



**Substitute Consent Application for Peat Extraction and
Ancillary Works**

Remedial Natura Impact Statement

Bord na Móna
Main Street,
Newbridge
Co. Kildare

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1. Introduction

1.1 Requirement for Remedial Natura Impact Statement

With the coming into force of the Environment (Miscellaneous Provisions) Act 2011 in August of that year, Section 4(4) of the Planning and Development Act 2000 as amended was amended to the effect that if peat extraction activities required either Environmental Impact Assessment or Appropriate Assessment then any exemption afforded by the Planning and Development Regulations 2001 as amended was from that point de-exempted and such activities now require planning permission from the coming into force of this provision in September 2012. Any doubt as to the applicability of Section 4(4) to peat extraction activities was extinguished by High Court judgements in respect of Friends of the Irish Environment Ltd v. Minister for Communications, Climate Action and the Environment [2019] IEHC 646 and IEHC 685 delivered in September and October 2019 which set aside the EU (Environmental Impact Assessment) (Peat Extraction) Regulations 2019 and the Planning and Development Act (Exempted Development) Regulations 2019 which provided exempted development provisions for peat extraction activities. Therefore, from October 2019 peat extraction activities of the scale that Bord na Móna operate, in excess of 30ha (threshold for EIA requirement), require planning permission. In addition, any peat extraction activity since September 2012 in excess of 30ha needs to be regularised by means of the substitute consent process.

On May 1st 2020, An Bord Pleanála granted Bord na Móna leave to apply for Substitute Consent under Section 177C(2)(b) of the Planning and Development Act 2000, (as amended) and under Part 19 of the Planning and Development Regulations, 2001 (as amended). Substitute consent is effectively a form of retrospective consent and is being applied for with the aim of regularising the planning status of historic peat extraction carried out by, or on behalf of, Bord na Móna on 38 individual bog units. In accordance with Section 177E of the Planning and Development Act 2000 (as amended) the Board has directed that the application for substitute consent must be accompanied by a remedial Natura Impact Statement (rNIS).

Section 177G of the Planning and Development Act 2000 (as amended) requires that a remedial Natura Impact Statement (rNIS) shall contain the following:

“(a) A statement of the significant effects, if any, on the relevant European site which have occurred or which are occurring or which can reasonably be expected to occur because the development the subject of the application for substitute consent was carried out;

(b) details of—

(i) any appropriate remedial or mitigation measures undertaken or proposed to be undertaken by the applicant for substitute consent to remedy or mitigate any significant effects on the environment or on the European site;

(ii) the period of time within which any such proposed remedial or mitigation measures shall be carried out by or on behalf of the applicant;

(c) such information as may be prescribed under section 177N;

(d) and may have appended to it, where relevant, and where the applicant may wish to rely upon same:

(i) a statement of imperative reasons of overriding public interest;

(ii) any compensatory measures being proposed by the applicant.”

This remedial Natura Impact Statement (rNIS) has been prepared by Bord na Móna in accordance with the Planning and Development Act 2000 (as amended), to accompany the application for substitute consent in relation to Bord na Móna’s peat extraction activities. This rNIS investigates and assesses the potential adverse effects on European Sites that may have occurred from Bord na Móna’s peat extraction activities.

This rNIS report has been produced to assist An Bord Pleanála as the Competent Authority in applying Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC under their roles, functions and responsibilities in relation to the Appropriate Assessment for retrospective consent of Bord na Móna’s peat extraction activities.

This rNIS report has been prepared with regard to the following guidance:

- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC Commission Notice C(2018) 7621;
- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities (Revised 2010);
- EC (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- EC (2000) Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC; and
- EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC: Clarification of the concepts of alternative solutions and imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission.

1.2 Structure of rNIS

The European Commission Notice on ‘Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC’ stipulates that the appropriate assessment should include a comprehensive identification of all the potential effects of a project likely to be significant for a European Site, taking into account cumulative / combined effects with other plans or projects.

A detailed overview of the historic and current commercial harvesting of peat by, and on behalf of, Bord na Móna, and ancillary activities within Bord na Móna’s 38 bog units is presented in the

Project Description Section of this rNIS. The potential environmental effects associated with commercial harvesting of peat is also presented in the Project Description Section.

The Commission's Notice requires that appropriate assessment addresses all elements contributing to the European Site's integrity as per the site's conservation objectives. The Characteristics of European Sites are therefore described in this rNIS in the context of the best available information pertaining to the ecological assets and function of the sites' conservation interests at the time of designation.

The potential for, and the possible extent of adverse effects of peat extraction activities on the integrity of European Sites relative to the date of enactment of the European Communities (Natural Habitats) Regulations, 1997 (26th February 1997) and the date of designation of the European sites to present day (2020) is assessed.

The rNIS assesses need for any appropriate remedial or mitigation measures required to be undertaken where adverse effects on site integrity has been determined.

1.3 Data Sources

This assessment includes a review of available historic records and field survey data including the following sources:

- Conservation Status Assessment Reports (CSARs), Backing Documents and Maps prepared in accordance with Article 17 of the Habitats Directive;
- Site Synopsis and Conservation Objective Reports available from NPWS;
- Published and unpublished NPWS reports on protected habitats and species including Irish Wildlife Manual reports, Species Action Plans, and Conservation Management Plans; and
- Existing relevant mapping and databases e.g. waterbody status, species and habitat distribution etc. (sourced from the Environmental Protection Agency - <http://gis.epa.ie/>, the National Biodiversity Data Centre - <http://maps.biodiversityireland.ie> and the National Parks and Wildlife Services - <http://www.npws.ie/mapsanddata/>, and the Forestry Service (Department of Agriculture, Food and the Marine).

2. Stage 1: Screening

2.1 Appropriate Assessment Process

Under Article 6(3) of the Habitats Directive, an Appropriate Assessment of the implications of a project for the European Site concerned implies that, before a project is approved, all the aspects of the project which can, either individually or in combination with other plans or projects, affect the conservation objectives of that European Site must be identified, in the light of the best scientific knowledge in the field. The competent national authorities are to authorise an activity on the protected site only if they have made certain that it will not adversely affect the integrity of any European site.

2.2 Stages of Appropriate Assessment process

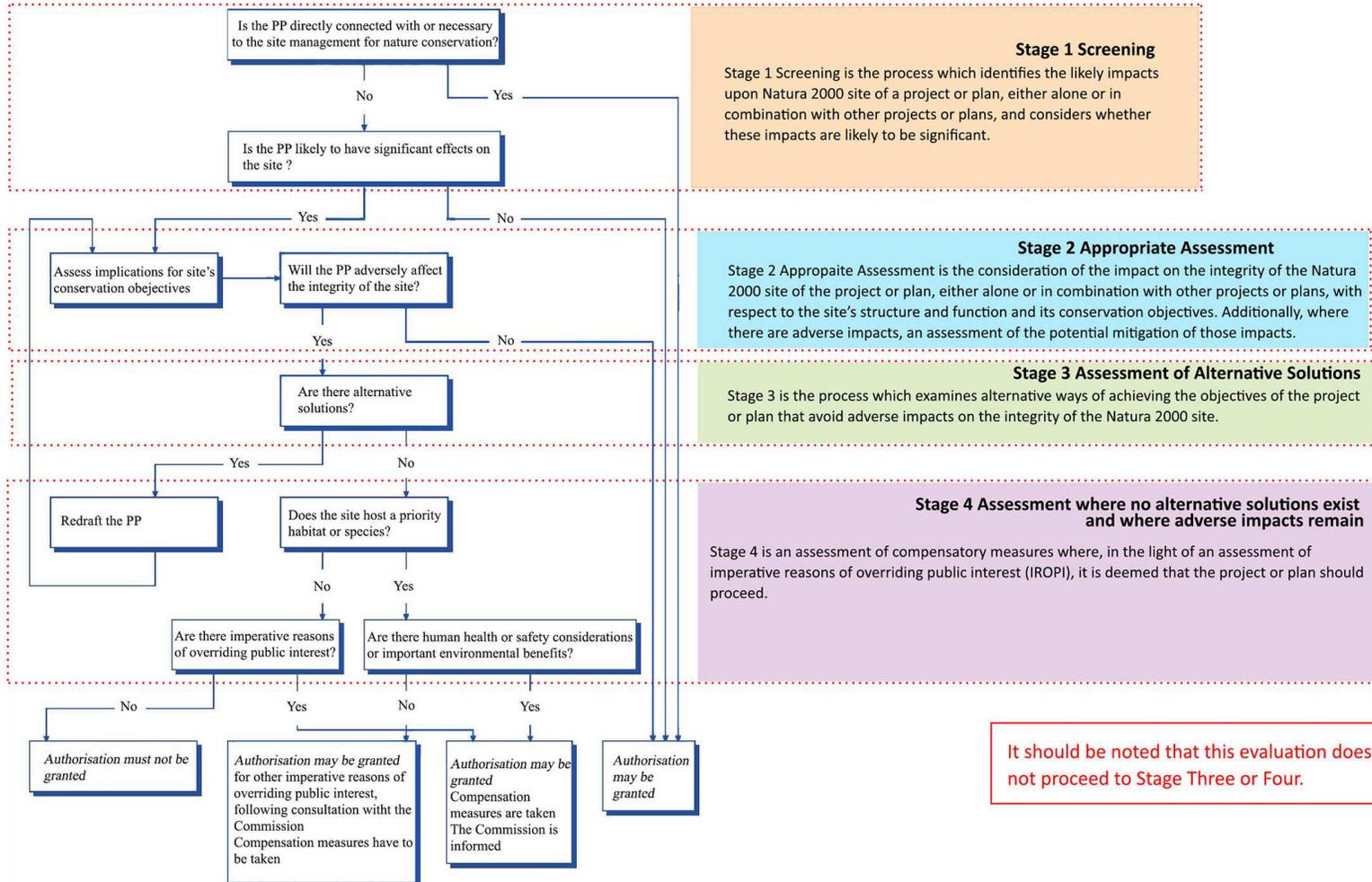
Appropriate Assessment involves a number of steps and tests that are applied using a stage-by-stage approach. Each step or stage in the assessment process precedes and provides a basis for other steps. The four stages in an Appropriate Assessment (AA), as outlined in EC Guidance on Assessment of Projects are illustrated in the following flow chart (over).

2.3 Screening: Is the Plan or Project Directly Connected to or Necessary for Management of a European Site?

For a project or plan to be 'directly connected with or necessary to the management of the site', the 'management' component must refer to management measures that are for conservation purposes, and the 'directly' element refers to measures that are solely conceived for the conservation management of a site and not direct or indirect consequences of other activities.

Finding: No, the current project under consideration is not directly connected to or necessary for the management of any European Site.

STAGES OF THE APPROPRIATE ASSESSMENT PROCESS FOR A PLAN OR PROJECT (PP)



Source: Flow Chart and Description Notes from Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission 2001

2.4 Project Characteristics

Project works and activities are described below. For the avoidance of doubt, it is difficult to avoid referencing in place mitigation measures when describing ongoing works retrospectively, however no consideration has been given to these measures in the Screening in or out of any European Sites.

2.4.1 Overview of the Bogs

Bord na Móna's 38 bogs are situated across counties Offaly, Westmeath, Laois, Meath, Kildare and Longford (Table 1).

Table 1 Bord na Móna Bogs

Bog	Bog Group
Bellair Nth	Boora
Lemonaghan	Boora
Noggusboy	Boora
Boora	Boora
Derrinboy	Boora
Derryclure	Boora
Monettia	Boora
Killaranny	Boora
Bracklin	Derrygreenagh
Carranstown	Derrygreenagh
Ballivor	Derrygreenagh
Kinnegad	Derrygreenagh
Ballybeg	Derrygreenagh
Ballaghurt/	Blackwater
Daingean (Derries)	Allen
Daingean Rathdrum	Allen
Clonad	Allen
Ballykeane	Allen

Bog	Bog Group
Esker	Allen
Garrymore	Allen
Derrylea	Allen
Glashabaun Sth	Allen
Glashabaun Nth	Allen
Codd Nth (Codd 2)	Allen
Codd Sth (codd 1)	Allen
Ballydermot North	Allen
Ballydermot South	Allen
Blackriver	Allen
Barnaran	Allen
Lodge	Allen
Coolnagun	Mountdillon
Milkernagh	Mountdillon
Coolcraff	Mountdillon
Gilltown	Kilberry
Mouds/Allen	Kilberry
Prosperous	Kilberry
Kilberry	Kilberry
Cuil na Carton	Cuil na Mona

2.4.2 Peat Extraction Activities

Peat is extracted from the 38 bogs that form part of this project using two different harvesting methods:

Milling: to produce milled peat for fuel, either for power station supply (Edenderry Power Stations), or for supply to Derrinlough Briquette Factory. Milled peat is also used for horticultural peat.

Sod Moss for the horticultural market – both the retail and professional markets.

The upper acrotelm layer (which comprises the biologically active component of the bog) was completely removed from the majority of the 38 bogs when the bogs were initially developed for industrial peat extraction between the 1940's and the 1990's.

In general, peat for milled peat production is extracted from deep peat layers (which comprise dead plant material). Sod moss production generally occurs at the bog margins within bare peat areas, areas of cutover bog and areas of high bog.

Bord na Móna's peat extraction activities have been regulated by the Environmental Protection Agency (EPA) since 2000 under the Integrated Pollution Control (IPC) licencing regime.

The following sections provide a description of Bord na Móna's peat extraction (and related) activities and downstream end users.

2.4.3 Milled Peat Production

Milled peat is supplied by Bord na Móna to Bord na Móna's Edenderry Power Plant in County Offaly, West Offaly & Lough Ree Power Stations (both due to close in December 2020) and Derrinlough Briquette Factory in County Offaly for the manufacture of peat briquettes.

Milled peat also supplied as horticulture peat for the manufacture of growing media products for the professional and retail/consumer markets.

Milled peat production requires good solar drying conditions and can commence anytime from mid-April onwards once suitable drying conditions exist. There are four stages to the production of milled peat;

- Milling - During the milling process the top 10-15 mm of the surface of each field is broken into peat crumbs by powered milling drums towed behind agricultural tractors. This layer of crumbed or milled peat is called a crop and has a moisture content of about 80% when milled;
- Harrowing - After milling, the peat crop is dried. To assist in this drying, the loose peat is harrowed, or turned over. The harrow consists of a series of spoons which are towed behind an agricultural tractor;
- Ridging - When the milled material has dried to 45-55% moisture content it is gathered into ridges in the centre of each field. The ridger consists of a pair of blades towed in an open V behind an agricultural tractor. The open V blades rest on the bog and channel the loose crop into a triangular ridge in the centre of each field. This ridge is now ready to be harvested; and
- Harvesting - Harvesting is the final stage of the production process. Each individual ridge is lifted mechanically by a machine called a harvester, transferred and dropped on top of the adjoining field's ridge, until five ridges have been accumulated into a single large ridge. This ridge forms the final lift into the peat storage stockpile.

Every 11th field is typically used to stockpile the peat from the output of five fields either side; this is referred to as the 'Peco' method. In some areas a system known as "Haku" is utilized

where the harvested peat is deposited into trailers and transported to a central stockpile on the headland.

A stock field typically receives the crops from 10 fields i.e. five fields on either side. Weather permitting, the miller follows the harvester and the production cycle recommences in the emptied fields. Each production cycle is known as a harvest. In a year of average weather conditions, approximately 12 harvests are completed. When the production season is over, the stockpiles are covered to keep the peat dry unless the peat is scheduled for immediate sale. Peat is stored in these stockpiles until required for use.

Peat production areas are served by a network of permanent narrow gauge rail tracks, (approximately one metre in width). Temporary tracks are also constructed as required to transfer the peat from peat production areas.

Figure 1: Milling



Figure 2 Harrowing



Figure 3 Ridging

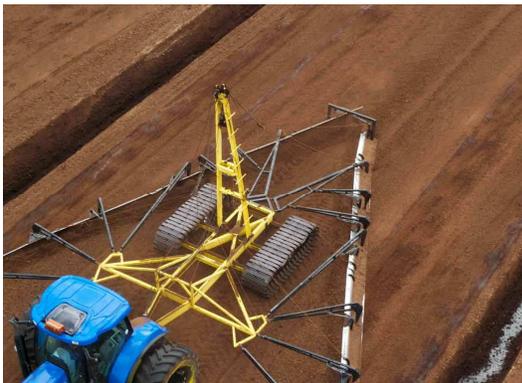


Figure 4 Ridging



Figure 5 Harvesting (Peco)

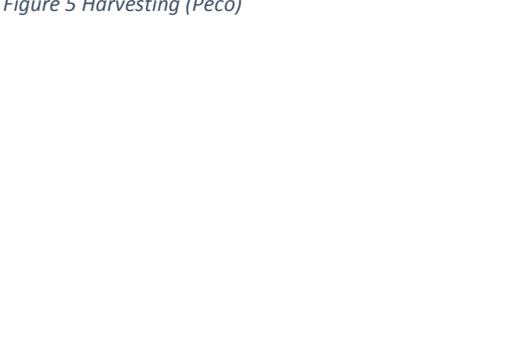


Figure 6 Harvesting (Peco)





Figure 7 Stock Protection



2.4.4 Sod Moss Production

Sod moss is the term used to describe peat produced in block form for horticultural use. The sod moss is extracted mechanically with specially equipped excavators. The sods are cut from mini face-banks or the margins of trenches that are gradually widened and left on the bog to dry for approximately 12 months, reducing moisture content from 90% to 50% - 60%. Once the required moisture content is reached the sod moss is stockpiled at the edge of bog prior to transportation for processing. One layer is typically cut at a time until the horticultural peat is exhausted.

The following photos illustrate the sod moss production process. A portion of the sod moss is transported, via Heavy Goods Vehicles (HGVs), directly from the bog site to Dublin Port for shipment overseas. The remainder is transported to processing factories where it is broken down and re-blended to meet the applications for which it is to be used.

Figure 8 Sod Moss



Figure 9 Sod Moss Stockpiles



2.4.5 Ancillary Activities

Drainage

As part of the development of the bogs for milled peat production, parallel surface water drains were created at intervals of 15m and the strip of bog between these drains forms the peat production fields. The fields are cambered to facilitate run-off and prevent standing water on the production fields. The drains fall towards the headland which is located at both ends of each production field. This headland allows for the plant such as harrowers, millers or ridgers to turn from one field into the next field. The open drains are piped across the end of each production field allowing production plant and machinery to travel from field to field. The drainage network continues by either open channel or pipe to a silt pond or ponds prior to discharging to a local watercourse. Drainage is by gravity flow where possible, however in some bogs it is necessary to use pumped systems to drain the bogs. Table 2 identified the dates when the bogs were first drained and put into production.

Table 2: Dates of First Drainage and Production

Bog	First Drained	First Production
Allen	1966	1972
Ballaghurt 1	1975	1980
Ballaghurt 2	1990	1995
Ballivor	1948	1953
Ballybeg	1951	1955

Ballydermot North	1946	1950
Ballydermot South	1946	1950
Ballykeane	1951	1955
Bellair	1970	1976
Blackriver	1946	1950
Clonad	1956	1962
Coolcraff	1981	1989
Coolnagun	1947	1953
Daingean Derries	1995	1999
Daingean Rathdrum	1995	2000
Derrinboy	1988	2003
Derryclure	1987	1992
Derrylea	1968	1972
Esker	1959	1965
Garrymore	1992	1999
Gilltown	1977	1982
Kilberry	1945	1948
Killaranny	1983	1989
Lemanaghan	1951	1955
Milkernagh	1947	1953
Monettia	1976	1982
Noggusboy	1951	1955
Prosperous	1991	2003
Boora	1954	1959
Bracklin	1979	1985
Carranstown	1979	1985
Glashabaun South	1946	1950
Glashabaun North	1946	1950

Codd North	1983	1989
Codd South	1983	1989
Barnaran	1951	1955
Lodge	1951	1955
Cuil na Carton	1962	c.1966
Kinnegad	1977	1982

Transportation

Some of the peat production areas are served by a permanent rail system, much of which was constructed in the 1950's and 1960's. In some areas temporary tracks are laid and removed as required to remove peat from production areas. This rail network allows for direct delivery of peat by rail to Derrinlough Briquette Factory Edenderry Power Station, ESB power stations and to various lorry tippler locations.

In some areas that are not served by permanent or temporary rail links, a system known as "Haku" is used. Here the peat is placed in trailers and transported to the headland, from where it is removed by road.

In other locations peat is transported by rail to a tippler where the peat is transported from the rail wagons to lorries for haulage by road.

Ancillary Structures and features

There are a number of ancillary structures and features associated with peat extraction activities.

These are located within the confines of the IPC licence boundaries and are listed below

- railway lines, rail underpasses/bridges;
- machine passes and underpasses/bridges;
- canteen structures;
- work sites;
- production centres;
- fixed fuel tanks; and
- peat loading facility.

2.4.6 End Users

The following sections provide details of the main end users of extracted peat.

Derrinlough Briquette Factory

Derrinlough Briquette Factory is located in Birr, County Offaly and is operated by Bord na Móna Fuels Ltd. The bog units that historically have supplied peat to Derrinlough are listed in Appendix IX Bog Units. Derrinlough operates under the Green House Gas (GHG) Permit Registration No. IE-GHG105-10401-3.

Derrinlough Briquette Factory was supplied by the following bog units in the Boora Bog Group: Lemonaghan, Noggusboy, Boora, and Killaranny, with smaller quantities of peat coming from Derrinboy, Derryclure and Monettia. All of these bog units apart from Monettia, Derrinboy and Derryclure were equipped with an internal rail link to Derrinlough Briquette Factory. The peat from these bog units was transported by rail. Some peat from Allen and Derrygreenagh Bogs Ballybeg, Daingean Derries, Daingean Rathdrum, Clonad, Mountlucas, Ballykeane and Esker bogs have also been used to supply Derrinlough.

Bord na Móna supplied domestic users with peat briquettes either loose, in bales or in brickeen form, i.e. single loose briquettes cut into three equal parts.

The factory operates 24 hrs a day, 7 days a week, producing up to 135,000 tonnes of briquettes per annum. The factory currently employs 62 staff during production and has been in operation since 1959/60.

The process involves tipping, blending, fine milling and screening, followed by a Peco drying process: the indirect drying of milled peat by means of hot water and steam while the peat is being pneumatically conveyed in an air/vapour stream. The peat, in finely divided form (all through a 10 mm. screen), dries rapidly from its intake moisture-circa 50% moisture content to 10% moisture content. At this moisture content briquettes can be formed under pressure in a specially designed press which extrudes the briquettes continuously into cooling runners some 70 metres long. The boiler fires on pulverised peat with oil used for start-ups.

Littleton Briquette Factory

Littleton Briquette Factory (near Thurles, County Tipperary) is now closed. It was located within the landbanks associated with IPC licence P0499-01 (Bord na Móna Fuels Ltd Littleton) and its operation controlled in accordance with the conditions specified in IPC licence P0499-01. Approximately 70% of the milled peat supply was delivered via Bord na Móna's internal rail network and approximately 30% was delivered by road for processing into peat briquettes. The factory operated 24hrs a day seven days a week producing up to 90,000 tonnes of briquettes per annum. The factory was in operation since 1982 employing approximately 55 staff during production.

Horticultural Peat Processing

Bord na Móna produced approximately 359,000 tonnes of horticultural peat per annum. The processing factories are located at Kilberry (Athy County Kildare), Coolnamona (Portlaoise, County Laois) and Ballivor (County Meath). The bog units that supplied peat to these processing factories are listed in Appendix IX Bog Units.

Horticultural peat consists of professional horticulture peat or horticultural retail peat. Professional Horticultural peat is certified to the Regeling Handels Potgronden ("RHP") quality standard. RHP is a product certification scheme, for substrates and soil improving materials that

is accepted by the Dutch Accreditation Council. RHP is a widely accepted standard of peat suitable for use as a professional growing medium. A significant proportion of Bord na Móna's RHP peat was transported by road to Dublin port and exported to Europe. Horticultural peat not classified as RHP was used as professional or retail horticulture peat suitable for other growers. On occasion, peat not suitable for use as professional or retail horticultural peat may have been used as fuel supply peat .

Edenderry Power Plant

Edenderry Power Plant is located in the townland of Ballykilleen (Coolestown) approximately 6 kilometres to the south of the town of Edenderry and approximately 3.5 kilometres to the north of the village of Clonbulloge. Access to the site is gained via the R401 Regional Road. The site is approximately 32 hectares in size.

Edenderry Power Limited (EPL) operates the existing peat/biomass co-fired power plant in accordance with the conditions of an Industrial Emissions Directive (IED) Licence (Reg. No. P0482-04) issued and monitored by the Environmental Protection Agency (EPA). The plant has a net electrical output of 118MW (128 MW gross) and produced approximately 694 MWh of electricity in 2019.

The fuel inputs during 2019 were approximately 476,000 metric tonnes of peat (supplied by a spur of Bord na Móna Energy Limited's peatland rail network) and approximately 300,000 tonnes of biomass predominantly delivered by road via designated and agreed haul routes. The peat supply bogs for Edenderry were predominantly from the Allen Group.

Clonbulloge ash repository (Industrial Emissions Licence Registration No. W0049-02), accepts the ash from the combustion process at Edenderry Power Plant. The site is located approximately 3 kilometres to the southwest of the site and is accessed by Bord na Móna Energy Limited's peatland rail network which directly links the ash collection system at the power plant with the repository. There is also vehicular access to the repository via a local road.

Co-fuelling of peat with biomass at the power plant commenced in 2008 at a rate of 2%. By 2019 the rate of co-fuelling with biomass had increased to 46.4%.

West Offaly Power Plant

West Offaly Power Plant is located in Shannonbridge in County Offaly and is the largest peat fired power plant in Ireland. Approximately 1.245 million tonnes of peat (supplied by a spur from Bord na Móna's peatland rail network and via the public road network) was supplied to West Offaly Power Plant in 2015. Peat was exclusively supplied to the power plant from Bord na Móna bogs.

The West Offaly Power Plant is owned and operated by the Electricity Supply Board (ESB).

The ESB operates the power plant in accordance with the conditions of an Industrial Emissions Licence (Registration Number P0611-02) which is regulated by the EPA.

Lough Ree Power Plant

Lough Ree Power Plant is located in Lanesborough, County Longford. Approximately 835,000 tonnes of peat (supplied by a spur from Bord na Móna's peatland rail network and via the public

road network) was supplied to Lough Ree Power Plant in 2015. Peat was exclusively supplied to the power plant from Bord na Móna bogs.

Lough Ree Power Plant is owned and operated by the Electricity Supply Board (ESB). The ESB operates the power plant in accordance with the conditions of an Industrial Emissions Licence (Registration Number P0610-02) which is regulated by the EPA.

Retail and Domestic Users

Bord na Móna supplied horticultural products to the retail sector both within the island of Ireland and internationally. Bord na Móna also supplied products directly to domestic users and have depots located throughout the Republic of Ireland.

2.5 Potential Impacts of Peat Extraction

Adverse effects on European sites can have occurred only where there was a pathway between the impacts of peat extraction and qualifying interests / special conservation interests of European sites which might be sensitive to the biophysical changes associated with the impacts (i.e. a source-pathway receptor link).

As a first step in establishing whether there was potential for adverse effects, the zone of influence of the potential impacts of peat extraction must be established. CIEEM guidelines¹ states that the “zone of influence (Zoi) is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities”. The guidance recommends the use of published studies to establish “...the spatial and temporal limits of the biophysical changes likely to be caused by specific activities...”. It must be noted that the presence of a European site within spatial/temporal extent of an effect does not automatically imply adverse effects.

Having regard to the description of peat extraction activities as presented above, the potential impacts are determined as follows:

- Habitat Damage & Degradation
- Change in Water Quality
- Change in Hydrological Regime
- Disturbance to Species

The zone of influence, i.e. likely spatial and temporal limits of the biophysical changes associated with those impacts, have been determined having regard to published studies and are set out hereunder. The Characteristics of the European sites within the zone of influence of peat extraction at the 38 bogs are set out in this rNIS.

2.5.1 Habitat Damage & Degradation

Disturbance to / degradation of habitats is taken as the lands within the works area and 10m beyond the works areas, and any areas of site clearance (based on Ryan Hanley, 2014)².

The Scottish Environmental Protection Agency³ specifies the zone of influence for Ground Water Dependant Terrestrial Ecosystems (GWDTE) from excavations deeper than 1m to be a 250m

1 CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

2 Ryan Hanley (2014b) Stage 1: Appropriate Assessment Screening Methodology for the Maintenance of Arterial Drainage Schemes. Prepared by Ryan Hanley Consulting Engineers on behalf of the Office of Public Works

3 Scottish Environment Protection Agency (2014) Land Use Planning System SEPA Guidance Note 31. Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and groundwater Dependent Terrestrial Ecosystems (Version 3).

buffer around the works area. There are no GWDEs within European sites located within 250m of the bogs.

The Institute of Air Quality Management 'Guidance on the Assessment of dust from demolition and construction' (Holman et al, 2014) prescribes potential dust emission risk classes to ecological receptors. The guidelines specify that, for highly sensitive ecological receptors, sensitivity to dust is 'High' up to 20m from the source and reduces to 'Medium' over 50m from the source.

The drainage of production areas can cause localised dewatering of neighbouring habitats. Peat soils tend to be isolated hydrological entities therefore the effects of bog drainage tend to be confined to the immediate environs.

2.5.2 Disturbance to Species

Noise disturbance varies between species and is dependent on the volume and nature of the noise source. General disturbance distances have been defined in publicly available literature; however, the distances are not specific to peat extraction. These disturbance distances are taken as a worst-case-scenario for the purpose of defining a Zol, and the magnitude of disturbance effects specific to historic peat extraction are examined in greater detail in as part of the assessment of effects on site integrity in the further sections of this rNIS.

- 150m from works for otter⁴,
- 800m from works for breeding birds⁵
- 500m from works for wintering birds⁶.

The potential effects of anthropogenic sound on fish can range from direct mortality to no obvious behavioural responses and are dependent on the class of sound i.e. either continuous or impulsive (Popper et al. 2014, Popper & Hawkins 2019). Impulsive noise carries a greater risk of fish mortality. The noise associated with the peat extraction is continuous but seasonal and similar to that of agricultural machinery.

2.5.3 Change in Hydrological Regime

In general, peat bogs are typically characterised by low recharge, with the GSI generally mapping the bogs with recharge rate of ~4% of effective rainfall, so the scale of any change has to be understood in this context. Bogs have a high natural runoff rate. The bogs are broadly underlain by an impermeable layer such as Lacustrine Clay or a Shelly Marl, which limit the infiltration of

4 Taken from guidance given in NRA (2006) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes

5 Disturbance distances for sensitive breeding bird species taken from Ruddock & Whitfield (2007)

6 Based on flight distances recorded in Smit & Visser (1993), which studied the effects of disturbance on 9 wintering waterbirds. The overall at-flight distances from noise sources (e.g. cars, farm machinery, aircraft) ranged from 10m to 500m

water downwards into the underlying aquifer. Rainfall is therefore stored within the bog and slowly infiltrates to ground or discharges to streams surrounding the bogs.

Following the drainage of the bog, the hydrology changes and storage is reduced within the peat. This is achieved by creating drainage channels to channel rainwater off the bogs and directly to streams/waterbodies.

2.5.4 Change in Water Quality

The spatial extent of water quality effects from peat extraction will be governed by the loading from the bogs, the hydrology of the receiving watercourse, and the baseline quality of the receiving water.

2.5.5 Consideration of In-Combination Impacts

Article 6(3) of the Habitats Directive requires that:

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.

The European Commission notice (2018) emphasises that "It is important to note that the underlying intention of this in-combination provision is to take account of cumulative impacts, and these will often only occur over time".

Cumulative impacts are considered in the context of the remedial impacts which might have occurred over time since the date of enactment of the European Communities (Natural Habitats) Regulations, 1997. The assessment takes account of the following activities:

- Point source emission to the aquatic environment;
- Diffuse emission to the aquatic environment e.g. from agricultural and forestry activities
- Other Bord na Móna activities such as peat extraction on other bogs (i.e. not within the 38 bogs under consideration), forestry, renewable energy, biomass, fish farming and waste management etc.
- Third party operators that operate within Bord na Móna's IPC licensed areas including contractors and private domestic sod peat cutting, including operators who were relocated in agreement with the National Park and Wildlife Service (NPWS) and those with established turbary rights.

Point Source Discharges

A legal framework for the control and regulation of effluent discharges to the aquatic environment has been in place in Ireland before the introduction of the European Communities

(Natural Habitats) Regulations, 1997. The legislation governing the protection of the aquatic environment includes the Local Government (Water Pollution). Act, 1977 as amended and the Environmental Protection Agency Act 1992 as amended.

Legislation to protect the aquatic environment was strengthened by the introduction of the Water Framework Directive (2000/60/EC), which includes a remit to introduce monitoring and measures for the protection of bodies of water within protected areas. The implementation of measures under the river basin management plans are aimed towards improving water quality with an objective of restoration of quality by prescribed deadlines.

Diffuse Pollution Sources

Forestry and agricultural activities are widespread within the midlands of Ireland. Impacts associated with these activities are similar in nature to those of peat extraction, including washing of soils and nutrients into watercourses, the introduction of artificial drainage, the direct destruction of habitat.

The paper entitled Linking Catchment Characteristics and Water Chemistry with the Ecological Status of Irish Rivers (Donohue, McGarrigle and Mills, Trinity College Dublin, 2006) concludes that rivers with greater than 69% agricultural land cover in their catchment would be unlikely to meet the requirements of the Water Framework Directive in Ireland without improved pollution control measures. The land use within the river catchment hosting the bogs is predominantly agricultural (including forestry). Measures prescribed under the river basin management plans targeted towards these industries are generally policy-type measures, which have been prescribed only in recent times, and which require a large temporal scale for implementation.

Other Bord na Móna Activities

Other development carried out by Bord na Móna (whether exempted development or not) has been carried out under the governance of Irish Planning law, which encompasses the requirement for screening for Appropriate Assessment. As such the protection of European Sites would have been embedded into any development carried out post the introduction of the Habitats Regulations.

Third Party Operators

Past cutting of high bog in marginal areas elsewhere on site is not considered a substantial impact in the context of this footprint under consideration and also these areas have been cut for turbarry for long periods and are highly disturbed both physically and hydrologically.

2.6 Characteristic of European Sites

2.6.1 Location of European Sites Relative to the Bord na Móna's Bogs

The location of European Sites relative to Bord na Móna's Bogs is presented at the end of this Section of the rNIS.

2.6.2 European Sites within the Likely Zone of Influence

Having regard to the spatial and temporal effects of peat extraction activities outlined in the Project Description Section of this rNIS, the following European sites have been identified as having been within the zone of influence of effects which may have occurred in association with historical peat extraction activities:

European Sites within the Zol of Habitat Damage / Degradation

The Long Derries, Edenderry SAC - Glashabaun North Bog is immediately adjacent to the SAC,

Mounds Bog SAC - Mounds/Allen bog overlaps with the SAC

River Barrow and River Nore SAC - a drainage channel from the Moneittia bog is within the SAC boundary.

European Sites within the Zol of Disturbance to Species

River Barrow and River Nore SAC - a drainage channel from the Moneittia bog is within the SAC boundary.

Long Derries, Edenderry SAC- Glashabaun North is adjacent to the SAC

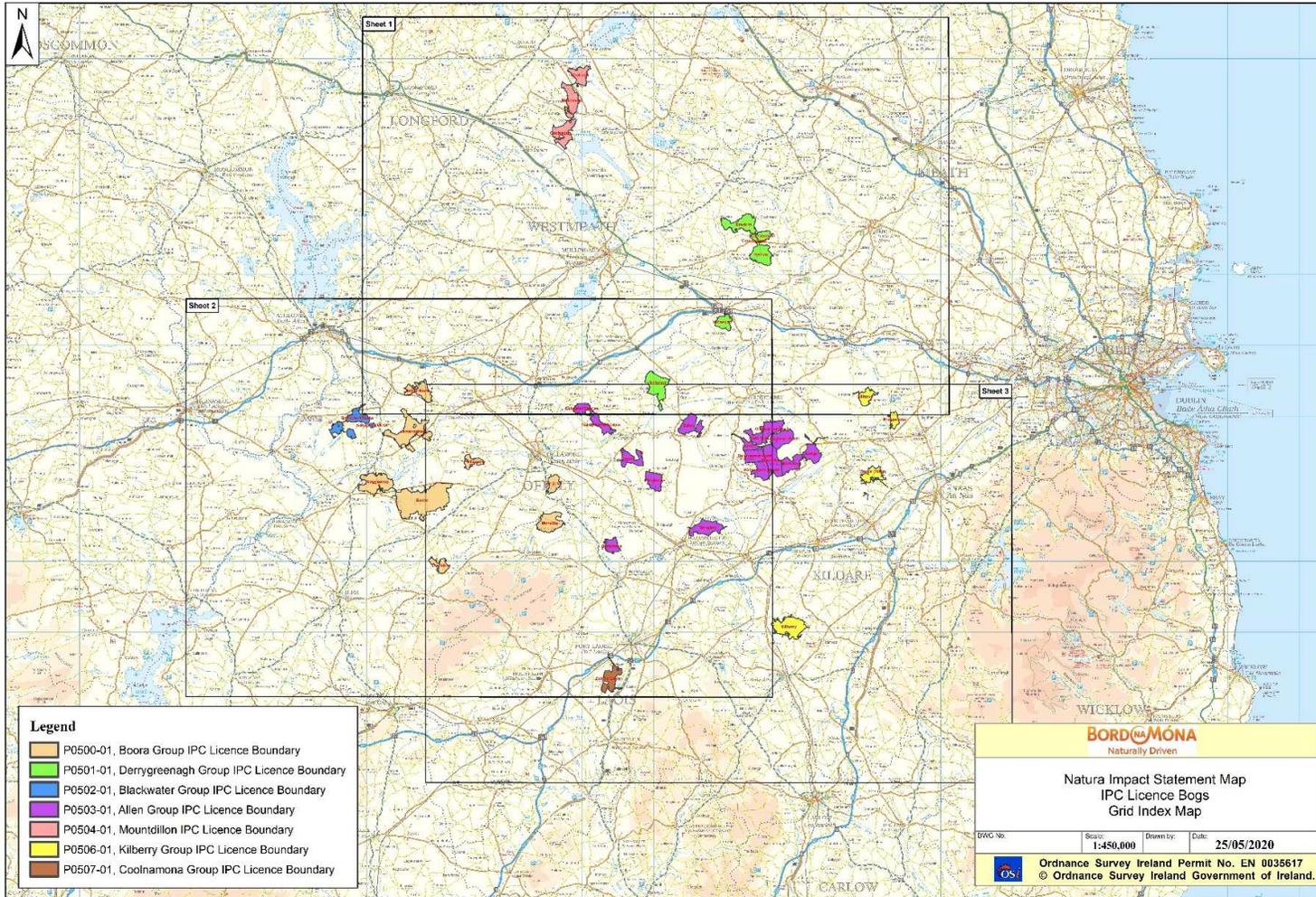
Mounds Bog SAC - Mounds/Allen bog overlaps with the SAC

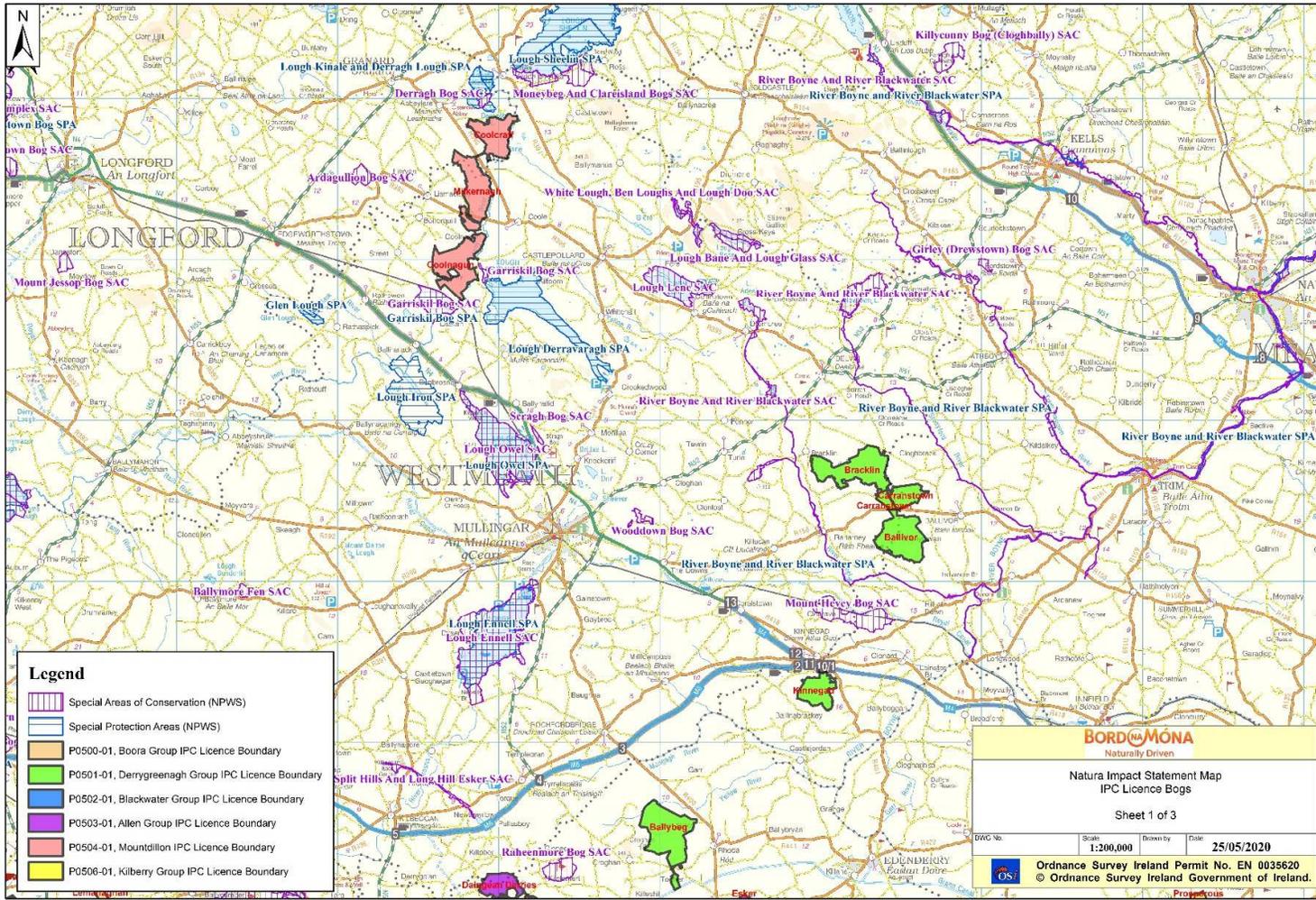
Garriskil Bog SAC - Coolnagun bog

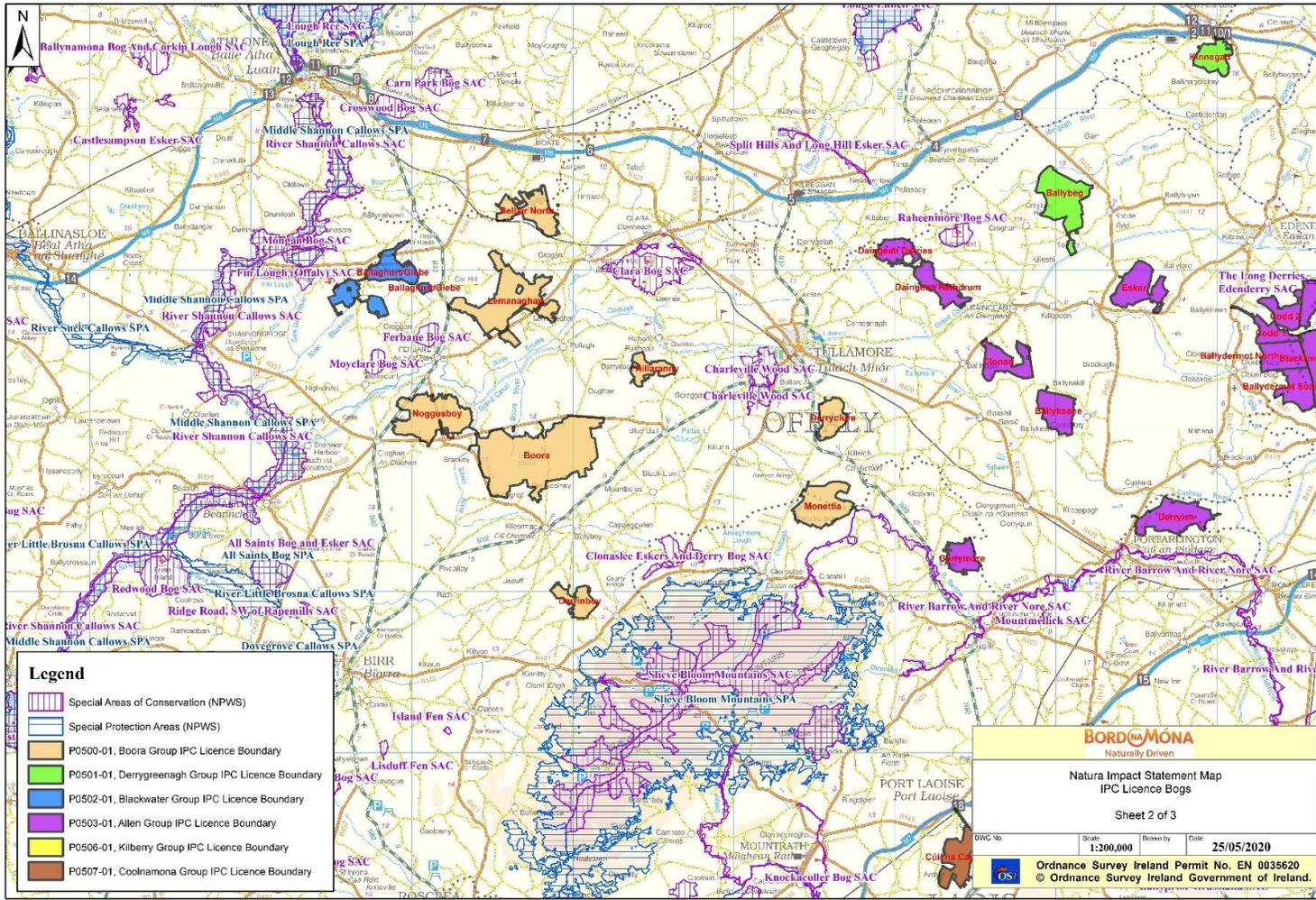
European Sites within the Zol of a Change in Hydrological Regime, and/or Water Quality

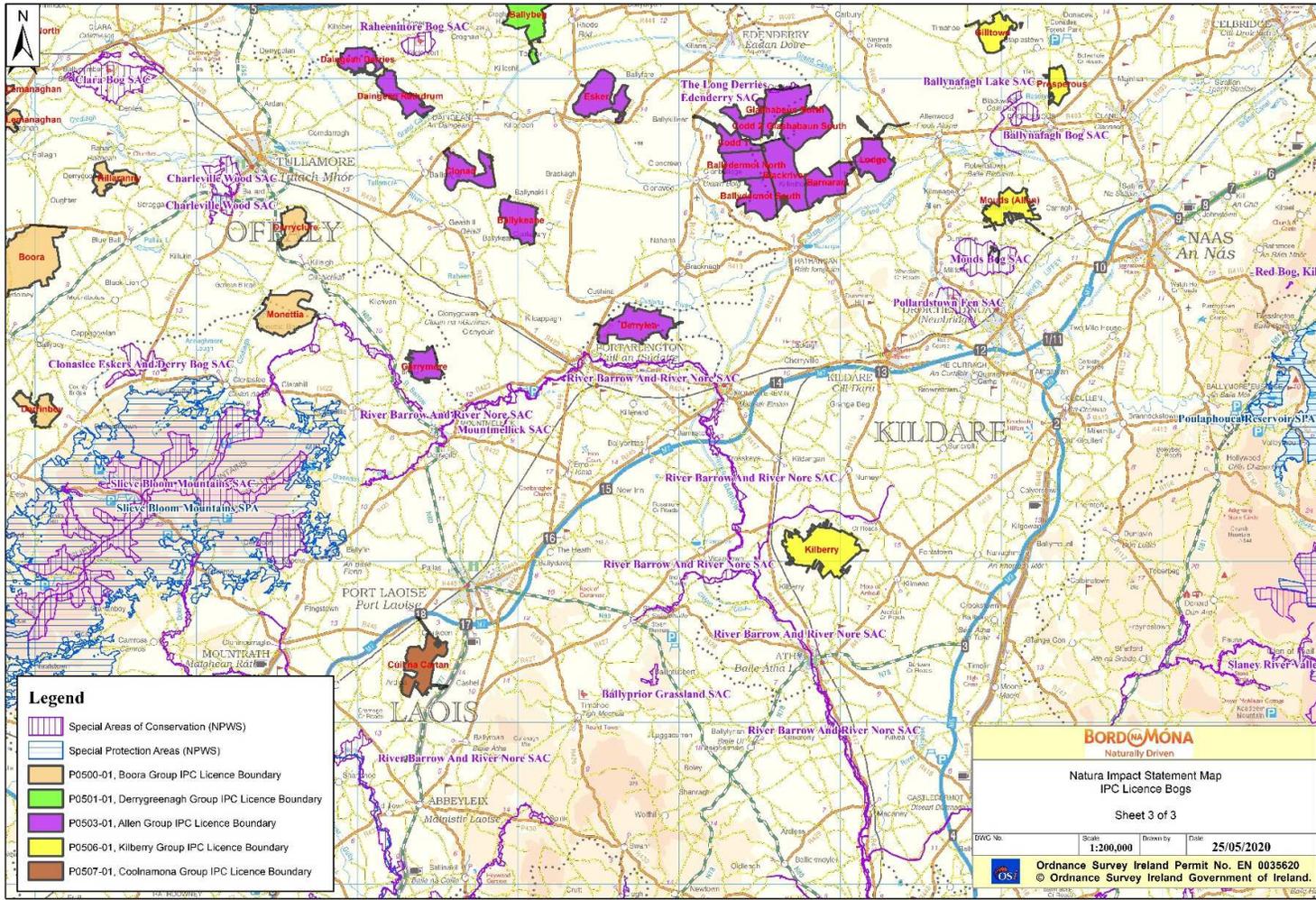
<p>River Shannon Callows SAC</p> <ul style="list-style-type: none"> • Ballaghurt / Glebe • Daingean (Derries) • Daingean Rathdrum • Bellair North • Lemonaghan • Noggusboy • Boora • Derrinboy • Derryclure 	<p>River Barrow and River Nore SAC</p> <ul style="list-style-type: none"> • Daingean Rathdrum, • Clonad, • Ballykean, • Esker, • Garrymore, • Derrylea, • Glashabaun South, • Glashabaun North, 	<p>River Nore SPA</p> <ul style="list-style-type: none"> • Cuil na Carton <p>River Boyne and River Blackwater SAC</p> <ul style="list-style-type: none"> • Ballybeg • Kinnegad • Ballivor • Carranstown • Bracklin
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<ul style="list-style-type: none"> • Monettia • Kilaranny <p>Middle Shannon Callows SPA</p> <ul style="list-style-type: none"> • Ballaghurt / Glebe • Daingean (Derries) • Daingean Rathdrum • Bellair North • Lemonaghan • Noggusboy • Boora • Derrinboy • Derryclure • Monettia • Kilaranny <p>Charleville Woods SAC</p> <ul style="list-style-type: none"> • Derryclure • Clonad • Monettia 	<ul style="list-style-type: none"> • Codd North, • Codd South, • Ballydermot North, • Ballydermot South, • Blackriver, • Barnaran, • Lodge, • Kilberry, • Cuil na Carton • Monettia • Prosperous <p>North Dublin Bay SAC, South Dublin Bay SAC,</p> <ul style="list-style-type: none"> • Mounds/Allen <p>North Bull Island SPA and South Dublin Bay and River Tolka SPA</p> <ul style="list-style-type: none"> • Mounds/Allen <p>Lough Ree SPA</p> <ul style="list-style-type: none"> • Coolnagun • Milkernagh • Coolcraff 	<ul style="list-style-type: none"> • Gilltown • Propserous <p>River Boyne and River Blackwater SPA</p> <ul style="list-style-type: none"> • Ballybeg • Kinnegad • Ballivor • Carranstown • Bracklin • Gilltown • Propserous <p>Lough Derravaragh SPA</p> <ul style="list-style-type: none"> • Coolnagun • Milkernagh • Coolcraff <p>Lough Iron SPA</p> <ul style="list-style-type: none"> • Coolnagun <p>Lough Ree SAC</p> <ul style="list-style-type: none"> • Coolnagun • Milkernagh • Coolcraff
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2.6.3 Conservation Objectives

The European Commission Notice (2018) states that the purpose of appropriate assessment is to assess the implications of the project in respect of the site's conservation objectives. The conservation objectives are based on the ecological requirements of the species and habitats present and define the desired conservation condition of these species and habitat types on the site. Member States are tasked with determining the specific biophysical conditions necessary to support protected species and habitats and the site-specific targets necessary to maintain or restore the species/habitat to a favourable conservation condition. In recent years, Ireland prepared site-specific conservation measures and targets for a portion of their protected areas, and this work is ongoing.

Where specific conservation objectives have not yet been set for a site, the European notice requires the appropriate assessment must assume as a minimum that the objective is to ensure that the habitat types or habitats of species present do not deteriorate below the current level.

The European sites which may have been within the zone of influence of peat extraction activities are discussed hereunder with regard to the conservation interests of the habitats and species which might be sensitive to the individual effects identified. Thus, where the effect is in relation to the aquatic environment, only those qualifying interests associated with the aquatic environment are discussed, and vice versa for the effects which are focused on the terrestrial environment.

Table 3: Conservation Objectives of European Sites within the ZoI of Species Disturbance and Habitat Damage⁷

European Site	Conservation Interests within the ZoI and their Conservation Objectives	Key Threats and Pressures (as per Natura 2000 Data Form)
The Long Derries, Edenderry SAC (Site code. 000925)	Site Specific conservation objectives have not been developed. The Standard objective to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected therefore applies. ⁸ The site is designated for Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*)	A04.03 - Abandonment of pastoral systems, lack of grazing D01 – Roads, paths and railroads G01.03.02 - Off-road motorized driving K01.01- Erosion K02.01- Species composition change (Succession)

⁷ All Site details accessed on www.npws.ie on 28.05.20

⁸ V7: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000925.pdf

	<p>important orchid sites) [6210]. Article 17 reporting for 2019 and 2013 indicates that this habitat is at unfavourable status.</p> <p>An ecological survey of the SAC was carried out in 2016 by Bord na Móna as part of the Edenderry Power Limited planning application. Scrub encroachment was noted to be extensive, indicating a reduction in habitat quality over time. It is therefore determined that the appropriate objective is to restore conservation status.</p>	
<p>Mouds Bog SAC (Site code. 002331)</p>	<p>To restore the favourable conservation condition of all the qualifying features</p> <p>Active raised bogs [7110]</p> <p>Degraded raised bogs still capable of natural regeneration [7120]</p> <p>Depressions on peat substrates of the Rhynchosporion [7150]⁹</p>	<p>C01.03.02 - mechanical removal of peat is listed as a pressure (private and commercial turf cutting)</p>
<p>River Barrow and River Nore SAC (Site code. 002162)</p>	<p>Having regard to the Conservation Objectives report for the SAC (NPWS, 2011), the only conservation interest which might be within the zone of influence of Species Disturbance and Habitat Damage is <i>Lutra lutra</i> (Otter) [1355]</p> <p>The conservation objective is to restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC¹⁰</p>	<p>A02.01 - Agricultural intensification (B)</p> <p>H01 - Pollution to surface waters (limnic, terrestrial, marine & brackish)</p> <p>B05 - Use of fertilizers (forestry)</p> <p>B02 - Forest and Plantation management & use</p> <p>C01.03 - Peat extraction</p>

⁹ V1: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000925.pdf

¹⁰ V1: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002162.pdf

		J02.02.01 - Dredging/ removal of limnic sediments J02 - Human induced changes in hydraulic conditions
Garriskil Bog SAC (000679)	7110 Active raised bogs 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion ¹¹	I01 J02.15 A04.02.01 C01.03.02 I02 J01.01

Bogs with hydrological connectivity to European Sites are identified above under ‘European Sites within the Likely Zone of Influence’. Of these European sites, the qualifying feature which might be affected by changes in hydrology or water quality have been identified below and are related to the freshwater environment.

Table 4: Conservation Objectives of Special Areas of Conservation¹² within the ZoI of Changes in Water Quality and Hydrology

European Site	Conservation Interests within the ZoI and their Conservation Objectives	Key Threats and Pressures (as per Natura 2000 Data Form)
River Barrow and River Nore SAC (Site code. 002162)	To maintain the favourable conservation condition of the following: Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016] Austropotamobius pallipes (White-clawed Crayfish) [1092] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260]	A02.01 - Agricultural intensification (B) H01 - Pollution to surface waters (limnic, terrestrial, marine & brackish) B05 - Use of fertilizers (forestry) B02 - Forest and Plantation management & use C01.03 - Peat extraction

¹¹ NPWS (201) Conservation Objectives: Garriskil Bog SAC 000679. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹² All Site details accessed on www.npws.ie on 28.05.20

	<p>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]</p> <p>Petrifying springs with tufa formation (Cratoneurion) [7220]</p> <p>To restore the favourable conservation condition of the following:</p> <p>Petromyzon marinus (Sea Lamprey) [1095]</p> <p>Lampetra planeri (Brook Lamprey) [1096]</p> <p>Lampetra fluviatilis (River Lamprey) [1099]</p> <p>Salmo salar (Salmon) [1106]</p> <p>Margaritifera durrovensis (Nore Pearl Mussel) [1990]</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0]</p> <p>The status of the freshwater pearl mussel (Margaritifera margaritifera) as a qualifying Annex II species for the River Barrow and River Nore SAC is currently under review (but would have been targeted for restoration)</p>	<p>J02.02.01 - Dredging/ removal of limnic sediments</p> <p>J02 - Human induced changes in hydraulic conditions</p>
<p>River Shannon Callows SAC ¹³</p> <p>(Site code 000216)</p>	<p>Site Specific conservation objectives have not been developed. The Standard objective to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has</p>	<p>J02.04.01 - Flooding</p> <p>A08 - Fertilisation</p> <p>A04.01 - Intensive grazing</p> <p>B02.02 - Forestry clearance</p>

¹³ **Citation:** NPWS (2020) Conservation objectives for River Shannon Callows SAC [000216]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

	<p>been selected therefore applies. Reference is made to national status as per Article 17 reporting for 2019 and 2013 as an indicator of likely status.</p> <p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] – National status is unfavourable, assumed conservation objectives in the SAC is to restore status.</p> <p><i>Lutra lutra</i> (Otter) [1355] – national status is favourable, assumed conservation objectives in the SAC is to maintain status.</p>	
River Boyne and River Blackwater SAC (Site code. 0042329)	<p>Site Specific conservation objectives have not been developed. The Standard objective to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected therefore applies. Reference is made to national status as per Article 17 reporting for 2019 and 2013 as an indicator of likely status.¹⁴</p> <p>Alkaline fens [7230] - National status is unfavourable and deteriorating, assumed conservation objectives in the SAC is to restore status</p> <p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] - National status is unfavourable, assumed</p>	<p>J02.05.02 - modifying structures of inland water courses</p> <p>A03 - mowing / cutting of grassland</p>

¹⁴ **Citation:** NPWS (2020) Conservation objectives for River Boyne and River Blackwater SAC [002299]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

	<p>conservation objectives in the SAC is to restore status.</p> <p>Lampetra fluviatilis (River Lamprey) [1099] – Status is 2013 reporting was favourable but is currently unknown. Assumed conservation objectives in the SAC is to restore status</p> <p>Salmo salar (Salmon) [1106] – National status is unfavourable and it is noted that population estimates are unlikely to reach Favourable status in the next 12 years. Assumed conservation objectives in the SAC is to restore status</p> <p>Lutra lutra (Otter) [1355] - national status is favourable, assumed conservation objectives in the SAC is to maintain status.</p>	
Charleville Woods SAC (Site code. 000571) ¹⁵	<p>Site Specific conservation objectives have not been developed. The Standard objective to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected therefore applies. Reference is made to national status as per Article 17 reporting for 2019 and 2013 as an indicator of likely status.</p> <p>Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] - National status is unfavourable, assumed</p>	G01.02 - walking, horseriding and non-motorised vehicles

¹⁵ **Citation:** NPWS (2020) Conservation objectives for Charleville Wood SAC [000571]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

	<p>conservation objectives in the SAC is to restore status.</p> <p>Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016] - National status is unfavourable, assumed conservation objectives in the SAC is to restore status.</p>	
North Dublin Bay SAC (Site code. 000206.) ¹⁶	The site is designated for coastal and estuarine habitats and is deemed not to be within the ZoI	N/a
South Dublin Bay SAC (Site code. 000210.) ¹⁷	The site is designated for coastal and estuarine habitats and is deemed not to be within the ZoI	N/a
Lough Ree SAC (Site code. 000440.) ¹⁸	<p>To maintain the favourable conservation condition of the following</p> <p>Alkaline fens [7230]</p> <p>Lutra lutra (Otter) [1355]</p> <p>To restore the favourable conservation condition of the following</p> <p>Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150]</p> <p>Active raised bogs [7110]</p> <p>Degraded raised bogs still capable of natural regeneration [7120]</p> <p>Bog woodland [91D0]</p>	<p>J02.11.02 – siltation rate changes</p> <p>H02.06 - diffuse groundwater pollution due to agricultural and forestry activities</p> <p>A08 – fertilisation</p> <p>A04 – grazing</p> <p>H01.08 - diffuse pollution to surface waters due to household sewage and waste waters</p> <p>B02 - Forest and Plantation management & use</p> <p>A03.03 - abandonment / lack of mowing</p>

¹⁶ NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁷ NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

¹⁸ NPWS (2016) Conservation Objectives: Lough Ree SAC 000440. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, rural and Gaeltacht Affairs.

	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i> , <i>Salicion albae</i>) [91E0]	
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The data pertaining to Special Protection Areas within the zone of influence has been grouped in the table below on the basis that site-specific conservation objectives have not been developed for these designated areas and the sites are designated for the protection of waterfowl and their supporting habitats.

Table 5: Conservation Objectives of Special Protection Areas ¹⁹within the ZoI of Changes in Water Quality and Hydrology

European Sites	Conservation Interests within the ZoI and their Conservation Objectives	Key Threats and Pressures (as per Natura 2000 Data Form)
North Bull Island SPA (Site Code 003000) and South Dublin Bay and River Tolka SPA (Site Code 00402) ²⁰²¹ River Boyne and River Blackwater SPA (004232) ²² River Nore SPA (Site code 004233. ²³)	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA and to maintain or restore the favourable conservation condition of the wetland habitat within the SPA as a resource for the waterbirds that utilise it.	A08 – Fertilisation B - Sylviculture, forestry F03.01 – Hunting F02.03 - Leisure fishing A04 – Grazing

¹⁹ All Site details accessed on www.npws.ie on 28.05.20

²⁰ NPWS (201) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

²¹ NPWS (201) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

²² **Citation:** NPWS (2020) Conservation objectives for River Boyne and River Blackwater SPA [004232]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

²³ **Citation:** NPWS (2020) Conservation objectives for River Nore SPA [004233]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

<p>Lough Derravaragh SPA (Site code. 004043.)²⁴</p> <p>Lough Iron SPA (Site code. 004046.)²⁵</p> <p>Middle Shannon Callows SPA (Site code. 004096)²⁶</p> <p>Lough Ree SPA (Site code. 004064.)</p>		
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The potential for effects via connectivity has been identified and therefore as a result, there is an obligation on the Competent Authority to carry out an Appropriate Assessment (i.e. Stage Two of the AA process) under Article 6 (3) of the Habitats Directive for this project, and in this context a Stage 2 Appropriate Assessment Report has been completed.

²⁴ **Citation:** NPWS (2020) Conservation objectives for Lough Derravaragh SPA [004043]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

²⁵ https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004046.pdf

²⁶ **Citation:** NPWS (2020) Conservation objectives for Middle Shannon Callows SPA [004096]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

3. Stage 2: Appropriate Assessment

3.1 Potential for Peat Extraction to have had Adverse Effects on the Integrity of European Site(s)

3.1.1 Introduction

The potential impacts associated with peat extraction activities are set out in the Project Description Section of this report. These impacts are considered here in relation to the

3.1.2 Habitat Degradation / Damage

The European Communities (Natural Habitats) Regulations came into force in Ireland in 1997 and transposed the requirements of the Birds Directive (2009/147/EC, first adopted in 1979) and the Habitats Directive (92/43/EEC) into Irish Law, requiring the designation of areas for the protection of biodiversity. At this time, peat extraction activities within the majority of Bord na Móna's bogs had been ongoing for several decades, and site preparation works necessary to facilitate peat production (i.e. clearance of surface vegetation, drainage of the site, and transport infrastructure) had been completed, and had resulted in direct physical damage to bog habitat within the production fields (albeit pockets of remnant high bog remain within the periphery of several of Bord na Móna's bogs). Areas designated for the protection of biodiversity (i.e. Special Areas of Conservation and Special Protection Areas) generally do not therefore align with any of the Bord na Móna's 38 bogs.

Of note however is the Moneittia bog, an area of which is located within the boundary the River Barrow and River Nore SAC, and Mouds/Allen bog, an area of which is located within the boundary of Mouds Bog SAC. The land associated with Moneittia bog which are within the SAC boundary comprises a drainage channel, which was in place in advance of the designation of the SAC. As such, no impacts associated with habitat damage could have occurred. No peat production or related activities have historical been undertaken within the area of Mouds Bog located within the SAC boundaries, thus there were no effects.

The extraction of peat by Bord na Móna within their bogs could not therefore have resulted in any direct physical damage to any protected habitats within any European Sites.

Indirect effects from peat extraction which might result in habitat damage / degradation relate to dust deposition. In particular the milling of peat generates a substantial quantity of dust. Therefore, the potential for dust deposition is greatest during the milled peat production season. This generally commences after mid-April (if weather and bog conditions are suitable) and tails off rapidly after mid-August from which date covering of stockpiles with polythene film commences.

In order to investigate the spatial limits of dust effects from milled peat production, Bord na Móna undertook a dust deposition study on Killaun Bog between June 2018 and June 2019 (Appendix I). The study concluded that the effects of dust associated with peat extraction are localised, with the highest dust deposition rates occurring at locations close to the production area. The report further noted that dust deposition rates decreased to levels comparable to the regional background range at

distances from the production zone ranging between 90m and 150m. Generally, lands surrounding the bogs are agricultural, adjacent bogs and forestry. However, there are some designated areas in the Zol.

The Long Derries, Edenderry SAC (designated in 1997) is located within 150m of Glashabaun North Bog (within the Allen Bog Group). The SAC is designated for semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia). The SAC is within the zone of impact of dust effects. It is of note however that some natural vegetation acts as a buffer along the periphery of the bogs and will act to reduce the precipitation of dust within the SAC. The Natura 2000 standard data form for the Long Derries, Edenderry SAC (produced in 1995 and updated in 2019) describes the SAC as being 30.25 ha in area of which 12.4 ha is Annex I priority habitat 6210 (orchid rich). As outlined in under the 'Characteristics of European Sites' Section of this rNIS, there has been an abandonment of grazing within the site (grazing is essential for the preservation of orchid-rich grassland), and this has been identified by the National Parks and Wildlife Services as an ongoing threat to the quality of Annex I habitat within the site. Examination of aerial imagery of the site (available since 1995) shows encroachment of scrub vegetation within the SAC, which is likely associated with the abandonment of grazing within the site. While dust deposition can have the effect of inhibiting photosynthesis, respiration, and transpiration in flora, the effects of same would be unlikely to be the driving factor behind the change in vegetation within the SAC.

3.1.3 Disturbance to Species

Peat extraction activities within Bord na Móna's 38 bogs have been ongoing since the mid to late 1990's. The peat production process is described in the Project Description Section of this rNIS and is noted as being similar in nature to agricultural activities: i.e. involving the use of mobile plant which is similar to agricultural type machinery such as harvesters, tractors etc. Peat production activities generally take place during daylight hours from 08.00am to 16.00 pm, and the greatest intensity of activity is associated with the milling process which generally takes place between mid-April and mid-August.

Given that peat extraction activities have been ongoing in the environment for a time pre-dating the designation of European Sites, protected species will have been habituated to the presence of agricultural-type machinery movements within these lands and there would be no change in the level of type of disturbance that existed at the time of Designation of European Sites.

Additionally, it is of note that since April 2000 all peat extraction and associated activities at the 38 bogs have been carried out in accordance with the conditions prescribed in IPC licences regulated by the EPA. (See also Appendix II & III). Noise has been regulated under Condition 8 of the licences:

8.1 Activities on-site shall not give rise to noise levels off site at any noise sensitive location which exceed the following sound pressure limits (Leq,30min) subject to Condition 3:

Daytime: 55 dB(A) Night-time: 45 dB(A).

8.2 There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.

Condition 3 states that in relation to noise:

3.3.1 Noise from the activity shall not give rise to sound pressure levels (Leq,30 min.) measured at noise sensitive locations which exceed the limit value(s) by more than 2 dB(A).

A calculation of likely noise levels at various distances from the production fields can be made having regard to typical noise level data for various machinery and noise dissipation over distance. Noise Disturbance: BS 5228-1:2009+A1:2014 prescribes typical noise level data for various machinery at 10m from source. The inverse square law²⁷ can be applied to determine likely noise levels at varying distances from the project.

Table 6 Noise Dissipation over Distance

Activity / Plant Item	Distance				
	10	100	200	250	300
Site Clearance: Tracked Excavator	79	56	48	46	44
Trenching: Wheeled backhoe loader	69	46	38	36	34
Tractor (towing trailer)	79	56	48	46	44
Tractor (towing equipment)	80	57	49	47	45
All Above		61	54	51	49

Source: Adopted from BS 5228-1:2009+A1:2014

Noise levels at 200m from source would be at a level which would not be result in disturbance to protected species. No peat production areas within any of the bogs are located within 200m of any European sites designated for the protection of Annex II or Annex IV species.

Monettia Bog is located approximately 250m from the River Barrow and River Nore SAC and drainage is directly to the SAC. The drainage channel is therefore within 200m of the SAC. This bog was drained in 1976 and put into production 1982. Therefore, the drainage channel was constructed in advance of the designation of the River Barrow and River Nore SAC and would not have affected the baseline environment at the time of designation. (See Appendix IV & V).

3.1.4 Change in Hydrological Regime

Peat can act as a hydraulic sponge providing storage of water. The removal of peat potentially acts to reduce the storage capacity of the bogs. As such, hydrological changes at each of the bogs commenced when their initial drainage occurred. Peat soils tend to be isolated hydrological entities therefore the effects of bog drainage would have been confined to the immediate environs. Thus, a substantial change to local hydrology would have occurred at the time of initial bog drainage. However, no major hydrological changes would have occurred within these bogs beyond the time of initial drainage. This is evidenced by examination of aerial photography which indicates only minimal changes in vegetation type at the periphery of the bogs between the date of first publicly available aerial photography

²⁷ Inverse Square Law – For every doubling of the distance from the noise source, the sound pressure levels will broadly be reduced by 6 decibels (dB)

(availability in 1995) to present. As such, any localised habitat alteration associated with a change in hydrological regime would have pre-dated the introduction of the European Communities (Natural Habitats) Regulations in 1997.

It is of note that the peat extraction activities within the bogs are licensed by the EPA since 2000, and conditions are in place to control the drainage of the bogs, including:

- Field drains with low gradients.
- Silt ponds, as well as being a control measure for sediment from the bogs, also acts as an attenuation measure for higher flows during peak rainfall events. Each metre length of silt pond provides ~12m³ of water storage, which aids in slowing down the discharge from the bogs.
- Silt ponds are cleaned at least twice a year to main adequate storage capacity.
- Pipelines and pump capacities at pumping stations are designed based on a runoff rate of 1.7 l/s/Ha, which is equivalent the greenfield runoff rates. (See Appendices II-V).

3.1.5 Change in Water Quality

The drainage of the bogs would likely have resulted in the direct release of sediment to the local watercourses, prior to construction of silt control measures. The installation of drainage ditches usually increases the leaching of nutrients (Holden et al, 2004)²⁸. Thus, the phosphorus and nitrogen loads from peat extraction areas tend to be larger than the corresponding load from natural peatlands.

The 38 bogs drain to local watercourses which are within nine waterbody catchments as follows:

Table 7 Waterbody Catchments Hosting Bogs

Bog Group	Bog	Catchment (WFD)
Boora	Bellair North	Upper Shannon 26G
		Lower Shannon 25A
Boora	Lemonaghan	Upper Shannon 26G
		Lower Shannon 25A
Boora	Noggusboy	Lower Shannon 25A
Boora	Boora	Lower Shannon 25A
Boora	Derrinboy	Lower Shannon 25A
Boora	Derryclure	Lower Shannon 25A

28 Holden, J. and Chapman, P.J. and Labadz, J.C. (2004) Artificial drainage of peatlands: hydrological and hydrochemical process and wetland restoration. Progress in Physical Geography, 28 (1). pp. 95-123.

Boora	Monettia	Lower Shannon 25A
		Barrow 14
Boora	Killaranny	Lower Shannon 25A
Derrygreenagh	Bracklin	Boyne 07
Derrygreenagh	Carranstown	Boyne 07
Derrygreenagh	Ballivor	Boyne 07
Derrygreenagh	Kinnegad	Boyne 07
Derrygreenagh	Ballybeg	Boyne 07
Blackwater	Ballaghurt/ Glebe	Lower Shannon 25B
Allen	Daingean (Derries)	Lower Shannon 25A
Allen	Daingean Rathdrum	Lower Shannon 25A
		Barrow 14
Allen	Clonad	Lower Shannon 25A
		Barrow 14
Allen	Ballykean	Barrow 14
Allen	Esker	Barrow 14
Allen	Garrymore	Barrow 14
Allen	Derrylea	Barrow 14
Allen	Glashabaun Sth	Barrow 14
Allen	Glashabaun Nth	Barrow 14
Allen	Codd Nth (Codd 2)	Barrow 14
Allen	Codd Sth (codd 1)	Barrow 14
Allen	Ballydermot North	Barrow 14
Allen	Ballydermot South	Barrow 14
Allen	Blackriver	Barrow 14
Allen	Barnaran	Barrow 14
Allen	Lodge	Barrow 14
Mountdillon	Cuil na Gun	Upper Shannon 26
Mountdillon	Milkernagh	Upper Shannon 26

Mountdillon	Coolcraff	Upper Shannon 26
Kilberry	Gilltown	Boyne 07
Kilberry	Allen	Liffey and Dublin Bay 09
Kilberry	Prosperous	Barrow 14
		Boyne 07
Kilberry	Kilberry	Barrow 14
Cuil na Mona	Cuil na Carton	Barrow 14
		Nore 15

Recent surveys completed by Ecofact (2014 – 2019) noted that all of the local watercourses which have been receiving drainage from the bogs had historically been subject to some degree of alteration, and that the peat production areas have released silt into these rivers . This and other landuses contributed to the requirement for arterial drainage schemes in the affected catchments (which would have been progressed pre-designation of the European Sites).

Surveys of chemical water quality in the local watercourses receiving drainage from the bogs carried out by Ecofact between 2014 and 2019 showed that Ammoniacal Nitrogen (NH₃ and NH₄⁺) failed to meet the Good Status EQS with regard to the Surface Water Regulations (2009) in a large number of samples.

The hydrological connectivity between the bogs and European sites is presented below including the dates in which the bogs were first drained relative to the date of designation of European sites.

Table 8 Hydrological Connectivity to European Sites

European Sites	Date of Designation	Bogs Hydrologically connected	First Drained
River Shannon Callows SAC and Middle Shannon Callows SPA	2002 and 1996	Ballaghurt 1	1975
		Ballaghurt 2	1990
		Daingean Rathdrum,	1996
		Bellair North,	1970
		Lemonaghan,	1951
		Noggusboy,	1951
		Boora,	1954
		Derrinboy,	1988
		Derryclure,	1987
		Monettia,	1976
		Kilaranny	1983
		Daingean (Derries),	1995
		River Barrow and River Nore SAC	2002
Clonad,	1956		
Ballykean,	1951		
Esker,	1959		
Garrymore,	1992		
Derrylea,	1968		
Glashabaun North,	1946		
Glashabaun South,	1946		
Codd North,	1983		
Codd South,	1983		
Ballydermot North,	1946		
Ballydermot South,	1946		
Blackriver,	1946		
Barnaran,	1951		
Lodge,	1951		

European Sites	Date of Designation	Bogs Hydrologically connected	First Drained
		Kilberry,	1945
		Cuil na Carton	1962
		Monettia	1976
		Prosperous	1991
River Barrow and River Nore SPA	2010	Cuil na Carton	1962
River Boyne and River Blackwater SAC and SPA	2003 and 2011	Ballybeg,	1951
		Kinnegad,	1977
		Ballivor,	1948
		Carranstown,	1979
		Bracklin,	1979
		Gilltown,	1977
		Propserous	1991
Lough Derravaragh SPA	1995	Coolnagun	1947
		Milkernagh	1947
		Coolcraff	1981
Lough Iron SPA	1995	Coolnagun	1947
Lough Ree SAC & Lough Ree SPA	2002 & 1995	Coolnagun	1947
		Milkernagh	1947
		Coolcraff	1981
North Dublin Bay SAC & South Dublin Bay SAC & North Bull Island SPA & South Dublin Bay SPA	1999, 2000, 1986 & 1995	Mouds/Allen	1966

In the majority of cases the bogs were drained decades before the designation of the European Sites, and as such the effects of drainage on the local watercourses (and any associated effects on water quality within European Sites) were in effect at the time of establishing the baseline conditions against which the conservation objectives of the designated areas were determined.

Additionally, since 2000, Bord na Móna's bogs have been subject to IPC licences. The licences required that within six months of the date of grant of licence, Bord na Móna was to develop and implement a programme to ensure that all drainage water from all boglands in the licensed areas is discharged via an appropriately designed silt pond treatment arrangement. This required an upgrade of the existing

silt controls that were in place prior to licensing. Also, an emission limit value was prescribed for suspended solids of: 35mg/l for all surface water outfalls from boglands. Bord na Móna follow drainage design and maintenance criteria in order to comply with licence conditions.

The potential for historical peat extraction activities to have affected water quality from the date of designation of European sites is presented hereunder relative to the waterbody catchments into which the bogs drain:

Barrow_14 Catchment

The bogs which discharge into the Barrow_14 catchment are hydrologically connected to the River Barrow and River Nore SAC and the River Nore SPA.

The bogs drain to the Figile River catchment, a tributary of the River Barrow (Barrow_090). The bogs are located between 20-40km upstream of the River Barrow and River Nore SAC. The Figile and its tributaries are identified by the EPA as being under pressure from the 'Extractive Industry' and the watercourses have predominantly been at less than Good status since monitoring commenced in the 1970's.

The Figile enters the River Barrow (part of the River Barrow and River Nore SAC) north of Monasterevin.

A review of historic EPA monitoring data for the River Barrow at monitoring stations upstream and downstream of the confluence with the Figile catchment indicates that at the time of the introduction of the European Communities (Natural Habitats) Regulations in 1997 and at the time of designation of the River Barrow and River Nore SAC (2002) the water quality downstream of the Figile tributary at monitoring station RS14B011000 was Q3-4 (Moderate Status). It is of note that monitoring data upstream of the Figile tributary at station RS14B010900 was similarly of a Q3-4 (Moderate Status) at the time of designation and has remained at such quality up to the most recent 2017 monitoring.

The Monettia and Garrymore bogs drain into the River Barrow upstream of Mountmellick and Portarlinton respectively. The EPA has identified the local watercourses receiving drainage from these bog as under pressure from the 'Extractive Industry' as well as other landuses. Historic monitoring of water quality upstream and downstream of the confluences of these watercourses within the River Barrow indicates that water quality was Good status up and downstream of Monettia bog and has remained as such, with quality upstream of Garrymore bog being Moderate quality (due to pressure from the Owenass and Triogue river catchments, associated with the towns of Mountmellick and Portlaoise) and recovering to Good quality downstream.

Cuil na Carton bog drains into the Triogue Stream which subsequently flows into the River Barrow. Water quality in the stream immediately downstream of the bog has fluctuated in quality from High to Moderate to Good over time. The historic pressure on the stream from the town of Portlaoise is evident, with the downstream monitoring station RS14T010200 indication Bad and Poor water quality.

The Kilberry bog drains to the Tully Stream (Tully Stream_040) which is within the River Barrow and River Nore SAC. Historic EPA monitoring upstream and downstream of the bog drainage indicates that at the time of the introduction of the European Communities (Natural Habitats) Regulations in 1997 and at the time of designation of the River Barrow and River Nore SAC (2002), the water quality in the stream was generally of Moderate status, and has remained as such since.

Having regard to the above, the historical extraction of peat within the River Barrow catchment does not appear to have resulted in any deviation in water quality from the established baseline at the time of designating the River Barrow and River Nore SAC.

Nore 15

Cuil na Carton bog drains the Clonawoolan Stream which subsequently flows into the River Nore (part of the River Barrow and River Nore SAC and River Nore SPA). The Clonawoolan Stream is identified by the EPA as being under pressure from the 'Extractive Industry' and from 'Agriculture'. Despite evidence of pressure from peat extraction activities on the Clonawoolan Stream, the water quality status of the River Nore at the confluence has remained between 'Good' and 'High' status.

Having regard to the above, the historical extraction of peat within the River Nore catchment does not appear to have resulted in any deviation in water quality from the established baseline at the time of designating the River Barrow and River Nore SAC and River Nore SPA.

Upper Shannon 26, Upper Shannon 26G, Lower Shannon 25A & Lower Shannon 25B

The Shannon catchments encompass the River Shannon Callows SAC (designated in 2002), the Middle Shannon Callows SPA (designated in 1996) and the River Little Brosna Callows SPA (designated in 1996), Lough Derravaragh SPA and Lough Iron SPA (both designated in 1996).

The Inny River flows to the Lough Derravaragh SPA and Lough Iron SPA. Coolnagun bog, Coolcraff and Milkernagh bogs drain into the Inny catchment. Water quality data for 1992 (in an around the time of designation of the European sites, indicated Q3-4 (Moderate quality). The Q-value has remained at Q3-4 status until 2017, indicating that the operation of the bogs over this period has not caused an alteration in baseline water quality conditions at the time of designation.

Boor River enters the River Shannon downstream of Athlone. Monitoring upstream of the confluence is carried out at station RS26S021720 since the 1990's and indicates consistently poor quality water. Similarly monitoring downstream of the confluence (RS26S021800) indicates long term poor water quality. The water quality in the Boor river has historically been better than poor quality and as such other catchment pressure are likely affecting water quality in the Shannon.

Blackwater (Shannonbridge) and the Brosna enter the River Shannon downstream of Shannonbridge. There is no water quality data available for the River Shannon upstream and downstream of these tributaries pertaining to the period after the designation of the European sites. The upper reaches of the Blackwater River have been identified by the EPA as being under pressure from peat extraction activities. However, monitoring data further downstream the catchment shows that the water quality was Q3-4 (Moderate) in 1993, improving to Q4 (Good) in 2009. The most recent recording, recorded in 2017, indicated a Q-value of Q4. Water quality data for the Brosna River immediately upstream of the confluence with the River Shannon (RS25B091100) is available from 2009 and has consistently recorded a Q4 value. Thus, effects on the water quality in the River Shannon have not occurred in relation to drainage from these bogs to the Brosna or Blackwater rivers.

Boyne 07

Seven bogs (Bracklin, Carranstown, Ballivor, Gilltown, Prosperous, Ballybeg and Kinnegad) discharge into the Boyne_07 catchment which encompasses the River Boyne and River Blackwater SAC (designated in 2003) and the River Boyne and River Blackwater SPA (designated in 2011). Drainage

from the bogs is to the following river sub-catchments: Boyne_050, Blackwater[Longwood]_SC_010, Yellow[Castlejordan]_SC_010, Boyne_SC_010 and Boyne_SC_030.

Bracklin, Carranstown and Ballivor, drain within the Boyne_SC_050 via the Deel River and the Stonyford River. From the time of designation, water quality in the Deel River and the Stonyford River (both part of the River Boyne and River Blackwater SAC) has fluctuated from Q3-4 to Q4. There has been no substantial change in the baseline water quality from the time of designation to present day.

Gilltown and Prosperous bogs drain to the Blackwater[Longwood] catchment, which flows to the River Deel (part of the River Boyne and River Blackwater SAC). The upper section of the Blackwater [Longwood] river, in proximity to Prosperous Bog is of Poor water quality (Q3) and has been recorded as such since the 1990's (with some fluctuations towards Q4). Further downstream the water quality is generally recorded as Q3-4. It would appear from same that peat extraction at Gilltown and Prosperous bogs is having a local effect on water quality. Water quality monitoring in the Deel River both upstream and downstream of the Blackwater [Longwood] river confluence has fluctuated from Q3-4 to Q4 since the 1990's. There has been no substantial change in the baseline water quality from the time of designation to present day.

Ballybeg and Kinnegad bogss drain within the Yellow [Castlejordan] River. From the time of designation of the River Boyne and River Blackwater SAC/SPA water quality in the Yellow River has fluctuated from Q3-4 to Q4. Water quality monitoring in the Deel River both upstream and downstream of the Yellow [Castlejordan] River confluence has fluctuated from Q3-4 to Q4 since the 1990's. There has been no substantial change in the baseline water quality from the time of designation to present day.

Liffey and Dublin Bay 09

Drainage from Mouds bog is to the river Liffey which discharges to Dublin Bay ca.42km downstream. Historically, water quality of the Liffey through Clane and Cellibridge has been of good quality, indicating no effects from peat extraction.

3.2. Mitigation Measures

3.2.1. Appraisal of Effectiveness of Measures

No historical adverse effects on the integrity of European sites have been determined on the basis that the likely environmental effects of the initial drainage and production of the bogs (water quality, hydrology changes, localised habitat damage, and species disturbance) had occurred some time in advance of the designation of the European sites. As such the baseline condition of the European sites was not changed by the continued operation of the bogs from the time of designation to present day.

The Bord na Móna bogs have been regulated by the EPA under IPC Licences since early 2000. Licence conditions have been implemented in full by Bord na Móna and are subject to statutory compliance enforced by the EPA. Records of compliance (Annual Environmental Reports) are publicly available for review at www.epa.ie. Based on the evaluation completed and with the implementation of the prescribed licence conditions (which are proven to be effective for the control of environmental impacts), it is assessed that the existing measures would have been sufficient to ensure that the extraction of peat from the time of designation of the European sites to present day would not have resulted in a significant deviation in the baseline biophysical conditions of the European sites. (See Appendices I-V).

Existing mitigation/control measures that were implemented (and continue to be implemented) under the IPC licences have limited runoff rates from the bog units, and included:

- Field drains with low gradients.
- Silt ponds, as well as being a control measure for sediment from the bogs, also acted as attenuation measures for higher flows during peak rainfall events. Each metre length of silt pond provides ~12m³ of water storage, which aided in slowing down the discharge from the bog units.
- Silt ponds were cleaned at least twice a year to maintain adequate storage and treatment (sedimentation/settlement) capacity.
- Pipelines and pump capacities at pumping stations were designed based on a runoff rate of 1.7 l/s/Ha, which is equivalent the greenfield runoff rates.
- Targeted rehabilitation of selected areas of cutaway within the areas being considered.

These measures were sufficient to ensure no further alteration in hydrological conditions from the time of designation of European Sites.

Similarly, environmental pollution control measures were prescribed in the licences which would have ensured no adverse effects from accidental pollution:

- Effective spill/leak management of mobile fuelling units.
- Replacement (and remediation where necessary) of all underground fuel tanks.
- There shall be no other emissions to water of environmental significance.
- All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, tank and drum storage areas shall, as a minimum be bunded.
- Drainage from bunded areas shall be diverted for collection and safe disposal.

- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee to the satisfaction of the Agency and shall be reported to the Agency within eighteen months from the date of grant of this licence and every two years thereafter.
- The loading and unloading of fuel oils shall be carried out in designated areas protected against spillage and leachate run-off.
- While awaiting disposal, all materials shall be collected and stored in designated areas protected against spillage and leachate run-off.
- With the exception of roof water, all surface water discharges from workshop areas shall, be fitted with oil interceptors.
- An inspection for leaks on all flanges and valves on over-ground pipes used to transport materials other than water shall be carried out weekly.
- Bord na Móna shall undertake a programme of testing and inspection of underground fuel pipelines to ensure that all underground fuel lines are tested at least every three years.
- The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage.

Fixed gas oil tanks, with an overall capacity of approximately 1.5 tonnes, are stored at various locations across the bogs. Loading and unloading of fuel oil takes place at fixed locations serviced by oil-interceptors.

All tank and drum storage areas are bunded and bunds are integrity tested every two years.

Refuelling of production machines takes place in designated areas away from drains and rivers at a frequency of up to three times a week during the peak production season. This frequency is significantly reduced outside peak production. Refuelling of peat production plant takes place on the bogs using fixed bunded tanks or bunded service trains. The loading of tanks from the fuel supplier takes place either directly into these fixed bunded tanks on the bogs or the fixed bunded main tanks at the workshop in the vicinity of the bog. At the workshops, concrete bunds and oil interceptors are provided and the service train is filled and travels by rail to refill the plant machinery on the bog.

Measures for the control of dust included.

- Shelter belts are planted in sensitive areas, where appropriate;
- Production operations are suspended in windy weather;
- Where possible machinery uses grassed pathways;
- Headlands are kept clean and free of excessive loose peat;
- Stockpiles are sheeted where possible;
- Moving machinery is maintained at slow speeds when travelling along dusty headlands;
- When harvesting, the jib is maintained low to the stockpile;
- Shelter belts are planted around outloading facilities;
- Wind breaks are planted wherever possible; and
- Peat production activities cease in identified dust sensitive areas in adverse weather conditions.
- Training and awareness to maintain best practice.
- Modifications to machines to reduce dust mobilisation.

It is also worth noting that in 2012 and 2013 IPC Licence Registration No. 503 was reviewed by the EPA in accordance with the requirements of the European Communities Environmental Objectives (Surface Water) Regulations 2009, the European Communities Environmental Objectives (Groundwater) Regulations, 2009 and the Management of Waste for the Extractive Industries 2009. A number of modifications to the relevant conditions of the licences were subsequently made through technical amendments, including a requirement for the Surface Water Discharge Monitoring Programme to be revised. The revised programme was submitted to the EPA in 2013 and is currently being implemented (Appendix VIII). The programme comprised a review of the existing measures in place, an assessment of the baseline conditions of the peat production areas and the receiving waters, an assessment of the effectiveness of silt pond control measures and implementation of a silt pond upgrade programme.

Drainage water from the peat production areas is discharged to the nearest watercourse via a silt pond treatment system designed to a capacity of 50m³/hectare, and a maximum flow velocity of less than 10cm/s in accordance with the IPC Licences for each of the bog groups. Discharges are regulated under the IPC regime and are limited by licence to 35mg/l suspended solids. Most of the silt ponds are 8m wide, however some are 12m in width. The flow velocity within the silt ponds is controlled by means of inlet and outlet pipes at, or upstream of the silt ponds, such that it meets licence requirements.

In accordance with the IPC Licences, all silts ponds associated with operational bogs are cleaned a minimum of twice a year (See Appendices II-V).

4. Conclusions

This Natura Impact Statement has identified the activities associated with the extraction of peat from Bord na Móna's 38 bogs and the associated biophysical changes to the environment which could have occurred / are occurring as a result of same, and investigates whether said effect might have had potential for adverse effects on the integrity of European sites.

The statement identifies measures that were in place which have, are and will continue to ensure avoidance of effects; so that the structure and functions of the European Sites are not affected.

It is concluded that, in the light of best scientific knowledge, there has been no significant effects, either individually or in combination with other plans or projects adversely affecting the conservation interests or conservation objectives of European Sites i.e. the integrity of these, or any other Natura 2000 sites.

This has been concluded for the following reasons:

Bord na Móna's peat extraction operations were ongoing in advance of the designation of European sites and any significant environmental effects had occurred at the time of initial drainage and production of the bogs.

Bord na Móna's peat extraction activities have been regularised by the EPA under IPC licensing since 2000. Measures to control environmental damage have been implemented by Bord na Móna in accordance with the licence conditions, since the grant of the licences.

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