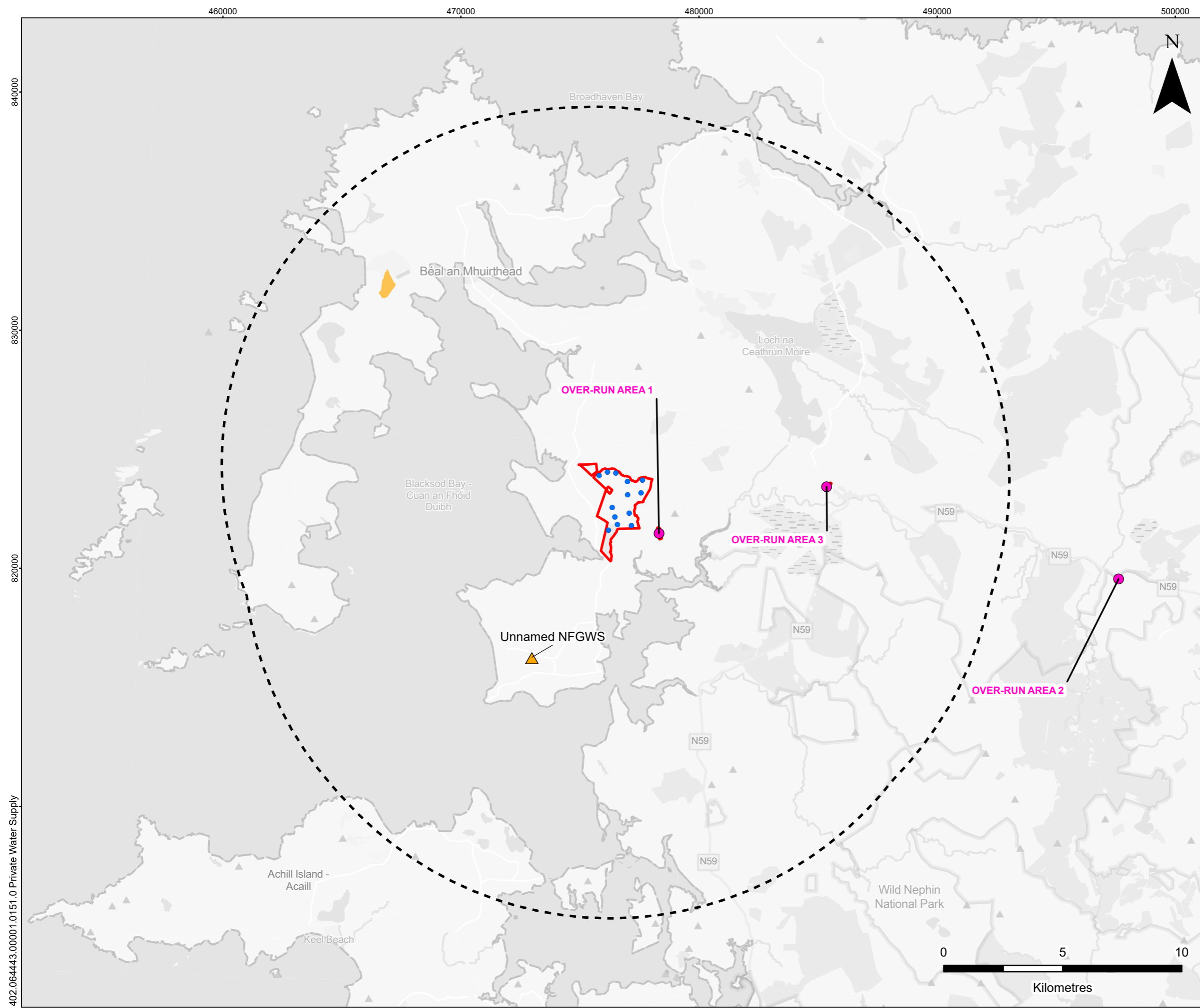
**MUINGMORE WIND FARM
WATER FRAMEWORK DIRECTIVE
ECOLOGICAL DESIGNATIONS**

FIGURE 4

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402.064443:00001.0112.0 Ecological Des

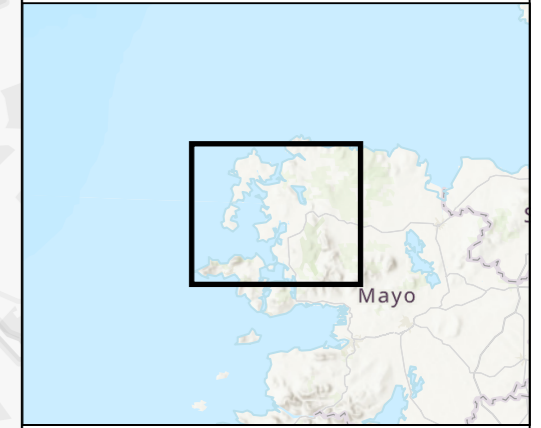
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LEGEND

- Proposed Development Site Boundary
- Study Area (Main Wind Farm Development Site Boundary 15 km Buffer)
- Proposed Turbine Location
- Proposed Over-run Area Location
- ▲ Group Water Schemes Preliminary Source Protection Areas Zones of Contribution Location
- Group Water Schemes Preliminary Source Protection Areas Zones of Contribution

Note
Data has only been shown within the 15 km Buffer



MUINGMORE WIND FARM

WATER FRAMEWORK DIRECTIVE ASSESSMENT

PUBLIC SUPPLY SOURCES PROTECTION AREAS

FIGURE 5

Scale 1:150,000 @ A3	Date APRIL 2026
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402.064443.00001.0151.0 Private Water Supply

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Appendix A WFD Catchments, Watercourses and Groundwater Bodies in Study Area

**Water Framework Directive Assessment Muingmore,
Co. Mayo**

Muingmore Wind Farm Development

RWE Renewables Ireland Ltd.

SLR Project No.: 501.065301.00001

23 April 2026

Refer to **Appendix D** and **Appendix E** for details of the surface water and groundwater bodies associated with the GCR and the TDR Over-run Areas.

Table A-1: The Main Wind Farm Development Catchments, Sub-Catchments, River Sub-Basins, Surface Water Bodies and Groundwater Bodies (within 15 km of the Main Wind Farm Development Site)

WFD Catchment Hierarchy	WFD Catchment Name	Distance from Main Wind Farm Development Site
Catchments	Blacksod-Broadhaven, Catchment ID. No. 33	Main Wind Farm Development Site is within Blacksod-Broadhaven catchment
	Eriff-Clew Bay, Catchment ID. No. 32	10 km southeast of the Main Wind Farm Development Site
Sub Catchments	Glencastle_SC_010	Main Wind Farm Development Site is within sub catchment
	Owenmore [Mayo]_SC_030	Main Wind Farm Development Site is within sub catchment
	Munhin_SC_010	5.5 km northeast of the Main Wind Farm Development Site
	Owenduff[Blacksod]_SC_010	8.5 km southeast of the Main Wind Farm Development Site
	Bellagarvaun_SC_010	9.5 km south of the Main Wind Farm Development Site
	TóIN_AN_MHáSA_SC_010	9.5 km northwest of the Main Wind Farm Development Site
	Owenmore [Mayo]_SC_020	11.1 km east of the Main Wind Farm Development Site
	KEEL_EAST_SC_010	14 km southwest of the Main Wind Farm Development Site
	Glenamoy_SC_010	15 km northeast of the Main Wind Farm Development Site
	Owenmore [Mayo]_SC_010	15 km east of the Main Wind Farm Development Site
River Sub Basins	AN_RÁITH_010	Site is within river sub basin
	TRISTIA_010	Site is within river sub basin
	DOOLOUGH STREAM_010	Site is within river sub basin
	TULACHÁN DUBH_010	2.9°km south of the Main Wind Farm Development Site
	OWENMORE (MAYO)_060	31°km east of the Main Wind Farm Development Site
	TULLAGHAUNNASHAMMER_010	4.4°km southeast of the Main Wind Farm Development Site
	TULLAGHAN_010	4.5°km southeast of the Main Wind Farm Development Site



WFD Catchment Hierarchy	WFD Catchment Name	Distance from Main Wind Farm Development Site
	MUINGNAHALLOONA_010	4.6°km southeast of the Main Wind Farm Development Site
	MUNHIN_010	5.2°km northeast of the Main Wind Farm Development Site
	GLENCASTLE_010	5.4°km north of the Main Wind Farm Development Site
	CREGGAN_010	6.9°km south of the Main Wind Farm Development Site
	RINN NA SIONNACH_010	8.8°km north of the Main Wind Farm Development Site
	OWENMORE (MAYO)_050	9.8°km east of the Main Wind Farm Development Site
	TALLAGH_010	10.3°km south of the Main Wind Farm Development Site
	GLENCULLIN (WEST MAYO)_010	10.9°km northeast of the Main Wind Farm Development Site
	TARSAGHAUNMORE_010	11.7°km east of the Main Wind Farm Development Site
	MOYRAHAN_010	11.7°km north of the Main Wind Farm Development Site
	BELLANABOY_010	11.9°km northeast of the Main Wind Farm Development Site
	AN_MULLACH_RUA_010	12°km west of the Main Wind Farm Development Site
	GLENDARARY_010	12.5°km southwest of the Main Wind Farm Development Site
	OWENDUFF (BLACKSOD)_020	12.9°km southeast of the Main Wind Farm Development Site
	IMLEACH BEAG THUAIDH_010	13.3°km northwest of the Main Wind Farm Development Site
	BARNYNAGAPPUL STREAM_010	13.5°km southwest of the Main Wind Farm Development Site
	AN_FÁL_MÓR_010	13.6°km west of the Main Wind Farm Development Site
	ACHADH_GHLAISÍN_010	13.8°km north of the Main Wind Farm Development Site
	BELLAGARVAUN_010	14°km southeast of the Main Wind Farm Development Site
	OWENMORE (MAYO)_030	14.1°km west of the Main Wind Farm Development Site
	BARR_NA_COILLEADH_010	14.3°km northeast of the Main Wind Farm Development Site



WFD Catchment Hierarchy		WFD Catchment Name	Distance from Main Wind Farm Development Site
		OWENMORE (MAYO)_040	14.5°km east of the Main Wind Farm Development Site
		SHESKIN STREAM_010	15°km east of the Main Wind Farm Development Site
Surface Water Bodies	Water	AN_RÁITH_010	Surface water is located on the Main Wind Farm Development Site
		TRISTIA_010	Surface water is located on the Main Wind Farm Development Site
		DOOLOUGH STREAM_010	Surface water is located on the Main Wind Farm Development Site
		Blacksod Bay	Directly west of the Main Wind Farm Development Site
		TULACHÁN DUBH_010	c. 2.7 km south of the Main Wind Farm Development Site
		Belmullet Bay	c. 8.3 km north of the Main Wind Farm Development Site
		Broadhaven	c. 10.8 km north of the Main Wind Farm Development Site
		Tullaghan Bay	c. 2.5 km south of the Main Wind Farm Development Site
		OWENMORE (MAYO)_060	c. 4.1 km east of the Main Wind Farm Development Site
		TULLAGHAUNNASHAMMER_010	c. 4.5 km southeast of the Main Wind Farm Development Site
		TULLAGHAN_010	c.3.7 km southeast of the Main Wind Farm Development Site
		MUINGNAHALLOONA_010	c. 3.9 km east of the Main Wind Farm Development Site
		MUNHIN_010	c. 4.8 km northeast of the Main Wind Farm Development Site
		GLENCASTLE_010	c. 4.9 km north of the Main Wind Farm Development Site
		CREGGAN_010	c. 7.4 km south of the Main Wind Farm Development Site
		RINN NA SIONNACH_010	c. 6.9 km north of the Main Wind Farm Development Site
		OWENMORE (MAYO)_050	c. 8.2 km east of the Main Wind Farm Development Site
TALLAGH_010	c. 10.2 km south of the Main Wind Farm Development Site		
GLENCULLIN (WEST MAYO)_010	c. 10.6 km northeast of the Main Wind Farm Development Site		



WFD Catchment Hierarchy	WFD Catchment Name	Distance from Main Wind Farm Development Site
	TARSAGHAUNMORE_010	c. 9.4k m southeast of the Main Wind Farm Development Site
	MOYRAHAN_010	c. 9.9 km north of the Main Wind Farm Development Site
	AN_MULLACH_RUA_010	c. 11.9 km west of the Main Wind Farm Development Site
	GLENDARARY_010	c. 13.1 km west of the Main Wind Farm Development Site
	OWENDUFF (BLACKSOD)_020	c. 9.5 km southeast of the Main Wind Farm Development Site
	IMLEACH BEAG THUAIDH_010	c. 11.7 km northwest of the Main Wind Farm Development Site
	BARNYNAGAPPUL STREAM_010	c. 13 km southwest of the Main Wind Farm Development Site
	AN_FÁL_MÓR_010	c. 13 km west of the Main Wind Farm Development Site
	ACHADH_GHLAISÍN_010	c. 11.6 km north of the Main Wind Farm Development Site
	BELLAGARVAUN_010	c. 13.4 km southeast of the Main Wind Farm Development Site
	OWENMORE (MAYO)_030	c. 6.8 km southeast of the Main Wind Farm Development Site
	BARR_NA_COILLEADH_010	c. 14.1 km northeast of the Main Wind Farm Development Site
	OWENMORE (MAYO)_040	c. 14 km west of the Main Wind Farm Development Site
	SHESKIN STREAM_010	c. 15 km west of the Main Wind Farm Development Site
	TULACHÁN DUBH_010	c. 5.8 km south of the Main Wind Farm Development Site
	CLOONEEN (MAYO)_10	c. 12.3 km northwest of the Main Wind Farm Development Site
	Coimín an mhása_010	c. 13.8 km northwest of the Main Wind Farm Development Site
	BELLANABOY_010	c. 13.6 km northeast of the Main Wind Farm Development Site
Groundwater Bodies	Belmullet	Main Wind Farm Development Site is within
	Belmullet Gravels	c.12.7 km northwest of the Main Wind Farm Development Site
	Bangor	c. 12.5 km east of the Main Wind Farm Development Site
	Achill	c. 12.5 km south of the Main Wind Farm Development Site







Appendix B Surface Waters Classification

**Water Framework Directive Assessment Muingmore,
Co. Mayo**

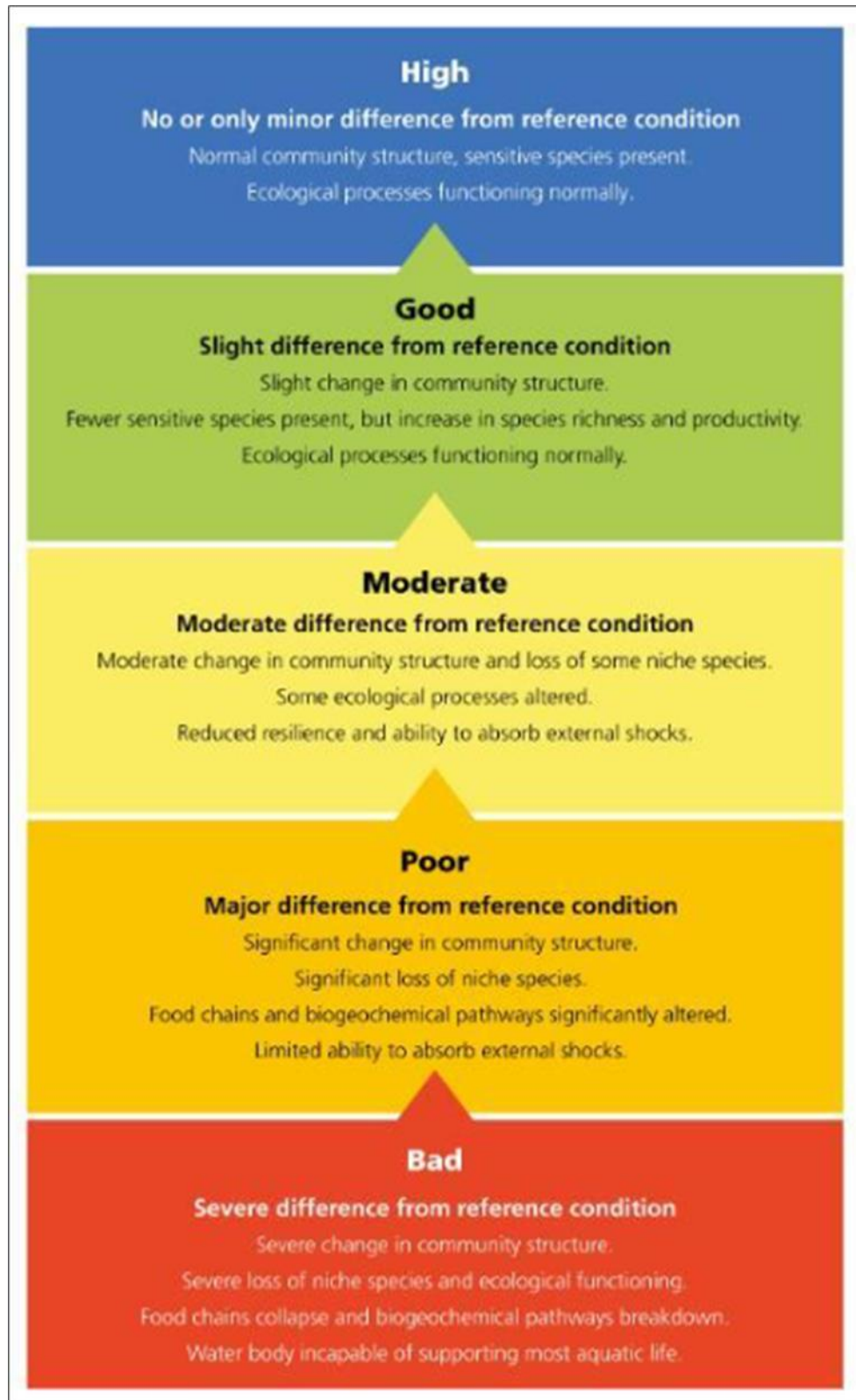
Muingmore Wind Farm Development

RWE Renewables Ireland Ltd.

SLR Project No.: 501.065301.00001

23 April 2026

WFD surface waters classification (Ecological Status)⁷.



⁷ <https://www.epa.ie/our-services/monitoring--assessment/freshwater--marine/conditions-of-our-water/>





Appendix C Ecological Status Classification

Water Framework Directive Assessment Muingmore, Co. Mayo

**Muingmore Wind Farm Development
RWE Renewables Ireland Ltd.**

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Approach to the classification of ecological status and ecological potential

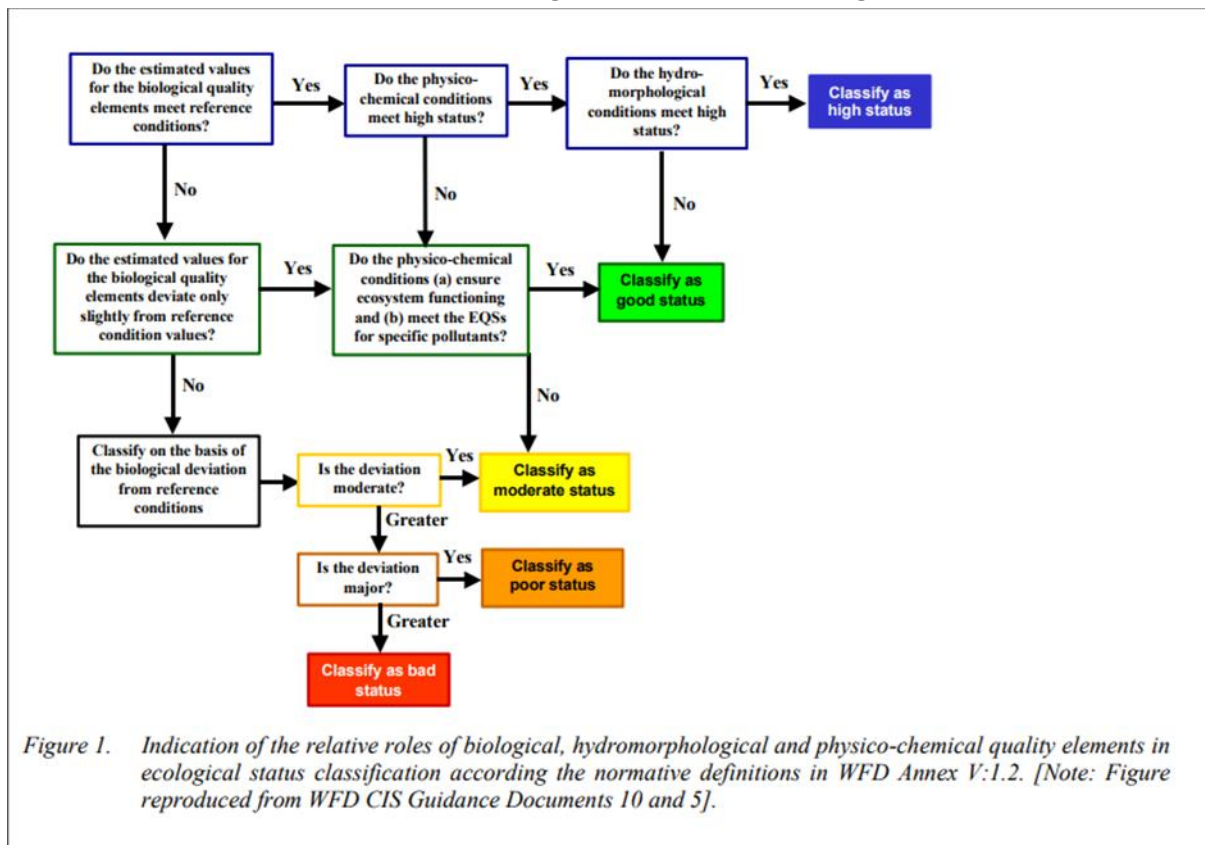


Figure 1. Indication of the relative roles of biological, hydromorphological and physico-chemical quality elements in ecological status classification according the normative definitions in WFD Annex V:1.2. [Note: Figure reproduced from WFD CIS Guidance Documents 10 and 5].

Source: Common Implementation Strategy for the Water Framework Directive (2000/60/EC). Guidance document No. 13 Overall approach to the classification of ecological status and ecological potential





Appendix D WFD Stage 1 **Screening for surface** **water bodies and WFD** **details**

Water Framework Directive Assessment Muingmore, Co. Mayo

Muingmore Wind Farm Development
RWE Renewables Ireland Ltd.

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Table D-1: WFD Stage 1 Screening for surface water bodies and WFD details

Surface water body	Distance from Site	Ecological Status (2009 - 2015)	Ecological Status (2013 - 2018)	Ecological Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)	Catchment (ID)
AN_RÁITH_010	Surface water is located on the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
TRISTIA_010	Surface water is located on the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
DOOLOUGH STREAM_010	Surface water is located on the Main Wind Farm Development Site	Poor	Moderate	Poor	Sediment and Nutrients from Agriculture and Peat	At risk	Blacksod-Broadhaven (33)
Blacksod Bay	Directly west of the Main Wind Farm Development Site	Unassigned	High	High	N/A	Not at risk	Blacksod-Broadhaven (33)
TULACHÁN DUBH_010	c. 2.7 km south of the Main Wind Farm Development Site	Unassigned	High	Moderate	N/A	Under review	Blacksod-Broadhaven (33)
Belmullet Bay	c. 8.3 km north of the Main Wind Farm Development Site	Unassigned	Unassigned	Good	N/A	Under review	Blacksod-Broadhaven (33)
Broadhaven	c. 10.8 km north of the Main Wind	Good	Good	Good	Unknown Impact Type	At risk	Blacksod-Broadhaven (33)



Surface water body	Distance from Site	Ecological Status (2009 - 2015)	Ecological Status (2013 - 2018)	Ecological Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)	Catchment (ID)
	Farm Development Site						
Tullaghan Bay	c. 2.5 km south of the Main Wind Farm Development Site	High	High	Good	N/A	Under review	Blacksod-Broadhaven (33)
OWENMORE (MAYO)_060	c. 4.1 km east of the Main Wind Farm Development Site	Good	Good	High	N/A	Not at risk	Blacksod-Broadhaven (33)
TULLAGHAU NNASHAMME R_010	c. 4.5 km southeast of the Main Wind Farm Development Site	Unassigned	Unassigned	Good	N/A	Under review	Blacksod-Broadhaven (33)
TULLAGHAN_010	c.3.7 km southeast of the Main Wind Farm Development Site	Unassigned	Unassigned	Moderate	N/A	Under review	Blacksod-Broadhaven (33)
MUINGNAHAL LOONA_010	c. 3.9 km east of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
MUNHIN_010	c. 4.8 km northeast of the Main Wind Farm Development Site	Good	Good	Moderate	Unknown Impact Type	At risk	Blacksod-Broadhaven (33)
GLENCASTLE_010	c. 4.9 km north of the Main Wind	Good	Good	Moderate	Unknown Impact Type	At risk	Blacksod-Broadhaven (33)



Surface water body	Distance from Site	Ecological Status (2009 - 2015)	Ecological Status (2013 - 2018)	Ecological Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)	Catchment (ID)
	Farm Development Site						
CREGGAN_010	c. 7.4 km south of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Erriff-Clew Bay (32)
RINN NA SIONNACH_010	c. 6.9 km north of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
OWENMORE (MAYO)_050	c. 8.2 km east of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk	Blacksod-Broadhaven (33)
TALLAGH_010	c. 10.2 km south of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Erriff-Clew Bay (32)
GLENCULLIN (WEST MAYO)_010	c. 10.6 km northeast of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk	Blacksod-Broadhaven (33)
TARSAGHAU NMORE_010	c. 9.4 km southeast of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk	Blacksod-Broadhaven (33)
MOYRAHAN_010	c. 9.9 km north of the Main Wind	Unassigned	High	Good	N/A	Under review	Blacksod-Broadhaven (33)



Surface water body	Distance from Site	Ecological Status (2009 - 2015)	Ecological Status (2013 - 2018)	Ecological Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)	Catchment (ID)
	Farm Development Site						
AN_MULLACH_RUA_010	c. 11.9 km west of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
GLENDARARY_010	c. 13.1 km west of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
OWENDUFF (BLACKSOD)_020	c. 9.5 km southeast of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk	Blacksod-Broadhaven (33)
IMLEACH BEAG THUAIDH_010	c. 11.7 km northwest of the Main Wind Farm Development Site	Unassigned	Unassigned	Moderate	N/A	Under review	Blacksod-Broadhaven (33)
BARNYNAGA PPUL STREAM_010	c. 13 km southwest of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
AN_FÁL_MÓR_010	c. 13 km west of the Main Wind Farm Development Site	Unassigned	Unassigned	Good	N/A	Under review	Blacksod-Broadhaven (33)



Surface water body	Distance from Site	Ecological Status (2009 - 2015)	Ecological Status (2013 - 2018)	Ecological Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)	Catchment (ID)
ACHADH_GH LAISIN_010	c. 11.6 km north of the Main Wind Farm Development Site	Unassigned	Good	Good	N/A	Under review	Blacksod-Broadhaven (33)
BELLAGARVA UN_010	c. 13.4 km southeast of the Main Wind Farm Development Site	Moderate	Moderate	Moderate	Morphological and Nutrients from Agriculture and Forestry	At risk	Erriff-Clew Bay (32)
OWENMORE (MAYO)_030	c. 6.8 km southeast of the Main Wind Farm Development Site	High	High	High	N/A	Not at risk	Blacksod-Broadhaven (33)
BARR_NA_C OILLEADH_010	c. 14.1 km northeast of the Main Wind Farm Development Site	Unassigned	Unassigned	Good	N/A	Under review	Blacksod-Broadhaven (33)
OWENMORE (MAYO)_040	c. 14 km west of the Main Wind Farm Development Site	High	High	High	N/A	Not at risk	Blacksod-Broadhaven (33)
SHESKIN STREAM_010	c. 15 km west of the Main Wind Farm Development Site	High	High	High	N/A	Not at risk	Blacksod-Broadhaven (33)
TULACHÁN DUBH_010	c. 5.8 km south of the Main Wind	Unassigned	High	Moderate	N/A	Under Review	Blacksod-Broadhaven (33)



Surface water body	Distance from Site	Ecological Status (2009 - 2015)	Ecological Status (2013 - 2018)	Ecological Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)	Catchment (ID)
	Farm Development Site						
CLOONEEN (MAYO)_10	c. 12.3 km northwest of the Main Wind Farm Development Site	Moderate	Moderate	Poor	Hydrological and Morphological from Agriculture and Hydromorphology	At risk	Blacksod-Broadhaven (33)
Coimín an mhása_010	c. 13.8 km northwest of the Main Wind Farm Development Site	Unassigned	Unassigned	Good	N/A	Under review	Blacksod-Broadhaven (33)
BELLANABOY_010	c. 13.6 km northeast of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk	Blacksod-Broadhaven (33)



The surface water bodies listed below account for the SWB water crossing located along the Grid Connection Route.

Table D-2: WFD Stage 1 Screening Grid Connection Route - WFD Status and Risk Status

River Name	EPA River Name	WFD 3 rd Cycle Status	WFD Risk status
Unnamed	TRISTIA_010	Good	Under Review.
Tristia 33			
Doolough (Stream)	DOOLOUGH STREAM_010	Poor	At risk due to excess sediment and nutrients from agriculture and peat drainage / extraction.
Munhin	MUNHIN_010	Moderate	At risk due to an unknown pressure and unknown impact type.
Owenmore [Mayo] and several unnamed tributaries into the Owenmore [Mayo]	OWENMORE (MAYO)_060, OWENMORE (MAYO)_050, OWENMORE (MAYO)_040, OWENMORE (MAYO)_030, OWENMORE (MAYO)_020	OWENMORE (MAYO)_030 High	Not at risk.
		OWENMORE (MAYO)_040 High	Not at risk.
Unnamed	OWENMORE (MAYO)_060	High	Not at risk.
Goolamore			
Srahmore 33			
Srahgaddy			
Ballybeg 33	OWENMORE (MAYO)_050	Good	Not at risk.
Srahnarry			
Bellanumera			
Briska33			
Unnamed	OWENMORE (MAYO)_020	High	Not at risk.
Kilsallagh 33			
Unnamed			
Unnamed			
Unnamed			



The surface water bodies listed below account for the SWBs associated with the three Over-run Areas of the Turbine Delivery Route.

Table D-3: WFD Stage 1 Screening Turbine Delivery Route Over-run Areas - Surface Waterbodies WFD Status and Risk Status

Over-run Area No.	River Name	EPA River Name	WFD 3rd Cycle Status	WFD Risk status
Over-run Area 1	Unnamed	OWENMORE (MAYO)_060	High	Not at risk
Over-run Area 2	Moneynierin	MUING_010	Good	Not at risk.
Over-run Area 3	Tristia 33	TRISTIA_010	Good	Under review





Table E-1: WFD Stage 1 Screening for groundwater bodies within 15km of the Main Wind Farm Development Site and along GCR and Over-run Areas of TDR WFD Details.

Groundwater Body	Distance from Site	Overall Status (2010 - 2015)	Overall Status (2013 - 2018)	Overall Status (2016 - 2021)	WFD Second Cycle Pressures (2016 - 2021)	WFD Third Cycle Risk (2022 - 2027)
Belmullet	Main Wind Farm Development Site, GCR and three Over-run Areas of the TDR are within this GWB	Good	Good	Good	N/A	Not at risk
Belmullet Gravels	c.12.7 km northwest of the Main Wind Farm Development Site	Good	Good	Good	Chemical Quality Diminution, Forestry Surface Waters and Nutrients from Agriculture	At risk
Bangor	c. 12.5 km east of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk
Achill	c. 12.5 km south of the Main Wind Farm Development Site	Good	Good	Good	N/A	Not at risk





Appendix F Designated Areas

Water Framework Directive Assessment Muingmore, Co. Mayo

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Table F-1: WFD Stage 1 Screening Designated Areas – including European Sites within the Zone of Influence of the Main Wind Farm Development Site

Designated Site	Site Code	Location at Closest Point to the Main Wind Farm Development Site ⁸	Zone of Influence
Mullet / Blacksod Bay Complex SAC and pNHA	000470	c. 200 m southwest of the s Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Blacksod Bay / Broad Haven SPA	004037	c. 200 m southwest of the Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Tullaghan Bay and Bog NHA	001567	c. 1.5k m southeast of the Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence and has hydrological link (downstream) to the Site.
Tristia Bog NHA	001566	Located on northeast border of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence and has potential hydrological link as it is located along the northeast border of the Site
West Connacht Coast SAC	002998	c. 9 km southwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence and has hydrological link (downstream) to the Site.
Broadhaven Bay SAC and pNHA	000472	c. 8.5 km north of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Ederglen Bog NHA	002446	c. 6.5 km northwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Carrowmore Lake Complex SAC and pNHA	000476	c. 8.4 km northwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Carrowmore Lake SPA	004052	c. 8.4 km northwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.

⁸ When measured in a straight line over the shortest distance between the Main Wind Farm Development Site and the European Site.



Designated Site	Site Code	Location at Closest Point to the Main Wind Farm Development Site ⁸	Zone of Influence
Pollatomish Bog NHA	001548	c. 11.4 km northwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Owenduff/Nephin Complex SAC, SPA and pNHA	SAC and pNHA:000534 SPA: 004098	c. 8 km southeast of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Slieve Fyagh Bog SAC and pNHA	000542	c. 13.7 km northwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Corraun Point Machair/Dooreel Creek pNHA	001488	c. 11.3 km south of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Doogort Machair/Lough Doo SAC and pNHA	001497	c. 11.7 km southwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Doogort Machair SPA	004235	c. 11.7 km southwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Doogort East Bog NHA	002381	c. 14.3 km southwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Croaghaun/Slievemore SAC and pNHA	001955	c. 14.8 km southwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Mullet Peninsula SPA	004227	c. 12.1 km northwest of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.
Glenturk More Bog NHA	002419	c. 12.1 km northeast of Main Wind Farm Development Site	Main Wind Farm Development is within the 15 km Zone of Influence.



The ecological designated areas associated with the water crossings along the GCR

Table F-2: WFD Stage 1 Screening GCR – Designated Sites along the GCR water crossings

Water crossing No.	Designated Site	Site Code	Location at Closest Point to the GCR
WCX1-WCX9	N/A	N/A	N/A
WCX10-WCX25	Carrowmore Lake Complex SAC/pNHA and Owenduff/Nephin Complex SPA/SAC/pNHA	Carrowmore: 000476 Owenduff/Nephin: SAC/pNHA: 000534 SPA: 004098	Carrowmore Complex is immediately north of GCR and Owenduff/Nephin complex is immediately south of GCR
WCX26-WCX32	N/A	N/A	N/A
WCX33-WCX34	Bellacorick Bog Complex SAC/pNHA	001922	Immediately south of GCR

The ecological designated areas associated with the Over-run Areas of the TDR

Table F-3: WFD Stage 1 Screening TDR Over-run Areas – Designated Sites associated with the Over-run Areas of the TDR

Over-run Area No.	Designated Site	Site Code	Location at Closest Point to the Over-run Area
Over-run Area 1	N/A	N/A	N/A
Over-run Area 2	Bellacorick Bog Complex SAC/pNHA	001922	Immediately south of Over-run Area
Over-run Area 3	Tullaghan Bay and Bog NHA	001567	Immediately north of Over-run Area





Appendix G Drinking Water Protected Areas

**Water Framework Directive Assessment Muingmore, Co.
Mayo**

**Muingmore Wind Farm Development
RWE Renewables Ireland Ltd.**

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The table below outlines all the drinking water protected areas located within 15km zone of influence of the Main Wind Farm Development Site. There are no drinking water schemes located along or within distance of the GCR and the three Over-run Areas of the TDR, hence they have not been tabulated in this appendix.

Table G-1: WFD Stage 1 Screening for drinking water supply schemes within zone of influence of the Main Wind Farm Development Site.

Drinking Water Protected Area	Location at Closest Point to Project Site	Hydrological Connectivity to Site (i.e. same SW catchment, Aquifer or in PWS Zone of Contribution)
Unnamed NFGWS GWS	Located c.5.08 km southwest of Main Wind Farm Development Site	Within 15 km potential zone of influence and is not hydraulically linked to Main Wind Farm Development Site
Drum Binghamstown GWS	Located c. 11.5 km northwest of Main Wind Farm Development Site	Within 15 km potential zone of influence and is not hydraulically linked to Main Wind Farm Development Site





Appendix H Rating of Existing Environmental Significance / Sensitivity (IGI, 2013 Guidelines)

**Water Framework Directive Assessment Muingmore, Co.
Mayo**

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Table I-1: Rating of Existing Environment Significance / Sensitivity (IGI, 2013 Guidelines)

Importance	Criteria	Typical Example
High	Attribute has a high quality or value on an international scale	Groundwater/ Surface Water supports river, wetland or surface water body ecosystem protected by EU legislation e.g. SAC or SPA status
	Attribute has a high quality or value on a regional or national scale	Regionally Important Aquifer with multiple wellfields. Groundwater supports river, wetland or surface water body ecosystem protected by national legislation – e.g. NHA status. Regionally important potable water source supplying >2,500 homes Inner source protection area for regionally important water source. Drinking water supply from river. Amenity use of waterbody
	Attribute has a high quality or value on a local scale	Regionally Important Aquifer. Groundwater provides large proportion of baseflow to local rivers. Locally important potable water source supplying >1000 homes. Outer source protection area for regionally important water source. Inner source protection area for locally important water source.
Medium	Attribute has a medium quality or value on a local scale	Locally Important Aquifer Potable water source supplying >50 homes. Outer source protection area for locally important water source. No specific recreational use of waterbody
Low	Attribute has a low quality or value on a local scale	Poor Bedrock Aquifer. Potable water source supplying <50 homes. No water supply from surface water, no abstraction designation for watercourse No amenity value of waterbody
Negligible	Attribute has negligible quality or value on a local site scale	No groundwater supply from a bedrock aquifer inn vicinity of site. Surface water not used for any specific purpose.





Appendix I Appendix Title

Water Framework Directive Assessment Muingmore, Co. Mayo

**Muingmore Wind Farm Development
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Table J-1: Descriptions of Effects (EPA, 2022)


Impact Characteristic	Term	Description
Quality of Effects	Positive Effects	A change which improves the quality of the environment
	Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative / Adverse Effects	A change which reduces the quality of the environment.
Describing the Significance of Effects	Imperceptible	An effect capable of measurement but without significant consequences.
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects	An effect which obliterates sensitive characteristics.
Describing the Extent and Context of Effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?).
Describing the Probability of Effects	Likely Effects	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Unlikely Effects	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?).
Describing the Duration and Frequency of Effects	Momentary Effects	Effects lasting from seconds to minutes.
	Brief Effects	Effects lasting less than a day.
	Temporary Effects	Effects lasting less than a year.
	Short-term Effects	Effects lasting one to seven years.
	Medium-term Effects	Effects lasting seven to fifteen years.



	Long-term Effects	Effects lasting fifteen to sixty years.
	Permanent Effects	Effects lasting over sixty years.
	Reversible Effects	Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually.
Describing the Types of Effects	Indirect / Secondary Effects	Likely, significant effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
	Do-Nothing Effects	The environment as it would be in the future should the subject project not be carried out.
	Worst Case Effects	The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects	When the full consequences of a change in the environment cannot be described.
	Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SOx and NOx to produce smog).







Appendix J Classification of the Significance of Effects (EPA, 2022)

**Water Framework Directive Assessment Muingmore, Co.
Mayo**

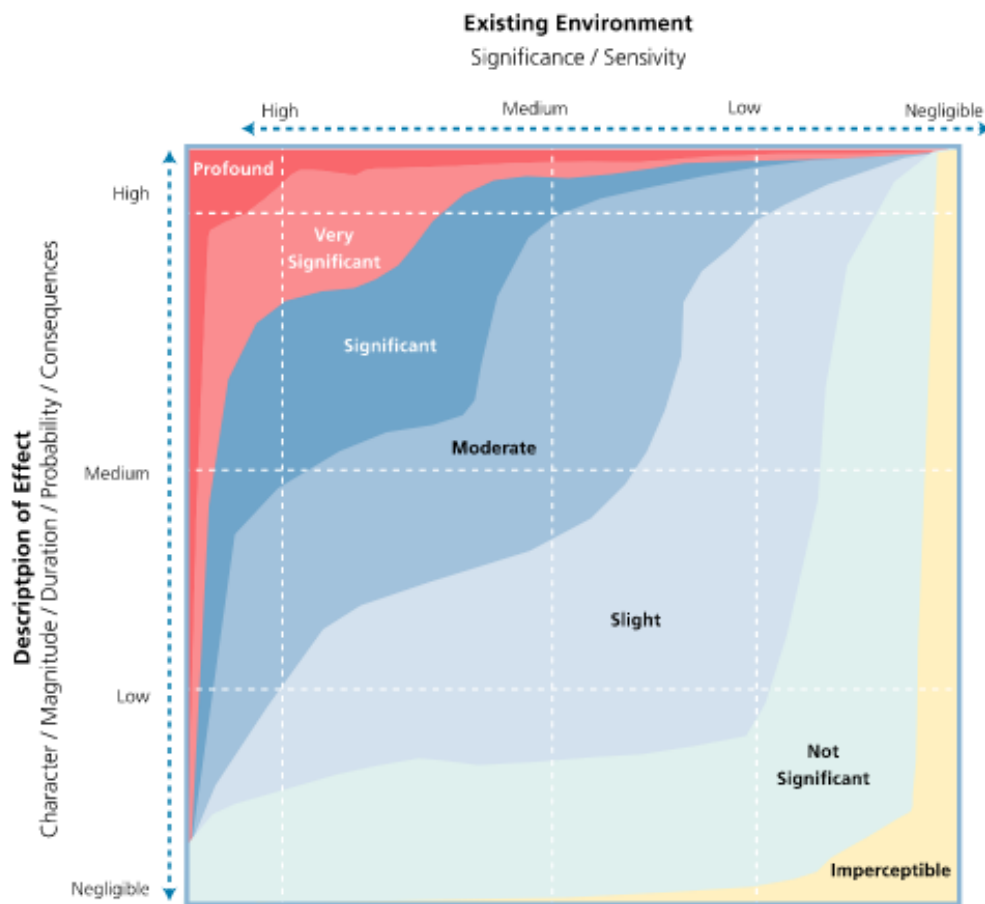
**Muingmore Wind Farm Development
RWE Renewables Ireland Ltd.**

SLR Project No.: 501.065301.00001

3 March 2026

Determining Significance

Figure 3.4 shows how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.



There are seven generalised degrees of effect significance that are commonly used in EIA. Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant and Profound. Generalised definitions of each of these are provided in Table 3.4. When more specific definitions exist within a specialised factor or topic, e.g. biodiversity, these should be used in preference to these generalised definitions. (ref. Advice Notes⁶⁸.)





Making Sustainability Happen