TOBIN

Ballincor Wind Farm

Appendix 9-1

Water Framework Directive (WFD)

Compliance Assessment

RWE

BUILT ON KNOWLEDGE

Document Control Sheet	
Document Reference	Ballincor Wind Farm WFD Compliance Assessment
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1. INTRODUCTION

TOBIN Consulting Engineers were requested by RWE Renewables Ireland Ltd. to complete a Water Framework Directive (WFD) Compliance Assessment for a Proposed Ballincor Wind Farm Development at Ballincor, Curralanty, Cloonaheen, Co. Offaly and Clonfree, Castletown, Cronekill, Kylenamuck, Co. Tipperary.

The proposed wind farm site comprises mostly agricultural land and cutover bog with some mixed broadleaved woodland, coniferous woodland and scrub .

This assessment will determine the water bodies with the potential to be impacted, describe the mitigation measures and determine if the proposed project is in compliance with the objectives of the WFD.

1.1 BACKGROUND

The European Union (EU) Water Framework Directive (WFD) (2000/60/EC) was established in 2000 in order to provide a framework for the protection of surface waterbodies (including rivers, lakes, coasts, estuaries and heavily modified waterbodies) and groundwater.

This report provides a WFD Compliance Assessment for the proposed project i.e., Ballincor Wind Farm.

This report forms part of the Environmental Impact Assessment (EIAR) and should be read in conjunction with Chapter 9 (Hydrology and Hydrogeology) of the EIAR.

Any new development must therefore ensure that four objectives are satisfied:

- Objective 1: Deterioration in the status of the waterbody or connected waterbodies (within the same catchment) is prevented;
- Objective 2: Impediments to the attainment of GES status for the waterbody are not introduced;
- Objective 3: Attainment of the WFD objectives for the waterbody is not compromised;
- Objective 4: Achievement of the WFD objectives in other waterbodies within the same catchment are not permanently excluded or compromised.

1.1.1 Assessment Methods

This WFD Compliance Assessment evaluates the likelihood for the proposed project to have significant effects on WFD parameters of waterbodies.

Currently, there is no formal Irish guidance for carrying out WFD assessments for the freshwater environment. The Northern Ireland Environment Agency provides guidance for EIA developments on carrying out a WFD assessment (Northern Ireland Environment Agency, 2012). The UK's Planning Inspectorate (PINS) Advisory Note 18 'Water Framework Directive' June 2017 (PINS 2017) also sets out the stages of a compliance assessment. In principle, the approaches outlined in each of these guidelines are similar. These documents have been used to inform the approach taken for this WFD Compliance Assessment, which is as follows:

- Screening: Identify and record the current status, future objectives and any relevant activities that may influence the waterbodies in the locality of the proposed project.
- Scoping: For each WFD element, record where the construction, operation and/or decommissioning could affect the status.
- Assessment: Evaluate the extent to which activities influence (positively or negatively) the WFD elements; the likelihood of non-temporary effects; the data available and confidence inthe assessment; and any next steps for data collection and evaluation as required.
- Mitigation: Identify where actions may be possible and appropriate to mitigate any negative effects of the development.

The study area was delineated based on site-specific characteristics and includes subbasins of rivers that are hydraulically connected to the proposed wind farm site, GCR and works area for the TDR. These subbasins comprise Incherky_010, Little Brosna _060, Little Brosna_050, Little Brosna_040 And Little Brosna_030. The extent of the study area is illustrated in Figure 1-1 below.

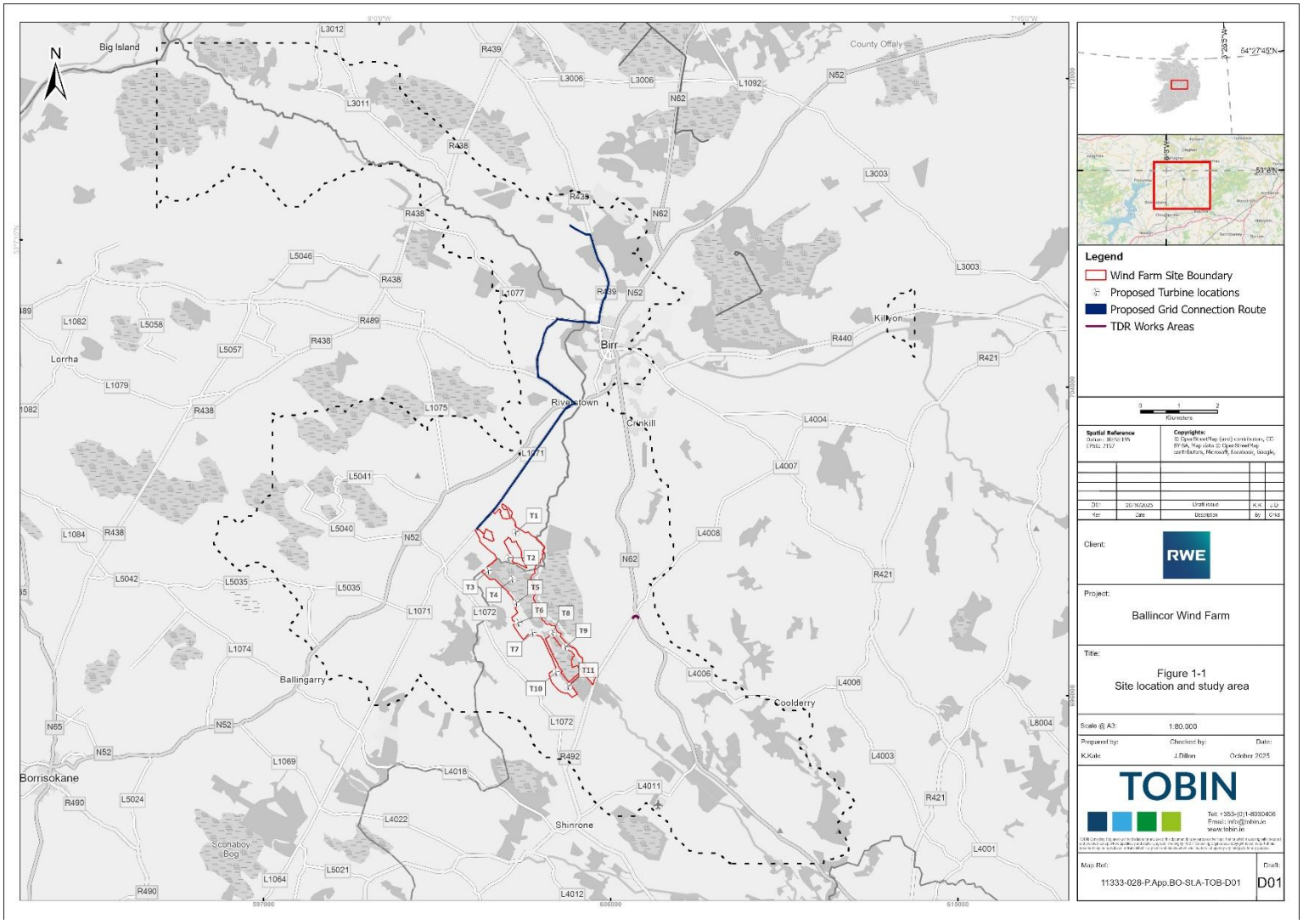

Figure 1-1: Site location and study area

1.1.2 Assessment Criteria

This assessment needs to evaluate where activities may influence WFD waterbodies. Evaluation was made against those quality elements that make up the classification of ecological status. Ecological Status is defined as alteration from 'natural' conditions; see the official WFD normative definitions in the box below.

Table 1-1: Description of elements for the classification of Ecological Status that are recorded for those waterbodies intersected by the proposed project.

WFD Element	Description of elements for the classification of Ecological Status
Biological Status	Composition and abundance of aquatic flora (including macrophytes and phytobenthos) Composition and abundance of benthic invertebrate fauna Composition, abundance and age structure of fish fauna
Chemical Status	Elements that support the biological elements including: • Temperature • pH • Ammonia • Phosphate
Hydrology Status	Quantity of water flow Connection to groundwater bodies
Morphology Status	River depth and width variation Structure and substrate of the river bed Structure of the riparian zone

Source: WFD Directive 2000/60/EC

This assessment is reliant on identifying those effects that are non-temporary i.e., three years for biological status, Hydrology and Morphology and 12 months for Chemical status.

To inform this assessment the following datasets owned by the EPA and available online have been used:

- Catchment Data - River Waterbodies GIS
- Catchment Data - Lake Waterbodies GIS
- Surface Water Classification Status and Objectives results for 2019-2024
- Groundwater Classification Status and Objectives results 2019-2024

2. WFD SCREENING AND SCOPING

The proposed project is located entirely within the Lower Shannon (25B) catchment. The proposed wind farm site lies wholly within the Little Brosna_SC_020 sub-catchment area and spans two WFD river sub-basins. The majority of the site is within the Little Brosna_040 WFD River sub-sasin, with a smaller section to the southwest located within the Little Brosna_030 WFD River sub-basin.

The proposed TDR works are situated within the Lower Shannon (25B) catchment and the Little Brosna_SC_020 sub-catchment. The proposed TDR work area at Sharavogue Bridge does not cross any rivers or streams.

The proposed GCR is also located entirely within the Lower Shannon (25B) catchment. The southern portion of the GCR lies within the Little Brosna_SC_020 sub-catchment area, while the northern portion extends into the Shannon [Lower]_SC_060 sub-catchment to the north and west of Birr. The proposed GCR route crosses three EPA-mapped rivers/streams and four culverted drains.

The relevant River Sub-Basins are presented in Figure 2-1 below.

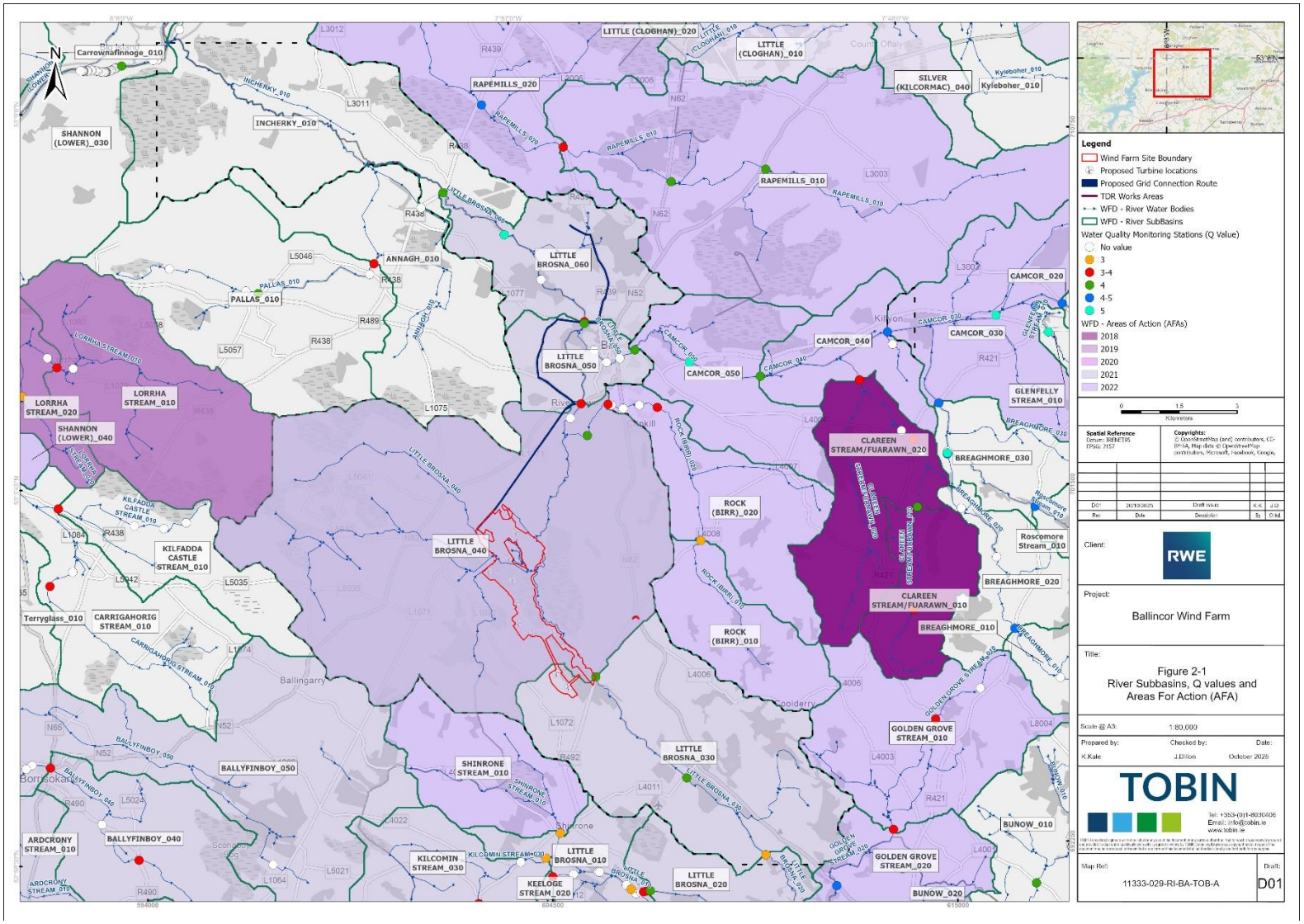

Figure 2-1: River Subbasins, Q values and Areas For Action (AFA)

2.1 SURFACE WATER BODIES

The proposed project is located within several sub-catchments and sub-basins, as shown in Figures 2-1. The proposed wind farm site lies within the Little Brosna sub-catchment, with the Little Brosna River flowing along its eastern boundary from south to north before joining the River Shannon approximately 20 km northwest of the site.

At the western boundary of the proposed wind farm site, the Wingfield 25 and Faddan Beg streams converge and flow into the Holy Well Clohaskin River west of turbine T3. This river then meets the Little Brosna River at the site's northeast corner. Several smaller streams, including the Pallas Kylenamuck stream (order 1), traverse the northeast portion of the site before merging with the Little Brosna River. Table 2-2 summarises the catchment delineation and the WFD status across assessment cycles.

The area also contains numerous artificial drains that support the drainage of agricultural land, cutover bog, and forestry. These drains, along with several natural streams, will be crossed by proposed access tracks and turbine locations. One stream crossing of the Holy Well Clohaskin River is proposed between T2 and T3, along with 14 internal drain crossings—mostly peat drains that typically dry out in summer and autumn.

The proposed TDR works do not cross any rivers or streams. The proposed GCR works cross three streams:

- Little Brosna River (EPA Code 25L02) at Croghan Bridge;
- Ross 25 stream (EPA Code 25R43) which is culverted under the R439; and
- Woodfield 25 stream (EPA Code 25W29) under the L-70152 local road near Dallow 110 kV substation.

Additionally, there are four other drainage crossings required along the route of the GCR. To establish a baseline understanding of historical and current water quality conditions within watercourses hydrologically connected to the proposed wind farm site, a review of the EPA's monitoring data was undertaken as part of this WFD assessment. Under the WFD, the EPA is responsible for assessing and classifying the ecological and chemical status of all surface water bodies in Ireland. Each waterbody is assigned one of five status categories: High, Good, Moderate, Poor, or Bad.

Waterbody status assessments are based on the following parameters:

- Biology – the composition and abundance of aquatic plants, macroinvertebrates, and fish communities;
- Chemistry – nutrient concentrations and the presence of harmful or priority substances;
- Hydrology – flow regime and water levels; and
- Hydromorphology – the physical structure and habitat characteristics of the waterbody.

Details of the EPA's water quality monitoring methodologies are provided in *Water Quality in Ireland* 2019-2024 (EPA, 2025) and *How We Assess Water Quality* (EPA, 2022). The biological component is assessed using the Q-value (Biotic Index) system, where values range from Q1 (poor or heavily polluted) to Q5 (high or unpolluted). Q-values reflect the diversity and abundance of macroinvertebrate species sensitive to water quality changes and are a key

indicator of ecological status. The Q-values for rivers relevant to the proposed wind farm site are shown in Table 2-1.

Existing surface water features and EPA monitoring locations are illustrated in Figure 2-1. One active EPA monitoring station (Sharavogue Bridge) is located approximately 100 m northeast of the proposed wind farm site entrance off the R492. Six additional EPA monitoring points are situated downstream of the proposed wind farm site, within the hydrological network potentially influenced by proposed project activities. These stations provide valuable baseline data for assessing likely effects on downstream water quality and for ensuring compliance with WFD objectives during the construction and operation of the proposed project.

Table 2-1 Q-Values at relevant EPA monitoring locations

Monitoring Station Details							
WFD Sub-catchments	Little Brosna_SC_020					Shannon[Lower]_SC_060	
WFD River Sub Basin	Little Brosna_030		Little Brosna_040			Little Brosna_050	
Station Name	Sharavogue Br (SW of S. Ho) (d/s on RHS)	Little Brosna River - Brosna Br (nr Brosna Station)	ROCK (BIRR) - Aughnagann Ford	Ballindarra	Riverstown Bridge	0800-Croghan Bridge- Near HDD crossing for GCR	Little Brosna River - 100m d/s Croghan Br
Station Code	RS25L020600	RS25L020500	RS25R020300	RS25L020690	RS25L020700	RS25L020800	RS25L020810
Date	**Q-Value**						
1987	4-5	4	4	ND	4	4-5	ND
1993	3-4	ND	4	ND	3-4	4	ND
1996	4	ND	3	ND	3	ND	3-4
1999	4	ND	3	ND	4	ND	3-4
2002	4	ND	3	ND	3-4	ND	3-4
2005	3-4	ND	3-4	ND	3	ND	3-4
2008	3-4	ND	ND	ND	3-4	ND	ND
2011	4	ND	4	ND	4	ND	4
2014	4	ND	ND	ND	3-4	ND	4
2017	4	ND	ND	ND	3-4	ND	ND
2021	4	ND	ND	ND	3-4	ND	3-4
2023[1]	4	ND	ND	ND	3	ND	ND

Biological water quality data from EPA monitoring stations within the Little Brosna and Lower Shannon catchments indicate generally stable but moderate ecological conditions over the

[1] Latest available data

monitoring period (1987–2023). Q-values across most stations ranged between 3 and 4, corresponding to Moderate to Good ecological status under the WFD classification. The Sharavogue Bridge station (RS25L020600), located nearest the proposed wind farm, consistently achieved Q4 values since 1999, indicating sustained Good Status and a stable aquatic community. Downstream stations, including Ballindarra and Croghan Bridge (RS25L020690, RS25L020700, RS25L020800, RS25L020810), show slightly more variable results, with Q-values fluctuating between 3 and 4, suggesting some localised pressures or natural variation affecting water quality. Earlier records (pre-2000) show occasional higher ratings (Q4–5) at Sharavogue Bridge and Brosna Bridge, reflecting historically better conditions. No long-term downward trend is evident, but recent results (2021–2023) indicate marginally lower scores at some locations (Q3–3-4), warranting continued monitoring to ensure no deterioration.

Overall, the data reflect a moderately impacted but ecologically functioning river system, with water quality generally meeting WFD objectives for Good Status near the proposed project area.

Table 2-2 Water River Body Status in the study area

Catchment	Sub-Catchment	River Sub-Basins (RWB_CD)	Waterbody Name	EPA Name	WFD Status 2016-2021	WFD Status 2019-2024	Risk	Application Site within WFD subbasin
Lower Shannon 25B	Little Brosna_SC_020	IE_SH_25L020600	Little brosna_030	Aghadouglas 25 Glasderry Beg Little Brosna	Good	Good	Not at Risk	T10, T11
		IE_SH_25L020700	Little brosna_040	Arragh Beg Arragh More Faddan More Faddan_Beg Holy Well Clohaskin Kylenamuck Little Brosna Loughkeen North Cloonaheen Pallas 25 Pallas Kylenamuck Rath Beg Rock [Birr] Wingfield 25	Moderate	Poor	At Risk	T1-T9, GCR, TDR
	Shannon[Lower]_SC_060	IE_SH_25L020800	Little brosna_050	Camcor Little Brosna Unknown	Good	Moderate	At Risk	GCR
		IE_SH_25L021000	Little brosna_060	Little Brosna Ross 25 Tullynisk Woodfield 25	Good	Moderate	Not at Risk	GCR
		IE_SH_25I020930	Incherky_010	Cloghan 25	Unassigned	Good	Review	N/A

Lower Shannon Catchment (25B),

The Lower Shannon Catchment is characterised by a broad, flat plain underlain predominantly by impure limestones, with a band of purer, karstified limestone extending from Fivealley to Ballingarry. To the east, the catchment includes upland areas comprising the western slopes of the Slieve Bloom Mountains and the low hills southwest of Roscrea. Extensive sand and gravel deposits occur around Roscrea and Birr, forming productive groundwater aquifers.

A total of 35% of surface waterbodies were at Good or High Ecological Status in the 2019-2024 monitoring period. One hundred percent of groundwater bodies were at Good status. Within the catchment, 25 water bodies (35%) are classified as At Risk of not meeting their environmental objectives, eight (11%) are Under Review, and 39 (54%) are Not At Risk. The principal pressures affecting water quality in the area include agriculture, hydromorphological alterations, and urban wastewater discharges.

The River Shannon heads southeast until it is joined from the northeast by the Blackwater (Shannonbridge) at Derryholmes, and the River Brosna near Banagher. The Rapemills River flows in from the east, and the Fynagh River then joins the Shannon before the Shannon flows south and around the islands of the Shannon Callows, where it is joined by the Little Brosna River. This tributary consists of the Keeloge Stream, and the Kilcomin Stream, the Bunnow and Golden Grove River sand the Camcor River, which enters at Birr. The Little Brosna River then turns northwest, being joined by the Pallas River, before flowing into the Shannon at Friars Island. The Shannon flows onward from the Callows to the southwest, entering the northern end of Lough Derg near Portumna.

Little Brosna_SC_020 Sub Catchment

The entirety of the proposed wind farm site is located within the Little Brosna SC_020 sub catchment. There are four river waterbodies and nine groundwater waterbodies in this subcatchment. Nutrients and hydromorphology are all driving the Risk and Status. The significant pressures that are potentially impacting on the rivers are, peat workings, drainage (hydromorphology), urban runoff and urban waste water

The proposed wind farm site lies within the Little Brosna WFD Area for Action (AFA), under cycle 2 as identified in the 2018–2021 National River Basin Management Plan (RBMP). This AFA has been designated as an Area for Restoration, reflecting its management objective to enhance the ecological condition of the associated waterbodies. The Little Brosna AFA, which is led by the Local Authority Waters Programme (LAWPRO), encompasses 11 waterbodies within the catchment. It was initially established during WFD Cycle 2 (2018–2021) and remains open and active under continued implementation, assessment, and monitoring efforts. The delineation of the AFA and corresponding sub-basins boundaries relevant to the proposed wind farm site are shown in Figure 2-1.

Lower Shannon_SC_060 Sub Catchment

The proposed GCR lies within Lower Shannon SC_060 sub catchment. There are five river waterbodies and six groundwater waterbodies in this subcatchment. The potential significant pressures identified are agriculture, drainage schemes, quarries and urban waste water.

2.2 GROUNDWATER BODIES

Under the WFD, Groundwater Bodies (GWBs) are the primary management units used to protect and manage groundwater resources and their connected surface waters. Each GWB represents a distinct volume of groundwater, encompassing recharge and discharge zones with limited flow across boundaries.

The proposed wind farm site is located predominantly within the Shinrone GWB. According to the Geological Survey Ireland (GSI, 2003a), the Shinrone GWB is underlain mainly by Dinantian Lower Impure Limestones, Dinantian Pure Unbedded Limestones, and Dinantian Upper Impure Limestones, which dominate the lowland areas. Smaller occurrences of Dinantian Pure Bedded Limestones are found in the west and north, while Devonian Old Red Sandstones and Silurian Metasediments and Volcanics form upland areas to the south and small inliers to the west.

In terms of aquifer classification, the majority of the Shinrone GWB comprises Ll – Locally important aquifers, moderately productive only in local zones. Small areas underlain by Silurian rocks in the far south and narrow bands of Dinantian (early) sandstones, limestones, and shales along the southern, western, and eastern margins are classified as Pl – Poor aquifers, generally unproductive except for local zones. Thin bands of Pure Bedded Limestones are identified as Lm – Locally important aquifers, generally moderately productive, while a limited area of Pure Bedded Limestone in the northern part of the GWB is classified as Rkd – Regionally important karstified aquifer dominated by diffuse flow.

Recharge within the Shinrone GWB is primarily diffuse, derived from rainfall infiltration through soil and subsoil layers. The extent of recharge depends on subsoil permeability, soil thickness, and topography. Due to the relatively low permeability of the underlying aquifers, a significant portion of recharge discharges rapidly to nearby surface watercourses via the shallow aquifer zones, limiting the available groundwater storage within the GWB.

The proposed GCR route traverses several GWBs, including Shinrone, Birr, Banagher, and Birr Gravels GWBs, while the TDR works remain entirely within the Shinrone GWB.

The Birr GWB (GSI, 2004) is characterized by extensive northeast–southwest-oriented folds and faults, including the Knockshigowna Fault, which juxtaposes permeable Dinantian Pure Bedded Limestones with less permeable formations of the Shinrone GWB. The Birr GWB primarily comprises high-permeability Pure Bedded Limestones, with potential karstification and fissuring near fault zones, leading to localized variations in groundwater flow and hydraulic gradients.

Similarly, the Banagher GWB (GSI, 2003b) is structurally complex, dominated by large ENE–WSW-trending folds and intersecting NW–SE normal faults. The core of the major synclinal structure contains Upper Impure Limestones, flanked by Pure Bedded Limestones, with Lower Impure Limestones present in minor anticlines. The Ferbane Fault runs through the northern

extent of this body, influencing groundwater flow and potential interconnectivity with adjacent GWBs.

Overall, the hydrogeological environment underlying the proposed project is characterised by limestone-dominated aquifers with variable permeability influenced by lithological composition, structural deformation, and fault-related fracturing. These factors collectively influence groundwater recharge, flow pathways, and the degree of hydraulic connectivity to surface water features in the surrounding catchments.

Table 2-3 Summary of groundwater bodies and status within study area

EU_CD Code	Name	GWB status (2013-2018)	GWB status (2019-2024)	WFD Risk (2019-2024)
IE_SH_G_040	Banagher	Good	Good	Not at Risk
IE_SH_G_178	Nenagh	Good	Good	Not at Risk
IE_SH_G_247	Roscrea Gravels	Good	Good	Not at Risk
IE_SH_G_041	Birr	Good	Good	Not at Risk
IE_SH_G_244	Birr Gravels	Good	Good	Not at Risk
IE_SH_G_042	Borrisokane	Good	Good	Not at Risk
IE_SH_G_021	Ballinderry	Good	Good	Not at Risk
IE_SH_G_205	Shinrone	Good	Good	Not at Risk

Table 2-3 provides a summary of the Groundwater Bodies (GWBs) located within the study area and outlines their corresponding WFD status classifications across monitoring cycles. The primary GWB underlying the proposed wind farm site is Shinrone GWB, while the Birr, Banagher, and Birr Gravels GWBs are traversed by sections of the proposed GCR route.

Overall, groundwater quality across these GWBs has remained stable over successive WFD cycles, with all maintaining Good Status in both chemical and quantitative assessments. The Shinrone, Birr, and Banagher GWBs have consistently achieved Good Status from Cycle 1 (2009–2015) through Cycle 3 (2022–2027), indicating that groundwater abstraction pressures and contamination risks remain limited. The Birr Gravels GWB, though smaller and more hydraulically responsive, has also maintained Good Status. A public groundwater supply is located at Ballyloughane as detailed in Chapter 9.

These results demonstrate that the groundwater environment within the study area is functioning well, with no evidence of widespread deterioration or exceedance of WFD thresholds. Groundwater is often used as a source of drinking water supply. According to Offaly and Tipperary County Council and Irish Water, there are no public or group supplies on the proposed wind farm site.

The proposed project would not have an impact on the designated GWB water bodies during the construction phase. The proposed wind farm construction is localised and underlain by deep subsoils. The proposed construction works are unlikely to significantly increase pollution concentrations within the groundwater WFD designated water body. The construction works are also unlikely to mobilise significant contamination. The works are therefore unlikely to impact groundwater quality at the scale of the groundwater WFD designated water body. As a result, there will be no change to the status of the chemical elements of the WFD designated water body.

As there are no proposed operational phase discharges there are no likely significant effects on WFD designated GWBs.

2.3 LAKE WATER BODIES

The hydrological pathway from the proposed wind farm site includes one WFD lake water body – the Derg (IE_SH_26_191a). It is a large surface water body (greater than 100 km²) that receives inflows from the river water bodies described in Section 2.1.1.

According to WFD monitoring data, the Derg lake water body recorded Moderate status during the periods 2007–2009, 2010–2012, and 2010–2015. Water quality subsequently improved to Moderate status in the 2013–2018 and 2016–2021 assessment periods, achieving the WFD water quality objectives in recent cycles. Recent WFD assessments are summarised in Table 2-4 below.

There are no Register of Protected Areas (RPA) nutrient-sensitive lakes or estuaries hydrologically or hydrogeologically connected with the proposed wind farm site, and no RPA-designated shellfish or pearl mussel areas occur within the proposed wind farm boundary.

Table 2-4 Summary of Lake waterbody status

EU_CD Code	Name	LWB status (2016-2021)	LWB status (2019-2024)	WFD Risk (2019-2024)
IE_SH_26_191a	Derg	Moderate	Moderate	at Risk

2.4 TRANSITIONAL AND COASTAL WATERS

Transitional and coastal waters are not considered by this WFD Compliance Assessment, having been assessed and scoped out from further assessment by the WFD assessment.

2.5 SCOPING AND ASSESSMENT RESULTS

The WFD requires that activities are also in compliance with other relevant legislation, as considered below. The following are looked at as part of the assessment (as mentioned above, in line with guidance a 2 km buffer zone was applied in this assessment):

2.5.1 Protected areas.

Nutrient sensitive areas comprise Nitrate Vulnerable Zones and polluted waters designated under the Nitrates Directive (91/676/EEC) and areas designated as sensitive areas under the Urban Wastewater Treatment Directive (UWWTD)(91/271/EEC).

- There are no shellfish waters within 2 km of the proposed wind farm site;

- There are no bathing water sites within 2 km of the proposed wind farm site;
- There are no nutrient sensitive sites within 2 km of the proposed wind farm site; and
- There are a number of SPAs or SACs within 2 km of the proposed wind farm site.

2.5.2 Nature Designations

These are areas previously designated for the protection of habitats or species were maintaining or improving the status of water is important for their protection. They comprise the aquatic part of Natura 2000 sites – Special Protection Areas (SPAs) designated under the Birds Directive (79/409/EEC) and Special Areas of Conservation (SACs) designated under the Habitats Directive (92/43/EEC).

Table 2-5: National Sites within the 15 km Initial ZoI from proposed wind farm site

Site Code	Site Name	Distance from Proposed wind farm [km]
000919	Ridge Road, SW of Rapemills SAC	9.3
002147	Lisduff Fen SAC	4.1
002236	Island Fen SAC	8.1
001683	Liskeenan Fen SAC	5.8
000585	Sharavogue Bog SAC	0.1
002241	Lough Derg, North-east Shore SAC	12.9
000566	All Saints Bog and Esker SAC	10.4
000216	River Shannon Callows SAC	15.4
000641	Ballyduff/Clonfinane Bog SAC	3.5
000647	Kilcarren-Firville Bog SAC	7.0
002353	Redwood Bog SAC	12.6
000412	Slieve Bloom Mountains SAC	13.7
002206	Scohaboy (Sopwell) Bog SAC	8.7
002207	Arragh More (Derrybreen) Bog SAC	5.8
004086	River Little Brosna Callows SPA	10.7
004086	River Little Brosna Callows SPA	11.5
004096	Middle Shannon Callows SPA	16.6
004103	All Saints Bog SPA	12.5
004137	Dovegrove Callows SPA	9.2
004160	Slieve Bloom Mountains SPA	12.0
004058	Lough Derg (Shannon) SPA	14.9

2.5.3 Hydromorphology

This section provides a summary of the known existing hydromorphology risk issues for the fluvial water bodies. A summary is provided in Table 2-8 below.

Table 2-6: Hydromorphological Assessment

Assessment Questions	Holly Well Clohaskin (LITTLE BROSNA_040)	Little Brosna (LITTLE BROSNA_040)	Little Brosna (LITTLE BROSNA_060)
Consider if your activity could impact on the hydromorphology (morphology or water flow of a water body at high status?	No. RWB is not at High Status.	No. RWB is not at High Status.	No. RWB is not at High Status.
Consider if your activity could significantly impact the hydromorphology of any water body?	No. Surface water drainage flow and volume will not significantly change.	No. Surface water drainage flow and volume will not significantly change.	No. Surface water drainage flow and volume will not significantly change.
Consider if your activity is in a water body that is heavily modified for the same use as your activity?	No. Not a heavily modified water body.	No. Not a heavily modified water body.	No. Not a heavily modified water body.

3. STAGE 3: COMPLIANCE ASSESSMENT

WFD Compliance Assessment primarily considers the operation of a scheme. However, likely construction impacts are also considered if they have the potential for significant long-term change.

The WFD Compliance Assessment follows the structure of Chapter 9 (Hydrology and Hydrogeology) of the EIAR in so far as the three main phases of the proposed project are considered separately in the first instance. The cumulative effects on a water body as a result of multiple elements of the proposed project potentially impacting upon them is considered in Step 3 of the assessment.

The activities that may contribute to effects are:

- Construction works – fuel spills, earthworks, construction and upgrade of access roads (especially near streams).
- Operational Phase – maintenance works and accidental leaks and spills.
- Decommissioning – similar as during construction, but on a smaller scale.

3.1 CONSTRUCTION PHASE

Without mitigation actions, the proposed project has the potential to affect the water quality and hydrology of streams at the proposed wind farm site.

The factors that can affect water quality and associated aquatic habitats are associated with:

1. Nutrient release such as nitrogen and phosphorus;
2. Contamination events associated with accidental leaks and spills of fuel or other chemicals;
3. Physical modification to streams including increased flow; and
4. Sedimentation of streams.

A Construction Environmental Management Plan (CEMP) (Appendix 2-3) and Surface Water Management Plan (SWMP) (Appendix 9-4) will be implemented. Effects in this section are thus the residual effects identified in Chapter 6 (Biodiversity) and Chapter 9 (Hydrology and Hydrogeology) of the EIAR for each quality element of each WFD water body. The design measures such as use of clear span bridge on site were incorporated into the CEMP and SWMP and are embedded mitigation.

3.1.1 Biological Quality Elements

Potential effects on biological quality elements are assessed in Chapter6 (Biodiversity) of the EIAR with supporting details provided in Chapter 9 (Hydrology and Hydrogeology). A summary is provided here and includes the likely residual effects following implementation of prevention, mitigation and control measures.

It is proposed to use a clear span bridge for the crossing of the Holy Well Clohaskin River. The clear span bridge at the proposed Holy Well Clohaskin River crossing will be designed to be of a size adequate to carry expected peak flows. The clear span bridge to be used for the

construction of the proposed project is not anticipated to have any significant direct impact on habitats within the affected WFD water bodies.

In addition, sediment entering water bodies during construction could impair visibility making it difficult for fish to forage or risk physiological damage to their gills, although this would be short-term until dilution or flushing has taken place. Through the implementation of specific mitigation for clear span crossings no long-term effects on WFD biological quality elements are foreseen.

Effects from the drainage are likely to be temporary and localised as the proposed drainage network is established. Additional inputs of sediment may arise from runoff entry points if this leads to scouring of river banks which could also alter natural flow dynamics within the channel should mitigation in the form of silt traps not be in place. Furthermore, discharges from attenuation ponds could lead to scour of the beds and banks unless outfalls are appropriately designed to prevent this. Any effects from discharges will be minimised by managing suspended solid concentrations within the settlement ponds and drainage network so they do not exceed 25mg/l and ensuring discharge rates are controlled by flow devices to limit scour and limit any impacts to species inhabiting the water bodies.

During periods of heavy and/or prolonged rainfall, sediment could enter the water bodies. Once in the receiving water body, channel bed habitats could be impacted due to smothering of bed materials reducing available foraging, nesting and refuge habitats used by fish and macroinvertebrates. In addition, the physiological functioning of fish may be affected due to gill damage caused by suspended solids.

A record of mitigation to be implemented as part of the proposed project is set out in Chapter 9 (hydrology and hydrogeology) and Chapter 20 (Schedule of Mitigation Measures) of the EIAR. Measures include silt fences, settlement ponds and silt traps.

On application of these measures impacts will be minimised, there will be no likely adverse significant effects and the works will not result in deterioration of biological quality elements.

In-channel and riparian habitats could be temporarily impacted from disturbance during construction locally on the GCR. As all wastewater from welfare facilities will be collected and removed off site, any risk of deteriorating water quality which could impact on biological quality elements will be prevented

Likely significant effects from the construction may result in a loss of suitable habitat for fish, macroinvertebrates and macrophytes. Potential impacts from the removal of riparian vegetation include the localised loss of riparian habitat and may cause localised bank destabilisation. This could result in the displacement of material which may settle on the channel beds, altering the composition and structure of the substrate used by inhabiting or foraging species. Additional impacts on habitats may arise from the accidental release of oil from machinery which could also alter bed and bank composition.

3.1.2 Chemical and Physico-chemical Quality Elements

Potential impacts and likely significant effects on water quality are assessed in Chapter 9 (Hydrology and Hydrogeology) of the EIAR. The implementation of a comprehensive SWMP and

adherence to CIRIA C811 'Environmental Good Practice on Site' (CIRIA, 2023), together with strict site control measures, will ensure that any potential impacts on chemical and physico-chemical quality elements are short-term and localised.

Design measures include bunded areas for fuels, spill response protocols include secondary containment, drip trays, supervised refuelling, and impermeable refuelling zones.

No instream works will occur on the proposed wind farm site, and all drainage ditches will be blocked at least 20 m upstream of their confluence with any EPA-designated water body under the supervision of an Ecological Clerk of Works (ECoW). Silt fences, earth bunds, and vegetated buffers will be used to prevent runoff and the transport of suspended solids.

Borrow pits and material stockpiles will be located at least 50 m from any watercourse or drainage ditch, and excavation activities will be avoided during or following heavy rainfall events. All wastewater from welfare facilities will be collected and removed off-site, preventing contamination from domestic effluent. An accidental spillage emergency plan will be prepared and implemented through staff training to manage and contain any unplanned releases of hydrocarbons or other pollutants. These measures will ensure that suspended solid concentrations do not exceed 25 mg/l[2] and that discharge rates are controlled to prevent scour or erosion. With these mitigation actions in place, no significant deterioration of WFD chemical or physico-chemical quality elements is expected.

3.1.3 Hydromophological Quality elements

Potential impacts on hydromorphology are assessed in Chapter 9 (Hydrology and Hydrogeology) of the EIAR.

The use of clear span bridge crossings will avoid direct interference with channel morphology or flow regimes, ensuring no alteration of the hydromorphological condition of water bodies. The design of the clear span bridge at the Holy Well Clohaskin River will accommodate expected peak flows, preserving natural flow continuity and sediment transport processes.

Mitigation measures detailed in the CEMP (Appendix 2-3) and section 4 of this report will be implemented during construction of the GCR route, road and junction accommodation works, and HDD installations.

Groundwater encountered during construction will be managed and treated in accordance with CIRIA C750 'Groundwater Control: Design and Practice' (CIRIA, 2016), with water from borrow pits directed to settlement ponds. At Ballyloughane wells and along the GCR, alternative water supplies will be provided during HDD works to prevent interruption. No direct impacts on the hydromorphology of any EPA water body are expected, and indirect effects will be negligible.

3.1.4 Protected Areas

Potential impacts on Protected Areas are assessed in the NIS, Chapter 6 (Biodiversity) and Chapter 9 (Hydrology and Hydrogeology) of the EIAR.

[2] Annual average based on Apem (2007) Review of UKTAG proposed standard for suspended solids

There are no Annex I habitats on within the proposed wind farm footprint and therefore no direct effects. As there are no rare or legally protected plant species present on the proposed wind farm no mitigation measures are required and no residual effects are predicted. There is no significant effects on the hydrological connected Natura 2000 site. Thus, the proposed wind farm would not result in likely significant negative residual effects, at the local geographic scale.

Following implementation of mitigation measures outlined in Appendix 2-3 (CEMP), it is not considered likely that there would be significant deleterious impacts on the qualifying features for the Protected Areas identified List the protected areas or refer to 2.5.1.and 2.5.2.

3.2 OPERATIONAL PHASE

3.2.1 Biological Quality Elements

Potential impacts on biological quality elements are assessed in Chapter 6 (Biodiversity) of the EIAR. A summary is provided here and includes the likely residual effects following implementation of mitigation and control measures.

The operation of the proposed wind farm would also result in an impact of negligible concern to the distribution and abundance of suitable foraging habitat. No indirect impacts on habitats or protected species are likely as a result of the proposed project .

3.2.2 Chemical and Physico-chemical Quality Elements

Potential impacts on water quality are assessed in Chapter 9 (Hydrology and Hydrogeology) of the EIAR. A summary is provided here and includes the likely residual effects following implementation of mitigation and control measures.

All transformers at the proposed substation will be bunded and fitted with leak detection systems to prevent hydrocarbon releases. A hydrocarbon interceptor will also be installed at the substation, with regular inspection and maintenance to ensure optimal functionality. Sanitary wastewater from occasional operation and maintenance activities will be collected in an on-site holding tank and removed by a licensed contractor to an approved wastewater treatment facility. These measures will collectively ensure that the chemical and physico-chemical quality elements of connected water bodies remain unaffected during operation.

The negligible impacts predicted for in terms of levels and water quality mean that any impacts on inputting water bodies would also be negligible at most.

3.2.3 Hydromorphological Quality elements

Likely significant effects on hydromorphology are assessed in Chapter 9 (Hydrology and Hydrogeology) of the EIAR. A summary is provided here and includes the likely residual effects following implementation of mitigation and control measures.

During the operational phase, measures incorporated into the project design (SuDS drainage) , will ensure protection of both surface water and groundwater flow regimes. No additional mitigation measures are required beyond those already established at the design stage. The clear span bridge structures and drainage design will maintain existing flow paths and prevent any alteration to the hydromorphological characteristics of the receiving water bodies.

3.2.4 Protected Areas

Based on the proposed design and SuDS measures, the impacts on levels and flows on the protected areas listed above would be indistinguishable from baseline conditions; and would meet the WFD requirements under existing and future climate conditions. As a result, it is not considered likely that the proposed project would result in any deleterious effects on the qualifying features of these protected areas.

3.2.5 Compliance Assessment Summary

The site-specific impacts of the proposed project on the biological, physico-chemical and hydromorphological quality elements of the water bodies are shown in the assessment above and summarised in Table 3-1.

Table 3-1: WFD: Assessment Summary

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	No	Surface water drainage flow and volume will be at greenfield runoff rates and will not significantly change as a result of the proposed project.
Biology: habitats	No	The footprint of the proposed wind farm is contained primarily within farmland and cutover bog. There are no likely significant direct or indirect impacts on SACs/SPAs or Annex I Habitats. There are no designated sites altered by the proposed project .
Biology: fish	No	The risks to the receptor during construction and operation, is from increased sediment to adjacent streams. Surface water drainage flow and volume will not increase as a result of the proposed project. In addition, a CEMP will be implemented. The construction will not alter the fish status of any streams due to embedded measure*s* to prevent sediment entering waters.
Water quality	Yes	Short term, the proposed project will not increase sediment and nutrients discharges. Mitigation measures are detailed in the CEMP and SWMP to ensure water quality compliance. Potential for minor spills of fuels and concrete prevented and mitigated by measures proposed.
Protected areas	*No*	Distance. No potential for likely significant effects on protected areas. The proposed project is upgradient of a number of SACs and SPAs. A CEMP and SWMP will be implemented as part of the proposed project. No construction works will occur in SACs/SPAs. The operation of the proposed wind farm will not significantly change the current level of surface water or groundwater volume or flow or substances in waters .

3.3 Assessment of Proposed project Against Programme of Measures

Within each River Basin Management Plan (RBMP), a range of measures or environmental improvements are identified to achieve the objectives and timelines set out under the Water Framework Directive (WFD). As part of the WFD compliance assessment, these measures are reviewed to determine whether the proposed wind farm can support their implementation or if there is potential to hinder their delivery.

The proposed project is located within Lower Shannon catchment, in which several subbasins are identified as Areas for Action (AFAs) under the RBMP to improve ecological conditions. The Little Brosna_040, including the Sharavogue Bog complex and adjacent waterbodies has been designated as an AFA, aligning with its objective to improve the ecological quality of the associated water bodies and address nutrient and hydromorphological pressures, while supporting opportunities for restoration.

Sharavogue Bog is a raised-bog located on a floodplain covering 223 ha. The bog is bounded by the Little Brosna River to the west and a disused railway embankment to the east, and rests on low-permeability limestone and limestone till. The site is designated a Special Area of Conservation (SAC) for habitats including Active Raised Bog (ARB, [7110]), Degraded Raised Bog (DRB, [7120]), and Rhynchosporion vegetation ([7150]). Restoration works completed in 2021 included over 400 dams to re-wet the bog, improve peat-forming conditions, enhance biodiversity, store carbon, and improve water quality. ARB currently covers over 25 ha, mostly in central and southern areas, with restoration aiming to expand this to over 40 ha. The bog's hydrology has been historically impacted by drainage and limited peat cutting, but restoration and protection measures have successfully halted degradation and improved ecological and hydrological functions. The Sharavogue bog plays an important role in supporting surface water quality and biodiversity in the Little Brosna subcatchment.

4. MITIGATION MEASURES

Construction works area will be minimised to reduce exposed ground that could generate silty water runoff, that once in water bodies could alter the natural composition and structure of the substrate especially during periods of prolonged and/or heavy rainfall Implementation of the mitigation set out in Appendix 2-3 (CEMP) will ensure impacts are short-term and localised.

Exposed earth following topsoil stripping could act as a source of sediment following rainfall, which once in the watercourses, could lead to altered substrate composition temporarily. Through implementation of the mitigation set out in Appendix 2-3 (CEMP), Appendix 9-4 (SWMP), any indirect risk to the hydromorphology of the water bodies will be minimal.

The exposure of peat/soils associated with site preparation has the potential to be a source of fine sediment that could enter water bodies during periods of rainfall. Through implementation of the mitigation set out in Appendix 2-3 (CEMP), any direct or indirect risk to the hydromorphology of the water bodies will be minimal.

Due to the location and nature of construction works and the implementation of the mitigation set out in Appendix 2-3 (CEMP), there will be no detrimental effects on hydromorphological quality elements associated with the construction of the proposed wind farm compound and site preparation activities. Drainage infrastructure will remain in place during the operational phase.

Through implementation of the mitigation set out in Appendix 2-3 (CEMP), any impacts to water bodies would be temporary and localised. Such discharges will discharge at greenfield runoff rates.

Any additional run-off or water from de-watering during construction will be treated (e.g., to remove sediment) within the limits of the proposed wind farm site and discharged to local drains/swales.

Runoff from the construction of will be attenuated and treated as appropriate before being allowed to infiltrate or discharge from the proposed project, ensuring that any sediment build-up or pollutants are captured on site rather than released into the wider environment.

HDD

HDD crossings occur fat four locations as detailed in Appendix 2-5. Installation of such features will take place during dry periods to reduce the risk of sediment potential. The following procedure will be implemented:

- The Contractor will prepare a directional drilling Method Statement which will outline the standard approach for the construction. The Method Statement will include a contingency plan for frac-out and for excessive ground settlement;
- The Contractor will undertake the directional drilling in accordance with industry standards including British Standard EN 16191:2014 Tunnelling machinery, safety requirements and CIRIA C648 '*Control of water pollution from linear construction projects Technical Guidance*';

- The contractor will ensure that all personnel working on site are trained in pollution incident control response. A regular review of weather forecasts of heavy rainfall is required, with the Contractor required to prepare a contingency plan for before and after such events;
- Weather conditions will be considered when planning construction activities to minimise the risk of runoff from site;
- There will be no storage of fuels within 10 m of the watercourse; Provision of exclusion zones and barriers (silt fences) between any excavated material and any surface water features will be installed to prevent sediment washing into the receiving water environment. Silt fences will be installed and the contractor will ensure that silt fences are regularly inspected and maintained during the construction phase;
- If dewatering is required as part of the works (e.g., in trenches for underground cabling or in wet areas), water must be treated to remove sediment prior to discharge;
- To prevent loss of drilling fluid[3] or 'frac-out' from occurring, a series of actions will be implemented; the drill fluids operator will monitor drill fluid density, viscosity and solids content on an ongoing basis, to ensure that the fluid does not increase in viscosity, requiring additional pressure to maintain mobility;
- Viscometers will be used to measure drill fluid gel strength and shear strength. Filtrate can also be measured to calculate the amount of filter cake building up on the internal wall of the bore. Any increases in pump pressure experienced by the drill operator will be investigated immediately to prevent the risk of pressure build up within the annulus. In some circumstances, dependant on the drilling equipment used, the pilot drill borehole assembly will be fitted with a down hole pressure monitor to measure pressure in the annulus between the drill and the bore wall. This will give an early indication of pressure build up in the hole and allow the drill operator to prevent a 'frac-out'. If there is a risk of a 'frac-out' a number of measures will be implemented including:
    - pumping a pill of drilling fluid with a higher density to the higher risk zone; and
    - circulate and pump loss circulation material (typically cork or manufactured inert polymers) to the risk zone to seal the risk zone, grouting of the risk zone, and, or launch a packer before the risk zone.
- The Contractor will implement procedures to maximise the recirculation or reuse of drilling fluid to minimise waste disposal;
- Disposal of drilling fluids will be the responsibility of the Contractor to an approved and licenced waste facility;
- Monitoring of the drilling operations will be undertaken at all times by the Contractor. The monitoring will include visual inspection of the pits and monitoring of the volume of returns flowing back to the entry pit. The monitoring personnel will be in constant communication with the drilling rig operator and thus will be able to immediately cease drilling if necessary;

[3] Use of inert, biodegradable food grade polymers

- Buffer strips of natural uncleared vegetation shall be preserved between construction activity. Reception pits will be situated (<20 m) from streams.

Dam/Flume Works

The following sequence of works will be completed at the W9 location:

- No in-stream structures, strictly no temporary stream crossings or temporary culverting shall take place without the prior agreement of IFI;
- The flume pipe(s) will be set out on the bed of the existing stream;
- A dam will be constructed using sandbags and suitable clay material around the flume pipe(s) and across the stream so that all the flows are diverted through the pipe(s);
- Silt traps, such as geotextile membrane, straw bales etc. will be placed downstream of the in-stream trenching location prior to construction, to minimise silt loss;
- The ducting installation works will be carried out in the dry stream bed and under/around the flume pipe(s);
- If required, a temporary sump will be established and used to collect any additional water. This water will be removed by pumping to a percolation area if the soil is not saturated, otherwise a settlement tank will be used to remove any solids from the de-watering.
- Following the completion of works, the stream bed will be reinstated with original or similar material and the spawning gravels replaced under the supervision of an aquatic ecologist.
- Once the stream bed is appropriately re-instated the dam and the flume pipe(s) will be removed thus restoring the stream to its original condition.

Cumulative impacts may also occur between this proposed wind farm and other proposed/existing developments. Where waterbodies in the same catchments are crossed by multiple projects, any impacts may be additive, and the effects may accumulate downstream of the points where the waterbodies are intersected. There are no likely significant adverse effect on any waterbody as a result of the proposed wind farm.

Table 4-1: Mitigation Measures matrix

	Turbines	Substation and compounds	Peat deposition Areas	Access tracks	Borrow Pits	Grid
Utilise existing bridges and access roads				++		++
>50m Buffer	++[4]	++	++			
Interceptor drains	++	++	++	++	++	
Check Dams or similar	++	++	++	++	++	++
Swales				++	++	
Sediment traps			++			
Settlement Ponds	++	++	++		++	
Oil water separator		++			++	
Proprietary Settlement tanks	++	++			++	
Weather dependant	++	++	++	++	++	++
Silt Fences			++	++		++
Clear Span Bridge				++		
Concrete washout and control measures	++	++			++	++
Chemical/fuel bunds	++	++	++		++	++

Taking into consideration the anticipated impacts of the proposed project on the biological, physico-chemical and hydromorphological quality elements, following the implementation of design and mitigation measures, it is concluded that it will not compromise progress towards achieving GES or cause a deterioration of the overall GEP of any of the water bodies that are in scope.

Table 4-2: Compliance of the proposed project with the environmental objectives of the WFD

Environmental Objective	Proposed wind farm	Compliance with the WFD Directive
No changes affecting high status sites.	There are no likely changes in relation to high status in the study area. (high confidence)	Yes

[4] ++ - Applied or required

Environmental Objective	Proposed wind farm	Compliance with the WFD Directive
No changes that will cause failure to meet surface water good ecological status or potential or result in a deterioration of surface water ecological status or potential.	After consideration as part of the detailed compliance assessment, the proposed project will not cause deterioration in the status of the water bodies during construction following the implementation of mitigation measures; during operation, no significant impacts are predicted. (high confidence)	Yes
No changes which will permanently prevent or compromise the Environmental Objectives being met in other water bodies.	The proposed project will not cause a permanent exclusion or compromise achieving the WFD objectives in any other bodies of water within the River Basin District. (high confidence)	Yes
No changes that will cause failure to meet good groundwater status or result in a deterioration groundwater status.	The proposed project will not cause deterioration in the status of groundwater bodies. (high confidence)	Yes

The WFD also requires consideration of how a new scheme might impact on other water bodies and other EU legislation. This is covered in Articles 4.8 and 4.9 of the WFD.

Article 4.8 states: '*a Member State shall ensure that the application does not permanently exclude or compromise the achievement of the objectives of this Directive in other bodies of water within the same river basin district and is consistent with the implementation of other Community environmental legislation*'.

All water bodies within the study area have been assessed for direct impacts. The proposed project will not compromise the achievement of the objectives of the WFD for any water body in the study area. In addition, the proposed wind farm has been assessed for the potential for cumulative impacts with other proposed wind farms within 2 km of the study area. Cumulative effects of this project with other developments in the region, relate to the effects on water bodies. These developments include other existing or planned developments in the environs of the proposed wind farm in terms of environmental effects.

With the implementation of the mitigation measures it is concluded that in combination with other proposed wind farms the proposed wind farm will not compromise the achievement of the objectives of the WFD for any water body. Therefore, the proposed wind farm complies with Article 4.8.

Article 4.9 of the WFD requires that "Member States shall ensure that the application of the new provisions guarantees at least the same level of protection as the existing Community legislation".

The Habitats Directive (1992) European designated sites in the vicinity of the proposed project have been assessed and are presented in the Natura Impact Statement (NIS). The NIS concludes that the proposed project will not lead to a deterioration in the features of any designated site. The proposed project is not considered to have a likely significant effect on any protected site, and therefore is compliant with the Habitats Directive.

The Bathing Water Directive (BWD) (2006/7/EC) There are no bathing waters within 2 km of the proposed wind farm site.

4.1 CONCLUSIONS

The proposed development has been assessed against the objectives of the Water Action Plan 2024: Ireland's third River Basin Management Plan. The project's design, which incorporates a surface water management system, aligns with the Plan's core aims to prevent water pollution and mitigate hydromorphological pressures. It is therefore concluded that the project will not compromise the implementation of the Plan's programme of measures or its environmental objectives for the Shannon Catchment.

Taking into consideration the potential impacts of the proposed project on the biological, physico-chemical and hydromophological quality elements, following the implementation of design and mitigation measures, it is concluded that it will not compromise progress towards achieving GES or cause a deterioration of the overall status of the water bodies that are in scope; it will not compromise the qualifying features of protected areas and is compliant with other relevant Directives. It can therefore be concluded that the proposed project is compliant with WFD and therefore does not require assessment under Article 4.7 of the WFD.

5. REFERENCES

Defra (2009) WFD Expert Assessment of Flood Management Impacts. Defra, London.

Northern Ireland Environment Agency (2012) Carrying out a Water Framework Directive (WFD) assessment on EIA Developments. NIEA.

UKTAG (2008) UK Environmental Standards and Conditions (Phase 1)

APEM (2007) Review Of UKTAG Proposed Standard For Suspended Solids UKTAG (2013) Updated Recommendations on Environmental Standards River Basin Management (2015-21) Final Report. WFD UKTAG

Water Action Plan (2024) A River Basin Management Plan for Ireland

6. GLOSSARY

Term	Definition
Artificial waterbody	A body of surface water created by human activity.
Aquifer	A subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater.
Coastal waterbody	Surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters.
Confidence	Low - Non-expert opinion, unsubstantiated opinion with no supporting evidence. Medium - Expert view grounded in theory but based on limited information, e.g., anecdotal evidence, or historical data. High - Estimation of potential impacts or consequences, with strong theoretical basis, using accepted methods, reliable analysis and accepted within the sector as 'fit for purpose'. This typically includes analytical methods where the methods are strong, and the science is reliable.
Groundwater	All water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
Groundwater body	A distinct volume of groundwater within an aquifer or aquifers.
Lake waterbody	A body of standing inland surface water.
Non-Temporary/Temporary	The requirement is to assess if the activities will have an effect that is non-temporary on the status of the waterbody. The terms are not currently defined within the guidance, however, for the purposes of this assessment 'temporary' is assumed to mean recovery should occur within the period of time the element in question is measured. For example, macro-invertebrates should be measured every 3 years. Therefore, temporary means less than three years for this element.

River basin	The area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta.
River Basin District	The area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) of the Water Framework Directive as the main unit for management of river basins.
River Basin Management Plan	River Basin Management Plans describe the river basin district, and the pressures that the water environment faces. It shows what this means for the current state of the water environment in the river basin district, and what actions will be taken to address the pressures. It sets out what improvements are possible by 2015 and how the actions will make a difference to the local environment - the catchments, estuaries, the coast and groundwater.
River waterbody	A body of inland water flowing on the surface of the land, but which may flow underground for part of its course.
Surface water	Inland waters, except groundwater; transitional waters and coastal waters, except in respect of chemical status for which it shall also include territorial waters.
Transitional waterbody	Bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are influenced by freshwater flows.

7. REFERENCES

Defra (2009) WFD Expert Assessment of Flood Management Impacts. Defra, London.

Northern Ireland Environment Agency (2012) Carrying out a Water Framework Directive (WFD) assessment on EIA Developments. NIEA.

UKTAG (2008) UK Environmental Standards and Conditions (Phase 1)

UKTAG (2013) Updated Recommendations on Environmental Standards River Basin Management (2015-21) Final Report. WFD UKTAG

Appendix A WFD NORMATIVE DEFINITIONS

WFD normative definitions

The WFD provides normative definitions of ecological quality for the purposes of classification of overall ecological status. In surface waterbodies, these are as follows:

High status

There are no, or only very minor, anthropogenic alterations to the values of the physico-chemical and hydromorphological quality elements for the surface waterbody type from those normally associated with that type under undisturbed conditions.

The values of the biological quality elements for the surface waterbody reflect those normally associated with that type under undisturbed conditions, and show no, or only very minor, evidence of distortion.

These are type-specific conditions and communities.

Good status

The values of the biological quality elements for the surface waterbody show low levels of distortion resulting from human activity but deviate only slightly from those normally associated with the surface waterbody type under undisturbed conditions.

Moderate status

The values of the biological quality elements for the surface waterbody type deviate moderately from those normally associated with the surface waterbody type under undisturbed conditions. The values show moderate signs of distortion resulting from human activity and are significantly more disturbed than under conditions of good status.

Poor status

Waters show evidence of major alterations to the values of the biological quality elements for the surface waterbody type and the relevant biological communities deviate from those normally associated with the surface waterbody type under undisturbed conditions.

Bad status

Waters show evidence of severe alterations to the values of the biological quality elements for the surface waterbody type and large portions of the relevant biological communities normally associated with the surface waterbody type under undisturbed conditions are absent.

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