Appendix 10-1- WFD Assessment

TOBIN
CONSULTING ENGINEERS
BUILT ON KNOWLEDGE

Derryadd Wind Farm

Water Framework Directive Compliance Assessment

TOBIN
CONSULTING ENGINEERS
Excellence in Engineering

www.tobin.ie

Document Control Sheet	
Document Reference	Derryadd Wind Farm WFD Compliance Assessment
Client:	Bord na Mona
Project Reference	11399

Rev	Description	Author	Date	Reviewer	Date	Approval	Date
A	First Issue	MG	01/08/2023	JD	16/08/2023	OF	21/08/2023
B	Update D02	MG	09/02/2025	JD	11/02/2025	IH	13/02/2025
C	Final Issue	MG	17/02/2025	JD	28/02/2025	OF	28/02/2025

Table of Contents

Appendices

List of Tables

List of Figures

1. INTRODUCTION

TOBIN Consulting Engineers were requested by Bord na Móna to complete a Water Framework Directive (WFD) Compliance Assessment for a Proposed Derryadd Wind Farm Development at the Derryadd, Derryaroge and Lough Bannow Bogs (proposed wind farm site) within the Mountdillon Bog Group in County Longford. There are 5 no. locations along the proposed Turbine Delivery Route requiring minor, temporary accommodation works in order to facilitate the delivery of turbine components to the proposed wind farm site. These works are so minor and localised that they have not been included in this WFD assessment.

The proposed wind farm site is owned by Bord na Móna and comprises mainly of cutover and cutaway bog. Peat extraction operated under an Integrated Pollution Control Licence (IPC Reg. No. P0505-01) issued by the Environmental Protection Agency (EPA) in 2000.

The purpose of this WFD Compliance Assessment is to determine if any specific components or activities associated with the proposed development will compromise WFD objectives or cause a deterioration in the status of any surface water or groundwater body and/or jeopardise the attainment of good surface water or groundwater status. This assessment will determine the water bodies with the potential to be impacted, describe the mitigation measures and determine if the proposed development 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.

The Directive was transposed in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003). The WFD is implemented through the River Basin Management Plans (RBMP) which comprises a six-yearly cycle of planning, action and review. RBMPs include identifying river basin districts, water bodies, protected areas and any pressures or risks, undertaking monitoring and setting environmental objectives. In Ireland the first RBMP covered the period from 2010 to 2015 with the second cycle plan covering the period from 2018 to 2021. The River Basin Management Plan 2022-2027 is currently at draft status.

The WFD requires that the ecological status of all surface waterbodies is assessed that pressures are identified, and that programmes of measures are put in place in order to maintain or achieve Good Ecological Status (GES) or Good Ecological Potential (GEP) in heavily modified and artificial waterbodies. Ecological status is assessed by considering a range of biological, hydromorphological, chemical and physico-chemical quality elements as well as specific pollutants.

Ecological status and the status of the quality elements is assessed and classified as one of the following:

- High;
- Good;
- Moderate;
- Poor; and
- Bad.

Member states must provide information on anthropogenic pressures. The magnitude of pressure and associated impact affects the status classification.

This report provides a WFD Compliance Assessment for the proposed development. This report forms part of the Environmental Impact Assessment (EIAR) and should be read in conjunction with Chapter 10 (Hydrology and Hydrogeology) of the EIAR. Consideration of the WFD is required for any development application that has the potential to cause deterioration in the ecological and chemical status of a waterbody or to compromise improvements that might otherwise lead to a waterbody meeting its WFD objectives.

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

- Objective 1: Prevent deterioration in the ecological status of the waterbody or connected waterbodies (within the same catchment);
- Objective 2: Ensure that impediments to the attainment of GES status for the waterbody are not introduced;
- Objective 3: Ensure that attainment of the WFD objectives for the waterbody is not compromised;
- Objective 4: Ensure that 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 potential for the proposed development to have non-temporary effects on WFD parameters of freshwater waterbodies. Transitional and coastal waterbodies were considered and scoped out from further assessment due to the inland location.

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 development.
- 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.

A 2km buffer zone was applied for assessing protected areas. For clarity and brevity purposes, the 2km buffer and the full list of identified protected sites (including those which are considered coastal water specific) are maintained for all assessments.

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 development.

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 2016-2021
- Groundwater Classification Status and Objectives results 2016-2021

2. WFD SCREENING AND SCOPING

On a national stage, the Environmental Protection Agency has published the Water Quality in Ireland Report 2016-2021 (EPA, 2022) which provides the latest assessment of the quality of Ireland's rivers, lakes, estuaries, coastal and groundwaters. Water quality nationally has declined.

The proposed wind farm site is located on a catchment boundary between the subcatchment of Upper Shannon Catchment 26C which covers the majority of the proposed wind farm site and Upper Shannon Catchment 26E which forms a small segment to the south. The Ledwithstown River or Bilberry River is the only stream located in the Shannon 26E subcatchment. Lough Bannow Stream, Fallan and Ballynakill streams are located in the Shannon 26C subcatchment ad flow to the north of the proposed development. A small segment of Derryad Bog flows to the Fallan river basin.

The surface water quality data within the river basins (Shannon_080 and Fallan_020) has shown slight improvements since 2013. However, the overall status of surface water/rivers in the vicinity of the proposed development is 'Poor' Status. However, the WFD describes the groundwater at the proposed development as 'Good'. Refer to Chapter 10 for further detail. For this assessment to inform Cycle 3, there are 3 waterbodies achieving High Status, 42 achieving Good Status, 14 achieving Moderate Status seven achieving Poor Status and 10 waterbodies in the Upper Shannon Catchment do not have a status classification assigned. The River Subbasins and Q values and Areas For Action (AFA) are included below in Figure 2-1.

An EIA scoping response was received from Irish Wildlife Trust and a query arose in relation to the Water Framework Directive (WFD) in 2022, '*What will be the effect of the project on the Water Framework Directive status of waterbodies in the catchment? How will the project affect the goal to achieve 'good status' of all water bodies by 2027 at the latest?* This *effect of the project on the Water Framework Directive status of waterbodies in the catchment* has been addressed in Section 3 of this report.

8°0'0"W
7°50'0"W
53°40'0"N
53°36'0"N
774600
767500
760400
600000
608000
616000

MOUNTAIN (ROSCOMMON)_010
SCRAMOGE_040
FEORISH (TARMONBARRY)_020
Lough Rinn/Forbes
SHANNON (Upper)_080
CAMLIN_070
CAMLIN_040
CURRAGHROE STREAM_010
Tulsk
LISSAPHOBBLE_010
SHANNON (Upper)_090
CAMLIN_050
CLOONCOOSE STREAM_010
SHANNON (Upper)_100
GORTGALLAN_010
26C-Upper Shannon
CAMLIN_060
Camlin
KEELCURRAGH_010
CLOONEIGH_010
BALLYNAKILL_010
FALLAN_020
FALLAN_010
LENAMORE STREAM_010
Clooneigh
CLOONEIGH_020
LOUGH BANNOW STREAM_010
26E-Upper Shannon
Jiggy/Hind
HIND_030
SHANNON (Upper)_110
LEDWITHSTOWN_010
INNY_100
DRUMNEE_010
INNY_110
26F-Upper Shannon
Knockcroghery_010
LECARROW (LOUGH REE)_010

© OpenStreetMap (and) contributors, CC-BY-SA

Legend

- Proposed wind farm site boundary
- Catchments
- WFD - River Sub Basins
- WFD - Areas For Action (AFAs)

Water Quality Monitoring Stations

- No value
- 1
- 2-3
- 2-3*
- 3
- 3*
- 3-4
- 3-4*
- 4
- 4-5
- Not Sampled
- Rivers

0 2 4
Kilometers

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING\
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE\
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES\
4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Chkd.
A	13/01/2025	First issue	S.P	C.N

Client: Bord na Móna

Project: Derryadd, Derryaroge and Lough Bannow Bogs - Application for Substitute Consent

Title: Figure 2-1 River Subbasins. Q values and Areas for Action (AFA)

Scale @ A3: 1:80,000

Prepared by:	Checked by:	Date:
S.Pezzetta	C.Naughton	January 2025

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 11400-001-R.Sub.Ba-AFAs-TOB-A

Draft: A

2.1.1 Surface Water Bodies

The Environmental Protection Agency (EPA) regularly monitors water bodies in Ireland as part of their remit under the Water Framework Directive (WFD) (2000/60/EC), which requires that rivers are maintained or restored to good/ favourable status. Quality of watercourses are assessed in terms of 4 No. quality classes; 'Unpolluted' (Class A), 'Slightly Polluted' (Class B), 'Moderately Polluted' (Class C) and 'Seriously Polluted' (Class D). These water quality classes, and the water quality monitoring programme are described in the EPA publication 'Water Quality in Ireland, 2022'. The water quality assessments are based on biological surveys. Biological Quality Ratings or Biotic Indices (Q values) ranging from Q1 to Q5 are defined as part of the biological river quality classification system. The relationship of these indices to the water quality classes defined above, are set out in Table 2-1.

Table 2-1 Relationship between biotic Indices and Water Quality Classes

Biotic Index	Quality Status	Quality Class
Q5, 4-5, 4	Unpolluted	Class A
Q3-4	Slightly Polluted	Class B
Q3, 2-3	Moderately Polluted	Class C
Q2, 1-2, 1	Seriously Polluted	Class D

The river waterbody types located within and near the proposed wind farm site are primarily small, low-lying streams/drainage channels which flow to the River Shannon and Lough Ree. There are four WFD river water bodies either intersecting or flowing in the vicinity of the proposed wind farm site. There is one WFD artificial water body intersecting the proposed wind farm site - Derrygeel Stream - EPA Segment code 26D77, which discharges to the Lough Bannow stream. The hydrological pathway from the proposed wind farm site includes one WFD lake water body – Lough Ree.

More locally, five sub basins are present at the proposed wind farm site. The proposed wind farm site lies within the Lough Bannow Stream_010, Ballynakill_010, Fallan_020, Ledwithstown_010, and Shannon (Upper)_100 sub basins. All rivers discharge to the River Shannon Catchment. A summary of the catchment is included in Table 2-2.

The proposed wind farm site is part of the Upper Shannon catchments (26C and 26E). The majority of the proposed wind farm site lies within the catchment of the Lough Bannow_010 and Ballynakill_010 River Basins. The Ballynakill River is located to the northeast of the proposed wind farm site. There are no EPA or WFD monitoring locations on the streams adjacent to the proposed wind farm site.

Table 2-2: Water Body Status (https://www.catchment.ie) within 2 km of the proposed development

Waterbody Code	Name	Status 2010-2015	Status 2013-2018	Current Status 2016-2021	Application Site within WFD subbasin
IE_SH_26L120100	Lough Bannow Stream_010	Unassigned	Good	Moderate	Yes
IE_SH_26B220790	Ballynakill_010	Unassigned	Good	Moderate	Yes
IE_SH_26L840850	Ledwithstown_010	Unassigned	Good	Moderate	Yes
IE_SH_26F010200	Fallan 020	Good	Good	Good	Yes
IE_SH_26S021600	Shannon (Upper)_100	Poor	Poor	Poor	Yes
IE_SH_26S021530	Shannon (Upper)_090	Moderate	Moderate	Poor	No
IE_26C_AWB_RCMLW	Royal Canal Main Line (Upper Shannon C)	Good	Good	Good	No
IE_SH_26_750a	Lough Ree	Moderate	Good	Good	Located downgradient

However, Q-values were recorded on the River Shannon 1 km downgradient of Lanesborough Power Station and upgradient at Termonbarry village as shown in Table 2-3 . Q Values within the River Fallan are between Q3-Q4 'Slightly Polluted' status, with 'Unpolluted' status Q4, recorded in the Fallan river (Br S of Kilmore Upper) in 2020 and Q4 also recorded in the Fallan River (W of Curry Bridge) in 2023. The EPA monitoring point on the River Shannon indicate that the overall water quality in this area is Q3-'Moderately Polluted' in 2023, and that the water quality upstream of the proposed wind farm site is Q3-Q4 'Slightly Polluted'. The overall status of surface water/rivers in the vicinity of the proposed wind farm site is 'Poor Status'. This classification is based on a low macroinvertebrate value (Q-Value) according to www.wfdireland.ie. Water quality on the Shannon is generally good. Results for ammonium at Ballyleague Bridge, Lanesborough located 2 km to the west of the proposed wind farm site, is included below in Figure 2-2.

Table 2-3: Q-Values at various EPA monitoring stations on River Shannon Upper (https://www.catchments.ie/)

Location	W of Curry Bridge	Br S of Kilmore Upper	1 km downstream of Tarmonbarry	Ballyleague Br Lanesboro
River	**Fallan**	**Fallan**	**Shannon**	**Shannon**
Station Code	**RS26F0100040**	**RS26F010200**	**RS26S021530**	**RS26S021600**
1984	ND[1]	Q4	ND	ND
1992	ND	Q3-4	ND	ND
1996	Q3-4	Q3-4	ND	ND
1999	Q3-4	Q3-4	ND	Q3

[1] ND=No Data

Location	W of Curry Bridge	Br S of Kilmore Upper	1 km downstream of Tarmonbarry	Ballyleague Br Lanesboro
2002	Q4	ND	ND	Q3
2005	Q3-4	Q3-4	ND	Q3
2008	Q3-4	Q4	Q3-4	ND
2011	Q3-4	Q4	Q4	Q3-4
2014	Q3-4	Q4	Q3-4	Q3
2017	Q3-4	Q4	Q3	ND
2020	Q3-4	Q4	Q4	Q3
2023	Q4	Q4	Q3-4	Q3

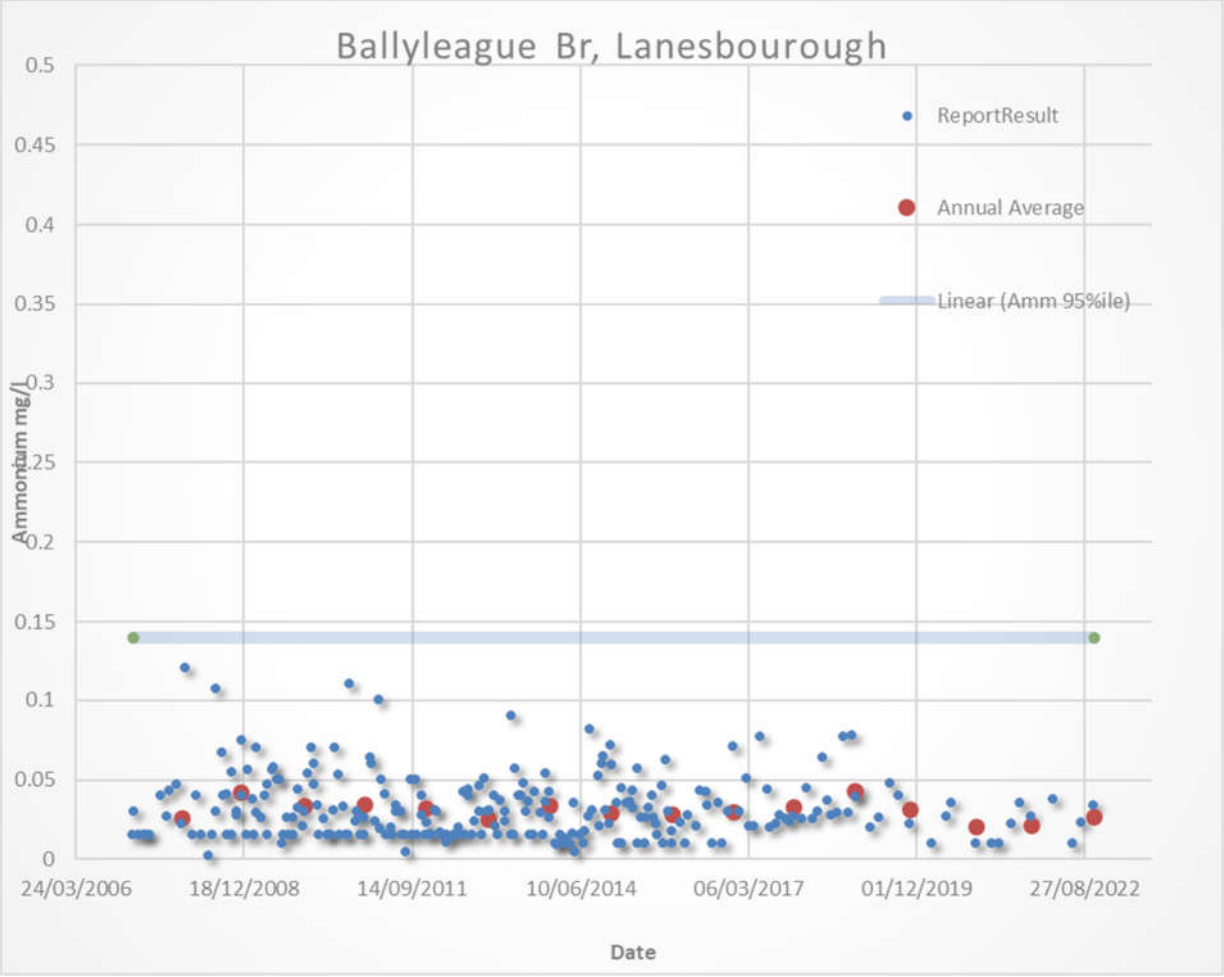


Figure 2-2 Ammonium Concentrations Ballyleague Bridge, Lanesborough

Summary data for ammonium at Ballyleague Bridge is included below in Table 2-4. Based on a Mann-Kendell[2] statistical analysis, no significant overall trend is noted in the data from 2007 to 2023.

Table 2-4: Annual Average Ammonium - Ballyleague Bridge

Ballyleague Bridge		Limits of detection
Year	Average Ammonium Concentration	
2007	0.035	0.03
2008	0.056	0.03
2009	0.039	0.03
2010	0.043	0.03
2011	0.041	0.03
2012	0.030	0.03
2013	0.040	0.03
2014	0.034	0.03
2015	0.035	0.02
2016	0.036	0.02
2017	0.033	0.02
2018	0.101	0.02
2019	0.031	0.02
2020	0.031	0.02
2021	0.028	0.02
2022	0.029	0.02
2023	0.023	0.02

The Fallan River was unsatisfactory at the upper site (0020) and at the mid station (0040). The lower site surveyed (0200) remained satisfactory. The catchment is dominated by agriculture – predominantly intensive pasture.

Under the WFD classification the surface waters are deemed as at risk of not achieving good status by 2027 (www.epa.ie). Where waterbodies have been classed as 'At Risk', significant pressures have been identified. The significant pressure affecting the greatest number of waterbodies is agriculture, followed by hydromorphology, other[3], peat, domestic wastewater, urban wastewater, urban run-off, industry and forestry.

A summary of the catchment is included in Table 2-5. The regional natural surface water drainage pattern, in the environs of the proposed wind farm site, is outlined in

[2] The Mann Kendall Trend Test is a non-parametric test used to analyse data collected over time for consistently increasing or decreasing trends.
[3] *Other – abstractions, aquaculture, atmospheric, anthropogenic pressures, historically polluted sites, waste, water treatment and invasive species have all been grouped into the "Other" pressure category for the purpose of this report

Table 2-5 WFD Subbasin Summary

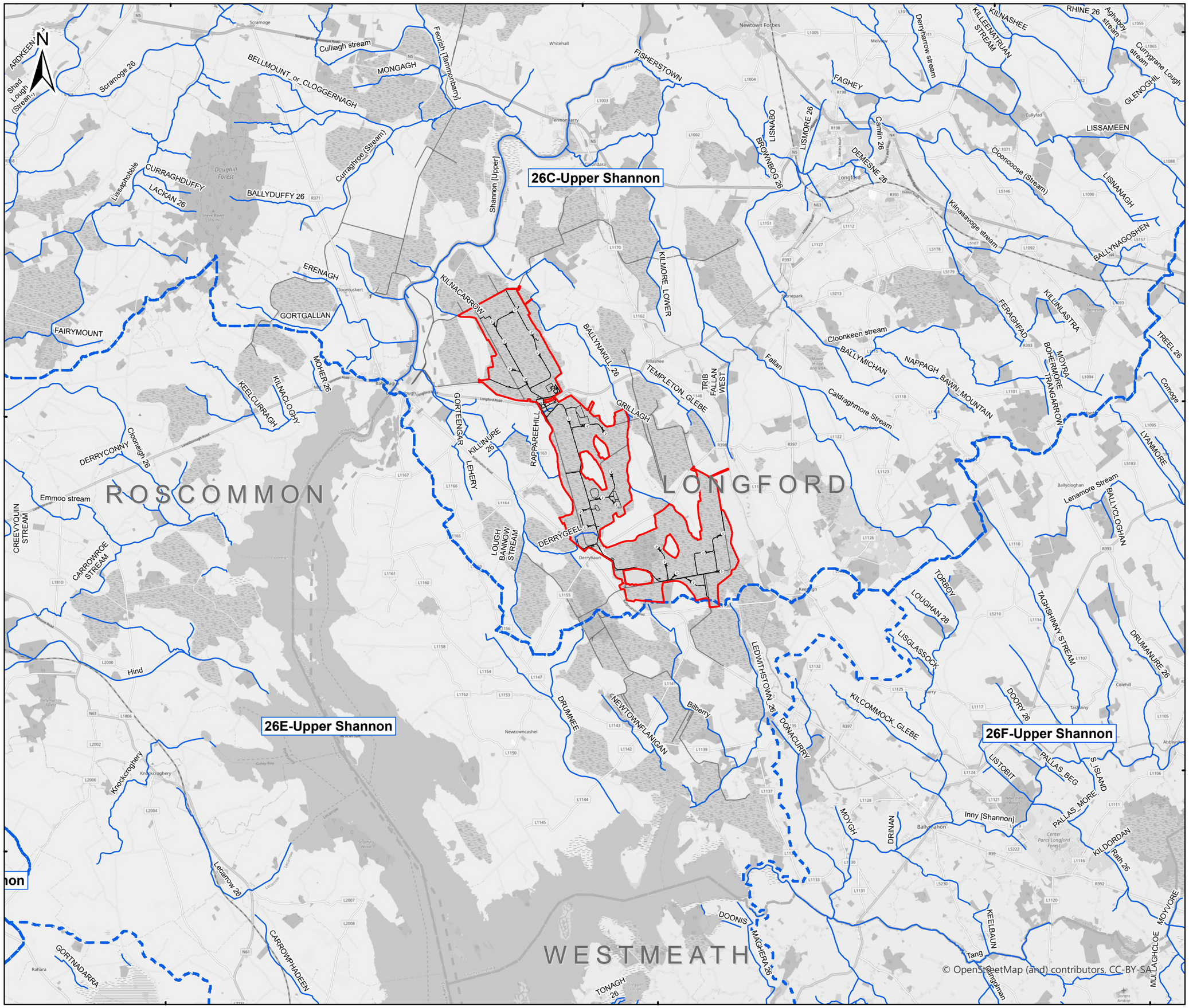
Catchment (Catchment ID)	River Network EPA Name (Segment Code)	River Waterbody WFD Risk 2010-2015	River Waterbody WFD Status 2013-2018	River Waterbody WFD Status 2016 – 2021	River Waterbody WFD Risk 2016-2021
Upper Shannon (26C)	**Fallan_020** (IE_SH_26S021530) Fallan 020 (26_2725)	Moderate	Moderate	Good	At risk
	Shannon (upper)_100 (IE_SH_26S021600) Kilnacarrow (26_1494)	Poor	Poor	Poor	At risk
	Ballynakill_010 (IE_SH_26B220790) Ballynakill_26 (26_3102) Ballynakill_26 (26_625) Ballynakill_26(26_3574)	Unassigned	Good	Moderate	Under review
	Lough Bannow Stream _010 (IE_SH_26L120100) Lough Bannow Stream (26_1469) Rappareehill (26_3871) Derrygeel (26_593)	Unassigned	Good	Moderate	Under review
Upper Shannon (26E)	**Ledwithstown _010** Ledwithstown (26_3735) (IE_SH_26L840850)	Unassigned	Good	Moderate	Under review

The proposed wind farm site is located on a catchment boundary between the catchment of Shannon 26C which covers the majority of the proposed wind farm site, and the Shannon 26E with less than 0.1 $km^{2,}$ located in the southern portion of Lough Bannow Bog.

Table 2-5 WFD Subbasin Summary

Catchment (Catchment ID)	River Network EPA Name (Segment Code)	River Waterbody WFD Risk 2010-2015	River Waterbody WFD Status 2013-2018	River Waterbody WFD Status 2016 – 2021	River Waterbody WFD Risk 2016-2021
Upper Shannon (26C)	**Fallan_020** (IE_SH_26S021530) Fallan 020 (26_2725)	Moderate	Moderate	Good	At risk
	Shannon (upper)_100 (IE_SH_26S021600) Kilnacarrow (26_1494)	Poor	Poor	Poor	At risk
	Ballynakill_010 (IE_SH_26B220790) Ballynakill_26 (26_3102) Ballynakill_26 (26_625) Ballynakill_26(26_3574)	Unassigned	Good	Moderate	Under review
	Lough Bannow Stream _010 (IE_SH_26L120100) Lough Bannow Stream (26_1469) Rappareehill (26_3871) Derrygeel (26_593)	Unassigned	Good	Moderate	Under review
Upper Shannon (26E)	**Ledwithstown _010** Ledwithstown (26_3735) (IE_SH_26L840850)	Unassigned	Good	Moderate	Under review

The regional natural surface water drainage pattern, in the environs of the proposed development is shown in Figure 2.3. Furthermore, Figure 2-3 depicts Surface Water Features/Local Catchment Delineation in relation to site area which includes a significant number of unnamed streams although EPA reference names have been applied for identification purposes. The proposed development site is not located in a delineated area for action as set out in the 2018-2021 National River Basin Management Plan. Each of the streams flowing through or adjacent to the proposed wind farm has its own sub-catchment area. The delineation of these catchment boundaries is shown on Figure 2-3.



Legend

- Proposed wind farm site boundary
- Turbine Layout
- Site Layout
- Catchments
- County Boundaries
- Rivers

0 2.5 5
Kilometres

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING\
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE\
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES\
4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

A	13/01/2025	First issue	S.P	J.D
Rev	Date	Description	By	Chkd.

Client: Bord na Móna

Project: Derryadd Wind Farm

Title: Figure 2-3 Regional Catchment delineation

Scale @ A3:	1:100,000	
Prepared by:	Checked by:	Date:
S.Pezzetta	J.Dillon	January 2025

TOBIN
Tel: +353-(0)1-8030406
Email: info@tobin.ie
www.tobin.ie

Map Ref: 11399-005-CAs-S.CAs-TOB-A

Draft: A

2.1.2 Groundwater Bodies

The groundwater body (GWB) is the groundwater management unit under the WFD. Groundwater bodies are subdivisions of large geographical areas of aquifers so that they can be effectively managed in order to protect the groundwater and linked surface waters[4]. The GWB is defined as a distinct volume of groundwater, including recharge and discharge areas with little flow across the boundaries. The proposed wind farm site is underlain by The Funshinagh GWB, The Inny GWB and The Longford Balinalee GWB. The groundwater body descriptions are available from the GSI website[5] and the 'status' is obtained from the WFD website[6] and the EPA website[7]. The GWBs underlying the proposed development are classified as being at 'Good' status as shown in Table 2-6. The Funshinagh WFD GWB is comprised of primarily of high transmissivity karstified limestone. The Inny and Longford Balinalee GWB are comprised of low transmissivity and storativity rocks, described as Poorly Productive bedrock.

Table 2-6: Summary of groundwater bodies

EU_CD Code	Name	Description	GWB status (2010-2015)	GWB status (2013-2018)	GWB status (2016-2021)
IE_SH_G_091	Funshinagh	Karstic	Good	Good	Good
IE_SH_G_110	Inny	Poorly Productive Bedrock	Good	Good	Good
IE_SH_G_149	Longford Ballinalee	Poorly Productive Bedrock	Good	Good	Good

Groundwater is often used as a source of drinking water supply. According to Longford County Council and Uisce Éireann, there are two groundwater schemes used as part of the Lanesborough public water scheme (PWS).

Lisrevagh borehole, is located 7.3 km to the east of the proposed wind farm site and abstracts groundwater for use in the Lanesborough public water supply scheme. The Lanesborough ESB borehole, which is located 2.5 km to the west of the proposed wind farm site abstracts groundwater at Lanesborough PWS. Zones of Contribution (ZOCs) were delineated for the EPA in 2011. The ZOC of a groundwater source is effectively a groundwater catchment. They are influenced by the hydrogeology of a given area, and are determined from the consideration of:

- The total outflow at the source;
- The recharge to the associated groundwater flow system;
- Groundwater flow directions and gradients; and
- Subsoil and bedrock permeabilities.

The proposed wind farm site does not extend into this ZOC, part of Derryaroge Bog is located within the Lanesborough Public Water Supply ZOCs. These abstraction points and zones of contribution are included in Appendix 10-2.

[4]https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx
[5] www.gsi.ie
[6] www.wfdireland.ie
[7] www.epa.ie

The groundwater in the proposed wind farm site is assessed as being of Good quantitative and chemical status. The bedrock is generally overlain by deep soil and peat deposits. No significant dissolution features (i.e., karst) were observed from visual appraisal of the proposed wind farm site and no karst features are recorded within the GSI Karst Database of Ireland within the wind farm site boundary. A Karst Plateau is located 3km further to the east of the proposed wind farm site. However, Cordara Turlough is located 3.6 km southwest of the proposed wind farm site boundary.

2.1.3 Lake water Bodies

The hydrological pathway from the proposed wind farm site includes one WFD lake water body – the Ree (IE_SH_26_750a). It is a large surface water body (more than 100 km^2) to which the river water bodies described in Section 2.1.1. The catchment area to Lough Ree is >4,600 km^2.

Lough Ree lake water body has maintained a regular *Good* WFD water quality status, since the 2013 - 2018 period. The lake was at good chemistry status in 2010-2015, however it was moderate overall status due to the presence of invasive species.

There are no Register of Protected Areas (RPA) nutrient sensitive lakes and estuaries in hydrological/hydrogeological connection with the proposed wind farm site and there are no RPA shellfish/pearl mussel areas within the proposed wind farm site.

Table 2-7: Summary of Lake Status (https://www.catchment.ie)

Waterbody Code	Name	2007-2009	2010-2012	2010-2015	2013-2018	2016-2021
IE_SH_26_750a	Ree	Moderate	Moderate	Moderate	Good	Good

2.1.4 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.

The scoping exercise has identified those river waterbodies that are present within a 2 km buffer zone of the proposed wind farm site.

2.2 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).

2.2.1 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 5 km of the proposed wind farm site;
- There is no bathing water sites within 5 km of the proposed wind farm site;
- There are no nutrient sensitive sites within 5 km of the proposed wind farm site.

2.3 Nature Conservation Sites of Importance

Natura 2000 sites are 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). Two SACs are located downgradient of the proposed development, Lough Ree SAC and Lough Ree SPA.

Sites of national importance for nature conservation include a variety of designated areas that protect important habitats, species, and biodiversity. Designated sites include Natural Heritage Areas, National Parks and Nature Reserves.

Table 2-8: National Sites within the 5 km Initial ZoI from proposed wind farm site

Site Name [Code]	Distance from Proposed Wind Farm Site (km)
Lough Bawn pNHA [0001819]	0.0
Royal Canal pNHA [0002103]	0.0
Lough Bannow pNHA [0000449]	0.1
Lough Ree pNHA [0000440]	2.4
Derry Lough pNHA [0001444]	2.6
Cordara Turlough pNHA [0001821]	2.6
Mount Jessop Bog NHA [0001450]	3.4
Forthill Bog NHA [0001448]	3.8
Fortwilliam Turlough pNHA [0000448]	5.15
Lough Forbes Complex pNHA [0001818]	4.4

Having regard to the distances from the proposed wind farm site, and its potential hydrological and hydrogeological pathways, four Nationally important sites are considered as connected with the site: Lough Bawn pNHA [001819]; Lough Bannow pNHA [000449]; Lough Ree pNHA [000440]; and Derry Lough pNHA [001444].

2.3.1 Hydromorphology

This section provides a summary of the known existing hydromorphology risk issues for the fluvial water bodies. A summary is provided in Table 2-9 below.

Table 2-9: Hydromorphological Assessment

Assessment Questions	Lake Water Body (Lough Ree)	Ballynakill_100	Lough Bannow_010	Shannon (upper)100	Fallan 020	Ledwichtown_100
WFD Code	IE_SH_26_750a	IE_SH_26B220790	IE_SH_26L120100	IE_SH_26S021600	IE_SH_26F010200	IE_SH_26L840850
Consider if your activity could impact on the hydromorphology (morphology or water flow of a water body at high status?	No. No changes to Lough Ree Status	No. RWB is not at High Status.	RWB at high status – no alteration to river.	No. RWB is not at High Status.	No. RWB is not at High Status.	RWB at high status – no alteration to river.
Consider if your activity could significantly impact the hydromorphology of any water body?	No. Surface water drainage flow and volume will not significantly change to Lough Ree Status	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.	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.	No. Not a heavily modified water body	No. Not a heavily modified water body	No. Not a heavily modified water body.

3. STAGE 3: WFD COMPLIANCE ASSESSMENT

The proposed development does not include a significant change to, groundwater abstraction or the groundwater water body. Furthermore, the footprint of the works are small in relation to the scale of the groundwater bodies and therefore no significant change to recharge are anticipated. As a result, there will be no change to the quantitative status of the groundwater bodies.

The characteristics with the potential to be affected are Biology: Habitats, Biology: Fish, Water Quality and Protected Areas. The same protected areas overlap several different water bodies or are anticipated to experience the same or similar impacts; therefore these have been assessed together in Section 3.1 to 3.3.

3.1 Assessment of the proposed Development Site Against Programme of Measures

Within the RBMP, there are a list of measures, or environmental improvements, which have been identified by the RBMP, to meet the target date set by the Water Framework Directive. Part of the WFD Compliance Assessment is to consider measures and assess whether the proposed wind farm site can contribute to them or might obstruct any of them from being delivered

The proposed wind farm has therefore been assessed for its potential to impact each of the WFD quality elements, and as a result have the potential to impact upon the status of the water body or its ability to achieve its objectives in relation to those elements or impact upon Protected Areas.

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

The WFD Compliance Assessment follows the structure of Chapter 10 (Hydrology and Hydrogeology) in so far as the three main phases of the proposed development are considered separately in the first instance. The potential for cumulative effects on a water body as a result of multiple elements of the proposed development potentially impacting upon them is considered in Step 3 of the assessment.

The principal activities that may contribute to effects are:

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

3.2 Construction Phase

Without mitigation actions, the proposed development has the potential to affect the water quality and hydromorphology of streams / watercourses 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 3.2) and Surface Water Management Plan (SWMP) (Appendix 10-3) will be implemented. The impacts in this section of the WFD Compliance Assessment are the residual effects identified in Chapter 7 (Biodiversity) and Chapter 10 (Hydrology and Hydrogeology) for each quality element of each WFD water body. The measures incorporated into the CEMP and SWMP are embedded mitigation.

3.2.1 Biological Quality Elements

Potential impacts on biological quality elements are assessed in Chapter 7 (Biodiversity) of the EIAR. A summary is provided here and includes the likely residual effects following implementation of mitigation and control measures.

The only stream crossing is located to the south of the Derryadd site (EPA code: 26_593) and crosses a highly modified channel/stream. The channel is a trapezoidal straightened channel, 3 m wide and constructed within peat. Culverts will be of a size adequate to carry expected peak flows i.e., 1: 1:100-year flood events. Smaller peatland drains with be crossed using normal culverts. The construction of culverts 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.

Impacts from the drainage are likely to be temporary and localised. Additional inputs of sediment may arise from runoff entry points if this leads to scouring of riverbanks which could also alter natural flow dynamics within the channel should mitigation not be in place. Furthermore, discharges from settlement ponds could lead to scour of the beds and banks unless outfalls are appropriately designed. Any impacts from discharges will be minimised by managing suspended solid concentrations so they do not exceed 35mg/l (as per IPC Licence) and ensuring discharge rates are controlled to limit scour and limit any impacts to species inhabiting the water bodies.

The existing water management network at the proposed wind farm site (e.g. drains, water pumps, settlement ponds, regular monitoring and maintenance), which is managed and monitored by the IPC licence (P0504-01), and was able to accommodate the settlement of sediment generated by peat extraction activities throughout the whole site, and is demonstrable by the fact that no exceedances to the Suspended solids (SS) limit have been reported over 12 years.

Implementation of the mitigation is set out in Chapter 21 (Schedule of Mitigation and Monitoring Measures), and the use of location specific measures as detailed in Appendix 3.2 CEMP, impacts will be minimised and will not result in deterioration of biological quality elements.

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 minimised.

Potential impacts from the construction may result in a loss of suitable habitat for fish, macroinvertebrates and macrophytes. Additional impacts on habitats may arise from the accidental release of oil from machinery which could also alter bed and bank composition.

3.2.2 Chemical and Physico – chemical elements

Potential impacts on water quality are assessed in Chapter 10 (Hydrology and Hydrogeology) of the EIAR. A summary is provided under each heading with the detail within Chapter 10 of the EIAR.

Through implementation of the specific mitigation any effects will be considered short-term and localised.

3.2.3 Hydromorphological Quality elements

Potential impacts on hydromorphology are not anticipated as detailed in Table 2.9 of section 2.2.3 above.

3.2.4 Protected Areas

Potential impacts on any protected areas detailed in Section 2.2.1 above are not anticipated.

Potential impacts on biological quality elements are assessed in Chapter 7 (Biodiversity) of the EIAR. The construction of the proposed development would also result in an impact of negligible concern to SACs, SPAs and NHAs. There are no significant indirect impacts on SACs, SPAs, and NHAs.

3.3 Operational Phase

3.3.1 Biological Quality Elements

Potential impacts on biological quality elements are assessed in Chapter 7 (Biodiversity) of the EIAR. The operation of the proposed development would also result in an impact of negligible concern to SACs, SPAs and NHAs. No significant indirect impacts on SACs, SPAs, and NHAs.

3.3.2 Chemical and Physico-chemical Quality Elements

Potential impacts on water quality are assessed in Chapter 10 (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 there would be no process water discharges. Surface water runoff from roads and other impermeable areas will be managed by the drainage. Foul wastewater on site will be contained and transported to a licenced Wastewater Treatment Plant (WwTP). No impacts on water bodies are considered likely.

The impact has been classed as imperceptible differences in water quality concentrations and within the normal bounds of variation of laboratory analysis results from coincident physical samples.

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.

3.3.3 Hydromorphological Quality elements

The operation of the proposed development is not considered likely to have any detrimental impact on hydromophological quality elements.

3.3.4 Protected Areas

Based on the proposed design and drainage, the impacts on levels and flows would be similar to the baseline conditions; and would meet the WFD requirements under existing and future climate conditions. Overall, it can be concluded, the proposed development will not have significant negative effects on biodiversity at any geographic scale.

Nature Conservation Site of Importance

Potential impacts on biological quality elements are assessed in Chapter 7 (Biodiversity) of the EIAR. The construction of the proposed development would also result in an impact of negligible concern to SACs, SPAs and NHAs. There are no significant indirect impacts on SACs, SPAs, and NHAs.

4. COMPLIANCE ASSESSMENT SUMMARY

The site-specific impacts of the proposed development on the biological, physico-chemical and hydromorphological quality elements of the water bodies are shown in the assessment above and summarised in Table 4-1.

Table 4-1: WFD: Assessment Summary

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Biology: habitats	No	The footprint of the proposed wind farm is contained primarily within the cutover bog. There are no significant direct or indirect impacts on SACs/SPAs. There are no designated sites altered by the proposed development.
Biology: fish	No	The risks to the receptor during construction and operation or decommissioning phase, is from increased sediment to adjacent streams. No instream works are proposed as part of the proposed development. Surface water drainage flow and volume will not increase as a result of the proposed development. In addition, a CEMP will be implemented.
Water quality	Yes	The risks to the receptor during construction and operation or decommissioning phase, is from increased sediment to adjacent streams. No instream works are proposed as part of the proposed development. Surface water drainage flow and volume will not increase as a result of the proposed development. In addition, a CEMP will be implemented. Mitigation measures are detailed in the CEMP and SWMP.
Protected areas	No	The proposed wind farm site is adjacent to the SACs and SPAs. There are no significant effects on other protected areas are within the study area (5km) of this assessment. A CEMP and SWMP will be implemented as part of the proposed development. 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.

No significant effects were identified as part of the assessment and therefore no additional mitigation measures are required. The measures outlined below form part of the project design. As part of the design, transformers for the proposed substation will be bunded. The tanks will be double-walled, equipped with leak detection, which do not require additional retention. A hydrocarbon interceptor will be installed at the proposed substation and construction compounds during the construction phase with regular inspection and maintenance, to ensure optimal performance.

Drainage at the substation and turbine hardstands will be managed in accordance with the 2024 NOD drainage layout Drawings 20852-NOD-01-XX-DR-C-0801 to 20852-NOD-01-XX-DR-C-0815 (see Appendix 1-2). As detailed on the NOD drainage drawings, temporary settlement ponds are incorporated into the design to limit suspended solids in the surface water. There are no surface water streams within 350 m of the substation.

Construction Works will be minimised where practical 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 Chapter 10 (Hydrology and Hydrogeology) Appendix 10-3 (SWMP), and Appendix 3.2 (CEMP) will ensure impacts are short-term and localised. No instream works to EPA streams are proposed.

Through implementation of the mitigation set out in Chapter 10 (Hydrology and Hydrogeology) and Appendix 3.2 (CEMP), 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 development, ensuring that any sediment build-up or pollutants are captured on site rather than released into the wider environment.

Table 5-2: Design element matrix

	Turbines	Substation and compounds	Deposition areas	Site Access roads	Amenity Access Track	Borrow Pits	Grid
Utilise existing bridges and access roads	+	-	-	++	++	-	++
>50m Buffer	++	++	++	-	-	-	-
Interceptor drains	++	++	++	++	+	++	-
Check Dams or similar	++	++	++	++	++	++	++
Swales / Sediment traps	++	-	-	++	++	++	-
Settlement Ponds	++	++	++	-	+	++	-
Proprietary Settlement tanks	+	+	-	-	-	++	-
Weather dependant	++	++	++	++	++	++	++
Silt Fences	+	-	+	+	-	-	-
Concrete washout control measures	++	++	-	-	-	++	++
Chemical/fuel bunds	++	++	++	-	-	++	++

Taking into consideration the anticipated impacts of the proposed development on the biological, physico-chemical and hydromorphological quality elements, following the implementation of design 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. Refer to Table 5-2.

Table 5-3: Compliance of the proposed development 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
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 development 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 development 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 development will not cause deterioration in the status of the 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*'.

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) promotes the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats. European designated sites in the vicinity of the proposed development have been assessed and are presented in the Natura Impact Statement (NIS). The NIS is a standalone document included in the planning application for the proposed development. It concludes that given the application of prescribed protective measures for the avoidance of impacts and the implementation of the required mitigation measures, the proposed development will not give rise to adverse effects on the integrity of the European sites.

The Bathing Water Directive (BWD) (2006/7/EC) was adopted in 2006, and is the process used to measure/monitor water quality at identified bathing waters. There are no bathing waters within 5 km of the proposed wind farm site.

5. CUMULATIVE EFFECTS

Cumulative effects may also occur between this proposed wind farm and other proposed wind farms. 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.

All water bodies within the study area have been assessed for direct and indirect impacts. The proposed development 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 effects with other proposed wind farms in the study area, see Chapter 10 (Hydrology and Hydrogeology). Cumulative effects of this proposed development with other developments in the region, relate to the effects on Hydrology and Hydrogeology. These developments include other existing or planned developments with the potential to interface with the proposed development. Key developments in the area include:

- Lanesborough Power Station - Decommissioning;
- Derraghan Ash Disposal Site; and,
- Harmony Solar.

With the implementation of the design measures it is concluded that in combination with other proposed developments 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.

6. CONCLUSIONS

Taking into consideration the impacts of the proposed development on the biological, physico-chemical and hydromophological quality elements, it is concluded that, following the implementation of design and mitigation measures, 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 development is compliant with WFD and therefore does not require assessment under Article 4.7 of the WFD.

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

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

8. 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.

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.