FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

LONGFORDPASS, LITTLETON, LANESPARK AND DERRYVELLA BOGS FOR SUBSTITUTE CONSENT

Remedial Environmental Impact Assessment Report

Chapter 06 - Biodiversity

Prepared for:

Bord na Móna Energy Ltd.

BnM

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6. BIODIVERSITY

6.1 Introduction

6.1.1 Background

Fehily Timoney and Company (FT) have been appointed to prepare a remedial Biodiversity Chapter for EIAR on behalf of Bord na Móna as part of an application for substitute consent for the peat extraction and ancillary activities carried out by Bord na Móna at Littleton Peat Extraction Area (henceforth referred to as the 'Project' and the 'Application Site'), which incorporates four distinct bogs, namely, Longfordpass Bog, Littleton Bog, Lanespark Bog and Derryvella Bog. The Application Site is shown in Figure 6.1 - Site Location Map in Volume 4 of this rEIAR. The three different phases of the Application Site as assessed for impacts within this Chapter are summarised below:

- **'Peat Extraction Phase':** peat extraction and ancillary activities at the Application Site from July 1988 exclusive of the use of control measures or licencing (July 1988 - 2001), and post-2001, inclusive of the measures outlined as per the IPC Licence (Ref. P0499-01), until peat extraction finally ceases entirely in 2017.
- **'Current Phase':** the management of the Application Site from 2017 to present day including decommissioning works and Rehabilitation Phase 1 works (2017 - present day).
- **'Remedial Phase':** the activities intended to be carried out at the Application Site into the future, including the activities required under Conditions of the development's IPC Licence (Ref. P0499-01), specifically related to the Cutaway Bog Decommissioning and Rehabilitation Plans (Rehabilitation Phase 2 works and 2026 onwards).

6.2 Statement of Authority

This remedial Biodiversity Chapter has been prepared by Alice Clarke. Alice is a Senior Ecologist and holds a BSc Hons in Biochemistry and an MSc in Ecological Management & Conservation Biology from the Queen's University of Belfast (QUB). She is an associate member of CIEEM (ACIEEM) and has over six years' experience working in ecological consultancy roles across the island of Ireland. Alice has a wealth of experience both authoring and reviewing a range of different ecological reports for a variety of small and large-scale developments, including Appropriate Assessment Screenings (AA), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA) and Biodiversity Chapters for EIAR, and as such, Alice is very familiar with the relevant legislation in Ireland. She also remains informed on rulings made by the Court of Justice of the European Union (CJEU) associated with ecology and biodiversity. Furthermore, Alice is experienced in undertaking and leading on an array of different ecological surveys, including birds, bats, mammals (in particular, badger and otter), amphibians, habitats and invasive flora.

This remedial Biodiversity Chapter has been reviewed by Ben O'Dwyer. Ben is a Senior Project Ecologist with Fehily Timoney with over 9 years' experience in ecological assessment and holds a BSc (Hons) in Wildlife Biology from Institute of Technology Tralee (now MTU). He has prepared EcIAs, EIAR Biodiversity chapters, AA Screening reports and Natura Impact Statements for numerous large scale infrastructure projects in the renewable energy, commercial, waste management and transport sectors. He is an experienced and versatile field surveyor and his experience across a broad range of habitats and projects in Ireland has given him an extensive knowledge of protected sites and species across the country.

This remedial Biodiversity Chapter has been approved by Fehily Timoney Principal Ecologist and Associate Director Rita Mansfield. Rita holds a BSc. (Hons) in Applied Ecology and a H. Dip Environmental Protection and Pollution Control. Rita is experienced as a technical ecology lead within the environmental and planning services sector. She is a qualified ecologist with responsibility for environmental impact assessment, planning applications (conventional and strategic infrastructure development), Appropriate Assessment, foreshore licensing, and stakeholder engagement for large scale plans and projects in Ireland, including for greenway developments.

6.3 Assessment Methodology & Relevant Legislation

The assessment methodology in this Chapter follows the TII 'PE-ENV-01112 Guidelines for the Assessment of Ecological Impacts of National Road Schemes' (TII, 2009) (referred to herein as the NRA Ecological Impact Assessment Guidelines), with survey methodologies based on the TII 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes' (TII, 2008b). While these guidelines relate to road schemes, these standard guidelines comprise a recognised methodology that ensures good practice, regardless of the development type and scale. Other guidance consulted in the preparation of this Chapter provided scope, structure and content of the assessment include CIEEM 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal' (CIEEM, 2018, updated 2024) (herein referred to as the CIEEM EcIA Guidelines) and EPA 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EIAR) (EPA, 2022) (herein referred to as the EPA EIA Guidelines).

In addition to the national and international legislation outlined in Chapter 1 – Introduction of this EIAR, including the EIA Directive 2011/92/EU (as amended by 2014/52/EU) and the EU (Environmental Impact Assessment and Habitats) (No. 2) Regulations 2015 (S.I. No. 320 of 2015), this Chapter has been compiled in accordance with the following key pieces of legislation applicable to habitats, fauna, and water quality in Ireland:

- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) (as amended).
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (commonly referred to as the Habitats Directive).
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (commonly referred to as the Birds Directive).
- The Wildlife Acts 1976 (as amended) (herein referred to as the Wildlife Acts).
- The Flora (Protection) Order 2022 (S.I. No. 235 of 2022).
- European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) (as amended).
- European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009) (as amended).
- European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010) (as amended).
- Planning and Development Acts 2000 (as amended).
- Fisheries (Consolidation) Act, 1959

In addition, the following publicly available planning policies and strategy guidance documents listed below were also considered in the preparation of this assessment:

- Ireland's 4th National Biodiversity Action Plan 2023-2030 (DoCHG, 2024).
- Tipperary County Development Plan 2022 - 2028 (TCC, 2022).
- Tipperary Biodiversity Action Plan 2025 - 2030 (TCC, 2024).

6.4 Methodology

6.4.1 Desk Study

The desk study undertaken for this assessment included a review of available data pertaining to the Application Site and surrounding area, including the following:

- Ecology surveys at the Application Site undertaken by Bord na Móna, Fehily Timoney, Triturus and Biosphere Environmental Services on behalf of Bord na Móna between 2012 and 2026 (see Appendixes 6.1 and 6.2).
- Aerial imagery of the Application Site from 1988 to 2018 (Source: Bord na Móna and GeoHive)
- Historic 6-inch and 25-inch maps of the Application Site and surrounding area, and historic satellite imagery from 1995-2018 for the Application Site and surrounding area, both available through Ireland's National Geospatial Data Hub (GeoHive).
- Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan for Longfordpass Bog (Source: Bord na Móna, 2018; See Appendix 4-2, Volume 3)
- Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan for Lanespark and Derrvella Bogs (Source: Bord na Móna, 2025; See Appendix 4-2, Volume 3).
- Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan for Littleton Bog (Source: Bord na Móna, 2018; See Appendix 4-2, Volume 3).
- Records from the National Park and Wildlife Service (NPWS) website, including the Article 17 report (NPWS, 2007, 2013, 2019 and 2025, noting that 2025 spatial data was not available at the time of this assessment)and a review of nationally and internationally designated sites.
- Records from the NPWS Rare and Protected Species database and the Flora Protection Order (FPO) database for the relevant hectads in which the Application Site is located.
- Records from the Ireland Red List (IRL) No. 10: Vascular Plants (Wyse et al., 2016)
- Records from the Ireland Red List No. 8: Bryophytes (Lockhart et al., 2012).
- Historic data extracted from the National Biodiversity Data Centre (NBDC) online for the relevant 2km hectads which encompass the Application Site.
- Online mapping resources including: NPWS, EPA, Water Framework Directive (WFD)/ Local Authority Waters Programme (LAWPRO), OPW flood maps and Inland Fisheries Ireland (IFI).

6.4.2 Scoping and Consultations

Fehily Timoney have undertaken scoping consultation during the preparation of the application for Substitute Consent.

A scoping letter was issued on 1st December 2023 to various stakeholders including the Department of Housing, Local Government and Heritage and Inland Fisheries Ireland (IFI), who have a particular interest in biodiversity.

Response was received from Department of Housing, Local Government and Heritage on 4th December 2023 (reference no issued: G Pre00317/2023), acknowledging receipt with instruction to continue further correspondence with the Development Application Unit (DAU), the relevant stakeholder representative in terms of the AA for the Project. The correspondence was forwarded to the relevant stakeholder representative on 6th December 2023. No further response or comment was received related to the initial scoping letter.

Response was received from IFI on 1st December 2023 acknowledging receipt of the scoping letter and that the e-mail and letter was forwarded to the relevant staff member. No further response or comment was received related to the initial scoping letter.

A scoping letter was again issued on the 20th January 2026 to various stakeholders including the Department of Housing, Local Government and Heritage and Inland Fisheries Ireland (IRI). No response has been received in relation to the application for Substitute Consent.

6.4.3 Field Study

A range of surveys have been undertaken at the Application Site between 2012-2025 by Bord na Móna, Biosphere Environmental Services, Triturus and Fehily Timoney. The below surveys undertaken for the Project provide the information necessary to undertake a robust assessment of the likely impacts of the peat extraction and ancillary activities and the implementation of the Cutaway Bog Decommissioning and Rehabilitation plans at the Application Site.

Table 6-1: Summary of surveys utilised to inform this biodiversity impact assessment

Survey	Date	Survey conducted by
Breeding Birds (Transect & vantage point (VP) Surveys)	April - August 2013	Biosphere Environmental Services
Wintering Birds (Transect & VP Surveys)	December 2012 - March 2013 October 2013 - March 2014	Biosphere Environmental Services
Habitat Surveys	28 April 2010 23-24 August 2012 28 August 2012 10 September 2012 July 2017 11 December 2017	Bord na Móna
Aquatic Survey (including water quality sampling and search for signs of aquatic and semi aquatic species)	September and October 2021 5th, 6th, 7th and 21st September 2023, and 12th-13th October 2023 2nd, 3rd, 4th and 19th September 2025	Triturus
Bat Surveys: Static Deployment & Transect Surveys	Spring, summer & autumn 2023 and 2025	Fehily Timoney
VP Bird Surveys Breeding Wader Surveys	Winter 2020/21, Winter 2021/22, Winter 2022/23, Winter 2023/24, Winter 2024/25 Summer 2021, Summer 2022, Summer 2023, Summer 2024	Fehily Timoney
Habitat Survey (Update)	2021: 21st, 24th, 29th & 30th July, 17th- 19th and 21st August, 14th, 22nd and 23rd September. 2022: 29th - 31st August 2023: 3rd- 4th August, and September 25th. 2025: 22nd, 24th, 25th, & 30th September 2025, and 9th & 10th October	Fehily Timoney
Marsh Fritillary - larval webs surveys	2021 2023 21st August 2025 22nd, 25th, 26th and 30th September 2025	Fehily Timoney
Mammal Walkover Surveys	22nd September 2025 9th, 10th, 14th and 23rd October 2025	Fehily Timoney

6.4.3.1 Breeding Bird Surveys (Biosphere Environmental Services)

6.4.3.1.1 2013 Surveys

Transect surveys and vantage point (VP) watches were the methods of breeding bird surveying and a combination of these were used at the Application Site, as per Bibby et al. (2000), by Biosphere Environmental Services. All surveys were carried out in suitable weather conditions, with avoidance of persistent rain and winds in excess of F4-5. Standard methodologies were followed, with the approach following that used in the Breeding Atlas 2007-2011 Survey (BTO, 2009).

For the transect surveys, bird recording was within a zone 200-300 m wide either side of the transect (as per Countryside Bird Survey (CBS) Guidelines for Countryside Bird Survey participants (2012)) though the flat nature of the sites made larger sized or obvious birds (such as Lapwing (*Vanellus vanellus*)) at further distances easily visible. Birds were recorded by sight (with aid of binoculars) and sound. As it was important to ensure that all species of conservation importance within the sites were recorded, deviations from the selected transects were made as necessary where potential nesting habitats for such species existed.

During the study, particular emphasis was placed on the potential occurrence of Red Grouse (*Lagopus scotica*) on areas of uncut or largely uncut remnant bog. Where significant bog remnants occur, a transect was walked across the bog in each survey period.

VP surveys were carried out following the recommended methodology published by Scottish Natural Heritage (SNH, 2005), the most up to date available guidance at the time of the surveys. The purpose of these surveys was mainly to detect birds of prey, though all birds observed during watches were recorded. The VPs were positioned on elevated ground where feasible – these range from naturally higher ground (hillocks etc) to roads/embankments and even milled peat piles. At a small number of sites, heavy growth of scrub and low woodland partly obscured the view from the VP.

When a target species was sighted during a watch, the flightline was plotted onto a field map along with estimated flight height, duration of observation and any other parameters such as age and gender of bird, behaviour of bird (e.g. hunting, flying, roosting) etc.

In addition to the transect and vantage point watches, other habitats within each site with potential for breeding birds of conservation interest were visited during the surveys so as to ensure that all bird species of conservation importance associated with the site were recorded. These habitats comprised mainly localised wetlands and regenerating bog strips.

6.4.3.2 Wintering Bird Surveys (Biosphere Environmental Services)

6.4.3.2.1 2012-2013 Surveys

Transect surveys and VP watches were the main methods and a combination of these were used at the Application Site, carried out by Biosphere Environmental Services. Surveys were carried out in suitable weather conditions, with avoidance of persistent rain, mist/fog and winds in excess of F4-5. Surveys were undertaken between December 2012 and March 2013.

The transects selected typically followed identifiable tracks (inc. rail tracks). Tracks are often slightly elevated which makes recording more efficient. The number of transects used at each site was determined by the size of the site and the diversity of habitats present. Birds were recorded within an area 200-300 m wide either side of the transect (as per BTO winter bird survey instructions), although the flat nature of the sites made larger sized or obvious birds at further distances more easily visible. Birds were recorded by sight (with aid of binoculars) and sound.

VP surveys were carried out in accordance with the methodology used for assessing impacts of wind farms on bird communities published by Scottish Natural Heritage (SNH, 2005), the most up-to-date survey methodology guidance at the time. Surveys were undertaken between December 2012 and March 2013.

The purpose of these surveys was mainly to detect birds of prey and passing waterbirds (swans, geese, ducks, waders etc.), though all birds observed during watches were recorded. The main deviation from the SNH method was in the duration of the VP watches carried out, which varied from 30 minutes to in excess of 2 hours. The VPs were positioned on elevated ground where feasible – these range from naturally higher ground (hillocks etc) to roads/embankments and milled peat piles. At a small number of sites, heavy growth of scrub and low woodland partly obscured the view from the VP.

When a target species was sighted during a watch, the flightline was plotted onto a field map along with estimated flight height, duration of observation and any other parameters such as age and gender of bird, behaviour of bird (e.g. hunting, flying, roosting) etc, where possible.

6.4.3.2.2 2013-2014 Surveys

Transect surveys and VP watches were the methods used and a combination of these were used at the Application Site. Surveys were carried out in suitable weather conditions, with avoidance of persistent rain, mist/fog and winds in excess of F4-5. Surveys were undertaken monthly between October 2013 and March 2014.

The transects selected typically followed identifiable tracks (inc. rail lines). Rail lines are often slightly elevated which makes recording more efficient. The number of transects used at each site was determined by the size of the site and the diversity of habitats present. Birds are generally recorded within an area 200-300 m wide either side of the transect, although the flat nature of the sites made larger sized or obvious birds at further distances more easily visible. Birds were recorded by sight (with aid of binoculars) and sound.

VP surveys were carried out in general accordance with the methodology used for assessing impacts of wind farms on bird communities published by Scottish Natural Heritage (SNH, 2013), updated guidance from the 2012-2013 surveys which were undertaken as per SNH (2005). A full duration of 36 hours of observations at each vantage point over the site was achieved as required by the updated methodology (SNH, 2013). At each site a representative number of VPs were established to provide views over large areas of the Application Site and adjoining lands, with focus on expanses of habitats of potential value to wintering birds. The VPs were positioned on elevated ground where feasible – these range from naturally higher ground (hillocks etc) to roads/embankments and milled peat piles. At a small number of sites, heavy growth of scrub and low woodland partly obscured the view from the VP. When a target species was sighted during a watch, the flightline was plotted onto a field map along with estimated flight height, duration of observation and any other parameters such as age and gender of bird, behaviour of bird (e.g. hunting, flying, roosting) etc, where possible.

The methodology used to survey for hen harrier roosting activity adhered to Hardey *et al.* (2013). Hen Harrier (*Circus cyaneus*) roost watches were carried out at Littleton Bog within the Application Site between October and December 2013, where Hen Harrier activity had been previously recorded during the 2012-2013 period.

6.4.3.3 Habitat Surveys

Habitats were surveyed and mapped by Bord na Móna ecologists as per Bord na Móna classifications in 2017 and 2018. Habitats surveyed were classified upon the qualitative consideration of:

- Plant species abundance and diversity.
- Protection status.
- Vegetation structure.
- Topography.
- Drainage conditions.
- Evidence for disturbance and/or management.

Surveys considered plant species protected under the Flora Protection Order (S.I. No. 235/2022), listed in Irish Red List Series (King et al., 2011; Lockhart et al., 2012; Wyse Jackson et al., 2016).

A search for Invasive Alien Species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) was also conducted.

The findings of the Bord na Móna habitat surveys are presented in Section 6.7.4.1.1.

Habitats were surveyed again in 2025 between July and November by botanists from Fehily Timoney and their locations and extents mapped as per the guidance in Fossitt (2000). The methodology used during botanical surveys was based on the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (2011) and CIEEM 'Good Practice Guidance for Habitats and Species' Version 3 May 2021.

Percentage cover was used to record species abundance within relevés[1]. All species were readily identifiable during the survey. Plant nomenclature for vascular plants follows 'New Flora of the British Isles' Fourth Edition (Stace, 2019), while mosses and liverworts nomenclature follow 'Mosses and Liverworts of Britain and Ireland - a field guide' (British Bryological Society, 2010).

[1] Relevés are sample plots for surveying and evaluating the characteristics of plant communities within a habitat type.

Vegetation was sampled by taking botanical quadrats/relevés which were undertaken to analyse potential links with Annex I habitat types. Quadrat size ranged from 2m x 2m to 4m x 4m for heath, grassland and bog habitats. Within each relevé, data was collected by recording the existing species list for vascular plants, bryophytes and lichens, %each species, %standing water, %bare soil, %bare rock, %total vegetation, %algal cover, %litter and any other remarks. In addition, firmness of the substrate and microtopography as mentioned below were recorded for bog habitats.

- Firmness: Firm: ground does not sink under the weight of your body; Soft: ground sinks approximately 1 to 3cm but little amount of water is released by the peat or Sphagnum; Very soft: ground sinks more than 3cm and a considerable amount of water is released by the peat or Sphagnum; Quaking: ground bounces or shakes when the surveyor jumps.
- Microtopography: Pools: depressions on the bog surface where the water table drops below surface level for only very short periods of time. Hollows: shallow depressions on the bog surface where surface water collects, or where the water table reaches ground level or lies just above ground level, depending on seasonal conditions. Hummocks: mounds on the bog surface which can range from a few cm to more than a meter in height (<25cm: low hummock, >25cm: high hummock). They are usually composed with hollows and pools as a complex.

The Interpretation Manual of European Union Habitats [EUR28] and Article 17 reports were used to evaluate whether links with Annex I habitats exist. Survey, classification and assessment of peatland habitats was informed by Smith & Crowley (2020) and Fernandez et al. (2012 & 2014). For consistency and to allow comparison between BnM and FT habitat surveys, a conversion table has been provided in Table 6-20 to be read in conjunction with the 2025 habitat maps (Figures 6.9a, 6.9b and 6.9c in Volume 4 of this EIAR).

The findings of the Fehily Timoney habitat surveys are presented in Section 6.7.5.1 below.

6.4.3.4 Aquatic Surveys

A series of aquatic surveys were conducted to characterise the local aquatic ecology within and adjacent to the Application Site. These surveys, carried out by Triturus Environmental Ltd. across a number of different dates in 2021, 2023 and 2025, assessed fish and macroinvertebrate communities, relevant habitat features, and overall ecological quality of representative sampling sites within, upstream and downstream of the Application Site. All surveys were carried out in accordance with the Check Clean Dry protocol to ensure no spread of invasive species.

Surveys were undertaken as follows:

- Aquatic surveys were carried out in September and October 2021 at a total of 20 no. different sampling sites within or in the vicinity of the Application Site. A total of 17 no. lakes/wetlands located within Littleton bog were also surveyed in October 2021.
- Aquatic surveys were carried out on 5th, 6th, 7th and 21st September and 12th-13th October 2023 at a total of 47 no. different sampling sites within or in the vicinity of the Application Site.
- Update aquatic surveys of the watercourses within the vicinity of the Application Site were conducted on the 2nd, 3rd, 4th and 19th September 2025 at a total of 34 no. different sampling sites.

Surveys at each of these sites included a fisheries assessment (electro-fishing (2021 and 2023) and/or fisheries habitat appraisal), White-clawed Crayfish (*Austropotamobius pallipes*) survey, Otter (*Lutra lutra*) survey (within 150m of the survey site), macrophyte and aquatic bryophyte survey and biological water quality (Q-sampling at riverine sites) or invertebrate sweep sampling (lacustrine sites). The map of survey sites for 2021, 2023 and 2025 are presented in Appendix 6.2, for context.

In addition to the ecological characteristics of the Application Site, a broad aquatic and riparian habitat assessment was conducted utilising elements of the methodology given in the Environment Agency's 'River Habitat Survey in Britain and Ireland Field Survey Guidance Manual 2003' (EA, 2003) and the Irish Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000). This broad characterisation helped define the watercourses' conformity or departure from naturalness. All sites were assessed in terms of:

- Physical watercourse/waterbody characteristics (i.e. width, depth etc.) including associated evidence of historical drainage
- Substrate type, listing substrate fractions in order of dominance (i.e. bedrock, boulder, cobble, gravel, sand, silt etc.)
- Flow type by proportion of riffle, glide and pool in the sampling area
- An appraisal of the macrophyte and aquatic bryophyte community at each site
- Riparian vegetation composition

The findings of the aquatic surveys are presented in Section 6.7.5.2.1 below and allow for a visualisation of the recovery of the waterbodies within and downstream of the Application Site post-cessation of peat extraction.

6.4.3.4.1 Fisheries Assessment

During the 2021 and 2023 surveys, a single anode Smith-Root LR24 backpack (12V DC input; 300V, 100W DC output) was used to electro-fish sites on riverine sites, following notification to IFI, under the conditions of a Department of the Environment, Climate and Communications (DECC) licence. The survey was undertaken in accordance the Licensing requirements, Central Fisheries Board (CFB, 2008) guidelines and Irish Standard EN 14011:2003 (CEN, 2003) requirements.

A fisheries habitat appraisal of all aquatic survey sites (riverine and lake/wetland) was undertaken to establish their importance for salmonid, lamprey, European eel and other fish species. The baseline assessment also considered the quality of spawning, nursery and holding habitat for salmonids and lamprey within the vicinity of the survey sites.

6.4.3.4.2 White-clawed Crayfish Surveys

White-clawed Crayfish surveys were undertaken at the aquatic survey sites under NPWS open national licence (for 2021: no. C145/2021; for 2023: no. C24/2023); for 2025: C164/2025) and followed IFI aquatic biosecurity recommendations, surveying from upstream to downstream locations. Hand-searching of instream refugia and sweep netting was undertaken according to Reynolds *et al.* (2010). A habitat appraisal was conducted at each sample location considering physical habitat attributes, water chemistry and incidental records within mustelid spraint.

6.4.3.4.3 Otter Surveys

The Otter surveys covered the entire Application Site and surrounding suitable habitats within 150m to determine the presence or absence protected mammal species and habitat suitability to support protected mammal species (NRA, 2009a and JNCC, 2004). Sightings, tracks or signs of Otter and any other mammals were recorded using ArcGIS Field Maps.

Survey for Otter were conducted in accordance with *'Conserving Natura 2000 Rivers Monitoring Series No. 10', 'Monitoring the Otter* Lutra lutra' (Chanin, 2003) and the 'National Otter Survey of Ireland 2010/12' (Reid, *et al.*, 2013).

6.4.3.4.4 Macrophytes and Bryophytes

Surveys of the macrophyte and aquatic bryophyte community were conducted by instream wading at each of the survey sites, with specimens collected (by hand or via grapnel) for on-site identification. An assessment of the aquatic vegetation community helped to identify any rare macrophyte species listed under the Flora (Protection) Order, 2022, Irish Red list for vascular plants (Wyse-Jackson et al., 2016) and or aquatic bryophytes (Lockhart et al., 2012), or habitats corresponding to Annex I habitats.

6.4.3.4.5 Biological Water Quality Sampling (Q-Sampling)

The riverine sites were assessed for biological water quality through Q-sampling with standard kick sampling hand net (250mm width, 500µm mesh size) from areas of riffle/glide as per EPA methodology (Feeley *et al.,* 2020): 2-minute kick sample and 1-minute cobble wash. Samples were secured for laboratory assessment and findings converted to Q-ratings (Toner *et al.*, 2005) and assigned to WFD status classes. Any rare invertebrate species were identified from the NPWS Red List publications[2]. The Q-Value system divides the benthic invertebrates into five 'Macroinvertebrate Faunal Groups' according to their tolerance to pollution (mostly related with deoxygenation and eutrophication), ranging from most sensitive species (Group A), to the most tolerant (Group E). Based on the relative taxa abundance within the sample, a Q Value is attributed, from Q1 to Q5, with intermediate values denoting transitional conditions (Toner et al., 2005).

Table 6-2: Reference categories for EPA Q-ratings (Q1 to Q5) extracted from Triturus (2024)

Q value	WFD status	Pollution status	Condition
Q5 or Q4-5	High status	Unpolluted	Satisfactory
Q4	Good status	Unpolluted	Satisfactory
Q3-4	Moderate status	Slightly polluted	Unsatisfactory
Q3 or Q2-3	Poor status	Moderately polluted	Unsatisfactory
Q2, Q1-2 or Q1	Bad status	Seriously polluted	Unsatisfactory

[2] Various publication can be found at https://www.npws.ie/publications/red-lists

6.4.3.4.6 Invertebrate Sweep Sampling

A standard lake net (250mm width, mesh size 500µm) was used to sweep macrophytes to capture macro-invertebrates. The net was also moved along the lake / lakebed to collect epibenthic and epiphytic invertebrates from the substratum (Cheal et al., 1993). A 3-minute sampling period was employed. To ensure appropriate habitat coverage, the sampling period was also divided amongst the range of meso-habitats present at the survey site to get a representative sample for sub-habitats.

6.4.3.5 Bat Surveys

6.4.3.5.1 Preliminary Bat Roost Assessment (PBRA)

Surveyors utilised the assessment criteria described in Collins (2023) – Page 35, Table 4.1, which provides guidelines for assessing potential suitability of habitat features as bat roosts and for foraging bats. This allows surveyors to assign features a score of 'negligible', 'low', 'moderate' or 'high' status in terms of the presence of Potential Roost Features (PRFs) or quality of habitat for commuting and/or foraging. Based on the features present and the location of trees and/or other structures, the potential use of the feature can also be considered, and classified (as in Hundt, 2012 and BTHK, 2023) Collins (2023 has since been updated (BTHK, 2023), with the assessment outcomes and criteria remaining consistent and valid under current guidelines:

- Maternity (breeding roost);
- Summer / transitional (to include transitional, occasional, satellite, night, and day roosts);

  Hibernation roost.

Surveyors employed non-invasive assessments of trees from ground level (ground level tree assessment (GLTA)). A roost survey encompassing assessment of structures and GLTA surveys was also undertaken within Littleton and Lanespark Bogs. Any structures or trees were inspected for the presence of potential roosting features (PRFs) and signs of occupancy by bats such as staining, droppings and feeding remains.

6.4.3.5.2 Static Detector Deployment

A total of 11 detectors were deployed during spring, summer and autumn in 2023 and 2025, as per the guidance outlined by Collins (2023). Maps of static detector deployment locations by year are provided in Figures 6.5, 6.6 and 6.7 in Volume 4 of this rEIAR.

All recordings were made in full spectrum, retaining all amplitude and harmonic information from the original bat call for subsequent analysis. Bat calls were analysed using Kaleidoscope Pro (5.3.9) Software. All files were split to a maximum duration of 15 seconds and automatically identified to species level, or genus level as appropriate, using auto-ID bat classifiers (Bats of Europe 5.2.1).

Data was manually verified in order to provide an additional layer of quality assurance. All files with auto-ID for Nathusius' pippistrelle and brown long eared bat were manually checked, as they are often misidentified by Kaleidoscope Pro (5.3.9) along with all NoID files and a minimum of 10% of each of the other file types.

Bat activity during static detector surveys was measured by the number of bat passes recorded. Bat passes are commonly used as a metric for bat activity and determine species presence (Kerbiriou et al., 2019). For our analysis, a bat pass is defined as the detection of sound calls from a single bat species within a 15 second sound file. If several species are detected within the same sound file, Kaleidoscope auto-id will choose as label the most predominant species present in the sound file, while during manual verification, the rarest species recorded in the checked file was chosen as label.

6.4.3.5.3 Activity Transect Surveys

Transects are complementary to data collected from static bat detectors and can aid in identifying commuting and foraging corridors and to help gain understanding of bat abundance within the survey area. Point counts (of a fixed duration) can be incorporated into transects to survey specific features to provide information on comparative density of use.

Transects were completed in each of the three rounds in 2023 with the use of Batlogger M2 bat detector in accordance with Collins (2023).

6.4.3.6 Bird Surveys (FT)

6.4.3.6.1 Breeding Wader & Waterbirds

Survey transects and point counts to assess the presence of breeding wader populations were completed during the 2021, 2022, 2023 and 2024 breeding seasons. A number of methods were combined from published literature including Bibby et al, (2000), Gilbert et al, (1998), O'Brien & Wilson (2011) and SNH (2017) to estimate numbers of target species breeding within this envelope.

Methods utilised were grouped into two categories; those for breeding lapwing *Vanellus vanellus* and those for other species such as curlew *Numenius arquata*, common snipe *Gallinago gallinago*, redshank *Tringa totanus*, common sandpiper *Actitis hypoleucos* and ringed plover *Charadrius hiaticula*. For each species, a pre-defined matrix of suitable habitats was created and used to select target habitats for survey (Table 6-3).

Table 6-3: Target Species and associated suitable breeding habitat

Target Species	Suitable Breeding Habitat
Lapwing	Lowland wet grassland, arable farmland, cutover bog with pools and wet grassland
Snipe	Wet pastures, marsh, bogs (intact and cutover) and fens
Redshank	Bog
Curlew	Bog
Common Sandpiper	Streams/rivers in bog
Ringed Plover	Cutover bog, milled peat with exposed gravel

Survey methods for lapwing followed those in Bibby et al. (2000) where the primary count unit for breeding birds is defined as an incubating female. In addition, displaying birds, birds standing guard near nests or distraction displays were also recorded as indications of occupied territories. Extensive areas of open ground were covered from roads, farm tracks or roadsides (where possible); larger areas of open ground not visible from easily accessible vantage points were walked using transects.

Surveys were carried out during the time periods recommended in Bibby et al. (2000) although territorial behaviour noted outside these periods was also utilised in the assessment. For all additional species of wader, the employed method was the same and utilised transects walked through suitable habitat within three hours of dawn or dusk. Count units were predefined for each target species and included in the method statement provided to surveyors.

All species encountered (seen or heard) were recorded and their abundance, behaviour, sex/age and breeding status noted. Any species occurring more than 100 m from the observer, or flying over the site and not using it, were recorded as 'additional' species to further inform the baseline survey.

6.4.3.6.2 VP Surveys

Vantage Point (VP) surveys were carried out at the Application Site during the breeding seasons of 2021, 2022, 2023 and 2024 and non-breeding seasons of 2020-21, 2021-22, 2022-23, 2023-24 and 2024-25, in accordance with Scottish Natural Heritage (SNH) methodology for onshore Wind Farms (SNH, 2017). Additional migration VP watches were also completed in Autumn 2021, 2022, 2023 & 2024 and Spring 2022, 2023, 2024 & 2025.

A total of eight VP locations overlooking the Application Site flight activity study area were used during the VP survey (see Table 6-4). The main purpose of VP survey watches is to collect data on target species that will enable estimates to be made of the time spent flying over the defined survey area and the relative use of different parts of the defined survey area.

Data recorded included flight activity of target species (flight height, duration, directionality) in addition to metrics such as flock size (per recorded transit) and time of observation. Detailed notes of each observation of a target bird species was recorded including behaviour, gender (where possible), numbers, flight height, associated habitat and the period of time spent within the study area. Successful foraging events were also noted if they arose. Other bird species seen or heard during the VP surveys were also recorded and were considered separately in the analysis as additional species. Flight activity was annotated onto field maps. Total numbers of birds present both on arrival at the vantage point and on departure is noted. Binoculars and telescopes are used to scan for target species. Dictaphones are utilised to dictate bird heights whilst tracking flight events.

VP surveys involved carrying out 2 x 3-hour watches at each VP every month in survey seasons covered. As per SNH guidance (2017), the requisite 36 hours were carried out at each vantage point during each surveyed breeding period, and 36 hours each surveyed wintering period. Additional VP survey rounds (6 hours per VP) were conducted in in multiple years (2021-2025) to cover the spring and autumn migration periods, exceeding SNH (2017) requirements.

The bird activity recorded both inside and outside the Application Site boundary was used as part of the overall analysis and assessment of target species usage of the study area. All surveys were conducted during suitable weather conditions.

Table 6-4: Vantage Point Locations (ITM)

Vantage Point	Eastings (ITM)	Northings (ITM)
1	622926	652324
2	621290	651859
4	621066	653570
5	623254	654061
6	624306	656201
7	623263	657482
8	623122	659316
14	623662	656688

6.4.3.6.3 Species-Specific Surveys

6.4.3.6.3.1 Hen Harrier

The methodology used to survey for hen harrier roosting activity adhered to the Irish Hen Harrier Winter Survey (IHHWS) (O'Donoghue, 2019) and Hardey et al. (2013). Potentially suitable areas of hen harrier roosting habitat were identified based on a desktop study and field observations gathered during surveys.

For each watch, a minimum of two surveyors simultaneously conducted VP surveys starting three hours prior to dusk and continuing until observations were no longer feasible in the dark per IHHWS guidelines (O'Donoghue, 2019). IHHWS guidelines state that surveyors must be present at least 40 minutes before dusk, and as such the survey effort exceeds that required by IHHWS guidelines. Surveyors recorded all hen harrier flight lines and searched for potential roosting behaviour. Flight durations were recorded in the following height bands: 0-20m, 20-50m, 50-100m, 100-200m and 200m. Other additional non-target species were also recorded where observed.

6.4.3.6.3.2 Merlin

Merlin surveys were centred on suitable habitat for the species and methods used are based on previous surveys in Ireland (Lusby et al. and Fernandez *et al*.); developed in association with Dr. John Lusby of BirdWatch Ireland. The study area for merlin is defined as a 1km square centrally placed on the available suitable area. Three visits were undertaken to the study square, with visits at least four weeks apart and timed to coincide with periods of Merlin activity (April to mid-May, mid-May to late June, and July to mid-August).

Targeted transects within suitable habitats were selected and intensively searched for evidence of Merlin. Features such as suitable nest sites and perches were noted and the grid reference recorded. Recorded information/evidence is defined in the form of secondary merlin evidence, prey remains, nests and direct observations. Locations of collected evidence or observations were recorded for subsequent visits and prey remains and pellets were collected, placed in a bag and labelled with the date, site and location (for subsequent analysis). Additional raptor species were also noted where present.

6.4.3.6.3.3 Barn Owl

Surveys for Barn Owl (*Tyto alba*) were undertaken during the breeding season of 2021, 2022, 2023 and 2024 across the months of April – July inclusive. Survey methodology followed the TII guidance document 'Survey and Mitigation Standards for Barn Owls to inform the Planning, Construction and Operation of National Road Projects' (TII, 2021); the methodology utilised also referenced with Shawyer (2012) 'Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment'.

6.4.3.6.3.4 Kingfisher

Targeted surveys for Kingfisher (*Alcedo atthis*) were carried out over a four-year period (2021-2024) throughout the course of their breeding season (March to early July 2021-2024) following NRA (2009) guidance.

6.4.3.6.3.5 Black-headed Gull Colony

Black-headed Gull (*Chroicocephalus ridibundus)* colonies within the site were surveyed following standard breeding gull methodologies, using annual colony counts undertaken across a four-year period 2021-2024). Surveys were carried out during the peak breeding season (May–June), coinciding with the incubation stage when nests and attending adults are most reliably counted.

6.4.3.6.4 Hinterland Surveys

Hinterland surveys covered 57 sites within 15 km from Littleton Bog. These sites were chosen as they had suitable habitat for the following target groups and species: raptors, waders and waterfowl. Hinterland surveys were carried out every month across all survey seasons from winter 2020-2021 to winter 2024-2025. The methodology used for wetland sites during the winter hinterland surveys followed I-WeBS (Irish Wetland Bird Survey) methodology (Lewis *et al*, 2019), whereby each location was surveyed for the duration necessary to identify and obtain a count for all target species present. The same approach was adapted for non-wetland sites. A hinterland survey for raptors was conducted in accordance with Raptors: a field guide to survey and monitoring (Hardey *et al.* 2013) to assess Hen Harrier and other raptor activity over the winter and breeding periods in the greater surroundings. Table 6-5 indicates where within the *c.* 15 km radius around Littleton Bog where hinterland surveys were carried out.

Table 6-5: Hinterland Survey Locations

Hinterland Site	Location	Easting (ITM)	Northing (ITM)
1	Lisheen Mine Windfarm north	622116	667888
1A	Lisheen Tailing Ponds HH Watch	623316	666843
2	Lisheen Mine Windfarm north-west	621132	668515
3	Lisheen Mine Windfarm a)	620321	669125
4	Lisheen Mine Windfarm b)	620833	667567
5	Lisheen Mine Windfarm west	619576	667677
6	River Suir Upper	613337	662509

Hinterland Site	Location	Easting (ITM)	Northing (ITM)
6A	River Suir Upper floodplain a)	612295	662359
7	River Suir Upper floodplain b)	611396	663400
8	Cabragh Marshes a)	611034	655393
9	Cabragh Marshes b)	610395	655024
10	Littleton North	618527	655008
11	Two Churches/Cheese factory	622397	657737
12	Derricknew	619355	649447
13	Killeen Bog	618775	649400
14	Killeen Bog from Derrynaflan Church	618046	648486
15	Burgesland/ Horse & Jockey south	614516	649035
16	Templetouhy Bog north	620997	672315
17	Gilmoy	628164	670839
17a	Rossdarragh north of Gilmoy	625891	672673
18	Ballybrista on N62 Thurles to Templemore	610552	665551
19	Bruckana Windfarm	622001	669312
19A	Bruckana WF HH Watch	621906	667889
20	Castletown, north of Popes Bog	621254	662936
21	Along M8 near Twomileborris	621507	658741
22	The Loughane, Bailief	631854	663478
23	Killeen Bog east	620290	649044
24	Littleton Castle	618022	653585
25	Balief Castle	632190	663793
26	Foulkscourt Castle near Johnstown	627970	667988
27	Bawnmore a)	623801	665911
27A	Bawnmore b)	624237	665262

Hinterland Site	Location	Easting (ITM)	Northing (ITM)
28	Bawnmore c)	625036	665406
29	Moyneard	619074	663599
30	Ballysorrel	615243	673592
31	Inch Bog by Drish/Black River	623903	663167
32	Boulick Graveyard & folly	625912	656320
33	Rathpatrick near Laois boarder	624457	670529
34	Rahelty Castle	617190	660852
35	Killough Roadstone	610457	650119
36	Grallagh Castle, Horse & Jockey South	615517	649298
37	Laffansbridge Quarry a)	618876	646373
37A	Laffansbridge Quarry b)	618717	646275
38	Graystown Castle	619301	645797
39	Shale Quarry, Kilbrennal	622099	648122
40	Templehill Castle, Templetouhy	619082	671684
41	Ballynonty/ Ballysloe	624758	651427
42	St. Peter's Moycarkey, Horse & Jockey North	614970	653076
43	Littleton Bog on site near Two Churches	627036	656409
44	Ballybeg Bog	618868	653670
45	Pope's Bog (North)	623135	661460
46	Pope's Bog (South)	623212	660227
47	Inch Bog/Graiguepadeen	624809	663018
48	Inchirourke	624549	664897
49	Derryfadda	624075	665496
50	Clonsaul	624959	665241

6.4.3.7 Mammal Walkover Surveys

Walkovers of the Application Site were undertaken on 22nd September 2025 and 9th, 10th, 14th and 23rd October 2025 by Fehily Timoney ecologists, including a search for mammals with a particular focus on Badger (*Meles meles*), Red Squirrel (*Sciurus vulgaris*) and Pine Marten (*Martes martes*) (Otter covered within the aquatic surveys above in Section 6.4.3.4.3). Surveys were undertaken following best practice guidance (Harris et al, 1989; NRA, 2009) and the locations of any indicators of badger presence noted, including setts, prints, latrines, snuffle holes and guard hairs. Observations of other mammals or indicators of their presence were also recorded where encountered.

6.4.3.8 Marsh Fritillary Surveys

Marsh Fritillary (*Euphydryas aurinia*) is Ireland's only legally protected insect species and is afforded protection under Annex II of the EU Habitats Directive. Areas of the Marsh Fritillary larval foodplant (Devil's-bit scabious (*Succisa pratensis*)) are widely distributed across Littleton Bog, and to a lesser extent Lanespark and Derryvella Bogs. As such there is a large resource of potentially suitable habitat for this species in the locality and has been confirmed during Bord na Móna ecological surveys.

As part of habitat surveys, habitats were assessed for suitability to support Marsh Fritillary having regard to the National Biodiversity Data Centre Marsh Fritillary Habitat Condition Form: i.e. sites with the presence of the butterfly's foodplant, Devil's-bit Scabious. Habitats which were determined to potentially support Marsh Fritillary (as per the Habitat Condition Form) were subjected to dedicated Marsh Fritillary larval web searches undertaken as described in the NBDC Marsh Fritillary Larval Web Recording Form and within the optimal period for such surveys (i.e. August – September, on dry days, with no rain and little wind). The results of these surveys are presented below in Section 6.7.5.2.5.

6.5 Methodology for Assessment of Impacts & Effects

The following sections outline the methodology used to identify key ecological receptors (KERs) and assess the potential impacts and effects of peat extraction (including ancillary activities such as vegetation clearance and drainage installation), and the rehabilitation at the Application Site.

6.5.1 Key Ecological Receptors

The assessment in this chapter follows a precautionary screening approach with regard to the identification of KERs following the TII Guidelines. Based on the comprehensive desk study, initial site visits, stakeholder consultation and ecological field surveys, KERs considered likely to occur in the Zone of Influence (ZoI) of the Project were identified. The KERs are those receptors of ecological importance that may be affected by likely significant effects. The KERs include habitats and species that are protected under the following legislation:

- Annexes of the EU Habitats Directive and EU Birds Directive including Qualifying Interests (QI) and Special Conservation Interests (SCIs) of Special Areas of Conservation (SACs) and Special Protection Area (SPAs) within the likely ZoI of the Application Site.
- Species protected under the Wildlife Act 1976 / Wildlife (amendment) Act 2000.
- Species protected under the Flora Protection Order 2022.
- Species protected under the Irish Red Data List of Irish Plants (BSBI).
- Species listed under the International Union for the Conservation of Nature (IUCN) Red List.

6.5.2 Importance of Ecological Receptors

The importance of the ecological receptors identified was assessed using geographic importance levels (e.g., International, National, County, and Local Importance) following the TII Guidelines (2009). This ensures that only receptors of significant ecological importance were selected for detailed evaluation (i.e. Local (Higher Importance) or above). A summary of the valuation system extracted from TII (2009) is provided below in Table 6-6.

Table 6-6: Valuation of Features (TII, 2009)

Scale of Importance	Criteria
International Importance	'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. Proposed Special Protection Area (pSPA). - Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). Features essential to maintaining the coherence of the Natura 2000 Network Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive • Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). • World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). • Biosphere Reserve (UNESCO Man & The Biosphere Programme) • Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). • Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). • Biogenetic Reserve under the Council of Europe. • European Diploma Site under the Council of Europe.

Scale of Importance	Criteria
National Importance	Site designated or proposed as a Natural Heritage Area (NHA) or proposed Natural Heritage Area (pNHA). Statutory Nature Reserve. Refuge for Fauna and Flora protected under the Wildlife Acts. National Park. Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species protected under the Wildlife Acts; and/or • Species listed on the relevant Red Data list. • Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive
County Importance	Area of Special Amenity. Area subject to a Tree Preservation Order. Area of High Amenity, or equivalent, designated under the County Development Plan. Resident or regularly occurring populations (assessed to be important at the County level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. County important populations of species; or viable areas of semi-natural habitats; or natural heritage features identified in the National or Local BAP; if this has been prepared. Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

Scale of Importance	Criteria
Local Importance (Higher)	Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared; Resident or regularly occurring populations (assessed to be important at the Local level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or o Species listed on the relevant Red Data list. Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.
Local Importance (Lower)	Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; Sites or features containing non-native species that is of some importance in maintaining habitat links.

6.5.3 Significance of Effects

The assessments included within this chapter also adhered to the EPA Guidelines (2022) ensuring all significant ecological effects, including Cumulative and Residual Effects, were identified and addressed comprehensively.

A 'significant effect' is one that meets or exceeds a threshold, either supporting or undermining biodiversity conservation objectives for the KERs or biodiversity overall. The objectives can be specific (e.g., for designated sites) or broad (e.g., national/local policies or biodiversity enhancement). Effects may be significant at scales ranging from international to local (CIEEM, 2018) (updated in 2024). Significance is assessed based on consideration of whether:

- Any processes or key characteristics of KERs will be removed or changed.
- There will be an effect on the nature, extent, structure and function of important ecological features.
- There is an effect on the average population size and viability of ecologically important species.
- There is an effect on the conservation status of important ecological habitats and species.

6.5.4 Do-Nothing Scenario

As stated in EPA (2022), the 'Do-Nothing' Scenario refers to the projected state of the environment in the future if the proposed Project did not proceed. This assessment considers the natural progression of environmental conditions at the Application Site in the absence of the Project, including any ongoing processes, existing land uses, and potential changes over time. In the context of the Application Site, two 'Do-Nothing' Scenarios are considered, as follows:

- The first 'Do-Nothing' scenario is defined as the peat extraction and ancillary activities having not occurred at the Application Site after 1988.
- The second 'Do-Nothing' scenario assumes that Substitute Consent (the application for which this chapter has been authored) is refused. In this case, the ongoing obligations under the IPC Licence would still apply, requiring Bord na Móna to continue implementing the Cutaway Bog Rehabilitation Plans. Bord na Móna's obligations under the IPC Licence remain in place regardless of the Substitute Consent process.

6.5.5 Remedial Impact Assessment

Since August 2001, all operations at the Application Site in relation to peat extraction and associated works have been licenced under IPC Licence (Ref. P0499-01). In order to fulfil condition 10 of the IPC Licence, Cutaway Bog Rehabilitation Plans will be implemented across the Application Site. The key objective of Bord na Móna peatland rehabilitation is environmental stabilisation. The aim of the implemented control measures and mitigation measures is to avoid, reduce or offset potential significant residual effects.

The remedial impact assessment of the Project follows a phased evaluation approach to assess biodiversity effects throughout the Project's lifecycle. This approach ensures a clear understanding of the changing environmental conditions, and the control measures and management actions in place or proposed to be implemented. The assessments for each Phase of the Project are presented in the following:

- **Peat Extraction Phase (1988 - 2017**): Considers impacts due to peat extraction and associated activities at the Application Site from when the EIA Directive was required to be transposed into Irish law in 1988 until the cessation of peat extraction in 2017. The baseline for the assessment is established as the likely ecological condition at the Application Site in 1988 following installation of drainage and vegetation clearance in 1940s and 1950s and peat extraction ongoing since at least the 1950s. As much of the Application Site would have been drained by the 1988 baseline and characterised by dominant cutover bog, the habitats present then would have predominantly bare peat and cutover bog with small sections of remnant raised bog. As described in full in Chapter 4, peat extraction was reduced post-1988 from pre-1988 levels, subsequently significantly reduced post-2006 and all works ceased entirely by 2017.
- **Current Phase:** Considers the management of the Application Site from 2017 to present day (2017 to present day) including the implementation of rehabilitation measures under Phase 1 Rehabilitation (2018-2021).
- **Remedial Phase:** Considers future impacts of planned implementation of rehabilitation measures proposed as part of the Cutaway Bog Rehabilitation Plans.

6.5.5.1 Residual Effects

Residual effects comprise the impacts that remain after all mitigation, control measures and best practice measures have been implemented at the Application Site. It evaluates the extent to which these measures have effectively minimised or eliminated potential adverse effects on biodiversity receptor, and other environmental factors across each of the above Phases.

6.5.5.2 Cumulative Effects

The EPA Guidance (EPA 2022) defines cumulative effects as, "*The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects*". A relatively minor effect on an ecological receptor caused by the Project in isolation could result in a significant effect if it is added to by impacts from other projects. This Chapter identifies and provides an assessment of likely significant cumulative effects caused by the Project in combination with other projects. Different types of actions can cause cumulative impacts and effects as outlined below.

"*Additive/incremental – in which multiple activities/projects (each with potentially insignificant effects) add together to contribute to a significant effect due to their proximity in time and space.*

Associated/connected – a development activity 'enables' another development activity e.g. phased development as part of separate planning applications. Associated developments may include different aspects of the Project which may be authorised under different consent processes. It is important to assess the potential impacts of the 'project' as a whole and not ignore impacts that fall under a separate consent process".

Taking into account the above, along with the characterisation of the KERs and the description of effects, information regarding other relevant plans and projects has been gathered to assess the potential for cumulative effects and effect interactions between effects considering spatial and temporal scope of the Project.

6.6 Site Location and Project Description

Detail on the Application Site's location, the wider surrounding landscape, including specific details on the day-to-day operation of peat extraction and ancillary activities at the Littleton site between 1952 and 2017 is provided in full in Chapter 4 - Project Description and thus is not included here aside from a brief summary, unless absolutely necessary, to avoid repetition.

6.6.1 Site Location

The Application Site occupies 1,616 hectares (ha) and comprises the Longfordpass Bog, Littleton Bog, Lanespark Bog and Derryvella Bog. The Application Site is in Co Tipperary, surrounded by the villages of Littleton, Gorthnahoe and New Birmingham. The Application Site lies largely south (protruding north of) the M8 motorway. An overview of the Application Site's location is provided in Figure 6.1 in Volume 4.

The Application Site is located within the S15, S25 and S26 10km grid squares, and S25A, S25B, S25C, S25G, S25H, S25I, S25J, S25M, S25N, S25P, S15V, S25F, S26A and S26F 2km grid squares[3]. The Application Site lies within the Suir WFD Catchment, with most of the site within the Suir_SC_040 WFD Sub-Catchment and the southern extent falling within the Suir_SC_010 WFD Sub-Catchment (which it shares with the Lower River Suir SAC)[4]. The Application Site extends over the Templemore groundwater body (GWB) (IE_SE_G_131) and the Thurles GWB (IE_SE_G_158)[4].

6.6.2 Project Description Details

The summary of the project is extracted from Chapter 4 - Project Description. Peat extraction and ancillary activities undertaken at the Application Site since 1988, which comprise the development for which substitute consent is being sought, and for which this Biodiversity Chapter is being prepared, consisted of the following:

- Installation of surface water drainage infrastructure at the Application Site to facilitate peat extraction activities from 1988 to present day;
- Vegetation clearance to facilitate peat extraction activity from 1988 to 2018;
- Industrial scale peat extraction (milled peat) at the Application Site from 1988 to 2018;
- Use and maintenance of pre-existing ancillary supporting infrastructure and services to facilitate peat extraction (e.g. railway infrastructure, drainage (drains, silt ponds, pumps), etc.), from 1988 to present day;
- Control Measures associated with the above, inclusive of the IPC Licence measures (Ref. P0499-01) which commenced from August 2001 onwards to the present day; and
- All associated site development and ancillary works.

6.6.3 Application Site Over Time

A brief description is provided below of status of development within the Application Site. Prior to 1988, all four bogs within the Application Site (i.e. Longfordpass, Littleton, Lanespark, and Derryvella) were fully drained and all four bogs were subject to peat extraction. Clearance and drainage works began on Littleton bog in 1941,on Longfordpass bog in 1947, and on Lanespark, and Derryvella bogs in 1968 respectively.

6.6.3.1 Peat Extraction Phase: 1988-2017

Longfordpass Bog

- In 1988, peat extraction was at its peak across the Longfordpass bog. Investigation of satellite imagery and annual reports indicate that by 1988, approximately 226ha of Longford Pass Bog was subject to peat extraction. Thus, the main landcover type at this time was cutover peat. Drainage was already installed, predominantly in a north-south orientation.
- Railway infrastructure was laid in the bog.
- In 1988, there was 1. no pumps, and 3 no. silt ponds installed on Longfordpass Bog.
- Between 1988 and 2017, the extent of peat extraction gradually decreased. In 1995, approximately 173ha were subject to peat extraction.

[3] National Biodiversity Data Centre's Biodiversity Maps available at https://maps.biodiversityireland.ie/Map and accessed on the 14 November 2025
[4] Environmental Protection Agency (EPA) Water Map available at https://gis.epa.ie/EPAMaps/Water and accessed on the 14 November 2025

- Cessation of industrial peat extraction had occurred by 2017.
- The status in 1994 was as described for 1988, with all infrastructure in place and activities ongoing, but peat extraction would have just surpassed its peak extraction period, and most extraction-related activities would have started to decrease by 1994.

Littleton Bog

- In 1988, peat extraction was being carried out across the majority of Littleton Bog. Investigation of satellite imagery and annual reports indicate that by 1988, approximately 795ha of Littleton Bog was subject to peat extraction, while approximately 99ha were drained (but not subject to peat extraction). Thus, the main landcover type at this time was cutover peat.
- In 1988, there were 12 no. pumps installed on Littleton Bog.
- In 1995, there was a significant reduction in peat extraction at Littleton Bog and approximately 134ha were subject to peat extraction, approximately 760ha were drained (but not subject to peat extraction). A gradual and consistent reduction in peat extraction activity can be seen in both Littleton North and Littleton South from 2004 onwards.
- Cessation of industrial peat extraction had occurred by 2017.
- There is 1 no. silt pond on the western boundary of Littleton Bog. There are currently 4 no. pump sites at Littleton bog. None of the 4 no. pumps are active today.
- The status in 1994 was as described for 1988, with all infrastructure in place (other than one additional silt pond added to the bog) and activities ongoing. Peat extraction would have been near its peak with extraction-related activities starting to decrease in 1994/1995

Lanespark Bog

- In 1988, peat extraction was at its peak across Lanespark bog. Investigation of satellite imagery and annual reports indicate that by 1988, approximately 239ha of Lanespark Bog were subject to peat extraction, occupying the majority of the central portion with some undeveloped land along the northeastern and southwestern boundaries. Thus, the main landcover type at this time was cutover peat. Drainage was already installed, predominantly in a north-south orientation.
- Between 1988 and 2017, the extent of peat extraction reduced. In 1995, approximately 201ha were subject to peat extraction. In 2004, approximately 65ha were subject to peat extraction.
- Railway infrastructure was laid in the bog.
- In 1988, there were no pumps, and 4 no. silt ponds installed on Lanespark Bog.
- The status in 1994 was as described for 1988, with all infrastructure in place and activities ongoing, but peat extraction would have just surpassed its peak extraction period, and most extraction-related activities would have started to decrease by 1994.

Derryvella Bog

- In 1988, peat extraction was at its greatest extent across Derryvella bog. Investigation of satellite imagery and annual reports indicate that by 1988, approximately 92ha of Derryvella Bog were subject to peat extraction. Thus, the main landcover type at this time was cutover peat. Drainage was already installed, predominantly in a north-south orientation.
- Railway infrastructure was laid in the bog.
- In 1988, there were no pumps, and 1 no. silt ponds installed on Derryvella Bog.

- Between 1988 and 2017, the extent of peat extraction reduced. In 1995, c.44ha were subject to peat extraction. In 2004, c.30ha were subject to peat extraction.
- Cessation of industrial peat extraction occurred by 2017.
- There are now no pumps in Derryvella bog. There is one silt pondalong the western boundary.
- The status in 1994 was as described for 1988, with all infrastructure in place and activities ongoing, but peat extraction would have just surpassed its peak extraction period, and most extraction-related activities would have started to decrease by 1994.

The general activities within the Application Site over a calendar year during each of the four quarters in 1988 and through to 2017, included:

- January to March: Drain/machinery/pump/silt pond maintenance, stockpile removal, peat transportation
- April to June: Peat extraction, stockpile development/removal, peat transportation
- July to September: Peat extraction, stockpile development/removal, peat transportation
- October to December: Drain/machinery/pump/silt pond maintenance, stockpile removal, peat transportation

Between 1988 and 2017, an average of 170,593 tonnes of peat were extracted each year, with a total of approximately 5,117,798 tonnes extracted between 1988 and the cessation of peat extraction in 2017... Following the cessation of peat extraction, any remaining peat stockpiles were delivered to Shannonbridge Power Station and Derrinlough Briquette Factory, with the last stockpile being sent in mid-2019.

6.6.3.2 Current Phase: 2017- Present Day

In January 2021, Bord na Móna formally announced that industrial peat extraction across all bogs within its landholding had ceased, although peat extraction had ceased at the Application Site prior to this in 2017. The Application Site still operates under the requirements of IPC Licence (Ref.: P0499-01), and any decommissioning works undertaken with respect to peat extraction are in accordance with Condition 10 of the IPC Licence.

Rehabilitation Phase 1 works commenced in Littleton, Longfordpass, Lanespark and Derryvella in 2018 with drain-blocking and hydrological management. Drains have been blocked at the Application Site using a number of methods depending on the size and type of drain in accordance with the Best Practice in Raised Bog Restoration in Ireland (Mackin et al., 2017). These methods will include the following:

- Peat dams within small drainage channels on the cutover bog; and
- Removal or blocking of drainage pipes, or modification of drainage levels, where required.

To date, the only decommissioning underway at the Application Site was the removal of remaining peat stockpiles from the bogs. This was completed by mid-2019. The removal of rail infrastructure in Lanespark was completed in 2024. Infrastructure to be decommissioned at the Application Site will be completed in line with all conditions of the IPC Licence and includes as relevant:

- Clean-up of remaining or unconsolidated waste or materials located in bogs, yards, buildings and offices;
- Clean silt ponds;
- Decommission and removal of rail tracks;

- Decommission peat stockpiles;
- Decommission or removal of buildings and compounds;
- Decommission of fuel tanks and associated facilities;
- Decommissioning and removal of bog pump sites; and
- Decommissioning or removal of septic tanks.

As required by the IPC Licence, waste items are and will continue to be removed for recycling or disposal, using external contractors with the required waste collection permits, and waste records are and will continue to be maintained. Where possible, Bord na Móna will target preferred waste treatment methods from the waste hierarchy to identify waste that can reused or recycled in lieu of recovery or disposal.

6.6.3.3 Remedial Phase: Future

For Rehabilitation Phase 2 works, Bord na Móna are proposing to carry out additional rehabilitation in Derryvella Bog in 2026. No additional Rehabilitation works are proposed at Littleton, Longfordpass and Lanespark, however monitoring measures are ongoing at these bogs under Rehabilitation Phase 1). The rehabilitation, monitoring and maintenance will proceed as per the requirements of IPC Licence (Ref.: P0499-01), (waste handling and disposal, the decommissioning and rehabilitation of cutaway bogs and monitoring and maintenance, particularly around water management).

As with the Current Phase, the active ongoing rehabilitation of the Application Site during the Remedial Phase and the continued natural recolonisation and succession with flora, habitats and fauna, coupled with continued monitoring and aftercare means the continued removal of potential sources for detrimental effects, and the improvement of the area for ecological gain through colonisation by native and indigenous species.

6.7 Ecological Baseline

As outlined, the Project covers the period from 1988, when the EIA Directive was required to be transposed into Irish law, through to the present day and into the future. Specifically, this Chapter evaluates the likely significant effects on biodiversity using the year 1988 as the baseline. 1988 represents the ecological conditions at the time the EIA Directive was required to be transposed into Irish law and serves as the reference point for assessing historical impacts.

By 1988, peat extraction at the Application Site was well established having commenced in 1950s, with vegetation clearance and other preparation works having commenced in 1941 at the earliest, in Littleton Bog. Sod peat extraction commenced in Littleton Bog in 1952, which assisted with the overall drainage of the bog by removing the acrotelm. Clearance and drainage works on Longfordpass bog commenced in 1947 and Lanespark, and Derryvella bogs commenced in 1968 respectively.

Notably, peat extraction reduced from 1988 compared with extraction prior to 1988. During the latter part of the 1988 to 2017 period (i.e., from late 1990s/2000 onwards) peat extraction gradually slowed down and then ceased permanently in 2017 across the Application Site with a related reduction in fuel handling/refuelling, machinery maintenance and stockpile development.

The operational history of each of the four bogs is summarised below in Table 6-7.

Table 6-7: Operational history of the Application Site

Bog	Commencement of Site Preparation Works	Extraction Commenced	Extraction Ceased
Longfordpass Bog	1947	1952	2017
Littleton Bog	1941	1952	2017
Lanespark Bog	1968	1973*	2017
Derryvella Bog	1968	1973*	2017

*Aerial imagery of the Application Site shows peat extraction had commenced by 1973.

The subsequent sections below describe the likely ecological baseline habitats and species present at the Application Site in 1988 in the context of the extensive drainage and peat extraction undertaken by this time. This is the baseline from which each Phase will be assessed in terms of impacts.

6.7.1 Desk Study Records

The four bogs that make up the Application Site are situated within the S15, S25 and S26 10km grid squares, and S25A, S25B, S25C, S25G, S25H, S25I, S25J, S25M, S25N, S25P, S15V, S25F, S26A and S26F 2km grid squares, extracted from the NBDC. Species records from all 2km grid squares which overlap the Application Site are summarised below in Table 6-8.

Table 6-8: Historical records from the 2km grid squares overlapping with the Application Site (S25A, S25B, S25C, S25G, S25H, S25I, S25J, S25M, S25N, S25P, S15V, S25F, S26A and S26F).

Common Name (Latin Name)	Grid Sq	Earliest Record	Latest Record	Designation
Birds				
Black-headed Gull (*Chroicocephalus ridibundus*)	S15V	02/05/2021	02/05/2021	Wildlife Acts BoCCI Amber List
Curlew (*Numenius arquata*)	S15V, S25C, S25G, S26A	31/07/1991	02/05/2019	Wildlife Acts BoCCI Red List EU Birds Directive: Annex II
Goldcrest (*Regulus regulus*)	S15V, S25B, S25F, S25G, S25J, S25M	31/07/1991	31/12/2011	Wildlife Acts BoCCI Amber List
Greenfinch (*Chloris chloris*)	S15V, S25B, S25F, S25G, S25J, S25M	31/07/1991	31/12/2011	Wildlife Acts BoCCI Amber List
Hen Harrier (*Circus cyaneus*)	S15V	31/12/2011	31/12/2011	Wildlife Acts BoCCI Amber List EU Birds Directive: Annex I

Common Name (Latin Name)	Grid Sq	Earliest Record	Latest Record	Designation
House Sparrow (*Passer domesticus*)	S25B, S25F, S25G, S25J, S25M, S26A, S26F	31/07/1991	31/12/2011	Wildlife Acts BoCCI Amber List
Kestrel (*Falco tinnunculus*)	S15V, S25G, S25J	31/12/2011	31/10/2021	Wildlife Acts BoCCI Red List
Kingfisher (*Alcedo atthis*)	S25B	31/12/2011	31/12/2011	Wildlife Acts BoCCI Amber List EU Birds Directive: Annex I
Lapwing (*Vanellus vanellus*)	S25C, S25G, S25J	31/07/1991	29/03/2019	Wildlife Acts BoCCI Red List EU Birds Directive: Annex II
Linnet (*Linaria cannabina*)	S15V, S25B, S25G, S25M	31/07/1991	31/11/2011	Wildlife Acts BoCCI Amber List
Little Grebe (*Tachybaptus ruficollis*)	S25F	02/09/2016	02/09/2016	Wildlife Acts
Mallard (*Anas platyrhynchos*)	S15V, S25C	31/07/1991	13/02/2019	Wildlife Acts BoCCI Amber List EU Birds Directive: Annex II, Annex III
Meadow Pipit (*Anthus pratensis*)	S15V, S25A, S25B, S25G, S25J, S25M, S26A	31/07/1991	31/12/2011	Wildlife Acts BoCCI Red List
Mistle Thrush (*Turdus viscivorus*)	S15V, S25B	31/07/1991	31/12/2011	Wildlife Acts
Peregrine (*Falco peregrinus*)	S25G, S25N	31/12/2011	31/12/2011	Wildlife Acts EU Birds Directive: Annex I
Pheasant (*Phasianus colchicus*)	S15V S25B, S25G, S25J, S25M	28/04/2018	28/04/2018	Wildlife Acts EU Birds Directive: Annex II, Annex III
Redwing (*Turdus iliacus*)	S25B, S25G, S25J	31/12/2011	31/12/2011	Wildlife Acts BoCCI Red List
Robin (*Erithacus rubecula*)	S15V, S25B, S25G, S25J, S25M, S26A	17/02/2015	31/07/1991	Wildlife Acts
Sand Martin (*Riparia riparia*)	S15V	31/07/1991	31/07/1991	Wildlife Acts BoCCI Amber List

Common Name (Latin Name)	Grid Sq	Earliest Record	Latest Record	Designation
Shoveler (*Spatula clypeata*)	S25C	29/03/2019	29/03/2019	Wildlife Acts BoCCI Red List EU Birds Directive: Annex II, Annex III
Skylark (*Alauda arvensis*)	S25A, S25B, S25F, S25G, S26A	31/07/1991	31/12/2011	Wildlife Acts BoCCI Amber List
Snipe (*Gallinago gallinago*)	S15V, S25A, S25B, S25C, S25G, S26A,	02/05/2019	02/05/2019	Wildlife Acts BoCCI Red List EU Birds Directive: Annex II, Annex III
Spotted Flycatcher (*Muscicapa striata*)	S15V, S25B	31/12/2011	31/12/2011	Wildlife Acts BoCCI Amber List
Starling (*Sturnus vulgaris*)	S25B, S25F, S25G, S25J, S25M	31/07/1991	31/12/2011	Wildlife Acts BoCCI Amber List
Stock Dove (*Columba oenas*)	S25F, S25G	31/07/1991	31/12/2011	Wildlife Acts BoCCI Red List
Stonechat (*Saxicola rubicola*)	S25F	30/05/2016	30/05/2016	Wildlife Acts
Swallow (*Hirundo rustica*)	S15V, S25A, S25B, S25F, S25G, S26A, S26F	31/07/1991	28/04/2018	Wildlife Acts BoCCI Amber List
Teal (*Anas crecca*)	S25C	29/03/2019	29/03/2019	Wildlife Acts BoCCI Amber List EU Birds Directive: Annex II, Annex III
Whinchat (*Saxicola rubetra*)	S25B	04/05/2016	04/05/2016	Wildlife Acts BoCCI Red List
Whooper Swan (*Cygnus cygnus*)	S25I	18/02/2019	18/02/2019	Wildlife Acts BoCCI Amber List EU Birds Directive: Annex I
Wigeon (*Mareca penelope*)	S25C	13/02/2019	13/02/2019	Wildlife Acts BoCCI Amber List EU Birds Directive: Annex II, Annex III
Willow Warbler (*Phylloscopus trochilus*)	S15V S25A, S25B, S25F, S25G, S25J, S25M, S26F	31/07/1991	29/05/2021	Wildlife Acts BoCCI Amber List

Common Name (Latin Name)	Grid Sq	Earliest Record	Latest Record	Designation
Woodcock (*Scolopax rusticola)*	S15V	31/12/2011	31/12/2011	Wildlife Acts BoCCI Red List EU Birds Directive: Annex II, Annex III
Yellowhammer (*Emberiza citrinella*)	S25M	31/12/2011	31/12/2011	Wildlife Acts BoCCI Red List
Mammals excl. bats				
Red Squirrel (*Sciurus vulgaris*)	S15V	13/04/2023	13/04/2023	Wildlife Acts
Hedgehog (*Erinaceus europaeus*)	S25M	22/04/2021	22/04/2021	Wildlife Acts
Otter (*Lutra lutra*)	S25A, S25B	15/03/1991	30/08/2010	Wildlife Acts EU Habitats Directive: Annex II, Annex IV
Pine Marten (*Martes martes*)	S25A, S25G, S25J, S26F	24/06/2020	07/08/2021	Wildlife Acts EU Habitats Directive: Annex V
Badger (*Meles meles*)	S25B, S25C, S25F, S25J, S25I, S25J, S25M, S26A, S26F	31/12/2005	31/12/2016	Wildlife Acts
Bats				
Brown Long-eared Bat (*Plecotus auritus*)	S25B	06/08/2018	06/08/2018	Wildlife Acts EU Habitats Directive: Annex IV
Common Pipistrelle (*Pipistrellus pipistrellus sensu stricto*)	S15V	16/08/2017	16/08/2017	Wildlife Acts EU Habitats Directive: Annex IV
Daubenton's Bat (*Myotis daubentonii*)	S25B	08/08/2009	08/08/2009	Wildlife Acts EU Habitats Directive: Annex IV
Leisler's Bat (*Nyctalus leisleri*)	S15V	16/08/2017	16/08/2017	Wildlife Acts EU Habitats Directive: Annex IV
Nathusius's Pipistrelle (*Pipistrellus nathusii*)	S25B	30/07/2014	30/07/2014	Wildlife Acts EU Habitats Directive: Annex IV
Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	S25B	03/08/2019	03/08/2019	Wildlife Acts

Common Name (Latin Name)	Grid Sq	Earliest Record	Latest Record	Designation
				EU Habitats Directive: Annex IV
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	S15V	16/08/2017	16/08/2017	Wildlife Acts EU Habitats Directive: Annex IV
Herpetofauna				
Common Frog (*Rana temporaria*)	S25B	02/09/2016	02/09/2016	Wildlife Acts EU Habitats Directive: Annex V
Smooth Newt (*Lissotriton vulgaris*)	S25F, S25H	30/05/2016	28/05/2018	Wildlife Acts
Invertebrates				
Marsh Fritillary (*Euphydryas aurinia*)	S15V, S25B, S25F, S25H, S25J	04/06/2013	17/06/2023	IUCN: Vulnerable EU Habitats Directive: Annex II
Wall (*Lasiommata megera*)	S25B	10/09/2009	10/09/2009	IUCN: Endangered
White-clawed Crayfish (*Austropotamobius pallipes*)	S25B, S25P	26/08/2002	02/05/2019	Wildlife Acts EU Habitats Directive: Annex II, Annex V
Flora				
Cow-horn Bog-moss (*Sphagnum auriculatum*)	S25J	29/06/2005	29/06/2005	EU Habitats Directive: Annex V
Feathery Bog-moss (*Sphagnum cuspidatum*)	S25J	29/06/2005	29/06/2005	EU Habitats Directive: Annex V
Papillose Bog-moss (*Sphagnum papillosum*)	S25J	29/06/2005	29/06/2005	EU Habitats Directive: Annex V
Soft Bog-moss (*Sphagnum tenellum*)	S25J	29/06/2005	29/06/2005	EU Habitats Directive: Annex V
Invasive Species				
American Mink (*Neovison vison*)	S25A	31/12/2010	31/12/2010	Invasive Species: Regulation S.I. 374/2024 (Ireland) High Impact Invasive Species
Bank Vole (*Myodes glareolus*)	S25A, S25B	05/11/2010	24/06/2013	Medium Impact Invasive Species

Common Name (Latin Name)	Grid Sq	Earliest Record	Latest Record	Designation
Greater White-toothed Shrew (*Crocidura russula*)	S25A, S25B	05/11/2010	24/06/2013	Medium Impact Invasive Species
Jenkins' Spire Snail (*Potamopyrgus antipodarum*)	S25B	18/07/2017	18/07/2017	Medium Impact Invasive Species
Japanese Knotweed (*Reynoutria japonica*)	S25A, S25B, S25J	23/11/2022	02/05/2019	Invasive Species: Regulation S.I. 374/2024 (Ireland) High Impact Invasive Species
Rabbit (*Oryctolagus cuniculus*)	S25A	15/03/1991	20/09/2012	Medium Impact Invasive Species

6.7.2 Water Framework Directive (WFD) Waterbodies

6.7.2.1 Surface Water

The historical and current WFD status, risk rating and Q-values are summarised in Table 6-9. There is great variability across the Application Site and downstream, but Q-values are dominated by Poor to Moderate WFD status. The Q-values (Table 6-9) reflect a similar status for rivers and streams, however individual monitoring sites show marginal variation in Q-values across the years, where data is available.

Table 6-9: WFD status* of receiving water bodies draining the Application Site

Catchment / River (WFD Code)	2007-2009[5]	2010-2012[5]	2010-2015	WFD Risk - Cycle 2	2013-2018	2016-2021	2019-2024	WFD Risk - Cycle 3
	Peat Extraction Phase					Works Ceased	Current Phase	
SUIR_070 (IE_SE_16S020900)	P	M	G	Not at risk	M	M	M	At risk
DRISH_010 (IE_SE_16D020040)	P	M	P	At risk	P	P	P	At risk
DRISH_020 (IE_SE_16D020068)	U/a	U/a	U/a	At risk	P	P	P	At risk
DRISH_050 (IE_SE_16D020200)	P	M	M	At risk	P	P	G	At risk
DRISH_060 (IE_SE_16D020400)	P	M	M	At risk	M	M	M	At risk
CLOVER_010 (IE_SE_16C040100)	U/a	P	P	At risk	P	P	P	At risk

[5] Accessed at https://www.catchments.ie/data/#/dashboard/waterquality?_k=xzdv91

Catchment / River (WFD Code)	2007-2009[5]	2010-2012[5]	2010-2015	WFD Risk - Cycle 2	2013-2018	2016-2021	2019-2024	WFD Risk - Cycle 3
	Peat Extraction Phase					Works Ceased	Current Phase	
CLOVER_020 (IE_SE_16C040300)	G	G	G	Not at risk	M	M	M	At risk
BLACK(TWOMILEBORRIS)_010 (IE_SE_16B010100)	M	G	M	At risk	M	M	P	At risk
NORTH GLENGOOLE_010 (IE_SE_16N280780)	U/a	U/a	U/a	Under Review	P	P	P	Under Review
BREAGAGH(TIPPERARY)_010 (IE_SE_16B030200)	U/a	U/a	U/a	At risk	M	P	P	At risk
BREAGAGH(TIPPERARY)_020 (IE_SE_16B030400)	U/a	U/a	U/a	Under Review	G	M	M	Under Review
Upper Suir Estuary (Transitional Waterbody IE_SE_100_0600)	M	M	M	At risk	Poor	Bad	Poor	At risk
Middle Suir Estuary (Transitional Waterbody IE_SE_100_0550)	M	M	Poor	At risk	Poor	M	M	At risk
Lower Suir Estuary (Transitional Waterbody IE_SE_100_0500)	G	M	M	At risk	G	M	M	At risk
Barrow Suir Nore Estuary (Transitional Waterbody IE_SE_100_0100)	M	M	G	Not at risk	M	M	M	At risk
Waterford Harbour (Coastal Waterbody IE_SE_100_0000)	G	G	G	Under Review	M	M	G	At risk
Eastern Celtic Sea (Coastal Waterbody IE_SE_050_0000)	U/a	U/a	U/a	Not at risk	G	H	H	Not at risk

*H-High, G-Good, M-Moderate, P-Poor, B-Bad, U/a Unassigned

Table 6-10: Q-Values for the various rivers draining the Application Site from 1988-2021, extracted from the WFD.

Station code	1988	1989	1990	1992	1994	1996	1999	2002	2005	2008	2011	2014	2017	2020	2023
Suir_SC_040 WFD Sub-Catchment draining the bulk of the Application Site															
Clover River															
RS16C040100	2	2	1-2	2	2	1	2-3	3	3		3	3	3	3	3
RS16C040300	3-4			3-4		2-3	4	4	4	4	4	4	3-4	3-4	3-4
Breagagh (Tipperary) River															
RS16B030040	4			4											
RS16B030080				3											
RS16B030100	3-4			3-4											
RS16B030200	3-4			3-4											
RS16B030300	4-5			4											
RS16B030400	4			4											
Black (Twomileborris) River															
RS16B010030						3-4	3-4	3	3	3-4	4	3-4	3-4	3-4	3
RS16B010090	4			4		4	3-4	3	3-4						
RS16B010100	4			4		4	4	4	4	3-4	4	4	3-4	3-4	3
RS16B010200	4			4											

Station code	1988	1989	1990	1992	1994	1996	1999	2002	2005	2008	2011	2014	2017	2020	2023
Suir_SC_040 WFD Sub-Catchment draining the bulk of the Application Site															
Drish River															
RS16D020040						3-4	3-4	3-4	3	3	3-4	3	3	3*	3
RS16D020050	3-4														
RS16D020070	4			4-5		3-4	2/0	2-3/0	3/0	3/0	3/0	3	3	3	3
RS16D020100	4-5			4		4	3-4	3	3	3	3	3	3	3	3-4
RS16D020200	4			4		4	4	3-4	3-4	3	3-4	3-4	3	3	4
RS16D020300	4			4											
RS16D020400 (post-confluence with Breagagh River)	4			4		4	4	4	3-4	3	4	4	4	3-4	3-4
River Suir															
RS16S020600 (pre-confluence with Drish River)	3			3		3	3	3	3	3	3	3-4	3-4	3	3
RS16S020800	4			4											
RS16S020810															
RS16S020900	3			3-4		3-4	3-4	4	3	3	3-4	4	3-4	3-4	3-4
RS16S021000 (inside SAC)	3			3-4											

Station code	1988	1989	1990	1992	1994	1996	1999	2002	2005	2008	2011	2014	2017	2020	2023
Suir_SC_040 WFD Sub-Catchment draining the bulk of the Application Site															
RS16S021100 (inside SAC)	3			3-4		3	3-4	3-4	3	3	3-4	4	3-4	3-4	3
RS16S021200 (inside SAC)	3			4		3-4	3-4	4	3	4	4	4	3-4	3-4	3

Monitoring station for each river ordered up stream to downstream; no monitoring stations for North Glengoole River
*Q-Value: 5 & 4-5 is unpolluted. Satisfactory river condition (High WDF Status); 4 is unpolluted. Satisfactory river condition (Good WDF Status); 3-4 is slightly polluted. Unsatisfactory river condition (Moderate WDF Status); 3 & 2-3 is moderately polluted. Unsatisfactory river condition (Poor WDF Status); 1, 1-2 and 2 is seriously polluted. Unsatisfactory river condition (Bad WDF Status).

6.7.2.2 Groundwater and Hydrogeology

The bulk of the Application Site lies on Tournaisian limestone composed of Dinantian Pure Unbedded Limestones, and Dinantian Lower Impure Limestones. The southern extent of the Application Site sits on Visean limestone and calcareous shale, composed of Dinantian Pure Bedded Limestones and Dinantian Upper Impure Limestones. Most of the Application Site overlaps the karstic Thurles GWB (IE_SE_G_158), a Regionally Important Aquifer, and the Templemore GWB (IE_SE_G_131), an overall poorly productive bedrock rated as a Locally Important Aquifer that may be moderately productive in very local zones[6]. The extreme south of the Application Site extends into the karstic Clonmel GWB (IE_SE_G_040), also a Regionally Important Aquifer. There are geological faults to along the western and southeastern boundaries of the site. The groundwater vulnerability to contamination has been rated a moderate to low across most of the Application Site, with limited areas around the outskirts rated as highly / extremely vulnerable to contamination as a result of human activities. The historical and current GWB status for all GWBs across the Application Site is Good and indicates that the on-site activities have not detrimentally impaired local GWBs. A summary of groundwater bodies underlying the Application Site and their status and risk is provided below in Table 6-11.

Table 6-11: Groundwater body description, water quality status and risk status extracted from the WFD

Groundwater Body (WFD Code)	Description	WFD Status					Risk
		2007-2012	2010-2015	2013-2018	2016-2021	2019-2024	
		Peat Extraction Phase			Works Ceased	Current Phase	
Templemore GWB (IE_SE_G_131)	Poorly productive bedrock	Good	Good	Good	Good	Good	At Risk
Thurles GWB (IE_SE_G_158)	Karstic	Good	Good	Good	Good	Good	Not at Risk
Clonmel GWB (IE_SE_G_040)	Karstic	Good	Good	Good	Good	Good	At Risk

The table above provides a clear summary overview of the hydrological, hydrogeological, and water quality conditions at the Application Site, utilising both historical and current data. Historically, water quality in the area has retained a 'good' status since monitoring began in 2007, with no notable fluctuations. While the cessation of peat extraction may have contributed to some improvements in water quality, other local activities and environmental factors (such as intensive farming) are also likely to influence the changes observed. A gradual improvement in water quality is likely to occur in line with the implementation of all WFD measures.

[6] Information obtained from the Geological Survey of Ireland's Spatial Resources online viewers accessed via https://www.gov.ie/en/department-of-climate-energy-and-the-environment/policy-information/geological-survey-ireland/#data-and-maps

6.7.3 Designated Sites

6.7.3.1 Nationally designated sites

In 1995 (7 years after the implementation of the EIA Directive in Ireland), over 1,200 proposed Natural Heritage Areas (pNHAs) were listed on a non-statutory basis, covering approximately 750,000 hectares. These sites were identified as being of national importance for biodiversity and conservation. To date, some of these sites have been formally designated and have statutory protection under the Wildlife (Amendment) Act 2000. The formal designation process for pNHAs commenced in 2002, when a series of sites were proposed for designation as NHAs - the sites were officially designated in 2004, when they received full legal protection under the Act. The pNHA that have not been formally designated, still receive consideration in planning decisions and impact assessments. As such, while pNHAs were not designated in 1988 which is the ecological baseline, peat extraction and ancillary activities from 1995-2017 were occurring after formal designation and as such potential impacts on pNHAs need to be considered within this assessment.

The pNHAs considered within this section for potential S-P-R connectivity are as follows:

- Kilcooly Abbey pNHA (000958) (c. 5km east of the Application Site)
- The Loughans pNHA (000407) (c. 7km northeast of the Application Site)
- Spahill & Clomantagh Hill pNHA (000849) (c. 10km northeast of the Application Site)
- Cabragh Wetlands pNHA (001943) (c 10km west of the Application Site)
- Killough Hill pNHA (000959) (c. 8.5km west of the Application Site)
- Laffansbridge pNHA (000965) (c. 4km south of the Application Site)

There are no pathways for the propagation of significant effects from the Application Site to any of the above designated sites, due to the absence of a downstream hydrological pathway. All designated sites listed above either lie upstream of the Application Site or within a different catchment to the Application Site. Furthermore, the separation distances between the Application Site and the above designated sites are sufficient such that there is no potential for significant effects propagated via air or land pathways such as noise/visual disturbance or direct habitat loss/fragmentation. As such, pNHAs are assigned Local Importance (Lower Value) for the purposes of this assessment and not included as a KER.

NHAs were introduced in 1976 under the Wildlife Act 1976, however, there are no NHAs with connectivity to the Application Site. The closest NHA lies c. 18.8km southeast, with no pathway for the propagation of impacts between the Application Site (source) and the receptor, namely, Slievenamon Bog NHA (002388). Thus, NHAs are assigned Local Importance (Lower Value) for the purposes of this assessment and are not included as a KER.

6.7.3.2 European sites

The potential for significant adverse effects on any European Sites is discussed in full in the Appropriate Assessment (AA) Screening and remedial Natura Impact Statement (rNIS) accompanying this EIAR under a separate cover. European sites considered within the rNIS, due to the presence of a hydrological pathway (in the case of Lower River Suir) or the presence of suitable ex-situ habitat to support SCI species (all SPAs listed below) are:

- Lower River Suir SAC (002137) (7.8km W)
- River Nore SPA (004233) (21.6km SE)
- Slievefelim to Silvermines Mountains SPA (004165) (26.9km W)
- Slieve Bloom Mountains SPA (004160) (27.7km N)

The three SPAs listed above all lie over 20km from the Application Site, which is outside the foraging range of the relevant species, including Kingfisher (an SCI of River Nore SPA) and Hen Harrier (an SCI of Slievefelim to Silvermines Mountains SPA and Slieve Bloom Mountains SPA). The rNIS notes that the conservation objectives for this species relate to breeding Hen Harrier and not wintering; furthermore, the typical foraging range for Hen Harrier is 10km (SNH, 2016) although this can vary. Only Lower River Suir SAC (002137) is brought forward for further assessment within the rNIS. This is due to the presence of a downstream hydrological connection between the Application Site and this SAC, and the aquatic QIs for which this SAC is designated, including some mobile QIs such as Otter.

All relevant designated sites considered under the S-P-R methodology are summarised below in Table 6-12 and illustrated in Figure 6.3 - Designated sites map in Volume 4.

Table 6-12: Designated sites assessed for a S-P-R Connection with the Application Site

Site Name and Code	Key Features	Distance from Application Site	Pathways
European sites			
Lower River Suir SAC (002137)	1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles 91E0 Alluvial forests with Alnus glutinosa and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)* 91J0 *Taxus baccata* woods of the British Isles* 1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*)	c. 9.3km W	Hydrological pathway identified within accompanying AA Screening

Site Name and Code	Key Features	Distance from Application Site	Pathways
	1092 White-clawed Crayfish (*Austropotamobius pallipes*) 1095 Sea Lamprey (*Petromyzon marinus*) 1096 Brook Lamprey (*Lampetra planeri*) 1099 River Lamprey (*Lampetra fluviatilis*) 1103 Twaite Shad (*Alosa fallax fallax*) 1106 Salmon (*Salmo salar*) 1355 Otter (*Lutra lutra*)		
River Nore SPA (004233)	A229 Kingfisher (*Alcedo atthis*)	21.6km SE	No pathways
Slievefelim to Silvermines Mountains SPA (004165)	A082 Hen Harrier (*Circus cyaneus*)	26.9km W	No pathways
Slieve Bloom Mountains SPA (004160)	A082 Hen Harrier (*Circus cyaneus*)	27.7km N	No pathways
The Loughans SAC (000407)	3180 Turloughs*	c. 7.8km E	No pathways
Spahill and Clomantagh Hill SAC (000849)	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia)* (* important orchid sites)	c. 9.8km NE	No pathways
Galmoy Fen SAC (001858)	7230 Alkaline fens	c. 11.8km NE	No pathways
Cullahill Mountain SAC (000831)	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)	c. 13.8km NE	No pathways
River Barrow and River Nore SAC (002162)	1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1170 Reefs 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation 4030 European dry heaths	c. 8.9km SE	No pathways

Site Name and Code	Key Features	Distance from Application Site	Pathways
	6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels 7220 Petrifying springs with tufa formation (Cratoneurion)* 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* 1016 Desmoulin's Whorl Snail (*Vertigo moulinsiana*) 1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*) 1092 White-clawed Crayfish (*Austropotamobius pallipes*) 1095 Sea Lamprey (*Petromyzon marinus*) 1096 Brook Lamprey (*Lampetra planeri*) 1099 River Lamprey (*Lampetra fluviatilis*) 1103 Twaite Shad (*Alosa fallax fallax*) 1106 Salmon (*Salmo salar*) 1355 Otter (*Lutra lutra*) 1421 Killarney Fern (*Trichomanes speciosum*)		
Nationally designated sites			
Cabragh Wetlands pNHA (001943)	Cabragh Wetlands comprise a large marsh and floodplain system located within a low-lying tributary valley of the River Suir. The River Suir frequently overtops into these marshes during winter, creating a strongly hydrological and seasonally inundated wetland complex. The wetlands occupy a relatively flat area surrounded by low hills, with a slight rise in the southern portion. The underlying geology is impure Lower Carboniferous limestone, while the wetland landforms themselves are post-glacial (c. last 11,000 years). Cabragh Wetlands support an unusually diverse mosaic of wetland and semi-natural habitats, reported as 15 habitat types, including: Ponds and lakes Reed swamps & tall-herb swamp Wet grassland Calcareous fen & transition mire Alluvial woodland Streams, springs & watercourses Hedgerows and wildflower meadows	c. 10km W	No pathways

Site Name and Code	Key Features	Distance from Application Site	Pathways
	The area is naturally eutrophic, with additional historical nutrient enrichment linked to the former Thurles Sugar Factory, which discharged into a series of settling lagoons formerly present on the site. High nutrient status leads to vigorous plant growth, including exceptionally large stands of species such as celery-leaved buttercup and extensive reedbeds. The wetlands support high numbers of surface-feeding wildfowl, commonly exceeding 1,000 birds in winter. Species richness is also enhanced by the presence of varied microhabitats, making the site an important refuge for wintering and passage birds. Species regularly occurring are as follows: Wildfowl & Waterbirds Mute Swan Whooper Swan Eurasian Wigeon Mallard Green-winged Teal / Eurasian Teal Black-headed Gull Grey Heron Water Rail Common Snipe Common Ringed Plover Waders Common Snipe Common Ringed Plover Cabragh Wetlands represent the largest single area of semi-natural freshwater floodplain habitat on the River Suir. The site demonstrates notable geological and geomorphological diversity within a small area, reinforcing its qualification as both a County Geological Site and a pNHA.		

Site Name and Code	Key Features	Distance from Application Site	Pathways
Kilcooly Abbey pNHA (000958)	The site supports a varied aquatic flora including species of Bladderwort (*Utricularia* sp.), Stonewort (*Chara* sp.) and Bulrush (*Typha latifolia*). The latter forms a marginal band around the open water. The presence of lesser Bulrush (*Typha angustifolia*) is noteworthy, as it is quite rare in Ireland, especially in the southern half of the country. Otters utilise the site and are protected under Annex II of the EU Habitats Directive. Breeding birdlife on the lake includes Mallard, Moorhen, Coot and a colony of Herons. The site is managed as a waterfowl sanctuary.	c. 5km E	No pathways
The Loughans pNHA (000407)	No site synopsis available.	c. 7km NE	No pathways
Spahill & Clomantagh Hill pNHA (000849)	A nationally important limestone-sandstone escarpment system containing high-value orchid-rich calcareous grasslands, heath vegetation, and broadleaved woodland.	c. 10km NE	No pathways
Killough Hill pNHA (000959)	This site surrounds a mounting quarry between Thurles and Cashel in Co. Tipperary. The quarry exploits a limestone escarpment which had an abrupt north slope formed by the termination of its beds while the other side is a gentle slope conforming more or less perfectly with the inclination of the beds. The limestone grassland is dominated by Sheep's-fescue (*Festuca ovina*) with characteristic lime loving plants, such as Lady's Bedstraw (*Galium verum*) and Carline Thistle (*Carlina vulgaris*). The woodland on Killough Hill is of relatively recent origin but is developing well with a very good ground flora. It also houses a large bird population and varied mammals.	c. 8.5km W	No pathways
Laffansbridge pNHA (000965)	The main vegetation type present at the site is calcareous grassland; this includes such plant species as Quaking-grass (*Briza media*), Downy Oat-grass (*Helictotrichon pubescens*), Lady's Bedstraw (*Galium verum)* and Bulbous Buttercup (*Ranunculus bulbosus*). Laffansbridge is of particular significance for the large population of Green-winged Orchid (*Orchis morio*), a nationally scarce species, that it supports. Limestone outcrops have prevented machinery access and preserved these unimproved grassland fragments from intensive fertilisation.	c. 4km S	No pathways

6.7.4 Peat Extraction Phase (1988-2017)

6.7.4.1 Habitats

Prior to the insertion of any drainage and the commencement of peat extraction , the entirety of the Application Site was likely dominated by uncut raised bog and associated habitats, including fens, flushes, soaks, and bog woodland, while in 1988, after extraction commenced, the habitats at the Application Site would have been predominantly bare peat and cut over bog, with small sections of remnant raised bog.

After 1988, milled peat extraction (sod peat extraction had ceased by 1984) and ancillary activities were well underway. The deepening and maintenance of the drains continued beyond 1988, up until the cessation of peat extraction in 2017. As the areas subject to peat extraction from 1988 to 2017 reduced in their extent and the depth of peat available was reduced after each harvest, the extent and number of drains requiring deepening and maintenance reduced accordingly. This also resulted in a reduction of the intensity of supporting activities such as stockpiling, use of heavy machinery, fuel use and rail movements.

Although control measures were implemented on Application Site before 1988, other than the silt ponds, the formal records of such activities were minimal. With the IPC Licence awarded in 2001, the control plans, mitigation, monitoring and environmental reporting became more formalised to mitigate impact, particularly fuel storage and handling procedures, dust control measures, the installation of silt ponds, maintenance of railway and water management features (drains, pumps and silt ponds), waste management, emissions to water and atmosphere, and archaeological finds.

Drain maintenance and the general activities as described leading up to 1988 would have continued through to cessation of peat extraction and would have also reduced with reduction of peat extraction areas. Temporary rail tracks would have been added and removed alongside peat stockpiles as required.

In the absence of historical field survey data for the Application Site, this description of the baseline ecology at the Application Site during the Peat Extraction Phase is informed by historical satellite imagery provided by Bord na Móna and extracted from Geohive[7], Fossitt (2000) "*A Guide to Habitats in Ireland*", and information provided by Bord na Mona showing areas subject to peat extraction and drainage. Fossitt (2000) provides detailed descriptions of relevant bog habitats as outlined in the subsequent sections below.

- Cutover Bog (PB4)
- Raised Bog (PB1)

Cutover Bog (PB4)

Excavated bog face banks would have been a common feature along the margins of raised bogs areas at the Application Site, resulting from peat extraction. Active face banks, where peat was still being cut, would contribute to further water loss, leading to the drying out of adjacent bog areas. This impacts the ability of the bog to sustain its characteristic vegetation, particularly Sphagnum mosses, which are essential for peat accumulation and bog growth. Inactive face banks, depending on their exposure and hydrological conditions, may begin to support early successional habitats. Over time, these abandoned face banks can develop vegetation such as birch (*Betula* spp.), purple moor-grass (*Molinia caerulea*), and other floral species adapted to drier conditions.

[7] GeoHive Map Viewer [Accessed 17 December 2025]

The recolonisation of vegetation in cutover bogs is a complex process influenced by various environmental factors such as the frequency and extent of disturbances, hydrological conditions, the depth of remaining peat, the nature of the peat, and the underlying substratum.

Standing water, often present in drains, pools, or excavated hollows, also plays a role in influencing regeneration of vegetation. In some cases, large sections of cutover bogs have been reclaimed for agricultural use or planted with coniferous trees. These reclamation practices can significantly alter the dynamics of recolonisation. Determining the full extent of the cutover is often difficult as in many places it frequently transitions into other marginal habitats or adjacent farmland, making it difficult to delineate the boundaries of the bogs.

Raised Bog (PB1)

Raised bogs are accumulations of deep acid peat (3-12 m) that originated in shallow lake basins or topographic depressions. Exploitation of this habitat type has been extensive, and no Irish raised bogs remain completely intact. The surface of an intact active raised bog is typically wet, acidic, nutrient-poor, and features a complex topography with hummocks and hollows. Bogs are typically driest at the edges and become wetter towards the centre, where well-developed pool systems are common (Fossitt, 2000), formed exclusively from rainfall accumulation. As per Fossit (2000), typical floral species present in dry areas and hummocks are "*Ling (Calluna vulgaris), Hare's-tail Cottongrass (Eriophorum vaginatum), Deergrass (Trichophorum caespitosum), Cross-leaved Heath (Erica tetralix), lichens (Cladonia spp.), and Sphagnum (S. capillifolium, S. imbricatum, S. papillosum) and other mosses (Dicranum scoparium, Leucobryum glaucum). Wet areas and pools are characterised by Common Cottongrass (Eriophorum angustifolium), White Beak-sedge (Rhynchospora alba), Bog Asphodel (Narthecium ossifragum), sundews (Drosera spp.), Bogbean (Menyanthes trifoliata), bladderworts (Utricularia spp.) and Sphagnum mosses (S.cuspidatum, S. auriculatum)".* This habitat type is found in areas of the Application Site including around the edges of Cutover Bog (PB4), and the area within Littleton Bog that was drained but not subject to peat extraction. Despite its small size, the Application Site hosts a diverse range of raised bog microhabitats, including hummock-hollow complexes, pools, and a flush system with a surrounding tear pool complex peat-forming vegetation, including sphagnum mosses, bog cotton (*Eriophorum* spp.), and heathers (*Calluna vulgaris, Erica tetralix*). Such habitats rely on stable hydrological conditions and minimal disturbance to maintain their ecological integrity. Although in-tact raised bog is rare in Ireland, the remnant bog around the edges of the areas of cutover bog is likely damaged as a result of drainage and disturbance. However, as per the Acrotelm Capacity Model carried out by Bord na Móna, which states that any raised bog capable of any regeneration should be classed as being of County Importance of higher, this habitat is thus assigned as being of County Importance.

6.7.4.1.1 Bord na Móna Habitat Surveys: 2017

As detailed above in Section 6.4.3.3, the Application Site was subject to detailed habitat surveys by Bord na Móna ecologists in 2017. The ecological surveys used the Bord na Moṅa (BnM) habitat classification scheme, summarised below in Table 6-13. Habitat maps for the 2017 survey period are provided in Appendix 4-2, Volume 3.

The findings of the surveys undertaken in 2017 are presented below to supplement gaps in historical records, providing a more complete and accurate reconstruction of the 1988 baseline by incorporating long-term environmental trends and site-specific changes.

In 2017, the majority of Littleton Bog was covered by bare peat areas with pockets of areas where industrial peat extraction ceased in the past developing as pioneer habitats. There were localised wetlands in the central part of the bog, with open water and wet peatland vegetation and mounds / ridges that created drier habitat patches. Some of the wetter areas had excellent *Sphagnum* re-generation. Pine was colonising the north-east section.

In 2017, the majority of Longfordpass was covered by bare peat, with pockets of areas where industrial peat extraction ceased in the past developing as pioneer habitats. Areas of open water were present in northern, central, southern and eastern sections of the bog. The western area lies on higher topography with gravity drainage and associated silt pond and is drier than the rest of the bog. An area of cutaway bog to the south of the railway is divided into two by the M8 motorway; the northern side was re-colonising naturally with a mosaic of habitats and the south was being reclaimed as farmland by a local farmer.

The habitats of Derryvella and Lanespark Bogs are described in the Rehabilitation Plan for Ballybeg-Lanespark-Derryvella Bogs. Up until 2017, the majority of the bog was managed for milled peat production and is dominated by bare peat as a result. The narrower southern end of the Application Site has been out of industrial peat production for several years. As active, neighbouring peat extraction areas up to 2017, with similar operational timeframes, the conditions at the two bogs are comparable and have been extrapolated. The majority of both bogs was developed for peat production and the narrow marginal zones on old high bog are dominated by scrub. Adjacent improved grassland extends up to the bog's margin along the west of Derryvella Bog and recent conifer forestry planted along its eastern margin. The bogs show elevated areas of mounds and small basins creating drier and wetter substrates. Some light vegetation has established over the drier mounds around the bog. Other sections that are vegetated include an old stockpile that has been colonised with Heather and Purple Moorgrass. The south-east margin of the former production bog is situated along a channelized stream and there is a verge of dry meadows and grassy verges grassland developed along this drain on spoil taken from the drain.

The dominant habitat throughout the Application Site comprises 'bare peat' and 'cutaway' or 'cutover' (as per BnM classifications). Other habitats present within the Application Site, either alone or in mosaics with other habitat types, are as follows:

- Bog
- Built
- Conifer plantation
- Fen
- Grassland or agriculture
- Gravel sub soil
- Heather
- Heather and scrub
- Open water
- Pioneer open cutaway habitats
- Riparian
- Scrub
- Scrub and grassland
- Scrub and pioneer open cutaway habitats
- Temporary flooded areas
- Wetlands
- Wetlands and scrub
- Woodland

Table 6-13: Habitats identified within Lanespark, Longfordpass, Derryvella and Littleton Bogs (Application Site) in 2017 as per BnM habitat classifications.

BnM Habitat	Extent (ha)	Description
Littleton		
Bare peat	169.35	Can be used for BnM former production bog, cutaway, where bare peat cover is greater than 25%.
Bog	113.55	This category can be used for intact/drained marginal bog remnants and for both active and inactive bog.
Built	15.83	This category includes any built land including roads, tracks, buildings, yards and railways.
Conifer plantation	79.78	This category is for conifer plantation – conifers that have been planted.
Cutover bog	21.82	This category is for marginal cutover bog – bog which has been used for private turf-cutting. This may be ongoing or historical.
Fen	4.79	This category can be used for established fen and transition mire habitats.
Grassland or agriculture	3.41	**Grassland:** Used for marginal habitats where there is no obvious agriculture or use for grassland communities on cutaway. **Agriculture:** Generally used for marginal habitats. Also use for any agricultural activity on BnM former production bog or cutaway (cover crops by gun clubs).
Gravel sub soil	0.86	This category should only be used on the former peat extraction areas where there is exposed gravel, sub-soil or substrate that is not peat.
Heather	66.69	Use specifically for Heather-dominated areas on shallow cutaway peat with Heath HH1 indicators or sites where heath looks like it is establishing on cutaway.
Heather and scrub	146.48	This category is for heath and scrub mosaic.
Open water	36.45	This category is for lakes and permanent open water
Pioneer open cutaway habitats	106.56	This category is for pioneer cutaway communities. This will generally have some element of bare peat still present as the vegetation is rudimentary, but it should have at least 25% vegetation cover.
Riparian	45.88	This includes waterways, large drains and their banks or marginal riparian vegetation

BnM Habitat	Extent (ha)	Description
Scrub	41.10	This includes closed scrub or any areas where scrub is dominant. Canopy height is generally less than 5 m.
Scrub and pioneer open cutaway habitats	97.94	This category is for pioneer cutaway communities with some element of bare peat still present. Scrub could be emerging or open scrub. Scrub should be at least 50% cover. Canopy height is generally less than. 5 m
Temporary flooded areas	1.42	This category includes areas of bare peat that may be flooded in winter but still has fluctuating water-levels.
Wetlands	28.88	This category includes any emergent wetland vegetation that has developed on the former production bog.
Wetlands and scrub	2.97	This category is a mosaic of wetland vegetation and Birch/Willow scrub.
Woodland	8.92	This category is for any areas on the cutaway or on the margins of former production sites that have developed as woodland.
Longford Pass		
Bare peat	132.76	Can be used for BnM former production bog, cutaway, where bare peat cover is greater than 25%.
Bog	3.90	This category can be used for intact/drained marginal bog remnants and for both active and inactive bog.
Built	9.51	This category includes any built land including roads, tracks, buildings, yards and railways.
Conifer plantation	1.18	This category is for conifer plantation – conifers that have been planted.
Cutover bog	11.61	This category is for marginal cutover bog – bog which has been used for private turf-cutting. This may be ongoing or historical.
Grassland or agriculture	5.09	**Grassland:** Used for marginal habitats where there is no obvious agriculture or use for grassland communities on cutaway. **Agriculture:** Generally used for marginal habitats. Also use for any agricultural activity on BnM former production bog or cutaway (cover crops by gun clubs).

BnM Habitat	Extent (ha)	Description
Gravel sub soil	0.05	This category should only be used on the former peat extraction areas where there is exposed gravel, sub-soil or substrate that is not peat.
Heather	2.69	Use specifically for Heather-dominated areas on shallow cutaway peat with Heath HH1 indicators or sites where heath looks like it is establishing on cutaway.
Heather and scrub	21.56	This category is for heath and scrub mosaic.
Open water	0.08	This category is for lakes and permanent open water
Pioneer open cutaway habitats	46.52	This category is for pioneer cutaway communities. This will generally have some element of bare peat still present as the vegetation is rudimentary, but it should have at least 25% vegetation cover.
Riparian	0.55	This includes waterways, large drains and their banks or marginal riparian vegetation
Scrub	14.32	This includes closed scrub or any areas where scrub is dominant. Canopy height is generally less than 5 m.
Scrub and grassland	0.95	This category is for cutaway areas that have grassland and open scrub. Scrub should be at least 50% cover.
Scrub and pioneer open cutaway habitats	8.88	This category is for pioneer cutaway communities with some element of bare peat still present. Scrub could be emerging or open scrub. Scrub should be at least 50% cover. Canopy height is generally less than. 5 m
Temporary flooded areas	11.73	This category includes areas of bare peat that may be flooded in winter but still has fluctuating water-levels.
Wetlands	0.64	This category includes any emergent wetland vegetation that has developed on the former production bog.
Woodland	5.69	This category is for any areas on the cutaway or on the margins of former production sites that have developed as woodland.
Lanespark		
Bare peat	97.29	Can be used for BnM former production bog, cutaway, where bare peat cover is greater than 25%.
Bog	2.96	This category can be used for intact/drained marginal bog remnants and for both active and inactive bog.
Built	22.12	This category includes any built land including roads, tracks, buildings, yards and railways.

BnM Habitat	Extent (ha)	Description
Conifer plantation	11.10	This category is for conifer plantation – conifers that have been planted.
Cutover bog	7.37	This category is for marginal cutover bog – bog which has been used for private turf-cutting. This may be ongoing or historical.
Grassland or agriculture	15.07	**Grassland:** Used for marginal habitats where there is no obvious agriculture or use for grassland communities on cutaway. **Agriculture:** Generally used for marginal habitats. Also use for any agricultural activity on BnM former production bog or cutaway (cover crops by gun clubs).
Heather	12.35	Use specifically for Heather-dominated areas on shallow cutaway peat with Heath HH1 indicators or sites where heath looks like it is establishing on cutaway.
Heather and scrub	10.85	This category is for heath and scrub mosaic.
Open water	3.61	This category is for lakes and permanent open water
Pioneer open cutaway habitats	60.28	This category is for pioneer cutaway communities. This will generally have some element of bare peat still present as the vegetation is rudimentary, but it should have at least 25% vegetation cover.
Riparian	4.79	This includes waterways, large drains and their banks or marginal riparian vegetation
Scrub	19.03	This includes closed scrub or any areas where scrub is dominant. Canopy height is generally less than 5 m.
Scrub and grassland	0.67	This category is for cutaway areas that have grassland and open scrub. Scrub should be at least 50% cover.
Scrub and pioneer open cutaway habitats	26.64	This category is for pioneer cutaway communities with some element of bare peat still present. Scrub could be emerging or open scrub. Scrub should be at least 50% cover. Canopy height is generally less than. 5 m
Wetlands	17.11	This category includes any emergent wetland vegetation that has developed on the former production bog.
Woodland	0.33	This category is for any areas on the cutaway or on the margins of former production sites that have developed as woodland.

BnM Habitat	Extent (ha)	Description
Derryvella		
Bare peat	20.78	Can be used for BnM former production bog, cutaway, where bare peat cover is greater than 25%.
Built	1.03	This category includes any built land including roads, tracks, buildings, yards and railways.
Cutover bog	0.99	This category is for marginal cutover bog – bog which has been used for private turf-cutting. This may be ongoing or historical.
Grassland or agriculture	1.12	**Grassland:** Used for marginal habitats where there is no obvious agriculture or use for grassland communities on cutaway. **Agriculture:** Generally used for marginal habitats. Also use for any agricultural activity on BnM former production bog or cutaway (cover crops by gun clubs).
Heather	1.37	Use specifically for Heather-dominated areas on shallow cutaway peat with Heath HH1 indicators or sites where heath looks like it is establishing on cutaway.
Heather and scrub	2.48	This category is for heath and scrub mosaic.
Open water	0.56	This category is for lakes and permanent open water
Pioneer open cutaway habitats	10.31	This category is for pioneer cutaway communities. This will generally have some element of bare peat still present as the vegetation is rudimentary, but it should have at least 25% vegetation cover.
Riparian	1.93	This includes waterways, large drains and their banks or marginal riparian vegetation
Scrub	6.40	This includes closed scrub or any areas where scrub is dominant. Canopy height is generally less than 5 m.
Scrub and pioneer open cutaway habitats	0.82	This category is for pioneer cutaway communities with some element of bare peat still present. Scrub could be emerging or open scrub. Scrub should be at least 50% cover. Canopy height is generally less than. 5 m
Wetlands	2.87	This category includes any emergent wetland vegetation that has developed on the former production bog.

6.7.4.2 Species

The typical fauna that may be found utilising cutover and raised bog habitats are described below, informed by the suitability of habitats outlined above to support such species, historical satellite imagery and historical NBDC records.

6.7.4.2.1 Birds

6.7.4.2.1.1 Breeding Birds (Desk-based Data)

Cutover bogs are a patchwork of habitats, including bare peat, regrowing vegetation, pools of water, and patches of scrub. This mix of features supports a variety of species adapted to the changing landscape. The open, sparsely vegetated areas of cutaway bogs are ideal for Skylark (*Alauda Arvensis*), Meadow Pipit (*Anthus pratensis*) and Mistle Thrush (*Turdus viscivorus*) which use the exposed peat and scattered plants for feeding and nesting. Any remaining or regrowing vegetation, including boundary features and heather scrub, holds suitability for nesting and foraging passerines including Willow Warbler (*Phylloscopus trochilus*), Swallow (*Hirundo rustica)*, Stonechat (*Saxicola rubicola*) and Spotted Flycatcher (*Muscicapa striata*). Other bird species often found at cutaway bogs include foraging Reed Bunting (*Emberiza schoeniclus*), particularly near drainage channels, Kestrel (*Falco tinnunculus*) hunting over open terrain, feeding on small mammals, and Hen Harrier (*Circus cyaneus*), which nest in heather on open upland areas, and forage on the open terrain of the Application Site. Other ground-nesting birds might also take advantage of the open terrain, including Snipe (*Gallinago gallinago*), Lapwing (*Vanellus vanellus*) and Curlew (*Numenius arquata*). It is likely that the Application Site is of Local Importance (Higher Value) for breeding birds.

6.7.4.2.1.2 Wintering Birds (Desk-based Data)

Similarly to the above, any pooling water created within cavities formed by peat extraction and left to rewet may provide suitable foraging habitat for wintering waterbirds, such as Mallard (*Anas platyrhynchos*), Shoveler (*Spatula clypeata*), Teal (*Anas crecca*) and Wigeon (*Mareca penelope*), while the vegetative cover of remnant bog around the margins of the Application Site likely provide shelter within the largely open space of the Application Site, for species such as Skylark, Snipe or Meadow Pipit. It is likely that the Application Site is of Local Importance (Higher Value) for wintering birds.

6.7.4.2.2 Bord na Mona Bird Surveys: 2012-2014

As detailed above in Sections 6.4.3.1 and 6.4.3.2, the Application Site was subject to full suites of breeding and wintering bird surveys by Biosphere Environmental Services from 2012-2014. Where possible, ecological evaluations are assigned to each habitat following NRA EcIA Guidelines (2009b). The findings of the surveys undertaken between 2012-2014 are presented below to supplement gaps in historical records, providing a more complete and accurate reconstruction of the 1988 baseline by incorporating long-term environmental trends and site-specific changes.

6.7.4.2.3 Breeding Birds: 2013

The breeding bird surveys undertaken at Littleton Bog revealed the presence of target species including Hen Harrier (forging, not breeding), Teal, Lapwing, Snipe, Curlew and Black-headed Gull. A number of other birds were observed, including nesting Little Grebe (*Tachybaptus ruficollis*), Kestrel, breeding Moorhen (*Gallinula chloropus*), Skylark, Swift (*Apus apus*), Sand Martin (*Riparia riparia*), breeding Swallow, Wheater (*Oenanthe oenanthe*), possible breeding Starling (*Sturnus vulgaris*) and breeding Linnet (*Linaria cannabina*).

The breeding bird survey undertaken at Lanespark Bog identified no target species and was noted as holding no significant potential to support nesting species of conservation importance. It is noted that Lanespark Bog comprised primarily bare peat with production still in progress over much of the bog. However, marginal strips of remnant bog and scrub support breeding Skylark, Spotted Flycatcher and Linnet.

The breeding bird survey undertaken at Derryvella concluded that there is limited potential at this site to support nesting species of conservation importance. One displaying Snipe was recorded; other breeding non-target species included Little Grebe, Moorhen, Raven, Skylark, Swallow and Linnet.

The breeding bird surveys undertaken at Longfordpass Bog, similarly, did not identify any target species, although some breeding activity was recorded for Skylark and Linnet. It is noted that this bog held limited potential to support nesting species of conservation importance and was largely still in commercial production comprising primarily bare peat. The marginal strips of remnant bog support the recorded Skylark and Linnet.

6.7.4.2.4 Wintering Birds: 2012-2013

The wintering bird surveys at Littleton Bog recorded a number of target species, comprising 10 no. Whooper Swan (*Cygnus cygnus*) flying overhead on one occasion, single male Hen Harriers recorded on two occasions using the southwest of the Application Site, and a flock of 20 no. Golden Plover (*Pluvialis apricaria*) on the bare peat (cutover bog) in the east of the Application Site on one occasion. Other species of note recorded include Kestrel, Sparrowhawk, Teal, Mallard, Snipe, Skylark, Starling, and Linnet. It was noted by the surveyor that the Littleton bog could also support foraging Merlin (*Falco columbarius*) which was observed on a different nearby site. Thus, Littleton bog contains some good habitat for wintering birds of conservation importance; of particular value are the areas of remnant/cutover bog and bodies of open water in the western and southeastern sectors.

Wintering bird surveys undertaken at Lanespark Bog recorded one target species, namely, Merlin, and three species of note, namely, Snipe, Skylark and Linnet. This bog has limited potential for wintering birds of conservation importance. The marginal strips of remnant bog hold the most valuable area of habitat at this site.

The surveys undertaken at Derrvella identified one target species, namely, one individual male Merlin. The habitats at Derryvella were noted to have potential to support Whooper Swan and Hen Harrier although none were recorded. Other species of note included Little Grebe, Mallard, Kestrel, Sparrowhawk, Water Rail, Snipe, Stock Dove, Skylark and Linnet. Derryvella Bog was deemed as holding some potential for wintering birds of conservation importance.

During the wintering bird surveys undertaken at Longfordpass Bog, no target species were recorded, although it is noted that there was some suitable habitat to support foraging Merlin, in the form of marginal remnant and cutover bog habitats. Other species of note recorded are Kestrel, Sparrowhawk, Snipe, Skylark, Starling and Linnet. Longfordpass Bog has limited potential to support wintering birds of conservation importance.

The Application Site as a whole does not provide overly suitable habitat to support wintering birds during this period, given the habitats comprise mainly bare peat. Some areas around the margins of the Application Site, comprising remnant bog, and areas within Littleton Bog within which large pools of water have formed are the only areas of value for wintering birds.

6.7.4.2.5 Wintering Birds: 2013-2014

The wintering bird surveys undertaken between 2013-2014 at Littleton Bog revealed a change in habitats within the areas of the site within which peat extraction has decreased or ceased altogether. A high proportion of Littleton bog was regenerating in the form of heath, scrub and woodland, and large bodies of water are present throughout the site. Commercial peat extraction was still occurring in other areas of this bog in 2013 to 2014. This is reflected in the records of target species and species of note compared with the 2012-2013 period.

Whooper Swans were recorded utilising Littleton bog throughout the winter, feeding and/or resting in at least three locations, all wet bog or shallow ponds. As per the wintering bird survey report (Biosphere Environmental Services, 2014), "*These birds flew towards Littleton bog at dusk, possibly to roost within the site. While there was a regular presence of swans at the site, numbers involved were relatively low with a peak of 34 on 20th January*". A minimum of three individual Hen Harrier birds were recorded between October and December. Most notably, a night roost was present in the southwest of Littleton bog, located in regenerating heather. Merlin was recorded on four occasions, all within the southwestern section of Littleton bog, indicating that this bog holds good foraging habitat for this species. One individual peregrine was recorded perched on the boundary of the Littleton bog site, for 1.5 hours. Other species of note include Teal, Wigeon, Mallard, Sparrowhawk, Buzzard (*Buteo buteo*), Kestrel, Water Rail (*Rallus aquaticus*), Snipe, Jack Snipe (*Lymnocryptes minimus*), Woodcock (*Scolopax rusticola*), Skylark, Starling, Stonechat, Linnet and Meadow Pipit. In summary, Littleton bog, during the 2013-2014 survey period, contains some good habitat for wintering birds of conservation importance.

Lanespark Bog was still largely comprised of bare peat during the winter bird surveys undertaken 2013-2014; no target species were recorded, although some species of note were recorded, including Kestrel, Snipe, Skylark, Meadow Pipit and Linnet. The most useful areas of habitat for wintering birds are the small areas of remnant/cutover bog on the boundaries.

No target species were recorded at Derryvella during the 2013-2014 wintering bird surveys, although some habitat suitability for Hen Harrier and Whooper Swan was noted. Other species of note recorded included Teal, Little Grebe, Kestrel, Snipe, Woodcock, Green Sandpiper, Skylark, Stonechat, Starling, Meadow Pipit and Linnet. Overall, Derryvella was determined to hold relatively low potential for wintering birds of conservation importance during the 2013-2014 survey period.

Longfordpass Bog, similarly, was still largely comprised of bare peat during the wintering bird surveys undertaken in 2013-2014. Two peregrines were recorded flying overhead on one occasion. Kestrel, Snipe, Skylark and Meadow Pipit were also recorded. Thus, Longfordpass Bog has limited potential for wintering birds of conservation importance. The various areas of remnant and cutover bog along the boundaries and especially in the southern sections could attract species such as Hen Harrier and Merlin although none were recorded during this survey period.

While Lanespark and Longfordpass Bogs remain mostly unsuitable to support wintering bird species, areas within Littleton Bog within which large pools of water have formed and regeneration of vegetation has occurred are of some value for wintering birds.

6.7.4.3 Mammals (excl. bats)

Red Squirrel (*Sciurus vulgaris*) were recorded within the S15V 2km grid square from the NBDC in 2023, within which there is a large block of woodland more suitable to support this species than the open space of the Application Site. Furthermore, the S15V grid square only overlaps very slightly with the Application Site's boundary, and there is no suitable woodland within the Application Site in 1988, although there are wooded areas adjacent to the Application Site that could be suitable to support red squirrel. It is likely that any disturbance to red squirrel as a result of peat extraction and ancillary activities would have been minimal, owing to the visual and acoustic buffers comprising the woodlands within which red squirrel may be situated. Furthermore, analysis of the SNH Standing Guidance (2024) for Red Squirrels dictates that Red Squirrel only need be considered where dreys are located within 50m of high disturbance works during breeding season (February - September). While some conifer woodlands appear to be situated in patches around the boundaries of the Application Site, works would only have been occurring within 50m of these patches for a short period, before moving on to the next section of peatland. Taking the above into consideration, Red Squirrel are deemed of Local Importance (Higher Value) in the context of the Application Site and the wider surrounding landscape.

Pine Marten (*Martes martes*) were recorded in the historical NBDC records, within four 2km grid squares across three of the four bogs encompassed within the Application Site, namely, Lanespark Bog, Littleton Bog and Longfordpassass Bog, although all records are from between 2020 and 2023. As with the above, Pine Marten utilise both deciduous and coniferous woodlands for foraging, commuting and resting, but are also adapted to live in scrubland (SNH, 2014); scrubland is likely present in some areas of the Application Site such as the edges which were not subject to extraction or areas which have begun to regrow vegetation. Pine marten can also exploit a range of food sources including smaller mammals, berries, fruits, invertebrates, birds and amphibians, and as such, a range of prey would be available for this species within the Application Site. Thus, the Application Site is deemed to be of Local Importance (Higher Value) for Pine Marten.

Hedgehog (*Erinaceus europaeus*) were historically recorded within the NBDC 2km grid square S25M, which only very slightly overlaps with the eastern bounds of the Application Site. This species is not typically found on cutover bog sites, due to the acidic marshy habitats present, preferring drier locations that provide wildlife corridors for movement (hedgerow, treeline, scrub). While this does not preclude their occasional presence along the Application Site's bounds, it is more likely that they utilise the adjacent network of undisturbed agricultural field boundaries for foraging and commuting. The Application Site is deemed to be of Local Importance (Lower Value) for Hedgehog.

Badger (*Meles meles*) and Otter (*Lutra lutra*) will often use these cutover bogs for foraging and as movement corridors between other habitats. While it is highly unlikely that badger setts are located within the Application Site given the nature of the historical peat extraction works, badger may be present in a foraging or commuting capacity within and adjacent to the Application Site, and taking the precautionary approach, it is presumed that the foraging and commuting badger at the Application Site are of Local Importance (Higher Value).

Otter (*Lutra lutra*) presence at the Application Site will be limited by 1988, based on the likely levels of pollution within the waterways on and downstream of the Application Site, and the subsequent lack of available prey. This is because ammonia is produced when organic compounds are decomposed through microbial action induced by drainage of bogs such as the Application Site. There is evidence that ammonium (a natural by-product of decay processes) is present at elevated levels downstream of production bog sites. Ammonium is a recognised water pollutant as it is toxic to some fish species at low concentrations (EPA, 2024); by 1988 ammonium was likely present in high concentrations on the Application Site. Otter have been historically recorded by the NBDC in two of the 2km grid squares encompassing the Application Site (S25A and S25B), the earliest record being in 1991, and latest record being in 2010. These two grid squares both primarily overlap with Lanespark Bog, adjacent to which are the North Glengoole_010 and Breagagh_Tipperary_010 river waterbodies and a small Lough (Lough Doire Bhaile) which may be more suitable for Otter than the Lanespark Bog itself. Regardless, given the hydrological connectivity between the Application Site and a number of river waterbodies as outlined in Section 6.7.2.1, in the context of the Application Site, Otter are deemed to be of Local Importance (Higher Value).

6.7.4.4 Bats

Although there are historical records for bats comprising a minimum of six species, namely, Leisler's bat (*Nyctalus leisleri*), Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Brown Long-eared Bat (*Plecotus auritus*), Daubenton's Bat (*Myotis daubentonii*) and Nathusius' Pipistrelle (*Pipistrellus nathusii*), these are located within two adjacent grid squares, S15V and S25B, within which there are a few large blocks of woodland more likely to be suitable for bats than the open space of the Application Site. Furthermore, these grid squares only partially overlap with the Application Site's boundary. Given the open space, vegetation removal, lack of roosting places as per the historical satellite imagery available of the Application Site, lack of historical records and the frequent high levels of disturbance, it is highly unlikely that the Application Site is utilised by any significant number of bats for roosting, commuting or foraging at baseline, however, given the proximity to potentially suitable wooded habitat and the wetland habitats at the Application Site which provide forage, and given the development of the Application Site from 1988 to cessation of works including tree growth, it is presumed the Application Site is of Local Importance (Higher Value) for bats.

6.7.4.5 Herpetofauna

Common frogs (*Rana temporaria*) are likely to be found in the wetter areas, using stagnant pools and damp grounds for breeding. Common frog has been recorded within one of the 2km grid squares located within the Application Site, and given the suitability of the Application Site to support common frog in 1988, and given that common frog are the most commonly found species in cutover bog (NPWS, 2016), it is presumed the Application Site supports a breeding population of common frog of Local Importance (Higher Value).

Two historical records of smooth newt (*Lissotriton vulgaris*) exist within the NBDC grid squares within which the Application Site is located, most recently in 2018. Given the timid nature of this species, that the mosaic of habitats at the Application Site may be suitable for this species, and taking the precautionary principle, it is presumed the Application Site supports a breeding population of smooth newt of Local Importance (Higher Value).

Common lizards (*Zootoca vivipara*) are widespread throughout Ireland, in particular coastland sites, grasslands, and of relevance to the Application Site, upland and bog sites. Notably, common lizard has been recorded as far back as 1971 within the NBDC records for the 10km S25 grid square encompassing the Application Site and will utilise rocks or lichen hummocks on bog sites (NPWS, 2016) although are a timid species and easily disturbed and therefore unlikely to be recorded incidentally on-Site. As such, under the precautionary principle, it is presumed that the Application Site supports a breeding population of common lizard of Local Importance (Higher Value).

6.7.4.6 Fish

Similarly, fish species such as Atlantic Salmon (*Salmo salar*), European Eel (*Anguilla anguilla*) and Lamprey (*Petromyzon* sp. and *Lampetra* sp.) were unlikely to be situated in any rivers or drainage channels within or directly downstream of the Application Site by 1988. This is because ammonia is produced when organic compounds are decomposed through microbial action induced by drainage/lowering of the water table. There is evidence that ammonium is present at elevated levels downstream of the Application Site. Ammonium is a recognised water pollutant as it is toxic to some fish species at low concentrations. The other significant water pollutants from production sites are fine peat sediments. These sediments are composed of Particulate Organic Carbon (POC) suspended in the discharge from the drains. Biological monitoring has indicated that excess suspended sediment is occurring in some waterbodies where peat is a significant pressure, which can build up on stream beds and clog stream gravels, impacting fish spawning and invertebrate habitats (EPA, 2024). Fish may be present in waterbodies far downstream of the Application Site, and as such, it is considered that the Application Site is of Local Importance (Lower Value) for fish and aquatic invertebrates.

6.7.5 Current Phase: 2017 - Present Day

This Phase comprises the period within which industrial peat extraction ceased within the Application Site to present day. Information below is extracted from field surveys undertaken between the period when peat extraction ceased and the present day to give context to the condition of the Application Site post-cessation of peat extraction.

6.7.5.1 FT Habitat Surveys: 2025

Habitats present within the Application Site as recorded during surveys undertaken in 2025 and 2026 by botanists from Fehily Timoney are summarised below in Table 6-14 as per Fossitt (2000), along with a brief description of floral species present in each habitat type, where applicable. Maps of habitat extents and locations are provided in Figures 6.9a, 6.9b and 6.9c in Volume 4 of this rEIAR. Habitats recorded during the surveys in 2025 are as follows:

- Earth banks (BL2)
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Recolonising bare ground (ED3)
- Dystrophic lakes (FL1)
- Acid oligotrophic lakes (FL2)
- Other artificial lakes and ponds (FL8)
- Reed and large sedge swamps (FS1)
- Drainage ditches (FW4)
- Improved grassland (GA1)
- Dry calcareous and neutral grassland (GS1)
- Dry meadows and grassy verges (GS2)
- Wet grassland (GS4)
- Dense bracken (HD1)
- Raised bog (PB1)
- Cutover bog (PB4)

- Mixed broadleaved/conifer woodland (WD2)
- (Mixed) conifer woodland (WD3)
- Conifer plantation (WD4)
- Hedgerow (WL1)
- Treeline (WL2)
- Oak-birch-holly woodland (WN1)
- Bog woodland (WN7)
- Scrub (WS1)
- Immature woodland (WS2)

In addition to the above habitats, a stand of Japanese knotweed was confirmed at Littleton Bog near the existing northern entrance along the R639.

Table 6-14: Summary of the habitat surveys undertaken in 2025 at the Application Site by Fehily Timoney botanists along with their classification of ecological importance as per NRA (2009).

Fossitt (2000) Habitat	Area / Perimeter (ha / m)	Description	Ecological Importance
Earth banks (BL2)	2.57 ha	*Molinia* tussocks are dominant with some birch saplings and bramble on earth bank 2m height. In other areas, banks are gorse-scrub dominated, comprising 2.5-3m tall trees such as Scot's pine, downy birch, and silver birch. Other species comprise Devil's-bit scabious, silverweed, tormentil, slender St. John's-wort and fairy flax are also present.	Local Importance (Lower Value)
Buildings and artificial surfaces (BL3)	0.26 ha	Man-made structures to facilitate peat extraction, such as access roads and the Littleton brickworks.	Negligible Value
Spoil and bare ground (ED2)	1.81 ha	Comprising unvegetated areas that have undergone historical peat extraction.	Local Importance (Lower Value)
Recolonising bare ground (ED3)	9.01 ha	Comprising areas where vegetation regrowth has occurred on areas of historical peat extraction.	Local Importance (Lower Value)

Fossitt (2000) Habitat	Area / Perimeter (ha / m)	Description	Ecological Importance
Dystrophic lakes (FL1)	85.74 ha	*Chara virgata* is abundant in the lake margins. There are some small pools containing common cottongrass, bog pondweed, marsh horsetail and jointed rush. Broad-leaved pondweed is present in larger areas of open water. Other species present around the margins comprise *Typha* sp., floating sweet-grass, bulbous rush, broad-leaved pondweed, purple moor-grass and silver birch.	Local Importance (Higher Value)
Acid oligotrophic lakes (FL2)	1.90 ha	Species across the lakes comprised bog pondweed, broad-leaved pondweed, bulbous rush, bulrush, Spike rush (*Eleocharis palustris*), and *Juncus* spp. Rare fen pondweed (*Potamogeton coloratus*) was present at one site. Bog pimpernel (*Lysimachia tenella*) was present at one site. Cottongrass and bottle sedge were abundant in the exposed peaty littorals, with occasional marsh pennywort (*Hydrocotyle vulgaris*). Stonewort (*Chara* sp.) was present in the peaty margins but rare overall. Water starwort (*Callitriche* sp.) was also occasional.	Local Importance (Higher Value)
Other artificial lakes and ponds (FL8)	0.72 ha	Artificially dug to facilitate peat extraction. Vegetation regeneration precludes standing water presence in some areas.	Local Importance (Lower Value)

Fossitt (2000) Habitat	Area / Perimeter (ha / m)	Description	Ecological Importance
Reed and large sedge swamps (FS1)	9.82 ha	Species include bottle sedge, marsh horsetail, grey willow, common bulrush and common reed. In the southernmost areas of the Site lie *Sparganium natans*, soft rush, water mint, floating sweet-grass, bulbous rush, are present, with *Typha* sp. along the margin. Devils-bit scabious is also occasionally present. Water horsetail is present in larger areas of open water.	Local Importance (Higher Value)
Drainage ditches (FW4)	1.05 ha	Standing water noted as being present in most drainage ditches, with most being vegetated. Species within and along the riparian zones of the drainage ditches comprise common bulrush, lesser bladderwort, *Chara virgata*, common cottongrass, *Molinia*, marsh horsetail, broad-leaved pondweed, marsh pennywort, Berchtold's pondweed, bulbous rush, bog pondweed and jointed rush.	Local Importance (Higher Value)
Improved grassland (GA1)	18.33 ha	Highly managed habitat type with low species diversity.	Local Importance (Lower Value)
Dry calcareous and neutral grassland (GS1)	17.86 ha	The dominant species is glaucous sedge, *Molinia*, common knapweed, hawks bit sp., quaking grass, common bent, eyebright sp., tormentil, hypericum spp., *Epipactis* sp. Along the access road lies glaucous sedge, *Molinia*, common knapweed, Devil's-bit scabious, *Epipactis* sp., common ragwort and carrot sp.	Local Importance (Higher Value)

Fossitt (2000) Habitat	Area / Perimeter (ha / m)	Description	Ecological Importance
		Growth along railway line comprises sparse vegetation, including carline thistle and fairy flax, *Molinia*, rough hawkbit and *Epipactis* sp.	
Dry meadows and grassy verges (GS2)	0.40 ha	Small patches of this habitat are present, which is of little significance in the context of the wider landscape.	Local Importance (Lower Value)
Wet grassland (GS4)	4.17 ha	Surface water pooling sometimes visible on surface of this habitat. Species comprise common cottongrass (dominant), water mint, *Molinia*, bottle sedge, purple loosestrife, marsh pennywort, valerian and bryophyte sp. In disturbed areas, silverweed, purple loosestrife and water mint occur.	Local Importance (Higher Value)
Dense bracken (HD1)	4.84 ha	Comprising bracken and heather.	Local Importance (Lower Value)
Raised bog (PB1)	88.17 ha	In some low hummocks, heather, bell heather and *Cladonia* were dominant topography. On the foot of hummocks, hare's tail cottongrass, *Sphagnum capillifolium* and *Sphagnum papillosum*. In the hollow, bog asphodel and *Cladonia* were present. *Sphagnum papillosum magellanicum* was occasionally occurring in areas still drying out. Bog rosemary also occurred occasionally.	County Importance

Fossitt (2000) Habitat	Area / Perimeter (ha / m)	Description	Ecological Importance
		In lawns, *Cladonia portentosa* dominated, in hollows bog asphodel and *Rhynchospora alba* dominated. These areas were firm but wet, and leaked water when trampled. Sometimes surface water pooling was visible within this habitat at the Site.	
Cutover bog (PB4)	593.38 ha	Some areas are sphagnum dominated and capable of peat forming. The majority of cutover bog comprises bare peat that is damaged. Some recolonisation by cottongrass and *Molinia* sp. Other species include heather, bog myrtle, downy birch, marsh horsetail, knotted pearwort, deergrass, soft rush and sedge species.	Local Importance (Higher Value)
Mixed broadleaved/conifer woodland (WD2)	4.24 ha	Mix of non-native conifers and native broadleaved woodland.	Local Importance (Higher Value)
(Mixed) conifer woodland (WD3)	0.78 ha	Planted, non-native conifer woodland, with some invasion from broadleaved trees.	Local Importance (Lower Value)
Conifer plantation (WD4)	82.43 ha	Planted, non-native conifer woodland.	Local Importance (Lower Value)
Hedgerow (WL1)	802 m	Comprising native species and provision of a valuable ecological corridor.	Local Importance (Higher Value)
Treeline (WL2)	2367 m	Treelines comprise downy birch and grey willow (4-7m in height).	Local Importance (Higher Value)
Oak-birch-holly woodland (WN1)	3.74 ha	Occurs in two areas within the Application Site.	Local Importance (Higher Value)
Bog woodland (WN7)	17.46 ha	Comprising downy birch, Scot's pine and willow sp. Ground flora comprises extensive *Sphagnum* sp. cover.	Local Importance (Higher Value)

Fossitt (2000) Habitat	Area / Perimeter (ha / m)	Description	Ecological Importance
Scrub (WS1)	17.86 ha	Species include gorse, downy birch, pine sp., bracken, bramble, willow sp., and infrequent sitka spruce (non-native).	Local Importance (Lower Value)
Immature woodland (WS2)	169.45 ha	Variable compositions depending on wetness. Wetter areas comprise species including downy birch, silver birch, hawthorn and bracken. Ground flora comprises broad buckler fern, bramble, *Molinia* sp., cottongrass. Where sphagnum cover is present at <25%, wooded areas cannot be considered bog woodland. Dryer areas comprise species including downy birch, grey willow and Scot's pine. Ground flora comprises heather, soft rush, and purple moor grass. Shrub layers comprise blackthorn.	Local Importance (Higher Value)

6.7.5.2 Faunal Surveys

6.7.5.2.1 Aquatic Surveys

6.7.5.2.1.1 Fisheries Assessment

The diversity of fish species recorded (Atlantic salmon, lamprey (*Lampetra* sp.), European eel, Stone loach, Minnow, Pike, Perch and Three-spined stickleback) is considered typical for Irish midland rivers. All aquatic surveys undertaken at the Application Site are detailed in full in the relevant Aquatic Survey Reports produced by Triturus (2021, 2023, 2025), provided in full in Appendix 6.2.

The electrofishing surveys undertaken in 2021 revealed European Eel at 5 no. riverine sampling sites, Atlantic salmon at 6 no. riverine sampling sites and Lamprey sp. at 2 no. riverine sampling sites. None of these species were captured at any of the lake sampling sites. Locations where these species were recorded were all downstream of the Application Site at varying hydrological distances. Riverine sampling sites where the above species were identified include the Clover River, Drish River, Black (Twomileborris) River, Ballygammane River, North Glengoole River and Breagagh River.

The electrofishing surveys in 2023 revealed European Eel at 6 no. riverine sites, Atlantic salmon at 11 no. riverine sites and Lamprey sp. at 6 no. riverine sites. None of these species were captured at any of the lake sampling sites. Riverine sampling sites where the above species were identified include the Clover River, Drish River, Black (Towmileborris) River and Breagagh River. The quality of salmonid habitat was typically poor due hydromorphological pressures, but conditions improving in downstream locations of Drish River and Breagagh River. High densities of juvenile salmonids were recorded at sites B4 (upstream of the Application Site) and D3 (*c.* 12km downstream), which were noted as holding excellent quality salmonid nurseries. The restricted distribution of lamprey over the riverine survey sites can be explained through the paucity of suitable nursery and / or spawning habitat, largely due to exiting hydromorphic and associated drainage effects on the rivers.

No electrofishing surveys were undertaken in 2025, however, a habitat suitability assessment was undertaken to assess suitability of waterbodies within and in the vicinity of the Application Site to support salmonid populations as described above in Section 6.4.3.4.1. The River Suir, Breagagh River, Borrisbeg River, River Nore were all identified as being of importance for salmonids, while the rivers within which salmonids and lamprey sp. were recorded in 2021 and 2023 were also listed as being of importance for salmonids (Clover, Drish, Black (Twomileborris) and Breagagh Rivers). The habitat assessment undertaken in 2025 supports the findings of the electrofishing surveys undertaken in 2021 and 2023. None of the lakes or wetlands within the Application Site were considered of significant fisheries value (Stickleback only), generally due to their shallow nature, peat substrata, lower pH and poor connectivity and isolation from aquatic habitats supporting fish populations.

6.7.5.2.1.2 White-clawed Crayfish Surveys

The remains of two White-clawed crayfish were identified during the 2021 surveys in the Clover River (A6), although no live samples were found. Crayfish remains were also identified within Otter spraints located along the Black River (C6). No White-clawed Crayfish were recorded during the 2023 surveys at any of the 47 no. sites sampled. During the 2025 surveys, a single, adult crayfish was recorded at the G3 sampling site via hand-searching. No other White-clawed Crayfish were recorded across any of the rest of the sampling sites during 2025. It can be presumed that the Application Site in 2025 is not of importance for breeding White-clawed Crayfish.

6.7.5.2.1.3 Otter Surveys

During the Bord na Móna surveys in preparation for the 2018 Cutaway Bog Decommissioning and Rehabilitation Plans, no Otter or signs of Otter presence were recorded within or adjacent to the Application Site. The surveys undertaken in 2025 by Triturus also did not record any Otter or signs of Otter in the Application Site, although indicators including spraints and prints were recorded near waterbodies outside the Application Site. Notably, no otter resting or breeding sites were recorded within the Application Site during dedicated otter surveys, which extended 200m upstream and downstream of watercourse crossings.

During the 2021 aquatic surveys, a total of 4 no. otter signs were recorded across the riverine sites with none recorded at the lake sites, comprising 3 no. spraint sites (regular) and 1 no. print. Sites where Otter signs were identified were the Clover River (A6), Drish River (B2) and the Black River (C6). No breeding (holts) or resting (couch) areas were recorded within or adjacent to the Application Site.

During the 2023 aquatic surveys undertaken by Triturus, A total of 7 no. otter signs, comprising 7 no. spraint sites (regular) were recorded across the 47 no. survey sites. Spraint sites were recorded at sites on the Clover River (A6) and unnamed tributary (A4), Breagagh River (D1 & D3), Ardreagh River (E2), Gorteenahilla River (E7) and the Lisdowney Stream (E9). No breeding (holts) or resting (couch) areas were recorded within or adjacent to the Application Site.

During the 2025 Otter surveys, a total of 3 no. otter signs were recorded across 34 no. individual survey sites, all of which were riverine sites. Spraint sites (all regular) were recorded at sites on the Black River (C6), Breagagh River (D1) and the Lisdowney Stream (G10). No breeding (holts) or resting (couch) areas were recorded within or adjacent to the Application Site.

The limited activity aligns with historical data, with the instream modifications (straightening, deepening) effecting riverine habitat, eliminating commuting features for Otters and the limited prey availability in the form of fish and crustaceans are considered contributing factors. It is considered that the Application Site is of limited importance for Otter, although Otter are likely utilising the waterbodies both up and downstream of the Application Site.

6.7.5.2.2 Other Mammal Surveys

Throughout the surveys between 2023 and 2025, a total of four bedger setts were identified within the Littleton bog section of the Application Site, one main sett with five entrances, two annex setts each with three entrances and a possible outlier sett with one inactive entrance. Sett entrances are all located along the northeastern boundaries of the Application Site (Littleton bog) among scrubby vegetation. Badger prints were also recorded on two occasions during the 2025 surveys within Littleton Bog within the Application Site.

The Application Site, in particular, Littleton bog, is of ecological value for resting, commuting and foraging Badger as of 2025.

In addition to the above, Pine Marten (*Martes martes*) was observed in 2023 in the northernmost section of the Application Site, while a Pine Marten scat was recorded in the northern section of Littleton bog. Irish hare (*Lepus timidus* subsp. *hibernicus*) scat was also recorded at the Application Site during walkovers in 2025. No breeding or resting places of either of these species were recorded within the Site. It is presumed the Application Site is likely of some ecological importance for Pine Marten and Irish Hare in 2025.

Signs of fox including scat and a potential den were observed on the eastern boundary of the Application Site, although fox are not a legally protected species in Ireland and thus are not discussed further within this Chapter.

6.7.5.2.3 Bat Surveys

6.7.5.2.3.1 Static Detector deployment: 2023

A total of 11 static units were deployed during each survey period (Spring, Summer, Autumn). Overall, eight bat species were recorded (Common Pipistrelle, Soprano Pipistrelle, Nathusius's Pipistrelle, Leisler's Bat, Brown Long-eared Bat, Natterer's Bat, Daubenton's Bat and Whiskered Bat). Manual verification of acoustic data ensured accurate species identification.

6.7.5.2.3.1.1 Common Pipistrelle

The total number of recordings for Common Pipistrelle at the Application Site during the 2023 activity season was 18762 no. recordings, 44.2% of total recordings for this season. These were recorded over 76 nights which gives an average of 246.87 no. recordings per night.

6.7.5.2.3.1.2 Soprano Pipistrelle

The total number of recordings for Soprano Pipistrelle at the Littleton Bog during the 2023 activity season was 14798 no. recordings, 34.86% of total recordings for this season. These were recorded over 76 nights which gives an average of 194.71 no. recordings per night.

6.7.5.2.3.1.3 Nathusius' Pipistrelle

The total number of recordings for Nathusius' Pipistrelle at the Littleton Bog during the 2023 activity season was 289 no. recordings, 0.68% of total recordings for this season. These were recorded over 76 nights which gives an average of 3.8 no. recordings per night.

6.7.5.2.3.1.4 Leisler's Bat

The total number of recordings for Leisler's Bat at the Littleton Bog during the 2023 activity season was 5794 no. recordings, 13.65% of total recordings for this season. These were recorded over 76 nights which gives an average of 76.24 no. recordings per night.

6.7.5.2.3.1.5 Daubenton's Bat

The total number of recordings for Daubenton's Bat at Littleton Bog the 2023 activity season was 1161 no. recordings, 2.74% of total recordings for this season. These were recorded over 76 nights which gives an average of 15.28 no. recordings per night.

6.7.5.2.3.1.6 Natterers Bat

The total number of recordings for Natterers Bat at Littleton Bog during the 2023 activity season was 464 no. recordings, 1.1% of total recordings for this season. These were recorded over 76 nights which gives an average of 6.12 no. recordings per night.

6.7.5.2.3.1.7 Whiskered Bat

The total number of recordings for Whiskered Bat at Littleton Bog during the 2023 activity season was 373 no. recordings, 0.88% of total recordings for this season. These were recorded over 76 nights which gives an average of 4.91 no. recordings per night.

6.7.5.2.3.1.8 Brown Long-eared bat

The total number of recordings for Brown long-eared Bat at Littleton Bog during the 2023 activity season was 808 no. recordings, 1.9% of total recordings for this season. These were recorded over 76 nights which gives an average of 10.63 no. recordings per night.

6.7.5.2.3.2 Static Detector deployment: 2025

A total of 11 static units were deployed during each survey period in 2025. Overall, eight bat species were recorded (common pipistrelle, soprano pipistrelle, Nathusius's Pipistrelle, Leisler's Bat, Brown Long-eared Bat, Natterer's Bat, Daubenton's Bat and Whiskered Bat). Manual verification of acoustic data ensured accurate species identification.

6.7.5.2.3.2.1 Common Pipistrelle

The total number of recordings for Common Pipistrelle at Littleton Bog during the 2025 activity season was 12747 no. recordings, 31.54% of total recordings for this season. These were recorded over 103 nights which gives an average of 123.76 no. recordings per night.

6.7.5.2.3.2.2 Soprano Pipistrelle

The total number of recordings for Soprano Pipistrelle at Littleton Bog the 2025 activity season was 16980 no. recordings, 42.02% of total recordings. These were recorded over 103 nights which gives an average of 164.85 no. recordings per night.

6.7.5.2.3.2.3 Leisler's Bat

The total number of recordings for Leisler's Bat at Littleton Bog during the 2025 activity season was 7699 no. recordings, 19.05% of total recordings. These were recorded over 103 nights which gives an average of 74.75 no. recordings per night.

6.7.5.2.3.2.4 Brown Long-eared Bat

The total number of recordings for Brown Long-eared Bat at Littleton Bog during the 2025 activity season was 785 no. recordings, 1.94% of total recordings. These were recorded over 103 nights which gives an average of 7.62 no. recordings per night.

6.7.5.2.3.2.5 Daubenton's Bat

The total number of recordings for Daubenton's Bat at Littleton Bog during the 2025 activity season was 1076 no. recordings, 2.66% of total recordings. These were recorded over 103 nights which gives an average of 10.45 no. recordings per night.

6.7.5.2.3.2.6 Whiskered Bat

The total number of recordings for Whiskered Bat at Littleton Bog during the 2025 activity season was 225 no. recordings, 0.56% of total recordings. These were recorded over 103 nights which gives an average of 2.18 no. recordings per night.

6.7.5.2.3.2.7 Natterer's Bat

The total number of recordings for Natterers Bat at Littleton Bog during the 2025 activity season was 678 no. recordings, 1.68% of total recordings. These were recorded over 103 nights which gives an average of 6.58 no. recordings per night.

6.7.5.2.3.2.8 Nathusius' Pipistrelle

The total number of recordings for Nathusius' Pipistrelle at Littleton Bog during the 2025 activity season was 224 no. recordings, 0.55% of total recordings. These were recorded over 103 nights which gives an average of 2.17 no. recordings per night.

6.7.5.2.3.2.9 Summary of Results

As indicated below in Table 6-15 Table 6-15 the highest level of activity was recorded during the summer 2025 round observing a total of 22281 bat passes over 58 nights giving an average of 384.2 passes per night with the highest activity in summer recorded at Detectors LT11, LT10 and LT1 (2025) respectively. Detector LT1 (2025) is located within scrub bounded by cutover bog but also connected to the wider network of wooded habitats onsite. Detector LT10 (2025) is located in cutover bog with areas of scrub surrounding. Detector LT11 (2025) is located on cutover bog with both scrub and immature woodland nearby with the immature woodland providing a linear corridor for commuting bats.

The spring 2025 round had a total of 11,559 bat passes over 17 nights giving an average of 679.9 passes per night with the highest activity of 2025 being observed at LT8 with a total of 3,171 passes recorded in spring. The habitat at LT8 is immature woodland; Detector LT8 (2025) was placed in an area of cutover bog bordered by scrub linked to immature woodland, representative of the interconnected habitat mosaic in which LT8 is located. The wooded edge habitats in this area serve as linear features which may be used by commuting and foraging bats. Detectors LT6 and LT10 (2025) had the next highest numbers of bat passes recorded with 2,638 and 1,622 respectively. The habitat at LT6 habitat consists of cutover bog; however, there are edge habitats formed by scrub and immature woodland nearby. Detector LT10 (2025) is located within cutover bog, with nearby scrub edges providing commuting routes for bats.

Autumn had the lowest bat activity recorded in 2025 with 6,574 bat passes recorded giving an average of 234.79 bat passes recorded per night. Detectors LT8, LT9 and LT1 (2025) had the highest numbers of passes recorded in the autumn round.

For all detectors, with the exception of LT6 and LT8, the summer deployment period had the highest level of activity. For LT6 and LT8, spring had the highest level of activity, the habitats surrounding these detectors are cutover bog with immature woodland and scrub.

Summer had consistently high levels of activity throughout all detectors; however, spring and autumn activity levels varied between detectors but a significant gap between these two rounds and summer with the exception of LT6 and LT8.

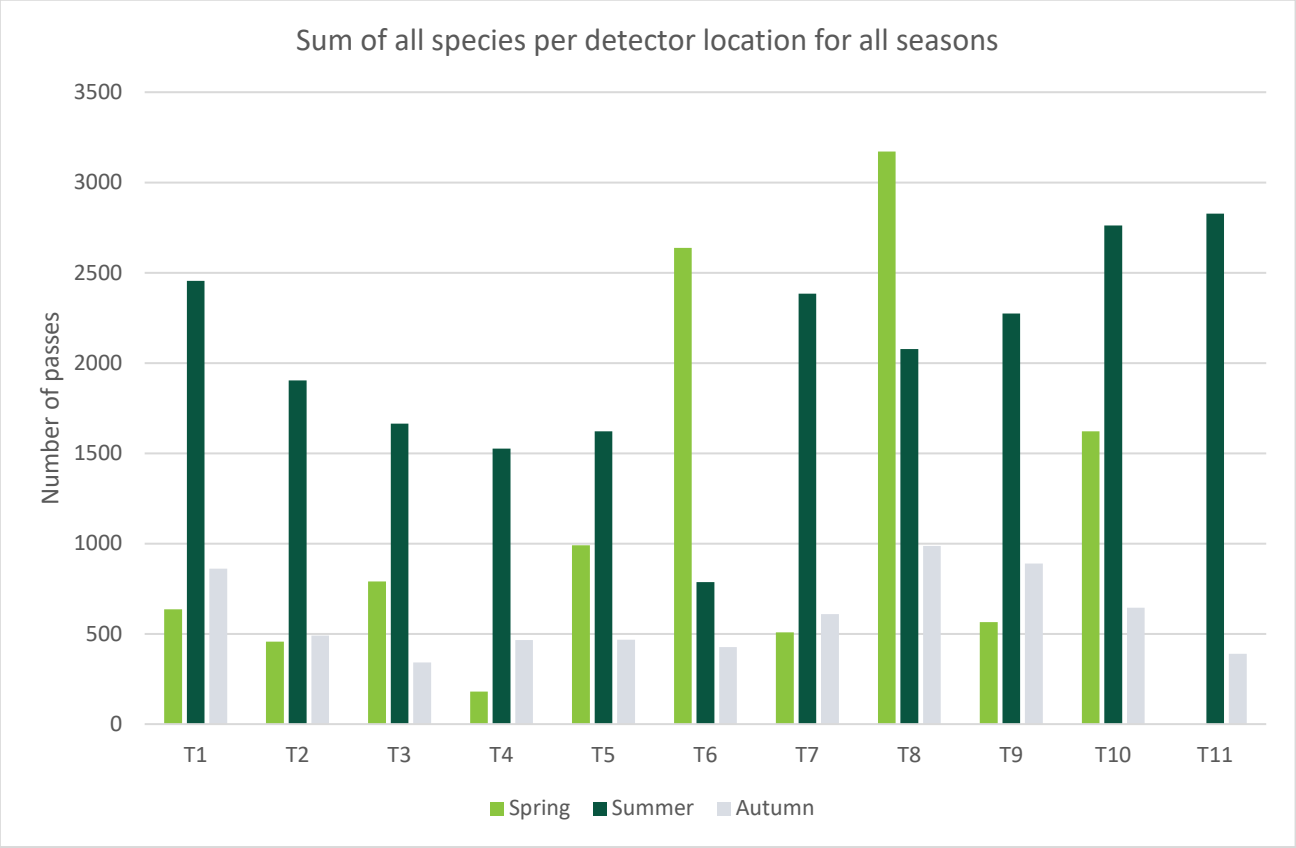

Plate 6-1: Sum of all species per detector location for all seasons in 2025

Table 6-15: Sum of all species per detector location for all seasons in 2025

Detector	Spring	Summer	Autumn	Total
LT1	636	2455	861	3952
LT2	457	1904	491	2852
LT3	791	1664	341	2796
LT4	180	1526	466	2172
LT5	990	1622	467	3079
LT6	2638	786	427	3851
LT7	509	2384	609	3502
LT8	3171	2077	987	6235
LT9	565	2274	890	3729
LT10	1622	2762	645	5029
LT11	0	2827	390	3217
Total	11559	22281	6574	40414

6.7.5.2.3.3 Activity Transect Surveys: 2023

For the 2023 bat activity season, three dusk transect surveys were undertaken on dates outlined in the Methodology section in Section 6.4.3.5.3. The total pass results obtained using Batlogger M2 bat detectors are presented below in Table 6-16. The data collected shows that the linear features walked had associated bat activity in 2023.

Table 6-16: Total bat passes per transect survey

Species	Round 1	Round 2	Round 3
Common pipistrelle	37	37	3
Soprano pipistrelle	20	36	40
Nathusius's pipistrelle	1	0	3
Leisler's bat	13	18	23
Brown Long-eared bat	2	1	8
Daubenton's bat	1	2	0
Whiskered bat	0	0	0
Natterers bat	0	0	0
Total passes	74	94	77

6.7.5.2.4 Bird Surveys

The below results share some of the same species as recorded by Biosphere Environmental Services during the 2012-2014 surveys, but with a greater number of species recorded, particularly amber and red listed species (Gilbert et al., 2021). The development of habitats throughout the Current Phase likely provides more optimal foraging, roosting and nesting opportunities for species allowing the Application Site to be utilised by a wider range of birds than in the Peat Extraction Phase including Hen Harrier which were recorded nesting within Littleton Bog during both 2013-2014 wintering bird surveys undertaken by Biosphere Environmental Services, and during the 2020-2025 surveys undertaken by Fehily Timoney. Thus, the Application Site is of Local Importance (Higher Value) for both breeding birds and wintering birds.

6.7.5.2.4.1 Breeding Waders, Hinterland and VP Surveys

A summary of the bird species recorded during the breeding and wintering bird surveys undertaken across the Application Site between 2020 and 2025 are provided below, along with their associated BoCCI status, Annex status (if applicable) and number of observations. This information has been extracted from the relevant Bird Reports (Fehily Timoney, 2026) for Littleton and Lanespark bogs.

Table 6-17: List of target bird species recorded during the Winter VP, Breeding Wader and Hinterland surveys from 2020 to 2025 by Fehily Timoney ornithologists.

Bird Species	Latin Name	BoCCI Status	Annex I	No. Observations
2020 - 2021				
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No	126
Buzzard	*Buteo buteo*	Green	No	235
Cormorant	*Phalacrocorax carbo*	Amber	No	4
Common Sandpiper	*Actitis hypoleucos*	Amber	No	6
Curlew	*Numenius arquata*	Red	No	30
Green Sandpiper	*Tringa ochropus*	Green	No	5
Greylag Goose	*Anser anser*	Amber	No	9
Golden Plover	*Pluvialis apricaria*	Red	Yes	25
Hen Harrier	*Circus cyaneus*	Amber	Yes	20
Kestrel	*Falco tinnunculus*	Red	No	234
Lapwing	*Vanellus vanellus*	Red	No	78
Lesser Black-backed Gull	*Larus fuscus*	Amber	No	63
Mallard	*Anas platyrhynchos*	Amber	No	66
Merlin	*Falco columbarius*	Amber	Yes	16
Marsh Harrier	*Circus aeruginosus*	Amber	Yes	15
Mute Swan	*Cygnus olor*	Amber	No	44
Peregrine	*Falco peregrinus*	Green	Yes	42
Ringed Plover	*Charadrius hiaticula*	Amber	No	14
Snipe	*Gallinago gallinago*	Red	No	117
Teal	*Anas crecca*	Amber	No	30
Woodcock	*Scolopax rusticola*	Red	No	12
Wigeon	*Anas penelope*	Amber	No	6
Whooper Swan	*Cygnus cygnus*	Amber	Yes	84
2021 - 2022				
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No	103

Bird Species	Latin Name	BoCCI Status	Annex I	No. Observations
Buzzard	*Buteo buteo*	Green	No	483
Cormorant	*Phalacrocorax carbo*	Amber	No	4
Common Sandpiper	*Actitis hypoleucos*	Amber	No	1
Curlew	*Numenius arquata*	Red	No	32
Green Sandpiper	*Tringa ochropus*	Green	No	2
Greylag Goose	*Anser anser*	Amber	No	9
Greenshank	*Tringa nebularia*	Green	No	5
Goldeneye	*Bucephala clangula*	Red	No	3
Golden Plover	*Pluvialis apricaria*	Red	Yes	27
Hen Harrier	*Circus cyaneus*	Amber	Yes	37
Kestrel	*Falco tinnunculus*	Red	No	308
Kingfisher	*Alcedo atthis*	Amber	Yes	3
Lapwing	*Vanellus vanellus*	Red	No	80
Lesser Black-backed Gull	*Larus fuscus*	Amber	No	131
Little Egret	*Egretta garzetta*	Green	Yes	91
Mallard	*Anas platyrhynchos*	Amber	No	125
Merlin	*Falco columbarius*	Amber	Yes	8
Marsh Harrier	*Circus aeruginosus*	Amber	Yes	5
Mute Swan	*Cygnus olor*	Amber	No	43
Peregrine	*Falco peregrinus*	Green	Yes	71
Redshank	*Tringa totanus*	Red	No	2
Ringed Plover	*Charadrius hiaticula*	Amber	No	15
Swift	*Apus apus*	Red	No	36
Snipe	*Gallinago gallinago*	Red	No	148
Teal	*Anas crecca*	Amber	No	48
Tufted Duck	*Aythya fuligula*	Amber	No	2
Woodcock	*Scolopax rusticola*	Red	No	24

Bird Species	Latin Name	BoCCI Status	Annex I	No. Observations
Wigeon	*Anas penelope*	Amber	No	6
Whooper Swan	*Cygnus cygnus*	Amber	Yes	99
2022 - 2023				
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No	91
Buzzard	*Buteo buteo*	Green	No	266
Cormorant	*Phalacrocorax carbo*	Amber	No	1
Common Tern	*Sterna hirundo*	Amber	Yes	1
Curlew	*Numenius arquata*	Red	No	17
Dunlin	*Calidris alpina*	Red	No	1
Green Sandpiper	*Tringa ochropus*	Green	No	4
Greylag Goose	*Anser anser*	Amber	No	9
Goldeneye	*Bucephala clangula*	Red	No	2
Golden Plover	*Pluvialis apricaria*	Red	Yes	49
Hen Harrier	*Circus cyaneus*	Amber	Yes	62
Kestrel	*Falco tinnunculus*	Red	No	311
Kingfisher	*Alcedo atthis*	Amber	Yes	3
Lapwing	*Vanellus vanellus*	Red	No	88
Lesser Black-backed Gull	*Larus fuscus*	Amber	No	138
Long-eared Owl	*Asio otus*	Green	No	1
Mallard	*Anas platyrhynchos*	Amber	No	190
Merlin	*Falco columbarius*	Amber	Yes	9
Marsh Harrier	*Circus aeruginosus*	Amber	Yes	3
Mute Swan	*Cygnus olor*	Amber	No	53
Peregrine	*Falco peregrinus*	Green	Yes	51
Redshank	*Tringa totanus*	Red	No	2
Swift	*Apus apus*	Red	No	24
Snipe	*Gallinago gallinago*	Red	No	178

Bird Species	Latin Name	BoCCI Status	Annex I	No. Observations
Teal	*Anas crecca*	Amber	No	35
Tufted Duck	*Aythya fuligula*	Amber	No	1
Woodcock	*Scolopax rusticola*	Red	No	23
Wigeon	*Anas penelope*	Amber	No	4
Whooper Swan	*Cygnus cygnus*	Amber	Yes	74
2023 - 2024				
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No	163
Buzzard	*Buteo buteo*	Green	No	322
Cormorant	*Phalacrocorax carbo*	Amber	No	5
Curlew	*Numenius arquata*	Red	No	31
Green Sandpiper	*Tringa ochropus*	Green	No	3
Greylag Goose	*Anser anser*	Amber	No	6
Golden Plover	*Pluvialis apricaria*	Red	Yes	28
Hen Harrier	*Circus cyaneus*	Amber	Yes	33
Kestrel	*Falco tinnunculus*	Red	No	309
Kingfisher	*Alcedo atthis*	Amber	Yes	5
Lapwing	*Vanellus vanellus*	Red	No	55
Lesser Black-backed Gull	*Larus fuscus*	Amber	No	132
Long-eared Owl	*Asio otus*	Green	No	1
Mallard	*Anas platyrhynchos*	Amber	No	213
Merlin	*Falco columbarius*	Amber	Yes	10
Peregrine	*Falco peregrinus*	Green	Yes	41
Redshank	*Tringa totanus*	Red	No	5
Ringed Plover	*Charadrius hiaticula*	Amber	No	30
Short-eared Owl	*Asio flammeus*	Amber	Yes	6
Snipe	*Gallinago gallinago*	Red	No	169
Teal	*Anas crecca*	Amber	No	36

Bird Species	Latin Name	BoCCI Status	Annex I	No. Observations
White-tailed Eagle	*Haliaeetus albicilla*	Red	Yes	2
Woodcock	*Scolopax rusticola*	Red	No	11
Wigeon	*Anas penelope*	Amber	No	5
Whooper Swan	*Cygnus cygnus*	Amber	Yes	67
2024-2025				
Curlew	*Numenius arquata*	Red		55
Crane	*Grus* sp.	Green		1
Grey Wagtail	*Motacilla cinerea*	Red		2
Kestrel	*Falco tinnunculus*	Red		3
Lapwing	*Vanellus vanellus*	Red		18
Lesser Black-backed Gull	*Larus fuscus*	Amber		2
Long-eared Owl	*Asio otus*	Green		3
Meadow Pipit	*Anthus pratensis*	Red		91
Snipe	*Gallinago gallinago*	Red		96
Woodcock	*Scolopax rusticola*	Red		8
Black-headed gull	*Chroicocephalus ridibundus*	Amber		465
Goldcrest	*Regulus regulus*	Amber		8
Greenfinch	*Chloris chloris*	Amber		1
Grey Heron	*Ardea cinerea*	Green		10
Greylag Goose	*Anser anser*	Amber		6
House Martin	*Delichon urbicum*	Amber		1
House Sparrow	*Passer domesticus*	Amber		9
Linnet	*Linaria cannabina*	Amber		30
Little Egret	*Egretta garzetta*	Green		3
Little Grebe	*Tachybaptus ruficollis*	Green		20
Mallard	*Anas platyrhynchos*	Amber		177
Moorhen	*Gallinula chloropus*	Green		11

Bird Species	Latin Name	BoCCI Status	Annex I	No. Observations
Mute Swan	*Cygnus olor*	Amber		10
Sand martin	*Riparia riparia*	Amber		67
Skylark	*Alauda arvensis*	Amber		17
Starling	*Sturnus vulgaris*	Amber		10
Swallow	*Hirundo rustica*	Amber		10
Teal	*Anas crecca*	Amber		111
Water Rail	*Rallus aquaticus*	Green		1
Wigeon	*Mareca penelope*	Amber		152
Willow Warbler	*Phylloscopus trochilus*	Amber		181

6.7.5.2.4.2 Species-Specific Surveys

6.7.5.2.4.2.1 Hen Harrier

During winter 2021-2022 roost searches, Hen Harriers were recorded on three occasions, during winter 2022-2023, there were 19 observations, in winter 2023-2024, four observations were recorded and in winter 2024-2025, Hen Harrier were observed on three occasions. Hen Harriers recorded at Littleton Bog were seen exhibiting a number of different behaviours including hunting, flying, being flushed, mobbed by other bird species and flying over suitable roost habitat.

6.7.5.2.4.2.2 Merlin

Signs of Merlin and other raptors were found during the Merlin surveys of Littleton Bog in the summer 2021 season. Suitable perches and/or hummocks were found along all transects walked for Merlin surveys. Pellets, either from raptors or corvids were recorded as well as a plucking post with many feathers of a small unidentified passerine.

6.7.5.2.4.2.3 Barn Owl

In total, 23 of 42 sites visited were deemed highly suitable for barn owl roosting. Site 20 was confirmed as active breeding site with juvenile calls and adults recorded from 2021-2023, no barn owls were recorded at site in 2024, but large amounts of whitewash were recorded at exits. Five visits to site 20 were carried out in 2024, to a previously known barn owl roost site. Over all five visits no barn owl recorded, barn owl appears to have abandoned this site or has died.

6.7.5.2.4.2.4 Kingfisher

Suitable Kingfisher habitat was found during Kingfisher surveys in the summer seasons of 2021-2024. Kingfisher were recorded on six occasions. Kingfisher nests were noted along two watercourses. A kingfisher nest was recorded in 2021 and 2022, however, in 2023 no kingfisher activity was recorded and by 2024, the nest was no longer present as the drains steeps side had fallen in slightly. A second kingfisher nest recorded in 2021 was noted to be occupied by pied wagtail in 2022, and no kingfisher activity was recorded in 2023 and 2024.

6.7.5.2.5 Marsh Fritillary Surveys

During the walkovers in 2021, marsh fritillary larval webs were recorded clustered in a number of locations, including: dense mature grassy vegetation in the northeast of Littleton bog; grassy/heath type vegetation in the northern section of Littleton bog; heath type vegetation in the middle of Littleton bog and a grassy ride in the southeast of Littleton bog.

During the walkovers in 2023, larval webs were recorded at a number of locations across the Littleton Bog site, including several webs in grassy vegetation recolonising bare peat in the southern section of Littleton bog; a web in similar vegetation in the middle of Littleton bog; a web on a recolonised peat bank beside the existing railway in the north of the Site and a web in open vegetation on recently recolonised bare peat in the north of the Site. Furthermore, active larvae were also recorded at the latter two locations.

The 2025 survey within the Site confirmed the distribution of suitable habitat remained similar to 2023. During the surveys undertaken by Fehily Timoney in 2025, 5 - 6 no. larval cases were recorded within Devil's-bit Scabious in a *c.* 2m stretch along the railway route in the centre of the Littleton Bog.

The locations of suitable Marsh Fritillary habitat and recorded larval webs are shown in Figure 6.8 - Map of Marsh Fritillary Survey and Larval Web Locations, in Volume 4 of this rEIAR.

6.7.5.2.6 Herpetofauna

Common Frog (*Rana temporaria*) was recorded incidentally during surveys of Littleton Bog, with adults observed at a number of locations distributed across the Application Site. The habitat mosaics at the Application Site are suitable for this species, with adults encountered in dense vegetation, and abundant pools providing both hunting and breeding habitat. While no breeding sites were detected, the abundance of flooded areas onsite and confirmed presence of adult frogs indicate a breeding population is present. Potential breeding habitat is distributed across the Application Site.

A total of two observations of Smooth Newt (*Lissotriton vulgaris*) were recorded during surveys of Littleton Bog. An individual was encountered on bare peat in an area of recolonised cutover bog in the southeast of Littleton bog in 2023, and another individual was observed near a lake in Littleton bog in 2025. The abundance and structural diversity of flooded areas onsite and confirmed presence of adults indicate a breeding population is present. Potential breeding habitat is distributed across the Application Site.

While there are no historical records of Common Lizard (*Zootoca vivipara*) overlapping the Application Site, and the single record in the wider region is 55 years old, the habitat mosaic at the site is potentially suitable for this species. While multiple walkover surveys did not identify this species, it is timid in nature and unlikely to be recorded as a sighting, thus its presence on-Site is not precluded, and a breeding population is presumed present under the precautionary principle.

6.8 Key Ecological Receptors

6.8.1 Peat Extraction Phase: 1988-2017

The key ecological receptors as identified within the preceding section as having the potential to have been significantly impacted as a result of peat extraction and ancillary activities are summarised below in Table-6-18. Only those features deemed to be of Local Importance (Higher Value) or higher are brought forward for further assessment of the significance of impacts during each Phase.

Table-6-18: Key Ecological Receptors identified during Desk Study

Key Features	Valuation	KER	Rationale
Designated Sites			
Lower River Suir SAC (002137)	International Importance	Yes	Downstream hydrological pathway present between the Application Site and this European site designated for a number of aquatic habitats and species.
Habitats			
Cutover Bog (PB4)	Local Importance (Higher Value)	Yes	Formation of new habitats resulting from pools of water forming within drainage channels and areas of extracted peat, which are likely distinct and of some ecological importance in the context of the wider area.
Raised Bog (PB1)	Local Importance (Higher Value)	Yes	Uncut areas of bog which is relatively rare within Ireland during this period because of extensive peat extraction across the country. However, because of the damage via drainage to facilitate peat extraction and high level of disturbance, this habitat is therefore determined to be of County Importance
Species			
Red Squirrel	Local Importance (Higher Value)	No	Potentially present in wooded areas near the Application Site and may also use the edges of the Application Site itself for foraging or commuting. No suitable resting places identified within the Site itself nor any indicators of squirrel presence during surveys. It is unlikely that the Application Site is of ecological importance for red squirrel.

Key Features	Valuation	KER	Rationale
Pine Marten	Local Importance (Higher Value)	Yes	Pine marten scat recorded within the Application Site although no suitable resting places within the Application Site itself. The site is likely of some value to foraging Pine Marten.
Badger	Local Importance (Higher Value)	Yes	Potential use for foraging or commuting, in particular, across any areas where regrowth of vegetation is occurring, or areas of the Application Site adjacent to patches of woodland. A number of active setts including a main sett recorded along the northeastern boundaries of Littleton bog. The Application Site is deemed to be of ecological importance for resting and foraging badger.
Otter	Local Importance (Higher Value)	Yes	Potential use for foraging or commuting, but unlikely to be of high importance for otter. In particular the lack of clean unpolluted waterways and thus prey likely displaced any otter that could have been historically present pre-1988. The Application Site is not deemed to be of importance for Otter, although Otter downstream may be impacted by effects propagated via hydrological pathways.
Hedgehog	Local Importance (Lower Value)	No	Unlikely to be found at the Application Site due to dislike of marshy and wet habitats and preference for foraging through wildlife corridors such as those found on the bounds of agricultural fields.

Key Features	Valuation	KER	Rationale
Breeding Birds	National Importance	Yes	In areas where extraction has ceased (temporarily or otherwise during the Peat Extraction Phase), and vegetation has been allowed to regrow, ground nesting birds could be present, and birds that nest in boundary hedgerows and treelines could be present; both could be subject to impacts relating to direct mortality, injury or disturbance. Most notably Littleton Bog supports breeding Curlew first recorded in First Atlas of Breeding Birds in Britain and Ireland: 1968-1972. Only 100 breeding pairs remain nationally. Loss of raised bog habitat is considered a key contributor to population decline in the midlands. Thus the Application Site is deemed to be of National Importance for breeding birds.
Wintering/Non-breeding Birds	Local Importance (Higher Value)	Yes	Wintering and non-breeding birds likely use the areas of the Application Site where regrowth of vegetation has occurred or where ponds and peaty lakes have formed creating wetlands. The Application Site is deemed to be of ecological importance for wintering birds.
Amphibians	Local Importance (Higher Value)	Yes	The formation of stagnant pools of water likely provides suitable breeding habitat for common frog and smooth newt. The Site is deemed to be of ecological importance for breeding amphibians.
Reptiles	Local Importance (Higher Value)	Yes	Widespread throughout Ireland particularly upland bog sites, present in historical NBDC records and unlikely to be recorded incidentally due to timid nature. The Application Site is assessed as being of some ecological value for breeding common lizard.

Key Features	Valuation	KER	Rationale
Bats	Local Importance (Lower Value)	No	No suitable habitats to support roosting bats, and lots of open space not preferred by bats, although some suitable habitats for foraging in the form of lakes, ponds and drainage ditches, the Application Site is likely to be of low ecological importance for bats.
Invertebrates	Local Importance (Higher Value)	Yes	While Marsh Fritillary will not occur at the Application Site due to the lack of devil's bit-scabious (foodplant) in 1988, as works begin to decrease and grasslands develop, devil's-bit scabious becomes available for this species.
Fish	Local Importance (Higher Value)	Yes	Highly unlikely to be present on the Application Site by 1988, given the impacts peat extraction has on receiving river waterbodies including waterbodies within or downstream of the Application Site. May be present much further downstream. As works decrease across the Application Site, waterbodies closer to the Site likely become more suitable to host fish species.

The habitat surveys undertaken in 2017 describe the dominant habitats and fauna within the four bogs that make up the Application Site. The four bogs share common elements including significant coverage of bare peat (BP) (cutover bog and bare ground as per Fossitt (2000)). In addition to bare peat areas, the Lanespark, Derryvella, Longfordpass and Littleton Bogs all contain early-stage or pioneer habitats in specific areas, primarily the margins, with early colonisers forming recolonising bare ground habitats, and patchy scrub, primarily dominated by willow, birch and occasionally gorse. This indicates that the entire Application Site is still undergoing ecological development, with limited vegetation layers and species diversity. Also present within Lanespark, Derryvella and Longfordpass Bogs during the surveys in 2017 are wetter habitats, notably absent during the surveys of Littleton, including fens, flushes and lakes, likely due to the more recent peat extraction works being concentrated in Lanespark and Longfordpass, leaving excavations allowing rainwater to pool post-cessation of works.

Table 6-19: KERs identified during the bird surveys undertaken in 2012-2014 (Biosphere Environmental Services, 2013a, 2013b and 2014) and habitat surveys undertaken in 2017 (Bord na Móna, 2018).

Key Features	Valuation	KER	Rationale
Habitats (2017)			
Bare peat	Local Importance (Lower Value)	No	Majority comprises damaged bare peat, however, some areas are sphagnum dominated and capable peat forming. Present in mosaics with other habitats including scrub, fens, woodland and grasslands.
Bog	County Importance	Yes	This habitat is characterised by high plant diversity, contributing to local biodiversity. It represents one of the more natural habitats in the area and is important in the context of ecological rehabilitation efforts due to its condition and plant species richness.
Built	Local Importance (Lower Value)	No	Man-made habitat comprising railway, access route and brickworks.
Conifer plantation	Local Importance (Lower Value)	No	Conifer plantations, especially those dominated by monoculture planting of non-native species (such as Lodgepole Pine), tend to have lower ecological value. They are typically characterised by a lack of structural complexity and reduced species diversity.
Cutover bog	Local Importance (Lower Value)	No	Comprises recolonising plant species growing over bare peat; this habitat is of little ecological value.
Fen	Local Importance (Higher Value)	Yes	Rich fens are nutrient-rich, groundwater-fed wetlands that support a diverse range of plant species, contributing to the overall biodiversity of the area. Poor fens are nutrient-poor and host a variety of specialised plant species adapted to these conditions, contributing to the overall biodiversity of the area.

Key Features	Valuation	KER	Rationale
Grassland or agriculture	Local Importance (Higher Value)	Yes	Agriculture tends to be highly managed and is of little value. Grasslands comprise a variety of different types ranging from highly managed amenity grassland to those with higher species diversity including dry calcareous, wet and dry-humid. Thus this habitat type is brought forward as a KER.
Gravel sub soil	Local Importance (Lower Value)	No	Of low value due to limited vegetation.
Heather	Local Importance (Lower Value)	No	This habitat has limited ecological value due to its small size and low species diversity.
Heather and scrub	Local Importance (Lower Value)	No	This habitat has limited ecological value due to its small size and low species diversity, while the scrub on-site is an indicator of early succession.
Open water	Local Importance (Higher Value)	Yes	Present in mosaics with other habitats including fens, scrub and grassland; of good species diversity including some rare aquatic plants.
Pioneer open cutaway habitats	Local Importance (Lower Value)	No	Predominantly low value bare peat with some recolonizing vegetation.
Riparian	Local Importance (Higher Value)	Yes	Comprising waterways and their banks which provide importance ecological connectivity and support aquatic species.
Scrub	Local Importance (Lower Value)	No	The scrub on-site is an indicator of early succession - while scrub may provide some cover for species, it is of limited ecological value in and of itself.
Scrub and grassland	Local Importance (Lower Value)	No	The scrub on-site is an indicator of early succession - while scrub may provide some cover for species, it is of limited ecological value in and of itself.
Scrub and pioneer open cutaway habitats	Local Importance (Lower Value)	No	The scrub on-site is an indicator of early succession - while scrub may provide some cover for species, it is of limited ecological value in and of itself.
Temporary flooded areas	Local Importance (Higher Value)	Yes	Despite being an artificial habitat, these areas support a range of wetland floral species.
Wetlands	Local Importance (Higher Value)	Yes	These areas support a range of wetland floral species.

Key Features	Valuation	KER	Rationale
Wetlands and scrub	Local Importance (Higher Value)	Yes	These areas support a range of wetland floral species showing some scrub succession.
Woodland	Local Importance (Higher Value)	Yes	Non-conifer wooded areas which are of importance and include bog woodland.
Species			
Breeding Birds	National Importance	Yes	Suitable habitat at the Application Site particularly in areas where works have decreased or ceased, in the form of regenerating vegetation and peaty pools and lakes. Birds of local importance and red and amber listed birds recorded, including breeding activity, most notably from Curlew, first recorded in First Atlas of Breeding Birds in Britain and Ireland: 1968-1972. Only 100 pairs are left in Ireland thus the Application Site is of National Importance for this species.
Wintering Birds	County Importance	Yes	Suitable habitat at the Application Site particularly in areas where works have decreased or ceased, in the form of regenerating vegetation and peaty pools and lakes. Wintering birds recorded including red and amber listed birds. Hen Harrier are present within Littleton utilising the site as a winter roost. This roost was first recorded by surveyors in 2013 and is still present in 2025. As such, the Application Site is deemed of County Importance for wintering birds.

6.8.2 Current Phase: 2017-Present Day

The below surveys of the Application Site, undertaken between 2021 and 2026 given an indication of the rehabilitation progression of the four bogs post-cessation of peat extraction. While improvements in habitat quality and thus species diversity may have become increasingly more pronounced over time after peat extraction activities ceased, any recovery would be slow depending on factors such as hydrological conditions, vegetation type, and rehabilitation efforts. As described above in section 6.4.3.3, in order to allow for a comparison between BnM and Fossitt (2000) habitat classification, the below Table 6-20 has been provided which converts Fossitt (2000) codes into the associated BnM general habitat code. This is to be read in conjunction with the habitat mapping provided in Figures 6.9a, 6.9b and 6.9c in Volume 4.

Table 6-20: Conversion chart from BnM general habitat classification to Fossitt (2000) habitat classification

BnM General Habitat	Fossitt Code
Bare peat	PB4
Bog	PB1
Built	BL3
Conifer plantation	WD4
Cutover Bog	PB4
Fen	PF1 or PF2
Grassland or Agriculture	GA / GS
Gravel sub soil	ED1 or ED2
Heather	HH3
Heather and Scrub	HH3 and WS1
Open Water	FL8, FL1 or FL2
Pioneer open cutaway habitats	PB4
Riparian	FW2 or FW4 and associated riparian vegetation such as WS1, WL1, WL2 or GS
Scrub	WS1 or WS2 or WS3
Scrub and grassland	WS1 or WS2 and GS1 or GS2
Scrub and pioneer open habitats	WS1 and PB4
Temporary flooded areas	PB4
Wetlands	FS1 or GS4. FL8 if vegetation dominates
Wetland and scrub	WS1 and FS1 or GS4
Woodland	WN7 or WD1 or WN2 or WD2 or WD3

The species surveys undertaken show an increase in breeding and wintering bird presence from the surveys undertaken by Biosphere Environmental Services in 2012-2014, likely owing to the decrease in anthropogenic disturbance and development of vegetative cover at the Application Site providing more nesting, roosting and foraging opportunities. Similarly, the increased vegetative cover would have also provided increased suitable habitats to support foraging and commuting mammals including Badger, the prints of which were noted within Littleton Bog, while the decrease in downstream pollutants likely allow for Otter to forage more closely to the Application Site due to increased prey availability, indicated by the spraints and prints found downstream of the Application Site during the aquatic surveys. Furthermore, improved water quality has also allowed for increased fish and mollusc species present downstream of the Application Site, as noted during the aquatic surveys. Cessation of works at the Application Site has also allowed for the growth of Devil's-bit scabious, the foodplant of Marsh Fritillary, and evidence of the presence of larval webs was recorded during surveys in 2025. The recovery of the Application Site for species is notably more significant than for habitats.

Table 6-21: KERs identified during the habitat, mammal and bird surveys undertaken in 2025 and 2026 by FT and the aquatic surveys undertaken in 2021, 2023 and 2025 by Triturus.

Key Features	Valuation	KER	Rationale
Habitats (2025)			
Earth banks (BL2)	Local Importance (Lower Value)	No	Primarily colonised by gorse and bramble scrub.
Buildings and artificial surfaces (BL3)	Negligible Value	No	Man-made habitat comprising railway, access route and brickworks.
Spoil and bare ground (ED2)	Local Importance (Lower Value)	No	Disturbed habitat comprising primarily bare peat.
Recolonising bare ground (ED3)	Local Importance (Lower Value)	No	Disturbed habitat comprising recolonising plant cover over bare peat.
Dystrophic lakes (FL1)	Local Importance (Higher Value)	Yes	c. 85ha of this habitat present within the Application Site, composed of the typical marginal and aquatic floral species expected. Good species diversity.
Acid oligotrophic lakes (FL2)	Local Importance (Higher Value)	Yes	Present in mosaics with other habitats including fens, scrub and grassland; of good species diversity including some rare aquatic plants.
Other artificial lakes and ponds (FL8)	Local Importance (Lower Value)	No	Recolonised by ruderal vegetation upon cessation of works with little standing water left. Of little ecological value in the context of the wider area.
Reed and large sedge swamps (FS1)	Local Importance (Lower Value)	No	Composed of the typical species expected in this habitat. This habitat is c. 10ha in size and is noted as being species poor.
Drainage ditches (FW4)	Local Importance (Higher Value)	Yes	Artificial in origin and overgrown. Margins comprise wetland species.

Key Features	Valuation	KER	Rationale
Improved grassland (GA1)	Local Importance (Lower Value)	No	Highly managed and of low species diversity.
Dry calcareous and neutral grassland (GS1)	Local Importance (Higher Value)	Yes	c. 18ha present. Good species diversity, including the presence of devil's-bit scabious. Notably, no links to Annex I habitat.
Dry meadows and grassy verges (GS2)	Local Importance (Lower Value)	No	Only 0.4ha present at the Application Site which is of little significance in the context of the wider surrounding landscape.
Wet grassland (GS4)	Local Importance (Higher Value)	Yes	Comprised of a range of wet areas and pooling water with good species diversity in undisturbed locations.
Dense bracken (HD1)	Local Importance (Lower Value)	No	Comprising dense bracken and heather. No notable species and low species diversity - of little importance.
Raised bog (PB1)	Regional Importance	Yes	Comprising c. 88ha of remnant bog primarily around the margins of the Application Site.
Cutover bog (PB4)	Local Importance (Higher Value)	Yes	Majority comprises damaged bare peat, however, some areas are sphagnum dominated and capable peat forming. Present in mosaics with other habitats including scrub, fens, woodland and grasslands.
Mixed broadleaved/conifer woodland (WD2)	Local Importance (Higher Value)	Yes	Composed of a mix of non-native conifers and non-native and native broadleaves.
(Mixed) conifer woodland (WD3)	Local Importance (Lower Value)	No	Composed primary of non-native conifer species with a small amount of broadleaves present.
Conifer plantation (WD4)	Local Importance (Lower Value)	No	Composed of non-native coniferous species.
Treeline (WL2)	Local Importance (Higher Value)	Yes	c. 1.2km of treeline recorded comprised of native species, of low species diversity.
Oak-birch-holly woodland (WN1)	Local Importance (Higher Value)	Yes	Comprised of native species of good diversity, present in two patches (c.3.7a total) within the Application Site.
Bog woodland (WN7)	Local Importance (Higher Value)	Yes	Although not Annex I, this habitat type is of ecological importance.

Key Features	Valuation	KER	Rationale
Scrub (WS1)	Local Importance (Lower Value)	No	Scrub comprises some native species mixed with conifers and bracken. It is of little ecological value.
Immature woodland (WS2)	Local Importance (Higher Value)	Yes	Good species richness in ground flora with varying degrees of wetness; trees comprise native species.
Species (2021-2025)			
Badger	Local Importance (Higher Value)	Yes	Evidence of foraging / commuting Badger at the Application Site, and presence of setts along the northeastern bounds of the Littleton bog.
Otter	Local Importance (Higher Value)	Yes	Evidence of foraging / commuting Otter at sampling sites (Triturus, 2021; 2023; 2025) downstream of the Application Site. No signs recorded on-Site but suitable habitats to support foraging / commuting Otter are present.
Aquatic Fauna	Local Importance (Higher Value)	Yes	Evidence of salmonids and lamprey at sampling sites (Triturus, 2021; 2023; 2025) downstream of the Application Site.
Breeding Birds	National Importance	Yes	Annual breeding activity observed for a number of red / amber-listed and / or annexed birds including curlew (of national importance - only 100 breeding pairs in Ireland), lapwing, mallard, teal, woodcock, sandpiper, kingfisher, snipe, long-eared owl and plover sp.
Wintering Birds	County Importance	Yes	Wintering birds / waterbirds observed utilising the Application Site including a Hen Harrier winter roost in the southeastern corner of the Application Site, recorded first in 2013 and still present during 2025 surveys.
Marsh Fritillary	Local Importance (Higher Value)	Yes	5-6 larval webs present on Application Site.

6.9 Assessment of Significant Effects

6.9.1 'Do Nothing' Effect

As outlined in the EPA Guidelines (May 2022), the description of 'Do-Nothing Effects' relates to the environment as it would be in the future should the proposed project not be carried out. As discussed in Section 3.3, the assessment period of this rEIAR commenced in 1988, a time at which peat extraction was already well-established at the site. In the context of this rEIAR, the Project has been ongoing since the baseline assessment year of 1988. As outlined in Section 3.3, peat extraction activities commenced at the Application Site in 1941 with the installation of drainage.

The 'Do-Nothing' option is defined as the Project (as described in Section 4.3 of Chapter 4 - Description of the Development, Volume 2) having ceased at the Application Site in 1988.

In the event of the cessation of the Project at the Application Site in 1988, it is assumed that those lands which by that point had not been subject to the installation of drainage and peat extraction would have remained as a relatively intact raised bog with varying raised bog habitats (such as bog woodland, fen, sphagnum mosses).

Subsequently, other land-use practices may also have taken place on the Application Site such as agricultural or commercial forestry, or other commercial or non-commercial uses. Under this 'Do-Nothing' option, IPC Licence Ref. P0499-01 would not have been granted by the EPA in 2001, and associated decommissioning and planned rehabilitation would not have occurred.

For those lands which as of 1988 had been subject to the installation of drainage in preparation for peat extraction but not peat extraction itself, it is assumed in the 'do-nothing' scenario that drainage would have remained insitu. Maintenance works to keep established drainage channels clear would have ceased as of 1988 in the 'do-nothing' scenario. It is likely that these areas would have been subject to natural recolonisation of the bog surface. Minor third party turbary activities likely would have occurred along the intact bog edges as was common practice at sites such as the Application Site.

Peat extraction was underway at the Application Site prior to the required date for the transposition of the EIA Directive in 1988. If peat extraction and related activities ceased from 1988 onwards, then the various residual effects, described throughout this rEIAR, would not have occurred.

However, consideration must be given to the following:

- The legislative mandate given to Bord na Móna in the form of the Turf Development Act 1946, as amended to acquire and develop peatlands; and,
- The uncertainty with respect to the planning status of the activity did not arise until 2019 and was not evident in 1988.

Therefore, this 'Do-Nothing' option was not the chosen option. Peat extraction and ancillary activities have occurred at the Application Site from July 1988 onwards. A decision to cease peat extraction at the Application Site was taken in 2017 and the Application Site needs to be considered in the context of regularising (without prejudice) the planning status of the lands to facilitate future development (subject to planning consent as required). The Application Site has and will continue to revegetate, and there will be a change from areas of cutover peatland to revegetated peatland. These are described in the individual chapters of the rEIAR.

In the event that Substitute Consent is not granted, in effect, the "Do Nothing" option represents the current situation as at the date of the application for Substitute Consent. As part of Bord na Móna's statutory obligations under IPC Licence requirements, Cutaway Bog Decommissioning and Rehabilitation Plans will continue to be implemented for the Application Site separate to, and independent of, the Substitute Consent application. The implementation of the plans is included in the impact assessment below.

The role of cutaway/cutover peatlands such as the Application Site as a significant potential resource for amenity, tourism, biodiversity enhancement and conservation, improvement in air quality, climate mitigation, renewable energy development and education are part of Bord na Móna's vision for the Application Site. The regularisation of the planning status of the Application Site is a significant facilitator in ensuring the sustainable use and management of these peatlands. If this does not occur, the opportunity to continue employment and alternative use of the Application Site for the potential resources and activities mentioned above will be significantly restricted.

The following sections outline the potential impacts of the 'Do Nothing' scenario, considering two distinct situations:

- 'Do Nothing' Scenario 1: Assumes the Project stopped in 1988, leaving cutover bog and bare peat.
- 'Do Nothing' Scenario 2: Assumes that Substitute Consent is not granted. In this case, the ongoing obligations under the IPC Licence would still apply, requiring Bord na Móna to continue implementing the Cutaway Bog Decommissioning and Rehabilitation Plans.

6.9.1.1 'Do Nothing' Scenario 1

This 'Do-Nothing' scenario assumes the Project, as detailed in Chapter 4 – Project Description was halted in 1988. At that time, the majority of the Application Site was already characterised by cutover bog and bare peat, with much of the bog altered by drainage and peat extraction activities.

Had the Project not proceeded from this point, the cutover bog and bare peat areas, having been drained and subject to peat extraction by 1988, would have remained. It should be noted that the cutover bog and bare peat areas would have had limited potential of natural regeneration without intervention. It is possible that drains could have naturally infilled to a degree and eventually become vegetated, gradually reducing drainage at the Application Site. The ceasing of dewatering activities would likely lead to the water table rising. A limited area of the Application Site that had not yet been significantly affected by drainage and extraction would likely have remained as relatively intact raised bogs, with other areas supporting habitats like bog woodland, fen, and sphagnum mosses.

It should be noted that if the Project stopped in 1988, over time, other land uses, such as agriculture or commercial forestry, might have been introduced, further altering the landscape. Alternative land uses are discussed in Chapter 3 – Consideration of Reasonable Alternatives. Under 'Do Nothing' scenario 1, the IPC Licence and associated ongoing decommissioning and planned rehabilitation would not have occurred.

For those lands which as of 1988 had been subject to the installation of drainage in preparation for peat extraction but not peat extraction itself, it is assumed in the 'Do Nothing' scenario that drainage would have remained in situ. Maintenance works to keep established drainage channels clear would have ceased as of 1988 in the 'Do Nothing' scenario. It is likely that these areas would have been subject to natural recolonisation of the bog surface.

6.9.1.2 'Do Nothing' Scenario 2

This scenario assumes that Substitute Consent is not granted. However, Bord na Móna's ongoing obligations under the IPC Licence would still apply, requiring the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans. These obligations remain in effect regardless of the outcome of the Substitute Consent process. As peat extraction has already ceased, the Application Site is currently characterised by areas of cutover bog and bare peat, with hydrological modifications from past drainage and extraction activities still influencing site conditions. Under this scenario, while no further development would proceed, Bord na Móna would remain responsible for decommissioning and rehabilitation measures in accordance with the IPC Licence.

These rehabilitation efforts focus on rewetting and restoring peatland habitats, aiming to stabilise hydrology, promote the recolonisation of native vegetation, and enhance biodiversity. The decommissioning process would also involve ensuring that former operational infrastructure is appropriately managed or removed where necessary to support long-term site rehabilitation. Under Rehabilitation Plans, rehabilitation works would involve blocking drains, raising water levels, and encouraging natural recolonisation of the bog surface.

The areas of the Application Site that were less affected by past drainage and extraction activities would likely continue to support relatively intact raised bog habitats, including bog woodland, fen, and sphagnum moss communities. Rehabilitation measures will further improve these areas by enhancing water quality emissions from the Application Site and expanding suitable habitat conditions to support a range of floral and faunal species.

6.9.2 Likely Significant Effects

6.9.2.1 Overview of Effects

The primary consequences of the Project on biodiversity can be categorised as follows:

- **Habitats:** impacts on habitats including habitat loss, fragmentation, degradation, and habitat creation.
- **Species:** impact on species populations due to disturbance, injury or direct mortality, habitat loss and habitat creation.
- **Water Quality and Aquatic Fauna and Habitats:** effects on water quality, particularly through sedimentation and altered hydrological conditions, impacting downstream aquatic species, habitats and downstream designated sites.

6.9.2.2 Peat Extraction Phase: 1988-2017

6.9.2.2.1 Effects on Designated Sites

As described above, there is no potential for significant effects on any nationally designated sites due to the lack of a S-P-R linkage between the Application Site and any designated sites. A S-P-R linkage was identified between the Application Site and Lower River Suir SAC (002137). The Application Site was already entirely under peat extraction at the time of the required transposition of the Habitats Directive into Irish Law (1994) and at the time that the Lower River Suir SAC was designated (1998).

As per the rNIS accompanying this application, "*Peat extraction activities, in the absence of mitigation, contribute to degradation of water quality in nearby drainage lines and receiving watercourses. Impacts include changing the characteristics of the streambed, smothering benthic organisms, nutrient-loading and eutrophication leading to oxygen depletion and suffocation of aquatic organisms, and deterioration of overall aquatic habitat through chemical impacts, which may also alter pH and salinity of water.*

Furthermore, peat extraction also alters water flow dynamics, as the topography of the Application Site systematically decreases, water reporting to local drainage lines and streams decreases, compounded by pumping on the Application Site which contributes to increased flows into neighbouring areas, altering the natural flow rates or volumes in these waterbodies.

Although potential adverse effects from drainage of the Application Site would still be at its peak in 1994, the extent, magnitude and probability of potential impacts associated with peat extraction would have been reduced as the extent of peat extraction areas were significantly reduced by 1995 at the Application Site. Therefore, the potential for adverse effects from the Project on European sites would, similarly, also be on a decline".

6.9.2.2.1.1 Assessment of Significance prior to Control Measures

In the absence of control measures there existed the potential for the Peat Extraction Phase to adversely affect the conservation objectives of QIs or supporting populations of QIs reliant on or using the surrounding local water bodies by indirectly impacting the downstream water bodies through increased sedimentation / altered water chemistry / altered flow regimes during the Peat Extraction Phase (post 1994 to 2017).

As such, hydrological impacts on Lower River Suir SAC during this phase and prior to the implementation of control measures would constitute a **negative, long-term** effect of **moderate** significance on a designated site of **international** importance.

6.9.2.2.2 Effects on Habitats

Habitats identified as KERs during the desk study are listed below:

- Cutover Bog (PB4)
- Raised Bog (PB1)

Habitats identified as KERs from the Bord na Móna surveys of the Application Site in 2017 are listed below:

- Bog
- Fen
- Grassland or agriculture
- Open water
- Riparian
- Temporary flooded areas
- Wetlands
- Wetlands and scrub
- Woodland

As described above in Section 6.4.3.3, the baseline habitats at the Application Site comprise primarily cutover bog, interspersed with other habitats formed through vegetation regrowth and lake / pond formation in areas where peat extraction has ceased or slowed down. Extensive extraction can be observed across all four bogs within the Application Site using satellite imagery. Through the period 1988-2001, peat excavation would have continued across the Application Site at a decreased level from the peak in 1988. As per Chapter 4, " *In 1995, there was a significant reduction in peat extraction at Littleton Bog. c.134ha were subject to peat extraction, c.760ha were drained (but not subject to peat extraction). A gradual and consistent reduction in peat extraction activity can be seen in both Littleton North and Littleton South from 2004 onwards*". Post-2004, peat extraction decreased again more significantly, particularly across Littleton Bog, with works primarily focused on Lanespark, Derryvella and Longfordpass Bogs. While the bogs showed natural vegetation succession across the cutover bog and bare peat habitats within the Application Site, particularly Littleton Bog, there was also likely continued loss of small sections of remnant raised bog, and ongoing peat extraction and ancillary activities at the bogs during this period. As per the satellite imagery for 2012, vegetation begins regenerating in Lanespark and Longfordpass Bogs, and small lakes can be observed as having formed. By the 2013-2018 period, satellite imagery shows increased vegetation regrowth from pre-2012, although notably no ponds/lakes are visible in Lanespark and Longfordpass Bogs. Littleton Bog contains many standing waterbodies, visible within the imagery from 2012-2018, while vegetation growth is also much more progressed within the Littleton section of the Application Site than Lanespark, Derryvella and Longfordpass Bogs. The habitat survey undertaken in 2017 (Bord na Móna) notes further succession from the original cutover bog habitats, with a wide variety of pioneer habitat types now present including native scrub and immature woodland, predominantly around the margins of each of the bogs, with the centre still comprising bare peat, occasionally in tandem with artificial lakes, fens and wetland habitats.

The breeding and wintering bird surveys undertaken in 2012-2014 (Biosphere Environmental Services) provide a snapshot of the habitats present at this time, although in the context of their suitability to support bird species. The bird habitat assessments mirror the conclusions from the analysis of satellite imagery, in 2012 and 2013, there is little suitable habitat within Lanespark and Longfordpass Bogs to support bird species, as they comprise primarily cutover bog undergoing active peat extraction. Littleton Bog holds some ecologically valuable habitats as noted in the bird survey in 2012, however, by the wintering bird surveys undertaken in 2014, considerably greater levels of vegetation recolonisation were noted, providing a greater variety of habitat types within Littleton Bog, sometimes in mosaics with cutover bog and remnant bog, including lakes, fens, scrub and grassland.

6.9.2.2.2.1 Assessment of Significance prior to Control Measures

The review of aerial photography of the Application Site and ecological surveys undertaken at the Application Site during the 1988-2017 period have indicated some limited natural regeneration of cutover bog habitats, which has been significantly influenced by historical peat extraction and ancillary activities. The environmental conditions at the Application Site and the peat extraction activities likely continued to impede any meaningful rehabilitation of these habitats. While some species have gradually recolonised the area (e.g. early-stage revegetation and pioneer habitats), the overall potential for habitat rehabilitation remained constrained.

Overall, owing to the general increase in habitat diversity from the 1988 baseline of primarily cutover bog, the likely effects of peat extraction and ancillary activities during the Peat Extraction Phase (1988 to 2017) on the remnant uncut raised bog and cutaway bog and associated habitats at the Application Site, prior to the implementation of control measures, constitutes a **neutral, long-term** effect of **slight** significance.

6.9.2.2.3 Effects on Species

Species identified in the preceding sections as being of Local Importance (Higher Value) or greater, and with the potential to have been significantly affected by the Peat Extraction Phase are as follows:

- Mammals (excl. bats), specifically Otter, Badger and Pine Marten.
- Breeding Birds
- Wintering Birds
- Amphibians
- Reptiles
- Marsh Fritillary
- Fish

Potential impacts comprise habitat creation and loss, disturbance / displacement of species, direct injury or mortality of species and water quality deterioration. The assessment of significance for each impact by species prior to the implementation of control measures is provided in more detail in the subsequent sections below.

6.9.2.2.3.1 Assessment of Significance prior to Control Measures

6.9.2.2.3.1.1 Mammals (excl. bats)

6.9.2.2.3.1.1.1 Otter

Habitat Creation / Loss

Otter presence at the Application Site was likely very limited in 1988, based on the likely levels of ammonium pollution within the waterways on and downstream of the Application Site and subsequent lack of available prey. Otter were likely present within the wider catchment area as per historical records. However, as peat extraction began to decrease, allowing habitats to regenerate, including formation of bog woodland, scrub and peaty lakes, the Application Site likely gradually became more suitable for foraging Otter over time, even prior to the implementation of control measures. The regeneration of these linear landscape features, which resulted from the natural regrowth of vegetation on disturbed cutover bog areas, now offers more diverse and structurally complex habitats. These emerging habitats provide valuable resources for a variety of species including Otter, although none were recorded at Littleton Bog during surveys undertaken between 2021-2025. This would constitute a **positive, long-term** effect of **slight significance.**

Disturbance / Displacement

As described in Chapter 4, a range of different types of machinery were used at the Application Site, ranging from tractors and personal vehicles to much larger machinery, including milling machines, drainage channel excavators, harvesters and the railway locomotive. Machinery, plant, and regular human presence would have likely caused some disturbance to foraging and commuting Otter if present adjacent to or within the Application Site. As per Chapter 10 - Noise and Vibration, "*noise at the nearest location to each of the 4 bogs has been predicted based on the tractor and locomotives, each generating a noise level of 81 dB(A) LAeq at 10m. Both items of plant have been assumed to be a moving source moving at 5km/hr across the sites*". Thus, noise levels are taken to be c. 81dB at the source. Such disturbance would constitute a **negative, long-term** effect of **moderate significance** on Otter, prior to the implementation of control measures.

6.9.2.2.3.1.1.2 Badger

Habitat Creation / Loss

From 1988, with the decrease in and eventual cessation of peat extraction, areas of the Application Site have naturally regenerated into new habitats, such as bog woodland and scrub. These newly formed habitats have become more suitable for a range of species, including badgers. The regeneration of these landscape features, which resulted from the natural regrowth of vegetation on disturbed cutover bog areas, now offers more diverse and structurally complex habitats. These emerging habitats provide valuable resources, including food and shelter, which could support species, such as Badgers, that require more developed vegetative growth for foraging and excavating setts. This would constitute a **positive, long-term** effect of **slight significance.**

Sett Destruction

The heavy machinery utilised throughout the Application Site, although unlikely due to the nocturnal nature of Badger, could have potentially led to the injury or death of foraging or commuting Badger during later periods post-2004 when peat extraction works declined (particularly in Littleton Bog) and vegetation was allowed to regenerate providing valuable cover for sett excavation, even prior to the implementation of control measures. Should badger setts have been present during this period, sett destruction by machinery could have occurred, also potentially leading to badger injury or death, particularly during the sensitive breeding period. This would constitute a **negative, long-term, significant** effect on locally important populations of Badger.

6.9.2.2.3.1.1.3 Pine Marten

Habitat Creation / Loss

From 1988, with the decrease in and eventual cessation of peat extraction, areas of the Application Site have naturally regenerated into new habitats, such as bog woodland and scrub. These newly formed habitats have become more suitable for a range of species, including Pine Martens. The regeneration of these landscape features, which resulted from the natural regrowth of vegetation on disturbed cutover bog areas, now offers more diverse and structurally complex habitats. These emerging habitats provide valuable resources, including food and shelter, which would constitute a **positive, long-term** effect of **slight significance.**

Disturbance / Displacement

As described in Chapter 4, a range of different types of machinery are used at the Application Site, ranging from tractors and personal vehicles to much larger machinery, including milling machines, drainage channel excavators, harvesters and the railway locomotive. Machinery, plant, and regular human presence would have likely caused disturbance to foraging and commuting mammals adjacent to or within the Application Site, including Pine Marten which are possibly present within the conifer woodlands, a number of which lie adjacent to the Application Site boundary. As per Chapter 10 - Noise and Vibration, "*noise at the nearest location to each of the 4 bogs has been predicted based on the tractor and locomotives, each generating a noise level of 81 dB(A) LAeq at 10m. Both items of plant have been assumed to be a moving source moving at 5km/hr across the sites*". Thus, noise levels are taken to be c. 81dB at the source. This would likely constitute a **negative, short-term** effect of **slight significance.**

Injury / Direct Mortality

Heavy machinery was utilised at different stages within the Application Site, ranging from tractors and personal vehicles to much larger machinery, including milling machines, drainage channel excavators, harvesters and the railway locomotive. In the absence of mitigation measures there is the potential that species were injured or killed by machinery during this phase, particularly during later periods post-2004 when peat extraction declined considerably (particularly in Littleton Bog) and vegetation was allowed to regenerate providing valuable cover for foraging and commuting. Taking into account the crepuscular nature of these species, meaning they are most active around dawn and dusk when works would not be ongoing, and the more suitable habitat to support this species outside the Application Site in the form of coniferous woodlands, this would constitute a **negative, short-term** effect of **slight significance** on local populations of Pine Marten.

6.9.2.2.3.1.2 Breeding Birds

Habitat Creation / Loss

Habitat creation occurred during this phase within Littleton Bog as peat extraction slowed down and ceased in this section of the Application Site, through the regrowth of vegetation and formation of lakes and ponds within cavities created by peat extraction and ancillary activities. As can be seen in the satellite imagery, there is a slight increase in the wet areas and scrub recolonisation within the Littleton Bog section of the Application Site. The increase in diversity of habitats within the Application Site provides new nesting and foraging habitats for breeding birds in the locale, particularly given the focused extraction within Lanespark and Longfordpass Bogs within which the primary habitat is dried-out Cutover Bog (PB4). Taking into consideration the extent of peat extraction within Lanespark and Longfordpass Bogs and unsuitability of these areas for breeding birds, and the habitats created within the Littleton Bog, the overall effect in relation to habitat loss/creation for breeding birds prior to the implementation of control measures, at the Application Site is **positive, short-term** and **slight** for breeding birds of **local** importance.

Disturbance / Displacement

Ground nesting birds may be present in areas where vegetation regrowth has commenced, while birds may also be nesting in the hedgerow / treeline boundaries, and patches of conifer forest outside the Application Site's boundary and foraging or commuting within the Application Site. As per Chapter 10 - Noise and Vibration, "*noise at the nearest location to each of the 4 bogs has been predicted based on the tractor and locomotives, each generating a noise level of 81 dB(A) LAeq at 10m. Both items of plant have been assumed to be a moving source moving at 5km/hr across the sites*". Thus, noise levels are taken to be c. 81dB at the source. As peat extraction works were carried out between March and October, covering the entirety of the breeding bird period (March-August inclusive), it is assessed that effects on breeding birds in relation to disturbance, prior to the implementation of control measures, constitute a **negative, long-term, significant** effect on the **local** breeding bird population.

Injury / Direct Mortality

Heavy machinery was utilised at different stages within the Application Site, including to excavate and clear drainage channels, prepare the bog for extraction (including vegetation stripping), and finally extract milled peat. Machinery ranged from tractors and personal vehicles to much larger machinery, including milling machines, drainage channel excavators, harvesters and the railway locomotive. All peat extraction (and associated works) is estimated as occurring between March and October, covering the entirety of the breeding bird period (March-August inclusive). In the absence of mitigation measures to ensure the protection of breeding birds and their nesting places, for example, use of an Ecological Clerk of Works, or timing of vegetation clearance to avoid nesting or hibernation seasons, and given the suitability of the Application Site for breeding birds in certain areas containing regrowing or retained vegetation, there is the potential that species of breeding bird were injured or killed, or their nests / chicks destroyed. This would constitute a **negative, long-term, significant** effects on breeding birds of **local** importance, prior to the implementation of control measures.

6.9.2.2.3.1.3 Wintering Birds

Habitat Creation / Loss

Wintering and nonbreeding birds assumed to occur within the Application Site based on the habitats present (cutover bog and remnant raised bog) comprised species such as Skylark, Meadow Pipit and Red Grouse, which are known to thrive in open landscapes. The winter bird survey results from 2012-2014 (Biosphere Environmental Services) mirror this baseline, particularly within Lanespark and Longfordpass Bogs which were still undergoing significant peat extraction at the time of surveys (similar to the entire Application Site during 1988 baseline), with the typical bird species found in cutover and remnant bog habitats being recorded in these two bogs during surveys. A more diverse range of species were identified within Littleton Bog during the 2012-2014 surveys within which peat extraction works had considerably decreased by this period, owing to the regrowth of vegetation and formation of a greater mosaic of habitat types, from pioneer scrub and dry heath to fens, flushes, lakes and riparian vegetation. This increase in wetland habitats is noted within the Wintering Bird Survey Reports (Biosphere Environmental Services, 2013; 2014) as a marked improvement in habitat condition for wintering birds. The habitat surveys undertaken in 2017 by Bord na Móna note further increases in diversity of habitats by this time including wetland habitats. Thus, overall, habitat creation for wintering birds at the Application Site from the baseline in 1988, prior to the implementation of control measures, is considered a **positive, long-term** effect of **slight significance.**

Disturbance / Displacement and Injury / Direct Mortality

As per Chapter 10 - Noise and Vibration, "*noise at the nearest location to each of the 4 bogs has been predicted based on the tractor and locomotives, each generating a noise level of 81 dB(A) LAeq at 10m. Both items of plant have been assumed to be a moving source moving at 5km/hr across the sites*". Thus, noise levels are taken to be c. 81dB at the source. All peat extraction (and associated works) are estimated as occurring between March and October (see Section 6.1.1), which mostly lies outside the core wintering bird period (October-February). As such, potential for disturbance, injuries and mortality of species were likely relatively low during the first half of the Peat Extraction Phase, due to the low occurrence of receptors (wintering/nonbreeding birds). However, as peat extraction decreased in extent allowing vegetation to recolonise and wetland habitats to develop, creating more suitable habitats to support wintering birds, and, as reflected in the 2012-2014 bird surveys (Biosphere Environmental Services, 2013; 2014), supporting increased bird species diversity within the Application Site. Thus, prior to the implementation of control measures, the overall effects on wintering birds as a result of disturbance or direct mortality / injury are considered to be **negative, long-term** and of **slight significance.**

6.9.2.2.3.1.4 Amphibians

Habitat Creation

The formation of artificially dug drainage channels and naturally forming peaty lakes which have formed via rainfall in previously excavated areas may provide additional suitable habitat to support breeding amphibians at the Application Site. Any Common Frog or Smooth Newt present will likely inhabit locations dominated by wetlands formed through rainfall in areas where peat extraction has ceased (particularly areas of Littleton Bog post-2004), including areas of Acid Oligotrophic Lakes (FL2), fens (PB1/PB2) and Drainage Ditches (FW4), where edges are gently sloping enough to allow easy entry, and where vegetation is present to facilitate breeding for Smooth Newt. This increase in available suitable habitat for breeding amphibians even prior to the implementation of control measures, constitutes a **positive, long-term** effect of **slight** significance on these species of **local** importance.

Water Quality Deterioration

Prior to the implementation of the IPC licence, one of the conditions of which is the use of silt ponds to reduce water quality deterioration within waterbodies that traverse the Application Site, it can be presumed that surface water runoff containing silt, sediment or chemicals was likely entering the waterbodies within the Application Site, leading to water quality deterioration in both flowing and standing areas of water. This could potentially lead to displacement of Common Frog or Smooth Newt, which rely on relatively clean stagnant waters for successful breeding. Any aquatic species present within the Application Site or further downstream could potentially be injured or killed as a result of smothering by sedimentation and silt, or chemical / fuel poisoning.

In 1988, peat extraction was widely occurring throughout the Application Site, with extraction concentrated within Lanespark, Derryvella and Longfordpass Bogs, however, as described above in Section 6.7.2.1, no waterbodies are present within Derryvella. Extraction post-1988 was gradually declining within Littleton Bog, allowing some vegetation regrowth and formation of lakes and pools to occur within Littleton Bog, providing breeding habitats for amphibians. Within Lanespark, Derryvella and Longfordpass Bogs, wet drainage channels used to facilitate lowering of the water table for peat extraction likely provided some breeding habitat for amphibians. Drainage ditches more likely support Common Frog rather than Smooth Newt (due to newt's more stringent breeding requirements including clean and vegetated waterbodies), and as such, water quality deterioration may affect breeding through smothering of frog spawn and tadpoles by silt.

Effects on amphibians as a result of water quality deterioration, prior to the implementation of control measures, particularly common frog, are therefore classed as **negative, long-term** and of **moderate significance.**

Mortality/Injury from Machinery

Amphibians utilising the Application Site may have been subject to mortality or injury as a result of the extensive range of machinery used for the peat extraction and ancillary activities, ranging from tractors and personal vehicles to much larger machinery, including milling machines, drainage channel excavators, harvesters and the railway locomotive. All machinery utilised at the Application Site is listed and described in full within Chapter 4.

While amphibians are likely concentrated within wetter areas (i.e. lakes formed within Littleton Bog) and not drained areas undergoing extraction, the drainage ditches dug to facilitate lowering of the water table (and thus peat extraction) may hold suitable habitat to support breeding amphibians. As such, any amphibians present within drainage ditches and adjacent riparian strips near extraction areas may have been subject to mortality or injury by plant and machinery. Furthermore, during hibernation, amphibians tend to bury themselves in sediment in ponds and other stagnant waters, or within wet soils outside of waters, entering a torpid state and emerging again in spring when temperatures rise. Intermittent clearing of excess sediment and silt within drainage ditches and use of machinery within the vicinity of drainage ditches during this time could disrupt hibernation, leading to unnecessary expenditure of energy reserves crucial for surviving winter and potentially death, or direct mortality and injury by machinery. This would constitute a **negative, long-term** effect of **moderate** significance on amphibians of **local** importance.

6.9.2.2.3.1.5 Reptiles

Habitat Creation / Loss

During 1988, peat extraction was widely occurring throughout the Application Site, and after 1995 decreased somewhat within Littleton Bog with a focus on Lanespark, Derryvella and Longfordpass Bogs, decreasing even furthermore considerably post-2004. As vegetation regrowth commenced within Littleton Bog in areas where peat extraction had ceased, and pioneer vegetation growth commenced, it is likely that there was an increase in available foraging, commuting and resting habitats for common lizard, including basking spots and refugia. Lanespark, Derryvella and Longfordpass Bogs remained unsuitable for common lizard given the high level of peat extraction and ancillary activities on these two sections of the Application Site, prior to the implementation of control measures. Overall, habitat creation / loss at the Application Site is considered to have a **neutral, long-term** effect of **slight** significance on **local** common lizard populations.

Injury/Direct Mortality

Common lizards hibernate from November to March, during which time peat extraction was not occurring, instead, from October to March drainage, machinery, and silt pond maintenance were undertaken, and peat was transported off-Site. Given common lizard tends to hibernate among rocks and deadwood, it is unlikely that this species was subject to significant levels of mortality or injury during their most sensitive period, and more likely it is located off-Site within adjacent woodland which may hold more suitable hibernation habitat. However, there is still potential that common lizard could have been injured or killed by machinery, which, even outside its hibernation period, could constitute a **negative, long-term** effect of **moderate** significance on **local** common lizard populations, prior to the implementation of control measures.

6.9.2.2.3.1.6 Marsh Fritillary

Habitat Creation

Upon the decline in works across the Application Site, Devil's-bit Scabious, begins to recolonise within grassland areas, though the availability of this plant remains limited as the habitats are still in a transitional phase at this time. Marsh Fritillary heavily depends on the presence of this plant for its larvae, and while food sources are sparse overall in the Application Site, the habitats at the site's edges and in the cutover bog areas where Devil's-bit Scabious grows now provide some suitable conditions for the species. The peat extraction activities themselves have indirectly created environments that benefit the Marsh Fritillary, meaning that the extraction process is unlikely to have caused significant negative impacts. Overall, prior to the implementation of control measures, the effects of habitat creation are considered to be **positive, long-term** and of **slight significance**.

6.9.2.2.3.1.7 Fish

As stated above in Section 6.4.1, the waterbodies within and directly downstream of the Application Site are likely unsuitable for fish at baseline due to pollution generated during peat extraction works pre-1988. As such, the gradual decline in peat extraction works over time up to 2017, would have likely led to a slight improvement in water quality, even prior to the implementation of control measures, based purely on the decrease in runoff of pollutants. However, even upon cessation of peat extraction, impacts would still remain with waterbodies likely requiring more significant intervention in order to recover and regain suitability to support fish species due to the nature of the pollutants produced by peat extraction works. Overall, the effects on fish are considered to be **negative, long-term** and **not significant** in the absence of control measures.

6.9.2.2.3.1.8 Water Framework Directive Waterbody Quality

Surface Water

It is stated within Chapter 4 - Description of Development that " *The practice of bunding at the Works and for mobile refuelling units was introduced in the 1970s*", and that "*concrete bunds and oil interceptors were provided to prevent release of fuels to the ground or surface water bodies. All tanks and drums were stored in bunded areas*", acting as mitigation and reducing any potential for fuel or other chemical spills into waterbodies at the Application Site. Prior to the implementation of the IPC licence, one of the conditions of which is the use of silt ponds to reduce water quality deterioration within waterbodies that traverse the Application Site, it can be presumed that while fuel and chemical spills were unlikely due to standardised operating procedures, surface water runoff containing silt or sediments was likely entering the waterbodies (watercourses or drainage ditches) within the Application Site, leading to water quality deterioration within the Site and downstream. As described in Chapter 4, machine and wheel wash facilities were drained straight into the peatlands drainage system at the Application Site. In addition, during heavy rainfall, it is likely that sediment and silt would have runoff into nearby drains or waterbodies.

The above pollutants could potentially have led to a decrease in diversity of aquatic plants or water-dependent plants within the Application Site or downstream of the Application Site through an increase in sediment or silt. Such pollutants can affect waterbodies through smothering by sedimentation, blocking of sunlight due to increased turbidity, or poisoning resulting from chemical spills which may directly kill flora due to their toxic nature. Although the composition of receiving waterbodies during this phase is not fully known, given the likely significant entry of pollutants into waterbodies in the absence of meaningful water quality protection measures outside of use of bunds and designated fuelling locations, this would likely constitute a **negative, frequent, long-term effect** of **moderate significance** on aquatic flora at the **local** scale.

6.9.2.3 Current Phase: 2017-Present

Once peat extraction ceased in 2017, activities focused on the decommissioning and rehabilitation of the Application Site in line with Condition 10 of the IPC Licence. Decommissioning of the peat extraction and ancillary activities is currently underway across the Application Site in accordance with Condition No. 10 of the IPC Licence. To date, decommissioning carried out at the Application Site included the removal of remaining peat stockpiles from the bogs, which was completed by mid-2019 along with the removal of rail infrastructure in Lanespark, completed in 2024.

6.9.2.3.1 Assessment of Significance prior to Control Measures

6.9.2.3.1.1 Effects on European sites

In the Current Phase, the absence of ongoing peat extraction and ancillary activities has substantially reduced environmental pressures, leading to a notable decline in the potential for significant effects on the designated site within the hydrological ZoI of the Application Site, namely, Lower River Suir SAC. With fewer disturbances from machinery, workers, and drainage modifications, the risk of indirect effects, such as sedimentation or waterborne pollution transmitted via hydrological pathways, has lessened, but residual effects from 30+ years of peat extraction likely remain, thus, the effects on designated sites are deemed **negative, long-term** and of **slight significance**.

6.9.2.3.1.2 Effects on Habitats

Since peat extraction ended in 2017, there has been no further removal of the habitats at the Application Site including the remnant raised bog habitats. Some recovery has occurred, evident in the formation of a range of mosaics of habitats. The removal of peat stockpiles has been carried out without contributing to degradation, fragmentation, or loss of habitats. Access for machinery for the decommissioning and rehabilitation activities are restricted to existing established routes utilised during the Peat Extraction Phase, ensuring that no new, undisturbed habitats are affected in this Phase. Additionally, no further actions, such as clearing vegetation, or extracting peat, have been undertaken in conjunction with the removal of the stockpiles. This assessment of significance of effect takes into account the KERs listed below (as per Fehily Timoney surveys in 2025):

- Dystrophic lakes (FL1)
- Acid oligotrophic lakes (FL2)
- Other artificial lakes and ponds (FL8)
- Reed and large sedge swamps (FS1)
- Drainage ditches (FW4)
- Dry calcareous and neutral grassland (GS1)
- Dry meadows and grassy verges (GS2)
- Wet grassland (GS4)
- Raised bog (PB1)
- Cutover bog (PB4)
- Mixed broadleaved/conifer woodland (WD2)
- Hedgerow (WL1)
- Treeline (WL2)
- Oak-birch-holly woodland (WN1)
- Bog woodland (WN7)
- Immature woodland (WS2)

As a result of the above, the Current Phase has not led to any significant negative effects on local habitats; there has been no increase in loss, degradation, or fragmentation, rather a further increase in the diversity of habitats and floral species across the Application Site. The careful approach to decommissioning and Rehabilitation Phase 1 works has ensured minimal disruption to the surrounding environment, aligning with environmental protection goals. By restricting activities to already disturbed areas, the integrity of the habitats at the Application Site have been retained and allowed to continue to develop.

Thus, the overall effect on habitats during the Current Phase is considered to be **positive, long-term** and of **moderate significance.**

6.9.2.3.1.3 Effects on Species

The cessation of peat extraction works would have reduced potential impacts on species utilising the Application Site and its surrounding landscape, compared with the Peat Extraction Phase, namely:

- Otter
- Badger
- Pine Marten
- Bats
- Breeding Birds
- Wintering Birds
- Amphibians
- Reptiles
- Marsh Fritillary
- Fish

This is because of the reduction of anthropogenic disturbance, including human presence and machinery use, and the reduction in potential pollutants entering waterbodies within and downstream of the Application Site. As habitats continue to develop at the Application Site, a greater variety of nesting, roosting, foraging and commuting habitats would become available for local species. The recolonisation of the Application Site by vegetation, supported by the Rehabilitation Phase 1 works (which aimed to reduce drainage, improve attenuation and facilitate regrowth of bog flora) and removal of sources of disturbance has allowed the Application Site to change from holding little to no suitable habitat to support species such as birds and mammals to development of suitable nesting places in the form of scrub, trees, and heath and suitable cover within which badger can excavate setts for breeding. In terms of bats, the Application Site has changed from holding Negligible foraging and commuting suitability to having Low suitability; bat roosting potential remains Negligible within the Site. Overall, the effect on species during the Current Phase is considered to be **positive, long-term** and of **slight significance.**

6.9.2.3.1.4 Water Framework Directive

Upon cessation of peat extraction and ancillary activities and thus reduction of emissions from the Application Site (in the form of silt, sediment and other pollutants), water quality within and downstream of the Application Site would have been subject to no further deterioration in water quality, supported by Chapter 8 - Hydrology and Hydrogeology which states " *No significant negative effects on bog hydrogeology have occurred since the cessation of peat extraction in 2017. By 2017, all drainage infrastructure (field drains, main drains, silt ponds etc.) would have been in place across the Application Site for between 49 and 76 years. The hydrogeological regime would have been well established with field drains lowering the perched groundwater table in the adjacent former peat production fields*". As well as reducing the risk of sediment pollution, the reduction in the machinery and plant operations on site lowers the chances of accidental spills or the discharge of pollutants into nearby water bodies, reducing the likelihood of contaminants entering nearby waterbodies.

As part of the Current Phase, the Application Site has been subject to the Rehabilitation Phase 1 works as outlined in the Rehabilitation Plans for Littleton, Lanespark, Longfordpass and Derrvella. As part of this, it was necessary to alter the drainage regime at the Application Site through extensive drain blocking and hydrological management. These works were completed between 2018 and 2021 and will encourage natural re-vegetation of the cutaway areas with typical bog communities in the future. The drain blocking has established a more suitable hydrological/hydrogeological regime where the peat water table is much closer to the surface than it was during the Peat Extraction Phase. As per Chapter 8 - Hydrology and Hydrogeology, " *Whereas draining the Application Site to facilitate peat extraction had an adverse impact on downstream surface watercourses, the Phase 1 Rehabilitation works completed as part of the Current Phase (including extensive drain blocking) will have resulted in improvements in flow and water quality can be achieved through bog rehabilitation and rewetting*".

The effects on water quality during this phase are thus assessed as being **positive, long-term and of moderate significance.**

6.9.2.4 Remedial Phase: Future

The Remedial Phase comprises the undertaking of Rehabilitation Phase 2 works at Derryvella and monitoring of Rehabilitation Phase 1 works already undertaken during the Current Phase, as outlined in the Rehabilitation Plans. The ultimate objective of these plans is to achieve environmental stabilisation, ensuring that the cutaway bogs are placed on a long-term trajectory toward becoming naturally functioning peatland ecosystems. The Rehabilitation Phase 2 works proposed for Derryvella Bog include targeted drain blocking to help establish a more suitable hydrological/hydrogeological regime where the peat water table will be much closer to the surface than it is at present. No Rehabilitation Phase 2 works are proposed for Littleton, Lanespark or Longfordpass bogs, however, the monitoring of Phase 1 measures is ongoing at these bogs.

6.9.2.4.1 Effects on Designated Sites

The rehabilitation plans will have a net positive impact on the Application Site and its water quality, and subsequently this will also indirectly benefit any downstream designated sites with a hydrological pathway to the Application Site. As water retention improves and sediment transport decreases through the rehabilitation efforts, habitat conditions for aquatic life will stabilise. This will, in turn, enhance the ecological integrity of the surrounding water systems, including those connected to a designated site, namely, Lower River Suir SAC.

As such, effects on designated sites during this Phase, taking into account the downstream distance between the Application Site and this SAC, are expected to be overall **positive, long-term** and of **slight significance**.

6.9.2.4.2 Effects on Habitats

The Rehabilitation Phase 2 works for Derryvella and the Rehabilitation Phase 1 monitoring and revegetation works at Littleton, Longfordpass and Lanespark will continue to enhance the ecological integrity of the peatland through rewetting and facilitating natural colonisation. These efforts are focused on the cutaway and bare peat habitats within the Application Site, promoting long-term environmental stability and biodiversity recovery, including an increase in habitat diversity.

The above measures are expected to result in a **positive, long-term, significant effect** on the habitats currently present at the Application Site.

6.9.2.4.3 Effects on Species

The Rehabilitation Phase 2 works for Derryvella and the Rehabilitation Phase 1 monitoring and revegetation works at Littleton, Longfordpass and Lanespark will continue to enhance the Application Site for species through the ongoing development of bog habitats. These habitats provide cover and nesting habitat for species such as birds, mammals, herpetofauna and invertebrates. They also provide areas of linear habitat with connectivity to the wider landscape and therefore provide suitable foraging and commuting habitat for the following species listed as KERS:

- Otter
- Badger
- Pine Marten
- Breeding Birds
- Wintering Birds
- Amphibians
- Reptiles
- Marsh Fritillary
- Fish

Woodland and scrub also provide areas of potential Badger habitat within the Application Site; as noted during the surveys undertaken in 2025 by FT, Badger are utilising the eastern edges of Littleton Bog within the Application Site in a foraging/commuting/resting capacity.

The improvement in water quality related to the cessation of works and implementation of Rehabilitation Phase 2 works at Derryvella and ongoing monitoring of Rehabilitation Phase 1 works at Littleton, Lanespark and Longfordpass will also improve habitat conditions for aquatic species within and downstream of the Application Site, including fish and subsequently Otter due to the increase in prey availability.

The proposed Phase 2 rehabilitation activities for the site will primarily take place during daytime hours, which aligns with the general behavioural patterns of the mammal including otters, badgers, pine marten and various bird species. These species are either more active during dawn and dusk or have specific activity periods that are less likely to overlap with the daytime work. As such, the rehabilitation works undertaken during this Phase are expected to minimise potential disturbance to these species. Previous studies, including those by Green and Green (1997), as well as findings from the National Otter Survey of Ireland (2010/2012) (NPWS, 2013), have shown that while some level of disturbance may occur, it generally does not result in long-term harm to wildlife. This is also supported by other research, including work by Bailey and Rochford (2006), which suggests there is no consistent, significant impact of human disturbance on the occurrence of species.

Rehabilitation Phase 2 works will involve a short-term presence of machinery and personnel, which will be much lower in volume compared to the past peat extraction activities. While there may be some temporary disturbance to local wildlife at Derryvella, including mammals and breeding and wintering birds others, the impact is expected to be minimal. Furthermore, no significant disturbance is expected as part of the monitoring at Littleton, Longfordpass or Lanespark. Therefore, while disturbance may cause slight, temporary disruption, it is unlikely to have significant effects on the species present.

Overall, Rehabilitation Phase 2 works at Derryvella, plus monitoring of efficacy of measures implemented during Rehabilitation Phase 1, are not expected to lead to any significant, long-term effects on the species utilising the Application Site, and the potential for impacts during the Remedial Phase will be limited. Thus, the long-term outcome of the proposed rehabilitation plans (and this Phase) is expected to have an overall **positive, long-term** effect of **moderate significance.**

6.10 Control Measures

This section summarises the standard operation control measures and management strategies undertaken by Bord na Móna to reduce the risk of environmental impact during operations, including the IPC Licencing. These actions and strategies are currently in place the Current Phase and will continue as standard practice throughout the Remedial Phase.

Silt control measures in the form of silt ponds were in place prior to 1988, with Bord na Móna carrying out further studies and surveys throughout the 1980s and 1990s to make improvements to the operation of silt ponds, such that suspended solids emissions in surface run-off were reduced. This included the construction of new ponds to maintain treatment of run-off during periods when silt ponds would require cleaning. The remaining control measures during this period relate to archaeological preservation at Bord na Móna sites after the discovery and subsequent preservation of trackways at Corlea Bog, Co. Longford and are not relevant to this Chapter. These measures are outlined in full in Chapter 4 - Project Description. No further control measures with the potential to reduce impacts on ecological receptors were in place at this time.

During the period of 2001-2017, peat extraction would have decreased greatly across the Application Site from its peak in 1988. The IPC Licence for the Application Site was implemented in 2001. The granting of such a license required the establishment of an Environmental Management Plan, which states the following control measures be implemented at the Application Site:

"*The EMP shall as a minimum include the following objectives:*

(i) Minimisation of suspended solids movement to surface water systems via peatland surface water drainage channels during development and operation of boglands.

(ii) Rationalisation of surface water discharge points.

(iii) Investigation of reed-bed systems for final polish of silt pond discharges.

(iv) Reduction of fugitive dust emissions during loading and transfer operation on the bog and during unloading operations at the tippler and works yard areas.

(v) Provision of measures to protect dust sensitive areas.

(vi) Reuse of silt pond waste.

(vii) Collection, storage and reuse of polythene covering.

(viii) Use of reusable material for stockpile protection.

(ix) Use of wind power technology for pumped drainage.

(x) Separation of storm water runoff from process and non-process areas.

(xi) Effective spill/leak management of mobile fuelling units.

(xii) Replacement (and remediation where necessary) of all underground fuel tanks.

(xiii) Reduction of particulate emissions to air from briquette factory stacks."

The above indicates that some additional control measures were put in place from 2001 onwards, on top of the existing minimal control measures (pre-2001) already implemented at the Application Site. Measures outlined above primarily relate to dust management and a reduction in water quality deterioration. The licence also dictates that an Annual Environmental Report (AER) be prepared yearly to monitor water quality within receiving waterbodies. In addition, the IPC Licence also dictates additional measures to be applied at the Application Site between 2001-2017 as follows:

- Refuelling procedures upgraded to standard bunding specifications.
- Railway lines are regularly maintained
- Biannual inspection and maintenance of the railcars to ensure no damage, leaks, or flaws that could result in accidental fuel spillage
- Clean-up of remaining or unconsolidated waste or materials located in bogs, yards, buildings and offices
- Cleaning of silt ponds
- Decommissioning of peat stockpiles (Complete by 2019)
- Gradual decommissioning or removal of buildings and compounds
- Decommissioning of fuel tanks and associated facilities by 2017
- Decommissioning and removal of bog pump sites
- Decommissioning or removal of septic tanks.

6.11 Residual Effects

6.11.1 Peat Extraction Phase: 1988-2017

6.11.1.1 Designated Sites

The above measures are noted as being generic and no specific measures for the prevention of impacts on designated sites were implemented at the Application Site during the Peat Extraction Phase 1988-2017. However, despite the lack of ecology-specific protections, some of the standard operation control measures set in place by Bord na Móna such as silt ponds, machinery spill response, and waste disposal, will have helped reduce impacts on downstream designated sites, including Lower River Suir SAC. Considering the assimilative capacity of the intervening waters between the bogs and the SAC and the implementation of primarily water quality protection control measures, residual impacts on designated sites, specifically Lower River Suir SAC, are thus assessed as being **neutral, long-term** and of **slight significance.**

6.11.1.2 Habitats

Overall, the increase in habitat diversity and structure across the Application Site resulting from the regrowth of pioneer vegetation (scrub, heath, ponds and lakes etc) which gradually develops from 1988 to 2017, particularly in areas where peat extraction has declined or ceased, is considered to be beneficial, from the baseline in 1988 comprising primarily cutover bog and marginal remnant bog and associated mosaics habitats, which provided little habitat or floral species diversity and generally poor habitats to support any species of note. Thus, overall, the residual effects on habitats during this Phase constitute **positive, long-term** effects of **slight significance.**

6.11.1.3 Species

As with the above, the increase in habitat diversity and structure across the Application Site between 1988 and 2017 would have provided vital shelter, food sources and shelter for species that would not have been present on-Site when it comprised primarily cutover bog (bare peat). Control measures relating to the protection of water quality implemented in 2001 would also indirectly benefit species that utilise downstream waterbodies such as Otter and fish. Thus, overall, compared to the baseline in 1988, the residual impacts on species as a whole during this Phase are **positive, long-term** effects of **slight significance**.

6.11.1.4 Water Quality

By 1988, peat extraction and ancillary activities were well-established at the site. While EPA Q-values varied throughout the Peat Extraction Phase, no consistent decline in surface water quality that can be attributed to the peat extraction works was observed between 1988 and 2017 as per the available data. The Application Site has been subject to regulatory oversight by the EPA since 2001, operating under the conditions outlined in the IPC Licence (Ref: P0499-01) This licence includes specific emission limit values for various pollutants, including suspended solids and other nutrients, which are regularly monitored to ensure compliance. The review of AERs since 2018 has shown that there have been no exceedances for suspended solids emission limits. This demonstrates that the Application Site has consistently adhered to the regulatory requirements, effectively managing water quality and minimising environmental risks.

In addition to these water quality considerations, this impact assessment also considers the potential effects on aquatic species. The only potential pathway for any effects to occur would be through water pollution, which could affect both the habitats and the species themselves. However, as outlined in this section, the measures in place to manage water quality ensure that the risk of pollution is minimised, and therefore the potential for negative impacts on aquatic species remains low during this Phase.

The water quality protection measures implemented at the Application Site in 2001 would have managed some of the environmental risks related to water quality deterioration including suspended solids and other contaminants, however, water quality by this stage within the Application Site was already likely quite Poor and no enhancement measures to improve water quality were proposed. Results suggest that increased regulation under the IPC Licence did not lead to significant downstream water quality improvements. The effects on water quality during this phase after the implementation of control measures are thus assessed as being **neutral, long-term** and of **slight significance.**

6.11.2 Current Phase: 2017-Present Day

6.11.2.1 Designated Sites

As works have ceased at the Application Site, emissions from the Application Site in the form of surface water runoff carrying pollutants have also ceased, allowing water quality to slowly recover. Control measures as per the IPC Licence primarily relate to water quality and will also help with the recovery of the water quality in downstream and receiving waterbodies, including those overlapping with Lower River Suir SAC. Furthermore, the Current Phase comprises the implementation of Phase 1 of the Rehabilitation Works of the Application Site across all four bogs, which have now been completed and aimed to restore the water table through drain blocking and vegetation management. Monitoring of Phase 1 measures is ongoing.

As such, the residual effects on designated sites during this Phase are deemed **positive, long-term** and **of slight significance.**

6.11.2.2 Habitats

As with the assessment of habitats for the peat extraction phase, habitats will have been allowed to continue to develop across the Application Site, now offering more diverse and structurally complex natural habitats as opposed to primarily cutover bog (bare peat) at the baseline in 1988. Most importantly, as works have ceased, and as measures outlined in the rehabilitation plans for the Application Site have been implemented utilising existing access points within the Application Site, no habitat loss or fragmentation will have occurred during this Phase. Thus, the residual effects on habitats during this Phase are thus assigned as being **positive, long-term** and of **moderate significance**.

6.11.2.3 Species

The increase in habitat diversity and structure across the Application Site during this Phase will further provide vital shelter, food sources and shelter for species that would not have been present on-Site when it comprised primarily cutover bog (bare peat). Control measures relating to the protection of water quality as per the IPC Licence and the implementation of Phase 1 of the Rehabilitation Plans for the four bogs within the Application Site would also indirectly benefit species that utilise downstream waterbodies such as Otter and fish. Furthermore, as peat extraction works have ceased, the associated decrease in anthropogenic disturbance would further make the Application Site more suitable to support a range of species.

As such, overall, compared to the baseline in 1988, the residual impacts on species during this Phase likely comprise **positive, long-term** effects of **moderate significance**

6.11.2.4 Water Quality

The cessation of peat extraction and ancillary activities at the Application Site and thus end of emissions from the Site in the form of surface water runoff carrying pollutants during this Phase will allow for the slow recovery of water quality that may have deteriorated as a result of peat extraction and ancillary activities. Water quality control measures outlined in the IPC Licence also continue to apply at the Application Site, while Phase 1 of the Rehabilitation Plans for the four bogs within the Application Site have been implemented, further reducing any potential for water quality deterioration at and downstream of the Application Site. Thus, the residual effects on water quality and associated aquatic flora and fauna are deemed **positive, long-term** and of **moderate significance**.

6.11.3 Remedial Phase: Future

6.11.3.1 Designated Sites

The continuation of the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans, through the monitoring of the success of already implemented Phase 1 rehabilitation measures across all bogs will improve downstream surface water hydrology, water quality, and aquatic habitats, benefiting downstream designated sites including Lower River Suir SAC. For Longfordpass, Lanespark and Littleton Bogs, it is not expected that there will be any requirement for after-care and maintenance other than ecological monitoring. Furthermore, the Phase 2 PCAS works proposed for Derryvella will further act to improve hydrological conditions, through targeted drain-blocking, along with fertiliser application targeting bare peat areas of headlands, high fields and other areas (where required) and hydrological management Taking into account the downstream distance and thus limited benefits based on this distance, the overall residual impacts are expected to be **neutral, long-term** and of **slight** significance.

6.11.3.2 Habitats

The monitoring of the success of the Cutaway Bog Decommissioning and Rehabilitation Plans for each of the four bogs comprising the Application Site is a crucial step in restoring the ecological integrity of the peatland areas within the Application Site. To date, all Phase 1 rehabilitation works tasks have been completed and are being monitored for success. The remedial phase also includes the implementation of Phase 2 PCAS works at Derryvella Bog, including short-term works such as targeted drain-blocking, along with fertiliser application targeting bare peat areas of headlands, high fields and other areas (where required) and hydrological management; following this, monitoring of the success of the implemented measures will be undertaken in the long-term.. As the plans are designed to stabilise previously disturbed peatland, reducing erosion, and promoting the gradual recovery of ecosystem functions, monitoring the rehabilitation efforts will further enhance hydrological stability, reduce carbon loss, and support the regeneration of semi-natural habitats.

One of the most significant benefits of these measures is their ability to improve water quality over the long term. By reinstating natural drainage patterns and minimising runoff carrying suspended sediments and nutrients into nearby watercourses, the plans will mitigate historic water quality impacts linked to peat extraction activities.

Overall, the implementation of these rehabilitation efforts including ongoing monitoring of the success of already implemented measures, is expected to result in a **positive, long-term, significant** effect on the habitats within the Application Site. These improvements will support biodiversity recovery, facilitate the return of key species, and contribute to the broader environmental sustainability of the area.

6.11.3.3 Species

The potential impacts of the Remedial Phase on local fauna are primarily linked to concentrated improvements in habitat conditions for species. Many species, including ground-nesting birds, mammals relying on the existing landscape for foraging, breeding, and shelter, will benefit from the action proposed under the Rehabilitation Plans. While the Current Phase is noted as providing benefits to species through increased habitat diversity, concentrated efforts to improve habitat recovery and diversity through the implementation of the Rehabilitation Plans will lead to further, more notable increases in species presence.

Improvement in vegetation cover, water levels, and soil stability during the rehabilitation process will be beneficial to these species by modifying their habitat availability and structure. As rehabilitation efforts progress, the wetter conditions and increased vegetation cover will create more diverse habitat structures, supporting the return of species adapted to peatland and wetland environments. Bird species, particularly waders and waterfowl, may benefit from the establishment of open-water areas as they do within the Current Phase, while scrub and woodland regrowth will provide additional nesting and foraging opportunities for passerines and raptors, including Hen Harrier which roost on the Littleton Bog. Additionally, the reduction in anthropogenic disturbance following the Remedial Phase will further enhance the suitability of the site for wildlife.

Thus, the long-term ecological rehabilitation of the site is likely to provide a **positive, long-term** effect of **moderate significance**, supporting biodiversity recovery and improving habitat quality for a variety of species.

6.11.3.4 Water Quality

Monitoring of the success of the implementation of Phase 1 of the Cutaway Bog Decommissioning and Rehabilitation Plans (including evaluation of success of short-term rehabilitation, ongoing reporting to the EPA and eventual surrender of IPC License) and full implementation of the Phase 2 PCAS works at Derryvella Bog are two critical steps in restoring the ecological integrity of the peatland areas within the Application Site. Rehabilitation Phase 2 works include include targeted drain-blocking, along with fertiliser application targeting bare peat areas of headlands, high fields and other areas (where required) and hydrological management. It is not expected that there will be any requirement for after-care and maintenance other than ecological monitoring.

Over time, the four bogs that make up the Application Site will become wetter, enhancing their capacity to retain water and reducing runoff. As the landscape evolves, natural vegetation will gradually recolonise the area. This rehabilitation process will continue to lead to a substantial decline in silt and nutrient output, contributing to improved water quality in downstream surface watercourses. This is reflected in the aquatic surveys undertaken in 2021, 2023 and 2025 by Triturus where an increase in fish presence downstream of the Application Site is noted. As water retention improves and sediment transport decreases, habitat conditions for aquatic life will stabilise, fostering biodiversity and enhancing the ecological integrity of the surrounding water systems.

As such the residual effects of the implementation of the rehabilitation plan for the Remedial Phase is considered to be **positive, long-term** and of **moderate significance** on downstream surface water hydrology and water quality and aquatic fauna.

6.12 Cumulative and In-Combination Effects

An evaluation of the potential cumulative and in-combination effects of peat extraction and ancillary activities at the Application Site was conducted, taking into account historical, existing and proposed plans and projects in the surrounding catchment area (3km). This assessment specifically examined the combined effects on KERs as identified above in Section 6.8. Additional details of the activities and developments included within the cumulative assessment can be found in Chapter 16 - Interactions.

6.12.1 Peat Extraction Phase: 1988-2017

The potential cumulative and combined effects of the Peat Extraction Phase of the Project, along with other relevant activities and projects at the Application Site, are considered below. This includes peat extraction and ancillary activities] that occurred before 1988. During the Peat Extraction Phase (1988-2017), peat extraction and ancillary activities were carried out at varying levels of intensity across the Application Site. These activities led to a variety of effects, particularly on habitats and water quality, but these effects remained largely confined to the Application Site. The overall negative impacts on biodiversity were considered limited in extent due to the poor condition of the baseline habitats and water quality, with no significant adverse effects extending beyond the immediate area. Positive effects were also noted during this Phase, resulting from the regrowth of vegetation and formation of mosaics of wet and dry habitat types. This was also deemed beneficial for species, providing cover, shelter, foraging and commuting routes and nesting habitats.

Taking the above into consideration, any potential in-combination effects that occurred during this Phase likely primarily related to water quality deterioration and disturbance/injury to species from machinery, although any sources of effects would have been located near to the Application Site, as the ZoI of effects was mostly confined to within the boundary and habitats or species immediately outside the boundary of the Application Site. Taking the precautionary principle, it is assumed that there was the potential for some in-combination effects on local hydrology.

6.12.2 Current Phase: 2017-Present Day

The projects considered in relation to the potential for cumulative effects during the Current Phase, from 2017 until present day are summarised below in Table 6-22. Generally, a radius of 3km is used, however, where projects are large-scale or long-term they are included below for clarity.

Table 6-22: Planning applications between 2017 and present day within the vicinity of the Application Site assessed for potential cumulative effects when undertaken in tandem with the Current Phase.

Planning Ref.	Planning Authority	Distance from Application Site	Grant Date
2560154	Tipperary County Council	Overlap with Lanespark and Derryvella Bogs	18/08/2025
This project comprises a c. 4km long shared cycle and walkway, directly adjacent to Lanespark Bog and all associated works including SuDS and fencing/screening measures. This planning application was accompanied by an EcIA which outlined any potential for significant effects on KERs and provided associated mitigation to ensure the protection of designated sites, habitats and species.			

Planning Ref.	Planning Authority	Distance from Application Site	Grant Date
17601350 / 17601351	Tipperary County Council	Directly adjacent	10/02/2018
This project, "The Tipperary Venue -Mixed use Leisure Campus", is an EOD and comprises modifications to an existing permitted design (ABP REF.PL.22.237958), including A) Demolition of all existing buildings on site comprising 5No. dwelling houses; 1No. derelict dwelling house; 1No. commercial warehouse/storage build; agric. outbuildings. Total GFA of buildings to be demolished is 2,872sq.m. B) Construction of: i) 500 Bedroom Hotel build. (80,577sq.m.) ii) 15,000 person capacity Venue Build. (23,362sq.m.-to accommodate sports, concerts & other events. iii) Equestrian Centre (5,872sq.m.) iv) Heliport (2,383sq.m.) v) 18 Hole Golfcourse & ancillary Golf Club Build. (3,462sq.m.) vi) Driving Range & ancillary build.(484sq.m.) vii) Chapel (255sq.m.) viii) 31No. Retail units (2,883sq.m.) ix) Hoban Memorial Build. (1,984sq.m.) to accommodate banqueting suite & museum with reproduction Lafayette Park & subterranean link to proposed Hotel Build. x) Grade 1 Race Course (c.23.5ha) & Greyhound Track (c.0.36ha) with shared ancillary builds. (40,358sq.m.) xi) Single Storey Energy Centre Build. (1,530sq.m.) xii) Treatment Plant (252sq.m.) C) Provision of all associated landscaping, boundary treatment & site development works include.: i) Diversion of existing site services. ii) Revised surface water drainage regime include. diversion & culverting of parts of Derheen & Clover Rivers. Relocation of an attenuation pond adjacent to the Two Mile Borris Interchange. iii) Drilling for a potable water supply (on site) to serve proposed development. iv) Provision of 5743No. Car Parking spaces; 136 Bus Parking Spaces; 72No. Greyhound box spaces; 100 Horse Box Spaces. v) Provision of new 4-arm roundabout on R639 to serve proposed develop. Provision of emergency only access rd. with priority junction onto R639. vi) Link Rd. to connect R639 (via new 3-arm roundabout) to recently constructed Two Mile Borris Grade Separated Junction on M8 & construct 2No. slip lanes to complete the diamond interchange. Widening of approaches to roundabouts at Two Mile Borris Interchange to allow two way flow. Segregated left turn lane (on existing southbound diverge) to allow traffic to join proposed Lind Rd in a free flow manner. Termination of existing accommod. rd (on sth. side of new Link Rd) & new access onto northern side of link rd. for exist. accomm. rd. Total GFA of entire develop. 163,091sq.m.			
ABP Ref: 2560003	An Bord Pleanála (now An Coimisiún Pleanála)	c. 6km west (at closest point)	17/12/2025
10-year permission for the development of a solar farm. The development is located proximate to Killough Castle and Tower House, which is a Protected Structure (TRPS 1029).The solar farm will be operational for 40 years. A Natura Impact Statement was submitted to the planning authority with Further Information.			
21709	Tipperary County Council	c. 3km northwest	12/07/2021
Permission for building (3657 sq m) with a car park and access road, commercial yard area and access road, truck prep building (110 sq m), 2 m high boundary architectural fence, signage, public lighting, solar panels to the building roof, an on-site waste water treatment system and associated polishing filter bed percolation area, rainwater harvesting tank, emergency storage tank, attenuation tank, bored well and all associated site works - application is accompanied by a Natura Impact Statement (NIS)			

Planning Ref.	Planning Authority	Distance from Application Site	Grant Date
20459	Kilkenny County Council	c. 3km northwest	01/12/2020
The development will consist of alterations to a previously permitted wind farm development (Planning Register References 14/202, 15/629 & 19/787 (Kilkenny), 14/139 & 19/597 (Laois) and 14/510138 & 15/600924 (Tipperary) where the permitted development also extends into the townlands of Graigueadrisly, County Laois and Killoran near Templetuohy, County Tipperary. The proposed alterations will consist of: increasing the tip height of the six permitted turbines from a maximum of 156m to a maximum of 169m and extending the operational lifetime of the wind farm, from the date of commissioning, from 25 years to 30 years. A ten-year permission is sought. The application is accompanied by a Natura Impact Statement, Planning Report and Environmental Considerations Report. Lisheen III Wind Farm Limited also intends to apply to Laois County Council for planning permission for development at Graigueadrisly, County Laois. The proposed alterations will consist of: increasing the tip height of two permitted turbines from a maximum of 156m to a maximum of 169m and extending the operational lifetime of the wind farm, from the date of commissioning, from 25 years to 30 years			
2460978	Tipperary County Council	c. 3km northwest	23/04/2025
Permission for a state-of-the-art healthcare waste treatment and recycling facility and a waste transfer station. The development will include the construction of 3 no. buildings; Building 1 (total gross floor area of circa (ca.) 2,242m2 and ca. 9m tall), Building 2 (total gross floor area of ca. 229m2 and ca. 6m tall) and Building 3 (total gross floor area of ca. 68m2 and ca. 4m tall) along with associated ancillary development including rooftop solar photovoltaic panels, 1no. battery energy storage system (total gross floor area of ca. 34m2 x 2m tall) and inverter, onsite tank with bunding, vehicle parking, rainwater harvesting tank, surface water retention ponds, firewater retention pond, firewater storage pillow tank, an on-site wastewater treatment system and associated polishing filter bed percolation area, dedicated container storage yard for the temporary storage of container units, signage, landscaping, perimeter security fencing and all ancillary works. The total development area will be ca. 3.75 hectares(ha). The development will intake ca. 10,000 tonnes per annum of healthcare waste for treatment and recycling and an additional ca. 15,000 tonnes per annum of hazardous waste will be accepted, temporarily stored, handled and consolidated onsite for onward transfer - an EIAR has been submitted with the application			
2360281	Tipperary County Council	c. 3km northwest	01/11/2023
Permission for a development consisting of Workshop Building (1242m2), Truck Washout Building (64m2), commercial yard area, new boundary fence and entrance gates, an on-site Wastewater Treatment System and associated polishing filter bed percolation area, attenuation tank, bored well & water storage tank, rainwater harvesting tank, emergency storage tank, solar panels to roof of existing building and all associated siteworks - application is accompanied by an NIS			

Planning Ref.	Planning Authority	Distance from Application Site	Grant Date
2460936	Tipperary County Council	c. 3km northwest	06/05/2025
Permission for the construction of an anaerobic digestion plant comprising: 4 no. primary digester tanks (each measuring c. 7.6 m in height); 3 no. secondary digester tanks (each measuring c. 14.5 m in height); 4 no. feed hoppers; 4 no. technical rooms (ranging in size from c. 35 sq m to c. 95 sq m GFA); 2 no. biogas conditioning units; process, storage and buffer tanks (comprising: 1 no. buffer digestate storage tank (c. 7.5 m in height), 1 no. suspension buffer tank (c. 8 m in height), 1 no. process area runoff storage tank (c. 4.5 m in height); 1 no. buffer digestate process tank (c. 4.5 m in height), 1 no. treated digestate liquids recycle storage tank (c. 4.5 m in height); 1 no. roofed liquids feed-mix tank (c. 3 m in height)); these components will be located within a containment bund constructed c. 3 m below ground level. The proposed development will also consist of: feedstock storage (comprising 3 no. storage clamps (c. 1,050 sq m in area each) and 2 no. storage sheds (c. 500 sq m GFA each)); a biomethane upgrading plant (including natural gas compression unit); a biomethane loading facility (comprising 4 no. loading bays with associated gates and safety features measuring c. 490 sq m in area); a biomass boiler with its associated pellet storage silo (c. 12.5 m in height); Combined Heat and Power (CHP) plant and associated heat exchanger; a single storey bio-based fertiliser processing and storage unit (c. 3,890 sq m GFA) (including digestate dewatering plant, fertiliser pasteurisation plant and bio-based fertiliser loading facilities); a single storey office building (c. 105 sq m GFA) (including offices, meeting room, control room, laboratory, welfare facilities, storeroom and a first-aid facility); bin storage; 9 no. car parking spaces (including 5 no. standard parking spaces, 2 no. electric vehicle (EV) spaces and 1 no. accessible car parking space); electric vehicle (EV) charging infrastructure; 10 no. bicycle parking spaces; vehicular, cyclist and pedestrian access / egress and associated circulation routes; 2 no. weighbridges; a vehicle steam wash area; fuel storage tank and associated bund; an emergency flare (c. 7.6 m in height); a process area runoff lagoon; an attenuation pond; an ESB sub-station; boundary treatments [including gates, piers and fencing]; site lighting; all hard and soft landscaping; provision of sustainable urban drainage systems (SUDS); and all other associated site excavation, infrastructural and all other associated site excavation, infrastructural and site development works above and below ground, including changes in level and associated retaining features, and associated site servicing [water and electricity supply]. An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) will be submitted with the application			
17600440	Tipperary County Council	c. 3km northwest	23/01/2018
The development will consist of a Phase III mushroom substrate (compost) production facility and will involve the construction of an administration building (296.16 sq. m), storage building (8444.04 sq. m), bunker building (9967.59 sq. m), tunnel building (10628.75 sq. m), woodchip bio-filter, wheelwash, weighbridge, 6 no. water storage tanks, 2 no. fuel storage tanks, well, wastewater treatment system, hardstanding areas, internal access roads, parking facilities, boundary fencing, landscaping, and all ancillary works. An Environmental Impact Statement (EIS) will be submitted with the planning application. The application relates to development which comprises or is for the purposes of an activity requiring an Integrated Pollution Prevention and Control Licence or a Waste Licence			
2360281	Tipperary County Council	c. 3km northwest	01/11/2023
Permission for a development consisting of Workshop Building (1242m2), Truck Washout Building (64m2), commercial yard area, new boundary fence and entrance gates, an on-site Wastewater Treatment System and associated polishing filter bed percolation area, attenuation tank, bored well & water storage tank, rainwater harvesting tank, emergency storage tank, solar panels to roof of existing building and all associated siteworks - application is accompanied by an NIS			

Planning Ref.	Planning Authority	Distance from Application Site	Grant Date
20129	Tipperary County Council	c. 3km northwest	03/04/2020
A proposed 10-year planning permission for modifications to Condition No. 1 of previously granted planning permission Ref. No. 18/601296. The modifications comprise an outfall drain and associated pumping station and monitoring chambers to discharge surface water and treated waste water from the Biorefinery site through the townlands of Cooleeny and Derryfadda to the Drish River; a water supply pumphouse and associated site works including access road and security fencing in the townland of Derryville and a water supply pipeline from the pumphouse to the Biorefinery facility site. A Natura Impact Statement (NIS) will accompany the application. This application relates to development which comprises or is for the purpose of an activity requiring an Industrial Emissions Licence.			
211128	Tipperary County Council	c. 3km northwest	23/02/2022
Permission for construction of a Solar PV development with a maximum export capacity (MEC) of up to 122MW comprising of ca. 214,800 no. photovoltaic panels laid out in arrays, the construction of a 38kV substation, (ca.57.31m2 x 4.45m tall) along with associated ancillary development including 30 no. Transformer Stations (ca. 7.27m2 x 2.6m) with an integrated bund, 716 string Inverters, 1 no. DNO Substation Building (16.28m2 x 5.42m), 1 No. Storage and maintenance building (ca. 57.31m2 x 4.45m tall), 38 no. CCTV cameras mounted on ca. 3.8m high poles, perimeter security fencing and all ancillary works, the total development area will be ca. 77ha.			

Within the wider area surrounding the Application Site, there are a number of applications, including solar farms, battery energy storage systems, anaerobic digestion facilities and waste management / recycling sites. The above tabulated projects have been assessed for the potential to act in-combination with the Current Phase of this Project. As the impacts outlined as occurring Current Phase at the Application Site are mostly positive due to the cessation of works and regeneration of natural habitats, significant negative in-combination effects resulting from any of the above projects being undertaken simultaneously with the Current Phase of this Project are unlikely. Furthermore, the overall impact on biodiversity at the Application Site was considered limited in extent, with no significant impacts extending beyond the immediate area outside of those propagated via a hydrological pathway, within which a precautionary 18km buffer is considered. Thus, for all projects aside from those directly within or adjacent to the potential for in-combination effects can be ruled out.

Project ref: 2560154 occurs within the southern bounds of the Application Site, overlapping with Lanespark and Derryvella Bogs and comprises a shared cycle and walkway, including the repurposing of existing former railbeds and machine access tracks. This project is accompanied by an EcIA which outlines potential impacts and associated mitigation. Overlaps in KERs and pathways for impact with the Application Site include potential habitat loss, water quality deterioration and disturbance to birds and mammals. Mitigation measures comprise supplementary planting, screening, buffer zones, ECoW and appropriate habitat management, including the preparation of a comprehensive habitat enhancement and management plan (HEMP). As such, and given the nature of the Current Phase which comprises primarily positive effects on receptors, no significant in-combination effects are anticipated.

Project ref: 17601350 / 17601351 lies directly west of the Littleton Bog section of the Application Site and comprises an EOD application for the construction of a mixed-use development initially. The first submission for planning in relation to this site was in 2011. The EOD, granted in 2018, was valid until 2023, and since then has been allowed to expire (as per the Planner's Report). As such, the project is no longer permitted and thus there is no potential for in-combination effects.

Considering the above, there is no potential for in-combination effects resulting from the Current Phase of the Project.

6.12.3 Remedial Phase: Future

6.12.3.1 Future Land Use

The future use of the lands within the Application Site is expected to be managed as separate and standalone projects. These projects are therefore considered for the purpose of this application. It is anticipated that the lands will be developed for renewable energy projects in the future. The Decommissioning and Rehabilitation Plans will have a positive effect on the Application Site. The rehabilitation efforts under both plans will work synergistically to restore and enhance the peatland habitats, improve biodiversity, and improved hydrological conditions. The Decommissioning and Rehabilitation Plans have already been initiated and continued monitoring of their success will persist in addressing any remaining impacts from previous peat extraction activities. In combination, these initiatives will lead to a more resilient and ecologically diverse landscape, fostering positive long-term environmental outcomes.

6.12.3.1.1 Littleton Windfarm

The future development of lands for renewable energy, namely, Littleton Windfarm, will be subject to a separate planning consent application. This application will include a full EIAR that will assess the implementation of rehabilitation measures at the Application Site in conjunction with the construction, operation, and decommissioning of the proposed wind farm and associated infrastructure such as grid connections and substations.

As the Peatland rehabilitation progresses under the four Rehabilitation Plans, habitats within the Application Site will continue to recover, providing ecological, hydrological and geological stability and an overall increase in biodiversity, for both habitats and species. The restoration of peatland ecosystems will help regulate water flow, reducing runoff and filtering pollutants, which in turn supports the long-term sustainability of both the wind farm and the surrounding environment. This restoration effort will work in tandem with the proposed wind farm, which will provide a source of renewable energy for Ireland while minimising its environmental footprint. The careful design and placement of wind turbines will ensure that biodiversity gains from the rehabilitation process are not compromised, allowing both projects to coexist without causing any significant cumulative impacts on the receiving environment.

6.13 Conclusion

Peat extraction and ancillary activities were well established at the Application Site in 1988, resulting in a landscape dominated by cutover bog and bare peat across all four bogs, namely Longfordpass, Lanespark, Derryvella and Littleton bogs. The majority of the area consisted of exposed bare peat, with small patches of early-stage scrub, woodland, and pioneer vegetation beginning to emerge in some locations, along with the formation of pools of stagnant water in lower lying lands. By 1988, the baseline, extensive drainage, habitat fragmentation, and the removal of surface vegetation had already occurred. Given the extent of these modifications, the Peat Extraction Phase from 1988 to the present is unlikely to have caused any additional significant negative effects on the site's habitats, flora, or fauna. By this stage, the original ecosystem had already been heavily degraded, with many species displaced due to habitat loss and fragmentation and water quality deterioration. As works declined across the Application Site and eventually ceased, habitats were allowed to recover, forming mosaics of interwoven habitats which in turn allow for the use of the Application Site by a range of species that require vegetative cover for foraging, commuting and nesting. Thus, in general overall the Application Site during the Peat Extraction Phase was primarily neutral or positive.

From 2017 onwards, the Current Phase of the Project has been operating under the conditions of IPC Licence (Ref. P0499-01), which has been in place at the Site since 2001. The licence establishes strict environmental safeguards, including operational and monitoring requirements, controls on emissions to air and water, waste management protocols, and measures for bog rehabilitation. These regulations are designed to mitigate environmental harm and, where possible, contribute to ecosystem recovery. The Phase 1 Rehabilitation Plans are also encompassed within this phase and have been completed, with ecological monitoring in place. With a substantial reduction in activities during this Phase, the enforcement of licence conditions and implementation of Phase 1 rehabilitation, there is no evidence to suggest that significant adverse effects on biodiversity have occurred.

Finally, the Remedial Phase focuses on Phase 2 Rehabilitation works at Derryvella and continued monitoring of the success of Phase 1 measures across the Application Site. Works comprise rehabilitating the site by implementing rewetting and revegetation measures, facilitating the process of natural succession. As outlined above in this Chapter, these efforts will promote the regeneration of peatland habitats, enhancing biodiversity and ecological functions including hydrology and soil structure. Over time, this rehabilitation will result in a long-term significantly positive effect on habitat quality and species diversity on the Application Site. Additionally, the rewetting of the bog will aid in restoring hydrological balance, reducing peat oxidation, and improving water retention. These improvements will have positive downstream effects, as confirmed in Chapter 8 - Hydrology, Hydrogeology, and Water Quality, ultimately contributing to the long-term environmental recovery.

6.14 References

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