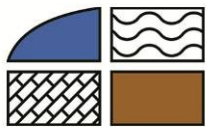




APPENDIX 8-3

WFD COMPLIANCE ASSESSMENT



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**WATER FRAMEWORK DIRECTIVE ASSESSMENT
PEAT EXTRACTION AT BALLYDERMOT, CO. KILDARE AND CO. OFFALY**

FINAL REPORT

Prepared for:
BORD NA MÓNA BIOMASS LTD

Prepared by:
HYDRO-ENVIRONMENTAL SERVICES

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1. INTRODUCTION

1.1 BACKGROUND

Hydro-Environmental Services (HES) were requested by MKO Ireland on behalf of Bord na Móna Biomass Ltd (the Applicant) to complete a Water Framework Directive (WFD) Compliance Assessment for the effects of peat extraction and ancillary activities at Ballydermot, Co. Kildare and Co. Offaly.

The Application Site forms part of the larger Allen Bog Group and covers an area of 5,448 hectares (ha). The Application Site comprises 14 no. bogs located on the Offaly-Kildare County border. The bogs include: Ticknevin, Glashabaun North, Glashabaun South, Codd 1, Codd 2, Ballydermot North, Ballydermot South, Blackriver, Lullymore, Lullybeg, Barnaran, Killina, Derrybrennan and Lodge. The Application Site is located 2.2km southeast of Edenderry, 3.3km west of Allenwood, 2.4km north of Rathangan and 1.7km east of Clonbullogue Village.

The Application Site has been extensively modified, cutover and drained as a result of the historic peat extraction dating back to 1935. Peat extraction formerly ceased at the Application Site in June 2020.

The purpose of this WFD Compliance Assessment is to determine whether any specific components or activities associated with the peat extraction and ancillary activities at the Application Site have compromised WFD objectives or have resulted in a deterioration of the status of any water bodies in the vicinity or downstream of the Application Site. In addition, this assessment will determine whether any components or activities associated with the Final and Bord na Móna Draft Cutaway Bog Decommissioning and Rehabilitation Plans and associated activities will compromise WFD objectives or result in a deterioration of the status of any water bodies in the vicinity or downstream of the Application Site. This assessment will determine the water bodies with the potential to be impacted, describe the control measures and determine if the peat extraction and ancillary activities have been in compliance with the objectives of the WFD since its transposition into Irish Law in 2003.

This WFD Compliance Assessment is intended to supplement the remedial Environmental Impact Assessment (rEiAR) submitted as part of the substitute consent application. For the purposes of this WFD Compliance Assessment, and consistent with the rEiAR, the various components are described and assessed using the following references: the 'Project', 'Peat Extraction Phase', 'Current Phase' and the 'Remedial Phase'.

We note that there is no requirement to assess the peat extraction and ancillary activities at the Application Site which pre-date 2003 and the required transposition of the WFD Directive into Irish Law. The assessment of the Peat Extraction Phase presented in this report covers the period from 2003-2020. Note that this period is referred to as the 'WFD Assessment Period for the Peat Extraction Phase' where relevant.

1.2 STATEMENT OF AUTHORITY

Hydro-Environmental Services (HES) are a specialist geological, hydrological, hydrogeological and environmental practice that delivers a range of water and environmental management consultancy services to the private and public sectors across Ireland and Northern Ireland. HES was established in 2005, and our office is located in Dungarvan, County Waterford. We routinely complete impact assessments for hydrology and hydrogeology for a large variety of project types including wind farms.

This WFD Compliance Assessment was prepared by Nitesh Dalal, Conor McGettigan and Michael Gill.

Michael Gill (BA, BAI, Dip Geol., MSc, MIEI) is an Environmental Engineer and Hydrogeologist with over 23 years' environmental consultancy experience in Ireland. Michael has completed numerous hydrological and hydrogeological impact assessments for a variety of development types across Ireland. He has substantial experience in surface water drainage design and SUDs design and surface water/groundwater interactions. Michael has also worked on rEIARs for Cleanrath WF, several BnM bogs, including at the Ballivor Bog Group, and also for a number of quarry sites.

Conor McGettigan (BSc, MSc) is an Environmental Scientist with over 5 years' experience in environmental consultancy in Ireland. Conor holds an M.Sc. in Applied Environmental Science (2020) and a B.Sc. in Geology (2016) from University College Dublin. Conor has prepared the Land, Soils and Geology and Hydrology and Hydrogeology Chapters for substitute consent applications for historic peat extraction activities at several BnM sites. Conor routinely completes WFD Compliance Assessments for a wide variety of projects including wind farms, quarries and proposed residential developments. Conor has prepared WFD Compliance Assessments for 20 no. wind farm developments on peatlands including Ballivor WF, Lemanaghan WF and Littleton WF. Conor has also prepared WFD Compliance Assessments for the substitute consent applications for the historic peat extraction at these bogs.

Nitesh Dalal (B.Tech, PG Dip., MSc) is an Environmental Scientist with over 7 years' experience in environmental consultancy and environmental management in India and over 1 year environmental consultancy experience in Ireland. Nitesh holds a M.Sc. in Environmental Science from University College Dublin (2024), a PG Diploma in Health, Safety and Environment from Annamalai University, India (2021) and B.Tech. in Environmental Engineering (2016) from Guru Gobind Singh Indraprastha University, India (2016).

1.3 WATER FRAMEWORK DIRECTIVE

The EU Water Framework Directive (2000/60/EC), as amended by Directives 2008/105/EC, 2013/39/EU and 2014/101/EU ("**WFD**"), was established to ensure the protection of the water environment. The Directive was transposed in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003).

The WFD requires that all member states protect and improve water quality in all waters, with the aim of achieving good status by 2027 at the latest. Any new development must ensure that this fundamental requirement of the WFD is not compromised.

The WFD is implemented through the River Basin Management Plans (RBMP) which comprises six-yearly cycles of planning, action and review. RBMPs include identifying river basin districts, water bodies, protected areas and any pressures or risks, 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, and the third cycle covers the period from 2022 to 2027¹. The RBMPs are forward looking.

The Water Action Plan 2024 is Ireland's 3rd River Basin Management Plan (2022 - 2027). The objectives of the Water Action Plan 2024 have been integrated into the design of the Project and include:

- Ensure full compliance with relevant EU legislation;
- Prevent deterioration;
- Meet the water standards and objectives for designated protected areas;
- Protect high-status waters; and,

¹ The WFD RBMP cycles are forward looking plans, so 2009-2015 (1st Cycle), 2016-2021 (2nd Cycle), and 2022-2027 (3rd Cycle) are the plans and they use status from the previous 6 years. The EPA updates status every three years, but they also complete an additional assessment mid-RBMP cycle. The mid-cycle status does not get reported to the Commission. The linkage between the two is that the 2nd Cycle plan uses the 2009-2015 status, the 3rd Cycle plan uses the 2016-2021 status. The 2013-2018 status was not used in the RBMP and the 2019-2024 status will not be used in the next RBMP.

- Implement targeted action and pilot schemes in focus sub-catchments aimed at (i) targeting water bodies close to meeting their objective and (ii) addressing more complex issues that will build knowledge for future cycles.

Our understanding of these objectives is that water bodies, regardless of whether they have 'Poor' or 'High' status, should be treated the same in terms of the level of protection and mitigation measures employed.

As discussed in Section 2.2 below, there are some Heavily Modified Water Bodies (HMWBs) in the vicinity of the Application Site, associated with the Grand Canal. According to the Water Action Plan 2004 HMWBs are bodies of water which have been substantially changed in physical character as a result of alterations by human activity for the purposes of a specified use. In this context, physical alterations mean changes to the hydromorphology of the water body, for example, the size, slope, form, shape and function of a riverbed and its banks, and its flow or water level regime. The specified uses include water storage and regulation for drinking supply and power generation, navigation, flood protection, drainage for protection of agricultural lands, and urban development.

HMWBs have a WFD environmental objective of Good Ecological Potential (GEP) rather than Good Ecological Status (GES). The designation means that a realistic objective is set that acknowledges that the water body has been physically altered for a specified use that society requires to continue. HMWBs cannot achieve GES due to their alterations, and so must be considered in a different way to an unmodified water body. Therefore, the target GEP objective allows for the fact that the hydromorphology of the water body has been modified to facilitate the specified use.

2. WATER BODY IDENTIFICATION AND CLASSIFICATION

2.1 INTRODUCTION

This section identifies those surface water bodies (SWBs), HMWBs, groundwater bodies (GWBs) and protected areas with potential to be affected by the historic peat extraction and ancillary activities and proposed remedial measures and reviews any available WFD information.

2.2 SURFACE WATER BODY IDENTIFICATION

Regionally the vast majority of the Application Site is located in the River Barrow surface water catchment within Hydrometric Area 14 of the South Eastern River Basin District. A small area in the north of the Ticknevin Bog located in the River Boyne surface water catchment within Hydrometric Area 07 of the Eastern River Basin District.

Regionally, within the River Barrow surface water catchment, the Application Site is located in 3 no. river sub-catchments. The majority of the Application Site is located within the Figile_SC_010 river sub-catchment, the southwest of the Application Site is located within the Figile_SC_020 river sub-catchment and the south and southeast are located within the Slate_SC_010 river sub-catchment.

Within the Figile_SC_010 river sub-catchment, the Application Site is mapped in 3 no. WFD river sub-basins: the Abbeylough_010, Figile_020 and Figile_030 WFD river sub-basins.

- Within the Abbeylough_010 WFD river sub-basin, the Abbeylough Stream (Abbeylough_010 SWB) flows to the west along the northern boundary of Derrybrennan Bog where it discharges into the Figile River (Figile_020 SWB).
- Within the Figile_020 WFD river sub-basin, the Figile_020 SWB flows to the west, between Glashabaun South and Glashabaun North bogs. A tributary of the Figile River, referred to by the EPA as the Lullymore East Stream is mapped to flow to the west from the western boundary of Lodge Bog. This stream dissects the northern sections of Lullymore and Lullybeg bogs and forms the boundary between Blackriver Bog to the west and Glashabaun South Bog to the east before it discharges into the Figile River. A smaller stream, referred to by the EPA as the Lullybeg Stream, flows around the eastern, southern and western perimeter of Lullybeg Bog before it discharges into the Lullymore East Stream. Another stream, assigned the same name on the EPA database, flows from south to north through the western section of Blackriver Bog before it discharges into the Figile River. All watercourses within this sub-basin form part of the Figile_020 SWB.
- Within the Figile_030 WFD river sub-basin, the Figile_030 SWB flows to the northwest, separating Codd 1 in the south from Codd 2 in the north. A small tributary of the Figile River, the Clonbrown Stream is mapped to flow to the north along the eastern boundary of Ballydermot North Bog before it discharges into the Figile River close to the east of Codd 1 Bog. The EPA also map a stream referred to as the Cloncant Stream to flow to the southwest, dissecting Codd 2 Bog before discharging into the Figile River. Further north, Ticknevin Bog is drained by 2 unnamed no. streams which merge at its southern boundary to form the Codd Stream. The Codd Stream flows to the south, along the northwestern boundary of Glashabaun North before it flows to the west and discharges into the Ballyleakin Stream. This stream discharges into the Figile River to the northwest of Codd 1 Bog. All watercourses within this sub-basin form part of the Figile_030 SWB.

Within the Figile_SC_020 river sub-catchment, the Application Site is mapped within the Figile_050 WFD river sub-basin. Within this WFD river sub-basin Figile River is mapped to flow to the south ~1.6km west of the Application Site. Several streams are mapped to originate at the western boundary of the Application Site. The Clonbulloge Stream to the west of Ballydermot North Bog and the Ballygarrett Stream to the west of Ballydermot South Bog. These streams merge just upstream of their confluence with the Figile River and form part of the Figile_050 SWB.

Within the Slate_SC_010 river sub-catchment, the Application Site is mapped within the Slate_050 and Slate_060 WFD river sub-basins. Within the Slate_050 WFD river sub-basin, the Killinagh Upper Stream is mapped to flow along the southeastern boundary of Lodge Bog before it discharges into the Slate River. A second tributary of the Slate River is mapped to originate at the western boundary of Lodge Bog, referred to by the EPA as the Drumsru Stream. The Slate River flows to the southwest, ~80m from the south of Lodge Bog. Within the Slate_060 WFD river sub-basin, the Slate River is located ~1km south of Barnaran Bog. There are no watercourses mapped in the immediate vicinity of the Application Site within this WFD river sub-basin.

Further downstream, the Slate River (Slate_060 SWB) flows through Rathangan, before the Slate_070 SWB discharges into the Figile River (Figile_080 SWB) ~6.6km southwest of the Application Site. The Figile_080 SWB continues to flow to the south before it discharges into the River Barrow (Barrow_090 SWB) to the north of Monasterevin.

Within the River Boyne surface water catchment, the Application Site is located within the Boyne_SC_010 river sub-catchment and the Boyne_010 WFD river sub-basin. The Clonkeen Stream, which forms part of the Boyne_010 SWB, is mapped to flow along the northern boundary of Ticknevin Bog before it flows to the northwest and discharges into the River Boyne ~2km north of the Application Site. The River Boyne continues to flow to the northwest before it veers to the northeast close to its confluence with the Yellow River (~7km northwest of the Application Site).

The Grand Canal HMWB is also located in close proximity to the Application Site. The Grand Canal Main Line (Boyne) HMWB is located to the north of Ticknevin Bog whilst the Grand Canal Main Line East (Barrow) HMWB is located to the east and the Grand Canal Barrow Line HMWB is to the south of the Application Site (and to the south of the Slate River).

Table A presents the catchment area of those water bodies in the vicinity and downstream of the Application Site. The Abbeylough_010 SWB in the vicinity of the Application Site has the smallest catchment area of 11.21km². The catchment area for the water bodies increases progressively downstream as more tributaries discharge into the Figile, Slate and Barrow rivers. For example, the Barrow_110 SWB downstream of Monasterevin has a total catchment area of 1,118.27km².

In addition, **Table A** presents the area of the Application Site which drains to each water body and presents this area as a percentage of the total catchment area for that water body. This helps identify those SWBs which are most susceptible to potential impacts from the application site. For example, the Application Site is 56.70% of the total catchment area of the Figile_030 SWB but only 3.29% of the total catchment draining to the Barrow River near Athy (Barrow_130 SWB). Therefore, those water bodies which are located in close proximity to the Application Site are more susceptible to water quality impacts as a result of peat extraction and ancillary activities. The potential for the peat extraction and ancillary activities to impact a water body decreases progressively downstream due to the increase in flow volumes.

Figure A below is a local hydrology map of the area.

Table A: Downstream Catchment Size

WFD River Sub-Basin	Total Catchment Area (km ²)	Area of Application Site Mapped to Drain to Water Body (km ²)	Application Site as % Area of Catchment
Barrow River Catchment			
Abbeylough	11.21	2.06	19.63
Figile_020	45.22	21.46	49.09
Figile_030	74.43	41.01	56.70
Figile_040	246.75	41.01	16.29
Figile_050	260.78	43.66	16.41
Figile_060	291.54	43.66	14.68
Figile_070	301.84	43.66	14.18
Slate_050	140.07	3.2	2.29
Slate_060	173.93	10.2	5.89
Slate_070	215.45	10.2	4.75
Figile_080	622.66	53.86	8.52
Barrow_090	1058.73	53.86	5.01
Barrow_100	1094.39	53.86	4.85
Barrow_110	1118.27	53.86	4.74
Barrow_120	1558.89	53.86	3.40
Barrow_130	1614.25	53.86	3.29
Boyne River Catchment			
Boyne_010	47.01	0.62	1.2
Boyne_020	69.13	0.62	0.9

2.2.1 Site Drainage

Due to the peat extraction activities at the Application Site, the site has been artificially drained in order to lower the peat water table. Drainage ditches were first inserted into the upper surface of each of the bogs comprising the Application Site prior to the commencement of peat extraction. The timing of drainage insertion varied across the Application Site with Killina, Lullybeg and Lullymore being the first bogs to be drained in 1935. The latest bogs to be drained were Ticknevin and Codd 2 which had been drained by 1973.

Currently surface water (or runoff water) is drained from the Application Site via a network of field drains typically spaced at 15 to 20m intervals, piped drains, main drains, headland drains, and silt ponds. Much of the site is drained by gravity however there are 15 no. pumping stations located around the Application Site. These include pumping stations in each of the following bogs; Ticknevin Bog, (P37/010), Glashabaun North Bog(P37/008),Codd 1 Bog (P37/014), Ballydermot South (P37/011), Ballydermot North Bog (P37/012), Blackriver Bog (P37/007) and Lodge Bog (P17/013). Following peat extraction activities, drainage by gravity in these areas of the site was no longer feasible as the water level in the surrounding streams were higher than the water level within the site. The field drains discharge to main drains which flow via gravity, or are pumped, towards the perimeter of the site where they discharge to larger headland drains. These headland drains eventually discharge to large silt (settlement) ponds. The silt ponds are used to trap sediment and prevent elevated levels of suspended sediment arising in effluent from the drained peatland. Treated surface water is then discharged at outfall points where the effluent flows into off-site drainage channels which in turn discharge into the local stream and river network.

Drainage of the Application Site is currently operating under licence from the EPA (P0503-01). The drainage system has been operating in accordance with this existing Integrated Pollution Control (IPC) licence, with all drainage water from the bogs being discharged via an appropriately designed silt pond treatment arrangement.

A detailed hydrological audit of flowpaths from each bog to its eventual discharge point at the regional catchment scale was completed for each of the bogs comprising the Application Site. The drainage system is summarised in chapter 8 of the rEIAR.

Importantly, the artificial drainage system means that drainage has been modified and drainage may not in all cases be directed to the closest SWB. There are a total of 26 no. surface water discharge locations across the Application Site. Despite some of the Application Site being mapped in the River Boyne catchment, there are no surface water outfalls within this area of the bog.

The discharge locations are situated downstream of settlement ponds, with the treated and attenuated water from the bog drainage system being discharged to outfall drains which in turn discharge to local watercourses. The vast majority of the bogs comprising the site discharge directly into the Figile River or smaller tributary streams which in turn discharge into the Figile River. Meanwhile, the drainage from Lodge Bog discharges into a local stream which is a tributary of the Slate River. Downstream of the Application Site the Slate River also discharges into the Figile River. Therefore, all surface waters from the Application Site eventually end up in the Figile River, and the River Barrow further downstream.

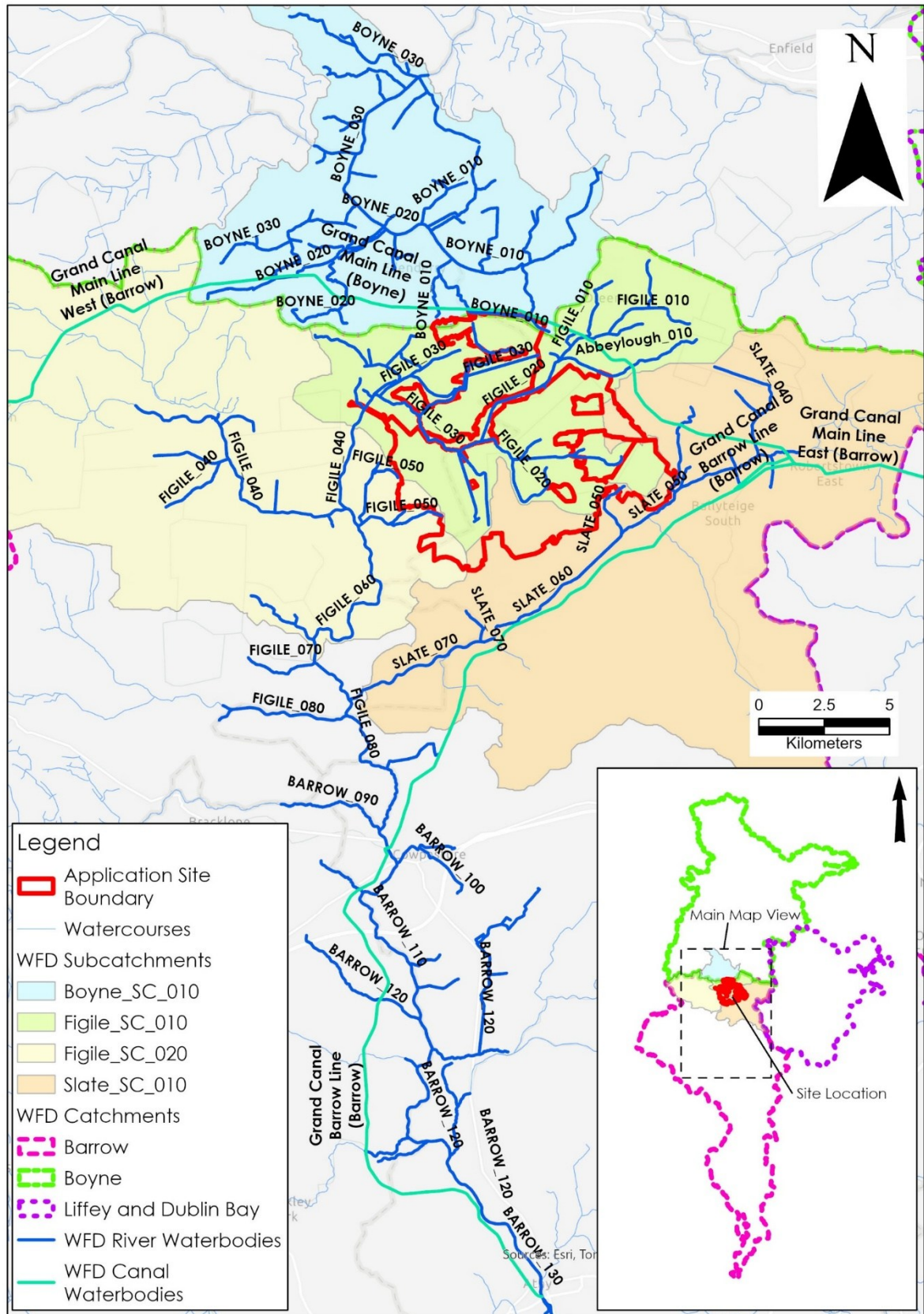


Figure A: Hydrological Setting and Downstream Surface Water Bodies

2.3 SURFACE WATER BODY CLASSIFICATION

A summary of the WFD status and risk result for SWBs downstream of the Application Site are shown in **Table B**. The overall status is based on the ecological, chemical and quantitative status of each SWB.

Local Groundwater Body (GWB) and Surface water Body (SWB) status information is available from (www.catchments.ie).

Within the Figile_SC_010 river sub-catchment, the status of the Abbeylough_010 SWB improved from "Poor" (2013-2018) to "Moderate" (2016-2021 and 2019-2024) while the status of the Figile_010 SWB (upstream of the Application Site) was "Poor" in all WFD cycles. The Figile_020 and Figile_030 SWBs have remained at "Moderate" status across all WFD cycles. These SWBs are 'at risk' of failing to achieve their respective WFD objectives. Peat drainage and extraction is identified as significant pressure on the Abbeylough_010, Figile_020 and Figile_030 SWBs. Hydromorphology, industry, urban wastewater and peat drainage and extraction are identified significant pressures on the Figile_010 SWB upstream of the Application Site.

The Figile_010 SWB, located upstream of the Application Site achieved "Poor" status in all WFD cycles, is deemed to be 'at risk' and is listed as being under significant pressure from peat extraction activities. Given its location upstream of the Application Site, the peat extraction and ancillary activities cannot be attributed to contributing to this "Poor" status. The WFD status of the Figile_020 and Figile_030 SWBs, in the immediate vicinity of the Application Site and downstream of the Figile_010 SWB have never achieved "Poor" status. These SWBs are of "Moderate" status and therefore WFD status improves in the vicinity of the Application Site in comparison to that recorded upstream.

Within the Figile_SC_020 river sub-catchment, the status of Figile_040 SWB declined from "Moderate" (2013-2018 and 2016-2021) to "Poor" (2019-2024) status. The Figile_050 SWB declined from "Good" (2013-2018) to "Poor" (2016-2021 and 2019-2024) status whilst the status of the Figile_060 SWB was "Good" in all WFD cycles. The Figile_040 and the Figile_050 SWBs are 'at risk' of failing their WFD objectives while the Figile_060 SWB is 'not at risk'. Peat drainage and extraction is identified significant pressure on Figile_040 SWB while agriculture and peat drainage and extraction are identified significant pressures on the Figile_050 SWB.

There are no surface water outfalls from the Application Site to the Figile_040 SWB. The deterioration in status between the Figile_030 and the Figile_040 SWBs likely results from water quality issues in the catchment of the Esker Stream. This stream drains several areas of cutover bog which are located to the east of Daingean and the stream discharges into the Figile River near Clonbullogue.

Within the Slate_SC_010 river sub-catchment, the Slate_050 to 070 SWBs achieved "Moderate" status in the 3 no. latest WFD cycles and are 'at risk' of failing to achieve their WFD objectives. Hydromorphology and peat drainage and extraction are identified as the significant pressures on the Slate_050 SWB, urban run-off is the identified significant pressure on the Slate_060 SWB and agriculture, hydromorphology, urban wastewater and peat drainage and extraction are the identified significant pressures on the Slate_070 SWB.

The Slate_040 SWB, located upstream of the Application Site achieved "Poor" status in all WFD cycles, is deemed to be 'at risk' and is listed as being under significant pressure from peat extraction activities. Given its location upstream the peat extraction and ancillary activities at the Application Site cannot be attributed to contributing to this "Poor" status. The WFD status of the Slate_050 and Slate_060 SWBs, in the immediate vicinity of the Application Site and downstream of the Slate_040 SWB have never achieved "Poor" status. These SWBs are of "Moderate" status and therefore WFD status improves in the vicinity of the Application Site in comparison to that recorded upstream.

Within the Boyne_SC_010 river sub-catchment, the status of the Boyne_010 SWB declined from "Moderate" to "Poor" status in the latest cycle. The status of the Boyne_020 SWB declined from "Moderate" (2013-2018) to "Poor" (2016-2021) before it improved to "Moderate" (2019-2024). The status of the Boyne_030 SWB improved from "Moderate" (2013-2018) to "Good" (2016-2021 and 2019-2024). The Boyne_010 and Boyne_020 SWBs are 'at risk' of failing to achieve their WFD objectives while the Boyne_030 SWB is 'not at risk'. Domestic wastewater, hydromorphology and peat drainage and extraction are identified significant pressures on the Boyne_010 SWB. Agriculture, hydromorphology and urban run-off are identified significant pressures on the Boyne_020 SWB.

In terms of HMWBs in the vicinity of the Application Site, the Grand Canal Main Line (Boyne), Grand Canal Main Line East (Barrow) and the Grand Canal Barrow Line all achieved Good Ecological Potential in the 3 no. recent WFD cycles. The Grand Canal Main Line (Boyne) and the Grand Canal Main Line East (Barrow) are not at risk whilst the risk status of the Grand Canal Barrow Line is under review.

The SWB status for the 2019-2024 WFD cycle are shown on **Figure B**.

Table B: Summary WFD Information for Local Surface Water Bodies

SWB	Overall Status 2010-2015	Overall Status 2013-2018	Overall Status 2016-2021	Overall Status 2019-2024	Risk Status 3 rd Cycle	Pressures
Barrow River Catchment						
Abbeylough_010	Unassigned	Poor	Moderate	Moderate	At risk	Peat
Figile_010 (upstream of Application Site)	Poor	Poor	Poor	Poor	At risk	Hydromorphology, industry, urban wastewater & peat
Figile_020	Moderate	Moderate	Moderate	Moderate	At risk	Peat
Figile_030	Moderate	Moderate	Moderate	Moderate	At risk	Peat
Figile_040	Moderate	Moderate	Moderate	Poor	At risk	Peat
Figile_050	Good	Good	Poor	Poor	At risk	Peat & agriculture
Figile_060	Good	Good	Good	Good	Not at risk	None
Figile_070	Unassigned	Unassigned	Good	Good	Under review	None
Slate_040 (upstream of Application Site)	Poor	Poor	Poor	Poor	At risk	Peat
Slate_050	Moderate	Moderate	Moderate	Moderate	At risk	Peat & hydromorphology
Slate_060	Moderate	Moderate	Moderate	Moderate	At risk	Urban run-off
Slate_070	Good	Moderate	Moderate	Moderate	At risk	Peat, urban wastewater, agriculture & hydromorphology
Figile_080	Unassigned	Moderate	Good	Good	Under review	None
Barrow_090	Poor	Poor	Poor	Poor	At risk	Urban run-off, hydromorphology & invasive species
Barrow_100	Unassigned	Moderate	Moderate	Moderate	At risk	Urban run-off, hydromorphology & urban wastewater
Barrow_110	Good	Good	Good	Good	Not at risk	None
Barrow_120	Good	Good	Good	Moderate	Not at risk	None
Barrow_130	Unassigned	Poor	Poor	Poor	Under review	None
Boyne River Catchment						
Boyne_010	Moderate	Moderate	Moderate	Poor	At risk	Domestic wastewater, Peat & river hydromorphology
Boyne_020	Moderate	Moderate	Poor	Moderate	At risk	Hydromorphology, urban runoff & agriculture

Boyne_030	Good	Moderate	Good	Good	Not at risk	None
Heavily Modified Water Bodies						
Grand Canal Main Line (Boyne)	Good Ecological Potential	Good Ecological Potential	Good Ecological Potential	Good Ecological Potential	Not at risk	None
Grand Canal Main Line East (Barrow)	Unassigned	Good Ecological Potential	Good Ecological Potential	Good Ecological Potential	Not at risk	None
Grand Canal Barrow Line	Good Ecological Potential	Good Ecological Potential	Good Ecological Potential	Good Ecological Potential	Under review	None

2.4 GROUNDWATER BODY IDENTIFICATION

The Application Site is underlain by several mapped bedrock geological formations including the Lucan Formation, Ballyadams Formation, Allenwood Formation, Waulsortian Limestones and Boston Hill Formation. The Lucan Formation is classified as Locally Important Aquifer - Bedrock which is Generally Moderately Productive (Lm) and Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones (LI). The Ballyadams Formation is classified as Regionally Important Aquifer - Karstified (diffuse) (Rkd) and the Waulsortian Limestones and Boston Hill Formation are classified as Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones (LI).

In terms of Groundwater Bodies (GWBs), the western part of the Application Site is mapped within the Cushina GWB (IE_SE_G_048), the central part of the Application Site is mapped within the Bagenalstown Upper GWB (IE_SE_G_153), the eastern part of the Application Site is mapped within the Kildare GWB (IE_SE_G_077) and the northern part of the Application Site is mapped within the Trim GWB (IE_EA_G_002).

2.5 GROUNDWATER BODY CLASSIFICATION

All GWBs in the vicinity and in the lands surrounding the Application Site achieved "Good" status in all WFD cycles (**Table C**). This status is defined based on the quantitative status and chemical status of each GWB.

All GWBs underlying the Application Site achieved 'Good' status in all WFD cycles (2010-2015, 2013-2018, 2016-2021 and 2019-2024). These GWBs have been deemed to be "not at risk" of failing to meet their respective WFD objectives except for Trim GWB which is "at risk". No significant pressures have been identified to be impacting upon the Cushina, Bagenalstown or Kildare GWBs. The Trim GWB is listed to be under significant pressure from agriculture, anthropogenic and domestic wastewater.

Table C: Summary WFD Information for Groundwater Bodies

Groundwater body	Status 2010-2015	Status 2013-2018	Status 2016-2021	Status 2019-2024	WFD 3 rd Cycle Risk Status	WFD Pressures
Cushina	Good	Good	Good	Good	Not at risk	None
Bagenalstown Upper	Good	Good	Good	Good	Not at risk	None
Kildare	Good	Good	Good	Good	Not at risk	None
Trim	Good	Good	Good	Good	At risk	Agriculture, anthropogenic & domestic wastewater

2.6 ZONE OF INFLUENCE

The zone of influence of the Application Site extends to the following SWBs, HMWBs and GWBs:

- River SWBs – Abbeylough_010, Figile_020 to Figile_080, Slate_050 to Slate_070, Grand Canal Main Line East (Barrow), Barrow_090 to Barrow_130 and Boyne_010 to Boyne_030 SWBs;
- GWBs – Cushina, Bagenalstown Upper, Kildare and Trim GWBs; and;
- HMWBs - Grand Canal Main Line (Boyne), Grand Canal Main Line East (Barrow) and the Grand Canal Barrow Line.

2.7 PROTECTED AREA IDENTIFICATION

The WFD requires that activities are also in compliance with other relevant legislation, as considered below.

The potential effect of the historic peat extraction and ancillary activities and the proposed remedial measures on nature conservation designated sites, bathing waters, nutrient sensitive areas (NSAs), shellfish areas and drinking water protected areas (DWPAs) are also included as part of the WFD Compliance Assessment.

2.7.1 Nature Conservation Designations

Within the Republic of Ireland designated sites include National Heritage Areas (NHAs), Proposed National Heritage Areas (pNHAs), candidate Special Areas of Conservation (SAC) and Special Protection Areas (SPAs).

The Long Derries, Edenderry SAC and pNHA (Site Code: 000925) partially overlaps with the Application Site (i.e. Glashabaun North). The Long Derries, Edenderry SAC/pNHA is located in the lands between the cutover bogs at Glashabaun North and Ticknevin. The SAC/pNHA comprises a gravel (esker) ridge which is designated for orchid-rich calcareous grasslands and supports several species of conservation interest (refer to Chapter 6). The Long Derries was formerly used as a BnM gravel pit during the construction of the railway network at the Application Site. The railway was constructed prior to 1988.

The Grand Canal pNHA (Site Code: 002104) is also mapped adjacent to the north of the Ticknevin Bog. The Application Site does not encroach upon the mapped extent of this pNHA.

The River Barrow and River Nore SAC (Site Code: 002162) is located ~9.8km southwest of the Application Site. This SAC is located downstream and downgradient of the Application Site. The length of the hydrological flowpath between the Application Site and the SAC is ~17km. The SAC is associated with the lower reaches of the Figile_080 SWB.

The River Boyne and River Blackwater SAC (Site Code: 002299) and SPA (Site Code: 004232) is located ~14km to the north of the Application Site. This SAC/SPA is downstream of the Application Site along the River Boyne. The length of the hydrological flowpath between the boundary of the Application Site and the SAC/SPA is ~22km. This SAC is associated with the Boyne_050 SWB. However, it is noted that there is no surface water outfall from the bog with this catchment. All water from Ticknevin Bog is directed to the south and discharges via several settlement ponds to the Codd Stream, a tributary of the Figile River.

Other designated sites within 10km of the Application Site are as follows:

- Carbury Bog NHA (Site Code: 001388), approx. 4.2km to the north of the Ticknevin Bog. This NHA is located upstream and upgradient of the Application Site;
- Ballina Bog (Site Code: 000390), approx. 9.9km north of the Ticknevin Bog. There is no hydrological connection between the Application Site and this pNHA;
- Black Castle Bog NHA (Site Code: 000570), approx. 6.2km northwest of the Ticknevin Bog. There is no hydrological connection between the Application Site and this NHA;
- Hodgestown Bog NHA (Site Code: 001393), approx. 7.8km east of the Derrybrennan Bog. There is no hydrological connection between the Application Site and this NHA;
- Ballynafagh Lake SAC and pNHA (Site Code: 001387), approx. 9.4km east of the Killina Bog. This SAC and pNHA is located upstream and upgradient of the Application Site;
- Ballynafagh Bog SAC and pNHA (Site Code: 000391), approx. 8.1km east of the Lodge Bog. This SAC and pNHA is located upstream and upgradient of the Application Site;

- Mounds Bog SAC and pNHA (Site Code: 002331), approx. 5.9km southeast of the Lodge Bog. There is no hydrological connection between the Application Site and this SAC and pNHA;
- Pollardstown Fen SAC and pNHA (Site Code: 000396), approx. 7.6km south of the Lodge Bog. This SAC and pNHA is located upstream and upgradient of the Application Site;
- Curragh (Kildare) pNHA (Site Code: 000392), approx. 8.5km southeast of the Lodge Bog. There is no hydrological connection between the Application Site and this SAC and pNHA; and,
- River Barrow and River Nore SAC (Site Code: 002162), approx. 9.8km southwest of the Ballydermot South Bog. This SAC is located downstream and downgradient of the Application Site.

2.7.2 Bathing Waters

Bathing waters are those designated under the Bathing Water Directive (76/160/EEC) or the later revised Bathing Water Directive (2006/7/EC).

There are no bathing water sites located in the vicinity of the Application Site.

2.7.3 Nutrient Sensitive Areas

Nutrient Sensitive Areas (NSA) 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). Sensitive areas under the UWWTD are water bodies affected by eutrophication associated with elevated nitrate concentrations and act as an indication that action is required to prevent further pollution caused by nutrients.

There are no NSAs in the immediate vicinity of the Application Site. The closest NSA is the Barrow_090 to Barrow_130 located downstream of the Application Site. The length of the hydrological flowpath from the Application Site to the NSA is ~22.4km.

2.7.4 Shellfish Waters

The Shellfish Waters Directive (2006/113/EC) aims to protect or improve shellfish waters in order to support shellfish life and growth.

There are no designated shellfish protected areas in the vicinity or downstream of the Application Site.

2.7.5 Salmonid Waters

There are no designated salmonid waters within the vicinity of the Application Site within the Barrow Catchment. The River Boyne is listed as a salmonid protected watercourse. However, as stated previously there is no surface water outfall from the Application Site to the River Boyne or its tributaries.

2.7.6 Drinking Water

There are no surface water DWPA's in the vicinity of the Application Site. The nearest surface water DWPA downstream of the Application Site is the Barrow_130 SWB. This DWPA is associated with the Tegral Building Products Limited for industrial use and Uisce Éireann's abstraction for the Barrow Water Supply. The maximum daily abstraction volume for Tegral Building Products Limited is 418m³/day and for Uisce Éireann is 40,850m³/day. The length of the hydrological flowpath between the Application Site and this DWPA is ~35km.

There are multiple GSI Public Supply Source Protection Areas and Group Scheme Preliminary Source Protection Areas in the vicinity of the Application Site and these are seen in **Table D**

below. The Ballykilleen NFGWS has 3 no. of boreholes mapped to be present in the centre of the designated water protection zone. This is the means in which the water is obtained from the groundwater.

Meanwhile, all GWBs are listed as DWPAs.

Table D: Water Supply Scheme in the vicinity of the Application Site

Name of DWPA	GWB	Distance from Site to Source Protection Area
Clonbulloge PWS	Cushina	~0.5km to the west
Ballykilleen NFWGS	Cushina / Trim	~0.8km to the west
Bracknagh Rech	Bagenalstown Upper	~0.5km to the south
Edenderry PWS	Trim	~1.8km to the northwest
Roberstown PWS	Kildare / Dublin	~5.5km to the east
Rathangan PWS	Bagenalstown Upper / Kildare	~3.3km to the south

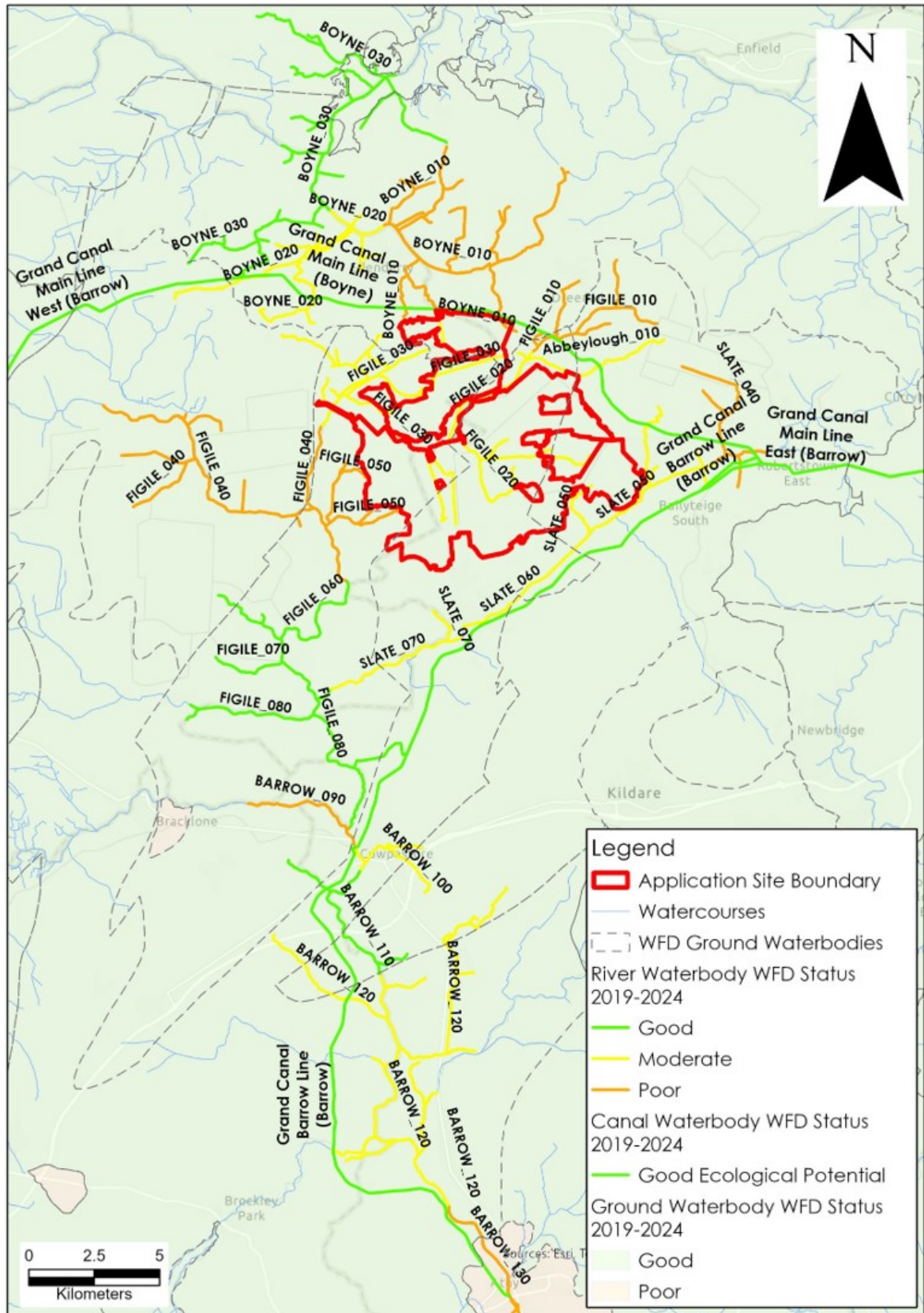


Figure B: WFD Groundwater and Surface Water Body Status (2019-2024)

3. WFD SCREENING

3.1 SURFACE WATER BODIES

With consideration for peat extraction and ancillary activities, and the Draft Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site, it is considered that the Abbeylough_010, Figile_020, _030, _050, _060, Slate_050 to Slate_060 and Boyne_010 SWBs are included in the WFD Compliance Assessment due to the location of the Application Site within these WFD river sub-basins. Further downstream the Figile_040, 070 and 080, Slate_070 and Boyne_020 SWBs are included in the WFD Compliance Assessment due to their proximal location downstream of the Application Site.

Further downstream, the River Barrow (Barrow_090 to _130 SWBs) has been screened out of the WFD Compliance Assessment due to its distant location from the Application Site and the significant volumes of water within the River Barrow. The significant flows are associated with the large upstream catchment area of the River Barrow (refer to **Table A**). Neither peat extraction and ancillary activities nor the Draft Cutaway Bog Decommissioning and Rehabilitation Plans have no potential to cause a deterioration in the status of these screened out SWBs and/or jeopardise their attainment of good surface water status.

Within the River Boyne Catchment, the Boyne_030 SWB has also been screened out due to its distant location from the Application Site. Note that the Boyne_010 and Boyne_020 SWBs are included for the purposes of a conservative assessment as the Application Site is mapped in the Boyne_010 WFD river sub-basin. However, as detailed in Section 2.2.1 above, there is no surface water outfall from the Application Site to this catchment.

With respect to the HMWBs in the vicinity of the Application Site, the Grand Canal Main Line (Boyne), Grand Canal Main Line East (Barrow) and the Grand Canal Barrow Line have been screened out of the WFD Compliance Assessment due to the lack of hydrological connection to these canal water bodies. The canal crosses many of the local rivers and streams by culverts or aqueducts and is not connected to the streams draining the Application Site. The streams draining the Application Site discharge into the Slate and Figile rivers rather than the Grand Canal.

3.2 GROUNDWATER BODIES

With respect to GWBs, the Cushina, Bagenalstown Upper, Kildare and Trim GWBs will be carried through to the WFD Compliance Assessment due to their proximal location directly underlying the Application Site.

3.3 PROTECTED AREAS

The Long Derries, Edenderry SAC/pNHA overlaps with the Application Site and will be carried through to the WFD Compliance Assessment. The Grand Canal pNHA is also included for the purposes of a conservative assessment.

All other designated sites have been screened out of the WFD Compliance Assessment due to the lack of hydrological and/or hydrogeological connectivity with the Application Site.

The GWB DWPA's are included in the WFD Compliance Assessment and are assessed in the overall assessment with regards to the Cushina, Bagenalstown Upper, Kildare and Trim GWBs.

The Barrow_130 SWB has been screened out due to its distant location from the Application Site. The Boyne salmonid waters are included for the purposes of a conservative assessment despite the lack of any surface water discharge to the River Boyne or its tributaries.

3.4 WFD SCREENING SUMMARY

A summary of WFD Screening discussed above is shown in **Table E**.

Table E: Screening of WFD water bodies

Type	WFD Classification	Water Body Name/ID	Inclusion in Assessment	Justification
Surface Water Body	River	Abbeylough_010	Yes	The Application Site is mapped within the Abbeylough_010 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_020	Yes	The Application Site is mapped within the Figile_020 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_030	Yes	The Application Site is mapped within the Figile_030 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_040	Yes	The Figile_040 SWB is located downstream of the Figile_030 SWB and in close proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_050	Yes	The Application Site is mapped within the Figile_050 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_060	Yes	The Figile_060 SWB located downstream of the Figile_050 SWB and in close proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_070	Yes	The Figile_070 SWB is located downstream of the Figile_060 SWB and in close proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Figile_080	Yes	The Figile_080 SWB is located downstream of the Figile_070 SWB and in close proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.

Type	WFD Classification	Water Body Name/ID	Inclusion in Assessment	Justification
	River	Slate_050	Yes	The Application Site is mapped within the Slate_050 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Slate_060	Yes	The Application Site is mapped within the Slate_060 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Slate_070	Yes	The Slate_070 SWB is located downstream of the Slate_060 SWB and in close proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Barrow_090	No	The Barrow_090 SWB has been screened out due to its distant location from the Application Site (~10.5km) and the large volumes of water within the River Barrow.
	River	Barrow_100	No	The Barrow_100 SWB has been screened out due to its distant location from the Application Site (~11 km) and the large volumes of water within the River Barrow.
	River	Barrow_110	No	The Barrow_110 SWB has been screened out due to its distant location from the Application Site (~11.5km) and the large volumes of water within the River Barrow.
	River	Barrow_120	No	The Barrow_120 SWB has been screened out due to its distant location from the Application Site (~15.5km) and the large volumes of water within the River Barrow.
	River	Barrow_130	No	The Barrow_130 SWB has been screened out due to its distant location from the Application Site (~25km) and the large volumes of water within the River Barrow.
	River	Boyne_010	Yes	The Application Site is mapped within the Boyne_010 river sub-basin. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Boyne_020	Yes	The Boyne_020 SWB is located downstream of the Boyne_010 SWB and in close proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SWB.
	River	Boyne_030	No	The Boyne_030 SWB has been screened out due to the increasing volumes of water within the River Boyne and the lack of any surface water emission from the Application Site in this catchment.
	Canal	Grand Canal Main Line (Boyne)	No	This canal SWB has been screened out due to the lack of hydrological connection to the Application Site.

Type	WFD Classification	Water Body Name/ID	Inclusion in Assessment	Justification
	Canal	Grand Canal Main Line East (Barrow)	No	This canal SWB has been screened out due to the lack of hydrological connection to the Application Site.
	Canal	Grand Canal Barrow Line	No	This canal SWB has been screened out due to the lack of hydrological connection to the Application Site.
Groundwater Body	Groundwater	Cushina	Yes	The Application Site is mapped to overlie the Cushina GWB. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this GWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this GWB.
	Groundwater	Bagenalstown Upper	Yes	The Application Site is mapped to overlie the Bagenalstown Upper GWB. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this GWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this GWB.
	Groundwater	Kildare	Yes	The Application Site is mapped to overlie the Kildare GWB. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this GWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this GWB.
	Groundwater	Trim	Yes	The Application Site is mapped to overlie the Trim GWB. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this GWB. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this GWB.
Protected Areas	Nature Conservation Designations	Long Derries, Edenderry SAC and pNHA	Yes	The Application Site overlaps with the SAC/pNHA. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this SAC/pNHA. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this SAC/pNHA.
		Grand Canal pNHA	Yes	The pNHA is included for the purposes of a conservative assessment due to its proximity to the Application Site. An assessment is required to consider the potential impacts that peat extraction and ancillary activities have had on this pNHA. Similarly, an assessment is required to consider the potential impacts of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans on this pNHA.
		Carbury Bog NHA	No	The Carbury Bog NHA is located upstream and upgradient of the Application Site. Therefore, the historic or proposed activities have no potential to impact the pNHA.
		Ballina Bog pNHA	No	The Ballina Bog pNHA is not hydrologically connected to the application site. Therefore, the historic or proposed activities have no potential to impact the pNHA.
		Black Castle Bog NHA	No	The Black Castle Bog NHA is not hydrologically connected to the Application Site. Therefore, the historic or proposed activities have no potential to impact the NHA.
		Hodgestown Bog NHA	No	The Hodgestown Bog NHA is not hydrologically connected to the Application Site. Therefore, the historic or proposed activities have no potential to impact the NHA.

Type	WFD Classification	Water Body Name/ID	Inclusion in Assessment	Justification
		Ballynafagh Lake SAC and pNHA	No	The Ballynafagh Lake SAC and pNHA is located upstream and upgradient of the Application Site. Therefore, the historic or proposed activities have no potential to impact the SAC and pNHA.
		Ballynafagh Bog SAC and pNHA	No	The Ballynafagh Bog SAC and pNHA is located upstream and upgradient of the Application Site. Therefore, the historic or proposed activities have no potential to impact the SAC and pNHA.
		Mounds Bog SAC and pNHA	No	The Mounds Bog SAC and pNHA is not hydrologically connected to the Application Site. Therefore, the historic or proposed activities have no potential to impact the SAC and pNHA.
		Pollardstown Fen SAC and pNHA	No	The Pollardstown Fen SAC and pNHA is located upstream and upgradient of the Application Site. Therefore, the historic or proposed activities have no potential to impact the SAC and pNHA.
		Curragh (Kildare) pNHA	No	The Curragh (Kildare) pNHA is not hydrologically connected to the application site. Therefore, the historic or proposed activities have no potential to impact the pNHA.
		River Barrow and River Nore SAC	No	The River Barrow and River Nore SAC has been screened out due to distant location and increase volume of water within the associated SWB. Therefore, the historic or proposed activities have no potential to impact the SAC.
	Nutrient Sensitive Area	Barrow_090 to 130 NSA	No	The Barrow_090 to 130 NSA has been screened out due to its distant location from the Application Site and the increasing volumes of water within the River Barrow.
	Drinking Water Protected Area	Barrow_130	No	The Barrow_130 DWPA has been screened out due to its distant location from the Application Site (~25km) and the increasing volumes of water within the River Barrow.
	Salmonid Waters	River Boyne	Yes	This is included for the purposes of a conservative assessment due to its proximal location to the Application Site.

4. WFD COMPLIANCE ASSESSMENT (ASSESSING THE EFFECT OF PREVIOUS ACTIVITIES)

4.1 PEAT EXTRACTION ACTIVITIES (PRE-2003)

The Application Site has been subject to drainage and peat extraction activities since 1935, i.e. for more than 65 years before the WFD existed.

The primary hydrological and hydrogeological changes associated with the peat extraction processes occurs during the initial drainage of the bog in advance of peat extraction. Constructed drainage ditches drained the upper surface of the bog by lowering the local peat water table. At this time, ancillary features were also constructed including railway infrastructure, workshops, works offices, welfare facilities, fuel storage, machine storage sheds, storage containers, local holding areas, a tiphead, peat loading bay and bagging plant, internal machine passes/tracks and drainage infrastructure (drains, silt ponds and pumps). After the Application Site was drained, vegetation was removed from the bog surface, leaving only bare peat fields between the drains. During the Peat Extraction Phase, only minimal land use change occurs which predominantly relate to minor annual topographic changes (i.e., lower ground levels) caused by ongoing peat extraction.

The timing of the initial site preparation works (vegetation clearance and drainage insertion) varied across the Application Site. The site preparation works were first commenced in 1935 at Lullymore, Lullybeg and Killina bogs, whilst the last bogs within the Application Site on which site preparation works were commenced were Codd 2 and Ticknevin Bog in 1973 (estimated date based on available aerial imagery). Peat extraction also commenced at Lullymore, Lullybeg and Killina bogs in 1935, with these bogs being the first to be subject to extraction. Codd 2 and Ticknevin were the last bogs within the Application Site on which peat extraction commenced in 1981 (estimated date based on available aerial imagery). Peat extraction ceased at the Application Site in 2020, though it had ceased some time prior to 2020 at Lullymore (1992), Lullybeg (2004), Derrybrennan (2015), Ticknevin and Codd 2 bogs (2019).

Prior to 2000, peat extraction and ancillary activities were not subject to IPC Licence controls. However, management of silt in discharges was always implemented, and this became formalised in the 1970s with the setting up of the silt committees within BnM. Also, since 1988, environmental monitoring and control measures in the form of silt ponds have been utilised at the Application Site with the aim of minimising the concentrations of suspended solids entering local watercourses.

Due to the nature of peat extraction and ancillary activities being near-surface activities, impacts on groundwater are generally negligible. Any groundwater impacts will be contained within the bog basin which is typically isolated from the underlying bedrock groundwater body due to a substantial thickness of impermeable lacustrine deposits which underlies the basin peat. Therefore, surface water is the main sensitive receptor. The primary risks to groundwater at the Application Site was from cementitious materials, hydrocarbon spillage and leakages, and wastewater systems installed at welfare facilities across the bogs. The primary risk to surface waters will be entrained suspended sediments (peat and soil particles) in site runoff during peat extraction works along with potential hydrocarbon spillages and leakages.

There is no requirement to assess the peat extraction and ancillary activities at the Application Site with respect to the WFD which pre-date 2003 (i.e. the required transposition year of the WFD Directive into Irish Law).

However, for completeness and in order to describe the baseline environment we provide a brief discussion on the potential impacts of peat extraction on water quality and water quantity and present the available water quality data for this period.

4.1.1 Effects

4.1.1.1 Surface Water Quantity/Quality Effects from Bog Drainage

Peat in its natural state can act as a sponge providing storage of water after rainfall. However, with the implementation of bog drainage, the water levels in the peat bog were lowered and the capacity of the bog to store water was reduced. The available water storage within the bog would have provided a small buffer for downstream flooding. However, following drainage, surface runoff rates from the Application Site would have increased slightly causing downstream rivers and streams to become flashier (faster and higher flood peaks). However, drainage from the bog is regulated by the shallow (low gradient) nature of the drainage, and by routing all bog drainage via field drains, main drains, headland drains, pumps (where required) then from silt ponds to outfalls, with final discharge to natural watercourses. The bog drainage network likely alters flow volumes entering downstream surface water bodies due to the increased connectivity of drains to the river network.

In terms of surface water quality, the primary potential negative impact on surface water quality would be the increase in suspended solid entrainment in surface water bodies. The greatest risk of suspended sediment entrainment occurs during times of major earthworks, such as during the removal of vegetation and the construction of the bog drainage network. During the WFD Assessment Period for the Peat Extraction Phase, there was an ongoing risk of elevated concentrations of suspended solids making their way into downstream surface watercourses from the erosion and transport of peat sediment via the bog drainage network. This potential pathway would have posed a significant risk to local surface water quality, particularly the Figile and Slate rivers and their tributaries. The largest potential negative water quality effect would have occurred in those surface water bodies directly downstream of the Application Site.

However, note that mitigation measures were in place pre-2003 to protect surface water quality in downstream waterbodies.

Prior to the regulation of activities at the Application Site (which form part of the Allen Bog Group), which commenced in 2000, the following measures were implemented:

- Internal drains cleaned on a regular basis in suitable weather. This was completed to remove sludge from the bottom of ditches, allowing them to retain full functionality. The sludge was disposed of by spreading it on the adjacent production fields where it was dried and harvested;
- Drain maintenance was carried out using draglines and excavators, ensuring that these drains were fit for purpose;
- Drain maintenance was carried out mainly prior to and post the harvesting season.
- Silt ponds were utilised to control the amount of sediment being discharged at outfalls. At this time, silt ponds were designed for an upper limit of 100mg/l suspended sediment;
- Silt ponds were upgraded in the 1990s to cater for the settling of sufficient amount of silt. This often included the construction of a second silt pond adjacent to the first, which was used as a backup and to facilitate desludging of the primary pond; and,
- Silt ponds were deslugged twice per annum.

The Application Site has been regulated by the EPA under IPC Licence Registration No. P0503-01 since 2000. Existing control measures which were implemented under the IPC licence (IPC Condition 6) are also designed to limit runoff rates from the bog units. These include:

- Silt ponds providing attenuation limited runoff during periods of intense rainfall; and,
- Continuous mitigation included maintaining the schedule of cleaning the silt ponds at a minimum of twice per year.

4.1.1.2 Contamination of Groundwater by Leakages and Spills

The accidental spillage of hydrocarbons or release of wastewater at the Application Site could potentially have caused effects on local groundwater quality. However, due to the local hydrogeological regime, and the isolated perched water table in the peat bog which is separated from the underlying regional groundwater table, it is considered that effects on groundwater were unlikely. Mitigation measures were also in place pre-2003 to protect groundwater quality and these are detailed in Section 8.6.2.1.3 of the rEIAR.

4.1.1.3 Contamination of Surface Waters by Leakages and Spills

Accidental spillage during refuelling of construction plant with petroleum hydrocarbons is a major pollution risk to surface water quality. The accumulation of small spills of fuels and lubricants during routine plant use can also be a pollution risk. Hydrocarbon has a high toxicity to humans, and all flora and fauna, including fish, and is persistent in the environment. It is also a nutrient supply for adapted micro-organisms, which can rapidly deplete dissolved oxygen in waters, resulting in the death of aquatic organisms.

Potential accidental wastewater discharges from on-site welfare facilities (tea stations and workshop/office facilities) have the potential to impact on groundwater and surface water quality. Runoff from concrete works can also impact on surface water and groundwater quality.

Furthermore, discharges from wastewater systems (septic tanks) at office buildings, and at welfare facilities and workshops could potentially have caused surface water contamination. Ancillary features were also constructed including railway infrastructure, workshops, works offices, welfare facilities, fuel storage, machine storage sheds, storage containers, local holding areas, a tiphead, peat loading bay and bagging plant, internal machine passes/tracks and drainage infrastructure (drains, silt ponds and pumps). These potential impacts existed across the Application Site.

However, note that mitigation measures were in place pre-2003 to protect surface water quality in downstream waterbodies. These are detailed in Section 8.6.2.1.3 of the rEIAR.

4.1.2 Baseline Water Quality

As the 1st WFD status was assigned to water bodies in 2010-2015, no WFD status exists for this period (pre-2003). However, the EPA have been completing ecological monitoring (Biological Q-rating monitoring) on local watercourses since the 1970s. The Biological Q-Value is a water quality rating system based on both the habitat and the invertebrate community assessment and is divided into status categories² (Q-values) ranging from 0-1 (Poor) to 4-5 (Good/High) (refer to **Table F**). These historic Q-values guide our estimates of the health of the water bodies during this period (pre-2003).

Table G presents a list of the consulted EPA Monitoring Stations, their location with respect to the Application Site and the WFD SWB within which the monitoring station is located.

Within the Slate River sub-catchment, the Slate River at Quigley's Bridge (RS14S010020) and Ford Bridge (RS14S010050) upstream of the Application Site (associated with the Slate_020 and Slate_040 SWBs respectively) were of Poor Q-status pre-2003. Further downstream at Agar Bridge (RS14S010100), associated with the Slate_050 which is downstream of Lodge Bog, the Q-status decreased from High Q-status in the early 1980s to Poor Q-status throughout the 1990s. Further downstream in Rathangan (RS14S010150, RS14S010200 and RS14S010210) the Q-status of the Slate River (Slate_060 SWB) was of Moderate Q-status prior to 2003. The Slate River at River Bridge (RS14S010300), associated with Slate_070 SWB, was of Good Q-status in the 1990s and early 2000s.

² Referred to hereinafter as 'Q-status' in order to differentiate between the EPA Q-Rating status, which is based solely on ecological parameters, and the WFD status which is a combination of ecological and chemical parameters.

Within the River Boyne sub-catchment, the River Boyne upstream of the Application Site (RS07B040100), associated with the Boyne_010 SWB, decreased from Good Q-status in the late 1980s to Poor and Moderate Q-status in the late 1990s and early 2000s. Downstream of the Application Site (RS07B040200 and RS07B040300) the River Boyne also experienced a deterioration in Q-status from the 1980s to the 1990s.

Within the Figile River sub-catchment, the Figile River upstream of the Application Site (RS14F010010 and RS14F010050) was of Bad and Poor Q-status prior to 2003. In the vicinity of the Application Site at Cushaling Bridge (RS14F010100), associated with the Figile_020 SWB, the Q-status decreased from Moderate Q-status in the late 1980s and early 1990s to Bad/Poor Q-status in the late 1990s and early 2000s. The Q-status of the Figile River at Kilcumber Bridge (RS14F010200) fluctuated between Poor and Moderate Q-status. Further downstream at Clonbullogue (RS14F010300), the Q-status of the Figile River (Figile_040 SWB) ranged from Moderate to Good and also achieved High Q-status in 2000. Meanwhile, the Q-status of the Figile River at Derrygarran (RS14F010400) deteriorated from Good Q-status in the late 1980s and early 1990s to Moderate Q-status in the late 1990s and early 2000s.

Table F: EPA Q-Rating System

EPA Q-Rating	EPA Q-Status	Pollution Status	Water Body Condition
Q5/Q4-5	High Q-Status	Unpolluted	Satisfactory
Q4	Good Q-Status	Unpolluted	Satisfactory
Q3-4	Moderate Q-Status	Slightly Polluted	Unsatisfactory
Q3/Q2-3	Poor Q-Status	Moderately Polluted	Unsatisfactory
Q2/Q1-2/Q1	Bad Q-Status	Seriously Polluted	Unsatisfactory

Table G: EPA Q-Monitoring Stations and WFD Water Bodies

EPA Q-Monitoring Station	EPA Q-Monitoring Station Code	Station Location with respect to Application Site	WFD River Water Body
Slate River Quigley's Bridge	RS14S010020	Upstream	Slate_020
Slate River – Ford Bridge	RS14S010050	Upstream	Slate_040
Slate River – Agar Bridge	RS14S010100	Downstream	Slate_050
Slate River – E Bridge Rathangan (opp church)	RS14S010150	Downstream	Slate_060
Slate River – 100m u/s bridge near Spencer Bridge	RS14S010200	Downstream	Slate_060
Slate River – 100m d/s bridge near Spencer Bridge	RS14S010210	Downstream	Slate_060
Slate River – River Bridge	RS14S010300	Downstream	Slate_070
Figile River – Bridge SW of Killeaskin	RS14F010010	Upstream	Figile_010
Figile River – Bridge south of Ticknevin Bridge	RS14F010050	Upstream	Figile_010
Figile River – Cushaling Bridge	RS14F010100	Downstream	Figile_020
Figile River – Kilcumber Bridge	RS14F010200	Downstream	Figile_030
Figile River – Bridge in Clonbulloge	RS14F010300	Downstream	Figile_040
Figile River – Derrygarran Bridge	RS14F010400	Downstream	Figile_050
Figile River – Ardra Bridge	RS14F010500	Downstream	Figile_060
River Boyne – River Bridge	RS07B040100	Upstream	Boyne_010
River Boyne – Boyne Bridge	RS07B040200	Downstream	Boyne_010
River Boyne – Kinnafad Bridge	RS07B040300	Downstream	Boyne_020

4.2 WFD ASSESSMENT PERIOD FOR THE PEAT EXTRACTION PHASE (2003 – JUNE 2020)

This phase includes all peat extraction and ancillary activities from the required transposition date of the WFD into Irish Law in 2003 to the formal cessation of peat extraction in June 2020. During this time period peat extraction and ancillary activities at the Application Site were completed under the conditions set out in IPC Licence No. P0503-01. This IPC Licence came into effect in 2000 and upgraded and enhanced several pre-existing environmental monitoring and control measures which had been implemented at the Application Site since and pre-1988 (refer to Section 4.7 of rEIAR Chapter 4 for a complete description of the measures). These pre-IPC measures largely included the incorporation of silt ponds into the bog drainage system to minimise the concentrations of suspended solids entering local watercourses. Further amendments were made to the IPC Licence conditions in 2003 following the transposition of

the WFD into Irish Law. Therefore, throughout this phase peat extraction and ancillary activities, have been operating under strict conditions designed to protect downstream water quality and quantity.

As the 1st WFD cycle was completed in 2010-2015, no WFD status exists for the first half of this period (2003-2010). However, EPA Q-values are available for this time period and are presented in **Figure C**.

The Biological Q-monitoring data shows that the Q-values on the Slate River upstream of the Application Site (RS14S010020 and RS14S010050) remained at Bad or Poor Q-status throughout this period. The Q-ratings improve further downstream where the Slate River at Agar Bridge (RS14S010100) achieved Poor to Moderate Q-status during this period. Slight improvements in Q-status were recorded in the Slate River at Rathangan during this period (RS14S010100 and RS14S010150). Within the River Boyne sub-catchment the Q-ratings range from Moderate to Good Q-status, representing an improvement from the ratings obtained in the late 1990s and early 2000s. Within the Figile River sub-catchment, the Figile River achieved Poor Q-rating throughout this period upstream of the Application Site (RS14F010050). Meanwhile, in the vicinity of the Application Site, at Cushaling Bridge, the Figile River achieved Moderate Q-status during this period. Further downstream, the Q-status of the Figile River fluctuated between Poor and Good Q-status.

The lower Q-ratings upstream of the Application Site, within the Slate and Figile rivers, indicate that there are wider issues in the catchment upstream of the Application Site. Changes in water quality during this period cannot be attributed solely to peat extraction activities, which were being scaled back at this time.

We consider that with the implementation of the control measures in accordance with IPC Licence Requirements the status of the SWBs during this phase were comparable to those recorded in the 1st WFD cycle (2010-2015).

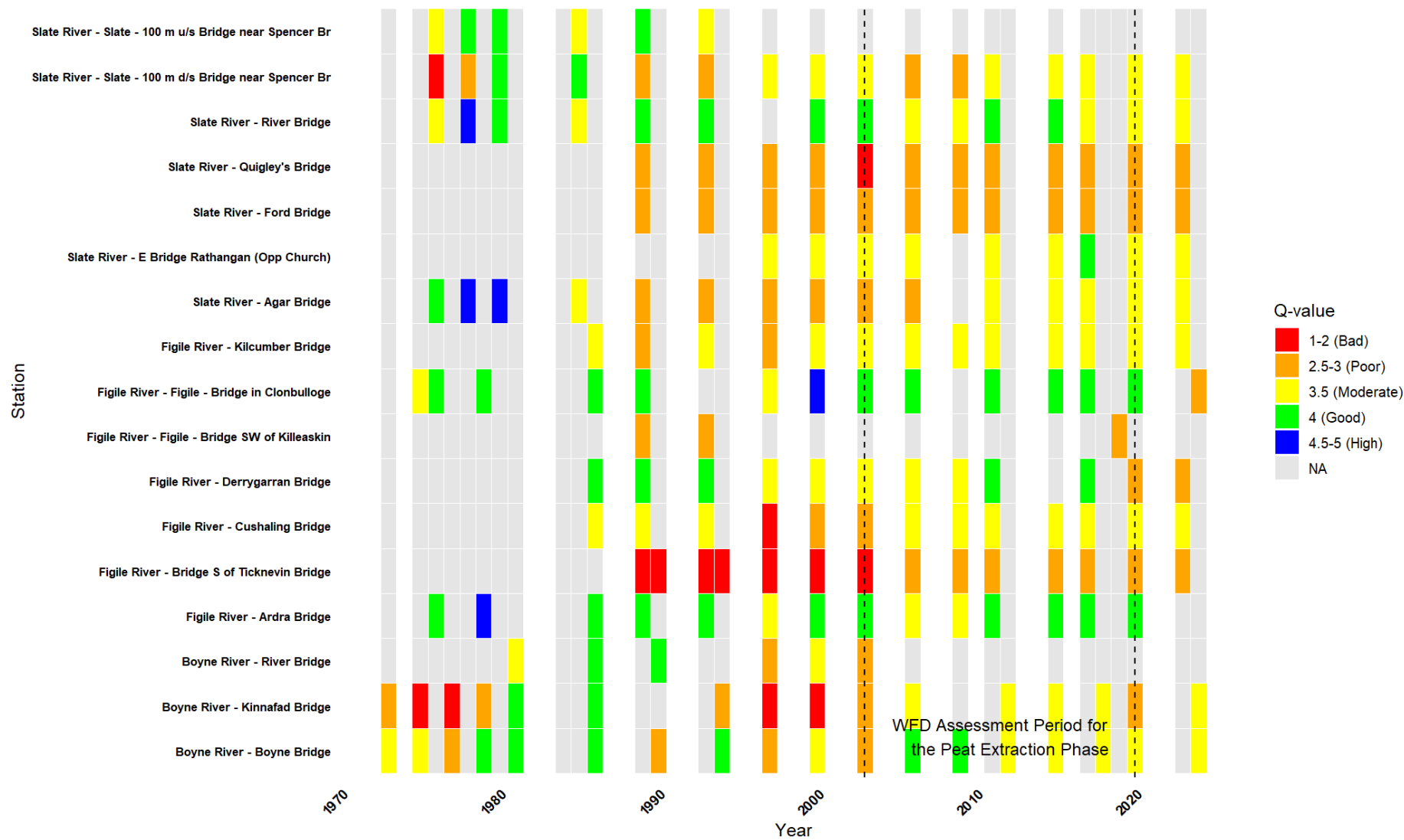


Figure C: Timeline of Biological Q-Ratings Changes on Local Watercourses

4.2.1 Effects

4.2.1.1 Surface Water Quality Effects from Bog Drainage

During this period the Application Site operated in accordance with IPC Licence conditions (P0503-01) which put in place a series of control measures designed for the protection of surface water quality in the vicinity and downstream of the Application Site. These measures included:

- All water from the peat extraction areas is to be treated via an appropriately designed silt pond treatment system which has been inspected and maintained in accordance with Condition 6 of the IPC Licence. Treated water is discharged into nearby surface watercourses, with quarterly grab sampling completed on a select number of discharge outlets;
- Stormwater derived on-site is released into a local water body following basic treatment. Where run-off is from a rooftop only, it is directed to a drain. Runoff from other areas such as car parks is passed through hydrocarbon interceptor prior to release.

BnM have been conducting monitoring of emissions to water from the Application Site with the results summarised in **Table H** below. The results show that the discharges from the Application Site have been predominantly compliant with the IPC Licence emission limits during the Peat Extraction Phase.

We consider that the status of the SWBs at this time was comparable to those recorded during the 1st WFD round. Based on the EPA Q-values, there has been a slight improvement in water quality in comparison with the pre-2000 period. However, this is likely to be a combination of factors within the overall catchment and cannot be attributed solely to activities at the Application Site. The monitoring and requirements of the IPC licence would have ensured that peat extraction activities were not adversely impacting water quality in downstream receptors.

A summary of potential status change to SWBs arising from potential surface water quality impacts from peat extraction and ancillary activities during the mitigated WFD Assessment Period for the Peat Extraction Phase are outlined in **Table I**.

Table H: Bord na Móna Water Quality Monitoring (2000-2025)

Application Site	COD (mg/L)	pH [H+]	Ammonia (mg/L)	Total Phosphorous (mg/L)	Suspended Solids (mg/L)
Range	28 – 228	6.2 – 8.8	0.017 – 27	0.05 – 0.19	2 – 92
IPC Licence Limit	100	6 – 9	3	-	35
n - number of sample results)	226	226	226	226	226
No. Exceedances	9	0	3	N/A	6
% Compliant	96.02%	100%	98.67%	N/A	97.35%

Table I: Surface Water Quality Effects (2000-2021)

SWB	WFD Code	Assessed 2000-2010	WFD Status 2010-2015	WFD Status 2013-2018	WFD Status 2016-2021
Abbeylough_010	IE_SE_14A010 840	(Poor)	Unassigned	Poor	Moderate
Figile_020	IE_SE_14F010 100	Moderate	Moderate	Moderate	Moderate
Figile_030	IE_SE_14F010 200	Moderate	Moderate	Moderate	Moderate
Figile_040	IE_SE_14F010 300	Moderate	Moderate	Moderate	Moderate
Figile_050	IE_SE_14F010 400	Good	Good	Good	Poor
Figile_060	IE_SE_14F010 500	Good	Good	Good	Good
Figile_070	IE_SE_14F010 510	(Good)	Unassigned	Unassigned	Good
Figile_080	IE_SE_14F010 600	(Moderate)	Unassigned	Moderate	Good
Slate_050	IE_SE_14S010 100	Moderate	Moderate	Moderate	Moderate
Slate_060	IE_SE_14S010 210	Moderate	Moderate	Moderate	Moderate
Slate_070	IE_SE_14S010 300	Good	Good	Moderate	Moderate
Boyne_010	IE_EA_07B040 200	Moderate	Moderate	Moderate	Moderate
Boyne_020	IE_EA_07B040 300	Moderate	Moderate	Moderate	Poor

4.2.1.2 Groundwater Quality Effects from Leakages and Spills

The Application Site has been regulated by the EPA under IPC Licence Registration No. P0503-01 since 2000. Compliance with the IPC Licence requires a series of water quality protection controls. The list below outlines control measures conditioned under the IPC licencing regime, as regulated by the EPA:

- Effective spill/leak management of mobile fueling units;
- Replacement (and remediation where necessary) of all underground fuel tanks;
- There shall be no other emissions to water of environmental significance;
- All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, tank and drum storage areas shall, as a minimum be bunded;
- Drainage from bunded areas shall be diverted for collection and safe disposal;
- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee to the satisfaction of the Agency and shall be reported to the Agency within eighteen months from the date of grant of this licence and every two years thereafter;
- The loading and unloading of fuel oils shall be carried out in designated areas protected against spillage and leachate run-off;
- While awaiting disposal, all materials shall be collected and stored in designated areas protected against spillage and leachate run-off;
- Except for roof water, all surface water discharges from workshop areas shall be fitted with oil interceptors;
- An inspection for leaks on all flanges and valves on over-ground pipes used to transport materials other than water shall be carried out weekly;

- The licensee (BnM) shall undertake a programme of testing and inspection of underground fuel pipelines to ensure that all underground fuel lines are tested at least every three years; and,
- The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage.

Due to the local hydrogeological regime, and the isolated perched water table in the peat bog which is separated from the underlying regional groundwater table, we consider that no change occurred in the status of the underlying GWBs during the WFD Assessment Period for the Peat Extraction Phase (refer to **Table J**).

Table J: Groundwater Quality Effects (2000-2021)

GWB	WFD Code	Assessed 2000-2010	WFD Status 2010-2015	WFD Status 2013-2018	WFD Status 2016-2021
Cushina GWB	IE_SE_G_048	Good	Good	Good	Good
Bagenalstown Upper GWB	IE_SE_G_153	Good	Good	Good	Good
Kildare GWB	IE_SE_G_077	Good	Good	Good	Good
Trim GWB	IE_EA_G_002	Good	Good	Good	Good

4.2.1.3 Surface Water Quality Effects from Leakages and Spills

The Application Site has been regulated by the EPA under IPC Licence Registration No. P0503-01 since 2000.

As described above in Section 4.2.1 the historic Q-values during this period were generally of Moderate and Good status. If hydrocarbon leakages and spills were occurring during this phase of peat extraction activities such Q-values would not have been achieved. Much lower Q-ratings would be anticipated for waters polluted with hydrocarbon compounds. Therefore, we do not consider that peat extraction activities during this period resulted in a significant deterioration in surface water quality due to leakages and spills.

A summary of potential status change to SWBs arising from leakages and spills during the mitigated WFD Assessment Period for the Peat Extraction Phase are outlined in **Table K**.

Table K: Surface Water Quality Effects from Leakages and Spills (2000-2021)

SWB	WFD Code	Assessed Post IPC Licence Status (2000-2010)	WFD Status 2010-2015	WFD Status 2013-2018	WFD Status 2016-2021
Abbeylough_010	IE_SE_14A010 840	(Poor)	Unassigned	Poor	Moderate
Figile_020	IE_SE_14F010 100	Moderate	Moderate	Moderate	Moderate
Figile_030	IE_SE_14F010 200	Moderate	Moderate	Moderate	Moderate
Figile_040	IE_SE_14F010 300	Moderate	Moderate	Moderate	Moderate
Figile_050	IE_SE_14F010 400	Good	Good	Good	Poor
Figile_060	IE_SE_14F010 500	Good	Good	Good	Good
Figile_070	IE_SE_14F010 510	(Good)	Unassigned	Unassigned	Good
Figile_080	IE_SE_14F010 600	(Moderate)	Unassigned	Moderate	Good
Slate_050	IE_SE_14S010 100	Moderate	Moderate	Moderate	Moderate
Slate_060	IE_SE_14S010 210	Moderate	Moderate	Moderate	Moderate
Slate_070	IE_SE_14S010 300	Good	Good	Moderate	Moderate
Boyne_010	IE_EA_07B040 200	Moderate	Moderate	Moderate	Moderate
Boyne_020	IE_EA_07B040 300	Moderate	Moderate	Moderate	Poor

4.2.1.4 Effects on Protected Areas

The Long Derries, Edenderry SAC is designated for orchid-rich dry calcareous grassland. This habitat occurs on glaciofluvial sands and gravels adjacent to the peatland, rather than on the peatland itself. The SAC site synopsis (NPWS, 2013) specifically refers to the presence of "good quality dry, calcareous grassland" and an "interesting gravel pit flora", indicating that the conservation interests of the SAC are associated with mineral substrates (i.e. sand and gravels) rather than peat. Historic sand and gravel pits are also located within the SAC, further confirming the presence of glaciofluvial deposits. These pits were used during the construction of the railway infrastructure across the Application Site. The qualifying interest occurs on elevated mineral soils, located approximately 1–3 m above the adjacent bog surface. Drainage and peat extraction at the Application Site were already established prior to the designation as a candidate SAC (cSAC) in 1997 (9 years into the Peat Extraction Phase). The continued presence of the qualifying Orchid rich dry calcareous grassland habitat is consistent with limited ecological dependence on the hydrology of the peatland. Furthermore, the site-specific conservation objectives of the SAC (NPWS, 2021) do not identify hydrology or water levels as attributes requiring maintenance or restoration. Therefore, given the differing substrates, topographic differences, limited works within the overlap area and absence of evidence for hydrological connectivity between the cutover bogs and the esker, it is considered unlikely that drainage of the Application Site has materially altered the ecological conditions supporting the qualifying calcareous grassland or adversely affected the integrity of the SAC.

Despite the proximity of the Application Site to the Grand Canal pNHA and the designated salmonid waters of the River Boyne there was no potential for significant effects. The watercourses draining the Application Site have no direct hydrological connection to the Grand Canal and there is no discharge of surface waters from the Application Site within the River Boyne catchment.

4.3 CURRENT PHASE (JUNE 2020 – PRESENT DAY)

The Current Phase includes all activities carried out at the Application Site from the cessation of peat extraction in June 2020 to the present day.

During this time period the decommissioning activities at the Application Site have been limited to the removal of stockpiled peat (all stockpiles were removed by October 2021) with no peat extraction occurring during this phase. Environmental monitoring and drainage and silt maintenance continued during this phase in accordance with IPC licence conditions. Intensive rehabilitation works, including drain blocking and the creation of low bunds, have been completed at Lodge Bog as part of PCAS. These works will have had a positive effect on local bog hydrogeology.

4.3.1 Surface Water Quality Effects from Bog Drainage

With the cessation of peat extraction, there is less potential for disturbance of peat and elevated concentrations of suspended sediments entering surface watercourses. During this period the site drainage still operated under the same drainage systems as during the Peat Extraction Phase *i.e.* field drains, main drains, silt ponds and discharge outlets etc. Therefore, discharge volumes from the Application Site to nearby surface watercourses will be comparable to surface water discharges during the Peat Extraction Phase.

During this period the Application Site also continued to operate under IPC licencing requirements with respect to surface water discharge quality and quantity.

The status of SWBs during the Current Phase is likely to be unchanged from those recorded during the most recent WFD round (2019-2024). A summary of the status change to SWBs arising from the bog drainage during the Current Phase are detailed in **Table L**.

Table L: Surface Water Quality Effects from Bog Drainage (2019-2026)

SWB	WFD Code	Status (2019-2024)	Assessed (2026)	Change
Abbeylough_010	IE_SE_14A010840	Moderate	Moderate	
Figile_020	IE_SE_14F010100	Moderate	Moderate	
Figile_030	IE_SE_14F010200	Moderate	Moderate	
Figile_040	IE_SE_14F010300	Poor	Poor	
Figile_050	IE_SE_14F010400	Poor	Poor	
Figile_060	IE_SE_14F010500	Good	Good	
Figile_070	IE_SE_14F010510	Good	Good	
Figile_080	IE_SE_14F010600	Good	Good	

SWB	WFD Code	Status (2019-2024)	Assessed Change (2026)
Slate_050	IE_SE_14S010100	Moderate	Moderate
Slate_060	IE_SE_14S010210	Moderate	Moderate
Slate_070	IE_SE_14S010300	Moderate	Moderate
Boyne_010	IE_EA_07B040200	Poor	Poor
Boyne_020	IE_EA_07B040300	Moderate	Moderate

4.3.2 Contamination of Groundwater by Leakages and Spills

Despite the cessation of peat extraction at the Application Site, there was still some limited activity at the Application Site involving machinery and plant with which there is always a risk of accidental spillage of hydrocarbons. Similarly, the office buildings at the BnM depot remained occupied and discharges from wastewater systems (septic tanks) etc. have the potential to cause surface water and groundwater contamination. However, the risks are of a lesser extent due to the lower volumes of plant, machinery and workers operating at the Application Site during the Current Phase.

A summary of potential status change to GWBs arising from potential groundwater quality impacts during the Current Phase are outlined in **Table M**.

Table M: Groundwater Quality Effects during (2019-2026)

GWB	WFD Code	Status (2019-2024)	Assessed Change (2026)
Cushina GWB	IE_SE_G_048	Good	Good
Bagenalstown Upper GWB	IE_SE_G_153	Good	Good
Kildare GWB	IE_SE_G_077	Good	Good
Trim GWB	IE_EA_G_002	Good	Good

4.3.3 Contamination of Surface Water by Leakages and Spills

Despite the cessation of peat extraction at the Application Site, there is still some limited activity at the Application Site involving machinery and plant with which there is always a risk of accidental spillage of hydrocarbons. Similarly, the office buildings at the BnM depot remain occupied and discharges from wastewater systems (septic tanks) etc. have the potential to cause surface water and groundwater contamination. These risks of a lesser extent due to the lower volumes of plant, machinery and workers operating at the Application Site during the Current Phase.

A summary of status change to SWBs arising from bog drainage during the Current Phase are outlined in **Table N**.

Table N: Surface Water Quality Effects from Leakages and Spills (2019-2026)

SWB	WFD Code	Status (2019-2024)	Assessed Change (2026)
Abbeylough_010	IE_SE_14A010840	Moderate	Moderate
Figile_020	IE_SE_14F010100	Moderate	Moderate
Figile_030	IE_SE_14F010200	Moderate	Moderate
Figile_040	IE_SE_14F010300	Poor	Poor
Figile_050	IE_SE_14F010400	Poor	Poor
Figile_060	IE_SE_14F010500	Good	Good
Figile_070	IE_SE_14F010510	Good	Good
Figile_080	IE_SE_14F010600	Good	Good
Slate_050	IE_SE_14S010100	Moderate	Moderate
Slate_060	IE_SE_14S010210	Moderate	Moderate
Slate_070	IE_SE_14S010300	Moderate	Moderate
Boyne_010	IE_EA_07B040200	Poor	Poor
Boyne_020	IE_EA_07B040300	Moderate	Moderate

4.3.4 Effects on Protected Areas

With the cessation of peat extraction, there is less potential for disturbance of peat and elevated concentrations of suspended sediments and contaminants entering surface watercourses and downstream designated sites. During this period the Application Site drainage still operates under the same drainage systems as during the Peat Extraction Phase i.e. field drains, main drains, silt ponds and discharge outlets etc. Therefore, discharge volumes from the Application Site to nearby surface watercourses will be comparable to surface water discharges during the Peat Extraction Phase.

During this period the Application Site also continues to operate under IPC licensing requirements with respect to surface water discharge quality and quantity.

Therefore, it can be concluded that the potential to affect the qualifying interests of the Long Derries, Edenderry SAC and pNHA and Grand Canal pNHA throughout the Current Phase is significantly reduced due to the reduced activity at the Application Site and the continued implementation of mitigation measures. Similarly, the potential for effects on the Barrow NSA were significantly reduced.

5. WFD COMPLIANCE ASSESSMENT (REMEDIAL PHASE)

5.1 REMEDIAL PHASE

It is currently proposed to implement the Draft Cutaway Bog Decommissioning and Rehabilitation Plans at the Application Site. This rehabilitation is required in order to fulfil the requirements of Condition 10.2 of the IPC licence No. P0503-01. The objectives of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans is to stabilise and rehabilitate the peat bogs within the Application Site. The plans use bespoke interventions designed to firstly stabilise the environment and secondly to rehabilitate the site as much as possible by placing the existing peatland environments on a path towards naturally functioning peatlands.

The rehabilitation plans comprises short-term planning actions, short-term practical actions and long-term actions. The initial short-term planning actions will involve seeking approval of the rehab plan from the EPA. In addition, detailed site plans of how the various rehabilitation measures will be applied will be developed and a review of all issues and constraints which may affect how the proposed rehabilitation plans will be completed. The short-term planning actions will also ensure that all activities associated with the rehab plans will be completed in accordance with the requirements of the IPC Licence. Several short-term actions will be completed in the first 2 years following EPA approval of the rehab plans. These actions will include intensive drain blocking and monitoring of the rehabilitation measures. Silt ponds will continue to function during this phase. Longer term actions (>3 years) include the evaluation of the success of the short-term rehabilitation measures and undertake further remediation where necessary. Long-term monitoring, aftercare and maintenance will be completed until the IPC licence is surrendered. We understand that during this phase of the rehabilitation plans, silt ponds will be assessed and decommissioned if necessary.

Much of the work associated with the rehabilitation plans will occur during the initial stages of the plan. Once drain blocking and other measures have been implemented the operational activities will comprise non-intrusive ecological and hydrological monitoring and may also include minimal maintenance and repair works.

In addition to the standard rehabilitation works, enhanced rehabilitation works are ongoing at Lodge Bog under the Peatland Climate Action Scheme (PCAS). The PCAS measures will provide greater surface water attenuation and surface water quality benefits in and downstream of the restoration areas. Other bogs comprising the Application Site are also under consideration for inclusion within the PCAS including Ballydermot, Barnaran, Blackriver, Codd, Derrybrennan, Glashabaun, Killina, Lullybeg, Lullymore and Ticknevin bogs. This cumulative assessment assumes that PCAS works will be completed at these bogs. In the event that future PCAS plans are not implemented or prepared, the bogs will be rehabilitated in line with the Draft Cutaway Bog Decommissioning and Rehabilitation Plans included in Appendix 4.2 of this rEiAR.

5.2 POTENTIAL EFFECTS (UNMITIGATED)

The Draft Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site cannot be implemented without mitigation measures. All activities at the Application Site are required to operate in accordance with IPC Licence (P0503-01) until the licence is surrendered. Therefore, an unmitigated scenario is not applicable to the WFD Compliance Assessment of the Remedial Phase.

5.3 POTENTIAL EFFECTS (MITIGATED)

5.3.1 Surface Water Quality Effects and Mitigation Measures

Whereas draining the Application Site to facilitate peat extraction has likely had a negative impact on downstream surface watercourses, improvements in flow and water quality can be achieved through bog rehabilitation and rewetting.

International studies have shown a long-term reduction in pollutant concentrations, including nitrate and ammonia, following rewetting in comparison to drained peatlands (Pschenyckyj, C. et al. 2021). Several studies have shown that the magnitude of these positive effects depends on site-specific factors such as the degree of degradation and local peat characteristics. Some studies have shown a short-term increase in phosphorous and suspended solids following restoration linked to initial drain-blocking activities before the hydrogeological regime of the site becomes stabilised (Pschenyckyj, C. et al. 2021). These will be short term impacts and will not impact the overall status of downstream water bodies.

The greatest improvement in water quality will occur in the receiving water bodies directly downstream of the Application Site. In the long term, enhanced water quality associated with bog rehabilitation will aid these water bodies in achieving an improved WFD status. These SWBs will have the greatest potential to experience an improvement in WFD status due to their small upstream catchments.

Any works undertaken as part of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans will be completed under licence from the EPA with BnM reporting to the EPA until the IPC Licence is surrendered. The existing drainage systems which have proven effect will continue to operate during this period. Including the operation, maintenance and monitoring of silt ponds to prevent silt-run-off from the Application Site.

The Draft Cutaway Bog Decommissioning and Rehabilitation Plans state that the effects of any management activities will be monitored and assessed.

5.3.2 Groundwater Quality Effects from Leakages and Spills

During the Remedial Phase, there will be some activity at the Application Site involving machinery and plant with which there is always a risk of accidental spillage of hydrocarbons. This activity will be greatest during the initial stages of rehabilitation when works associated with rewetting and revegetation such as drain blocking will be completed. Once this work has been completed there will only be very limited activity at the Application Site which will mainly comprise of non-intrusive monitoring and minimal repairs to peat blockages and or additional fertilization to aid the development of successional vegetation communities.

Due to the presence of peat at the Application Site and the bulk low permeability of the underlying mineral soil deposits, groundwater recharge at this site is limited. A shallow perched groundwater table exists in the peat stratum, and this is isolated from the underlying regional groundwater system and the GWBs. Therefore, even in an unmitigated scenario any groundwater contamination will occur within the perched water table which discharges to nearby surface watercourses.

Mitigation measures will be implemented and adhered to until the IPC Licence for the Application Site is surrendered. These measures significantly decrease the risk of groundwater contamination. No further mitigation measures, beyond those implemented to date, are deemed necessary.

5.3.3 Surface Water Quality Effects from Leakages and Spills

As stated in **Section 5.3.2** above, there is a risk of accidental spillage of hydrocarbons during initial rehabilitation works. Due to the local hydrogeological regime and low rates of groundwater recharge, contaminants will enter the bog drainage network and downstream river water bodies, resulting in a deterioration in surface water quality. This will have a potential negative effect on the WFD status of river water bodies directly downstream of the Application Site (Abbeylough, Figile, Slate and Boyne SWBs).

Mitigation measures will be implemented and adhered to until the IPC Licence for the Application Site is surrendered.

5.3.4 Effects on Protected Areas

The surface water connections from the Application Site to the Long Derries, Edenderry SAC may improve in water quality due to improvements in flow and water quality that can be achieved through bog rehabilitation and rewetting.

Any works undertaken as part of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans will be completed under licence from the EPA with BnM reporting to the EPA until the IPC Licence is surrendered. The existing drainage systems which have proven effect will continue to operate during this period. Including the operation, maintenance and monitoring of silt ponds to prevent silt-run-off from the Application Site.

Therefore, it can be concluded that the potential to negatively affect the qualifying interests of the Long Derries, Edenderry SAC throughout the Remedial Phase is significantly reduced. This SAC is designated due to the presence of Orchid-rich calcareous grasslands. The bog hydrological regime is isolated from the sand and gravel subsoils upon which these grasslands form. There is no potential for significant effects on the qualifying interests of the SAC.

With regards to the River Barrow and River Nore SAC, it can be concluded that the potential to negatively affect the qualifying interests of the SAC throughout the Remedial Phase is limited given the length of the hydrological flowpath (~22km). The plans may result in a limited slight positive affect on the qualifying interests of the SAC as improvements in flow and water quality can be achieved through bog rehabilitation and rewetting, which in turn will positively affect the watercourses and associated qualifying interests of these designated sites. However, the potential for effects is limited given the length of the flowpath.

5.3.5 Summary Potential Effects of Remedial Phase

In all instances, the mitigation measures described above are sufficient to meet the WFD objectives. The assessment of WFD elements for the WFD water bodies for the short-term and long-term is summarised in **Table O** below.

With the implementation of the requirements of the IPC Licence at the Application Site during this period, the site rehabilitation works will have no potential to cause a deterioration in the status of downstream SWBs and/or jeopardise their attainment of good surface water status. The long-term impacts of the Application Site rehabilitation plan may lead to an improvement in the status of those water bodies directly downstream of the Application Site, however this is dependent on several site-specific factors.

Table O: Summary of WFD Status for Unmitigated and Mitigated Scenarios

SWB	WFD Code	Status (2019-2024)	Assessed Short-term Status	Assessed Long-term Status
Abbeylough_010	IE_SE_14A010840	Moderate	Moderate	Good/ Moderate
Figile_020	IE_SE_14F010100	Moderate	Moderate	Good/ Moderate
Figile_030	IE_SE_14F010200	Moderate	Moderate	Good/ Moderate
Figile_040	IE_SE_14F010300	Poor	Poor	Moderate/ Poor
Figile_050	IE_SE_14F010400	Poor	Poor	Moderate/ Poor
Figile_060	IE_SE_14F010500	Good	Good	High/ Good
Figile_070	IE_SE_14F010510	Good	Good	High/ Good
Figile_080	IE_SE_14F010600	Good	Good	High/ Good
Slate_050	IE_SE_14S010100	Moderate	Moderate	Good/ Moderate
Slate_060	IE_SE_14S010210	Moderate	Moderate	Good/ Moderate
Slate_070	IE_SE_14S010300	Moderate	Moderate	Good/ Moderate
Boyne_010	IE_EA_07B040200	Poor	Poor	Poor
Boyne_020	IE_EA_07B040300	Moderate	Moderate	Moderate

6. SUMMARY AND CONCLUSION

6.1.1 Summary

WFD status for SWBs (Surface Water Bodies) and GWBs (Groundwater Bodies) hydraulically linked to the Application Site are defined in **Section 2** above.

From a hydrological perspective, the main impacts associated with the peat extraction and ancillary activities at the Application Site occurred during the initial stages of peat extraction with the installation of the drainage infrastructure to facilitate peat extraction activities. Drainage works commenced at the Application Site in 1935 and by 2003 the vast majority of the Application Site had been drained. Therefore, these activities and their potential effect on the underlying GWBs and downstream SWBs pre-date the transposition of the WFD into Irish Law.

The WFD Directive came into effect in Ireland in 2003 and this report assesses the effects of the peat extraction activities at the Application Site from this date until the formal cessation of peat extraction in June 2020. During this time period, all activities at the Application Site were operating under IPC Licence requirements. The IPC Licence (P0503-01) sets out several conditions and emission limits designed to ensure the protection of surface and groundwaters. These measures likely led to an improvement in the status of local surface water bodies in the vicinity of the Application Site.

Peat extraction ceased at the Application Site in June 2020 and no significant changes to the hydrological and/or hydrogeological environments will have occurred from the termination of peat extraction activities to the present day.

While no WFD status reports are available for the period predating 2010, the EPA have been completing ecological monitoring on downstream water bodies since the 1970s. The Q-values suggest that the peat extraction activities from 2003 to 2010 did not have a significant negative impact before the first WFD cycle in 2010.

Review of the available WFD reports show that many of the downstream SWBs achieved a 'Moderate' to 'Good' status during the WFD Assessment Period for the Peat Extraction Phase (2003-2020). Many of the SWBs downstream of the Application Site did not experience any deterioration on WFD status during the WFD Assessment Period for the Peat Extraction Phase. Those SWBs which did experience a decrease in status are located downstream of SWBs which receive discharge from the Application Site and did not experience any deterioration in WFD status. Therefore, the negative trend may reflect wider land-use changes or issues in the sub-catchments rather than any specific peat extraction related activities within the Application Site.

Importantly the Figile_010 and Slate_040 SWBs, located immediately upstream of the Application Site achieved "Poor" status across all WFD cycles. These SWBs are 'at risk' and listed as being under significant pressure from peat. These pressures must relate to other peat bogs located upstream of the Application Site. The Figile_020 and Figile_030 and Slate_050 and Slate_060 SWBs in the vicinity of the Application Site achieved "Moderate" status in all WFD cycles. This is an improvement in water quality from the upstream status.

The Draft Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site have also been assessed (Remedial Phase). The plans will generally involve the rewetting and revegetation of the drained bog. The plans will likely have a positive effect on hydrogeology within the Application Site where groundwater tables in the peat bog is stabilised and closer to the bog surface. However, the Application Site will never return to the original intact raised bog condition which was present before the commencement of the drainage/peat extraction activities. Studies from elsewhere (e.g., Pschenyckj, C. et al. 2021) have shown that bog rewetting can also result in improvements in local and downstream surface water quality.

During the Remedial Phase the Application Site will be operated in accordance with IPC Licence requirements. These mitigation measures will ensure the protection of downstream surface water bodies.

Several SWBs in the vicinity and downstream of the Application Site are 'at risk' of failing to meet their respective WFD objectives. Therefore, catchment pressures (on water quality and water quantity/volume) appear to be significant at present. Peat extraction is listed as a significant pressure on many of the water bodies downstream of the Application Site. However, it is also noted that peat extraction and drainage is listed as a significant pressure on the Figile_010 and the Slate_040 SWBs. These SWBs are located upstream of the Application Site and that the WFD status indicates improvements in water quality in the vicinity of the site. It is also worth noting that the Application Site is situated in the Irish Midlands and there is a high density of cutover bogs in the wider catchment and in counties Kildare and Offaly. Any peat extraction related pressures cannot be attributed solely to the peat extraction and ancillary activities completed at the Application Site but likely reflect wider catchment issues given the high density of cutover bogs in this area of the country.

The local hydrogeological regime at the Application Site with low permeability peat and glacial deposits ensure that the perched groundwater table within the bog is isolated from the underlying GWBs. Therefore, historic peat extraction activities are unlikely to have impacted the qualitative (chemical) or quantitative (volume) status of the Cushina, Bagenalstown Upper, Kildare and Trim GWBs. Similarly, there will be no change in GWB status associated with the Draft Cutaway Bog Decommissioning and Rehabilitation Plans.

As such, the Draft Cutaway Bog Decommissioning and Rehabilitation Plans will not negatively impact upon any SWB or GWB as it will not cause a deterioration in the status of the water body and/or it will not jeopardise the attainment of good status.

Furthermore, the Draft Cutaway Bog Decommissioning and Rehabilitation Plans will not negatively impact upon any downstream protected areas.

Table P presents a summary of the estimated WFD status of downstream SWBs and the underlying GWB as discussed in **Section 4.2**, **Section 4.3** and **Section 5.3** above.

Table P: Summary WFD Status

WFD Element	Assessed Post IPC Licence Status (2003- 2010)	WFD Status (2010-2015)	WFD Status (2013-2018)	WFD Status (2016-2021)	WFD Status (2019-2024)	Short-term Rehabilitation Phase	Long-term Rehabilitation Phase
Abbeylough_010	(Poor)	Unassigned	Poor	Moderate	Moderate	Moderate	Good/ Moderate
Figile_020	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Good/ Moderate
Figile_030	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Good/ Moderate
Figile_040	Moderate	Moderate	Moderate	Moderate	Poor	Poor	Moderate/ Poor
Figile_050	Good	Good	Good	Poor	Poor	Poor	Moderate/ Poor
Figile_060	Good	Good	Good	Good	Good	Good	Good
Figile_070	(Good)	Unassigned	Unassigned	Good	Good	Good	Good
Figile_080	(Moderate)	Unassigned	Moderate	Good	Good	Good	Good
Slate_050	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Good/ Moderate
Slate_060	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Good/ Moderate
Slate_070	Good	Good	Moderate	Moderate	Moderate	Moderate	Good/ Moderate
Boyne_010	Moderate	Moderate	Moderate	Moderate	Poor	Poor	Poor
Boyne_020	Moderate	Moderate	Moderate	Poor	Moderate	Moderate	Moderate
Cushina	Good	Good	Good	Good	Good	Good	Good

WFD Element	Assessed Post IPC Licence Status (2003- 2010)	WFD Status (2010-2015)	WFD Status (2013-2018)	WFD Status (2016-2021)	WFD Status (2019-2024)	Short-term Rehabilitation Phase	Long-term Rehabilitation Phase
Bagenalstown Upper	Good	Good	Good	Good	Good	Good	Good
Kildare	Good	Good	Good	Good	Good	Good	Good
Trim	Good	Good	Good	Good	Good	Good	Good

6.1.2 Conclusion

WFD status for SWBs (Surface Water Bodies) and GWBs (Groundwater Bodies) hydraulically linked to the Application Site are defined in **Section 2** above.

Historic peat extraction activities at the Application Site would have had the potential to impact on the status of downstream SWBs and underlying GWBs. However, since the transposition of the WFD into Irish Law in 2003, all peat extraction and ancillary activities at the Application Site have been operating in under strict IPC Licence requirements designed for the protection of surface and groundwaters and the protection of the status of these water bodies.

Therefore, there has been no change in GWB or SWB status in the underlying GWB or downstream SWBs resulting from the historic peat extraction and ancillary activities. The mitigation measures have ensured that there was no change in quantitative (volume) or qualitative (chemical) status, and the underlying GWB, downstream SWBs and downstream protected areas have been protected from any potential deterioration.

As such, the WFD Assessment Period for the Peat Extraction Phase (2003-2020) and the Current Phase (2020-Present):

- Have not caused a deterioration in the status of all surface and groundwater bodies assessed;
- Have not jeopardised the objectives to achieve 'Good' surface water/groundwater status;
- Have not jeopardised the attainment of 'Good' surface water/groundwater chemical status;
- Have not jeopardised the attainment of 'Good' surface water/groundwater quantity status;
- Have not permanently excluded or compromised the achievement of the objectives of the WFD in other water bodies within the same river basin district;
- Have been compliant with the requirements of the Water Framework Directive (2000/60/EC); and,
- Have been consistent with other Community Environmental Legislation including the EIA Directive (2014/52/EU), the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC) (Note that a full list of legislation complied with in relation to hydrology and hydrogeology is included in Section 8.1.4 of rEiAR Chapter 8).

Furthermore, the Draft Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will be completed in accordance with IPC Licence conditions and will not impact the status of any water body. In addition, there will be no potential effects on any downstream protected areas as a result of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans. Indeed, the Draft Cutaway Bog Decommissioning and Rehabilitation Plans will likely have a positive long-term effect to the Water Framework Directive Classification of downstream water bodies.

As such, the Remedial Phase:

- will not cause a deterioration in the status of all surface and groundwater bodies assessed;
- will not jeopardise the objectives to achieve 'Good' surface water/groundwater status;
- does not jeopardise the attainment of 'Good' surface water/groundwater chemical status;
- does not jeopardise the attainment of 'Good' surface water/groundwater quantity status;
- does not permanently exclude or compromise the achievement of the objectives of the WFD in other water bodies within the same river basin district;
- is compliant with the requirements of the Water Framework Directive (2000/60/EC); and,

- is consistent with other Community Environmental Legislation including the EIA Directive (2014/52/EU), the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC) (Note that a full list of legislation complied with in relation to hydrology and hydrogeology is included in Section 8.1.4 of rEIAR Chapter 8).

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