

Article 6 (3) Appropriate Assessment Screening Report

Attymon Bog
Decommissioning and
Rehabilitation Plan 2024





DOCUMENT DETAILS

Client: **Bord na Móna**

Project Title: **Attymon Bog Decommissioning and Rehabilitation Plan 2024**

Project Number: **230210a**

Document Title: **Appropriate Assessment Screening Report**

Document File Name: **AASR F1 – 230210a 09/08/2024**

Prepared By: **MKO
Tuam Road
Galway
Ireland
H91 VW84**



Planning and
Environmental
Consultants

Rev	Status	Date	Author(s)	Approved By
01	Draft	07/08/2024	TP	CM
01	Final	09/08/2024	RM	CM

Table of Contents

1.	INTRODUCTION	2
1.1	Background	2
1.2	Statement of Authority	2
2.	DESCRIPTION OF THE PROJECT	3
2.1	Site Location.....	3
2.2	Site Description.....	3
2.3	Characteristics of the Peatland Climate Action Scheme.....	6
2.3.1	Overview.....	6
2.3.2	Decommissioning and Rehabilitation stage.....	7
2.3.2.1	Decommissioning Measures	8
2.3.2.2	Rehabilitation Measures	8
2.3.3	Aftercare and Maintenance.....	10
2.3.4	Rehabilitation Plan Validation and Licence Surrender	11
2.3.5	Timeframe	11
2.4	Description of the Baseline Ecological Environment.....	13
2.4.1	Habitats.....	13
2.4.2	Fauna	24
2.4.3	Drainage and Connection to European Sites.....	24
2.4.4	Consequences of Proposed Rehabilitation for Current Habitats.....	25
3.	IDENTIFICATION OF RELEVANT EUROPEAN SITES	26
3.1	Identification of the European Sites within the Likely Zone of Impact.....	26
3.2	Likely Cumulative Impact of the Proposed Decommissioning and Rehabilitation plan on European Sites, In-Combination with Other Plans and Projects	44
3.2.1	Plans	44
3.2.2	Other Projects	51
3.2.3	Conclusion of Cumulative Assessment	54
4.	ARTICLE 6(3) APPROPRIATE ASSESSMENT SCREENING STATEMENT AND CONCLUSIONS	55
4.1	Data Collected to Carry Out Assessment.....	55
4.2	Concluding Statement.....	55
	BIBLIOGRAPHY	56

TABLE OF PLATES

<i>Plate 2-1: Cutover bog (PB4) of bare peat with gradient of recolonising vegetation dominated by Common Cottongrass (<i>Eriophorum angustifolium</i>), Soft Rush (<i>Juncus effusus</i>), and Bulbous Rush (<i>Juncus bulbosus</i>) present in the central parcel of the PCAS extent.....</i>	15
<i>Plate 2-2: Cutover bog (PB4) recolonised by vegetation including Common Cottongrass (<i>Eriophorum angustifolium</i>), Purple Moor grass (<i>Molinia caerulea</i>), and Ling heather (<i>Calluna vulgaris</i>). with emerging Immature woodland (WS2), Birch woodland (WN7) and Mixed broadleaved/conifer woodland (WD2) found with the central parcel of the PCAS extent</i>	16
<i>Plate 2-3: Drainage ditches (FW4) recolonising with species of Common Cottongrass (<i>Eriophorum angustifolium</i>and).....</i>	16
<i>Plate 2-4: Emerging Reed and tall herb swamp (FS1) along old drainage features dominated by species of Common Reed (<i>Phragmites australis</i>) and Bulrush (<i>Typha latifolia</i>) located in the central and western sections of the PCAS extent</i>	17

Plate 2-5: Ponding areas classified as **Other artificial lakes and ponds (FL8)**, with species such as Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), and Bog Myrtle (*Myrica gale*) having recolonised the banks of these ponding sections. These areas are located within the southern section of the PCAS extent. 17

Plate 2-6: Silt ponds/settlement ponds located along the southern border and northeastern sections of the PCAS extent classified as **Other artificial lakes and ponds (FL8)** . These ponds have banks which have been recolonised by Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), and Bog Myrtle (*Myrica gale*), with small patches of Devils-bit Scabious (*Succisa pratensis*) and Grey Willow (*Salix cinerea*)..... 18

Plate 2-7: Emerging **Poor fen and Flush (PF2)** recorded to the southern and central western sections of the PCAS extent. 18

Plate 2-8: **Birch woodland (WN7)** located along the margins of the PCAS extent, within the western, central and northeastern section of the PCAS extent. Dominated by the species of Downey Birch (*Betula pubescens*), Grey Willow (*Salix cinerea*), and Rowan (*Sorbus aucuparia*). Mosaic habitat of degraded **Raised bog (PB1)** and **Wet heath (HH3)** in the foreground..... 19

Plate 2-9: **Mixed broadleaf/conifer woodland (WD2)** located in the southern, western and southern central sections of the PCAS extent and is comprised of dense stands of Sitka Spruce (*Picea Sitchensis*), Lodgepole Pine (*Pinus contorta*), Downey Birch, Grey Willow and Rowan..... 19

Plate 2-10: **Immature woodland (WS2)** located around the margins of the emerging woodland habitats recolonising the sections of both bare peat and recolonising **Cutover bog (PB4)**. 20

Plate 2-11: **Conifer plantation (WD4)** which is surrounded by the PCAS extent. 20

Plate 2-12: **Scrub (WS1)** located in the central western and eastern/northeastern sections and along the PCAS extent margin. Species recorded include Willows (*Salix spp.*), Downey Birch (*Betula pubescens*) or Gorse (*Ulex europaeus*) with occasional Hawthorn (*Crataegus monogyna*) and ground flora assemblages of dense Ling Heather (*Calluna vulgaris*), Bracken (*Pteridium aquilinum*), Bramble (*Rubus fruticosus* agg.) and Wild Raspberry (*Rubus idaeus*). 21

Plate 2-13: Mosaic habitat of degraded **Raised bog (PB1)** and **Wet heath (HH3)** located in the southwest section of the PCAS extent and the southern and northern margins, species recorded including Ling Heather (*Calluna vulgaris*), Purple Moor grass (*Molinia caerulea*), Bog Myrtle (*Myrica gale*), Crossed leaved heath (*Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*) and mosses (*Hylocomium splendens*, *Sphagnum capillifolium*, *S.fimbriatum*, *S. Cuspidatum*, *S papillosum* *S. fallax* and *S. auritclatum*)..... 21

Plate 2-14: Old forestry/peat extraction road located within eastern section of the PCAS extent classified as **Buildings and other artificial surfaces (BL3)**, which is bordered either side by recolonising **Cutover bog (PB4)**..... 22

Plate 2-15: Mosaic of **Dry meadows and grassy verges (GS2)** and **Dry-humid acid grassland (GS4)** located in the east of the PCAS extent. Species recorded here included Cocksfoot grass (*Dactylis glomerata*), Red Fescue (*Festuca rubra*), Purple Moor grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*), Ribwort Plantain (*Plantago lanceolata*), Silverweed (*Potentilla anserina*), Bush Vetch (*Vicia sepium*), Dandelion (*Taraxacum officinale* agg.), Oxeye Daisy (*Leucanthemum vulgare*) and mosses such as *Calliergonella cuspidata*, *Pseudoscleropodium Purum*, and *Rhytidiadelphus squarrosus*..... 22

Plate 2-16: **Depositing/Lowland rivers (FW2)**, the Clarinbridge river (EPA code: 29C02) which flows through the northeast of the PCAS extent in a westerly direction with **Dry meadows and grassy verges (GS2)** and **Dry-humid acid grassland (GS4)** along its banks..... 23

Plate 2-17: **Eroding/upland rivers (FW1)**, the Mulpit stream (EPA code: 29M03) which flows in a westerly direction parallel to the PCAS boundary approximately 30m south of the PCAS extent. 23

TABLE OF TABLES

Table 2-1 Types of Enhanced Rehabilitation Measures at Attymon Bog. 9

Table 3-1 Identification of Designated sites within the Likely Zone of Impact..... 29

Table 3-2. Review of relevant Policies and Objectives..... 45

TABLE OF FIGURES

Figure 2-1 Site Location..... 5



Figure 3-1 European Designated Sites Within the Likely Zone of Influence..... 28

APPENDICES

Appendix 1.....Attymon Bog Decommissioning and Rehabilitation Plan 2024

Appendix 2.....Attymon Bog Decommissioning and Rehabilitation GIS Map book

1. INTRODUCTION

1.1 Background

MKO has been appointed to provide the information necessary to allow the undertaking of an Article 6(3) Screening for Appropriate Assessment for the proposed Decommissioning and Rehabilitation of Attymon Bog, located in Co. Galway.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where it cannot be excluded that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site then same shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken by Bord na Móna ecologists during 2010, 2015, and 2018 and two site visits during February and March 2024, and a site visit carried out on the 15th of April 2024 by Rachel Minogue (BSc., Env.) and Tom Peters (BSc., Env. and Geo., MSc., Env.) of MKO. It specifically assesses whether the proposed Decommissioning and Rehabilitation Plan at Attymon Bog will have any impact upon European Designated Sites.

This Appropriate Assessment Screening Report has been prepared in accordance with the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010) and the Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

1.2 Statement of Authority

A baseline ecological survey was undertaken on the 15th of April 2024 by Rachel Minogue (BSc., Env) and Tom Peters (BSc., Env. and Geo., MSc., Env.) of MKO. This report has been prepared by Tom Peters (BSc., Env. and Geo., MSc., Env.). Tom is an ecologist with MKO, with the relevant qualifications in Environmental Science. This report has been reviewed by Colin Murphy (BScs., MScs.). Colin is an experienced project ecologist with MKO and has over 4 years' professional consultancy experience.

2. DESCRIPTION OF THE PROJECT

2.1 Site Location

Attymon Bog is located approx. 1.3km west of Attymon train station and approx. 3km east of Athenry, in Co. Galway (Grid Reference: M 56930 29086). The PCAS extent of Attymon Bog comprises an approximate area of 337 ha. The Lough Corrib SAC, is located approx. 2.9km to the north, Monivea Bog SAC is located approx. 3.9km to the north, Galway Bay Complex SAC and Inner Galway Bay SPA are located approx. 15.8km southwest of Attymon Bog.

The site can be accessed via the local road L3115 which runs north-south to the east of the site, via the local road L3112 which runs to the east from Athenry town.

The location of Attymon Bog is shown in **Figure 2-1**

The site location is also shown on the **BNM-DR-11-RP-01** map titled 'Site Location Map' available in the GIS Map book in **Appendix 2** of this AASR.

2.2 Site Description

Attymon Bog is located approximately 3 km east of Athenry, County Galway at its nearest. Attymon Bog is located within the Attymon Bog subgroup, within the overall area covered by the IPC licence for the Blackwater Bog group. Attymon bog is contained within one main section with the bog as a whole divided into one main northern section, with one small section to the west and a small southeastern section. The total area of Attymon bog is 337 ha.

The wider bog group is also shown on the **BNM-DR-25-11-RP-24** map titled 'Bog Group Map' available in **appendix 2** of this AASR.

Peat production commenced at Attymon Bog in 1941 and continued until 2017. The main bog is long and narrow with an east-west orientation. Much of the former cutaway area currently comprises revegetating bare peat however, as Attymon Bog was never fully managed for milled industrial peat production, the cutaway and former production areas look significantly different to typical milled production bogs. Some of the older peat harvesting areas on the bog have not been harvested in a number of years, leaving them to have already become naturally re-vegetated with typical cutaway habitats including a mix of Birch woodland, scrub and poor fen. Previous rehabilitation has been carried out, as in 2018 Bord na Móna began restoring part of the cutover at Attymon. This comprised of a drain blocking programme that was undertaken to rewet Attymon bog mainly involving the blocking of former trench drains.

A Coillte coniferous forestry plantation occurs within the centre of the main body of the bog, the lands are leased to Coillte but managed by Bord na Móna. The Dublin-Galway railway line is located close to the north of the main section of Attymon bog.

There is one mapped EPA watercourse which flows through the boundary of Attymon Bog. This watercourse is the Clarinbridge river (EPA code: 29C02) and it flows into the bog from the east into the northeastern lobe of the bog and flows in a north-westerly direction outside the northern bog boundary before converging with it's tributary the Carrowtober west stream (EPA code: 29C42) and flowing in a south-westerly direction, eventually discharging to Oranmore Bay.

Attymon Bog has a gravity drainage regime. The PCAS extent is located in the Galway Bay Southeast Catchment (Catchment ID: 29) and the northern and western section of the bog located in the

Clarinbridge_SC_010 sub-catchment (Sub-catchment ID: 29_4) and the southern and eastern section of the bog located in the Rafor SC_010 sub-catchment (Sub-catchment ID: 29_5). The northern and western section of the PCAS extent is underlain by the Loughrea groundwater body, while the southern and eastern section is underlain by the GWDTE-Rahasane Turlough (SAC000322) groundwater body. The PCAS extent is mostly in an area of low groundwater vulnerability bar a small section in the east of the PCAS extent which is located in a mosaic of medium, high and extreme ground water vulnerability as per EPA maps¹.

The Drainage features (drains, culverts and flow paths) of Attymon Bog is also shown on the **BNM-DR-25-11-RP-13** map titled '**General Drainage Map**' available in **appendix 2** of this AASR.

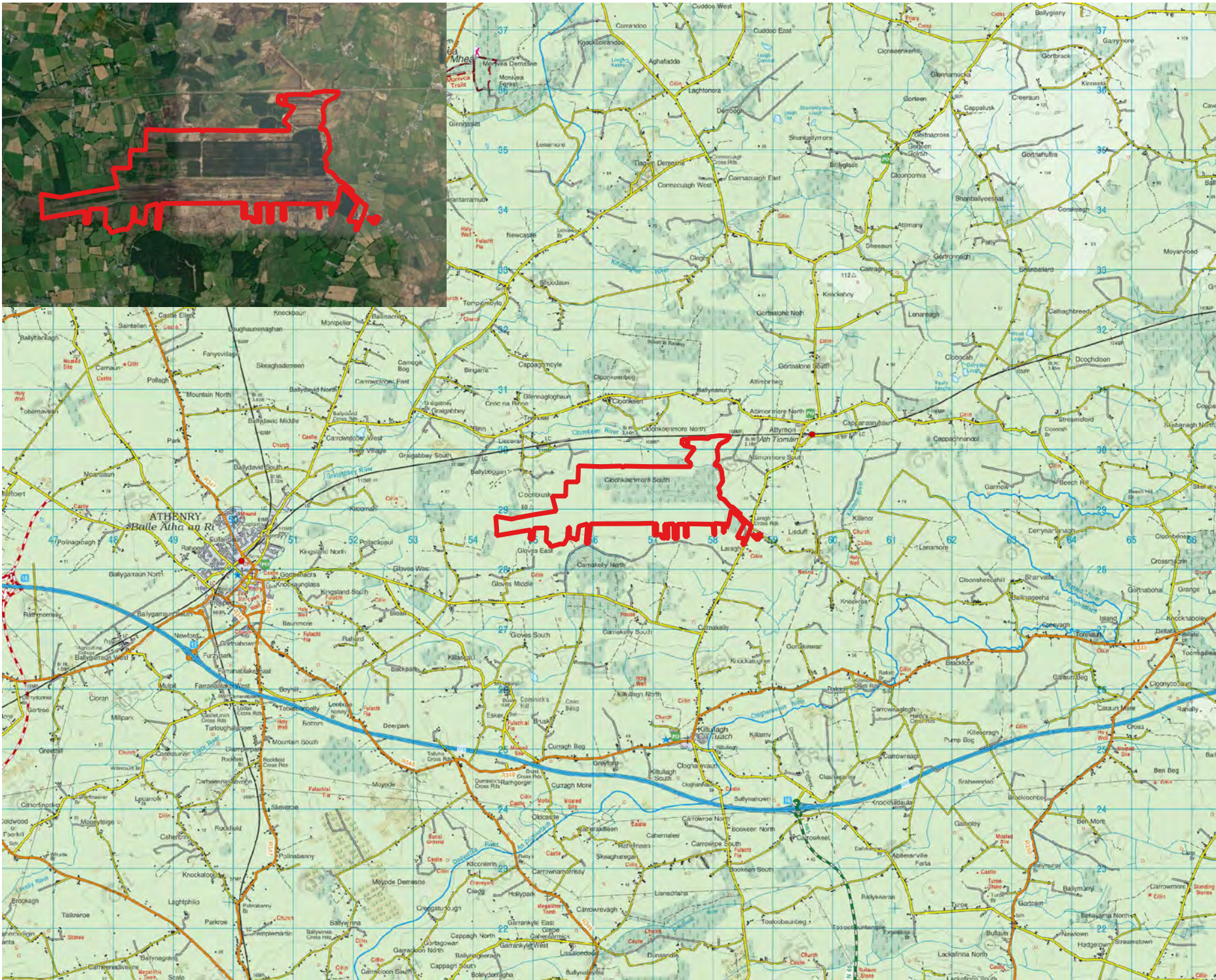
Geological Survey Ireland (GSI) data indicates that Attymon Bog is underlain entirely by the Lucan formation (dark limestone & shale). Quaternary sediment maps indicate that Attymon Bog's raised peat soils are underlain and derived chiefly from Limestone till. Most of the remaining peat is acidic. Subsoil was rarely exposed at this site during peat harvesting activities. Attymon bog is classified within an area as a locally important aquifer as the bedrock is moderately productive in local zones only. This suggests that groundwater flow rates through the bedrock aquifer is likely to be more limited than the karstified limestone regions to the west of Attymon Bog.

Detailed information on peat depths across Attymon is not available. However, limited coring records are available from peat coring carried out by RPS. This information has been used to estimate base of peat and interpolated across the bog. Estimated peat depths Attymon Bog is also shown on the **BNM-DR-25-11-RP-04** map titled '**Peat depths**' available in **appendix 2** of this AASR. Peat thickness is variable across Attymon Bog, with very shallow peat (<1 m) remaining in locations where the substrate is more elevated (particularly the central and south-western section of the bog). However, thicker sequences of peat remain to the south-east and along the north of the bog (1.9 – 2.8 m).

The surrounding landscape is a mosaic primarily consisting of low-lying agricultural land (pasture) interspersed with a network of cutover bogs, including Cloonkeen Bog to the north, which has also been managed by Bord na Móna for peat production within the Attymon Bog Group.

Previously compiled habitat maps are also shown on the **BNM-DR-25-11-17** map titled '**Current Habitat Map**' available in **appendix 2** of this AASR.

¹ <https://gis.epa.ie/EPAMaps/Water>



Map Legend



Site Location	
Project Title	
Attymon Bog	
Drawn By	Checked By
RM	CM
Project No.	Drawing No.
230210a	Figure 2.1
Scale	Date
1:82,621	09/08/2024
<p>MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VWS4 +353 (0) 91 735614 email: info@mkofireland.ie Website: ww.mkofireland.ie</p>	

Microsoft product screen shots reprinted with permission from Microsoft Corporation
 © Ordnance Survey Ireland. All rights reserved. Licence number CYAL50267517

2.3 Characteristics of the Peatland Climate Action Scheme

2.3.1 Overview

Bord na Móna has operated under an IPC Licence issued and administered by the EPA for the extraction of peat within the Blackwater (Attymon subgroup) bog group (Ref. P0502-01), of which Attymon Bog, Co. Galway is part of. Peat harvesting at Attymon Bog ceased in 2017. As part of Condition 10.2 of this license, a rehabilitation plan must be prepared to ensure the permanent rehabilitation of the cutaway bog lands within the licensed area. The license conditions required by Bord na Móna agree with the EPA measures that will provide for rehabilitation, i.e., stabilisation of Attymon Bog upon cessation of peat production and complements the licence requirements to decommission the site. This regulatory requirement is the main driver of the development of this rehabilitation plan.

A document titled ‘Attymon Bog Decommissioning and Rehabilitation Plan 2024’ has been prepared specifically to describe the proposed permanent rehabilitation measures at Attymon Bog and is appended to this document as **Appendix 1**.

It is proposed by Government that Bord na Móna carry out a Peatland Climate Action Scheme (PCAS) on peatlands previously used for energy production. The enhanced decommissioning, rehabilitation, and restoration of the peatlands funded by the PCAS will deliver benefits across climate action (GHG mitigation, and acceleration towards carbon sequestration), enrich the state’s natural capital, increase eco-system services and biodiversity, improve water quality, and Storage Attenuation and improve amenity opportunities for peatlands. The additional costs of the proposed PCAS rehabilitation will be supported by Government through the Climate Action Fund and Ireland’s National Recovery and Resilience Plan. Bord na Móna have identified a footprint of 33,000 ha (a subset of the Bord na Móna estate that has been used for energy production) as peatlands suitable for enhanced rehabilitation – including Attymon Bog. This proposed scheme will significantly go beyond what is required to meet rehabilitation obligations under existing EPA IPC licence conditions.

Decommissioning is a requirement of the applicable Integrated Pollution Control Licence issued by the EPA, which seeks to address condition 10.1 of license Ref. P0502-01, which requires the following:

10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:

10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

Decommissioning must take place at each bog prior to or concurrent with rehabilitation – the scale of decommissioning per bog varies dependent on the items/ infrastructure previously in place to facilitate prior peat extraction.

Enhanced decommissioning as part of the PCAS will enhance the future after use of the bog for amenity value, security against access for illegal and unsocial activities and general State and community benefit.

Rehabilitation seeks to address the requirements of Condition 10.2 of IPC License Ref. P0502-01 and is based on a reference document prepared by BnM per Bog for which the IPC license is applicable. See the following extract from IPC License Ref. P0502-01:

“The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.”

Enhanced rehabilitation interventions supported by the above referenced Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered.

See **Appendix VI** in the Attymon Bog Decommissioning and Rehabilitation Plan 2024 in **Appendix 1** of this AASR for full details on the relevant Policy and Regulatory Frameworks.

2.3.2 Decommissioning and Rehabilitation stage

Bord na Móna have defined the key rehabilitation outcome at Attymon Bog as environmental stabilisation, re-wetting, and setting the bog on a trajectory towards development of naturally functioning peatland and wetland habitats. Rehabilitation is generally defined by Bord na Móna as:

- Stabilisation of bare peat areas via targeted active management (e.g., drain-blocking/ re-wetting) slowing movement of water across the site and encouraging natural colonisation; and
- Mitigation of key emissions (e.g., potential run-off of suspended solids).

337 ha of Attymon Bog will be subject to rehabilitation measures, as described in **Table 2.1** below. These are bespoke interventions designed to stabilise the existing baseline and meet compliance with the requirements of the existing EPA, IPC Licence and the proposed PCAS. Prescriptive measures are unique to the existing baseline habitats and comprise 3 no. broad categories, 1) those associated with dry cutaway, 2) measures associated with deep peat cutover bog and 3) those associated with wetland cutaway. The aim of rehabilitation is as much as possible to place existing peatlands on a trajectory towards a naturally functioning peatland system (Renou-Wilson, 2012).

The proposed Attymon Bog rehabilitation plan will be undertaken using standard best practices in peatland restoration. These are based on published information in the Irish context, methodologies developed through rehabilitation trials, best practices employed elsewhere in Europe on peatland rehabilitation and restoration, and also the experience of 40 years of research on the after-use development and rehabilitation of the Bord na Móna cutaway bogs (Clarke and Rieley 2010), including examples such as the Bord na Móna Raised Bog Restoration Project (Bord na Móna 2014).

In terms of rehabilitation, the ecological and site information collected during BnM ecological baseline surveys, additional site visits, stakeholder input, and monitoring and desktop analysis forms the basis for the planning of peatland rehabilitation at Attymon Bog, along with:

- Experience of 40 years of research on the after-use development and rehabilitation of the Bord na Móna cutaway bogs (Clarke, 2010; Bord na Móna, 2016)
- Significant international engagement with other countries in relation to best-practise principles for peatland rehabilitation and after-use through the International Peatland Society and the Society for Ecological Restoration (Joosten & Clarke 2002; Clarke & Rieley 2010; Gann et al. 2019)
- Consultation and engagement with internal and external stakeholders
- GIS mapping
- Bord na Móna drainage surveys
- Bog topography and LiDAR data.
- Hydrological modelling
- The development of a Methodology Paper outlining the Scheme (PCAS). This rehabilitation includes enhanced measures defined in the Methodology Paper which are

designed to exceed the standard stabilisation requirements as defined by the IPC Licence and to enhance the ecosystem services of Attymon Bog optimising climate action benefits.

2.3.2.1 Decommissioning Measures

The proposed **Decommissioning Measures** at Attymon Bog includes:

- Clean-up of remaining or unconsolidated waste or materials located in Bogs, Yards, Buildings and Offices

The proposed **Enhanced Decommissioning Measures** at Attymon Bog include:

- Removal of railway lines
- Decommissioning of railway level crossing
- Restricting access to bog

Refer to **Appendix VII** in the Attymon Bog Decommissioning and Rehabilitation Plan 2024 in **Appendix 1** of this AASR for full details on the Decommissioning measures proposed for Attymon Bog.

Refer to **Appendix IX** in the Attymon Bog Decommissioning and Rehabilitation Plan 2024 in **Appendix 1** of this AASR for further details on the Extractive Waste Management Plan for the minimisation, treatment, recovery, and disposal of wastes.

2.3.2.2 Rehabilitation Measures

The proposed **Rehabilitation Measures** for Attymon Bog include the following, further detailed in **Table 2.1** below:

- Targeted drain blocking and Regular drain blocking (3/100m) on dry cutaway along with the blocking of outfalls and management of water levels, along with organic fertiliser application. Larger drain block will be used in wider sod moss drains (DPT6 style).
- Intensive drain blocking around shallow peat areas/modelled depressions on little or no peat to create/promote the spread of wetland habitats.
- Modifying outfalls, and management of water levels with overflow pipes and blocking of internal outfalls.
- Targeted fertiliser applications to accelerate vegetation establishment on areas of **bare peat** on headlands and high fields, and within certain areas of dry cutaway. Areas where vegetation has established do not need fertiliser application.
- Silt control measures will be retained and maintained during the rehabilitation phase. During the monitoring and verification phase silt control measures will be continually inspected and maintained, where appropriate. When it is deemed that silt control measures are not required, as the bog has been successfully stabilised and water quality parameters meet targets the condition of the silt control measures will be reviewed.

The distribution of these measures is provisionally outlined in the **BNM-DR-25-11-RP-05** map titled '**Enhanced Rehabilitation Measures**' and in the **BNM-DR-25-11-RP-20** map titled '**Standard Rehabilitation Measures**' available in the GIS Map book in **Appendix 2** of this AASR.

Table 2-1 Types of Enhanced Rehabilitation Measures at Attymon Bog.

Type	Rehab Code	Enhanced Rehabilitation Measure	Extent (Ha)
Additional Work	AW2	Targeted Drain Blocking (berms, and large drain blocks)	164.5
Dry Cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes.	17.5
Marginal land	MLT1	No work required	10.4
Silt ponds	Silt pond	Silt ponds	0.3
Constrained area	Constraint	Other Constraints (Turbarry), previously rehabbed areas, Coillte, access	144.24
Total			336.9 ha

* Note that the types of rehabilitation and areas of rehabilitation may change in response to stakeholder consultation and refinement of the rehabilitation measures.

2.3.3 Aftercare and Maintenance

This programme for monitoring, aftercare and maintenance has been designed to meet the Conditions of the IPC Licence. This is defined as:

- There will be initial quarterly monitoring assessments of the site to determine the general status of the site, the condition of the silt ponds, assess the condition of the rehabilitation work, monitoring of any potential impacts on neighbour's land, general land security, boundary management, dumping and littering.
- The number of these site visits will reduce after 2 years to bi-annually and then after 5 years to annual visits.
- These monitoring visits will also consider any requirements for further practical rehabilitation measures.
- The baseline condition of the site will be established post-rehabilitation implementation by using an aerial survey to take an up-to-date aerial photo when rehabilitation is completed. This will be used to verify completion of rehabilitation measures. The extent of bare peat will be assessed using this baseline data, and habitat maps will be updated, if needed. It is proposed that sites can be monitored against this baseline in the future.
- Water quality monitoring at the bog will be established. The main objective of this water quality monitoring will be to establish a baseline and then monitor the impact of peatland rehabilitation on water quality from the bog.
- In order to assist in monitoring surface water quality from this bog, it is planned to increase the existing licence monitoring requirements to sampling for the same parameters to every month during the scheduled activities and for a period up to two years post rehabilitation, depending on the period required to confirm that the main two parameters, suspended solids and ammonia are remaining compliant with the licence emission and trigger limit values and there is an improving trajectory in these two parameters i.e. reduction in concentration.
- Enhanced water quality monitoring will aim to include up to 70% of a bog's drainage catchments.
- Monitoring results will be maintained, trended, and reported on each year as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, which will be available in April each year at www.epa.ie.
- The parameters to be included (as per condition 6.2 of the IPC Licence) include monthly monitoring for pH, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD and DOC.
- This monthly sampling regime on a selected number of silt ponds will be carried out over a two-year cycle.
- The original (licence) requirement was for a quarterly sampling regime, but this has been increased to a monthly regime to appropriately track the changing water chemistry that will occur as part of this enhanced rehabilitation. In addition, DOC will be included as a parameter to try and identify any changes in carbon in the surface water.
- If, after two years, key criteria for successful rehabilitation are being achieved and key targets are being met, then the water quality monitoring will be reviewed, with consideration of potential ongoing research on site. The water quality data, the aerial surveys and the habitat mapping will be collated and will be submitted to the EPA as part of the final validation report.
- If, after two years, key criteria for successful rehabilitation have not been achieved and key targets have not been met, then the rehabilitation measures and status of the site will be evaluated and enhanced, where required. This evaluation may indicate no requirement for additional enhancement of rehabilitation measures but may demonstrate that more time is required before key criteria for rehabilitation has been achieved. Monitoring of water quality will then also continue for another period to be defined.
- Where other uses are proposed for the site that are compatible the provision of biodiversity and ecosystem services, these will be assessed by Bord na Móna in consultation with

interested parties. Other after-uses can be proposed for licensed areas and must go through the required assessment process and planning procedures.

Additional monitoring measures are also proposed to monitor ecosystem service benefits that have been derived by enhanced rehabilitation. These proposed monitoring measures will be funded by the proposed Climate Action Fund Scheme or additional other funding. Monitoring of climate action and other ecosystem service benefits will be designed to take account of the requirements of monitoring benefits of the overall Scheme and will be stratified; that is not all monitoring will be carried out in each site. These are defined as:

- Vegetation and habitat monitoring after rehabilitation is completed using a bog condition assessment. This assessment will include assessment of on environmental and ecological indicators such as vegetation cover, vegetation communities, presence of key species, *Sphagnum* cover, bare peat cover and water levels. It is proposed that sites can be monitored against this baseline in the future.
- The condition of the bog can be assessed using the condition assessment and suitable Greenhouse Gas (GHG) emission factors can be assigned to different habitats. GHG emission factors have been determined for various peatland habitats in Ireland (Wilson et al., 2015) and are constantly being refined with more and more research. BnM is actively supporting research into GHG fluxes in different rehabilitated peatland habitats. This means that potential GHG emissions can be estimated from the site, as the site continues along its trajectory towards a naturally functioning peatland ecosystem.

2.3.4 Rehabilitation Plan Validation and Licence Surrender

IPC Licence condition 10.4. *‘A final validation report to include a certificate of completion for the Rehabilitation Plan, for all or part of the site as necessary, shall be submitted to the agency within six months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the agency, to confirm that there is no continuing risk to the environment’.*

Reporting to the EPA will continue until the licence is surrendered. The bog will be included in the full licence surrender process as per the guidance to licensees on surrender, cessation, and closure of licensed sites EPA, 2012, when:

- The planned rehabilitation has been complete.
- The key criteria for successful rehabilitation have been achieved and key targets have been met.
- Water quality monitoring demonstrates that water quality of discharge is stabilising or improving, and
- The site has been environmentally stabilised.

2.3.5 Timeframe

- Year 1 (2024): Short-term planning actions
- Year 1-2(2024-25): Short-term practical actions
- Year 1-3 (2025-2026): Long term practical actions. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.
- In general, rehabilitation activities will be carried out between the months of April and October inclusive. The decommissioning stage may overlap rehabilitation activities.
- The duration of activities provided are approximate and may be slightly shorter or longer, depending on weather conditions and progress on rehabilitation prescriptions. Activities may cease for the winter months due to rainfall and poor ground conditions.
- In any case, the rehabilitation period will not be longer than 1 year.
- Normal working times will be daylight hours between 08.00 and 17.30hrs Monday to Friday.



See **Table 7.1** in the Attymon Bog Decommissioning and Rehabilitation Plan 2024 in **Appendix 1** of this AASR for full details on success criteria, targets, measuring success criteria and expected time frame.

2.4

Description of the Baseline Ecological Environment

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2018, updated 2022).

Bord na Móna carried out a baseline ecological survey of all of its properties in 2009 – 2012 and developed habitat maps of the sites. Attymon Bog was surveyed in 2010, 2015 and 2018. Additional ecological walkover surveys and site visits were undertaken by BnM on Attymon Bog in February and March 2024, to inform the preparation of this rehabilitation plan, and habitat maps have been updated where required.

Habitat mapping followed best-practise guidance from Smith et al. (2011). General marginal habitats and other habitats that had not been modified significantly by industrial peat extraction were classified using Fossitt et al. (2000). Plant nomenclature for vascular plants follows Stace (2019), while mosses and liverworts nomenclature follow identification keys published by the British Bryological Society (2010). A more detailed Bord na Móna classification system was previously developed for classifying pioneer cutaway habitats as Fossitt categories were deemed not to be detailed enough for cutaway bog (much of cutaway bog could be classified as Cutover Bog - PB4).

A detailed ecological survey report by Bord na Móna for Attymon Bog is contained in **Appendix III of Appendix 1**.

A baseline ecological survey was undertaken on the 15th of April 2024 by Rachel Minogue (BSc., Env) and Tom Peters (BSc., Env. and Geo., MSc., Env.) of MKO to confirm the ecological baseline as identified by Bord na Móna in preceding surveys.

During the multidisciplinary walkover survey, an otter survey was conducted as per NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). This involved a search for all otter signs e.g., spraints, scat, prints, slides, trails, couches, and holts. In addition to the width of the rivers/watercourses, a 10 m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS 2009). The dedicated otter surveys also followed the guidance as set out in NRA (2008) 'Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes' and following CIEEM best practice competencies for species surveys (CIEEM, 2013).

2.4.1

Habitats

The habitats are further detailed on the **BNM-DR-25-11-RP-17** map titled '**Current Habitat Map**' available in the GIS Map book in **Appendix 2** of this AASR.

The most dominant habitat recorded throughout the PCAS extent was recolonising **Cutover bog (PB4)**, recorded where past peat extraction occurred, represented as remanet bare peat cutaways. The extent of recolonization varies throughout the site, with the central parcel of the PCAS extent comprising of bare peat, with little vegetation (**Pates 2-1**). The edge margins, western, northern and northeastern parcels of the site have pioneer vegetation of varying stages of recolonising cover and species assemblages depending on level of waterlogging. Species recorded across these areas of recolonising **Cutover Bog (PB4)** consisted of Common Cottongrass (*Eriophorum angustifolium*), Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), Bog Myrtle (*Myrica gale*), Bog Asphodel (*Narthecium ossifragum*), Soft Rush (*Juncus effusus*), Bulbous Rush (*Juncus bulbosus*), Downy Birch (*Betula pubescens*), Grey Willow (*Salix cinerea*), Lodgepole Pine (*Pinus contorta*), Sitka Spruce (*Picea*

sitchensis) and moss species (*Hypnum jutlandicum*, *Calliergonella cuspidata*, *Polytrichum commune*, and *Campylopus spp.*) (Plates 2-2).

Drainage ditches (FW4) are present as linear features across the PCAS extent of Attymon bog along the margins and within the areas of past peat extraction (Plate 2-3). These **Drainage ditches (FW4)** have formed emerging habitats due to varied states of waterlogging and retention year-round. The habitats recorded in and around these drainage features include the habitat of **Reed and tall herb swamp (FS1)**, dominated by species such as Common Reed (*Phragmites australis*) and Bulrush (*Typha latifolia*) (Plates 2-4). This habitat is located in the central and western sections of the PCAS extent. **Other artificial lakes and ponds (FL8)** were recorded to the southern section of the PCAS extent, with standing pools of water forming in these past drainage features. The margins of these pools have become vegetated with species such as Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), and Bog Myrtle (*Myrica gale*) (Plate 2-5). There are silt ponds/settlement ponds located along the southern border and northeastern sections of the PCAS extent which are also classified as **Other artificial lakes and ponds (FL8)** (Plate 2-6). These ponds have banks which have been recolonised by few dominant species such as Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), and Bog Myrtle (*Myrica gale*), with small patches of Devils-bit Scabious (*Succisa pratensis*) and Grey Willow (*Salix cinerea*).

Emerging from ponding drainage features and old cutaway is the habitat **Poor Fen and Flush (PF2)** dominated by the Pioneering species Common Cottongrass (*Eriophorum angustifolium*), Purple Moor grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*), and Glaucous Sedge (*Carex flacca*) (Plates 2-7). These habitats are located in the southern and central western sections of the PCAS extent.

The second most dominant habitat recorded throughout the PCAS extent includes emerging woodland and scrub habitats. Most dominant of these is the habitat of **Birch woodland (WN7)**, located along the margins of the PCAS extent, within the western, central and northeastern section of the PCAS extent. Species dominating these emerging woodlands included Downy Birch (*Betula pubescens*), Grey Willow (*Salix cinerea*), with occasional Rowan (*Sorbus aucuparia*), and ground flora dominated by Ling Heather (*Calluna vulgaris*), Purple Moor grass (*Molinia caerulea*) and Soft Rush (*Juncus effusus*) (Plates 2-2 and 2-8). The habitat of **Mixed broadleaf/conifer woodland (WD2)** is located in the southern, western and southern central sections of the PCAS extent and is comprised of dense stands of Sitka Spruce (*Picea Sitchensis*), Lodgepole Pine (*Pinus contorta*), Downy Birch (*Betula pubescens*), Grey Willow (*Salix cinerea*), and Rowan (*Sorbus aucuparia*) (Plates 2-2 and 2-9). The precursor to both the aforementioned woodland habitats, **Immature woodland (WS2)** is found on the margins of the emerging woodland habitat recolonising the sections of both bare peat and recolonising **Cutover bog (PB4)**. The species recorded here are the same as those in the above woodland habitats (Plates 2-2 and 2-10).

The PCAS extent surrounds an area of **Conifer Plantation (WD4)**, which is outside the boundaries of the PCAS boundary. Further, there is an area of Conifer Plantation located to the southwestern margin of the site, outside of the PCAS extent. These plantations are comprised of Sitka Spruce (*Picea Sitchensis*) and Lodgepole Pine (*Pinus contorta*) (Plate 2-11). The habitat of **Scrub (WS1)** was recorded in the central western and eastern/northeastern sections and along almost the entirety of the PCAS extent margin. The species recorded in these habitats varied between dominant stands of Willows (*Salix spp.*), Downy Birch (*Betula pubescens*) or Gorse (*Ulex europaeus*) with occasional Hawthorn (*Crataegus monogyna*) and ground flora assemblages of dense Ling Heather (*Calluna vulgaris*), Bracken (*Pteridium aquilinum*), Bramble (*Rubus fruticosus agg.*) and Wild Raspberry (*Rubus idaeus*) (Plate 2-12).

There are remnant areas of degraded **Raised Bog (PB1)** and **Wet heath (HH3)** mosaic habitat located to the southwest of the PCAS extent and the southern and northern margins. Species recorded included Ling Heather (*Calluna vulgaris*), Purple Moor grass (*Molinia caerulea*), Bog Myrtle (*Myrica gale*), Crossed leaved heath (*Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*), Glaucous Sedge (*Carex*

flacca), *Cladonia portentosa*, and substantial moss cover (*Hylocomium splendens*, *Sphagnum capillifolium*, *S. fimbriatum*, *S. Cuspidatum*, *S. papillosum*, *S. fallax* and *S. auriticlatum*) (Plate 2-13).

Within the PCAS extent along eastern margin is an old forestry/peat extraction road classified as **Buildings and other artificial surfaces (BL3)**, which is bordered either side by recolonising **Cutover bog (PB4)** (Plate 2-14). Along this road farther norward, the habitats grade into tussocky grassland classified as mosaic of **Dry meadows and grassy verges (GS2)** and **Dry-humid acid grassland (GS4)**, likely as a result of soil dumping from the adjacent road construction and the underlying acidic peat soil. Species recorded here included Cocksfoot grass (*Dactylis glomerata*), Red Fescue (*Festuca rubra*), Purple Moor grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*), Ribwort Plantain (*Plantago lanceolata*), Silverweed (*Potentilla anserina*), Bush Vetch (*Vicia sepium*), Dandelion (*Taraxacum officinale* agg.), Oxeye Daisy (*Leucanthemum vulgare*) and mosses such as *Calliergonella cuspidata*, *Pseudoscleropodium Purum*, and *Rhytidiadelphus squarrosus* (Plate 2-15 and 2-16).

The Clarinbridge river (EPA code: 29C02) which flows through the northeast of the PCAS extent in a westerly direction with a moderate flow is classified as **Depositing/Lowland rivers (FW2)** (Plate 2-16). The Mulpit stream (EPA code: 29M03) which flows in a westerly direction parallel to the PCAS boundary approximately 30m south of the PCAS extent with a strong flow is classified as **Eroding/upland rivers (FW1)** (Plate 2-17).



Plate 2-1: **Cutover bog (PB4)** of bare peat with gradient of recolonising vegetation dominated by Common Cottongrass (*Eriophorum angustifolium*), Soft Rush (*Juncus effusus*), and Bulbous Rush (*Juncus bulbosus*) present in the central parcel of the PCAS extent.



Plate 2-2: **Cutover bog (PB4)** recolonised by vegetation including *Common Cottongrass (Eriophorum angustifolium)*, *Purple Moor grass (Molinia caerulea)*, and *Ling heather (Calluna vulgaris)*, with emerging **Immature woodland (WS2)**, **Birch woodland (WN7)** and **Mixed broadleaved/conifer woodland (WD2)** found with the central parcel of the PCAS extent.



Plate 2-3: **Drainage ditches (FW4)** recolonising with species of *Common Cottongrass (Eriophorum angustifolium)* and *Ling heather (Calluna vulgaris)* present throughout the PCAS extent.



Plate 2-4: Emerging **Reed and tall herb swamp (FS1)** along old drainage features dominated by species of Common Reed (*Phragmites australis*) and Bulrush (*Typha latifolia*) located in the central and western sections of the PCAS extent.



Plate 2-5: Ponding areas classified as **Other artificial lakes and ponds (FLB)**, with species such as Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), and Bog Myrtle (*Myrica gale*) having recolonised the banks of these ponding sections. These areas are located within the southern section of the PCAS extent.



Plate 2-6: Silt ponds/settlement ponds located along the southern border and northeastern sections of the PCAS extent classified as **Other artificial lakes and ponds (FL8)**. These ponds have banks which have been recolonised by Purple Moor grass (*Molinia caerulea*), Ling heather (*Calluna vulgaris*), and Bog Myrtle (*Myrica gale*), with small patches of Devils-bit Scabious (*Succisa pratensis*) and Grey Willow (*Salix cinerea*).



Plate 2-7: Emerging **Poor fen and Flush (PF2)** recorded to the southern and central western sections of the PCAS extent. Dominated by the Pioneering species Common Cottongrass (*Eriophorum angustifolium*), Purple Moor grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*), and Glaucous Sedge (*Carex flacca*).



Plate 2-8: **Birch woodland (WN7)** located along the margins of the PCAS extent, within the western, central and northeastern section of the PCAS extent. Dominated by the species of Downy Birch (*Betula pubescens*), Grey Willow (*Salix cinerea*), and Rowan (*Sorbus aucuparia*). Mosaic habitat of degraded **Raised bog (PB1)** and **Wet heath (HH3)** in the foreground.



Plate 2-9: **Mixed broadleaf/conifer woodland (WD2)** located in the southern, western and southern central sections of the PCAS extent and is comprised of dense stands of Sitka Spruce (*Picea sitchensis*), Lodgepole Pine (*Pinus contorta*), Downy Birch, Grey Willow and Rowan.



Plate 2-10: **Immature woodland (WS2)** located around the margins of the emerging woodland habitats recolonising the sections of both bare peat and recolonising **Cutover bog (PB4)**.



Plate 2-11: **Conifer plantation (WD4)** which is surrounded by the PCAS extent.



Plate 2-12: **Scrub (WS1)** located in the central western and eastern/northeastern sections and along the PCAS extent margin. Species recorded include Willows (*Salix* spp.), Downy Birch (*Betula pubescens*) or Gorse (*Ulex europaeus*) with occasional Hawthorn (*Crataegus monogyna*) and ground flora assemblages of dense Ling Heather (*Calluna vulgaris*), Bracken (*Pteridium aquilinum*), Bramble (*Rubus fruticosus* agg.) and Wild Raspberry (*Rubus idaeus*).



Plate 2-13: Mosaic habitat of degraded **Raised bog (PB1)** and **Wet heath (HH3)** located in the southwest section of the PCAS extent and the southern and northern margins, species recorded including Ling Heather (*Calluna vulgaris*), Purple Moor grass (*Molinia caerulea*), Bog Myrtle (*Myrica gale*), Crossed leaved heath (*Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*) and mosses (*Hylocomium splendens*, *Sphagnum capillifolium*, *S. fimbriatum*, *S. Cuspidatum*, *S. papillosum* *S. fallax* and *S. auritclatum*).



Plate 2-14: Old forestry/peat extraction road located within eastern section of the PCAS extent classified as **Buildings and other artificial surfaces (BL3)**, which is bordered either side by recolonising **Cutover bog (PB4)**.



Plate 2-15: Mosaic of **Dry meadows and grassy verges (GS2)** and **Dry-humid acid grassland (GS4)** located in the east of the PCAS extent. Species recorded here included Cocksfoot grass (*Dactylis glomerata*), Red Fescue (*Festuca rubra*), Purple Moor grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*), Ribwort Plantain (*Plantago lanceolata*), Silverweed (*Potentilla anserina*), Bush Vetch (*Vicia sepium*), Dandelion (*Taraxacum officinale* agg.), Oxeye Daisy (*Leucanthemum vulgare*) and mosses such as *Calliergonella cuspidata*, *Pseudoscleropodium Purum*, and *Rhytidiadelphus squarrosus*.



Plate 2-16: **Depositing/Lowland rivers (FW2)**, the Clarinbridge river (EPA code: 29C02) which flows through the northeast of the PCAS extent in a westerly direction with **Dry meadows and grassy verges (GS2)** and **Dry-humid acid grassland (GS4)** along its banks.



Plate 2-17: **Eroding/upland rivers (FW1)**, the Mulpit stream (EPA code: 29M03) which flows in a westerly direction parallel to the PCAS boundary approximately 30m south of the PCAS extent.

2.4.2 Fauna

Several mammal species have been recorded during ecological survey work at Attymon Bog by Bord na Móna ecologists, including Eurasian Badger (*Meles meles*), Fox (*Vulpes vulpes*), Rabbit (*Oryctolagus cuniculus*) and Irish Hare (*Lepus timidus hibernicus*). Signs of European Otter (*Lutra lutra*) have been recorded along the Clarinbridge river downstream of the site. Bird species of conservation interest recorded at Attymon Bog by BnM include Snipe (*Gallinago gallinago*), Golden Plover (*Pluvialis apricaria*), Curlew (*Numenius arquata*), Meadow Pipit (*Anthus pratensis*), Linnet (*Carduelis cannabina*), Swallow (*Hirundo rustica*), House Sparrow (*Passer domesticus*). Snipe, Golden Plover, Curlew and Meadow Pipit are currently red listed on the most recent BoCCI list, whilst Swallow and House Sparrow are amber listed. Protected species such as the Common Frog (*Rana temporaria*) have also been recorded at Attymon Bog as well as Marsh Fritillary (*Euphydryas aurinia*), which has been recorded within pioneer poor fen communities.

During the most recent ecological surveys in February and March 2024 the following bird species of conservation interest were recorded at by Bord na Móna ecologists at Attymon bog; red listed species Snipe (*Gallinago gallinago*) and Woodcock (*Scolopax rusticola*). In addition, Buzzard (*Buteo buteo*), Sparrowhawk (*Accipiter nisus*), Teal (*Anas crecca*) and Mallard (*Anas platyrhynchos*) were also recorded utilising the bog. Common frog (*Rana temporaria*) and frogspawn was also recorded at Attymon Bog. No additional faunal sightings were recorded by MKO during the site visit conducted on the 15th of April 2024. Further, no signs of otters were recorded by MKO

See **Appendix III** in the Attymon Bog Decommissioning and Rehabilitation Plan 2024 in **Appendix 1** of this AASR for the full Ecological Survey Report carried out by BnM.

2.4.3 Drainage and Connection to European Sites

The PCAS extent of Attymon Bog has a gravity-based drainage system. The site contains open drainage channels. Field drains are running in a general east to west orientation. Attymon Bog PCAS extent is located in the Galway Bay Southeast Catchment and split in the middle of the site by the Clarinbridge_SC_010 Sub-catchment in the northern and western portion of the site and the Raford_SC_010 in the southern and eastern portion. In relation to the underlying groundwater body, the site is again split down the middle with the northern and western portion of the site underlain by the Loughrea groundwater body, while the southern and eastern portion of the site is underlain by the GWDTE-Rahasane Turlough groundwater body. Most of Attymon Bog PCAS extent is in an area of low groundwater vulnerability, with a small amount area in the east of the site situated on areas of medium, high and extreme groundwater vulnerability as per EPA maps.

The 2nd order Clarinbridge River (EPA code: 29C02) flows through the northeastern margin of Attymon Bog. This watercourse continues to flow in a south-westerly direction for 24.5km before entering Galway Bay Complex SAC/Inner Galway Bay SPA. The 1st order Mulpit stream (EPA code: 29M03) which arises to the south of Attymon Bog, flowing west and is approx. 30m at its closest to the southern margin of the PCAS boundary of Attymon Bog. The Mulpit is hydrologically connected to the PCAS extent via a flowing drainage ditch which flows south from within the PCAS extent. The Mulpit then flows south-westerly for approx. 12km and then becomes a tributary to the Clarinbridge River, from this point is 7.8km upstream from Galway Bay Complex SAC /Inner Galway Bay SPA

Consequences of Proposed Rehabilitation for Current Habitats

It will take some time for stable naturally functioning habitats to fully develop at Attymon Bog. This will happen over a longer timeframe than the implementation of this rehabilitation plan.

Re-wetting residual peat will initially maintain and enhance the carbon storage capacity of the bog. There is scientific consensus that restoration of hydrology in damaged bog can improve carbon storage, water storage and attenuation and help support biodiversity both within Attymon Bog and in the catchment. This will reduce carbon emissions from a larger carbon source to a smaller carbon source. In time, Attymon has the capacity to develop in part as a carbon sink. PCAS is expected to deliver significant contributions to Ireland's climate action.

It is not expected that Attymon Bog has the potential to develop active raised bog (ARB) analogous to the priority EU Habitats Directive Annex I habitat within the foreseeable future (c.50 years). Furthermore, only a proportion of the bog has potential to develop *Sphagnum*-rich habitats in this timeframe. Nevertheless, re-wetting across the entire bog, as part of the scheme, will improve habitat conditions of the whole bog. Other peatland habitats will develop in a wider mosaic that reflects underlying conditions.

Rehabilitating former industrial peat production bog will also in the longer-term support other ecosystem services such as the development of new habitat to support biodiversity and local attenuation of water flows from the bog

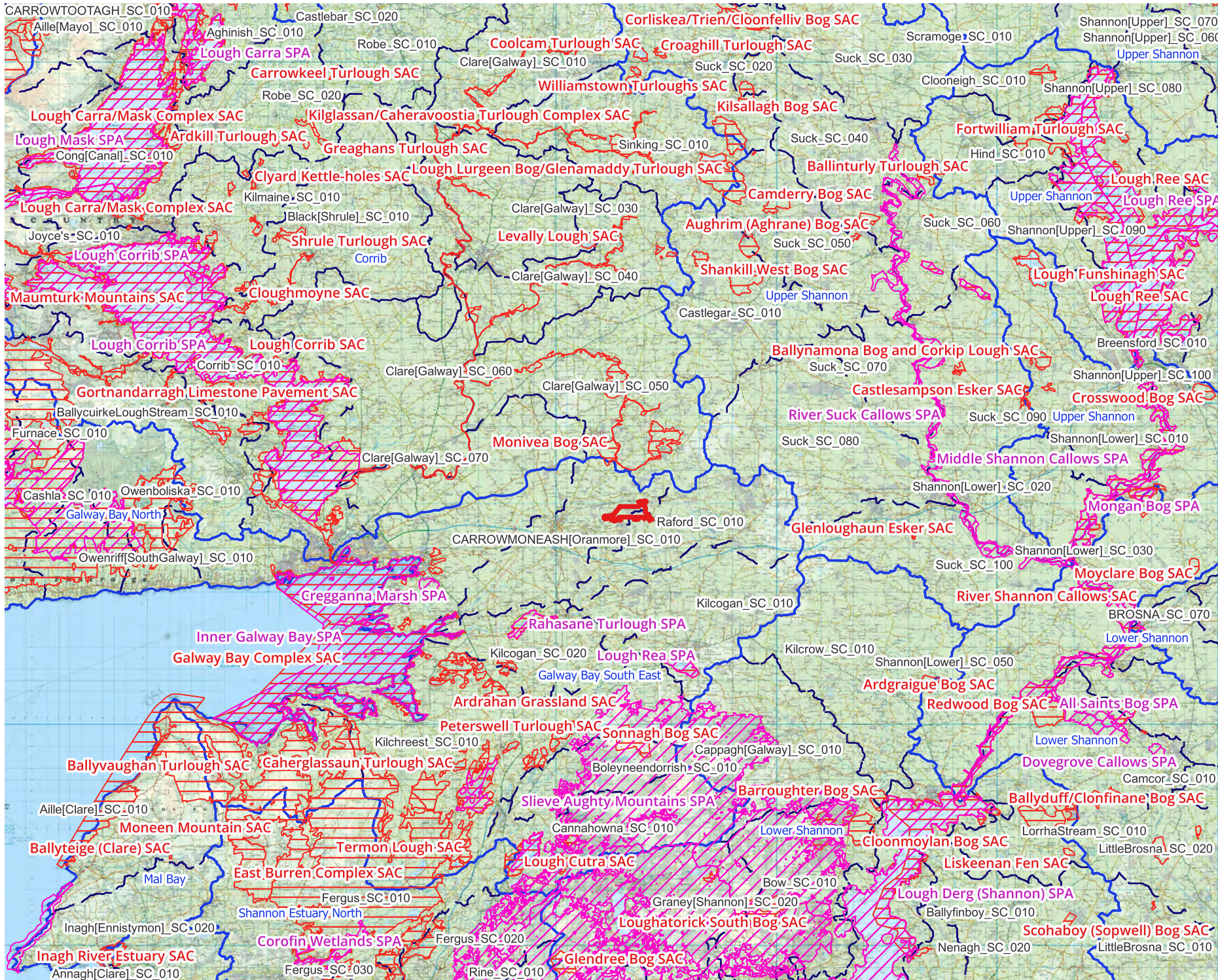
3. IDENTIFICATION OF RELEVANT EUROPEAN SITES

3.1 Identification of the European Sites within the Likely Zone of Impact

The following methodology was used to establish any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the proposed Decommissioning and Rehabilitation at Attymon Bog:

- Initially, the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on 10/04/2024.
- All European Sites that could potentially be affected were identified using a source-pathway - receptor model. To provide context for the assessment, European Sites surrounding the Decommissioning and Rehabilitation site are shown on **Figure 3.1**. Information for these sites according to the site-specific conservation objectives, as per the NPWS website (www.npws.ie), is provided in **Table 3-2**. Catchment mapping was used to establish or discount potential hydrological connectivity between the site of the proposed Decommissioning and Rehabilitation plan and any European Sites. The hydrological catchments are also shown in **Figure 3.1**
- European Sites further away from the proposed Decommissioning and Rehabilitation site were also considered. In this case, connectivity with European Sites further downstream in the catchment were identified. These include Inner Galway Bay SPA and Galway Bay Complex SAC (approx. 24.5km downstream). However, given the nature, scale and location of the proposed Decommissioning and Rehabilitation site and the attenuating properties of the intervening waterbodies, no potential pathway for significant effects was identified.
- With respect to Special Protection Areas (SPA) and in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, '*Assessing Connectivity with Special Protection Areas (SPA)*' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between a proposed Decommissioning and Rehabilitation plan and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- **Table 3-1** provides details of all relevant European Sites as identified in the preceding steps and assesses the potential for likely significant effects on each.
- The assessment considers any likely direct or indirect impacts of the proposed Decommissioning and Rehabilitation plan, both alone and in combination with other plans and projects, on European Sites by virtue of criteria including the following: size and scale; land-take; distance from the European Site or key features of the site; resource requirements; emissions; excavation requirements; transportation requirements and duration of construction; operation and decommissioning.
- The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report 10/04/24.
- Where potential pathways for Likely Significant Effect are identified, the site is included within the Likely Zone of Impact and considered in this screening assessment.

- The potential for the proposed Decommissioning and Rehabilitation plan to result in cumulative impacts on any European Sites in combination with other plans and projects was considered in this assessment and is presented in **Section 3.2** below.



Map Legend

- Site Location
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- EPA Hydrological Catchments
- EPA Hydrological Subcatchments

0
N
90
180
270

© Ordnance Survey Ireland. All rights reserved. Licence number CYAL50267517

Drawing Title
European Designated Sites Within the Likely Zone of Influence

Project Title
Attymon Bog

Drawn By RM	Checked By CM
Project No. 230210a	Drawing No. Figure 3.1
Scale 1:448,119	Date 09/08/2024

MKO
 Planning and Environmental Consultants
 Tuam Road, Galway
 Ireland, H91 VV88
 +353 (0) 91 735614
 email: info@mkofireland.ie
 Website: www.mkofireland.ie

Table 3-1 Identification of Designated sites within the Likely Zone of Impact

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
Special Areas of Conservation (SAC)			
Lough Corrib SAC [000297] Distance: 2.9km	<ul style="list-style-type: none"> ➤ [1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) ➤ [1092] White-clawed Crayfish (<i>Austropotamobius pallipes</i>) ➤ [1095] Sea Lamprey (<i>Petromyzon marinus</i>) ➤ [1096] Brook Lamprey (<i>Lampetra planeri</i>) ➤ [1106] Salmon (<i>Salmo salar</i>) ➤ [1303] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) ➤ [1355] Otter (<i>Lutra lutra</i>) ➤ [1393] Slender Green Feathermoss (<i>Drepanocladus vernicosus</i>) ➤ [1833] Slender Naiad (<i>Najas flexilis</i>) ➤ 3110 Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) ➤ [3130] Oligotrophic to mesotrophic standing waters with vegetation of the 	Detailed conservation objectives for this site, (Version 1, April 2017), were reviewed as part of the assessment and are available at www.npws.ie	<p>There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>Due to the absence of a hydrological connection and the buffering distance of approx. 2.9km from the proposed Decommissioning and Rehabilitation site boundary to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
	<p>Littorelletea uniflorae and/or Isoeto-Nanojuncetea</p> <ul style="list-style-type: none"> > [3140] Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. > [3260] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation > [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) > [6410] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) > 7110 Active raised bogs > [7120] Degraded raised bogs still capable of natural regeneration > [7150] Depressions on peat substrates of the Rhynchosporion > [7210] Calcareous fens with <i>Cladium mariscus</i> and 		

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
	<ul style="list-style-type: none"> species of the Caricion davallianae > [7220] Petrifying springs with tufa formation (Cratoneurion) > [7230] Alkaline fens > [8240] Limestone pavements > [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles > [91D0] Bog woodland 		
<p>Monivea Bog SAC [002352]</p> <p>Distance: 3.8km</p>	<ul style="list-style-type: none"> > [7110] Active raised bogs > [7120] Degraded raised bogs still capable of natural regeneration > [7150] Depressions on peat substrates of the Rhynchosporion 	<p>Detailed conservation objectives for this site, (Version 1, December 2015), were reviewed as part of the assessment and are available at www.npws.ie</p>	<p>There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>Due to the terrestrial nature of the QI habitats, absence of a hydrological connection and the buffering distance of approx. 3.8km from the proposed Decommissioning and Rehabilitation site boundary to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			Zone of Impact and is not considered further in this Screening assessment.
Rahasane Turlough SAC [000322] Distance: 9.8km	> [3180] Turloughs	Detailed conservation objectives for this site, (Version 1, December 2020), were reviewed as part of the assessment and are available at www.npws.ie	<p>There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>Due to the absence of a hydrological connection and the buffering distance of approx. 9.8km from the proposed Decommissioning and Rehabilitation site boundary to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>
Lough Rea SAC [000304] Distance: 12.2km	> [3140] Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	Detailed conservation objectives for this site, (Version 1, July 2019), were reviewed as part of the assessment and are available at www.npws.ie	<p>There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>Due to the absence of a hydrological connection and the buffering distance of approx. 12.2km from the proposed Decommissioning and Rehabilitation site boundary to this SAC, no complete source pathway was identified. As such, there is no potential for indirect effects to occur.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>
<p>Galway Bay Complex SAC [000268]</p> <p>Distance: 14.8km</p> <p>Surface Water Distance: 24.5km</p>	<ul style="list-style-type: none"> ➤ [1140] Mudflats and sandflats not covered by seawater at low tide ➤ [1150] Coastal lagoons* ➤ [1160] Large shallow inlets and bays ➤ [1170] Reefs ➤ [1220] Perennial vegetation of stony banks ➤ [1310] <i>Salicornia</i> and other annuals colonising mud and sand ➤ [1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) ➤ [1355] Otter (<i>Lutra lutra</i>) ➤ [1365] Harbour seal (<i>Phoca vitulina</i>) ➤ [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 	<p>Detailed conservation objectives for this site, (Version 1, April 2013), were reviewed as part of the assessment and are available at www.npws.ie</p>	<p>There will be no direct effects on this SAC as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>Attymon Bog and Galway Bay Complex SAC are hydrologically connected via two watercourse systems, as described fully in section 2.4.3 of this report.</p> <p>The 2nd order Clarinbridge River (EPA code: 29C02) flows through the northeastern margin of Attymon Bog, in a south-westerly direction for 24.5km then enters the Galway Bay Complex SAC.</p> <p>The Mulpit stream (EPA code: 29M03) arises to the south of Attymon Bog, flowing west where it is joined by a drainage ditch which flows from within the PCAS extent. The Mulpit then flows south-westerly for approx. 12km and then becomes a tributary to the Clarinbridge River, from this point is 7.8km upstream from Galway Bay Complex SAC.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
	<ul style="list-style-type: none"> ➤ [3180] Turloughs ➤ [5130] <i>Juniperus communis</i> formations on heaths or calcareous grasslands ➤ [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites) ➤ [7210] Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion <i>davallianae</i>* ➤ [7230] Alkaline fens 		<p>Although there is potential hydrological connections between Attymon Bog and this SAC as described above, the Decommissioning & Rehabilitation primarily involves the blocking of drainage pathways from the bog. Therefore, due to the distance of greater than 24.5km, and the small nature and scale of the proposed Decommissioning and Rehabilitation at Attymon Bog, there is no potential for indirect effects in the form of deterioration of water quality on Galway Bay Complex SAC.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>
Special Protection Areas (SPA)			
<p>Rahasane Turlough SPA [004089]</p> <p>Distance: 9.8km</p>	<ul style="list-style-type: none"> ➤ A038 Whooper Swan (<i>Cygnus cygnus</i>) ➤ A050 Wigeon (<i>Anas Penelope</i>) ➤ [A140] Golden Plover (<i>Pluvialis apricaria</i>) ➤ [A156] Black-tailed Godwit (<i>Limosa limosa</i>) 	<p>Detailed conservation objectives for this site, (Version 1, January 2023), were reviewed as part of the assessment and are available at www.npws.ie</p>	<p>There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>There is no hydrological connection via the proposed decommissioning and rehabilitation site boundary and this SPA.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
	<ul style="list-style-type: none"> ➤ [A395] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) ➤ [A999] Wetlands and Waterbirds 		<p>Taking a precautionary approach, the potential for disturbance to the SCI species, where they occur outside the SPA was also assessed.</p> <p>The proposed Decommissioning and Rehabilitation site boundary is located 9.8km from this SPA, as such is outside the core foraging range of 3km for the Golden Plover (<i>Pluvialis apricaria</i>), 5-8km for the Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) (SNH 2016).</p> <p>The vast majority of Attymon Bog PCAS extent comprised of cutover bog consisting of bare peat, recognising vegetation and emerging woodland/scrub. However, taking a precautionary approach, the areas of wet heath, degraded raised bog, silt ponds and small areas of poor fen/ flush habitats recorded on site have the potential to provide wetland habitat for wintering or passage wildfowl species, which are likely to occur where there is deep enough water on areas of the bog. This may be limited and dependent upon rainfall, flood levels in adjacent watercourse or floodplains. As such, there is potential habitat available for the following listed SCI species:</p> <ul style="list-style-type: none"> ➤ [A038] Whooper Swan (<i>Cygnus cygnus</i>) ➤ [A050] Wigeon (<i>Anas Penelope</i>) ➤ [A140] Golden Plover (<i>Pluvialis apricaria</i>) ➤ [A156] Black-tailed Godwit (<i>Limosa limosa</i>)

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>➤ [A395] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>)</p> <p>Further, the following SCI Species were recorded by BnM on Attymon Bog during the surveys undertaken: Golden Plover (<i>Pluvialis apricaria</i>).</p> <p>However, the Decommissioning and Rehabilitation will not result in any loss of habitat, are short term and will not be covering the entire bog at any one time, leaving much of the bog completely undisturbed, and will increase the extent of suitable supporting habitat across the site via the creation of new wetland habitats. Hence, there is no potential for the Decommissioning and Rehabilitation in the absence of any mitigation, to result in significant disturbance or habitat loss to SCI species which may use wetland sites such as the PCAS extent.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>
<p>Lough Rea SPA [004134]</p> <p>Distance: 12.2km</p>	<p>➤ [A056] Shoveler (<i>Anas clypeata</i>)</p> <p>➤ [A125] Coot (<i>Fulica atra</i>)</p>	<p>Detailed conservation objectives for this site, (Version 1, October 2022), were reviewed as part of the assessment and are available at www.npws.ie</p>	<p>Taking a precautionary approach, the potential for disturbance to the SCI species, where they occur outside the SPA was also assessed.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
		<p>This site has the generic conservation objective:</p> <p><i>‘To maintain or restore the favourable conservation condition of the wetland habitat at Lough Rea SPA as a resource for the regularly occurring migratory waterbirds that utilise it.’</i></p> <p><i>NPWS (2022) Conservation objectives for Lough Rea SPA [004134]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.</i></p>	<p>The proposed Decommissioning and Rehabilitation site boundary is located 12.2km from this SPA, as such is outside the core foraging range of 2-3km for the Shoveler (<i>Anas clypeata</i>) as stated by Johnston et al. (2013). Further, the site provides suitable foraging habitat for the Coot (<i>Fulica atra</i> (Lewis et. al., 2019).</p> <p>The vast majority of Attymon Bog PCAS extent comprised of cutover bog consisting of bare peat, recognising vegetation and emerging woodland/scrub. However, taking a precautionary approach, the areas of wet heath, degraded raised bog, silt ponds and small areas of poor fen/ flush habitats recorded on site have the potential to provide wetland habitat for wintering or passage wildfowl species, which are likely to occur where there is deep enough water on areas of the bog. This may be limited and dependent upon pumping regimes, rainfall, flood levels in adjacent watercourse or floodplains. As such, there is potential habitat available for the following listed SCI species:</p> <ul style="list-style-type: none"> ➤ [A056] Shoveler (<i>Anas clypeata</i>) ➤ [A125] Coot (<i>Fulica atra</i>) <p>However, the Decommissioning and Rehabilitation will not result in any loss of habitat, are short term and will not be covering the entire bog at any one time, leaving much of the bog completely undisturbed, and will increase the extent of suitable supporting habitat across the site via the creation of</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>new wetland habitats. Hence, there is no potential for the Decommissioning and Rehabilitation in the absence of any mitigation, to result in significant disturbance or habitat loss to SCI species which may use wetland sites such as the PCAS extent.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>
<p>Slieve Aughty Mountains SPA [004168]</p> <p>Distance: 14.9km</p>	<ul style="list-style-type: none"> ➤ [A082] Hen Harrier (<i>Circus cyaneus</i>) ➤ [A098] Merlin (<i>Falco columbarius</i>) 	<p>Detailed conservation objectives for this site, (Version 1, December 2022), were reviewed as part of the assessment and are available at www.npws.ie</p>	<p>There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>The proposed Decommissioning and Rehabilitation site boundary is located 14.9km from this SPA, as such is outside the core foraging range of 2km for the Hen Harrier (<i>Circus cyaneus</i>) and 5km of the Merlin (<i>Falco columbarius</i>) (SNH, 2016). In tandem with this, neither Special Conservation Interest Species was recorded by BnM or MKO during their site visits at Attymon Bog.</p> <p>Further, due to the small nature and scale of the proposed decommissioning and rehabilitation at Attymon Bog, the absence of a hydrological connection, the buffering distance of 14.9km from the proposed Decommissioning and</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>Rehabilitation site boundary to this SPA, there is no potential for ex situ disturbance or displacement related impacts on this SCI species as a result of the proposed decommissioning and rehabilitation at Attymon Bog.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>
<p>Inner Galway Bay SPA [004031]</p> <p>Distance: 15.6km</p> <p>Surface Water Distance: 24.5km</p>	<ul style="list-style-type: none"> ➤ [A003] Great Northern Diver (<i>Gavia immer</i>) ➤ [A017] Cormorant (<i>Phalacrocorax carbo</i>) ➤ [A028] Grey Heron (<i>Ardea cinerea</i>) ➤ [A046] Brent Goose (<i>Branta bernicla hrota</i>) ➤ [A050] Wigeon (<i>Anas Penelope</i>) ➤ [A052] Teal (<i>Anas crecca</i>) ➤ [A056] Shoveler (<i>Anas clypeata</i>) ➤ [A069] Red-breasted Merganser (<i>Mergus serrator</i>) 	<p>Detailed conservation objectives for this site, (Version 1, May 2013), were reviewed as part of the assessment and are available at www.npws.ie</p>	<p>There will be no direct effects on this SPA as the proposed Decommissioning and Rehabilitation is located entirely outside the boundary of this designated site.</p> <p>Attymon Bog and Inner Galway Bay SPA are hydrologically connected via two watercourse systems. The 2nd order Clarinbridge River (EPA code: 29C02) flows through the northeastern margin of Attymon Bog, in a south-westerly direction for 24.5km then enters the Inner Galway Bay SPA.</p> <p>The Mulpit stream (EPA code: 29M03) arises to the south of Attymon Bog, flowing west where it is joined by a drainage ditch which flows from within the PCAS extent. The Mulpit then flows south-westerly for approx. 12km and then becomes a tributary to the Clarinbridge River, from this point is 7.8km upstream from Inner Galway Bay SPA.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
	<ul style="list-style-type: none"> > [A137] Ringed Plover (<i>Charadrius hiaticula</i>) > [A140] Golden Plover (<i>Pluvialis apricaria</i>) > [A142] Lapwing (<i>Vanellus vanellus</i>) > [A149] Dunlin (<i>Calidris alpina alpina</i>) > [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>) > [A160] Curlew (<i>Numenius Arquata</i>) > [A162] Redshank (<i>Tringa tetanus</i>) > [A169] Turnstone (<i>Arenaria interpres</i>) > [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) > [A182] Common Gull (<i>Larus canus</i>) > [A191] Sandwich Tern (<i>Sterna sandvicensis</i>) > [A193] Common Tern (<i>Sterna hirundo</i>) > [A999] Wetlands and Waterbirds 		<p>As such, following the precautionary principle, a potential pathway for effect on the Special Conservation Interest (SCI) species and habitats of this SPA was identified in the form of deterioration of water quality.</p> <p>However, the objective of the Decommissioning and Rehabilitation is to stabilise the bog. These proposed Decommissioning and Rehabilitation measures are specifically designed to reverse the drainage of the bog and to minimise the run-off of waters from it. The proposed Decommissioning and Rehabilitation will not result in any loss of habitats, are short term and will not be occurring over the entire bog at any one time, leaving much of the bog completely undisturbed. Further, due to the small nature and scale of the proposed Decommissioning and Rehabilitation at Attymon Bog, there is no potential for indirect effects in the form of deterioration of water quality on the Inner Galway Bay SPA. There is no potential for the proposed Decommissioning and Rehabilitation to result in significant effects on downstream watercourses and ecological receptors as the Decommissioning and Rehabilitation primarily involves the blocking of drainage pathways from the bog.</p> <p>As such, in the absence of any mitigation, there is no potential for any significant effect on these SCI receptors as a result of water pollution or change to the hydrological regime within the SPA.</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>The potential for disturbance to the other SCI species, where they occur outside the SPA was also assessed.</p> <p>The proposed Decommissioning and Rehabilitation site boundary is located 15.6km from this SPA, as such is outside the core foraging range of 8.2km of the Brent Goose (<i>Branta bernicla hrota</i>) (Summers and Critchley, 1990), 2.8km of the Wigeon (<i>Anas Penelope</i>), 8.4km of the Teal (<i>Anas crecca</i>), 2-3km of the Shoveler (<i>Anas clypeata</i>) (Johnston et al., 2013), 3km of the Golden Plover (<i>Pluvialis apricaria</i>) (SNH, 2016), and 11.4km of the Black-headed Gull (<i>Chroicocephalus ridibundus</i>) (Thaxter et al., 2012).</p> <p>The vast majority of Attymon Bog PCAS extent comprised of cutover bog consisting of bare peat, recognising vegetation and emerging woodland/scrub. As such, there is no suitable supporting grassland/ meadow/estuarine/marine or coastal habitat (Thaxter <i>et al.</i>, 2012, SNH, 2016, Lewis <i>et al.</i>, 2019) for the following SCI Species:</p> <ul style="list-style-type: none"> ➤ [A069] Red-breasted Merganser (<i>Mergus serrator</i>) ➤ [A137] Ringed Plover (<i>Charadrius hiaticula</i>) ➤ [A149] Dunlin (<i>Calidris alpina alpina</i>) ➤ [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>) ➤ [A162] Redshank (<i>Tringa tetanus</i>) ➤ [A169] Turnstone (<i>Arenaria interpres</i>) ➤ [A182] Common Gull (<i>Larus canus</i>) ➤ [A191] Sandwich Tern (<i>Sterna sandvicensis</i>)

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>➤ [A193] Common Tern (<i>Sterna hirundo</i>)</p> <p>However, taking a precautionary approach, the areas of degraded raised bog, silt ponds and small areas of poor fen/flush habitats recorded on site have the potential to provide wetland habitat for wintering or passage wildfowl species, which are likely to occur where there is deep enough water on areas of the bog. This may be limited and dependent upon pumping regimes, rainfall, flood levels in adjacent watercourse or floodplains. As such, there is potential habitat available for the following listed SCI species:</p> <ul style="list-style-type: none"> ➤ [A046] Brent Goose (<i>Branta bernicla hrota</i>) ➤ [A050] Wigeon (<i>Anas Penelope</i>) ➤ [A052] Teal (<i>Anas crecca</i>) ➤ [A056] Shoveler (<i>Anas clypeata</i>) ➤ [A140] Golden Plover (<i>Pluvialis apricaria</i>) ➤ [A142] Lapwing (<i>Vanellus vanellus</i>) ➤ A160] Curlew (<i>Numenius Arquata</i>) ➤ [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) <p>Further, Golden Plover and Curlew were recorded by BnM on the Attymon Bog during the ecological surveys carried out.</p> <p>However, the Decommissioning and Rehabilitation will not result in any loss of habitat, are short term and will not be covering the entire bog at any one time, leaving much of the</p>

European Sites and distance from proposed Decommissioning and Rehabilitation	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 10/04/2024.	Conservation Objectives	Identification of Source-Pathway-Receptor chain and Likely Zone of Impact Determination
			<p>bog completely undisturbed and in will increase suitable wintering habitat across the site as is the aim of the stabilisation and restoration of the PCAS extent. Hence, there is no potential for the Decommissioning and Rehabilitation in the absence of any mitigation, to result in significant disturbance to SCI species which may use wetland sites such as the PCAS extent.</p> <p>No pathway for significant effect on this European Designated Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Impact and is not considered further in this Screening assessment.</p>

3.2 Likely Cumulative Impact of the Proposed Decommissioning and Rehabilitation plan on European Sites, In-Combination with Other Plans and Projects

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites considered in **Table 3.1**. This included a review of online Planning Registers, development plans and other available information and served to identify past and future plans and projects, their activities, and their predicted environmental effects.

3.2.1 Plans

The following development plans been reviewed and taken into consideration as part of this assessment:

- > Galway County Development Plan 2022-2028
- > Ireland's 4th National Biodiversity Action Plan 2023-2030

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage.

Table 3-2. Review of relevant Policies and Objectives

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites
<p>Galway County Development Plan</p> <p>2022-2028</p>	<p>It is the Policy of the Council in relation to:</p> <p><u>Policy Objectives Natural Heritage and Biodiversity</u></p> <p>NHB 1 Natural Heritage and Biodiversity of Designated Sites, Habitats and Species: Protect and where possible enhance the natural heritage sites designated under EU Legislation and National Legislation (Habitats Directive, Birds Directive, European Communities (Birds and Natural Habitats) Regulations 2011 and Wildlife Acts) and extend to any additions or alterations to sites that may occur during the lifetime of this plan. Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under European legislation (Habitats and Birds Directive) and protected under national Legislation (European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011), Wildlife Acts 1976-2010 and the Flora Protection Order (SI 94 of 1999). Support the protection, conservation and enhancement of natural heritage and biodiversity, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas, Ramsar Sites, Nature Reserves, Wild Fowl Sanctuaries (and other designated sites including any future designations) and the promotion of the development of a green/ ecological network.</p> <p>NHB 2 European Sites and Appropriate Assessment: To implement Article 6 of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. All such projects and plans will also be required to comply with statutory Environmental Impact Assessment requirements where relevant.</p> <p>NHB 3 Protection of European Sites: No plans, programmes, or projects etc. giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from</p>	<p>The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified.</p> <p>There will be no negative impact on designated sites or biodiversity as a result of the proposed Decommissioning and Rehabilitation.</p>

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites
	<p>any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans, programmes, etc. or projects*.</p> <p>* Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be: (a) no alternative solution available; (b) imperative reasons of overriding public interest for the plan to proceed; and (c) adequate compensatory measures in place.</p> <p>NHB 4 Ecological Appraisal of Biodiversity: Ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites. Where appropriate require an ecological appraisal, for development not directly connected with or necessary to the management of European Sites, or a proposed European Site and which are likely to have significant effects on that site either individually or cumulatively.</p> <p>NHB 5 Ecological Connectivity and Corridors: Support the protection and enhancement of biodiversity and ecological connectivity in non-designated sites, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, stone walls, geological and geo-morphological systems, other landscape features and associated wildlife areas where these form part of the ecological network and/or may be considered as ecological corridors in the context of Article 10 of the Habitats Directive.</p> <p>NHB 6 Implementation of Plans and Strategies: Support the implementation of any relevant recommendations contained in the National Heritage Plan 2030, the National Biodiversity Plan, the All-Ireland Pollinator Plan and the National Peatlands Strategy and any such plans and strategies during the lifetime of this plan.</p> <p>NHB 7 Mitigation Measures: Require mitigating measures in certain cases where it is evident that biodiversity is likely to be affected. These measures may, in association with other specified requirements, include establishment of wildlife areas/corridors/parks, hedgerow, tree planting, wildflower meadows/marshes and other areas. With regard to residential development, in certain cases, these measures may be carried out in conjunction with the provision of open space and/or play areas.</p>	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites
	<p>NHB 10 NPWS & Integrated Management Plans: Article 6(1) of the Habitats Directive requires that Member States establish the necessary conservation measures for European sites involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans. The NPWS's current priority is to identify site specific conservation objectives; management plans may be considered after this is done. Where Integrated Management Plans are being prepared by the NPWS for European sites (or parts thereof), the NPWS shall be engaged with in order to ensure that plans are fully integrated with the Plan and other plans and programmes, with the intention that such plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations, including those of local communities.</p> <p>It is the Policy of the Council to:</p> <p>5.2.1: Protect European sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU Habitats Directive (92/43/EEC), EU Birds Directive (2009/147/EC) and associated national legislation.</p> <p>5.2.2: Ensure that all plans or projects within the Plan area will only be authorised and / or supported after the competent authority has ascertained based on scientific evidence, screening for appropriate assessment and /or a Habitats Directive Assessment that:</p> <p>i) The plan or project will not give rise to an adverse direct, indirect or secondary effect on the integrity of any European site (either individually or in combination with other plans or projects); or</p> <p>ii) The plan or project will have an adverse effect on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or</p>	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites
	<p>iii) The plan or project will have an adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.</p> <p>5.2.4: Protect, conserve and support the development of an ecological network throughout the city which will improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive.</p> <p>5.2.7: Encourage, in liaison with the NPWS, the sustainable management of features which are important for the ecological coherence of the network of European sites and essential, by their linear or continuous nature or as stepping stones for the migration, dispersal and genetic exchange of wild species.</p> <p>5.2.9: Co-operate with the NPWS, landowners and stakeholders in the preparation and implementation of management plans for designated sites and support conservation objectives of lands within Designated Sites for nature conservation Natura 2000 (SAC/SPA) and NHA sites.</p> <p>5.2.10: Protect and conserve rare and threatened habitats and their key habitats, (wherever they occur) listed on Annex I and Annex IV of the EU Habitats Directive (92/43EEC) and listed for protection under the Wildlife Acts 1976-2000 and plant species listed in the Flora Protection Order 2015.</p> <p>5.2.11: Ensure that plans and projects with the potential to have a significant impact on European sites (SAC or SPA) whether directly, indirectly or in combination with other plans or projects are subject to Appropriate Assessment, under Article 6 of the Habitats Directive (92/43EEC) and associated legislation and guidelines, to inform decision making.</p>	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites
<p>Ireland's 4th National Biodiversity Action Plan 2024-2030</p>	<p>Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity. Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.</p> <p>Objective 2: Meet Urgent Conservation and Restoration Needs. Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government.</p> <p>Outcome 2A: The protection of existing designated areas and species is strengthened and conservation and restoration within the existing protected are network are enhanced.</p> <p>Outcome 2B: Biodiversity and ecosystem services in the wider countryside are conserved.</p> <p>Outcome 2C: All freshwater bodies are of at least 'Good Ecological Status' as defined under the EU Water Framework Directive.</p> <p>Outcome 2D: Genetic diversity of wild and domesticated species is safeguarded 39 Outcome 2E: A National Restoration Plan is in place to meet EU Biodiversity Strategy 2030 nature restoration targets.</p> <p>Outcome 2F: Biodiversity and ecosystem services in the marine environment are conserved and restored.</p> <p>Outcome 2G: Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.</p>	<p>The National Biodiversity Action Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified.</p> <p>There will be no negative impact on designated sites or biodiversity as a result of the proposed Decommissioning and Rehabilitation.</p>

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites
	<p>Objective 3: Secure Nature’s Contribution to People. Actions highlight the relationship between nature and people in Ireland.</p> <p>These include recognising the tangible and intangible values of biodiversity, promoting nature’s importance to our culture and heritage and recognising how biodiversity supports our society and our economy.</p> <p>Objective 4: Enhance the Evidence Base for Action on Biodiversity.</p> <p>This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts.</p> <p>Objective 5: Strengthen Ireland’s Contribution to International Biodiversity Initiatives.</p> <p>Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity</p>	

3.2.2 Other Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Decommissioning and Rehabilitation and was verified on the 10/04/2024. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities, and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g., individual EISs/EIARs, layouts, drawings etc.) for all relevant projects where available. These consisted mainly of small scale to medium scale domestic developments.

- Permission for the construction of a dwelling house and domestic garage along with on-site treatment system and all ancillary works. Gross floor space of proposed works: House - 165 sqm, Garage - 60 sqm (Planning Ref: 19608).
- Permission for the construction of a new viewing stand, with a capacity of 120 people, including all ancillary site works. (Planning Ref: 2260202).
- Permission for a domestic dwelling with domestic garage, treatment plant & percolation area and all associated site works. Gross floor space of proposed works: 233 sqm (Planning Ref: xxxx).
- Permission for alterations to an existing dwelling house, garage, and septic tank, all on revised site boundaries. Gross floor space of work to be retained: 254.6 sqm (Planning Ref: 19188).
- Permission to construct a dwelling house, treatment unit and polishing filter. Gross floor space of proposed works: 180.9 sqm (Planning Ref: 20482).
- Permission for the following, (i) for the demolition of existing agricultural structure and replacement of it with new modern structure to be used as storage for existing bakery (area 532m²), (ii) the retention of signage erected to the roof area along the Southwest elevation of the structure (Area 16m²). Gross floor space of work to be retained: 532 sqm (Planning Ref: 191235).
- Permission for the construction of a new modern garage structure which will consist of the following, small workshop, garage & Fuel storage/Drying Area (area 89 sqm) to the Northwest of existing house approved under Planning Ref 09/2197, and all associated site works. Gross floor space of proposed works: 89 sqm (Planning Ref: 20895).
- Permission to construct a dwellinghouse, domestic garage, proprietary treatment system and ancillary works. Gross floor space of proposed works: 216 sqm (Planning Ref: 20283).
- Permission of (1) an existing 'granny' flat at the rear of their dwelling (2) retain the applicants dwelling, & an independent residential unit (previously a retail shop), (3) a domestic store/shed (4) general purpose turf shed all on revised site boundaries. Permission is also sought to construct a new wastewater treatment system with percolation to serve the entire development. All of the above includes all associated works & services (Planning Ref: 23351).
- Permission to demolish existing sub-standard dwelling house and for construction of new dwelling house, garage, on site wastewater treatment / percolation and all associated services. Gross floor space of proposed works; 248.6sqm (188.6sqm H, 60sqm G); Gross floor space of any demolition; house + shed 49.2sqm + 33sqm = 82.2sqm (Planning Ref: 20988).
- Permission to construct a dwelling house and domestic garage, treatment unit with percolation area and all associated site works. Gross floor space of proposed works: 255 sqm (H) & 60 sqm (G) (Planning Ref: 23154).
- Permission for the construction of new dwelling along with domestic garage, treatment septic tank system and all associated site works. Gross floor space of proposed works: House - 234 sqm, Garage - 50.5 sqm (Planning Ref: 19930).
- Permission to construct a fully serviced private dwelling house with wastewater treatment system and private garage/store to include all associated site works. Gross floor space of proposed works: House: 173.88sqm, Garage/fuel shed: 53.94sqm (Planning Ref: 221252).

- Permission to construct a single dwelling house with proprietary wastewater treatment plant a detached garage and all necessary site works. Gross floor space of proposed works: 233 sqm (Planning Ref: 2140).
- Permission to construct dwelling house along with domestic garage and treatment system with percolation area, and all ancillary site development works. Gross floor space of proposed works 194 sqm. (Planning Ref: 2260936).
- Permission for a single storey dwellinghouse, including a wastewater treatment system & associated services with a shared common access road. Height of house = 5188mm. Gross floor space of proposed works: 201.20 sqm (Planning Ref: 2261208).
- Permission to construct a single storey dwelling house, including a wastewater treatment system & associated services with common access road. Gross floor space of proposed 201.20sqm (Planning Ref: 2261217).
- Permission to extend existing slatted cow wintering shed to include additional cow cubicles and slatted effluent storage tanks including all associated works and services. Gross floor space of proposed works 380sqm. (Planning Ref: 211036).
- Permission of an existing telecommunications support structure [previously granted under Plan Ref No. 12/639] together with associated ground equipment within a fenced compound. (Planning Ref: 21477).
- Permission to construct a dwelling house with attached garage and treatment plant with percolation area. Gross floor area: 272.7 sqm (Planning Ref: 2260866).
- Permission to construct an extension consisting of two ensuite classrooms, staff room, plant room & ancillary circulation areas & demolition of existing play shelter & construction of new shelter along with new boundary treatments along Eastern boundary & all associated works. Gross floor space of proposed works: 36.50 sqm (shelter) & 230.10 sqm (extension). Gross floor space of any demolition: 33.70 sqm (Planning Ref: 2361334).
- Permission for the construction of a new dwelling house, domestic garage, sewage treatment plant and percolation area, along with all associated works. Gross floor space of proposed works: House: 214sqm, Garage: 50sqm (Planning Ref: 221115).
- Permission for a new dwelling house, domestic garage, sewage treatment plant and percolation area. Gross floor space of proposed works: 218 sqm (house) & 50sqm (garage) (Planning Ref: 22420).
- Permission for a new dwelling house, domestic garage, sewage treatment plant and percolation area. Gross floor space of proposed works: 239 sqm (house) & 37 sqm (garage) (Planning Ref: 211587).
- Permission to construction of a new dwelling house, domestic garage, sewage treatment plant and percolation area, along with all ancillary works. Gross floor area of proposed works: 240.9 sqm (dwelling house) (Planning Ref: 2260549).
- Permission for proposed domestic dwelling, domestic garage, treatment plant, percolation area with all associated site works. Gross floor space of proposed works: 302sqm (Planning Ref: 22888).
- Permission to erect dwelling house, domestic garage, wastewater treatment system, polishing filter and all associated services. Gross floor space of proposed works: 111 sqm & 39.36 sqm (Planning Ref: 212305).
- Permission for a dwelling house, domestic garage, sewage treatment plant and percolation area. Gross floor space of proposed works; house 173sqm, garage 50sqm./ permission for change of house design (area 207sqm) & all associated site services & site development works on revised site boundary as previously approved under pl. ref. 21/1126 (Planning Ref: 221126/2361289).
- Permission for a dwelling house, domestic garage, sewage treatment plant and percolation area. Gross floor space of proposed works 214.00sqm. / Permission for change of house design (area 203sqm) and all associated site services and site development works on revised site boundary as previously approved under Pl. Ref: 2260612. Gross floor space of proposed works: 203.00 (Planning Ref: 2260612/ 2361341).

- Permission for the construction of a dwelling house and domestic garage along with on-site treatment system and all ancillary works. Gross floor space of proposed works: House - 165 sqm, Garage - 60 sqm (Planning Ref: 19608).
- Permission for the construction of a dwelling house, detached garage, treatment plant and percolation area and all associated works. Gross floor area of proposed works: 238msq (dwelling) & 60msq (Garage). (Planning Ref: 2260865).
- Permission to 1) construct a dwelling house, and domestic garage/garden store, 2) new sewage treatment system and 3) all associated site works and services. Gross floor space of proposed works: 222 sqm (house) & 60 sqm (garage) (Planning Ref: 211949).
- Permission for the construction of a new two-storey dwelling house, a domestic garage and wastewater treatment system and all associated site works. Gross floor space of proposed works: 200 sqm (house) & 40 sqm (garage) (Planning Ref: 211604).
- Permission for the construction of a single dwelling and domestic garage, along with an on-site treatment system. Gross floor area of proposed works: 265.30sqm (Planning Ref: 2260480).
- Permission a development consisting of the demolition of existing substandard dwelling and construction of a new dwelling with wastewater treatment system, garage and associated site works. Gross floor space of proposed works: House: 268sqm, Garage: 52sqm. (Planning Ref: 22627).
- Surrounding land uses which included agricultural grazing lands, commercial forestry, and turf cutting activities.
- Decommissioning and Rehabilitation works ongoing/ soon to be carried out at Cloonkeen Bog, as part of Bord Na Móna Peatland Climate Action Scheme (PCAS).

3.2.3 Conclusion of Cumulative Assessment

Following the detailed assessment provided in the preceding sections, it is concluded that, the proposed Decommissioning and Rehabilitation plan at Attymon Bog will not result in any residual significant effects on any of the European Sites, their integrity or their conservation objectives when considered on its own. There is therefore no potential for the proposed the proposed Decommissioning and Rehabilitation plan at Attymon Bog to contribute to any cumulative significant effects on any European Site when considered in combination with other plans and projects.

In the review of the projects undertaken, no connection that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed Decommissioning and Rehabilitation plan.

Taking into consideration the reported residual impacts from other plans and projects in the area and the predicted impacts with the current proposal, no residual cumulative impacts have been identified with regard to any European Site.

4. ARTICLE 6(3) APPROPRIATE ASSESSMENT SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Assessment are presented following the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010).

4.1 Data Collected to Carry Out Assessment

- Review of NPWS Site Synopses, Conservation Objectives for the European Sites
- Review of 2019, 2013 and 2007 EU Habitats Directive (Article 17) Reports.
- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Teagasc, EPA, Water Framework Directive (WFD), Geological Survey of Ireland (GSI), Inland Fisheries Ireland (IFI), Irish Wetland Bird Survey I-WeBS & Geohive online Environmental Sensitivity Mapping tool
- Review of Bird Atlases: (Sharrock, 1976; Lack, 1986; Gibbons et al., 1993; Balmer et al., 2013).
- Review of OS maps and aerial photographs of the site of the proposed Decommissioning and Rehabilitation plan.
- Review of relevant databases including National Biodiversity Ireland Database and available literature of previous surveys conducted in the area.
- Review of other plans and projects within the area.
- Review of location and layout mapping for proposed rehabilitation
- Review of the results from previous ecological surveys of Attymon Bog.
- Review of description of proposed rehabilitation measures, including methodologies specific to the main categories of land types under consideration.
- Site visit conducted on the 15/04/2024 by MKO ecologists Rachel Minogue and Tom Peters

4.2 Concluding Statement

It is concluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European Sites, that the proposed Decommissioning and Rehabilitation at Attymon Bog, individually or in combination with other plans and projects, will not have a significant effect on any European Site.

BIBLIOGRAPHY

Bailey, M. and Rochford J. (2006) Otter Survey of Ireland 2004/2005. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. and Fuller, R.J. (2013). Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland. BTO Books, Thetford, UK.

Birds Directive (2009/47/EC) – http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

Bord na Móna (2021) Peatland Climate Action Scheme – Environmental Management Plan

CIEEM, 2018, Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine.

Clark, D. and Rieley, J. 2010. Strategy for responsible peatland management. International Peat Society, Finland.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011).

DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. DEHLG, Dublin.

DoEHLG (2010). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Revision, February 2010. Department of the Environment, Heritage, and Local Government.

EC (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission.

EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.

EC (2002) 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, Office for Official Publications of the European Communities, Luxembourg. European Commission.

EC (2006) Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg.

EC (2007a) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. Office for Official Publications of the European Communities, Luxembourg. European Commission.

EC (2007b) Interpretation Manual of European Union Habitats. Version EUR 27. European Commission, DG Environment.

European Communities (Conservation of Wild Birds) Regulations, 1985, SI 291/1985 & amendments – <http://www.irishstatutebook.ie>

European Communities (Natural Habitats) Regulations, SI 94/1997, SI 233/1998 & SI 378/2005 – <http://www.irishstatutebook.ie>

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council.

Habitats Directive (92/43/EEC).

Johnson, W. P., Schmidt, P. M. and Taylor, D. P. (2014). Foraging flight distances of wintering ducks and geese: a review. *Avian Conservation and Ecology*, 9(2): 2. <http://dx.doi.org/10.5751/ACE-00683-090202>

Joosten, H. and Clarke, D. 2002. Wise use of mires and peatlands- Background and Principles including a framework for Decision Making. I.M.C.G- I.P.S, Jyväskylä, Finland.

Lewis, L. J., Burke, B., Fitzgerald, N., Tierney, T. D. & Kelly, S. (2019) Irish Wetland Bird Survey: Waterbird Status and Distribution 2009/10-2015/16. *Irish Wildlife Manuals*, No. 106. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

NPWS (2008) The Status of EU Protected Habitats and Species in Ireland. Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora, and Fauna 92/43/EEC.

NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. Habitat Assessments Volume 2. Version 1.0. Unpublished Report, National Parks, and Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

NPWS (2019), The Status of EU Protected Habitats and Species in Ireland. Species Assessments Volume 3, Version 1.0. Unpublished Report, National Parks, and Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

NPWS of the DEHLG (2008) The Report on Status of Habitats and Species in Ireland: Technical Reports and Forms.

NPWS (2013) Conservation Objectives: Galway Bay Complex SAC 000268. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013) Conservation Objectives: Inner Galway Bay SPA 004031. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2017) Conservation Objectives: Lough Corrib SAC 000297. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2019) Conservation Objectives: Lough Rea SAC 000304. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2022) Conservation objectives for Lough Rea SPA [004134]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2015) Conservation Objectives: Monivea Bog SAC 002352. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2020) Conservation Objectives: Rahasane Turlough SAC 000322. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2023) Conservation Objectives: Rahasane Turlough SPA 004089. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2022) Conservation Objectives: Slieve Aughty Mountains SPA 004168. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS Protected Site Synopses and maps available on <http://www.npws.ie/en/ProtectedSites/>.

NRA (2004) Environmental Impact Assessment of National Road Schemes – A Practical Guide, National Roads Authority, Dublin.

NRA (2004) Guidelines for the Treatment of Noise and Vibration in National Road Schemes (1 ed.). Dublin: National Roads Authority.

NRA (2005) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. Dublin: National Roads Authority.

NRA (2006) Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. Dublin: National Roads Authority.

NRA (2009). Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. Dublin: National Roads Authority.

NRA (2008). The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads. Dublin: National Roads Authority.

Scottish Natural Heritage (SNH) (July 2013) Assessing Connectivity with Special Protection Areas (SPA).

Scottish Natural Heritage (SNH) (2016). Assessing connectivity with Special Protection Areas (SPAs). Scottish Natural Heritage, Inverness, Scotland.

Stace, C. A. (1997). New Flora of the British Isles. Cambridge: Cambridge University Press.

Summers, R. W. and Critchley, C. N. R. (1990). Use of grassland and field selection by brent geese *Branta bernicla*. *Journal of Applied Ecology*, 27: 834-846. <https://doi.org/10.2307/2404380>

Thaxter, C. B., Lascelles, B., Sugar, K., Cook, A. S. C. P., Roos, S. Bolton, M., Langston, R. H. W. and Burton, N. H. K. (2012). Seabird foraging ranges as a preliminary tool for identifying candidate Marine Protection Areas. *Biological Conservation*, 156: 53-61. <https://doi.org/10.1016/j.biocon.2011.12.009>



APPENDIX 1

**ATTYMON BOG- DECOMMISSIONING
AND REHABILITATION PLAN 2024**

Bord na Móna

Attymon Bog

Cutaway Bog Decommissioning and Rehabilitation Plan

2024

This document seeks to address the requirements of Condition 10.2 of IPC License Ref: P0502-01:

“The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.”

This licence condition requires Bord na Móna agree with the EPA the measures that will provide for rehabilitation, i.e. stabilisation of Attymon Bog upon cessation of peat production and complements the licence requirement to decommission the site.

Rehabilitation generally comprises site stabilisation with natural colonisation with or without targeted management.

Industrial peat production has now fully ceased at Attymon Bog.

In addition, to preparing this document to comply with Condition 10 of IPC Licence Ref. P0502-01, due regard was also given to the Peatlands Climate Action Scheme (PCAS) announced by the Minister. This Scheme will see the Minister support, via the Climate Action Fund and Ireland’s National Recovery and Resilience Plan, Bord na Móna in developing a package of measures, ‘the Scheme’, for enhanced decommissioning, rehabilitation and restoration of cutaway peatlands referred to as, the Peatlands Climate Action Scheme’. However, only the additional costs associated with the additional and enhanced rehabilitation, i.e., measures which go beyond the existing standard mandatory decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support. The additional costs of the Scheme will be supported by Government through the Climate Action Fund and Ireland’s National Recovery and Resilience Plan, administered by the Department of Environment, Climate and Communications (DECC), while the National Parks and Wildlife Service (NPWS) will act as the Scheme regulator.

While this document outlines the enhanced rehabilitation measures planned for the Attymon Bog, activities which go beyond that required by Condition 10 in the Licence, rehabilitation necessary to comply with the ‘standard’ requirement of Condition 10 (in the absence of the Scheme) is also included, to estimate costs. The inclusion of the ‘standard’ rehabilitation together with the enhanced rehabilitation in this document allows the Scheme Regulator to distinguish and objectively determine the specific activities (and their associated costs) eligible for support under the Scheme.

Bord na Móna have defined the key rehabilitation outcome at Attymon as environmental stabilisation, re-wetting and setting the bog on a trajectory towards development of naturally functioning peatland and wetland habitats.

Any consideration of any other future after-uses for Attymon will be conducted in adherence to the relevant planning guidelines and consultation with relevant authorities and will be considered within the framework of this rehabilitation plan.

Document Control Sheet

Document Name:	Attymon Bog Cutaway Bog Decommissioning and Rehabilitation Plan 2024
Document File Path:	Q:\Ecology Team\EPA draft rehab plans 2017 word docs\Blackwater ref.502\Attymon sub-group 2017\Attymon\Rehab Plan 2024
Document Status:	Draft

This document comprises:	DCS	TOC	Text (Body)	References	Maps	No. of Appendices
	1	2	38	5	0	13

Rev.	1.0	Author(s):	Checked By:	Approved By:
		CS	JOS	CC
		Date: 19/03/2024	Date: 02/07/2024	Date: 03/07/24

Rev.	1.1	Author(s):	Checked By:	Approved By:
		Date:	Date:	Date:

Rev.	1.2	Author(s):	Checked By:	Approved By:
		Date:	Date:	Date:

Table of Contents

NON-TECHNICAL SUMMARY	1
1. INTRODUCTION	3
1.1 Constraints and Limitations	4
2. Methodology	5
2.1 Desk Study.....	6
2.2 Consultation	8
2.3 Field Surveys	8
3. Site Description.....	9
3.1 Status and Situation	9
3.1.1 Site history	9
3.1.2 <i>Current land-use</i>	10
3.1.3 Socio-Economic conditions.....	10
3.2 Geology and Peat Depths.....	11
3.3 Key Biodiversity Features of Interest	11
3.3.1 Current habitats.....	11
3.3.2 Species of conservation interest.....	14
3.3.3 Invasive species.....	15
3.4 Statutory Nature Conservation Designations	15
3.4.1 Other Nature Conservation Designations.....	16
3.5 Hydrology and Hydrogeology.....	16
3.6 Emissions to surface-water and watercourses	16
3.7 Fugitive Emissions to air.....	18
3.8 Carbon emissions	18
3.9 Current ecological rating.....	19
4. Consultation	20
4.1 Consultation to date	20
4.2 Issues raised by Consultees.....	20
4.3 Bord na Móna response to issues raised during consultation	20
5. Rehabilitation Goals and Outcomes	21
6. Scope of Rehabilitation.....	23
6.1 Key constraints.....	23
6.2 Key Assumptions	25

6.3	Key Exclusions	25
7.	Criteria for successful rehabilitation	26
7.1.	Criteria for successful rehabilitation to meet EPA IPC licence conditions:.....	26
7.2.	Critical success factors needed to achieve successful rehabilitation as outlined in the plan.....	30
8.	Rehabilitation Actions and Time Frame	32
	Completed and ongoing.....	33
8.1	Short-term planning actions (0-1 years)	33
8.2	Short-term practical actions (0-2 years)	34
8.3	Long-term (>3 years).....	34
8.4	Timeframe.....	34
8.5	Budget and costing.....	34
9.	Aftercare and Maintenance.....	36
9.1	Programme for monitoring, aftercare and maintenance	36
9.2	Rehabilitation plan validation and licence surrender – report as required under condition 10.4	37
10.	References.....	38
	Appendix I: A standard peatland rehabilitation Plan to meet conditions of the IPC Licence	43
	APPENDIX II: Bog Group Context.....	46
	APPENDIX III: Ecological Survey Report.....	51
	APPENDIX IV. Environmental Control Measures to be applied to bog rehabilitation.....	55
	APPENDIX V. Biosecurity	56
	Appendix VI. Policy and Regulatory Framework	57
	APPENDIX VII. Decommissioning.....	65
	APPENDIX VIII. Glossary.....	68
	APPENDIX IX. Extractive Waste Management Plan.....	70
	APPENDIX X. Mitigation Measures for the Application of Fertiliser.....	74
	APPENDIX XI. Consultation Summaries	75
	APPENDIX XII. Archaeology	76
	APPENDIX XIII: Water Quality Monitoring Results for Attymon Bog.....	79

NON-TECHNICAL SUMMARY

- Bord na Móna is planning to rehabilitate Attymon Bog, located in Co. Galway, approximately 5km east of Athenry Town.
- Attymon is part of the Attymon Bog sub-group, within the overall area covered by the IPC licence (Ref. P0502-01) for the Blackwater Bog group.
- Industrial peat harvesting is now finished at Attymon Bog.
- Bord na Móna are obliged to carry out peatland rehabilitation via an IPC License issued by the Environmental Protection Agency. In addition, the Government has agreed to support peatland rehabilitation via the establishment of the Peatland Climate Action Scheme (PCAS). This is funded via the Government and by Bord na Móna.
- The key objective of peatland rehabilitation is environmental stabilisation. This means developing habitats and vegetation back onto the bare peat (putting a “skin” back onto the peat), and minimising effects to downstream waterbodies.
- Attymon Bog was drained and harvested for peat. Better results for water quality improvements, climate action, the reduction of carbon emissions and biodiversity are achieved when the remaining peat is re-wetted. Drain-blocking and other measures to raise water levels to the surface of the bog will be implemented to encourage the natural colonisation of vegetation.
- In general, soggy ground conditions are preferred. This means the remaining peat is wet and that plants that prefer wetter conditions, like Bog Cotton will thrive.
- Many parts of Bord na Móna Bogs cannot be restored back to raised bog in the short-term, as so much peat has been removed and the environmental conditions have been modified. However other peatland habitats with Heather, Bog Cotton, Rushes, Purple Moor-grass, Bog-mosses and scattered trees will develop, and in time a naturalised peatland can be restored.
- The development of a range of habitats within PCAS extent at Attymon Bog will support biodiversity including plants, insects, birds and mammals. This includes some species that are rare and protected in the wider landscape. It will increase the national area of native woodland. Many wetland habitats in the wider landscape have been reclaimed for agriculture and other uses and peatland rehabilitation is an opportunity to create new peatland and wetland habitats.
- Attymon Bog was formerly developed for milled peat production by Bord na Móna and subsequently leased to the Attymon Co-Op, a group made up of retired Bord na Móna employees. Under this group, the site was managed for sod peat. The site is no longer managed for sod peat production (as of 2017) and peat extraction operations have ceased at this site.
- A large section of the main bog was planted by Coillte with coniferous forestry in the 1980’s. This area is constrained out of the rehabilitation plan.
- Measures proposed for the Attymon Bog include drain blocking and additional measures required to raise water levels to the surface of the peat (berms and bunding for example). Some fertiliser will be spread on headlands and other areas (a small part of the overall area) to encourage vegetation growth.
- Bord na Móna plan to carry out this work in 2024.
- These rehabilitation measures will be planned by a team consisting of expert ecologists, hydrologists and engineers. It is a guiding principle of Bord na Móna rehabilitation planning that no actions or activities will be undertaken that would negatively impact on adjacent land. No boundary drains will be blocked. Water will still leave the bog via the existing outlets.

- Some old areas of production bog have not been harvested in a number of years. These areas have successfully re-vegetated with a mix of Birch woodland, scrub and poor fen. It will take some time for vegetation and habitats to fully develop at the Attymon Bog, and a peatland ecosystem to be restored. However, it is expected that most of the bog will be developing pioneer habitats after 5-10 years.
- This peatland rehabilitation plan does not consider future after-use or development. Bord na Móna continually reviews its land-bank to consider future commercial or industrial developments, such as renewable energy. Any other proposed development will be planned in adherence to relevant planning guidelines and will consider the rehabilitation and the condition of the bog.
- Peatland rehabilitation of this bog will bring a range of benefits to the local community via improvements to the local landscape and is also important for supporting national policies and strategies in relation to reduction of carbon emissions from these peatlands, supporting biodiversity and improvements to water quality.

Draft

1. INTRODUCTION

Attymon Bog is located in east Co. Galway, approximately 5km east of Athenry Town. Bord na Móna operates under an IPC Licence issued and administered by the EPA to extract peat within the Blackwater (Attymon sub-group) bog group (Ref. P0502-01) (see Appendix II for details of the bog areas within this bog group). As part of Condition 10.2 of the IPC licence, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area.

This document seeks to address the requirements of Condition 10.2 of IPC Licence Ref. P0502-01:

“The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.”

It also seeks to outline measures to optimise climate action and other ecosystem services benefits, mainly through hydrological management.

This plan is a specific rehabilitation plan for the bog and outlines:

- Description of site management and status.
- Main issues and approaches to rehabilitation.
- Consultation to date with interested parties.
- Interaction with other policy and legislative frameworks (Appendix VI).
- The planned rehabilitation goals and outcomes.
- The scope of the rehabilitation plan.
- Criteria which define the successful rehabilitation and key targets to validate rehabilitation.
- Proposed rehabilitation actions.
- Proposed timeframe to implement these actions.
- Budget and Costings.
- Associated aftercare, maintenance and monitoring.

Note: This plan should be read in conjunction with the accompanying Map book.

It is proposed by Government that Bord na Móna carry out a Peatlands Enhanced Decommissioning, Rehabilitation and Restoration Scheme on its peatlands. Note this proposal is also known colloquially as the ‘Peatlands Climate Action Scheme’ (PCAS). The additional costs of the Scheme will be supported by Government through the *Climate Action Fund* and Ireland’s National Recovery and Resilience Plan, and Ireland’s National Recovery and Resilience Plan administered by the Department of Environment, Climate and Communications (DECC), while the National Parks and Wildlife Service (NPWS) will act as the Scheme regulator. Bord na Móna have previously identified a footprint of 33,000 ha as peatlands suitable for this scheme. This Scheme will significantly go beyond what is required to meet rehabilitation and decommissioning obligations (Appendix VII & IX) under existing EPA IPC licence conditions. Improvements supported by the Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered. The Scheme commenced in 2021.

Only the costs associated with the additional, enhanced, and accelerated rehabilitation, i.e., those measures which go beyond the existing decommissioning and rehabilitation requirements arising from Condition 10, will be eligible for support under the Scheme. Bord na Móna announced the complete cessation of industrial peat production across its estate in January 2021.

It is expected that the Scheme (PCAS) will have benefits accruing from biodiversity provision, water quality and storage attenuation as well as increased carbon storage, reduced carbon emissions and acceleration towards carbon sequestration. The Scheme will also facilitate monitoring of carbon fluxes (Greenhouse Gases and fluvial carbon) in selected areas (in addition to other established Research programmes), to monitor changes in where the interventions will accelerate the trajectory towards a naturally functioning peatland ecosystem.

It is envisaged that the Rehabilitation Scheme will support activities, interventions, or measures across the Bord na Móna cutaway peatlands which accelerate the original timelines. Selected rehabilitation measures will take account of site environmental conditions, which can vary significantly. These measures potentially include:

- more intensive management of water levels through pump management, drain-blocking and cell bunding,
- re-profiling that will deliver suitable conditions for development of wetlands, fens and bog habitats,
- targeted fertiliser applications,
- seeding of targeted vegetation, and
- proactive inoculation of suitable peatland areas with *Sphagnum*.

These are collectively designed to optimise hydrological conditions (ideally and where possible water-levels at peat surface ± 10 cm) for climate action benefits and to accelerate the trajectory of the site towards a naturally functioning ecosystem, and eventually a reduced carbon source/carbon sink again. In some areas of dry cutaway this trajectory will be significantly longer, and it is not feasible in the short-term to re-wet some areas. These areas will develop other habitats. The key to optimising climate action benefits is the restoration of suitable hydrological conditions and more intensive intervention means that the extent of suitable hydrological conditions can be optimised.

These measures are designed to encourage the development of peat-forming habitats, where possible. They are also designed to further slow the movement of water across the site (with the site acting similarly to a constructed wetland), slowing the release of water (improving local water attenuation) and water quality is also expected to improve as the site returns to a naturally functioning peatland ecosystem. The measures will also accelerate the development of new habitats for a range of species under pressure in the wider landscape and will have the potential to develop habitats (e.g. Annex I raised bog, wetlands that support wader water birds of conservation interest) that will contribute towards the delivery of national biodiversity objectives.

It is anticipated that the combination of active enhanced rehabilitation measures and natural colonisation will quickly accelerate environmental stabilisation. Nevertheless, it will still take some time (30-50 years) for naturally functioning wetland and peatland ecosystems to fully re-establish.

Attymon Bog is now proposed to be part of this this Scheme (PCAS), and this rehabilitation plan outlines the approach that will be taken.

1.1 Constraints and Limitations

This document covers the area of 337 ha of **Attymon Bog** (the 'PCAS extent'). This rehabilitation plan takes account of the current land-uses of Attymon Bog.

Rehabilitation in some areas of the bog may be constrained due to property issues or issues such as rights of way or archaeological features.

There are two “rights of way” routes along both the northern and southern boundaries of Attymon Bog. Where a public right of way or similar burden exists on Bord na Móna property, consideration will be given to ensuring that these remain intact where possible. The Dublin to Galway railway line runs east-west through the bog.

Coillte have developed a significant portion of the former production area in the centre of the bog for conifer forestry. Management within these areas can be considered as ongoing maintenance with routine operations related to timber production and/or development of the conifer plantations as biodiversity areas. Issues of peat stabilisation and potential silt run-off will have to be addressed during forestry operations on the site by Coillte. A pathway loops the forestry and is used as an informal amenity route. An access route occurs along the eastern extent of the bog. The forestry footprint, the access route and the amenity pathway have all been identified as constraints and will be excluded from rehabilitation.

Several stakeholders are proposing the development of a greenway through Attymon Bog. This proposed walking amenity will link the Local Road (L3115) to the south-east and continue along the existing access track and the former rail line route that runs through the length of the eastern boundary of the bog. It is proposed to link it to the existing informal amenity route around the forestry and loop back to the former rail line route.

There are no known archaeology records on Attymon Bog. All rehabilitation measures proposed at Attymon Bog will consider the sensitivity of any found archaeology.

Several areas of Attymon in the western part of the bog were previously rehabbed in 2018. No further rehabilitation is proposed in these areas, and they have been mapped as constraints.

High bog remnants (within the areas owned and under the control of Bord na Móna) are currently being used by domestic turf cutters to harvest peat. These areas are ecologically and hydrologically linked to the area owned by Bord na Móna where rehabilitation is planned. It is beyond the scope of this rehabilitation plan to address turf cutting issues on Attymon Bog. Nevertheless, Bord na Móna are aware of such issues which may constrain the proposed rehabilitation actions, and this rehabilitation plan considered potential impacts of these on the delivery of the stated objectives.

A key constraint is the interaction between the Bord na Móna sites and the surrounding landscape, neighbours and landowners. Care has to be taken that no active rehabilitation management is carried out that could impact adjacent land. This includes any hydrological management on neighbouring farmland, as well as potential changes to the hydrology of surrounding sites. However, it is anticipated that the work proposed here (blocking drains and re-wetting cutaway peatlands) will not have any flooding impacts on adjacent land.

Bord na Móna will continue to review the future after-use of its land-bank. Any consideration of any other future after-uses for Attymon Bog will be conducted in adherence to the relevant planning legislation and consultation with relevant authorities and will be considered within the framework of this rehabilitation plan.

Any proposed enhancement measures (i.e., targeted drain-blocking) will be positively aligned with future planned land-uses and will look to facilitate amenity, where possible. Re-wetting will be planned as to not to rule out potential future amenity.

2. METHODOLOGY

This rehabilitation plan was developed with a combination of desktop and field surveys, consultations with internal and external stakeholders and cognisance of the Scheme (PCAS). The development of this rehabilitation plan considered recently published guidance issued by the EPA in 2020, *‘Guidance on the Process of Preparing and Implementing a Bog Rehabilitation Plan’*.

The ecological information and site information collected during the Bord na Móna ecological baseline survey, additional confirmatory site visits (covering the period 2010 to 2024 inclusive) and monitoring and desktop analysis form the basis for the development of the rehabilitation plan for the bog, along with:

- Experience of 40 years of research on the after-use development and rehabilitation of the Bord na Móna cutaway bogs (Clarke, 2010; Bord na Móna, 2016).
- Significant international engagement during this period with other counties in relation to best practice regarding peatland rehabilitation and after-use through the International Peat Society and the Society for Ecological Restoration (Joosten & Clarke, 2002; Clarke & Rieley, 2010; Gann *et al.*, 2019).
- Consultation and engagement with internal and external stakeholders.
- GIS Mapping.
- BNM drainage surveys.
- Bog topography and LiDAR data.
- Hydrological modelling; and
- The development of a Methodology Paper¹ outlining the Scheme (PCAS). This rehabilitation includes enhanced measures defined in the Methodology Paper which are designed to exceed the standard stabilisation requirements as defined by the IPC Licence and to enhance the ecosystem services of Attymon Bog, in particular, optimising climate action benefits.

2.1 Desk Study

The desk study involved collecting all relevant environmental and ecological data for the study area. The development of the rehabilitation plan also takes account of research, experience and engagement with other peatland restoration and rehabilitation projects and peatland research including Irish, UK, European and International best practice guidance (full citations are in the References Section):

- Anderson *et al.* (2017). An overview of the progress and challenges of peatland restoration in Western Europe.
- Barry, T.A. et al (1973). A survey of cutover peats and underlying mineral soils. Soil Survey Bulletin No. 30. Dublin, Bord na Móna and An Foras Taluntais. Bonn *et al.* (2017). Peatland restoration and ecosystem services- science, policy and practice.
- Carroll *et al.* (2009). *Sphagnum* in the Peak District. Current Status and Potential for Restoration. Moors for the Future Report No 16.
- Clark & Rieley (2010). Strategy for responsible peatland management.
- Eades *et al.* (2003). The Wetland Restoration Manual.
- Farrell & Doyle (2003). Rehabilitation of Industrial Cutaway Atlantic Blanket Bog, NW Mayo, Ireland.
- Gann *et al.* (2019). International Principles and Standards for the practice of Ecological Restoration.
- Hinde *et al.* (2010). *Sphagnum* re-introduction project: A report on research into the re-introduction of *Sphagnum* mosses to degraded moorland. Moors for the Future Research Report 18.
- Joosten & Clarke (2002). Wise Use of mires and peatlands – Background and Principles including a framework for Decision-making.

¹ Bord na Móna (2022). *Methodology Paper for the Enhanced Decommissioning, Rehabilitation and Restoration on Bord na Móna Peatlands – Preliminary Study Nov 2022 Version 19*. Bord na Móna. Available online at :

<https://www.bnmecas.ie/supporting-material/>

- Lindsay (2010). Peatbogs and Carbon: a Critical Synthesis to Inform Policy Development in Oceanic Peat Bog Conservation and Restoration in the Context of Climate Change.
- Mackin *et al.* (2017). Best practice in raised bog restoration in Ireland. Irish Wildlife Manuals, No. 99. National Parks and Wildlife Service,
- McBride *et al.* (2011). The Fen Management Handbook (2011), Scottish Natural Heritage.
- McDonagh (1996). Drain blocking by machines on Raised Bogs. Unpublished report for National Parks and Wildlife Service.
- NPWS (2017a). National Raised Bog Special Areas of Conservation management plan. Department of Arts, Heritage and the Gaeltacht.
- Pschenyckyj et al., 2021, Optimising Water Quality Returns from Peatland Management while Delivering Co-Benefits for Climate and Biodiversity, Report produced for An Fóram Uisce.
- Quilty & Rochefort (2003). Peatland Restoration Guide, second edition. Canadian *Sphagnum* Peat Moss Association and New Brunswick Department of Natural Resources and Energy.
- Regan, *et. al.* (2020). Ecohydrology, Greenhouse Gas Dynamics and Restoration Guidelines for Degraded Raised Bogs. EPA Research Report. Prepared for the Environmental Protection Agency by Trinity College Dublin.
- Renou-Wilson *et al.* (2011). BOGLAND - Sustainable Management of Peatlands in Ireland. STRIVE Report No 75 prepared for the Environmental Protection Agency.
- Schouten (2002). Conservation and Restoration of Raised Bogs: Geological, Hydrological and Ecological Studies. Dúchas - The Heritage Service of the Department of the Environment and Local Government, Ireland;
- Thom (2019). Conserving Bogs – Management Handbook.
- Wheeler & Shaw (1995). Restoration of Damaged Peatlands – with Particular Reference to Lowland Raised Bogs Affected by Peat Extraction.
- Wittram *et al.* (2015). A Practitioners Guide to *Sphagnum* Reintroduction. Moors for the Future Partnership.

Additional resources were also incorporated into the desk study, including:

- Blackwater Integrated Pollution Control Licence;
- Blackwater Annual Environmental Reports;
- Review of the National Biodiversity Data Centre (NBDC) webmapper;
- Inland Fisheries Ireland (IFI) Reports;
- Environmental Protection Agency database (www.epa.ie);
- EPA Guidance on Requests for Alterations to a Licensed Industrial or Waste Activity;
- BirdWatch Ireland online data (including I-WeBS and CBS datasets; www.birdwatchireland.ie);
- Geological Survey of Ireland - National Draft Bedrock Aquifer map;
- Geological Survey of Ireland - Groundwater Database (www.gsi.ie);
- Historic Environment Viewer at (<https://heritagedata.maps.arcgis.com/>);
- National Parks & Wildlife Services Public Map Viewer (www.npws.ie);
- Water Framework Directive catchments.ie/maps/ Map Viewer (www.catchments.ie);
- OPW Indicative Flood Maps (www.floodinfo.ie);
- CFRAM Preliminary Flood Risk Assessment (PFRA) maps (www.cfram.ie);
- River Basin Management Plan for Ireland 2018 – 2021;
- Bord na Móna Annual Report 2023;

- Spatial data in respect of Article 17 reporting, available online at <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17>;
- Bord na Mona Biodiversity Action Plan 2016-2021,
- Review of Raised Bog Natural Heritage Area Network (NPWS, 2014)

2.2 Consultation

A number of stakeholders have been identified during the course of Bord na Móna's rehabilitation and Biodiversity Action Plan activities and are contacted during the rehabilitation planning process for their views. See Section 4.

2.3 Field Surveys

Bord na Móna carried out a baseline ecological survey of all of its properties in 2009-2012 and developed habitat maps. As part of this exercise, Attymon Bog was surveyed in 2010, 2015 and 2018. Additional ecological monitoring and site visits have taken place more recently at Attymon Bog in February and March 2024 to inform rehabilitation planning. This rehabilitation plan is informed by the original baseline survey as well as subsequent confirmatory site walk-over surveys and visits, and updates to baseline data.

Habitat mapping followed best practice guidance from Smith *et al.* (2011). This was reviewed and updated where necessary following the 2024 site visits. Map outputs including all habitat maps and target notes were produced using GIS software application packages (ArcGIS). General marginal habitats and other habitats that had not been modified significantly by industrial peat extraction or drainage were classified using Fossitt *et al.* (2000). Plant nomenclature for vascular plants follows Stace (2019), while moss and liverwort nomenclature follow identification keys published by the British Bryological Society (2010). A more detailed Bord na Móna classification system was developed for classifying pioneer cutaway habitats, as Fossitt categories were deemed not to be detailed enough for cutaway bog (much of cutaway bog could be classified as Cutover Bog - PB4). Much of the pioneer cutaway vegetation is still at an early stage of its development and cannot be assigned to Fossitt Level 3 categories yet.

Site visits have been used to categorise any changes in habitat extent at Attymon Bog in 2024. A detailed ecological survey report for Attymon Bog is contained in Appendix III.

3. SITE DESCRIPTION

Attymon Bog is located approximately 5 km of Athenry, County Galway at its nearest. Attymon is part of the Attymon Bog sub group, within the overall area covered by the IPC licence for the Blackwater Bog group. This bog is contained within one main section with Attymon Bog divided into one main northern section (or lobe), with one small section to the west and a small southeastern section (or lobe). The total area of Attymon bog is 337 ha.

Peat production commenced at Attymon Bog in 1941 and continued until 2017. The main bog is long and relatively narrow and is orientated in an east-west direction. Much of the former cutaway area currently comprises revegetating bare peat however, as Attymon bog was never fully managed for milled industrial peat production, the cutaway and former production areas look significantly different to typical milled production bogs. Some old areas of production bog have not been harvested in a number of years have already naturally re-vegetated with typical cutaway habitats including a mix of Birch woodland, scrub and poor fen. Previous rehabilitation has been carried out at Attymon bog. In 2018 Bord na Móna began restoring part of the cutover at Attymon. A drain blocking programme was undertaken to rewet Attymon bog mainly involving the blocking of former trench drains. A Coillte coniferous forestry plantation occurs within the main body of the bog, the lands are leased to Coillte but managed by Bord na Móna. The Dublin-Galway railway line is located close to the north of the main section.

There is one mapped EPA watercourse within the boundary of Attymon bog. The Clarinbridge (EPA Code: 29C02) stream flows initially in a north-westerly direction outside the northern bog boundary before converging with the Carrowtober west stream and flowing in a south-westerly direction, eventually discharging to Oranmore Bay. Attymon Bog has a gravity drainage regime.

The surrounding landscape is a mosaic primarily consisting of low-lying agricultural land (pasture) interspersed with a network of cutover bogs, including Cloonkeen to the north, that have also been managed by Bord na Móna for peat production within the Attymon Bog Group.

See figure *BNM-DR-25-11-RP-01: Location* and figure *BNM-DR-25-11-RP-24: Blackwater Bog Group* in the accompanying map book which illustrates the location of Attymon in context to the surrounding area.

3.1 Status and Situation

3.1.1 Site history

Peat production first began on Attymon Bog in 1941. The main bog was formerly developed for milled peat bog by Bord na Móna and then subsequently leased to the Attymon Co-Op, a group made up of retired Bord na Móna employees. Under this group, the site was managed for sod peat. The site is no longer managed for sod peat production (as of 2017) and all peat extraction operations have ceased.

Attymon bog was never fully managed for milled industrial peat production, therefore the cutaway and production areas look significantly different to typical milled production bogs. There is no regular drainage system with two main winding drains running the length of the site. There were several pumps along these main drains however these pumps have been decommissioned and now the bog has a gravity drainage regime. The cutaway section comprises an undulating surface with slopes and a significant slope on the cutaway south of the conifer forestry.

Former sod industrial peat production operations were carried out against face-banks using 'German Bagger' machines and this has left a long narrow strip of uncut dried-out high bog (10-20 m) in some sections. Some areas not long out of production have started to revegetate with pioneer poor fen while other areas still retain sections of bare peat.

A large section of the main bog was planted by Coillte with coniferous forestry in the 1980's. The conifer plantation was planted in the central-east portion of the site, south of Clarinbridge River.

An area of Attymon was previously rehabbed in 2018. A comprehensive drain blocking programme was undertaken to rewet Attymon Bog. The aim of the restoration work was to raise water levels and facilitate the development of active raised bog areas, and to improve the overall habitat for typical peatland species.

3.1.2 Current land-use

The site can currently be divided into two main land-uses: former cutaway bog and conifer plantation with part of the site planted with conifer forestry and is managed by Coillte.

Part of the main section of the site has already been developed for forestry by Coillte. Management within these areas can be considered as ongoing maintenance with routine operations related to timber production and/or development of the conifer plantations as biodiversity areas. Issues of peat stabilisation and potential silt run-off will have to be addressed during forestry operations on the site by Coillte. A pathway loops the forestry and is used as an informal amenity route. An access route occurs along the eastern extent of the bog along and a works area occurs to the south-east.

Industrial turf cutting and peat production ceased in 2017. There are several small remnant patches of high bog towards the west side of the site. These remnant areas are small in extent and degraded in condition (associated with drainage operations and peat extraction operations) and many are actively managed for the production of domestic turf.

There are two "rights of way" routes along both the northern and southern boundaries of Attymon Bog. Where a public right of way or similar burden exists on Bord na Móna property, consideration will be given to ensuring that these remain intact where possible. The Dublin to Galway railway line runs east-west through the bog.

The marginal areas of this site contain patches of remnant high bog (PB1), old cutover bog and other habitats such as scrub that is developing along the high bog edge. Some of the cutover bog along the southern boundary is being grazed by horses and has developed wet grassland (GS4) communities. Part of the northern margin to the west has developed a narrow band of Birch woodland (WN7) on high bog. This woodland is relatively mature with tall Birch and contains species such as Bilberry.

3.1.3 Socio-Economic conditions

Bord na Móna has historically been a vital employer for the rural community of the Midlands of Ireland. Bord na Móna compiled a report on the role of peat extraction in the midlands historically in which they report that in 1986, by the end of Bord na Móna's Third Development Programme, a total of twenty-three work locations had been established around the country. The company had an average employment of approximately 4,688 in the mid 1980's, with a peak employment of 6,100 during the production season, which placed it among the country's largest commercial employers. The importance of such levels of employment were largely due to its regional concentration in the Midlands and the lack of alternative employment opportunities at the time.

According to the Energy Crop Socio-Economic Study undertaken by Fitzpatrick Associates in 2011, there were an estimated 1,443 jobs supported by the peat-to-power industry in Ireland at the time, some 81% of which were located in the catchment areas of the three peat-fired generating stations (Lough Ree, West Offaly, and Edenderry Power Stations). These constituted jobs in the plants and in peat extraction, jobs indirectly supported in upstream

supply industries and jobs induced through the trickle-down effects of the wages and salaries of those supported directly or indirectly.

In respect of Attymon Bog, jobs would have included those to facilitate fuel peat production, along with site oversight and management.

As the primary employer in many Midland counties, Bord na Móna played a central role in building communities through several initiatives, including Education bursaries, support of local sporting clubs, the provision of community gain funds, charity programmes and the provision and building of amenity areas.”

These job numbers have now declined with the cessation of peat extraction at this bog. It is anticipated that the scheme (PCAS) will provide some employment for a team of workers at this site for a period of time (> 1 year).

There are approximately 1,400 people working in Bord na Móna at present. There are approximately 225 roles directly involved in PCAS.

3.2 Geology and Peat Depths

3.2.1 Sub-soil geology

GSI data indicates that Attymon Bog is underlain entirely by the Lucan formation (dark limestone & shale). Quaternary sediment maps indicate that Attymon bog is underlain by Cut over raised peat, derived chiefly from Limestone till. Most of the remaining peat is more acidic, or it may be a climatic variation with the high prominence of lower pH indicators perhaps due to higher rainfall (western raised bog/blanket bog influence). Sub soil was rarely exposed at this site.

Attymon bog is classified within an area as a locally important aquifer as the bedrock is moderately productive in local zones only. This suggests that groundwater flow rates through the bedrock aquifer is likely to be more limited than the karstified limestone to the west.

3.2.2 Peat type and depths

Detailed information on peat depths across Attymon is not available. However, limited coring records are available from peat coring carried out by RPS. This information has been used to estimate base of peat and interpolated across the bog. Estimated peat depths are provided in figure *BNM-DR-25-11-RP-04: Peat depths*.

Peat thickness is variable across Attymon Bog, with very shallow peat (<1 m) remaining in locations where the substrate is more elevated (particularly the central and south-western section of the bog). However, thicker sequences of peat remain to the south-east and along the north of the bog (1.9 – 2.8 m).

3.3 Key Biodiversity Features of Interest

3.3.1 Current habitats

The main habitats are shown in map book drawing no *BNM-DR-25-11-17: Habitat Map* and are described below. Codes refer to BnM classification of pioneer habitats of production bog or Heritage Council habitat classification,

(Fossitt, 2000) codes where appropriate (see Appendix III). The most common habitats² present within the currently proposed rehabilitation area include:

- Bare peat (BP) (plate 3-1)
- Conifer plantation (WD4)
- Pioneer poor fen communities (plate 3-2 - plate 3-4) mostly dominated by Soft Rush (pJeff) and/or Bog Cotton (pEang). Frequently in mosaic with some scrub. Very minor cover of Bottle Sedge (pRos)
- Dry heath (dHeath). (Frequently in mosaic with Purple Moorgrass-dominated grassland (gMol) and Birch scrub.)
- Emerging, open and closed Birch scrub (e/o/cBir) (Plate 3-5)
- Temporary open water (TOW) (plate 3-7).
- Purple Moorgrass-dominated grassland (gMol). (Mainly on banks along drains)
- Embryonic bog community (Pb) (On high bog close to margin that was only partially cut)
- Riparian zones (RIP) (Along drains)
- Access zones (travel paths with bare peat, scrub and rank grassland (GS2))
- Works areas (Yard, buildings and derelict machinery with recolonising bare ground ED3 and rank grassland GS2).

The most common habitats found around the margins of the bogs under review include:

- Raised bog (PB1) (several fragments) (Plate 3-2 & 3-8)
- Cutover bog (PB4)
- Birch woodland (WN7)
- Scrub (WS1) (Gorse scrub and Birch scrub developing of dry high bog around margins)
- Dense Bracken (HD1)
- Improved grassland (GA1) (mostly minor areas along boundaries but including some large sections where boundary overlaps adjacent fields)
- Dry Heath (HH1) (mostly dried-out cutover bog)
- Wet Heath (HH3) (wet secondary cutover bog)
- Dry calcareous grassland (GS1) (small glacial mound)
- Depositing river (Clarinbridge River) (FL2)

See Table 2 along with drawing number *BNM-DR-25-11-17 Current Habitat Map* included in the accompanying Mapbook, which illustrates the habitats at Attymon Bog.

² Codes refer to BnM classification of pioneer habitats or Fossitt (2000), *A Guide to Habitats in Ireland*, The Heritage Council 2000. Note that habitat categories presented are not exhaustive and are indicative of the primary habitats of importance which are present. Equivalent Fossitt codes to the habitat descriptions are provided here but note that the referenced figure displays the general BNM habitat layer.

Photos of Habitats at Attymon (2024)



Plate 3-1 Cutover dominated by bare peat and pioneer vegetation to the north-western corner of the site.



Plate 3-2 Pioneer vegetation and bare peat south of the conifer plantation. Remnant raised bog occurs along the southern border.



Plate 3-3 Bare peat and pioneer vegetation in the SE of the northern lobe.



Plate 3-4 Cutover dominated by pioneer vegetation, bare peat and occasional scrub to the north of the conifer plantation within the main lobe.

Photos of Habitats at Attymon (2024)	
	
<p>Plate 3-5 Pioneer open habitats with <i>Molinia caerulea</i> dominated community and emerging <i>Betula pubescens</i> scrub within the southwestern lobe at Attymon. Mature Birch woodland (BirWD) in the background.</p>	<p>Plate 3-1 Cutover dominated by <i>Calluna vulgaris</i>, <i>Molinia caerulea</i> and <i>Eriophorum angustifolium</i> dominated vegetation to the south of the southern lobe.</p>
	
<p>Plate 3-7 Wetland/open water at the southern boundary of the southern lobe of Attymon surrounded by poor fen <i>Eriophorum angustifolium</i> dominated pioneer vegetation.</p>	<p>Plate 3-8 Raised bog dominated by <i>Calluna vulgaris</i>, <i>Eriophorum vaginatum</i> and <i>E. angustifolium</i>, emerging <i>Betula pubescens</i>, <i>Sphagnum rubellum</i>, <i>S. palustre</i> dominated vegetation to the south of the southwestern lobe.</p>

Table 1 Photos of Habitats at Attymon Bog (February and March 2024).

3.3.2 Species of conservation interest

A number of species of conservation concern have been recorded at Attymon Bog. The following is a summary of the records held by Bord na Móna and those of the National Biodiversity Data Centre

Signs or sightings of several mammal species have been recorded during ecological survey work at Attymon including Eurasian Badger (*Meles meles*), Fox (*Vulpes vulpes*), Rabbit (*Oryctolagus cuniculus*) and Irish Hare (*Lepus timidus hibernicus*). Evidence of European Otter (*Lutra lutra*) has been recorded along the Clarinbridge river downstream of the site.

Bird species of conservation interest recorded at Attymon Bog include Snipe (*Gallinago gallinago*), Golden Plover (*Pluvialis apricaria*), Curlew (*Numenius arquata*), Meadow Pipit (*Anthus pratensis*), Linnet (*Carduelis cannabina*), Swallow (*Hirundo rustica*), House Sparrow (*Passer domesticus*). Snipe, Golden Plover, Curlew and Meadow Pipit are currently red listed on the most recent BoCCI list, whilst Swallow and House Sparrow are amber listed (Gilbert *et al.* 2021). Common Frog (*Rana temporaria*) have also been recorded at Attymon Bog.

Marsh Fritillary (*Euphydryas aurinia*) butterfly has been recorded on Attymon Bog within the PCAS footprint within pioneer poor fen communities.

BNM Ecology Survey Records

During the most recent ecological surveys in February and March 2024 the following bird species of conservation interest were recorded at Attymon; red listed species Snipe (*Gallinago gallinago*) and Woodcock (*Scolopax rusticola*). In addition, Buzzard (*Buteo buteo*), Sparrowhawk (*Accipiter nisus*), Teal (*Anas crecca*) and Mallard (*Anas platyrhynchos*) were also recorded utilising the bog. Common frog (*Rana temporaria*) and frogspawn was also recorded at Attymon Bog.

Peatland rehabilitation may result in positive quality effects on the relative abundance or proportion of species of conservation concern utilising bogs post rehabilitation. This may include Red or Amber listed species of breeding wader along with wintering species including Swans and other wildfowl³.

3.3.3 Invasive species

Japanese Knotweed, an invasive plant species, was noted in a works area located in the east of the site. This species is listed on the 'Third Schedule' of Regulations 49 and 50 of the European Communities Birds and Natural Habitats Regulations 2011. Rehabilitation and decommissioning in the bog will have due regard to the relevant biosecurity measures outlined in Appendix V. All measures taken to ensure the prevention of spread of invasive species will follow best practice.

No other invasive alien species are known to occur at the subject bog. A broad range of common garden escapes are occasionally present around the margins of Bord na Móna bogs, and although spatial overlap with the PCAS is expected to be limited, these are, where necessary, to be treated in line with Best Practice during PCAS activities.

3.4 Statutory Nature Conservation Designations

There are no European Sites, Special Areas of Conservation (SAC) or Special Protection Areas (SPA), located within or immediately adjacent to Attymon Bog. The nearest EU Designated sites are as follows:

- Lough Corrib SAC (site code: 000297) – 2.8 km north
- Monivea Bog SAC (site code: 002352) – 3.4km north

There are no SPAs in close proximity to Attymon Bog.

A number of nationally designated sites also occur in the wider area of Attymon Bog including:

- Lough Tee Bog NHA (site code: 000307) - 4 km north

³ 'https://www.bnmpcas.ie/wp-content/uploads/sites/18/2023/08/Annual-Monitoring-Report_Final-Rev-A_Redacted.pdf', which is the publicly available Scheme Year 1 Monitoring and Verification Report.

- Raford River Bog NHA (site code: 000321) - 4.8 km east
- Monivea Bog pNHA (site code: 000311) - 3.4km north
- Tiaquin Bog pNHA (site code: 001709) – 5.8 km

See Figure *BNM-DR-25-11-RP-23: Proximity to Designated Sites* in the accompanying mapbook.

3.4.1 Other Nature Conservation Designations

The Ramsar Convention entered into force in Ireland on 15th March 1985. Ireland currently has 45 sites/wetlands designated as Wetlands of International Importance (Ramsar Sites). These cover a surface area of 66,994ha. There are no Ramsar sites in close proximity to Attymon Bog (i.e., within 3km).

3.5 Hydrology and Hydrogeology

Attymon Bog forms part of the Galway Bay Southeast Catchment (Catchment ID: 29) as defined by the EPA under the Water Framework Directive (WFD) and the north and western portion of the site is primarily situated within Clarinbridge_SC_010 sub-catchment with the south-eastern section of the site situated within Raford_SC_010 sub-catchment. The bog contains several drainage pathways and discharge locations, with the majority discharging to the Clarinbridge River to the north.

Attymon Bog currently has a gravity drainage regime.

GSI data indicates that Attymon Bog is underlain by the Lucan Formation. The underlying geology at Attymon Bog comprises viséan limestone and calcareous shale. Quaternary sediment maps indicate that Attymon bog is underlain by cutover raised peat, derived chiefly from Limestone till. Most of the remaining peat is more acidic, or it may be a climatic variation with the high prominence of lower pH indicators perhaps due to higher rainfall (western raised bog/blanket bog influence). Sub soil was rarely exposed at this site.

Attymon bog is classified within an area as a locally important aquifer as the bedrock is moderately productive in local zones only.

Groundwater Vulnerability is typically used to indicate the susceptibility to groundwater pollution; however, it can also provide a useful proxy indication of likely groundwater flow rates in the surrounding area. Groundwater vulnerability for the Attymon bog is predominantly low and the groundwater vulnerability for the surrounding areas is generally low becoming moderate to high, with some areas of extreme vulnerability mapped in areas where bedrock outcrop occurs.

3.6 Emissions to surface-water and watercourses

Attymon Bog has no historical treated surface water outlets as it was never in active commercial milled peat extraction and as such had limited silt control measures. The main surface water outlets will discharge to the River Clarinbridge (IE_WE_29C020040 CLARINBRIDGE_010) and (IE_WE_29C020400 CLARINBRIDGE_040) and the River Raford (IE_WE_29R010500 RAFORD_030).

The River Clarinbridge 010 and the River Raford 030 both have Good Status while the Clarinbridge 040 would have Poor Status – Water Framework Directive, (*BNM-DR-25-11-WQ01: Water Quality Map*).

Details of surface water emission points and those being monitored and sampled as part of the PCAS scheme are detailed on the accompanying structures map along with water quality map. See Drawing number *BNM-DR-25-11-RP-SP01 Structures and Sampling*, along with Drawing number *BNM-DR-25-11-RP-WQ01 Water Quality Map*

included in the accompanying Mapbook, which illustrate the various drainage and water quality infrastructure present at Attymon Bog.

There is a robust monitoring program to track and verify any changes in baseline water quality conditions pre and post decommissioning and rehabilitation so that the success or otherwise can be tracked and verified for the National Parks & Wildlife Service, Environmental Protection Agency and Local Authority Water Program, amongst a range of stakeholders.

Peat extraction was not identified as pressure in the second cycle of the river basin management plan, and is indicated as remaining so in the third cycle, currently under preparation. The main emission limit value associated with this bog is 35mg/l suspended solids, with trigger levels for ammonia of 4.27mg/l and COD 100mg/l.

Rehabilitation of cutover/cutaway peatland is closely linked with control of emissions. One of the criteria for successful rehabilitation is stabilisation through re-vegetation, which will stabilise all substrates and in turn remove the need for further silt control measures. Re-wetted peat also aids the primary objective of stabilizing peat, as when peat is re-wetted it is not vulnerable to wind erosion. Re-wetted peat and the development of wet peatland habitats can also act as sinks for silt and mobile peat, and increases additional retention time for solids, and the peatland vegetation can quickly stabilise this material within blocked drains on site (by acting like constructed wetlands).

Water quality of water discharges from restored peatlands normally improves as a result of bog restoration measures and the restoration of natural peatland processes (Bonn *et al.*, 20017). Bog restoration is also expected to improve water attenuation of the site as the drains are blocked, slowing water movement and water release from the site. Restored peatlands help slow the release of water and aid the natural regulation of floods downstream (Minayeva *et al.*, 2017). The National River Basin Management Plan (NRBMP) 2018-2021 (DHPCLG, 2017) is the key national plan for Ireland to achieve the objectives of the Water Framework Directive (WFD). The NRBMP outlines how key actions such as the Bord na Móna peatland rehabilitation is expected to have a positive impact on water quality and help the NRBMP deliver its objectives in relation to the WFD.

Water will still discharge from designated emission points when rehabilitation at Attymon Bog has been completed. This discharge will have improving water quality and there will be increased wetland attenuation, meaning slower release of water. It is the expectation of BnM that rehabilitation measures should positively impact the water quality in receiving water bodies through enhancing the water attenuation across rehabilitated sites. The robust water monitoring programme implemented as part of PCAS will be used to assess water quality leaving rehabilitated sites at designated points. While water quality improvements assist in meeting water frameworks directive ambitions and targets, they can also improve drinking water sources in applicable catchments with drained peatlands and the potential for associated reduction in treatment requirements at drinking water treatment facilities.

Decommissioning and Rehabilitation Programme Water Quality Monitoring.

The licence obligation of quarterly sampling regime on a selected number of ponds to be sampled over a three-year cycle would not be sufficient to be able to appropriately track the changing water chemistry that will occur as part of this enhanced rehabilitation programme, so this sampling regime will occur monthly.

To assist in monitoring surface water quality from this bog, it was agreed with the EPA to increase the existing licence monitoring requirements of the IPC Licence, to sampling for the same parameters every month.

This new sampling programme will progress during the scheduled works, and for a period of up to 2 years post rehabilitation. Depending on the period required to confirm that the main two parameters, suspended solids and

ammonia as remaining compliant with the licence emission and trigger limit values and there is an improving trajectory in these two parameters i.e., reduction in concentration, the monitoring programme and intensity will be periodically reviewed and amended. Once the rehabilitation has been completed and monitoring continues for up to 2 years, any identifiable trends will be able to be analysed and reported on.

In the preparation of this monitoring programme, Bord na Móna have been providing the Local Authority Water Programme (LAWPRO) with details of the surface water emissions points associated with these bogs and will be amending some of the proposed monitoring locations on foot of this engagement. LAWPRO have in turn provided details of their monitoring programme and these are included in the figure *BNM-DR-25-11-RP-WQ01* Water Quality Map.

This is necessary to ensure that there is alignment with the WFD monitoring programme and that where possible, the monitoring programme will enable any improvements in water quality or establishing trends to be quantified against any available WFD monitoring data. It will also enable the periodic sharing of data which will inform the monitoring reports, success criteria and enable LAWPRO under the Water Framework Directive to track any changes in pressures and be aware of changes in water chemistry.

Monitoring results will be maintained, trended every six months and reported on each year and as required, as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, and will be provided to LAWPRO and the EPA as required to inform progress and national monitoring requirements under the WFD. These results will also be available in April each year as a requirement of the Annual Environmental Report at www.epa.ie.

The parameters to include as per condition 6.2 of the IPC Licence include monthly monitoring for pH, Flow, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour & COD. In addition, DOC has been included as a parameter to try and identify any changes in carbon in the surface water, and where required by LAWPRO, to assist in investigating other changes in water chemistry, the series of parameters can be reviewed and amended.

3.7 Fugitive Emissions to air

None.

Rehabilitation of the drained peatland will seek to re-wet the dry peat where possible and re-vegetate all areas (whether wet or dry). Collectively, blocking drains, re-wetting and re-vegetating will minimise any risk of emission to air from dust.

3.8 Carbon emissions

Irish peatlands are a huge carbon store, containing more than 75% of the national soil organic carbon (Renou-Wilson et al. 2012). Peatland drainage and extraction transforms a natural peatland which acts as a modest carbon sink into a carbon source (Waddington & McNeil, 2002; Alm *et al.*, 2007; Wilson *et al.*, 2007, Wilson *et al.*, 2015). A natural peatland can take in 0.1 to 1.1 t of carbon as CO₂-C /ha/yr while drainage and extraction can create large source of carbon dioxide releasing 1.3 to 2.2 t of carbon as CO₂-C /ha/yr (based on Tier 1 Emission factors, Evans et al. 2017). Renou-Wilson et al. (2018) reported losses of between 0.81 – 1.51 CO₂-C /ha/yr from drained peatlands located in Ireland.

Re-wetting of dry peatlands will increase methane emissions (Gunther et al. 2020) as a consequence of the anoxic conditions within the peat body that provide a suitable environment for the microbial breakdown of plant litter and root exudates. Tanneberger et al. (2021) describes how peatland management has to choose between CO₂

emissions from drained peatlands or increased methane (CH₄) emissions from rewetted industrial peatlands. However, when radiative effects and atmospheric lifetimes of both GHG gases are considered and modelled, postponing rewetting increases the long-term warming effect of continued CO₂ emissions (Gunther et al. 2020). This means the increase in methane due to rewetting of dry peatlands is still negated by the CO₂ emissions reductions. Degraded peatlands also release carbon/GHG emissions via the fluvial/aquatic pathway (Dissolved Organic Carbon – DOC, Suspended Solids/Particulate Matter, degassing of GHGs from water).

The EPA-funded CarbonRestore Project (Renou-Wilson et al. 2012) found that rewetting of drained peatlands can lead to restoration of functional peatland, such as the return of typical plant and animal species, which in turn may lead to the restoration of peat-formation and the C-sink function. The EPA NEROS project carried out GHG flux research at Moyarwood Bog and found that Moyarwood Bog was overall a Carbon sink (sink for CO₂ and a source for Methane) 6 years after bog restoration was carried out (Renou-Wilson et al. 2018). Further, Wilson et al. (2022) confirmed the benefit of rapid rewetting at this site to achieve strong carbon reductions and potentially altering the warming dynamics from warming to cooling depending upon the climate scenario.

It is expected that Attymon Bog will become a reduced carbon source/part carbon sink following rehabilitation. The potential of any cutaway site to develop as a carbon sink in the longer-term depends on the success of the rehabilitation measures, the extent of development of *Sphagnum*-rich or other peat-forming habitats, the balance of carbon fluxes from different cutaway habitats and future climatic conditions.

Much of this site is shallow peat with wetland/ fen habitats expected to develop. Some ***Sphagnum*-rich regenerating wet deep peat vegetation** may develop on deeper peat areas. Birch woodland is expected to develop on the drier mounds and peripheral headlands.

The potential of any raised bog site to develop as a carbon sink in the longer-term depends on the success of the rehabilitation measures, the extent of development of *Sphagnum*-rich or other peat-forming habitats, the balance of carbon fluxes from different cutaway habitats and future climatic conditions. Some marginal areas of the bog are cutover bog and a range of different habitats is expected to develop in these areas. Birch woodland is expected to develop on drier mounds and peripheral headlands/more elevated areas.

3.9 Current ecological rating

(Following NRA (2009) Evaluation Criteria)

The majority of the site is rated as **local importance (higher and lower value)** due to the establishment of pioneer semi-natural habitats and bare peat (cutaway bog). The conifer plantation and areas of bare peat and scrub can be rated as being of **local importance (lower value)**. Semi-natural habitats such as woodland and scrub can be deemed to be of **local importance (higher value)**. The Birch woodland (WN7) and scrub provide semi-natural habitat and provide refuge for wildlife are classified as **local importance (higher value)**.

4. CONSULTATION

4.1 Consultation to date

Consultation will seek to engage an audience of relevant stakeholders at both a national and local level. National stakeholders have been identified from varied bog restoration and rehabilitation efforts undertaken by Bord na Móna over the past 40 years, with particular emphasis on engagement with stakeholders during their Biodiversity Action Plan programme since 2010. National Stakeholders includes relevant government departments and agencies, relevant semi-state bodies, NGOs and other environmentally focused groups with a national remit.

Stakeholders were notified when the draft plan was finalised internally by Bord na Móna and invited to make submissions on the objectives and content of this plan in relation to Attymon Bog. The draft plans and final versions of the rehab plans will be available on the Bord na Móna website (www.pcasinfo.ie).

There has been ongoing consultation about rehabilitation and other general issues over the years about Attymon Bog with various stakeholders in relation to:

- General consultation with range of stakeholders at annual Bord na Móna Biodiversity Action Plan review days 2010-2018.
- Midlands & East Regional WFD Operational Committee (River Basin Management Plans).
- Archaeological Liaison Committee (National Museum of Ireland & Dept of Culture Heritage and the Gaeltacht).
- West Regional WFD Operational Committee (River Basin Management Plans).
- Consultation with a range of stakeholders including Attymon Co-op during the previously rehabilitation carried out at Attymon.

To inform the current Plan, both national and local stakeholders, including neighbours whose land adjoins Attymon Bog and local representatives of national bodies (such as Regional National Parks and Wildlife Service staff) and relevant offices in County Councils (such as the Heritage or Environmental Offices) have been contacted. Any identified local interest groups have been sought and informed of the opportunity to engage with this rehabilitation plan, and when identified have been invited to submit their comments or observations in relation to the proposed rehabilitation at Attymon Bog.

All correspondence received will be acknowledged and evaluated against the rehabilitation work proposed. Further to the above, as a means of further notification for those based near to any proposed PCAS activities, a leaflet detailing PCAS plans for Attymon Bog, contact details and the PCAS website address was delivered to each house within a 1 km radius of the bogs.

4.2 Issues raised by Consultees

N/A Yet as consultation has not commenced.

4.3 Bord na Móna response to issues raised during consultation

N/A Yet as consultation has not commenced.

5. REHABILITATION GOALS AND OUTCOMES

The rehabilitation goals and outcomes outline what Bord na Móna want to achieve by implementing the rehabilitation. These include:

- Meeting conditions of IPC Licence.
- Stabilisation or reduction in water quality parameters of water discharging from the site (e.g. suspended solids).
- Reducing pressure on receiving waterbodies that have been classified as ‘*at risk*’ from peatlands and from peat extraction, via stabilization or improving water-quality from this bog, and therefore, reducing pressures.
- Optimising hydrological conditions for **climate action benefits as part of PCAS**.
- Carrying out an intensive rehabilitation measures in including drain-blocking to encourage raised bog restoration and the development of active raised bog habitat and eventually naturally functioning and peatland habitats.
- Integrating rehabilitation measures with current land-use.
- Optimising hydrological conditions for the protection of exposed archaeological structures, their retention in situ and preservation into the future, where possible.
- Supporting expected future land-uses.
- The main goal and outcome of this plan is the successful rehabilitation (environmental stabilisation) of peatlands used for industrial peat production at the bog in a manner that is acceptable to both external stakeholders and to Bord na Móna and which optimise climate action and other ecosystem service benefits.

The rehabilitation goals and outcomes take account of the following issues.

- It will take some time for stable naturally functioning habitats to fully develop across the entirety of Attymon Bog. This will happen over a longer timeframe than the implementation of this rehabilitation plan.
- Re-wetting residual peat will initially maintain and enhance the carbon storage capacity of the bog. There is scientific consensus that restoration of hydrology in damaged bog can improve carbon storage, water storage and attenuation and help support biodiversity both on the site and in the catchment (See Section 3.8). This will reduce carbon emissions from the site from a larger carbon source to a smaller carbon source. In time, the site has the capacity to develop in part as a carbon sink. PCAS is expected to deliver significant contributions to Ireland’s climate action.
- Attymon Bog has previously undergone rehabilitation across some of the bog. Re-wetting (and other proposed measures) across the entire bog, as part of the scheme, will further improve the condition of this bog. It is not expected that the site has the potential to develop active raised bog (ARB) analogous to the priority EU Habitats Directive Annex I habitat within the foreseeable future (c.50 years). Nevertheless, re-wetting across the entire bog, as part of the Scheme, will improve habitat conditions of the whole bog. Other peatland habitats will develop in a wider mosaic that reflects underlying conditions.
- Rehabilitating former industrial peat production bog will also in the longer-term support other ecosystem services such as such the development of new habitat to support biodiversity and local attenuation of water flows from the bog.
- WFD status in receiving water bodies can be affected by peatlands and peat extraction but is also affected by other sources such as agriculture. In addition, receiving water bodies that are assessed as At Risk from

peatlands and from peat extraction are likely to have several contributory sources of impacts (private peat extraction and Bord na Móna). Reducing pressures due to former peat extraction activities at Attymon Bog will contribute to stabilising or improving water quality status of receiving water bodies in general. Ultimately, improving the WFD status of the receiving water body will depend on reducing pressure from a range of different sources, including peatlands in general (private and Bord na Móna).

- Bog restoration was carried out at the nearby Derrydoo-Woodlough Bog in 2013-2014 and rehabilitation of the bog is now complete. Bord na Móna are also planning rehabilitation measures with a draft plan prepared in some nearby bogs including Cloonkeen bog located to the north. There are expected to be cumulative water quality and other ecosystem service benefits to receiving water bodies such as the Clarinbridge river and associated tributaries and the downstream protected habitats from rehabilitating more than one bog in the same catchment.
- Re-wetting in general will benefit the future preservation of most known and unknown archaeological features. An Archaeological Impact Assessment (AIA) is to be carried out under the PCAS scheme.

Draft

6. SCOPE OF REHABILITATION

The principal scope of this enhanced rehabilitation plan is to rehabilitate the bog. This is defined by:

- The area of Attymon Bog within the PCAS rehabilitation footprint.
- EPA IPC Licence - Ref. P0502-01. As part of Condition 10.2 of this license, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area. Attymon Bog is part of the Blackwater (Attymon sub-group) bog group.
- The Scheme is designed to exceed the stabilisation requirements as defined by the IPC Licence. This scheme is designed to enhance the ecosystem services of Attymon Bog, in particular, optimising climate action benefits. The proposed interventions will mean that environmental stabilization is achieved (meaning IPC obligations are met) and, in addition, significant other ecosystem service benefits particularly for climate action will be accrued.
- Attymon Bog has a gravity drainage regime and has primarily residual shallow peat. The local environmental conditions of Attymon Bog means that targeted drain blocking on dry cutaway is the most suitable rehabilitation approach for this site.
- Integrating rehabilitation measures with existing conifer forestry. It is not proposed to change or affect any conifer or commercial forestry via this scheme. The future forestry management of these areas will be defined by Coillte.
- Bord na Móna have defined the key goal and outcome of rehabilitation at Attymon Bog as **environmental stabilisation** of the site via **optimising climate action benefits, where possible**. The re-wetting of residual peat in the area recently out of peat extraction will be optimised, **setting the site on a trajectory towards the development of wetlands, fen and birch woodland on shallow more alkaline peat and other subsoils**.
- Rehabilitation of Attymon Bog will support multiple national strategies of climate action, biodiversity action and other key environmental strategies such as the Water Framework Directive.
- The time frame for the delivery of the planned rehabilitation will be undertaken according to available resources and appropriate constraints.

6.1 Key constraints

- **Bog conditions.** Rehabilitation outcomes of sites are constrained by the environmental characteristics of these particular areas. For example, there is potential for raised bog restoration at some sites where there has not been significant industrial peat extraction and the peat body is largely intact (deep peat sites that are drained). At other sites, like Attymon, most of the peat mass has been removed, the environmental characteristics of these areas have therefore changed radically (peat depths, hydrology, water chemistry, substrate type, nutrient status, etc.) and there will therefore be different habitat outcomes (wetlands, fen, heathland, grassland and Birch woodland).
- **Current/future land-use.** Key land-use is currently forestry. The future forestry management of land leased to Coillte will be defined by Coillte. This rehabilitation plan does not cover conifer forestry management on lands leased by Coillte. A key future land-use is a potential amenity development. It is planned that the existing access track will be used as an amenity trail, using the former rail line that runs through the length of the eastern boundary of the bog. It is proposed to loop the amenity route around the forestry. Re-wetting will be planned as to not to impact on current forestry or potential future amenity infrastructure. Where an area of adjacent land, where no hydrological break exists between the

restoration footprint, has been excluded from rehabilitation. In addition, where required, hydrological breaks have been maintained. Such measures have been informed by a detailed Drainage Management Plan (DMP) (RPS, 2024) prepared for Attymon.

- **Surrounding landscape and neighbours.** Another key constraint is the interaction between the Bord na Móna sites and the surrounding landscape. Care has to be taken that no active rehabilitation management is carried out that could negatively and knowingly impact on surrounding land. This includes any hydrological management on neighbouring farmland. It is anticipated that the work proposed here (blocking drains and re-wetting cutaway peatlands) will not have any flooding impacts on adjacent land.
Invasive species. Japanese Knotweed, an invasive plant species, was noted in a works area located in the east of the site. Appropriate best practice measures will be implemented on site during any site restoration works in order to avoid the spread of this species.
- **Sensitive habitats or species.** The presence of ecologically sensitive species may affect the extent or timing of the rehabilitation measures. Some sensitive ecological receptors if present may require protection through the provision of Environmental Restriction Zones (or ERZ's).
- **Archaeology.** The discovery of monuments or archaeological objects during peatland rehabilitation may potentially constrain the rehabilitation measures proposed for a particular area. While the rehabilitation will optimise hydrological conditions for the protection of exposed archaeological structures, their retention in situ and preservation into the future, any new archaeology may require rehabilitation measures will be reviewed and adapted. If this occurs, rehabilitation measures will be reviewed and adapted. An Archaeological Impact Assessment (Appendix XII) will be carried out to mitigate against any impact on found archaeology at Attymon Bog. In the worst-case scenario works affecting the surface and sub-surface of the bog might disturb previously unknown archaeological deposits or artefacts without preservation by record taking place. Should any previously unknown archaeological material be uncovered during the rehabilitation works, it should be avoided and reported to Bord na Móna Archaeological Liaison Officer and the National Museum of Ireland.
- **Public Rights of Way.** There are known rights at both the north and south of Attymon Bog. Where a public right of way or similar burden exists on Bord na Móna property, consideration will be given to ensuring that these remain intact where possible. In some instances, depending upon previous land uses and management, alternative solutions may be required. These will be explored in consultation with local communities and statutory bodies during the consultation work associated with the decommissioning and rehabilitation work described here.
- **Railway.** The Galway to Dublin railway line runs east to west in the north of the bog. This has been mapped as a constraint on rehab mapping.
- **Turbary.** There are limited areas of active or historic domestic turf cutting adjacent to the southern and north-western sections of Attymon bog. Areas adjacent to active domestic turf cutting, where no hydrological break exists, have been excluded. These areas are ecologically and hydrologically linked to the area owned by Bord na Móna where rehabilitation is planned.
- **Invasive species.** Japanese Knotweed has been recorded in the southeast of the bog. Appropriate best practice measures will be implemented on site during any site restoration works in order to avoid the spread of this species.
- **Previously rehabbed areas.** Some areas that have undergone previous rehabilitation have been excluded from the PCAS rehabilitation and are mapped as constraints on the rehab maps. These include areas where no additional rehabilitation work is required.

6.2 Key Assumptions

- It is assumed that Bord na Móna will have all resources required to deliver this project. For the avoidance of doubt, should the Scheme and the associated statutory obligation on Bord na Móna not materialise, Bord na Móna will not carry out the enhanced decommissioning, rehabilitation and restoration measures described in this plan. Bord na Móna will instead plan to complete only the 'standard' decommissioning and rehabilitation required under Condition 10, and for which financial provisions have been made, to comply with that element of the Licence.
- It is expected that weather conditions will be within normal limits over the rehabilitation plan timeframe. Long periods of wet weather have the capacity to significantly affect ground conditions and constrain drain blocking and other ground activities.

6.3 Key Exclusions

The scope of this rehabilitation plan does not cover:

- Areas subject to turf cutting, coillte forestry, access routes and previously rehabbed areas are excluded.
- The longer-term development of stable naturally functioning habitats and raised bog restoration trajectory of the site. The plan covers the short-term rehabilitation **actions** and a **monitoring and after-care programme** to monitor the rehabilitation during the Scheme and to respond to any needs. It is expected that this rehabilitation plan will set the site on an enhanced and accelerated trajectory towards stabilisation and raised bog restoration. The plan does not set any goals or outcomes, for example, the extent (specific area) of active raised bog habitat (ARB) that may develop at this site in the long-term. This is beyond the scope of this rehabilitation plan.
- This plan is not intended to be an after-use or future land-use plan for Attymon Bog.
- The longer-term management of this site, potentially as a nature conservation site, or for amenity, or for other uses in the future.

7. CRITERIA FOR SUCCESSFUL REHABILITATION

This section outlines what criteria will be used to indicate successful rehabilitation and what key criteria/targets will be used to mark the achievement of the rehabilitation goals and outcomes and validate the completion of the rehabilitation.

The key objective of this enhanced rehabilitation plan is **environmental stabilisation** and the stabilisation of any emissions from the site that related to the former industrial peat extraction activities.

Rehabilitation is generally defined by Bord na Móna as:

- stabilisation of bare peat areas via targeted active management (e.g. drain-blocking/re-wetting) slowing movement of water across the site and encouraging natural colonisation; and
- mitigation of potential key emissions (e.g. suspended solids).

In addition, Bord na Móna wish to optimise climate action and other ecosystem service benefits via enhanced rehabilitation measures.

7.1. Criteria for successful rehabilitation to meet EPA IPC licence conditions:

- Rewetting of residual peat in the former area of industrial peat production to offset potential run-off of suspended solids and to encourage/accelerate development of vegetation cover via natural colonisation and reducing the area of bare exposed peat. See Table 7.1 for a summary of the criteria for successful rehabilitation and associated monitoring. The target will be the delivery of measures, and this will be measured by an aerial survey after rehabilitation is completed.
- That there is a stabilizing/improving concentration of suspended solids and ammonia in discharges from Bord na Móna sites, associated with the measures undertaken to stabilize the peat surface by the blocking of the internal drainage system and the maximized rewetting of the peat surface.
- Receiving water bodies have been classified under the River Basin Management Plan and this classification includes waters that are 'At Risk' from peatlands and peat extraction. The success criteria will be that the 'At Risk' classification will see improvements in the associated pressures from this peatland or if remaining 'At Risk', that there is an improving trajectory in the pressure from this peatland.

With regard to predicting and estimating likely trends that might materialize or could be considered as a target, monitoring of surface water ammonia emissions from Longfordpass bog in Littleton over 3 years, post cessation of peat extraction with ongoing rehabilitation, were considered. These are indicating a downward trend in Ammonia concentrations (Figure 7.1).

Similarly monitoring of surface water ammonia emissions from a Corlea bog in Mountdillon over the past 4 years post cessation of peat extraction with ongoing rehabilitation, indicates downward trends.

As the monthly monitoring program at Attymon continues in 2024 during the rehabilitation works planned for 2024, further trending will be produced to verify any ongoing trends.

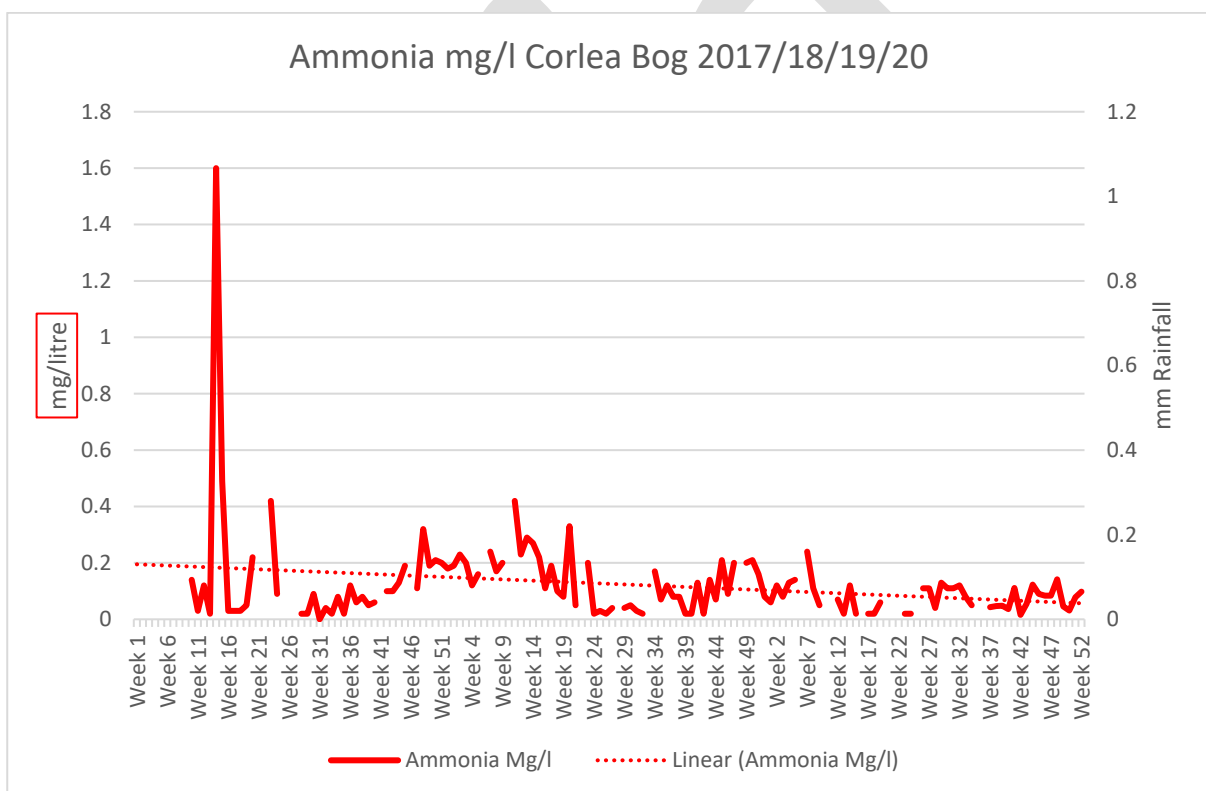
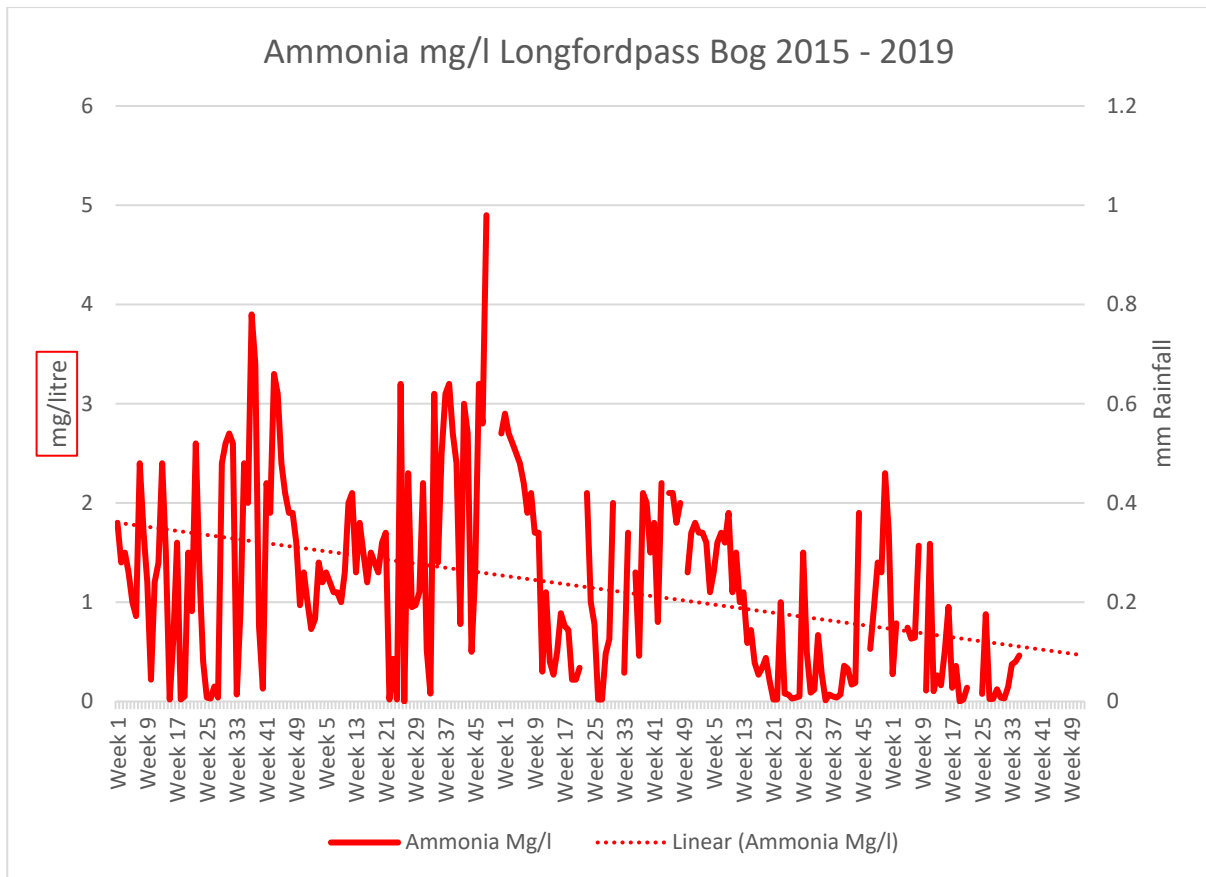


Figure 7.1. Ammonia trends at Longfordpass and Corlea over the period 2015--2019/2020.

Additional criteria for successful rehabilitation to optimise climate action and other ecosystem service benefits:

- Optimising the extent of suitable hydrological conditions to optimise climate action and other ecosystem service benefits (optimising and maximising residual peat re-wetting). This will be measured by an aerial survey after rehabilitation has been completed.
- Accelerating the trajectory of the bog towards becoming a reduced carbon source/carbon sink. This will be measured through habitat mapping and the development of cutaway bog condition assessment. This cutaway bog condition assessment will include assessment of environmental and ecological indicators such as vegetation cover, vegetation communities, presence of key species, *Sphagnum* cover, bare peat cover and water levels (similar to ecotope mapping). Baseline monitoring will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.
- Reduction in carbon emissions. This will be estimated via a combination of habitat condition assessment and application of appropriate carbon emission factors derived from other sites. Baseline monitoring (habitat condition) will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.
- Setting the site on a trajectory towards establishment of a mosaic of compatible habitats including wetland, fen, Reed swamp, heath, scrub, poor fen, and Downy Birch woodland, where conditions are suitable. It will take some time for stable naturally functioning habitats to fully develop at Attymon Bog. This will be demonstrated and measured via aerial photography, habitat mapping and cutaway/habitat condition assessment. Baseline monitoring will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.
- Improvement in biodiversity and ecosystem services. This will be demonstrated by metrics outlined in Section 9.1 that can be used to measure changes in ecosystem services (e.g. water quality parameters, development of pioneer habitats, breeding bird monitoring). This will be measured by collecting a range of scientific data that can then quickly be adapted and into metrics that can be used to measure changes in various ecosystem services. Baseline monitoring will be carried after rehabilitation is completed (during the scheme). It is proposed that sites can be monitored against this baseline in the future.

Table 7.1. Summary of Success criteria, targets, how various success criteria will be measured and expected timeframes.

Criteria type	Criteria	Target	Measured by	Expected Timeframe
IPC validation	Rewetting in the former area of industrial peat production	Delivery of rehabilitation measures Reduction in bare peat.	Aerial photography after rehabilitation has been completed – to demonstrate measures (drain-blocking) Establishment of a baseline for future monitoring of bare peat, vegetation establishment and habitat condition.	2024-2025
IPC validation	Key water quality parameters Ammonia, Phosphorous, Suspended solids, pH and conductivity	Reduction or stabilisation of key water quality parameters associated with this bog	Water quality monitoring for a period after rehabilitation has been completed	2023-2025
IPC validation	Reducing pressure from peat production on the local water body catchment (WFD)	Where this section of the water body, that this bog drains to, has not been identified as under pressure from peat extraction, that the intervening EPA monitoring programme associated with its Programme of Measures for this water body, confirms that its classification remains at not being at risk from peat extraction associated with activities at this bog.	EPA WFD monitoring programme	WFD schedule
Climate action verification	Optimising the extent of suitable hydrological conditions to optimise climate action	Optimal extent of suitable hydrological conditions	Aerial photography and Habitat mapping to map extent of suitable hydrological conditions. Baseline monitoring to be carried out during the scheme when rehabilitation is complete. Sites can	2024-2025

Criteria type	Criteria	Target	Measured by	Expected Timeframe
			be re-monitored in the future and compared against this baseline.	
Climate action verification	Reduction in carbon emissions.	Reduction in carbon emissions	Carbon emissions – estimated using a bog condition assessment and appropriate carbon emission factors.	2024-2025
Climate action verification	Setting the site on a trajectory towards establishment of a mosaic of compatible habitats	Establishment of compatible cutaway habitats	Habitat map, Cutaway bog condition map Baseline monitoring to be carried out during the scheme when rehabilitation is complete. Sites can be re-monitored in the future and compared against this baseline.	2024-2025

Meeting climate action verification criteria and monitoring of these criteria after the scheme has been completed is dependent on support from the Climate Action Fund or other sources of funding. Note that monitoring and verification of the overall scheme will be stratified – not all these criteria will be measured at each individual site. Baseline monitoring to be carried out during the scheme when rehabilitation is complete. Sites can be re-monitored in the future and compared against this baseline.

7.2. Critical success factors needed to achieve successful rehabilitation as outlined in the plan

The achievement of successful rehabilitation as outlined in the plan requires:

- **Funding to pay for resources required to deliver the planned rehabilitation (Bord na Móna and external).** Bord na Móna maintains a provision on its balance sheet to pay for these future costs. Bord na Móna is fully committed to meeting its obligations relating to rehabilitation and decommissioning under the Integrated Pollution Control Licence. It is expected that additional costs of enhanced rehabilitation will be supported by Government through the Climate Action Fund and Ireland’s National Recovery and Resilience Plan.
- **Bord na Móna to have sufficient resources (staff and training) to deliver the planned rehabilitation with required associated skills and competencies.**
- **Bord na Móna to have sufficient resources (suitable machinery) and staff to maintain this machinery.**
- **Weather conditions to be within normal limits over the rehabilitation plan timeframe.** Long periods of wet weather have the capacity to significantly affect ground conditions and constrain the delivery of rehabilitation. The potential impact of wet weather on ground conditions can be reduced by appropriate planning and management. Bord na Móna have significant experience of managing these issues through 70 years of working in these peatland environments.
- **Rehabilitation measures to be effective.** The rehabilitation measures proposed in this plan are based on 40 years of Bord na Móna experience of peatland management and best practice applied internationally in peatland management. Measures proposed in this plan have already been shown to be effective at

other sites. Bord na Móna will apply a flexible and adaptable approach to the more innovative rehabilitation measures proposed in this plan. If measures are not initially effective, Bord na Móna will review any requirement for additional practical rehabilitation.

- **Natural colonisation of vegetation to develop semi-natural habitats at a rate within the normal limits.** The development of naturally functioning semi-natural habitats on degraded bog takes time. It may take 30-50 years for active raised bog vegetation to re-develop on suitable cutaway that was previously bare peat. However, Bord na Móna experience has demonstrated the effectiveness of these type of measures for re-wetting bog and creating carbon sinks (Renou-Wilson et al. 2018).
- Rehabilitation measures have been designed to accelerate and work with natural colonisation and other natural processes. Bord na Móna experience of rehabilitation has shown that re-wetting improves conditions for natural colonisation and that natural colonisation is accelerated where the environmental conditions are most suitable. Rehabilitation measures have been designed to modify the conditions of areas within sites where conditions are less suitable for natural colonisation (modifying hydrology, topography, nutrient status or availability of potential seed sources).
- **Monitoring to be robust and effective.** Rehabilitation Monitoring will be established to validate the success of rehabilitation as required by Condition 10 of the IPC Licence and to verify the benefits of the proposed enhanced measures to optimise climate action. This will focus on a collecting a range of scientific data that can then quickly be adapted and into metrics that can be used to measure changes in various ecosystem services.

8. REHABILITATION ACTIONS AND TIME FRAME

Peatland rehabilitation requires detailed planning and the use of data from desktop surveys and field surveys. This data in association with topographical and hydrological modelling will be important in planning the future peatland landscapes and planning the use of the most appropriate rehabilitation methodologies to maximise climate action benefits. Hydrological modelling indicates those areas that are likely to re-wet when drains are blocked, based on the current topography, and areas where water levels may have to be modified, where needed. Enhanced rehabilitation measures will look to optimise hydrological conditions for re-wetting peat in other areas. This planning is also essential for matching the most sustainable rehabilitation methodology to the most suitable cutaway environment to maximise the benefits of the resource outlay (maximising cost/benefit).

A number of illustrative figures have been produced to inform Rehab Planning and Design, including Aerial Photography, Peat Depths, LiDAR Surface Maps, and Depression Analysis modelling; these are included in the accompanying Mapbook as the drawings referenced below:

BNM-DR-25-11-RP-21 titled Attymon Bog: Aerial Imagery 2020

BNM-DR-25-11-RP-04 titled Attymon Bog: PeatDepths

BNM-DR-25-11-RP-03 titled Attymon Bog: LiDAR Map

BNM-DR-25-11-RP-09 titled Attymon Bog: Depression Analysis

The rehabilitation actions themselves will be a combination of PCAS measures to re-wet peat. The distribution of these measures is provisionally outlined in drawing *BNM-DR-25-11-RP-05 Attymon Bog: Rehabilitation Measures* in the accompanying Mapbook (note that the actual distribution of these measures may be subject to change in response to stakeholder consultation and refinement of the enhanced rehabilitation measures.)

These measures for Attymon bog will include (see Table 8.1):

- Targeted drain blocking and Regular drain blocking (3/100m) on dry cutaway along with the blocking of outfalls and management of water levels, along with organic fertiliser application. Larger drain block will be used in wider sod moss drains (DPT6 style).
- Intensive drain blocking around shallow peat areas/modelled depressions on little or no peat to create/promote the spread of wetland habitats,
- Modifying outfalls, and management of water levels with overflow pipes and blocking of internal outfalls;
- Targeted fertiliser applications to accelerate vegetation establishment on areas of **bare peat** on headlands and high fields, and within certain areas of dry cutaway. Areas where vegetation has established do not need fertiliser application.
- Silt control measures will be retained and maintained during the rehabilitation phase. During the monitoring and verification phase silt control measures will be continually inspected and maintained, where appropriate. When it is deemed that silt control measures are not required, as the bog has been successfully stabilised and water quality parameters meet targets the condition of the silt control measures will be reviewed.

Table 8.1. Types of and areas for rehabilitation measures at Attymon Bog.

Type*	Rehab Code	Enhanced Rehabilitation Measure	Extent (Ha)
Additional Work	AW2	Targeted Drain Blocking (berms, and large drain blocks)	164.5
Dry Cutaway	DCT1	Blocking outfalls and managing water levels with overflow pipes.	17.5
Marginal land	MLT1	No work required	10.4
Silt ponds	Silt pond	Silt ponds	0.3
Constrained area	Constraint	Other Constraints (Turbary), previously rehabbed areas, coillte, access	144.24
Total Area			336.9

*Note that the types of rehab and areas of rehab may change in response to stakeholder consultation and refinement of the rehabilitation measures.

Completed and ongoing

- Some areas that have undergone previous rehabilitation have been excluded from the PCAS rehabilitation and are mapped as constraints on the rehab maps. These include areas where no additional rehabilitation work is required.
- A significant part of the site has already re-vegetating, with significant cover of pioneer vegetation developing a mosaic of typical cutaway peatland and wetland habitats. Natural re-colonisation of the cutaway so far has been quite effective. Bare peat areas within the cutaway parts of the site are shrinking as vegetation develops and consolidates.

8.1 Short-term planning actions (0-1 years)

- Seek formal approval of the enhanced plan, noting the alternative standard plan should funding from the Scheme not materialise, from the EPA.
- Agree an *ex ante* budget of eligible costs (based on the approved enhanced plan) with the Scheme regulator.
- Develop a detailed site plan with engineering drawings outlining how the various rehabilitation methodologies (The Scheme PCAS) will be applied to Attymon Bog. This will take account of peat depths, topography, drainage and hydrological modelling. (See map for an indicative view of the application of different rehabilitation methodologies).
- A drainage management assessment of the proposed enhanced rehabilitation measures will be carried out and any issues identified resolved and the rehabilitation plan adapted.
- A review of known archaeology and an archaeological impact appraisal of the proposed rehabilitation will be carried out. The results of this assessment will be incorporated into the rehabilitation plan to minimise known archaeological disturbance, where possible.
- A review of issues that may constrain rehabilitation such as known rights of way, turbary and existing land agreements is to be carried out.

- An ecological appraisal of the potential impacts of the planned rehabilitation on the presence of sensitive ground-nesting bird breeding species (e.g. breeding waders) is to be carried out. The scheduling of rehabilitation operations will be adapted, where required.
- Ensure all activities comply with the environmental protection requirements of the IPC Licence.
- Carry out Appropriate Assessment of the Rehabilitation Plan.
- Track implementation and enforcement of the relevant IPC Licence conditions, the mitigation measures (AA) and other environmental control measures during the implantation of the rehabilitation plan.

8.2 Short-term practical actions (0-2 years)

- Carry out proposed measures as per the detailed site plan. This will include drain blocking, in addition to additional measures in cutover bog. All rehabilitation will be carried out with regard to best practice environmental control measures (Appendix IV).
- Monitor the success of rehabilitation measures in relation to developing suitable hydrological conditions.
- Carry out the proposed monitoring, as outlined.
- While natural colonisation has commenced since peat production ceased, Phase 2 actions will be carried out in targeted areas to accelerate re-vegetation and colonisation of target species. Phase 2 actions may include seeding of targeted vegetation and inoculation of *Sphagnum*.
- Silt ponds will be monitored during this period and there will be continued maintenance and cleaning to prevent potential run-off of suspended solids from the site during the rehabilitation phase.
- Submit an *ex post* report to the Scheme regulator to verify the eligible measures to be carried out in year 1 of the Scheme, and an *ex ante* estimate for year 2 of the Scheme; and so on for each year of the Scheme.

8.3 Long-term (>3 years)

- Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.
- Delivery of a monitoring, aftercare and maintenance programme (See section 9 below).
- Decommissioning of silt-ponds will be assessed and carried out, where required.
- Reporting to the EPA will continue until the IPC License is surrendered.

8.4 Timeframe

- **2024:** Short-term planning actions.
- **2024-2025:** Short-term practical actions.
- **2025-2026:** Long term practical actions. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.

8.5 Budget and costing

Bord na Móna (BnM) appreciates the Minister's intention to support Bord na Móna in developing a package of measures, 'the Scheme', for enhanced decommissioning, rehabilitation and restoration of cutaway peatlands

referred to as, the Peatlands Climate Action Scheme'. *However, only the additional costs associated with the additional and enhanced rehabilitation, i.e., measures which go beyond the existing standard mandatory decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support.*

The enhanced decommissioning, rehabilitation and restoration of the peatlands funded by the Scheme will deliver benefits across climate action (GHG mitigation through reduced carbon emissions and acceleration towards carbon sequestration), enrich the State's natural capital, increase eco-system services, strengthen biodiversity, improve water quality and storage attenuation as well as developing the amenity potential of the peatlands.

Bord na Móna maintains a provision on its balance sheet to pay for the future costs of **standard** rehabilitation and decommissioning. This is updated every year - for more information see the Bord na Móna Annual Report (Bord na Móna, 2022). Bord na Móna is fully committed to meeting its obligations relating to rehabilitation and decommissioning under the Integrated Pollution Control Licence.

At this time, a 'standard' rehabilitation provision (sufficient to discharge the requirement of Condition 10 in the licence) has been allocated to the site based on the area of different cutaway types across the site (See Appendix I).

9. AFTERCARE AND MAINTENANCE

9.1 Programme for monitoring, aftercare and maintenance

This programme for monitoring, aftercare and maintenance has been designed to meet the Conditions of the IPC Licence. This is defined as:

- There will be **initial quarterly monitoring assessments** of the site to determine the general status of the site, the condition of the silt ponds, assess the condition of the rehabilitation work, monitoring of any potential impacts on neighbours land, general land security, boundary management, dumping and littering.
- The number of these site visits will reduce after 2 years to bi-annually and then after 5 years to annual visits.
- These monitoring visits will also consider any requirements for further practical rehabilitation measures.
- The **baseline condition of the site will be established** post-rehabilitation implementation by using an aerial survey to take an up to date aerial photo, when rehabilitation is completed. This will be used to verify completion of rehabilitation measures. The extent of bare peat will be assessed using this baseline data, and habitat maps will be updated, if needed. It is proposed that sites can be monitored against this baseline in the future.
- **Water quality monitoring** at the bog will be established. The main objective of this water quality monitoring will be to establish a baseline and then monitor the impact of peatland rehabilitation on water quality from the bog.
- In order to assist in monitoring surface water quality from this bog, it is planned to increase the existing licence monitoring requirements to sampling for the same parameters to every month during the scheduled activities and for a period up to two years post rehabilitation, depending on the period required to confirm that the main two parameters, suspended solids and ammonia are remaining compliant with the licence emission and trigger limit values and there is an improving trajectory in these two parameters i.e. reduction in concentration.
- Enhanced water quality monitoring will aim to include up to 70% of a bogs drainage catchments.
- Monitoring results will be maintained, trended and reported on each year as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, which will be available in April each year at www.epa.ie.
- The parameters to be included (as per condition 6.2 of the IPC Licence) include monthly monitoring for pH, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD and DOC.
- This monthly sampling regime on a selected number of silt ponds will be carried out over a two-year cycle. The original (licence) requirement was for a quarterly sampling regime, but this has been increased to a monthly regime to appropriately track the changing water chemistry that will occur as part of this enhanced rehabilitation. In addition, DOC will be included as a parameter to try and identify any changes in carbon in the surface water.
- If, after two years, key criteria for successful rehabilitation are being achieved and key targets are being met, then the water quality monitoring will be reviewed, with consideration of potential ongoing research on site. The water quality data, the aerial surveys and the habitat mapping will be collated and will be submitted to the EPA as part of the final validation report.
- If, after two years, key criteria for successful rehabilitation have **not** been achieved and key targets have **not** been met, then the rehabilitation measures and status of the site will be evaluated and enhanced, where required. This evaluation may indicate no requirement for additional enhancement of

rehabilitation measures but may demonstrate that more time is required before key criteria for rehabilitation has been achieved. Monitoring of water quality will then also continue for another period to be defined.

- Where other uses are proposed for the site that are compatible the provision of biodiversity and ecosystem services, these will be assessed by Bord na Móna in consultation with interested parties. Other after-uses can be proposed for licensed areas and must go through the required assessment process and planning procedures.

Additional monitoring measures are also proposed to monitor ecosystem service benefits that have been derived by enhanced rehabilitation. These proposed monitoring measures will be funded by the proposed Climate Action Fund Scheme or additional other funding. Monitoring of climate action and other ecosystem service benefits will be designed to take account of the requirements of monitoring benefits of the overall Scheme and will be stratified; that is not all monitoring will be carried out in each site. These are defined as:

- Vegetation and habitat monitoring. It is proposed that sites can be monitored against this baseline in the future.
- The condition of the bog can be assessed using the condition assessment and suitable Greenhouse Gas (GHG) emission factors can be assigned to different habitats. GHG emission factors have been determined for various peatland habitats in Ireland (Wilson *et al.*, 2015) and are constantly being refined with more and more research. BnM is actively supporting research into GHG fluxes in different rehabilitated peatland habitats. This means that potential GHG emissions can be estimated from the site, as the site continues along its trajectory towards a naturally functioning peatland ecosystem.

9.2 Rehabilitation plan validation and licence surrender – report as required under condition 10.4

IPC License Condition 10.4. *A final validation report to include a certificate of completion for the Rehabilitation Plan, for all or part of the site as necessary, shall be submitted to the Agency within six months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.*

Reporting to the EPA will continue until the IPC License is surrendered. The bog will be included in the full licence surrender process as per the Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites EPA, 2012, when:

- The planned rehabilitation has been completed
- The key criteria for successful rehabilitation has been achieved and key targets have been met
- Water quality monitoring demonstrates that water quality of discharge is stabilising or improving; and
- The site has been environmentally stabilised.

10. REFERENCES

- Atherton, I, Bosanquet, SDS & Lawley, M (2010). Mosses and liverworts of Britain and Ireland - a field guide. British Bryological Society.
- Anderson, R., Farrell, C., Graf, M., Muller, F., Calvar, E., Frankard, P., Caporn, S., Anderson, P. (2017). An overview of the progress and challenges of peatland restoration in Western Europe. *Restoration Ecology*, Issue 2 Pages 271-282.
- Barry, T.A. et al (1973). A survey of cutover peats and underlying mineral soils. Soil Survey Bulletin No. 30. Dublin, Bord na Móna and An Foras Taluntais.
- Bord na Móna 2014. Blocking Drains in Irish raised bogs. The Bord na Móna Raised Bog Restoration Project. Cris, R. Buckmaster, S. Bain, C. Reed, M. (Eds) (2014) Global Peatland Restoration demonstrating SUCCESS. IUCN UK National Committee Peatland Programme, Edinburgh. <http://www.iucn-uk-peatlandprogramme.org/sites/www.iucn-uk-peatlandprogramme.org/files/IUCNGlobalSuccessApril2014.pdf>
- Bord na Móna. 2016. Bord na Móna Biodiversity Action Plan 2016-2021. Brosna Press, Ferbane. <http://www.bordnamona.ie/wp-content/uploads/2016/04/Biodiversity-Action-Plan-2016-2021.pdf>.
- Bord na Móna (2023). Bord na Móna Annual Report 2023. https://www.bordnamona.ie/wp-content/uploads/2023/09/Bord-na-Mona_Annual-Report-2023.pdf
- Bord na Móna (2022). *Methodology Paper for the Enhanced Decommissioning, Rehabilitation and Restoration on Bord na Móna Peatlands – Preliminary Study Nov 2022 Version 19*. Bord na Móna. Available online at : <https://www.bnmpcas.ie/supporting-material/>
- Bonn, A., Allott, T., Evans, M., Joosten, H. & Stoneman, R. (2017) Peatland restoration and ecosystem Services-science, policy and practice. Cambridge University Press.
- Carroll, J., Anderson, P., Caporn, S., Eades, P., O'Reilly C. & Bonn, A. 2009. Sphagnum in the Peak District. Current Status and Potential for Restoration. Moors for the Future Report No 16. Moors for the Future Partnership.
- Clark, D. and Rieley, J. 2010. Strategy for responsible peatland management. International Peat Society, Finland.
- Clark, D. (2010). *Brown Gold. A history of Bord na Móna and the Irish peat industry*. Gill Books.
- Cross, J.R. (2006). The Potential Natural Vegetation of Ireland. *Biology and Environment: Proceeding of the Royal Irish Academy*, Vol. 106B, No. 2, 65-116 (2006).
- Department of Communications, Climate Action and Environment 2019. National Climate Action Plan 2019. <https://www.dccae.gov.ie/en-ie/climate-action/publications/Pages/Climate-Action-Plan.aspx>
- Department of Housing, Local Government and Heritage (2022). Draft River Basin Management Plan for Ireland 2022 – 2027.
- Department of Housing, Planning, Community and Local Government 2017. Public consultation on the River Basin Management Plan for Ireland. Department of Housing, Planning, Community and Local Government. https://www.housing.gov.ie/sites/default/files/public-consultation/files/draft_river_basin_management_plan_1.pdf

- Department of Arts, Heritage and the Gaeltacht 2015. National Peatland Strategy. Department of Arts, Heritage and the Gaeltacht.
<http://www.npws.ie/sites/default/files/general/Final%20National%20Peatlands%20Strategy.pdf>
- Eades, P., Bardsley, L., Giles, N. & Crofts, A. (2003). The Wetland Restoration Manual. The Wildlife Trusts, Newark.
- Environment Agency (2013). The Knotweed code of practice. Managing Japanese Knotweed on development sites. Environment Agency, Bristol, UK.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/536762/LIT_2695.pdf
- EPA (2012). Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites.
https://www.epa.ie/publications/licensing--permitting/industrial/ied/Guidance-on-Cessation_.pdf #
- EPA (2024). <http://gis.epa.ie/Envision>. EPA Envision Map Viewer. (Last Viewed: 26/06/2024).
- EPA (2020). Guidance on the process of preparing and implementing a bog rehabilitation plan.
<http://www.epa.ie/pubs/reports/enforcement/guidanceontheprocessofpreparingandimplementingabogrehabilitationplan.html>.
- Evans, C., Artz, R., Moxley, J., Smyth, M-A., Taylor, E., Archer, N., Burden, A., Williamson, J., Donnelly, D., Thomson, A., Buys, G., Malcolm, H., Wilson, D., Renou-Wilson, F., Potts J. (2017). Implementation of an emission inventory for UK peatlands. Report to the Department for Business, Energy and Industrial Strategy, Centre for Ecology and Hydrology, Bangor. 88pp. https://uk-air.defra.gov.uk/assets/documents/reports/cat07/1904111135_UK_peatland_GHG_emissions.pdf.
- European Commission (2013). Interpretation manual of European Union Habitats. European Commission DG Environment Nature ENV B.3. Farrell, C. A. and Doyle, G. J. 2003. Rehabilitation of Industrial Cutaway Atlantic Blanket Bog, NW Mayo, Ireland. Wetlands Ecology and Management, 11, 21-35.
- Fernandez, F., Connolly K., Crowley W., Denyer J., Duff K. & Smith G. (2014) Raised Bog Monitoring and Assessment Survey (2013). Irish Wildlife Manuals, No. 81. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland.
- Fossitt, J. (2000). A guide to habitats in Ireland. Kilkenny. The Heritage Council.
- Flynn, C. (2014). *Nocturnal Lepidoptera of Midland Raised Bogs*. A thesis submitted to The National University of Ireland, Maynooth for the Degree of Master of Science (MSc.). Available online at: MScthesis08_06_15mastercopyfinal.pdf (maynoothuniversity.ie)
- Gann, G.D., McDonald, T., Walder, B., Aronson, J., Nelson, C.R., Jonson, J., Hallett, J.G., Eisenberg, C., Guariguata, M.R., Liu, J., Hua, F., Echeverría, C., Gonzales, E., Shaw, N., Decler, K. & Dixon, K.W. (2019). International Principles and Standards for the practice of Ecological Restoration. Restoration Ecology 27(S1): S1–S46.
- Gilbert G, Stanbury A and Lewis L (2021). “Birds of Conservation Concern in Ireland 2020 –2026”. Irish Birds 9: 523–544.
- Grand-Clement, E., Anderson, K., Smith D., Angus, M., Luscombe D.J., Gatis, N., Bray L.S., Brazier R.E. (2015). New approaches to the restoration of shallow marginal peatlands Journal of Environmental Management 161.

- Günther, A., Barthelmes, A., Huth, V., Joosten, H., Jurasinski, G., Koebisch, F. & Couwenberg, J. (2020). Prompt rewetting of drained peatlands reduces climate warming despite methane emissions. *Nature Communications* volume 11, Article number: 1644.
- Hinde, S., Rosenburgh, A., Wright, N., Buckler, M. and Caporn, S. 2010. Sphagnum re-introduction project: A report on research into the re-introduction of Sphagnum mosses to degraded moorland. *Moors for the Future Research Report 18*. Moors For the Future Partnership.
- Holden, J., Walker, J., Evans, M.G., Worrall, F., Bonn, A., 2008. In: DEFRA (Ed.), *A Compendium of Peat Restoration and Management Projects*.
- Joosten, H. and Clarke, D. 2002. *Wise Use of mires and peatlands – Background and Principles including a framework for Decision-making*. I.M.C.G. – I.P.S., Jyväskylä, Finland.
- Lindsay, R., 2010. *Peatbogs and Carbon: a Critical Synthesis to Inform Policy Development in Oceanic Peat Bog Conservation and Restoration in the Context of Climate Change (Report to RSPB Scotland, Edinburgh)*.
- Mackin, F., Barr, A., Rath, P., Eakin, M., Ryan, J., Jeffrey, R. & Fernandez Valverde, F. (2017) *Best practice in raised bog restoration in Ireland*. Irish Wildlife Manuals, No. 99. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.
- McBride, A., Diack, I., Droy, N., Hamill, B., Jones, P., Schutten, J., Skinner, A. and Street, M. 2011. *The Fen Management Handbook, (2011)*, Scottish Natural Heritage, Perth.
- Minayeva, T. et al. (2017). *Towards ecosystem-based restoration of peatland biodiversity*. *Mires and Peat*, Volume 19 (2017), Article 01, 1–36, <http://www.mires-and-peat.net>
- McDonagh, E. (1996). *Drain blocking by machines on Raised Bogs*. Unpublished report for National Parks and Wildlife Service.
https://www.npws.ie/sites/default/files/publications/pdf/McDonagh_1996_Drain_Blocking_Raised_Bogs.pdf.
- NPWS. (2014). *Review of the raised bog Natural Heritage Area network*. Department of Arts, Heritage and the Gaeltacht.
- NPWS. (2017a). *National Raised bog Special Areas of Conservation management plan*. Department of Arts, Heritage and the Gaeltacht.
[https://www.npws.ie/sites/default/files/files/FOR%20UPLOAD%20Plan\(WEB_English\)_05_02_18%20\(1\).pdf](https://www.npws.ie/sites/default/files/files/FOR%20UPLOAD%20Plan(WEB_English)_05_02_18%20(1).pdf)
- NPWS. (2017b). *Actions for biodiversity 2017-2021. Ireland's 3rd national biodiversity plan*. Department of Arts, Heritage and the Gaeltacht.
<https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf>
- NPWS (2019). *The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments*. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol2_Habitats_Article17.pdf
- NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes (Revision 2)*. National Roads Authority.

- NRA (2010). Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads. National Roads Authority. <https://www.tii.ie/technical-services/environment/construction/Management-of-Noxious-Weeds-and-Non-Native-Invasive-Plant-Species-on-National-Road-Schemes.pdf>
- Pschenyckyj, C., Riondata, E., Wilson, D., Flood, K., O'Driscoll, C., Renou-Wilson, F. (2021). Optimising Water Quality Returns from Peatland Management while Delivering Co-Benefits for Climate and Biodiversity, Report produced for An Fóram Uisce, Online, Available at: https://thewaterforum.ie/app/uploads/2021/04/Peatlands_Full_Report_Final_March2021b.pdf, Accessed 26/06/2024.
- Quinty, F. and L. Rochefort, 2003. Peatland Restoration Guide, second edition. Canadian Sphagnum Peat Moss Association and New Brunswick Department of Natural Resources and Energy. Québec, Québec.
- Regan, S., Swenson, M., O'Connor, M. & Gill, L. (2020). Ecohydrology, Greenhouse Gas Dynamics and Restoration Guidelines for Degraded Raised Bogs. EPA RESEARCH PROGRAMME 2014–2020. Report No.342. (2014-NC-MS-2). EPA Research Report. Prepared for the Environmental Protection Agency by Trinity College Dublin. www.epa.ie.
- Renou-Wilson F., Bolger T., Bullock C., Convery F., Curry J. P., Ward S., Wilson D. & Müller C. (2011). BOGLAND - Sustainable Management of Peatlands in Ireland. STRIVE Report No 75 prepared for the Environmental Protection Agency. Johnstown Castle, Co. Wexford.
- Renou-Wilson, F., Wilson, D., Rigney, D., Byrne, K., Farrell, C. and Müller C. (2018). Network Monitoring Rewetted and Restored Peatlands/Organic Soils for Climate and Biodiversity Benefits (NEROS). Report No. 238. Report prepared for the Environmental Protection Agency. Johnstown Castle, Co. Wexford.
- Schouten, M.G.C. 2002. Conservation and Restoration of Raised Bogs: Geological, Hydrological and Ecological Studies. Dúchas - The Heritage Service of the Department of the Environment and Local Government, Ireland; Staatsbosbeheer, the Netherlands; Geological Survey of Ireland; Dublin.
- Smith, G., O'Donoghue, P., O'Hora, K. & Delaney, E. (2011). Best Practice Guidance for Habitat Survey and Mapping. The Heritage Council.
- Stace, C. A. (2019). New Flora of the British Isles: Fourth Edition. Cambridge: Cambridge University Press.
- Thom, T., Hanlon, A., Lindsay, R., Richards, J., Stoneman R. & Brooks, S. (2019). Conserving Bogs – Management Handbook. <https://www.iucn-uk-peatlandprogramme.org/sites/default/files/header-images/Conserving%20Bogs%20the%20management%20handbook.pdf>
- Wilson, D., Renou-Wilson, F., Farrell, C., Bullock, C. and Muller, C. (2012). Carbon Restore – the potential of restored Irish peatlands for carbon uptake and storage; CCRP Report. EPA Wexford.
- Wilson, D., Dixon, S.D., Artz, R.R., Smith, T.E.L., Evans, C.D., Owen, H.J.F., Archer, E., & Renou-Wilson, F. (2015). Derivation of greenhouse gas emission factors for peatlands managed for extraction in the Republic of Ireland and the UK. Biogeosciences Discuss., 12, 7491–7535.
- Wilson, D. & Mackin, F. & Tuovinen, J., Moser, G., & Farrell, C & Renou-Wilson, F. (2022). Carbon and climate implications of rewetting a raised bog in Ireland. Global Change Biology. 10.1111/gcb.16359.
- Wheeler, B. D., & Shaw, S. C. (1995). Restoration of Damaged Peatlands – with Particular Reference to Lowland Raised Bogs Affected by Peat Extraction. London: HMSO.

Wittram, B. W., Roberts, G., Buckler, M., King, L., & Walker, J. S. (2015). A Practitioners Guide to Sphagnum Reintroduction. Edale: Moors for the Future Partnership.

Draft

APPENDIX I: A STANDARD PEATLAND REHABILITATION PLAN TO MEET CONDITIONS OF THE IPC LICENCE

In the event that the Scheme (PCAS) is not supported by additional funding, Bord na Móna is still obligated to carry out peatland rehabilitation to meet the conditions of the IPC Licence. Under its EPA licences and following cessation of peat extraction, BnM is mandated to ‘decommission’ its operations by removing materials ‘that may result in environmental pollution’ and establish that ‘rehabilitation’ measures have environmentally stabilised peat production areas.

This proposed standard peatland rehabilitation plan is outlined here to **estimate potential costs**. Bord na Móna will still be expected to cover the costs that would have accrued from standard decommissioning and rehabilitation activities, as part of its original obligations. The existing costs associated with both the removal of potentially polluting materials and the environmental stabilisation of the peatlands resides with Bord na Móna. However, the expenditure necessary to deliver the additional and enhanced decommissioning, rehabilitation and restoration and the benefits that flow from these measures and interventions/improvements will be eligible for funding by government through the Climate Action Fund and Ireland’s National Recovery and Resilience Plan.

The same process as outlined in Section 2 will be followed.

Scope of rehabilitation

The principal scope of this rehabilitation plan is to rehabilitate the bog. This is defined by:

- The area of Attymon Bog.
- EPA IPC Licence - Ref. P0502-01. As part of Condition 10.2 of this licence, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area. Attymon Bog is part of the Blackwater (Attymon subgroup) bog group.
- The current condition of Attymon Bog.
- The key objective of rehabilitation, as defined by this licence, is **environmental stabilisation** of the bog.
- To minimise potential impacts on neighbouring land. Boundary drains around Attymon Bog will be left unblocked as blocking boundary drains could affect adjacent land.
- Land-use.

Rehabilitation goals and outcomes

The key rehabilitation goal and outcome for Attymon Bog is environmental stabilisation of the site via deep peat re-wetting. This is defined as:

- Carrying out drain blocking to re-wet peat and slow runoff.
- Stabilising potential emissions from the site (e.g. suspended solids).
- Environmental stabilisation.

The outcome is setting the site on a trajectory towards establishment of natural habitats.

Criteria for successful rehabilitation:

- Rewetting of residual deep peat and shallow cutaway in the former area of industrial peat production to offset potential run-off of suspended solids and to encourage development of vegetation cover via natural colonisation, and reducing the area of bare exposed peat.
- That there is a stabilising/improving concentration of suspended solids and ammonia associated with the measures undertaken to stabilise the peat surface by the blocking of the internal drainage system and the maximised rewetting of the peat surface. This will be demonstrated by developing a stable or downward trajectory of water quality indicators (suspended solids and ammonia) towards what would be typical of a re-wetted cutaway bog. This will be measured via water quality monitoring (suspended solids and ammonia).
- Receiving water bodies have been classified under the River Basin Management Plan and this classification includes waters that are 'At Risk' from peatlands and peat extraction. The success criteria will be that the 'At Risk' classification will see improvements in the associated pressures from this peatland or if remaining At Risk, that there is an improving trajectory in the pressure from this peatland.

Rehabilitation indicators

- Demonstrating the delivery of the rehabilitation through site visits and through updated aerial photography (indicating presence of peat blockages and re-wetting). This will be demonstrated by a post rehab aerial survey.
- Stabilising potential emissions from the site (e.g. suspended solids). The key target will be developing a stable or downward trajectory of water quality indicators (suspended solids and ammonia) towards what would be typical of a re-wetted cutaway bog. This will be demonstrated by water quality monitoring results.

Rehabilitation measures:

- Blocking field drains in the drier sections of the former industrial production area using a dozer to create regular peat blockages (three blockages per 100 m) along each field drain
- Management of water levels to create/enhance existing wetlands
- No measures are planned for the other surrounding marginal peatland habitats.
- Silt ponds will continue to be maintained during the rehabilitation and decommissioning phase.
- Evaluate success of short-term rehabilitation measures and enhance where necessary.
- Decommissioning of silt-ponds will be assessed and carried out, where required.

Timeframe:

- 2024. 1st phase of rehabilitation. Field drain blocking and water-level management.
- 2025. 2nd phase. Further adjustment of pumped drainage and other re-wetting measures dependent on success of 1st phase re-wetting, ongoing monitoring of water levels and re-vegetation.
- Other enhancement measures such as fertiliser treatment will be carried out, if needed. These will be determined by ongoing monitoring.
- 2025-2026. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.

Table AP-1. Rehabilitation measures and target area.

Type	Code	Description	Area (Ha)
Dry Cutaway	DCT1	Limited drain blocking, Modifying outfalls and managing water levels with overflow pipes	182
Marginal Land	MLT1	No work required	10.4
Other	Silt Pond	Silt ponds	0.3
Other	Constraint	Rights of Way, Access, Coillte forestry, previously rehabbed areas	144.2
Total			336.9

See Drawing number *BNM-DR-25-11-RP-20: Standard Rehab Measures* included in the accompanying Mapbook which illustrates the standard rehab measures to be applied.

Monitoring, after-care and maintenance

- There will be initial quarterly monitoring assessments of the site to determine the general status of the site, the condition of the silt-ponds and silt control measures, assess the condition of the rehabilitation work, assess the progress of natural colonisation, monitoring of any potential impacts on neighbouring land and general land security. The number of site visits will reduce after 2 years to bi-annually. These site visits will assess the need to additional rehabilitation.
- Water quality monitoring will be established.
- Monitoring results will be maintained, trended and reported on each year as part of the requirement to report on Condition 10.1 of the IPC Licence on Bog Rehabilitation in the Annual Environmental Report, which will be available in April each year at www.epa.ie.
- The parameters to be included (as per condition 6.2 of the IPC Licence) include monthly monitoring for pH, Flow, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD.
- This sampling regime on a selected number of silt ponds will be carried out over a two-year cycle. The original (licence) requirement was for a quarterly sampling regime.
- Where other uses are proposed for the site, these will be assessed by Bord na Móna in consultation with interested parties. Other after-uses can be proposed for licensed areas and must go through the required assessment and planning procedures.

Validation and IPC Licence surrender

Reporting to the EPA will continue until the IPC Licence is surrendered. The bog will be included in the full licence surrender process as per the Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites (EPA, 2012) when:

- The planned rehabilitation has been completed;
- The water quality monitoring demonstrates that water quality of discharge is stabilising or improving;
- The site has been environmentally stabilised.

APPENDIX II: BOG GROUP CONTEXT

The Blackwater Bog Group IPC Licensed area is made up of three sub-groups (Attymon, Blackwater and Derryfadda) and have been in industrial peat production for several decades. The majority of sites are situated alongside the Shannon and Suck Rivers within counties Roscommon, Galway, Westmeath and Offaly and cover an overall area of 15,515 ha. Each bog area further comprises a range of habitats from bare milled peat production areas to re-colonising cutaway to workshops areas and transport infrastructure. Industrial peat extraction from these sites mainly supplied ESB power stations at Shannonbridge (WOP) and Lanesborough (LRP).

Industrial peat extraction in the Blackwater Bog Group has permanently ceased on all sites. Remaining milled peat stocks were supplied to Shannonbridge (WOP) and Lanesborough (LRP) in 2020. Both power stations ceased using peat by the end of 2020. Decommissioning and rehabilitation for the Blackwater Bog Group as part of the PCAS project started in 2021.

A number (6) of bogs were initially drained but have never been used for industrial peat production (three former development bogs (Kellysgrove, Tirrur-Derrymore and Newtown-Loughgore), Clonboley, Killeglan and Derrydoo-Woodlough). The latter three bogs are classed as restored raised bogs, still contain active bog habitat (that qualifies as the Annex I EU Habitats Directive habitat) and now form the core of the Bord na Móna Raised Bog Restoration Project due to their high biodiversity value and bog restoration potential. NPWS have identified the Clonboley bog cluster as having high ecological value within the recent assessment of raised bog SACs, NHAs and non-designated sites (NPWS 2014⁴). Several of these sites have been restored during the period 2011-2020.

Several sections of Tirrur-Derrymore bog have been leased to NPWS for domestic turf cutting as part of the SAC turf-cutting compensation scheme. Turf-cutters from neighbouring SACs have been relocated to this site by NPWS. Several other bogs are being assessed for similar use.

The depth of remnant peat within Blackwater bog units will have a very significant impact on the development of these sites, with deeper peat (Derryfadda milled peat production bogs) having potential for the establishment of embryonic peat-forming (*Sphagnum*-rich) vegetation communities. Milled peat cutaway (such as at Blackwater) develops in a somewhat different way as in places the underlying gravel is exposed, there is significant alkaline influence on the water chemistry and in many of these cutaway bogs will develop fen and wetlands due to the local topography, hydrology and water chemistry.

A breakdown of the component bog areas for the Blackwater Bog Group IPC Licence Ref. P0502-01 is outlined in Tables Ap-2a – Ap-2c.

⁴ <http://www.npws.ie/peatlandsturf-cutting/nationalraisedbogsacmanagementplan/>

Table Ap-2a: Blackwater Bog Group names, area and indicative status (Attymon sub-group)

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Attymon	336	Cutover Bog Industrial peat production commenced at Attymon Bog in 1941 and ceased in 2017. Attymon is a deep peat cutover bog.	Attymon Bog formerly supplied fuel sod peat. Coillte have developed a portion of the former production area for conifer forestry. Rehabilitation ongoing	2017	Draft 2024
Cloonkeen	252	Cutover Bog Industrial peat production commenced at Cloonkeen Bog in 1953 and ceased in 2019. Cloonkeen Bog is a deep peat cutover bog.	Cloonkeen Bog formerly supplied fuel sod peat. Coillte have developed a portion of the former production area for conifer forestry. Rehabilitation ongoing	2019	Draft 2024
Derrydoo-Woodlough	452	Development Bog Derrydoo-Woodlough Bog was drained in the 1980s in anticipation of industrial peat production. No industrial peat harvesting ever took place.	Bog restoration was carried out in 2013-2014 Rehabilitation (bog restoration) now complete.	N/A	Finalised 2012
Tirrur-Derrymore	422	Development Bog This bog was drained in the 1980s in anticipation of industrial peat production. No industrial peat harvesting ever took place.	This bog has significant raised bog restoration potential. Section leased to NPWS as a SAC turf-cutting relocation site.	N/A	Finalised 2023
Newtown-Loughgore	448	Development Bog This bog was drained in the 1980s in anticipation of industrial peat production. No industrial peat harvesting ever took place.	Some sod turf production Bog restoration was carried out in 2019-2020 Rehabilitation (bog restoration) nearly complete.	2020	Draft 2024
Killeglan	581	Development Bog This bog was drained in the 1980s in anticipation of industrial peat production. No industrial peat harvesting ever took place.	Bog restoration was carried out in 2013-2014 Rehabilitation (raised bog restoration) complete	N/A	Finalised 2023
Cloonboley 1	675	Development Bog This bog was drained in the 1980s in anticipation of industrial peat production. No industrial peat harvesting ever took place on the main section.	A small sub-section has been used for sod turf production. Bog restoration was carried out in 2013-2014 Rehabilitation (raised bog restoration) complete	2020	Draft 2024
Cloonboley2	203	Development Bog This bog was drained in the 1980s in anticipation of industrial peat production. No industrial peat harvesting ever took place.	Bog restoration was carried out in 2013-2014 Rehabilitation (raised bog restoration) complete	N/A	Draft 2024

Table Ap-2b: Blackwater Bog Group names, area and indicative status (Blackwater sub-group)

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Ballaghurt	597	Cutaway Bog Industrial peat production commenced at Ballaghurt Bog in 1981. The majority of the site is cutaway with some residual deeper peat	Ballaghurt Bog formerly supplied a range of commercial functions including horticultural peat and fuel peat. Pioneer cutaway vegetation communities are naturally developing on some cutaway areas.	2020	Finalised 2023
Belmont	316	Cutaway Bog Industrial peat production commenced at Belmont Bog during the 1950's. The majority of the site is cutaway.	There are some areas of pioneer cutaway vegetation communities naturally colonising cutaway sections. Coilte have developed a portion of the bog for forestry.	2020	Finalised 2021
Blackwater	2,303	Cutaway Bog Industrial peat production commenced at Blackwater Bog during the 1950's. The majority of the site is cutaway.	Bloomhill Bog formerly supplied milled horticultural peat and fuel peat. There is extensive development of emergent cutaway vegetation communities across the former production area. The site has been used for experimental forestry (BOGFOR) and other conifer plantations. Part of the site was rehabilitated with lake and wetland creation. An ash facility took ash from Shannonbridge Power station	2020	Updated 2022
Bloomhill	883	Cutover Bog Industrial peat production commenced at Bloomhill Bog during 1981. The majority of the site still has relatively deep residual peat.	Bloomhill Bog formerly supplied milled horticultural peat and fuel peat. Much of the former peat production area is bare peat.	2020	Finalised 2021
Bunahinly-Kilgarvan	389	Cutover Bog Industrial peat production commenced at Bunahinly-Kilgarvan Bog during the 1990's. Residual Deep peat remains on these bogs.	Bunahinly-Kilgarvan formerly supplied milled horticultural peat and fuel peat. Much of the former production area is bare peat. Part of Bunihinly has been re-wetted.	2020	Finalised 2021
Glebe	132	Cutover Bog Industrial peat production commenced at Glebe Bog during the 1990's. Residual deep peat remains on these bogs.	Glebe Bog formerly supplied milled; horticultural peat and fuel peat. Glebe bog is still listed as a pNHA. Much of the former production area is bare peat.	2020	Finalised 2022
Clooniff	523	Cutover & cutaway Bog Industrial peat production commenced at Clooniff Bog during the 1970's. A mosaic of variable peat depths remains on this bog.	Clooniff Bog formerly milled fuel peat. Much of the former production area is bare peat or wetland. Some emergent vegetation communities are naturally colonising cutaway areas. Reduced pumping has created a large wetland in one area.	2020	Finalised 2021

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Cornafulla	460	Cutover Bog Industrial peat production commenced at Cornafulla Bog in 1987. This bog still retains relatively deep residual peat.	Cornafulla Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area or cutaway is bare peat.	2020	Draft 2017
Cornaveagh	492	Cutover Bog Industrial peat production commenced at Cornaveagh Bog in 1970's and ceased in 2020. This bog still retains relatively deep residual peat.	Cornaveagh Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area footprint or cutaway is bare peat.	2020	Draft 2017
Cullaghmore	442	Cutover Bog Industrial peat production commenced at Cullaghmore Bog in 1960's and ceased in 2020. Much of this bog is cutaway, with some pockets of deeper residual peat.	Cullaghmore Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area footprint or cutaway is bare peat. Some pioneer cutaway vegetation communities are naturally colonising cutaway areas.	2020	Draft 2017
Garryduff	970	Cutaway Bog Industrial peat production commenced at Garryduff Bog in 1960's. The majority of this bog is cutaway.	Much of the former production area footprint or cutaway is bare peat. Extensive natural development of pioneer cutaway vegetation communities is present on cutaway areas. Rehabilitation measures have commenced at Garryduff in 2021.	2020	Finalised 2021
Kellysgrove	201	Development Bog Kellysgrove Bog was drained in the 1980s in anticipation of industrial peat production. No peat harvesting ever took place.	The site retains degraded raised bog vegetation. Kellysgrove Bog retains significant raised bog restoration potential. A way-marked walking trail is positioned along the old Ballinasloe Canal. Rehabilitation measures have been completed at Kellysgrove in 2021.	2020	Finalised 2021
Kilmacshane	1,294	Cutaway Bog Industrial peat production commenced at Kilmacshane Bog in 1960's. The majority of this bog is cutaway with some pockets of deeper peat remaining.	Kilmacshane Bog formerly supplied milled horticultural peat and fuel peat. Some pioneer cutaway vegetation communities are naturally colonising cutaway areas and water levels have risen as pumping reduced, creating wetlands. Rehabilitation measures have commenced at Kilmacshane in 2021.	2014	Finalised 2021
Lismanny	449	Cutaway Bog Industrial peat production commenced at Lismanny Bog in 1960's. The majority of this bog is cutaway with some pockets of deeper peat remaining.	Lismanny Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area footprint is bare peat. Some pioneer cutaway vegetation communities are naturally colonising cutaway areas.	2020	Draft 2021

Table Ap-2c: *Blackwater Bog Group names, area and indicative status (Derryfadda sub-group)*

Bog Name	Area (ha)	Stage of development	Land-Use and History	Peat Production Cessation	Rehab Plan Status
Derryfadda	610	Cutover bog Industrial peat production commenced at Derryfadda Bog in 1980's. This bog still retains residual deep peat.	Derryfadda Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area is bare peat. Some pioneer cutaway vegetation communities are naturally colonising cutaway areas.	2020	Finalised 2022
Boughill	415	Cutover bog Industrial peat production commenced at Boughill Bog in 2008. This bog still retains residual deep peat.	Boughill Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area footprint or cutaway is bare peat.	2020	Draft 2017
Castlegar	517	Cutover bog Industrial peat production commenced at Castlegar Bog in 2001. This bog still retains residual deep peat.	Castlegar Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area is bare peat. The adjacent Annaghbeg Bog NHA is an intact undrained raised bog. Rehabilitation measures have commenced at Castlegar in 2021.	2019	Finalised 2021
Gowla	650	Cutover bog Industrial peat production by BnM commenced at Gowla Bog in 1970's. Development for sugar production was in place at Gowla since the 1950's. This bog still retains residual deep peat.	Gowla Bog formerly supplied milled horticultural peat and fuel peat. Much of the former production area footprint is bare peat.	2020	Finalised 2023

See Drawing number *BNM-DR-25-11-RP-24: Blackwater Bog Group*, included in the accompanying Mapbook which illustrates the location of Attymon Bog and the Blackwater Bog Group in context to the surrounding area.

APPENDIX III: ECOLOGICAL SURVEY REPORT

Ecological Survey Report			
<p><i>Note: This report outlines an ecological survey of the bog. This report should not be taken as a management plan for the site as other land-uses may still be considered. Information within this report may inform the development of other land-uses and identify areas with particular biodiversity value.</i></p>			
Bog Name:	<u>Attymon</u>	Area (ha):	337 Hectares
Works Name:	Attymon	County:	Galway
Recorder(s):	MMC, DF & BO'L CS, IH & DD	Survey Date(s):	15 th September 2010 9 th September 2015 September – November 2018 February – March 2024
<p>Habitats present (in order of dominance)</p> <p>The most common habitats present on the cutaway at this site include:</p> <ul style="list-style-type: none"> • Bare peat (BP) (Codes refer BnM classification of pioneer habitats of production bog. See Appendix II). • Conifer plantation (WD4) • Pioneer poor fen communities mostly dominated by Soft Rush (pJeff) and/or Bog Cotton (pEang). Frequently in mosaic with some scrub. Very minor cover of Bottle Sedge (pRos) • Emerging, open and closed Birch scrub (e/o/cBir). • Dry heath (dHeath). (Frequently in mosaic with Purple Moorgrass-dominated grassland (gMol) and Birch scrub.) • Purple Moorgrass-dominated grassland (gMol). (Mainly on banks along drains) • Embryonic bog community (Pb) (On high bog close to margin that was only partially cut) • Riparian zones (RIP) (Along drains) • Temporary open water (TOW) flooded areas associated with pumps and drains). • Access zones (travel paths with bare peat, scrub and rank grassland (GS2)) • Works areas (Yard, buildings and derelict machinery with recolonising bare ground ED3 and rank grassland GS2). <p>The most common habitats present around the margins of the former production bog and in other sections of this site include:</p> <ul style="list-style-type: none"> • Raised bog (PB1) (several fragments) (Codes refer to Heritage Council habitat classification, Fossitt 2000), See Appendix II.) • Cutover bog (PB4) • Birch woodland (WN7) • Scrub (WS1) (Gorse scrub and Birch scrub developing of dry high bog around margins) • Dense Bracken (HD1) • Improved grassland (GA1) (mostly minor areas along boundaries but including some large sections where boundary overlaps adjacent fields) 			

- Dry Heath (HH1) (mostly dried-out cutover bog)
- Wet Heath (HH3) wet secondary cutover bog?)
- Dry calcareous grassland (GS1) (small glacial mound)
- Depositing river (Claribridge River) (FL2)

Description of site

Attymon Bog is situated in Co. Galway approximately ten kilometres east of Athenry. The site is divided into three separate sections, one large main section and two smaller sections that are located to the east. The Dublin- Galway railway line is located close to the north of the main section. The main bog was formally operated as a milled peat bog by Bord na Móna. The bog was leased to the Attymon Co-Op which is made up of retired Bord na Móna employees. A large section of the main bog was planted by Coillte with coniferous forestry in the 1980's. Sod peat was formerly harvested from the eastern section of the site and sold for domestic use.

Attymon bog was never fully managed for milled industrial peat production so the cutaway and production areas look significantly different to typical milled production bogs. There is no regular drainage system with two main winding drains running the length of the site. There are several pumps along these main drains however these pumps have been turned off. The cutaway section comprises an undulating surface with slopes and a significant slope on the cutaway south of the conifer forestry. Former sod industrial peat production operations were carried out against face-banks using 'German Bagger' machines and this has left a long narrow strip of uncut dried-out high bog (10-20 m) in some sections. Some areas not long out of production have started to revegetate with pioneer poor fen while other areas still retain sections of bare peat.

Main bog

A works area is located in the east of the site. The works area contains a considerable amount of old derelict machinery. Rank grassland (Dry meadows and grassy verges (GS2)) and scrub (WS1) has started to vegetate and colonise around some of this machinery. Japanese Knotweed, an invasive plant species, was noted in the works area. This species is listed on the 'Third Schedule' of Regulations 49 and 50 of the European Communities Birds and Natural Habitats Regulations 2011. This invasive plant species has been chemically treated by a professional ecological consultancy specialising in the treatment and eradication of invasive plant species.

The main bog is long and relatively narrow and is orientated in an east-west direction. There are several small remnant patches of high bog towards the west side of the site. The conifer plantation was planted in the central-east portion of the site, south of Clarinbridge River. Most of the cutaway and former production bog is situated to the south of the conifer plantation with a narrow strip along the northern margin. There is a small area of bog that was recently managed for peat production located north of the river. There is also some high bog and cutover bog located north of the railway but this was not surveyed.

The majority of the main section of the cutaway and former production bog (south of conifer plantation) is being vegetated by poor fen vegetation with Soft Rush and/or Bog Cotton dominating. This former production area can be further subdivided by long drains (riparian zones) that are also orientated east-west and run the length of the former production area. Reedmace appears in some of the drains. Within the former production area there are some pits where there has been cutting in the past. Some of these pits were partially filled with water and there are also patches of regenerating vegetation with heather on dry peat and Soft Rush colonising other sections. The majority of the eastern side comprises bare peat mosaic with vegetation associated with poor fen establishing on the bog. Birch scrub only appears along the riparian zones. There was some temporary water in a wet section adjacent to the pump. Rudimentary silt ponds seem to have been dug at some locations by widening the existing drains.

Further west (south of conifer plantation) there is an older cutaway area where there is a mosaic of mainly emergent Birch scrub and poor fen developing. There are some patches of open Birch that are somewhat better developed. Dry grassland with Purple Moorgrass has developed along some of the riparian zones and there are also some patches adjacent to these

drains where there is some pioneer dry heath with Heather cover developing. The strips of remnant high bog that have been left by the sod-peat cutting are also vegetated with Heather. There are some long piles of stored sod peat that have been covered.

The largest cutaway area is located to the west and south-west of the conifer plantation. This area is mainly vegetated with Birch scrub, with the majority classified as open Birch and smaller areas denser and closed. There are some open sections with relatively little Birch that are mapped as poor fen. Much of the Birch is in mosaic with pioneer dry heath (dHeath). There are also patches of poor fen with Soft Rush prominent and Purple Moor-grass-dominated areas, amongst the Birch. Large hummocks of *Sphagnum palustre* are occasionally found in some of these areas. *Sphagnum subnitens*, *S. capillifolium* and *Aulacomnium palustre* are also present. Drier sections have *Campylopus introflexus* and occasionally frequent *Polytrichum juniperum* and *Polytrichum commune*. Species such as Bramble, Royal Fern, Devil's-bit, Broad Buckler Fern, Marsh Thistle, Common Thistle, Yellow Sedge, Carnation Sedge, Sweet Vernal-grass, Yorkshire Fog, Creeping Bent, Rosebay Willowherb and Tormentil are all present in the drier areas. Birch scrub development seems to have developed rapidly in the past 6 years since the aerial photos were taken.

Other sections of this dry heath/Birch scrub mosaic also contain typical raised bog species such as Bog Asphodel, Crowberry, White Beak-sedge and Hare's-tail Bog-cotton. These species also occasionally appear in the pioneer poor fen with Soft Rush and/or Bog Cotton. It is not known if these are old disturbed high bog areas with these species as artefacts or if these are shallow cutaway areas with acidic peat that are being colonised by these species. Some sections close to the boundary are at a higher level (relative to the peat depth) and are re-vegetating with Heather and other raised bog species as they are more acidic. One section in particular was mapped as embryonic raised bog due to the frequency of Hare's-tail Bog Cotton and small hummocks of *S. capillifolium* that were developing.

Some species such as Bottle Sedge, Mint, *Calliergonella cuspidata* and Lesser Spearwort that are more typical of poor fen with a strong sub-soil or fen peat (with high base content and high acidity) influence are less evident in the poor fen vegetation colonising the cutaway at this site. This may be due to the fact that this site was only cut for sod-peat and that most of the remaining peat is more acidic, or it may be a climatic variation with the high prominence of lower pH indicators perhaps due to higher rainfall (western raised bog/blanket bog influence). Sub soil was rarely exposed at this site. Pioneer dry calcareous grassland (gCal) was not very common at this site and was only found along some of the railways. Some drains did contain some Water Horsetail and Common Reed.

Towards the west side there are several small areas of intact high bog. These areas are subject to unlicensed turf cutting in places. There is also some associated old cutover bog with secondary development of habitats such as scrub (WS1), Birch woodland (WN7), and even some transition mire (PF3) in some wet areas of cutover bog. While the high bog areas are relatively small and damaged by the marginal turf cutting, they are in relatively good condition with moderate-high *Sphagnum* cover in places. The *Cladonia* spp. lichen cover is also high and some of these sections have not been burnt for some time. There are no pool complexes but hummocks are particularly well-developed and large hummocks of *S. imbricatum* are occasional in places.

The marginal areas of this site contain patches of remnant high bog (PB1), old cutover bog and other habitats such as scrub that is developing along the high bog edge. Some of the cutover bog along the southern boundary is being grazed by horses and has developed wet grassland (GS4) communities. Part of the northern margin to the west has developed a narrow band of Birch woodland (WN7) on high bog. This woodland is relatively mature with tall Birch and contains species such as Bilberry.

Forestry and potential forestry on site

A large section of this site has been planted with coniferous forestry, mainly Sitka Spruce, Norway Spruce and Lodge-pole Pine, in the 1980's. These plantations are managed by Coillte. The main plantation on Attymon is called Clonkeenmore South (GY17 Clogh). The main management objective for this plantation is timber production with a fell year after 2020.

Some sections of the forestry are in good shape and are in need of thinning. Other sections are poor or dying as a result of wet conditions, lack of nutrients or frost damage. Heather dominates the ground flora of some poor sections of Sitka Spruce resulting in the Heather suppressing the Spruce and depriving the Spruce of nutrients, especially nitrogen.

<p>Some adjacent cutaway and high bog still in production may be suitable for development of conifer forestry. Some sections will be wet and implantable but there may be higher ground that could be suitable. This cutaway is likely to have similar characteristics to the area that was planted and produce forestry of a similar quality.</p>
<p>Designated areas on site (cSAC, NHA, pNHA, SPA other)</p> <p>None</p>
<p>Adjacent habitats and land-use</p> <p>The surrounding landscape is dominated by farmland with improved grassland and wet grassland where there are mineral soils. There is also a significant area of reclaimed cutover bog with habitats such as conifer plantation (WD4), improved grassland (GA1) and wet grassland (GS4). There are also high bog (PB1) remnants and active cutover bog (PB4) areas around the margins that are not in ownership by BnM. Some adjacent old cutover bog is developing secondary semi-natural wetland habitats and scrub in areas that are not managed intensively.</p> <p>Conifer plantation (WD4), wet grassland (GS4), improved agricultural grassland (GA1), raised bog (PB1) and cutaway bog (PB4) are all found adjacent to Attymon Bog.</p>
<p>Watercourses (major water features on/off site)</p> <ul style="list-style-type: none"> • A section of the Clarinbridge River flows along the north-eastern boundary of the site (Western Clarin River catchment area).
<p>Peat type and sub-soils</p> <p>Underlying bedrock is limestone. The peat is likely to be underlain with limestone till, which is the main sub-soil type of the surrounding exposed mineral soils on higher ground.</p>
<p>Fauna biodiversity</p> <p>Birds</p> <p>Several bird species were noted on the site during the survey.</p> <ul style="list-style-type: none"> • Snipe • A flock of about 60 Golden Plover were roosting on the site (red listed species of high conservation value). • Large group of Linnet present – 40. • Other species present included Swallow, Meadow Pipit, Blackbird, Rook, Grey Crow and Wren. <p>Mammals</p> <ul style="list-style-type: none"> • Signs of Fox, Rabbit and Badger were noted on the site. • Hares were observed on the site and there are frequent signs of Hares around the site. <p>Other Species</p> <ul style="list-style-type: none"> • Small Tortoise-shell • Dragonfly activity

APPENDIX IV. ENVIRONMENTAL CONTROL MEASURES TO BE APPLIED TO BOG REHABILITATION

- Bog restoration/rehabilitation measures will be restricted to within the footprint of the proposed rehabilitation area.
- The proposed rehabilitation will have due regard to noise limits and hours of operation (i.e. dusk and dawn) to minimise any potential disturbance on resident and local fauna that utilise the site and immediate environs.
- All plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (SI 359/1996).
- The proposed activities will be restricted to daylight hours and there will be no requirement for artificial lighting.
- Silt ponds will be inspected and maintained as per the IPC Licence.
- During periods of heavy precipitation and run-off, activities will be halted.
- Measures will be carried out using a suitably sized machine and in all circumstances, excavation depths and volumes will be minimised where possible.
- All machines will be regularly checked and maintained prior to arrival at the site to prevent hydrocarbon leakage.
- Hoses and valves will be checked regularly for signs of wear and will be closed and securely locked when not in use.
- Fuelling and lubrication of equipment shall only be carried out in designated areas away from surface water drainage features and ecologically sensitive areas.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- Vehicles will never be left unattended during refuelling.
- No direct discharges to waters will be made. No washings from vehicles, plant or equipment will be carried out on site.
- All plant refuelling will take place using mobile fuel bowsers. Only dedicated trained and competent personnel will carry out refuelling operations.
- Mobile storage such as fuel bowsers will be bunded to 110% capacity to prevent spills. Tanks for bowsers and generators shall be double skinned. When not in use, all valves and fuel trigger guns from fuel storage containers will be locked. All pumps using fuel or containing oil will be locally and securely bunded where there is the possibility of discharge to waters.
- Potential impacts caused by spillages etc. during rehabilitation will be reduced by keeping spill kits and other appropriate equipment on-site.
- Site activities will be carried out in accordance with 'best practice'. In order to ensure compliance and implementation of 'best practice', these measures will be communicated to relevant Bord na Móna staff and updated as required.

APPENDIX V. BIOSECURITY

The potential for importation or introduction of other, non-native plant species (such as Rhododendron, Himalayan Balsam, etc.) during future rehabilitation management, such as drain-blocking using excavators, has the potential to result in the establishment of invasive species within the site. Section 49 of the European Communities (Birds and Natural Habitats) Regulations 2011 prohibits the introduction and dispersal of invasive alien species (particularly plant species) listed on Part 1 (third column) of the 'Third Schedule'.

This section aims to reduce the risk from, and impacts of, invasive species and protecting biodiversity on lands under Bord na Móna ownership. Rehabilitation and decommissioning in the bog will have due regard to the relevant biosecurity measures outlined below:

- Records of problematic invasive species within the various bog units will be marked out with signs to highlight areas of infestation to personnel.
- All plant machinery will be restricted from disturbing known colonies of invasive species.
- All plant machinery will avoid unnecessary crossings to adjoining lands.
- Good site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (i.e. Japanese Knotweed (*Fallopia japonica*), Himalayan Balsam (*Impatiens glandulifera*), Himalayan Knotweed (*Persicaria wallichii*), etc.) by thoroughly washing vehicles prior to entering the area.

The biosecurity measures outlined above are in line with best practice guidelines issued by the National Roads Authority (NRA, 2010) – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads and broadly based on the Environment Agency's (2013) – The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013), (accessed on the Environment Agency's website on the 3rd of November 2023).

In addition to the above, Best Practice measures around the prevention and spread of Crayfish plague⁵ and Zebra Mussel will be adhered with throughout all rehabilitation measures and activities.

The only invasive species recorded at the bog was Japanese Knotweed (*Fallopia japonica*) at one location and suitable measures in line with Best Practice will be implemented under the site EMP. This species is listed under Regulations 49 and 50 of the EC Birds and Natural Habitats Regulations which prohibits the introduction, breeding, release or dispersal of the species listed on Part 1 the 'Third Schedule'. All measures taken to ensure the prevention of spread of invasive species will follow best practice.

⁵ <https://www.biodiversityireland.ie/projects/invasive-species/crayfish-plague/>

APPENDIX VI. POLICY AND REGULATORY FRAMEWORK

Bord na Móna Plc is a publicly owned company, originally established in 1934 to develop some of Ireland's extensive peat resources for the purposes of economic development and to support energy security. In the decades since its establishment the company has employed tens of thousands of people in its fuel, energy, and horticultural growing media businesses. For much of its history the company's support of important national policy aims has been enabled and encouraged in a variety of ways by Government.

Today, Bord na Móna is undertaking a number of highly significant actions in support of climate policy. These actions involve a radical transformation and decarbonisation of nearly the entire Bord na Móna business. This transformation will be driven by unlocking the full potential of our land and creating significant value for Ireland and the Midlands in particular.

Bord na Móna is an integral part of the economic, social, and environmental fabric of Ireland and Irish life. As a key employer in the Midlands, the company is conscious that its obligations go beyond purely commercial and environmental – there is also a social responsibility to employees and the communities served by Bord na Móna. It is the company's role and absolute priority to ensure that its long-term strategy delivers on all of these important areas in a robust and balanced way.

There are a wide range of policies, plans, legislation and land designations that inform the development of this Bord na Móna peatland rehabilitation plan. Bord na Móna have also developed and operate various policies and strategies that also inform the development of this rehabilitation plan.

1 EPA IPC Licence

Bord na Móna operates under IPC Licence issued and administered by the EPA to extract peat within the Blackwater (Attymon subgroup) bog group (Ref. PO-502-01). As part of Condition 10.2 of this licence, a rehabilitation plan must be prepared for permanent rehabilitation of the boglands within the licensed area. The bog is part of the Blackwater (Attymon subgroup) bog group. This regulatory requirement is the main driver of the development of this rehabilitation plan.

2 The Peatlands Climate Action Scheme (PCAS)

Bord na Móna (BnM) understand that it is the Minister's (DECC) intention to impose an obligation on Bord na Móna to develop a programme of measures, 'the Scheme', for the enhanced decommissioning, rehabilitation and restoration of boglands previously used to supply peat for electricity generation within the State. The enhanced decommissioning, rehabilitation and restoration of the peatlands funded by the Scheme (PCAS) will deliver benefits across climate action (GHG mitigation through reduced carbon emissions and acceleration towards carbon sequestration), enrich the State's natural capital, increase eco-system services, strengthen biodiversity, improve water quality and storage attenuation as well as developing the amenity potential of the peatlands.

It is envisaged that Bord na Móna carry out an enhanced decommissioning, rehabilitation and restoration, under the Scheme (PCAS), and supported by the Climate Action Fund and Ireland's National Recovery and Resilience Plan across a footprint of 33,000 ha. This scheme will significantly go beyond what is required to meet rehabilitation and decommissioning obligations under existing EPA IPC licence conditions. Interventions and measures supported by the Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and

other ecosystem services, will also be delivered. However, only the additional costs associated with the additional and enhanced rehabilitation, i.e., those activities which go beyond the existing decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support under the Scheme.

The proposed enhanced rehabilitation detailed in this document, are predicated on the understanding that the element of the activities, over and above the 'standard' rehabilitation necessary to comply with pre-existing Condition 10 IPC Licence requirements, will be deemed eligible costs by the Scheme regulator and funded by the Climate Action Fund and Ireland's National Recovery and Resilience Plan.

For the avoidance of doubt, should the Scheme and the associated statutory obligation on Bord na Móna not materialise, Bord na Móna will not carry out the enhanced decommissioning, rehabilitation and restoration measures described in this plan. Bord na Móna will instead plan to complete an adapted standard decommissioning and rehabilitation measures required under Condition 10 and outlined in Appendix I.

3 National and EU Climate and Biodiversity Policy

The National Policy Position establishes the fundamental national objective of achieving a transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. It sets out:

- the context for the objective;
- clarifies the level of GHG mitigation ambition envisaged; and
- establishes the process to pursue and achieve the overall objective.

The evolution of climate policy in Ireland will be an iterative process based on the adoption by government of a series of national plans over the period to 2050. GHG mitigation and adaptation to the impacts of climate change are to be addressed in parallel national plans – respectively through the National Climate Action Plan. The plans will be continually updated, as well as being reviewed on a structured basis at appropriate intervals and, at a minimum, every five years. This will include early identification and ongoing updating of possible transition pathways to 2050 to inform sectoral strategic choices.

Bord na Móna is following a decarbonisation programme aimed at reducing the carbon emissions from its activities. Industrial peat production has now ceased, and several other decarbonisation measures are being implemented. The company aims to further develop renewable energy and resource recovery markets with a key objective of reducing the carbon intensity of all products. In addition, the carbon emission mitigation benefits associated with the post-peat extraction rehabilitated peatland following re-wetting, revegetation and colonisation of significant areas with native woodland will make a significant contribution to achieving the State's carbon emission reduction targets.

Peatlands rehabilitation and restoration is referenced in Section 17.3.3 of the Land Use, Land Use Change, Forestry and Marine Chapter of the National Climate Action Plan 2021 as follows:

"The rehabilitation of degraded peatlands to a condition in which they regain their ability to deliver specific ecosystem services has considerable potential for initial mitigation gains, and future carbon sequestration. Additional benefits of peatland restoration include positive socio-economic outcomes for the Midlands, increased natural capital, enriched biodiversity, improved water quality, and flood attenuation."

The scheme is included as Action 33 in the Climate Action Plan 2021 Annex of Actions - Deliver the Enhanced Decommissioning, Rehabilitation and Restoration (EDRR) Scheme for Bord na Móna Peatlands.

EDRRS is also referenced in the Climate Action Plan 2021 as a measure to deliver a Just Transition in the Midlands.

International research and scientific understanding of peatlands is now reflected in key Irish national policy and strategy documents such as the National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017 - 2022 (Department of Arts, Heritage and the Gaeltacht 2017), The National Peatland Strategy (Department of Arts, Heritage and the Gaeltacht 2015), The National Biodiversity Action Plan (National Parks and Wildlife Service 2017), The River Basin Management Plan for Ireland 2018-2021 (Department of Housing, Planning and Local Government 2018), and the Biodiversity – Climate Change Sectoral Action Plan (Department of Arts, Heritage and the Gaeltacht 2019). Each of the national plans, which are also complemented with the recently published EU Green Deal communication on Biodiversity Strategy for 2030 (COM 2020) have overlapping objectives and actions that focus on the restoration of peatlands damaged by turf-cutting, drainage and other impacts, as well as the re-wetting of Bord na Móna industrial peat extraction bogs.

While not specifically identified as a restoration implementor, EDRRS objectives are in line with those of the United Nations Decade on Ecosystem Restoration 2021-2030 of Preventing, Halting and Reversing the Degradation of Ecosystems worldwide.

EDRRS is also in line with the EU Commission proposal for a Nature Restoration Law which will apply legally binding targets for nature restoration in different eco-systems to every Member State. The aim is to cover at least 20% of the EU's land and sea areas by 2030 with nature restoration measures and eventually extend these to all ecosystems in need of restoration by 2050.

4 National Peatlands Strategy

The National Peatlands Strategy (2015) contains a comprehensive list of actions, necessary to ensure that Ireland's peatlands are preserved, nurtured and become living assets within the communities that live beside them. It sets out a cross-governmental approach to managing issues that relate to peatlands, including compliance with EU environmental law, climate change, forestry, flood control, energy, nature conservation, planning, and agriculture. The Strategy has been developed in partnership between relevant Government Departments/State bodies and key stakeholders through the Peatlands Council.

The strategy recognises that Ireland's peatlands will continue to contribute to a wide variety of human needs and to be put to many uses. It aims to ensure that Ireland's peatlands are sustainably managed so that their benefits can be enjoyed responsibly. It aims to inform appropriate regulatory systems to facilitate good decision making in support of responsible use. It also aims to inform the provision of appropriate incentives, financial supports and disincentives where required. The strategy attempts to strike an appropriate balance between different needs, including local stakeholders like turf-cutters and semi-state bodies such as Bord na Móna.

In line with a National Peatlands Strategy recommendation, a Peatlands Strategy Implementation Group (PSIG), was established, assisted in the finalisation of the Strategy, is overseeing subsequent implementation and will report to Government on an annual basis on the implementation of the actions and principles contained within the Strategy.

Bord na Móna is a key stakeholder in the National Peatlands Strategy and the Peatlands Strategy Implementation Group. The strategy recognises the potential for some Bord na Móna sites to be restored and to contribute to the national SAC and NHA network of protected raised bog sites. The strategy (agreed in 2015) also recognises the various different values of cutaway bog and developed six key principles (with Bord na Móna) for the after-use of cutaway bog.

- Bord na Móna will continue to assess and evaluate the potential of the company's land bank, using a land use review system. The assessment will help prepare a set of evidence-based management plans for the various areas of peatland. These plans will also inform its cutaway bog rehabilitation.
- The policy of Bord na Móna is not to open up any undrained new bogs for peat production.
- Lands identified by Bord na Móna as having high biodiversity value and/or priority habitats will be reserved for these purposes as the principal future land use.
- Generally, Bord na Móna cutaway bogs that flood naturally will be permitted to flood unless there is a clear environmental and/or economic case to maintain pumped drainage.
- In deciding on the most appropriate after-use of cutaway peatlands, consideration shall be given to encouraging, where possible, the return to a natural functioning peatland ecosystem.
- This will require re-wetting of the cutaway peatlands which may lead in time to the restoration of the peatland ecosystem.
- Environmentally, socially and economically viable options should be analysed to plan the future use of industrial cutaway peatlands, in conjunction with limiting factors as outlined in Bord na Móna's Strategic Framework for the Future Use of Peatlands.

The National Peatlands Strategy highlights the importance and value of developing peatland rehabilitation plans for Bord na Móna cutaway sites and implementing this peatland rehabilitation. Some of these principles have now been superseded by the company's decision to cease industrial peat extraction. The National Peatlands Strategy is currently being reviewed by Government.

5 Draft National River Basin Management Plan 2022-2027 (Water Framework Directive)

The National River Basin Management Plan (Department of Housing, Planning, Community and Local Government 2017) is the key national plan for Ireland to achieve the objectives of the Water Framework Directive (WFD). In broad terms, the objectives of the WFD are (1) to prevent the deterioration of water bodies and to protect, enhance and restore them with the aim of achieving at least good status and (2) to achieve compliance with the requirements for designated protected areas.

The NRBMP 2018-2021 outlined how peat extraction can be a potentially significant pressure on various water quality parameters. Peatland rehabilitation of Bord na Móna cutaway (in addition to other measures) was part of the WFD (2018-2021) programme of measures. The NRBMP 2018-2021 takes account of the fact that Bord na Móna was in the process of phasing out the extraction of peat for energy production, that it set a target to rehabilitate 9,000 ha of cutaway bogs (covering 25 peatlands) by 2021 (in 2018) and will look to implement best-available mitigation measures to further reduce water quality impacts caused by peat extraction while the phasing-out process is taking place. This NRBMP 2018-2021 rehabilitation target was superseded by the acceleration of the Bord na Móna de-carbonisation programme and the Scheme (**PCAS**).

The development of site rehabilitation plans and the delivery of peatland rehabilitation by Bord na Móna was expected to have a positive impact on water quality and will help the NRBMP 2018-2021 deliver its objectives in relation to the Water Framework Directive and is one of the five key principle actions.

The draft NWBMP 2022-2027 describes how the number of waterbodies impacted by peat, industry and forestry have decreased by 10, 10 and 5 waterbodies, respectively since the second cycle. Impacts on water quality and river habitat arising from peat and peat extraction and associated drainage include the release of ammonium and fine-grained suspended sediments, and physical alteration of aquatic habitats. Drainage of peatlands also results in changes to the hydromorphological condition of rivers.

The draft NWBMP 2022-2027 outlines how maintaining and restoring Irish bogs will lead to a decrease in waterborne carbon leaching to levels comparable with intact bogs as well as reducing losses of peat silt and ammonia. Vegetation on the surface of the peat can also slow the flow of water over the land surface. Based on the EPA's most recent reports, peat extraction and drainage is impacting on 106 water bodies across the country, with peat the single pressure on 28 of these water bodies. However, compared to the data in the second-cycle plan, the number of water bodies impacted by peat has decreased.

The cessation of industrial peat extraction by Bord na Móna in 2021 was expected to have a significant positive impact on water quality of receiving water courses by reducing the impact of peat extraction as a key pressure on particular water courses. This is now being supported by the results and conclusions of the draft NWBMP 2022-2027.

6 National Biodiversity Action Plan 2023-2030

The National Biodiversity Action Plan 2023-2030 has a vision that biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally. Ireland's 4th National Biodiversity Action Plan outlines the main policies, strategies, actions and targets in relation to biodiversity. This plan has several Bord na Móna specific objectives and actions including, development of an updated Biodiversity Action Plan, and rehabilitation of 33,000 hectares of its peatlands under the Enhanced Decommissioning, Restoration and Rehabilitation Scheme (EDRRS).

The delivery of rehabilitation via PCAS is expected to significantly contribute in the future to actions and targets of the National Biodiversity Action Plan 2023-2030, particularly in relation to peatland restoration and creation of new habitats such as wetlands and woodlands.

7 National conservation designations

Bord na Móna operates in a wider landscape that also includes a network of European and National nature conservation sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Heritage Areas (NHAs, cNHAs) and National Nature Reserves). Bord na Móna will take account of this network of conservation objectives and their conservation objectives when developing these rehabilitation plans. It is expected that peatland rehabilitation will, in general, benefit the conservation objectives of this network of nature conservation sites.

8 National Raised Bog Special Area of Conservation Management Plan 2017-2022.

The National Raised Bog Special Area of Conservation Management Plan 2017-2022 sets out a roadmap for the long-term management, restoration and conservation of protected raised bogs in Ireland. The Plan strikes an appropriate balance between the need to conserve and restore Ireland's raised bog network as part of Ireland's commitments towards the EU Habitats Directive, and the needs of stakeholders and gives recognition to the important role that communities have to play in the conservation and restoration of raised bogs. The National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017-2022 is part of the measures being implemented in response to the on-going infringement action against Ireland in relation to the implementation of the EU Habitats Directive, with regard to the regulation of turf cutting on the Special Areas of Conservation

(SACs). The then Minister for Arts, Heritage and the Gaeltacht, also published a **Review of Raised Bog Natural Heritage Area Network** in 2014.

Bord na Móna has played a key role in the development of the National Raised Bog Special Area of Conservation Management Plan 2017-2022 and the Review of the Raised Bog Natural Heritage Area Network. Several Bord na Móna sites were assessed by the National Parks and Wildlife Service as part of the above Plan and Review and there is an expectation that several Bord na Móna sites will be designated as SACs and NHAs in the future. This will reinforce the network of protected raised bog sites and replace in part sites that will be de-designated as they have been deemed to be significantly damaged and are deemed to have no raised bog restoration prospects. PCAS is expected to restore several sites that will contribute to The National Raised Bog Special Areas of Conservation (SACs) Management Plan 2017-2022 targets in relation to the restoration of raised bog habitat.

Bord na Móna has also responded to the needs of the NRBMP and provided several sites to the government for the relocation of turf-cutters from SACs. This is part of a suite of ongoing bog conservation measures in the NRBMP to manage turf-cutting in protected sites. Bord na Móna and the National Parks and Wildlife Service continues to engage regarding the ongoing relocation of turf-cutters from protected raised bog sites.

9 All-Ireland Pollinator Plan 2021-2025

The All-Ireland Pollinator Plan 2021-2025 outlines key objectives and actions to protect and support pollinating insects and the habitats they rely on. A Bord na Móna specific action in this plan includes the adoption of pollinator-friendly management within the Bord na Móna network of sites. One action to help achieve this objective is habitat rehabilitation and restoration, where possible, of pollinator-friendly habitats, including peatland habitats.

10 Land-use planning policies

As Bord na Móna operates in many counties across Ireland, it is important to note the respective development plans in these counties. Many of the existing development plans recognise the potential that exists in the after-use of cutover/cutaway peatlands. Bord na Móna seeks to work with all of the relevant local authorities to ensure that the most appropriate after-uses are reflected in local planning policy. The following areas of consistent importance are of both direct and indirect relevance to Bord na Móna: heritage, tourism, biodiversity/conservation, landscape, renewable energy, and economy/enterprise.

11 National Archaeology Code of Practice

Bord na Móna operates under an agreed Code of Practice regarding archaeology with the Department of Arts, Heritage and the Gaeltacht and the National Museum of Ireland which provides a framework to enable the Company to progress peat extraction whilst carrying out archaeological mitigation. (<https://www.archaeology.ie/sites/default/files/media/publications/cop-bord-na-mona-en.pdf>)

The Code replaced a set of Principles agreed with the Department of Arts, Heritage and the Gaeltacht in the 1990s. Under the Code Bord na Móna, the Minister and Director work together to ensure that appropriate archaeological mitigation is carried out in advance of peat extraction.

- BNM must ensure that any monuments or archaeological objects discovered during peat extraction are protected in an appropriate manner by following the Archaeological Protection Procedures.
- BNM must ensure that any newly discovered monuments on Bord na Móna lands are reported in a timely manner to the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht.
- BNM must ensure that any archaeological objects discovered on Bord na Móna lands are reported immediately to the Duty Officer of the National Museum of Ireland.
- Bord na Móna will adhere to the Archaeology Code of Practice relating to management of any archaeological finds that may arise during cutaway peatland rehabilitation and decommissioning.

12 Bord na Móna Biodiversity Action Plan 2016-2021

Rehabilitation of industrial peatlands is a key objective of the Bord na Móna Biodiversity Action Plan 2016-2021. This action plan outlines the main objectives and actions around biodiversity on Bord na Móna lands. The Bord na Móna Biodiversity Action Plan also outlines key International and European policy in relation to biodiversity. This includes the **United Nations Convention on Biodiversity 2011-2020 (CBD)** and **European Biodiversity Strategy to 2020**. Further details of these policies and Bord na Móna's responses can be found in the Bord na Móna Biodiversity Action Plan (Bord na Móna, 2016). Both policy documents highlight targets such as reducing pressure on biodiversity, promoting sustainability, habitat restoration and benefits of ecosystem services.

One example of a key CBD target is:

- *“Restore at least 15% of degraded areas through conservation and restoration activities.”*

The EU's headline target for progress by 2020 is to:

- *“halt the loss of biodiversity and the degradation of ecosystems in the EU by 2020, restore them as far as feasible, while stepping up the EU contribution to averting global biodiversity loss.”*

This rehabilitation plan is aligned to the CBD target and the EU Biodiversity Strategy target and will help Ireland meet its commitment to these international Biodiversity policies.

13 Bord na Móna commitments

Bord na Móna made the commitment in 2009 not to develop any new peatland sites for industrial peat production. The company has continued to work with different stakeholders.

The company announced that industrial peat production would be cut by over 50 percent in 2019 and would entirely cease over most of its lands by the mid-2020s. Rehabilitation measures would continue to be carried out with the focus on re-wetting and rehabilitation of cutover and cutaway areas in line with national policies (such as the National Peatland Strategy, the National Biodiversity Action Plan, the Climate Action Plan 2019, the Water Framework Directive, etc.) and rehabilitation guidelines set down by the Environmental Protection Agency. To date, 15,000 hectares of cutaway and cutover bog have been rehabilitated using this approach with 5,000 hectares in active rehabilitation.

In line with Bord na Móna's accelerated decarbonisation programme, the company made a further commitment to a significantly larger rehabilitation target. This was reflected in our plans to rehabilitate a further 20,000 hectares of cutaway and cutover bog to wetland and woodland mosaics by 2025. In addition, we planned to restore a further 1,000 hectares of raised bog habitat by 2025.

The above commitments have now been followed by the decision by the company to cease industrial peat extraction and rehabilitate a target of 33,000 ha between 2021-2025.

These commitments outline the importance of peatland rehabilitation to Bord na Móna. The company will continue to demonstrate environmental responsibility and continue to deliver on these commitments in relation to peatland rehabilitation and in relation to the future management of these lands to maximise their benefits, particularly their ecosystem service benefits, along with the sustainable development of a portion of the land bank for other uses, such as renewable energy.

14 Bord na Móna Strategic Framework for the future use of cutaway peatlands 2020 (Draft)

The general after-use strategy of Bord na Móna is outlined in the Bord na Móna Strategic Framework for Future-Use of Cutaway Bogs 2020 (draft document). This document outlines how Bord na Móna's cutover peatland estate is complex in nature with great variability in terms of peat depths, peat types, drainage, subsoil condition and environmental value. Thus, future options require consideration on a site-specific basis, also bearing in mind the considerable internal variation within bogs. The development of the land-bank will also take account of national needs, while also taking account of the various national legislation, policies and plans related to the management of peatlands. In general, Bord na Móna will seek to balance and optimise commercial, social, and environmental value of these sites, and develop integrated land-uses, while taking account of the need for sustainability and their biodiversity value.

Any consideration of other future after-uses for Bord na Móna land such as development or other mixed uses will be conducted following the relevant planning guidelines and consultation with relevant authorities and will be considered within the framework of this peatland rehabilitation plan.

15 Bord na Móna Strategic Framework for the future use of cutaway peatlands 2020 (Draft)

The general after-use strategy of Bord na Móna is outlined in the Bord na Móna Strategic Framework for Future-Use of Cutaway Bogs 2020 (draft document). This document outlines how Bord na Móna's cutover peatland estate is complex in nature with great variability in terms of peat depths, peat types, drainage, subsoil condition and environmental value. Thus, future options require consideration on a site-specific basis, also bearing in mind the considerable internal variation within bogs. The development of the land-bank will also take account of national needs, while also taking account of the various national legislation, policies and plans related to the management of peatlands. In general, Bord na Móna will seek to balance and optimise commercial, social, and environmental value of these sites, and develop integrated land-uses, while taking account of the need for sustainability and their biodiversity value.

Any consideration of other future after-uses for Bord na Móna land such as development or other mixed uses will be conducted following the relevant planning guidelines and consultation with relevant authorities and will be considered within the framework of this peatland rehabilitation plan.

APPENDIX VII. DECOMMISSIONING

1. Condition 10 Decommissioning

This is a requirement of the applicable Integrated Pollution Control Licence issued by the Environmental Protection Agency. This condition 10.1 requires the following:

10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:

10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

The main success criteria pertaining to successfully complying with this condition is ensuring that no environmental liability remains from this infrastructure and material and that the bog can be deemed suitable for surrender of the licence under section 95 of the EPA Acts. This is achieved by Bord na Móna identifying and quantifying any mechanical and infrastructural resources that were installed in the bog to enable the development and production operation at the site. This list is then refined to identify any items that would be deemed as possibly resulting in environmental pollution, should they not be removed.

Typically, these items/infrastructures would be any remaining, unconsolidated plant, equipment and attachments, waste materials, unused raw materials such as land drainage pipes, remaining peat stockpiles, stock pile covering, pumps, septic tanks and fuel tanks.

In relation to this bog, the list and tasks would be as follows:

Item	Description	Attymon Bog Decommissioning Plan
1	Clean-up of remaining or unconsolidated waste or materials located in Bogs, Yards, Buildings and Offices	Where required
2	Cleaning Silt Ponds	Not relevant
3	Decommissioning Peat Stockpiles	Not relevant
4	Decommissioning or Removal of Buildings and Compounds	Not relevant
5	Decommissioning Fuel Tanks and associated facilities	Not relevant
6	Decommissioning and Removal of Bog Pump Sites	Not relevant
7	Decommissioning or Removal of Septic Tanks	Not relevant

In addition, condition 7 of the licence requires these now defined waste items to be disposed of or recovered as follows:

7.1 Disposal or recovery of waste shall take place only as specified in *Schedule 2(i) Hazardous Wastes for Disposal/Recovery* and *Schedule 2(ii) Other Wastes for Disposal/Recovery* of this licence and in accordance with the appropriate National and European legislation and protocols. No other waste shall be disposed of/recovered either on-site or off-site without prior notice to, and prior written agreement of, the Agency.

7.2 Waste sent off-site for recovery or disposal shall only be conveyed to a waste contractor, as agreed by the Agency, and only transported from the site of the activity to the site of recovery/disposal in a manner which will not adversely affect the environment.

7.3 A full record, which shall be open to inspection by authorized persons of the Agency at all times, shall be kept by the licensee on matters relating to the waste management operations and practices at this site. This record shall as a minimum contain details of the following:

7.3.1 The names of the agent and transporter of the waste.

7.3.2 The name of the persons responsible for the ultimate disposal/recovery of the waste.

7.3.3 The ultimate destination of the waste.

7.3.4 Written confirmation of the acceptance and disposal/recovery of any hazardous waste consignments sent off-site.

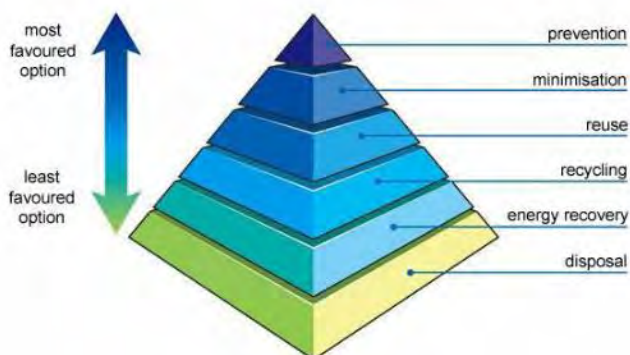
7.3.5 The tonnages and EWC Code for the waste materials listed in *Schedule 2(i) Hazardous Wastes for Disposal/Recovery* and *Schedule 2(ii) Other Wastes for Disposal/Recovery* sent off-site for disposal/recovery.

7.3.6 Details of any rejected consignments.

A copy of this Waste Management record shall be submitted to the Agency as part of the AER for the site.

As required by the licence, these waste items will be removed for recycling or disposal, using external contractors with the required waste collection permits, approved under 7.2, with waste records maintained as required under 7.3.

Where possible, Bord na Móna will utilize the appropriate waste hierarchy to identify waste that can be reused or recycled ahead of disposal.



The validation of the success of condition 10.1 is carried out through an Independent Closure Audit (ICA), followed by and EPA Exit Audit (EA) and the eventual partial or full surrender of the licence.

2. Enhanced Decommissioning

The remaining infrastructure does not constitute a risk to the environment and would not be a requirement of condition 10 of the licence. The removal of these are deemed as enhanced measures. These may enhance the future after use of the bog for amenity value, security against access for illegal and unsocial activities and general State and community benefit. In relation to this bog, this would include the infrastructure defined below:

Item	Enhanced Decommissioning Type	Attymon Bog Decommissioning Plan
1	Removal of Railway Lines	Where required
2	Decommissioning Bridges and Underpasses	Not applicable
3	Decommissioning Railway Level Crossing	Where required
4	Restricting Access (bogs and silt ponds)	Restricting Access to Bog.
5	Removal of High Voltage Power Lines	Where required

APPENDIX VIII. GLOSSARY

Cutaway Bog: A Bord na Móna site generally becomes cutaway when it is economically unviable to continue industrial peat extraction or when the majority of peat has been removed.

Deep peat cutover bog. Deep peat cutover bog is defined as former raised bogs that have been in industrial peat production, where production has ceased but the residual peat depth is typically in excess of 2m. *Sphagnum* mosses are key species of raised bogs and the majority of the peat mass is formed from these mosses. *Sphagnum* species and other raised bog species are a key part of raised bog habitat function and prefer more acidic, nutrient poor, water-logged conditions. Typical raised bog *Sphagnum* mosses and other bog species do not thrive with the more typical alkaline water chemistry of cutover bog but do grow well in these more acidic conditions where peat has been re-wetted. There is potential to re-develop *Sphagnum*-rich plant communities in these conditions if the peat can be re-wetted. This brings the opportunity of re-developing *Sphagnum*-rich vegetation communities that are considered Carbon sinks or peat-forming habitats and restoring the carbon sequestration function of these sites.

Dry cutaway bog: Cutaway bog is categorised as dry cutaway where it is not practical or feasible to re-wet these areas completely. It is inevitable that some areas of cutaway will remain relatively dry due to the heterogenous topography of the cutaway, as well as requirements for continued drainage on site for identified after-uses, or off site in relation to neighbouring lands or other infrastructure. Ridges and mounds of glacial deposits can become exposed during peat extraction and form a heterogenous topographical mosaic separated by basins. Dry cutaway may have very thin or no residual peat where ridges and mounds have been exposed. The exposed sub-soils are a mix of glacial gravels, muds and tills that can be quite free-draining. Dry cutaway may also have deeper residual peat but in a location (i.e. at the margin) where the peat cannot be re-wetted due to boundary constraints. Dry cutaway may also develop in situations where there a relatively steep slope that inhibits re-wetting. The majority of dry cutaway will develop towards grassland, heath, scrub and dry woodland habitats.

Enhanced decommissioning: This is defined as decommissioning carried out under Scheme, which is proposed to be externally funded.

Enhanced rehabilitation: This is defined as rehabilitation carried out under Scheme, which is proposed to be externally funded. It is proposed by Government that Bord na Móna be obligated to carry out enhanced decommissioning, rehabilitation and restoration on peatlands. This Scheme will significantly go beyond what is required to meet rehabilitation and decommissioning obligations under existing EPA IPC licence conditions. Interventions and activities supported by the Scheme will ensure that environmental stabilisation is achieved (meaning IPC obligations are met), and importantly, significant additional benefits, particularly relating to climate action and other ecosystem services, will also be delivered. However, only the costs associated with the additional, enhanced and accelerated measures, i.e., those interventions which go beyond the existing decommissioning and rehabilitation requirements arising from Condition 10 will be eligible for support under the Scheme.

Environmental stabilisation: The key objective of peatland rehabilitation is environmental stabilisation. This means developing habitats and vegetation back onto the bare peat, slowing water movement across the bog, minimising effects to downstream waterbodies and meeting the conditions of the IPC Licence. This is achieved by a combination of re-wetting, where possible, and natural colonisation of the former cutaway, with or without intervention. Habitats will develop that reflect the underlying environmental conditions. Other after-use development may also serve to act as environmental stabilisation.

Marginal land: Marginal land is defined as land around the margin of the industrial peat production area. This margin generally contains a range of habitats including scrub, Birch woodland, cutover bog and raised bog remnants. It has a variety of land-uses including turf-cutting (private turbary). The Scheme will consider potential rehabilitation and restoration actions (e.g. drain blocking) within marginal land zones, where appropriate.

Rehabilitation: Rehabilitation is defined in general by Bord na Móna as environmental stabilisation of the former cutaway. This is generally achieved via re-wetting, where possible, and natural colonisation of the former cutaway, with or without intervention. It is not possible to restore raised bog habitats on BnM cutaway in general in the short-term. In general, most of the peat mass has been removed from many BnM cutaway sites and the environmental characteristics of these areas have therefore changed radically (peat depths, hydrology, water chemistry, substrate type, nutrient status. This means there will therefore be different habitat outcomes (wetlands, fen, heathland, grassland and Birch woodland). Other after-use development may also serve to act as rehabilitation.

Restoration: Ecological restoration is defined as the process of re-establishing to the extent possible the structure, function and integrity of indigenous ecosystems and the sustaining habitats they provide” (SER 2004). Defined in this way, restoration encompasses the repair of ecosystems (Whisenant 1999) and the **improvement of ecological conditions in damaged wildlands** through the **reinstatement of ecological processes**. In general, Bord na Móna cutaway peatlands cannot be restored back to raised bog in a reasonable timeframe as their environmental conditions has changed so radically (with the removal of the acrotelem – the living layer and much of the peat mass). However, they can be returned to a **trajectory** towards a naturally functioning peatland system (Renou-Wilson 2012). **Raised bog restoration** is an objective of some BnM sites where there is residual natural raised bog vegetation and where the majority of the peat is still intact.

Standard rehabilitation: This is defined as rehabilitation that is designed to meet the conditions of the EPA IPC Licence. The key objective of rehabilitation is environmental stabilisation. This is achieved by a combination of re-wetting, where possible, and natural colonisation of the former cutaway, with or without intervention. Other after-use development may also serve to act as rehabilitation.

Standard decommissioning: This is defined as decommissioning that is designed to meet the conditions of the EPA IPC Licence. This is defined as to render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

Wetland cutaway bog. Wetland cutaway bog is defined as former raised bogs that have been in industrial peat production, where production has ceased and the majority of peat has been cutaway, and where this cutaway has the potential to be re-wetted. A significant number of Bord na Móna sites have pumped drainage and these sites are likely to develop a mosaic of wetland habitats when pumping is reduced or stopped. The water chemistry of wetland cutaway frequently is strongly influenced by the more alkaline sub-soils that have been exposed during peat production. This means that pioneer vegetation is more typical of fen and wetland, rather than raised bog. Wetland cutaway will have a broad range of hydrological conditions depending on the local topography. In some cases, these wetlands may form deep water (> 0.5 m) whilst other areas may have the water table at or just below the surface of the ground.

APPENDIX IX. EXTRACTIVE WASTE MANAGEMENT PLAN

(Minimisation, treatment, recovery and disposal)

Objective:

The objective of this generic plan is to comply with the requirements of regulation 5 of the Waste Management (Management of Waste from Extractive Industries) Regulations, and to prevent or reduce waste production and its harmfulness.

Scope:

This plan covers IPPC Licence's Ref. P0502-01, Blackwater (Attymon sub-group) Group of Bogs in County Galway.

1.0 Extractive Waste:

Waste classified as extractive waste from peat extraction operations arise from three operations associated with this activity.

1.1 Silt Pond excavations and maintenance.

All peat extraction activities in Blackwater bog group are serviced by silt lagoons/ponds. During the excavation of these silt ponds, pre-IPPC Licensing in 1999 and since licensing, the excavated material is stored adjacent to the silt pond, where it either remains in situ or is levelled out. As required by condition 6.6, these silt lagoons are cleaned twice per annum or more often if inspections dictate. These silt cleanings are also deposited on the same location, adjacent to the silt pond, where they may be levelled periodically to allow room for subsequent cleanings. These mounds of silt pond excavation material and cleanings are generally no higher than 2-3 metres.

1.2 Power Station screenings:

Peat from the bogs is screened prior to processing. This screening removes oversized peat, stones and bogs timbers. Schedule 3 (ii) of the IPPC licence permits disposal of these peat screenings back to the bog, where it is levelled and graded into the surrounding peat landscape. These locations have been agreed with the Agency as per condition 7.4 of the IPPC Licence, and as per the attached locations.

1.3 Bog Timbers:

During peat extraction operations, bog timbers often arise in the bog surface and are required to be cleared. These timbers consist of bog pine, oak and some yew. Some of these timbers, such as the oak and yew are removed for use in the wood craft industry, with the remaining bog pine stockpiled in locations at the opposite end of each bog, where it generally becomes a habitat for flora and fauna. These piles of timber are generally no higher than 1-2 metres.

2.0 P0502 IPPC Licence Extractive Waste Conditions

2.1 Condition 7.5 Extractive Waste Management

The licensee shall draw up a Waste Management Plan (to be known as an Extractive Waste Management Plan) for the minimisation, treatment, recovery and disposal of extractive waste. This Plan shall meet the requirements of regulation 5 of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009. The Plan shall be submitted for agreement by the Agency by the 31st of December 2012. The Plan shall be reviewed at least once every five years thereafter in a manner agreeable to the Agency and amended in the event of substantial changes to the operation of a waste facility or to the waste deposited. Any amendments shall be notified to the Agency.

All extractive waste shall be managed in accordance with the Extractive Waste Management Plan. A report on the implementation of the Extractive Waste Management Plan shall be provided in the AER.

2.2 Condition 7.6 Waste Facility

- (i) No new waste facility may be developed or an existing waste facility modified unless agreed by the Agency.
- (ii) The licensee shall ensure that all existing waste facilities are managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater.
- (iii) The licensee shall ensure that all new waste facilities are constructed, managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater.
- (iv) Operational measures shall be continuously employed to prevent damage to waste facilities from personnel, plant or equipment.
- (v) The licensee shall establish and maintain a system for regular monitoring and inspection of waste facilities.
- (vi) All records of monitoring and inspection of waste facilities, as required under the licence, shall be maintained on-site in order to ensure the appropriate handover of information in the event of a change of operator or relevant personnel.

2.3 Condition 7.7 Excavation Voids

7.7.1 Unless otherwise agreed by the Agency, only extractive waste shall be placed in excavation voids.

7.7.2 When placing extractive waste into excavation voids for rehabilitation and construction purposes, the licensee shall, in accordance with regulation 10 of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009, and the Extractive Waste Management Plan:

- Secure the stability of the waste
- Put in place measures to prevent pollution of soil, surface water and ground water.
- Carry out monitoring of the extractive waste and excavation void.

Condition 7.5. Extractive Waste Management Plan. 5 (1)

3.0 Minimisation.

3.1 Silt pond excavation material and cleanings.

IPPC Licence conditions require all production areas to be serviced by an appropriately designed silt pond based on storage volume and retention time. Condition 6.6 requires all ponds to be cleaned bi-annually and more often if inspections dictate, so the only opportunity for minimisation of same is through Standard Operating Procedures. These are required under condition 2.2.2 (i) regarding minimisation of suspended solids and are in-place to minimise the generation of silt, which in-turn will minimise the generation of silt pond waste.

3.2 Power Station Screenings.

These screenings cannot be minimised as they are a consequence of peat production, stones, timbers and oversize peat materials are naturally occurring on the bog and are required to be removed prior to processing.

3.3 Bog Timbers.

Bog timbers are also naturally occurring materials within a bog and are required to be removed prior to production. The volume of these bog timbers varies from bog to bog and as such their minimisation is not controllable or quantifiable.

4.0 Treatment

4.1 Silt pond excavation material and cleanings.

The silt pond excavation material and silt cleanings do not require any treatment for its end use which will be either backfilling these silt pond voids as per condition 7.7.1 above as part of the Bog Rehabilitation Plan, or reincorporated into the surrounding peatlands.

4.2 Power Station Screenings.

The factory screenings are permitted to be returned to the bog as they were naturally occurring materials from the bog, and as such do not require any treatment to serve this purpose.

4.3 Bog Timbers

As per 1.3 above, these timbers are stockpiled at two locations in each bog, as per the attached list of sites and become habitats for various flora and fauna.

5.0 Recovery

5.1 Silt pond excavation material and cleanings.

Condition 2.2.2 (vi) requires the reuse of silt pond waste to be examined. This was undertaken in 2006, the outcome of which was that this waste peat silt material, as a fuel, was contaminated with sub-soils, rendering it unsuitable for combustion. In addition, volumes are small compared to overall peat production volumes.

5.2 Power Station Screenings.

Given the nature of these screenings as outlined in 1.2 above, there is no further use identified and they are permitted to be disposed of back to the bog.

5.3 Bog Timbers

Investigations into processing these materials into smaller fractions for potential heating purposes did not yield any viable results. In addition, these older stockpiles are now classified as habitats and as such would not be considered for reuse as a fuel.

6.0 Disposal

6.1 Silt pond excavation material and cleanings.

Schedule 3 (ii) permits the disposal of silt pond cleanings (Lagoon Sediments) to the bog and these locations, adjacent to the silt pond site, are presented in the attached spreadsheet, with associated grid coordinates.

6.2 Power Station Screenings.

Schedule 3 (ii) permits the disposal of screenings (Peat Screenings) to the bog at designated locations agreed under Condition 7.4, and these locations, are presented in the attached spreadsheet, with associated grid coordinates.

6.3 Bog Timbers

These naturally occurring bog timbers are stockpiled at locations in each bog, grid coordinates attached.

7.0 Extractive Waste Management Plan

5 (2a)(i)

The vast majority of peat extraction bogs were all designed and drained for production prior to the 1960's and as such the production fields layout cannot be altered. Under our Cleaner Reduction Procedures, various design changes have been implemented to the production machines and process to reduce lost peat which eventually is captured in the silt ponds and requires removal as waste peat silt. This along with training and ongoing research and development will continuously reduce waste peat and subsequently waste silt pond cleanings. Bog timbers are present naturally in various volumes and quantities in different bogs and as peat production involves stripping peat in layers, the exposure, generation and removal of these timbers is unavoidable. Work has been undertaken recently into project looking at grinding of these bog timbers in situ using a timber miller, and if this project becomes viable it will contribute to the reduction of bog timbers.

5 (2a)(ii)

Given the nature and expanse of peat bogs, the stockpiling and storage of these waste materials do not present a visual, storage or stability problem. As required under Condition 10 of the IPPC Licence, the silt pond excavations and screenings will be utilised to backfill the silt pond voids once the bogs have finished and stabilised in accordance with our Bog Rehabilitation Plan. Storage of these wastes in the interim, open to the elements does not present a change on the nature of these wastes that will threaten the environment or prevent their reuse during the bog rehabilitation process.

5 (2a)(iii)

Under Condition 10 of the IPPC Licence, all silt ponds will be decommissioned once the bog surface has stabilised, in agreement with the Agency. This will involve the removal of weirs and flow controls, returning the silt pond back to its original drain or removing the silt pond from the drainage system. Both of these activities will involve placing the silt pond extraction and cleaning material back into the excavation void.

5 (2a)(iv)

The peat bogs do not contain any topsoil, so this is not required.

5 (2a)(v)

Peat mineral resources do not undergo any treatment.

5 (2b)

These three extractive wastes are all being reused and recovered back to their original extraction points and have not undergone any physical, chemical, or biological change.

5 (2c)(i, ii & iii)

These three extractive wastes, stored on the bog for reuse or recovery during the bog rehabilitation phase, do not require any management or monitoring during the operation of these bogs. Silt pond excavations and cleanings are stored adjacent to the silt pond and quickly revegetated and stabilised, the screenings are graded back into the bog at the agreed locations upon disposal and the bog timbers do not prevent any water or airborne danger to the environment.

5 (3)

The three extractive wastes arising from peat extraction operations at this site are classified wastes from mineral non-metalliferous excavation, with an EWC code of 0101 02. The materials are not classified as hazardous under Directive 91/689/EEC20, and do not contain substances or preparations classified as dangerous under Directives 67/548/EEC5 or 1999/45/EC6 above a certain threshold.

The peat excavations and cleanings are stored in locations and in a manner that they could not collapse and are remote in their nature. The stockpiles are located adjacent to silt ponds that are cleaned regularly and as such these stockpiles are managed and levelled to facilitate further cleanings. Therefore, the material stored at these waste facilities would not be considered to be a Category A waste facility.

Classification in accordance Annex II.

Waste Material	Description	Classification	Chemical Process treatment	Deposition description	Transport System
Silt Pond Excavations and cleanings	Peat and mineral soils associated with peatlands. Stored for reuse during bog rehabilitation, with no displacement of overburden	01 01 02	None	Excavated from silt ponds by excavator and deposited adjacent to the silt pond.	Excavator
Peat Screenings	Stones, timbers and oversized peat particles, reincorporated into low areas, agreed with the Agency, and stabilized under normal natural bog conditions	01 01 02	None	Removed by screen at the factory and transported by tractor and trailer to the designated and agreed locations	Tractor and trailer.
Bog Timbers	Pine, Oak and Yew species, stored at locations in each bog. Not subject to any stability issues due to exposure to atmospheric/meteorological conditions.	01 01 02	None	Removed from the bog surface by excavator and transported by tractor and trailer to the agreed locations	Tractor and Trailer

Description of operations.

Silt pond excavations arise from the requirement to have silt ponds treating all peat extraction sites. Silt pond cleanings arise from the removal of peat silt from silt ponds as required under IPPC Licence. Bog timbers arise from preparation of the bogs surface for peat production. Estimated quantities of materials are below:

Closure plan. (Bog Rehabilitation Plan).

Condition 10.1 – 10.3 of the IPPC Licence requires the following:

- 10.1 Following termination of use or involvement of all or part of the site in the licensed activity, the licensee shall:
 - 10.1.1 Decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.
 - 10.1.2 Implement the agreed cutaway bog rehabilitation plan (refer Condition 10.2).

10.2 Cutaway Bog Rehabilitation Plan:

- 10.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area. This plan shall be submitted to the Agency for agreement within eighteen months of the date of grant of this licence.
- 10.2.2 The plan shall be reviewed every two years and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the written agreement of the Agency.

10.3 The Rehabilitation Plan shall include as a minimum, the following:

- 10.3.1 A scope statement for the plan; to include outcome of consultations with relevant Agencies, Authorities and affected parties (to be identified by the licensee).
- 10.3.2 The criteria which define the successful rehabilitation of the activity or part thereof, which ensures minimum impact to the environment.
- 10.3.3 A programme to achieve the stated criteria.
- 10.3.4 Where relevant, a test programme to demonstrate the successful implementation of the rehabilitation plan.
- 10.3.5 A programme for aftercare and maintenance.

10.4 A final validation report to include a certificate of completion for the Rehabilitation Plan, for all or part of the site as necessary, shall be submitted to the Agency within six months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment. This plan including maps and ecological classifications are available on file at the IPPC Licence Coordinators office.

The location in relation to the silt pond excavations and cleanings are adjacent to the silt ponds, which are considered under the National River Basin Management Plan in accordance with the requirements of Directive 2000/60/EC.

Screenings and bog timbers are all naturally occurring elements of peatland and their placement back to the bog in smaller concentrated designated waste facilities does not constitute a risk to the prevention of water compliance.

The lands under where these materials are deposited are peatlands and are un-effected by the placing of this material.

Review.

This plan will be reviewed every five years, the first review to take place in September 2017. This review will entail an inspection of these waste facilities to ensure their placing, management, maintenance and stability comply with the requirements of the Extractive Waste Management requirements and condition 7.5, 7.6 and 7.7 of the IPPC Licence Ref. PO502-01.

Draft

APPENDIX X. MITIGATION MEASURES FOR THE APPLICATION OF FERTILISER

- Any fertiliser used will be Rock Phosphate and will not be applied in the following conditions:
 1. The land is waterlogged;
 2. The land is flooded, or it is likely to flood;
 3. The land is frozen, or covered with snow;
 4. Heavy rain is forecast within 48 hours (forecasts will be checked from Met Éireann).
 5. The ground slopes steeply and there is a risk of water pollution, when factors such as surface run-off pathways, the presence of land drains, the absence of hedgerows to mitigate surface flow, soil condition and ground cover are taken into account.
- No fertiliser will be spread on land within 2 metres of a surface watercourse.
- Buffer zones in respect of waterbodies, in line with advice on the implementation of the European Union (Good Agricultural Practice for Protected of Waters) (Amendment) Regulations 2022, latest statutory instrument below at link: <https://www.irishstatutebook.ie/eli/2022/si/113/made/en/pdf> will be adhered to at all times with regard to fertiliser application. Reproduced as follows:

Water body / Feature	Buffer zone
Any water supply source providing 100m ³ or more of water per day, or serving 500 or more people	200 metres (or as little as 30 metres where a local authority allows)
Any water supply source providing 10m ³ or more of water per day, or serving 50 or more people	100 metres (or as little as 30 metres where a local authority allows)
Any other water supply for human consumption	25 metres (or as little as 30 metres where a local authority allows)
Lake shoreline	20 metres
Exposed cavernous or karstified limestone features (such as swallow holes or collapse features)	15 metres
Any surface watercourse where the slope towards the watercourse exceeds 10%	10 metres
Any other surface waters	5 metres*

APPENDIX XI. CONSULTATION SUMMARIES

Table APX -1 Consultees contacted

Consultation to follow.

Table APX -2 Response summary from Consultees contacted

Consultation to follow.

Draft

APPENDIX XII. ARCHAEOLOGY

Role of the Archaeological Liaison Officer

1. To communicate this Code of Practice and the *Archaeological Protection Procedures* (Appendix IV) to all personnel operating on the bog.
2. To ensure that all notices relating to the *Archaeological Protection Procedures* are posted and maintained at appropriate locations on the bog.
3. To report any stray finds, presented to the Liaison Officer from his/her group of bogs, to the Duty Officer of the National Museum of Ireland.
4. To provide for the appropriate protection of the stray find, whether in-situ or removed from the bog, as directed by the Duty Officer of the National Museum of Ireland.



Code of Practice

Code of Practice

5. To arrange for the delivery or collection of the stray find, as directed by the Duty Officer of the National Museum of Ireland.
6. To complete the Report of Discovery of Archaeological Object(s) in Bogs (Appendix V), as directed by the Duty Officer of the National Museum of Ireland.
7. To maintain a file of all stray finds and associated documentation and provide copies to the Project Archaeologist.
8. To provide assistance, where required, to the Department during archaeological surveys.
9. To provide assistance, where required, to Bord na Móna's Consultant Archaeologists, during investigation and mitigation of monuments.
10. To report to the Bord na Móna members on the Archaeology Management Liaison Committee any planned developments or new activities on cutaway peatland areas within his/her group of bogs.



Bord na Móna	Procedure: ENV017	Rev: 1
Title: Archaeological Findings	Approved: EM	Date: / /2024

1) Purpose

The purpose of this procedure is to describe the arrangements in Bord na Móna for findings of Archaeological material (Stray Finds).

All objects, sites or monuments, no matter how fragmentary, are important elements of our heritage.

2) Procedure

1. Check whether there are any known archaeological monuments in your area.
2. Be vigilant at all times - objects or traces of structures can be found on the field surfaces, in the drain faces, on the bog margins or caught within the mechanics of machinery.
3. If an object is found leave it in place, if it is safe to do so, note its position and immediately contact your Archaeological Liaison Officer who will assess the situation and contact the Duty Officer of the National Museum of Ireland.
4. Resist the temptation to investigate the find spot as this may disturb fragile archaeological deposits.
5. If the object is already dislodged or is in imminent danger, remove it carefully, mark its find spot and report it immediately to your Archaeological Liaison Officer.
6. Objects made of wood, leather or textile, which are removed from peat should be kept in conditions similar to those in which they are found. This can be done by packing them in peat or, if waterlogged, placing them in a clean basin of water and sealing the container. Resist the temptation to clean or remove peat from the object.
7. If timbers or other materials, such as gravel or stones, which could be part of a man-made structure are noted on the bog, mark the location and report it immediately to your Archaeological Liaison Officer. If you suspect the find is of archaeological importance, resist the temptation to expose it any further as this could result in damage to the structure.
8. Report anything that looks unnatural in the bog – your Archaeological Liaison Officer will decide whether it should be referred to the appropriate authorities.

NOTE: Our archaeological heritage is a finite, non-renewable resource. Once a site is destroyed its information is lost forever and we have lost the chance to understand a little more about our past, where we have come from and perhaps the opportunity to learn for the future.

Your Archaeological Liaison Officer is

3) Records

Revision Index			
Revision	Date	Description of change	Approved
1	/ /2024	First release	EMcD
2			

APPENDIX XIII: WATER QUALITY MONITORING RESULTS FOR ATTYMON BOG

To follow once available.

Draft



APPENDIX 2

**ATTYMON BOG- DECOMMISSIONING
AND REHABILITATION PLAN GIS
MAPBOOK**

Bord na Móna

Attymon Bog Rehab Plan GIS Map Book 2024



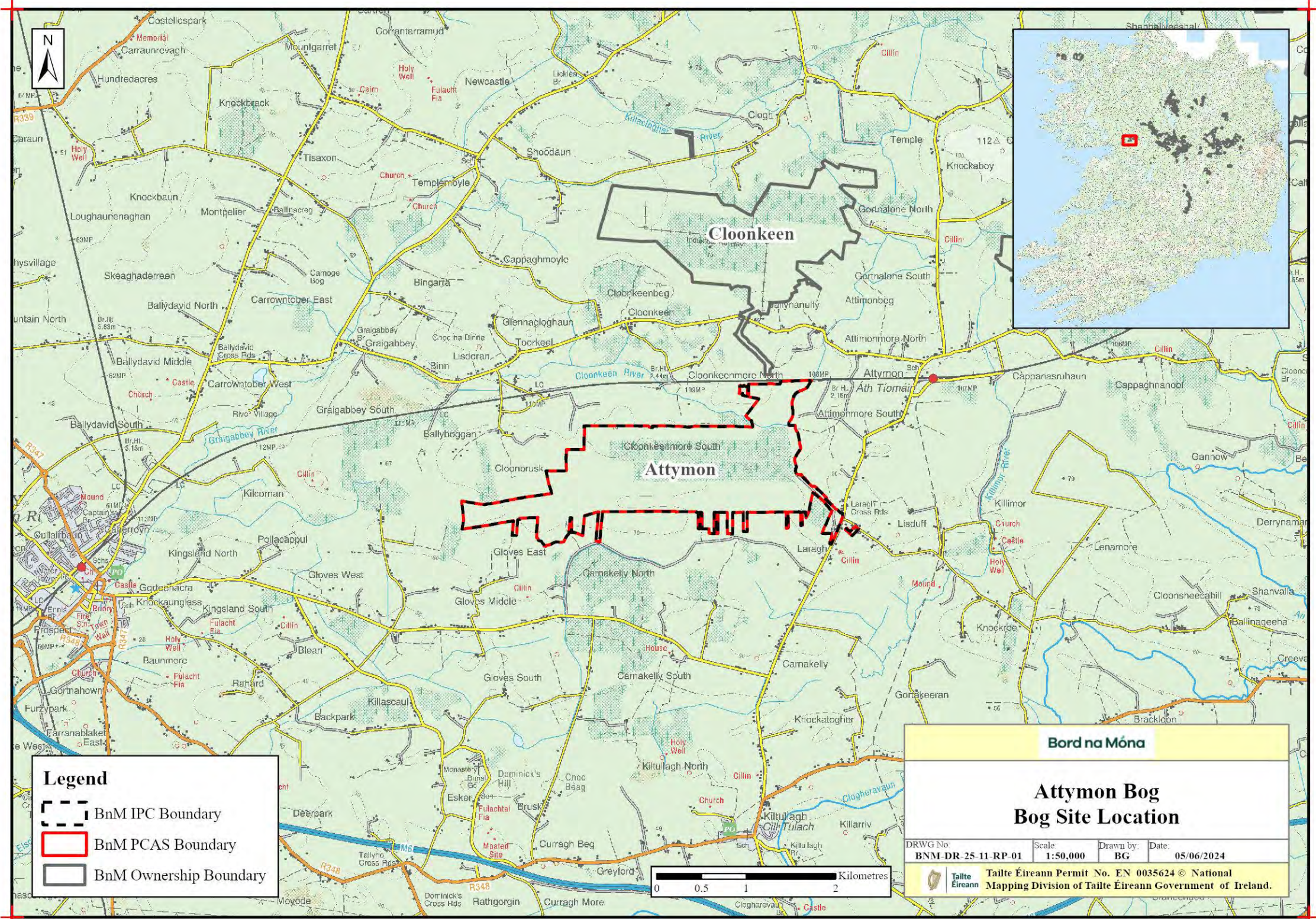
Document Control Sheet						
Document Name:	Attymon Bog Rehab Plan GIS Map Book 2024					
Document File Path:						
Document Status:	Final v1.0					
This document comprises:	DCS	TOC	Text (Body)	References	Maps	No. of Appendices
	1	1	0	0	14	0
Rev.	0.1	Author(s):		Checked By:		Approved By:
	Name(s):	BG		ML		CC
	Date:	05/06/2024		05/06/2024		05/06/2024
Rev.	1.0	Author(s):		Checked By:		Approved By:
	Name(s):	BG		ML		CC
	Date:	28/06/2024		28/06/2024		28/06/2024

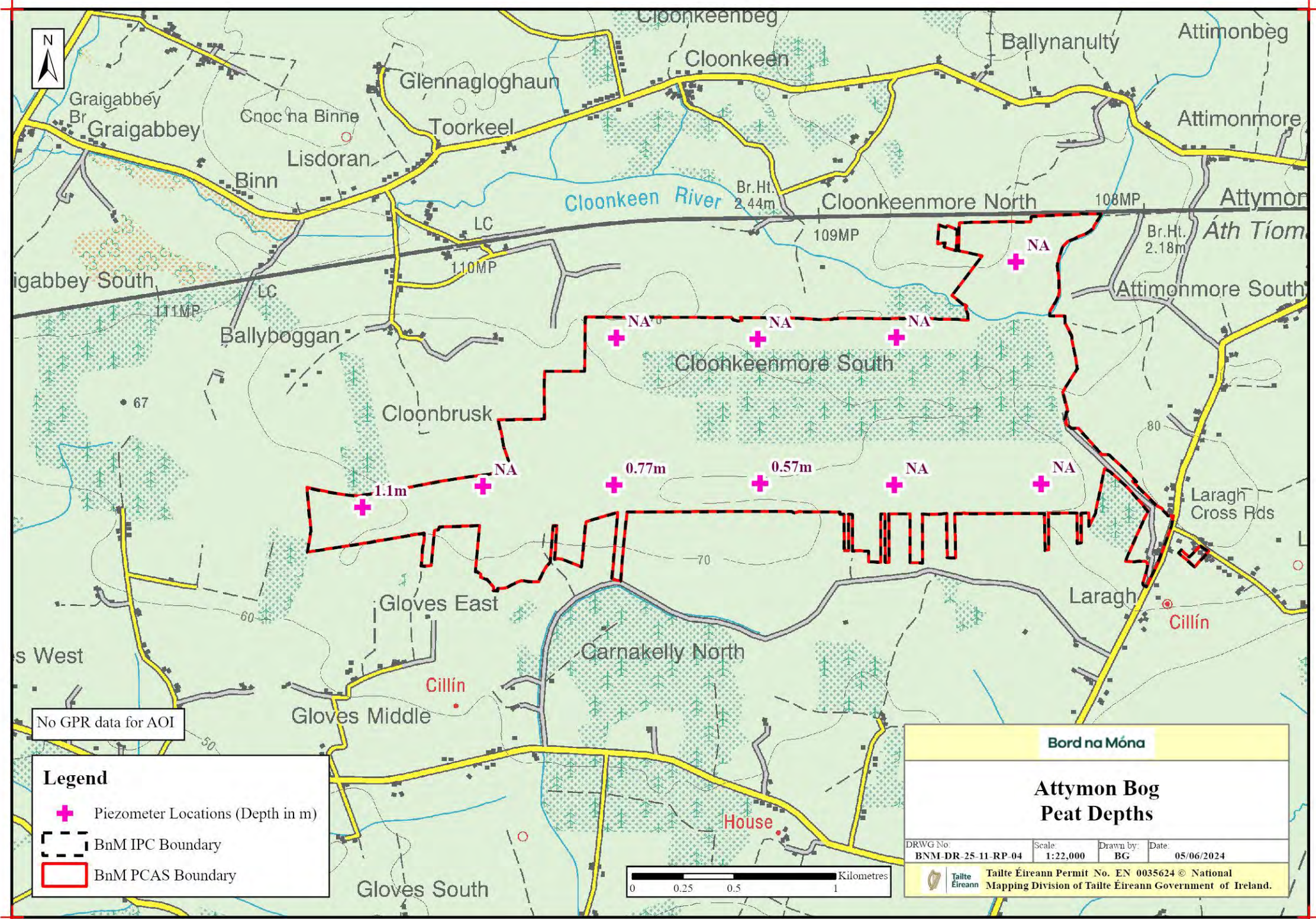
Bord na Móna would like to thank and acknowledge RPS Consultants for their input into this document and the provision of data for inclusion in these maps.

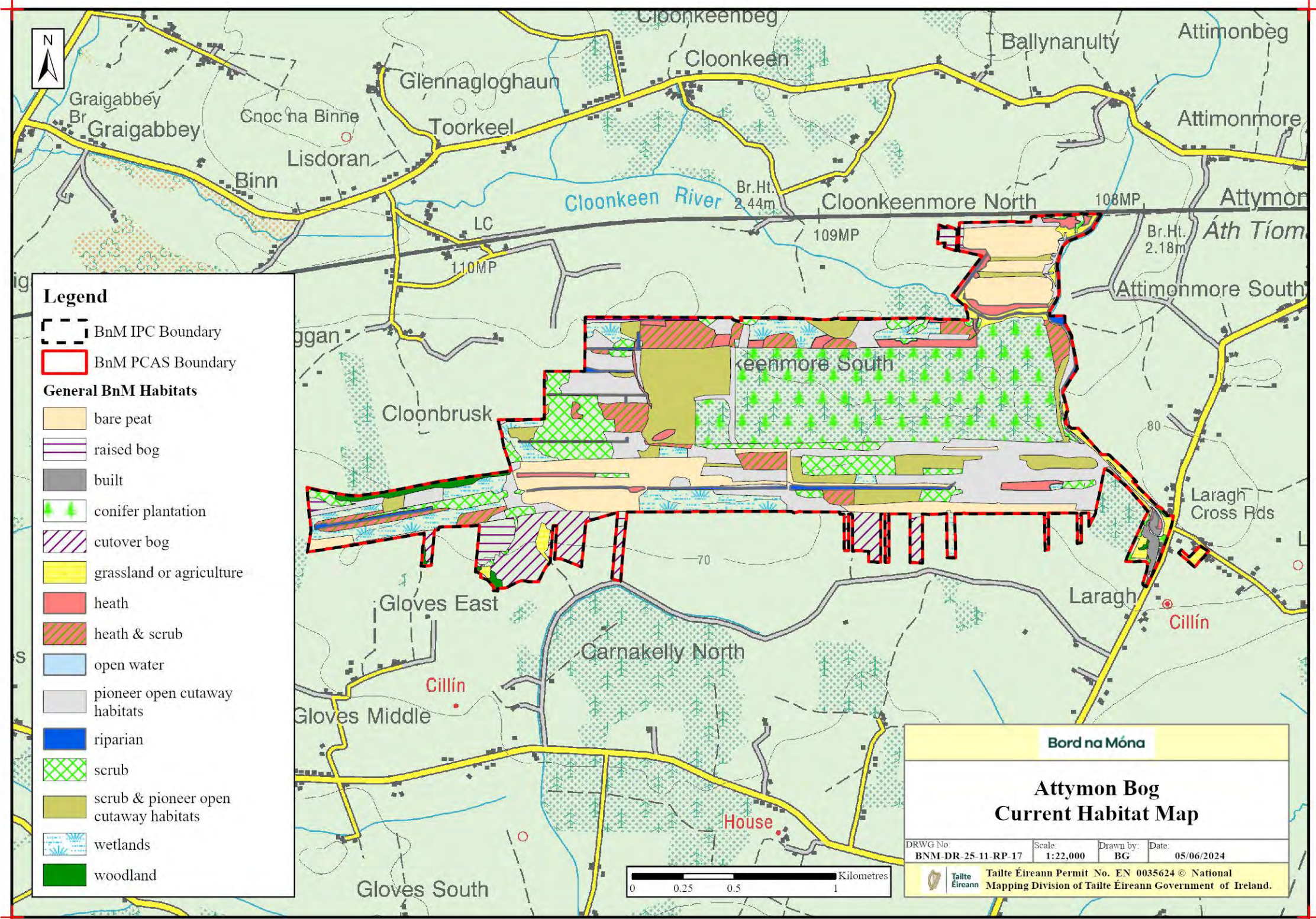
Table of Contents

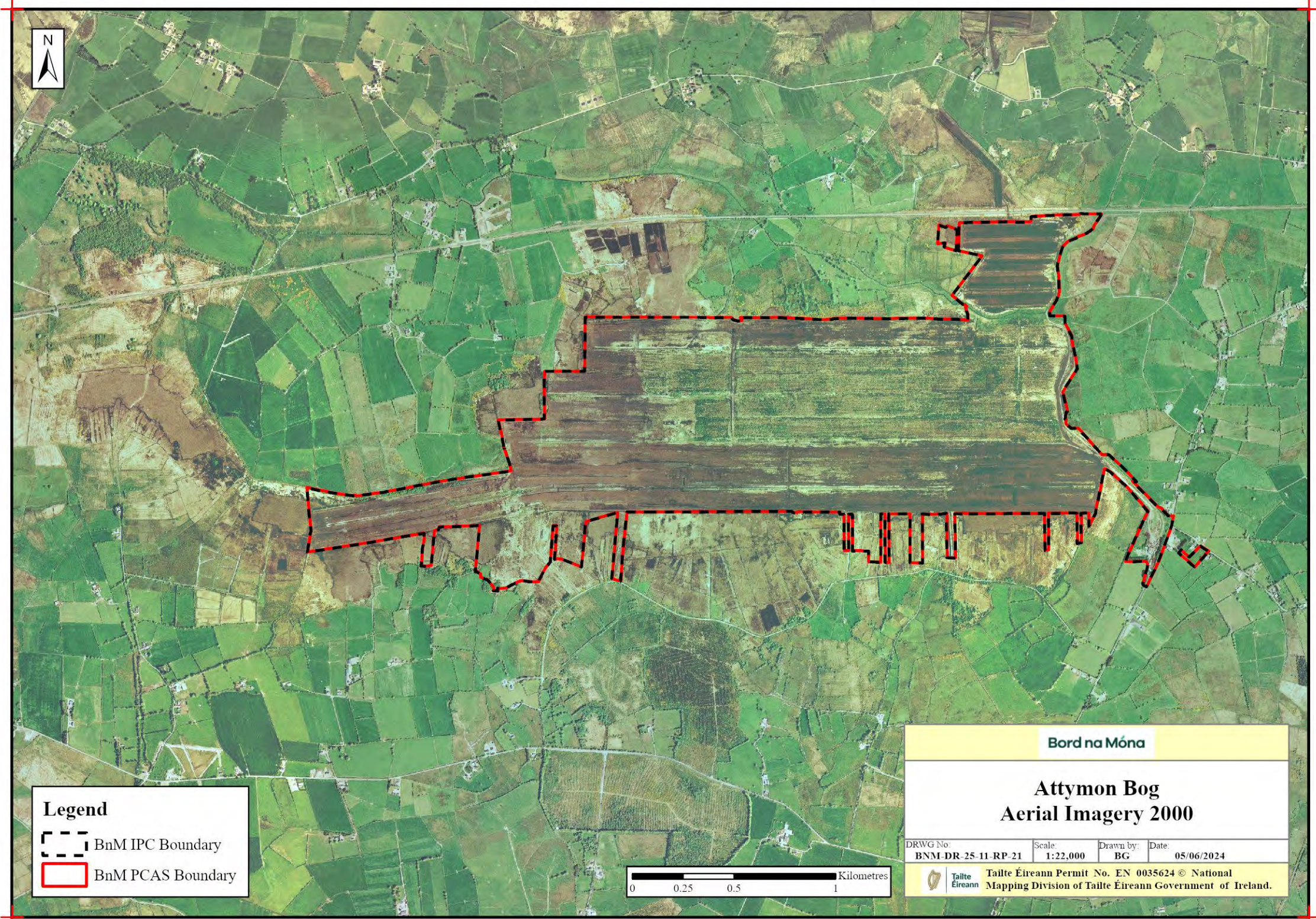
Bog Site Information Maps	4
BNM-DR-25-11-RP-01: Site Location Map	5
BNM-DR-25-11-RP-02: Structures and Sampling	6
BNM-DR-25-11-RP-04: Peat Depths.....	7
BNM-DR-25-11-RP-17: Current Habitat Map.....	8
BNM-DR-25-11-RP-21: Aerial Imagery 2000.....	9
BNM-DR-25-11-RP-22: Aerial Imagery 2023.....	10
BNM-DR-25-11-RP-23: Proximity Designated Sites	11
BNM-DR-25-11-RP-24: Bog Group Map.....	12
Hydrology / Topography Maps	13
BNM-DR-25-11-RP-WQ01: Water Quality Map	14
BNM-DR-25-11-RP-03: LiDAR Map	15
BNM-DR-25-11-RP-09: Depression Analysis	16
BNM-DR-25-11-RP-13: General Drainage Map.....	17
Rehabilitation Maps	18
BNM-DR-25-11-RP-05: Enhanced Rehabilitation Measures	19
BNM-DR-25-11-RP-20: Standard Rehabilitation Measures	20

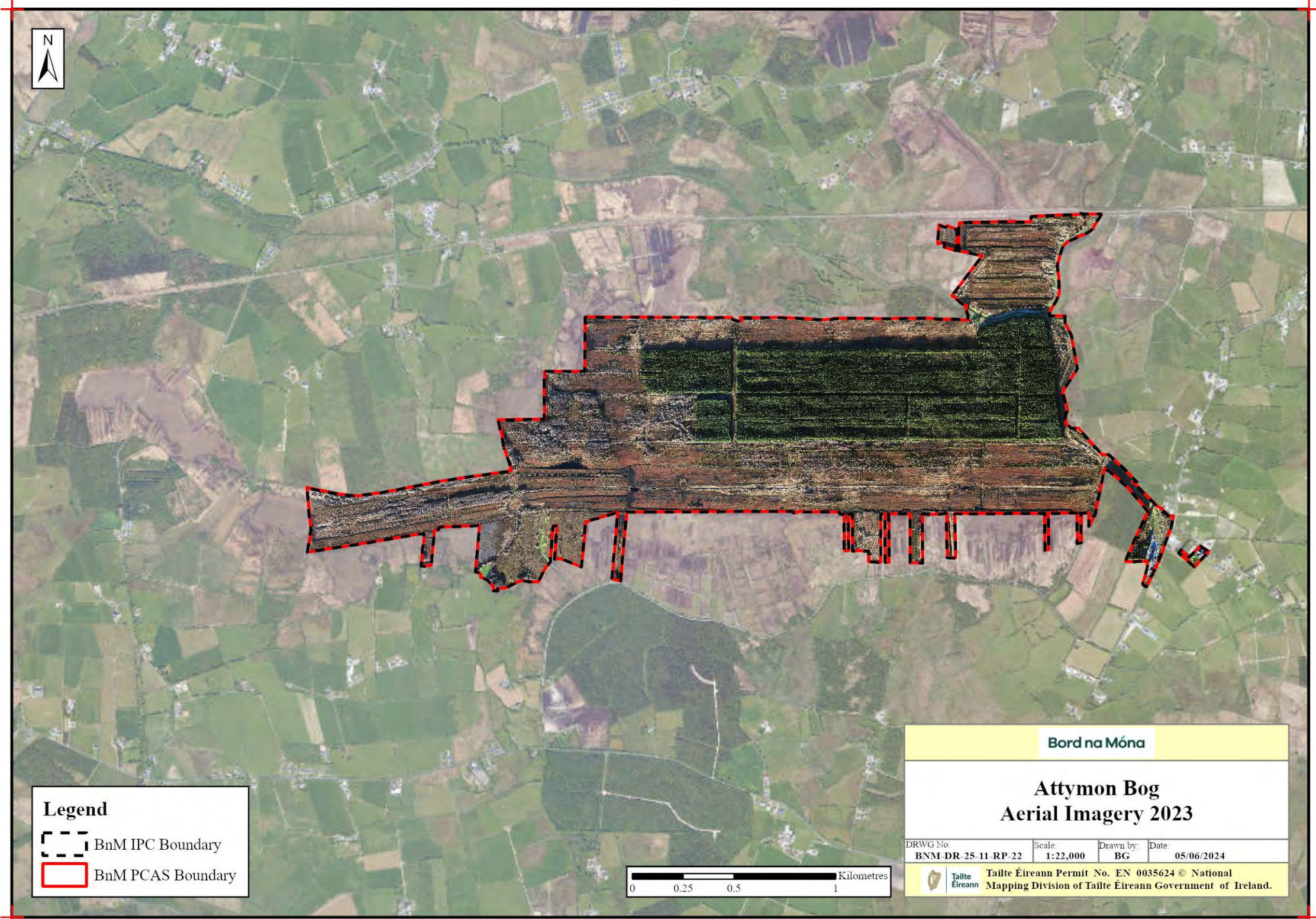
Bog Site Information Maps











Legend

- BnM IPC Boundary
- BnM PCAS Boundary

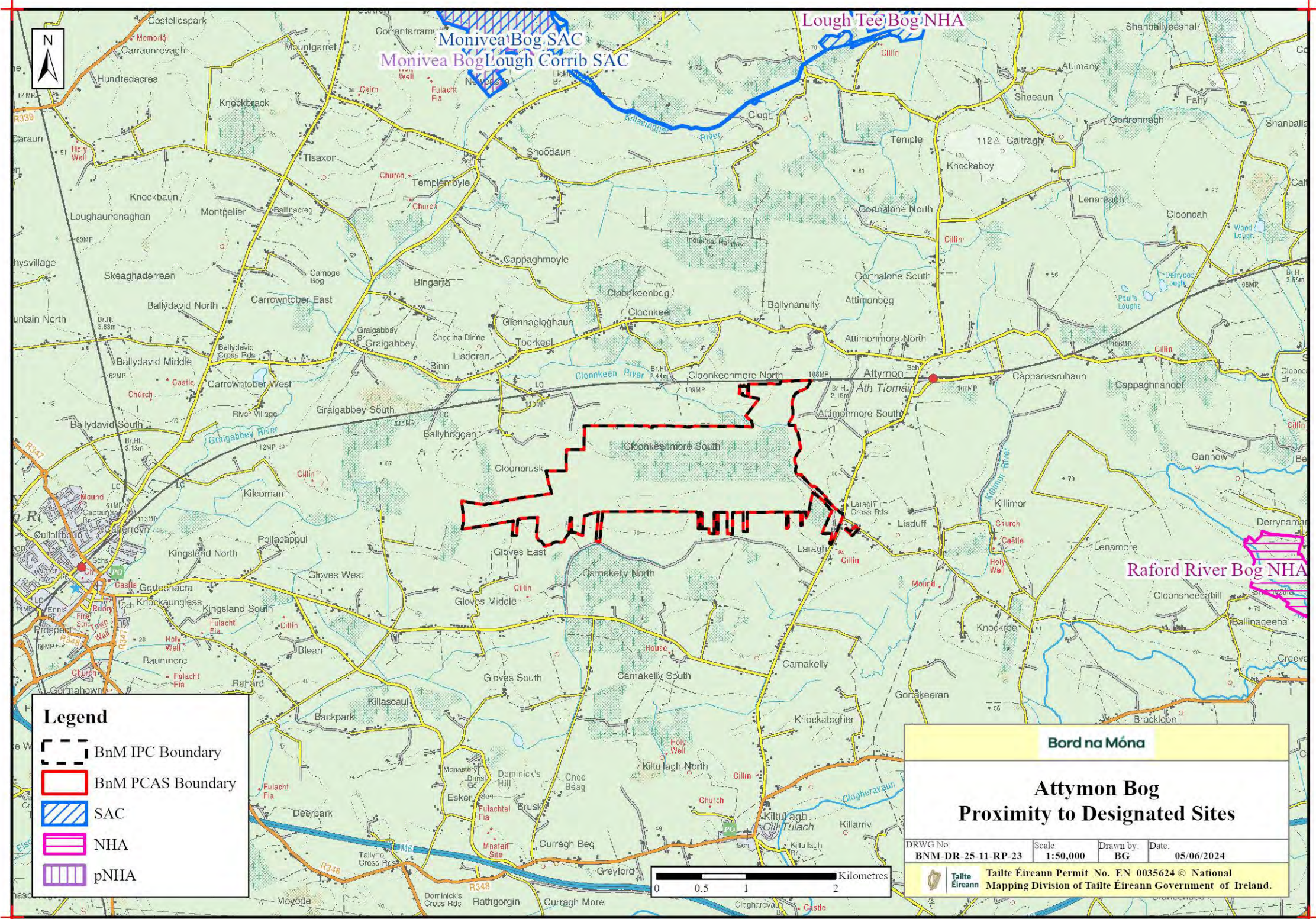


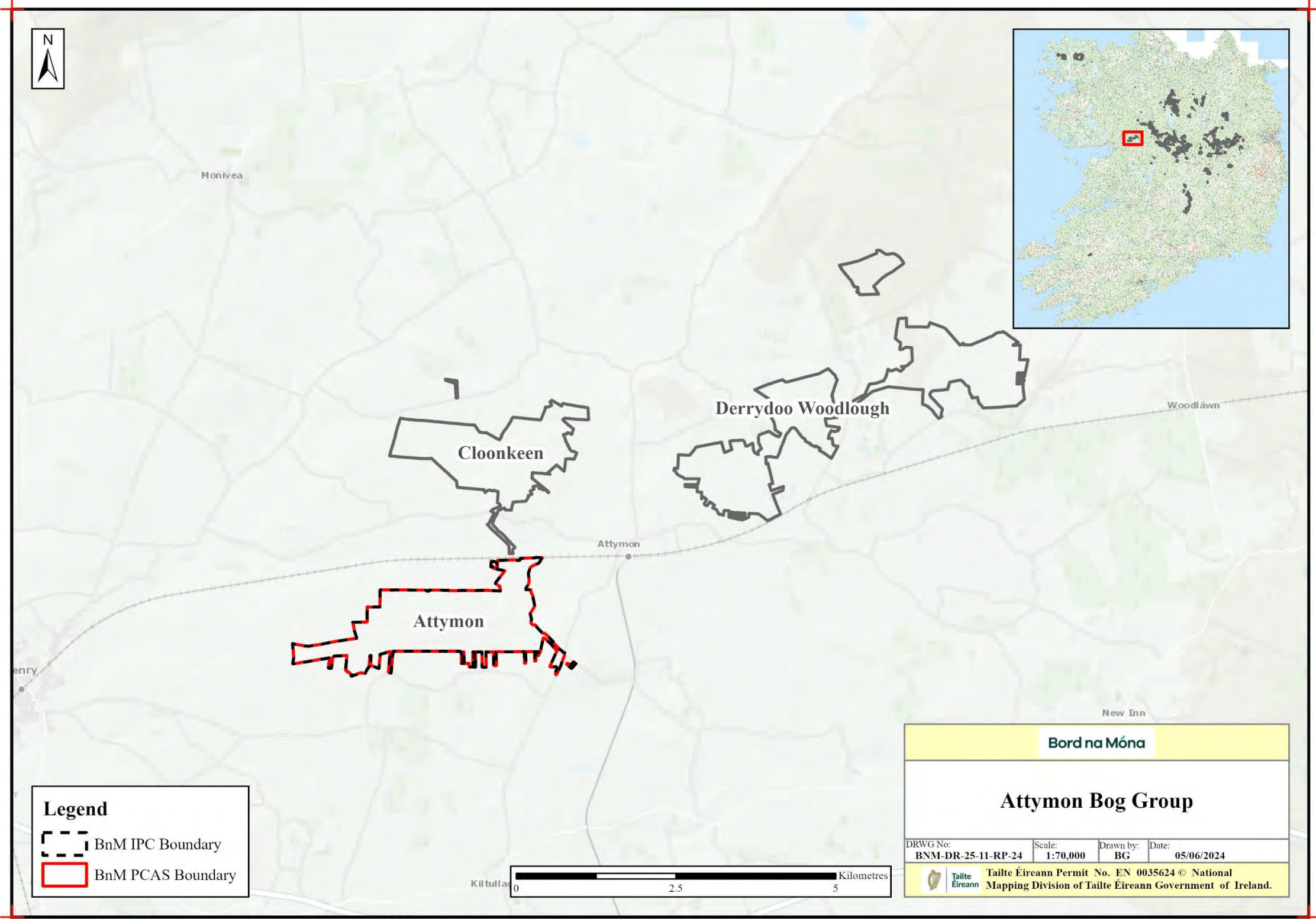
Bord na Móna

**Attymon Bog
Aerial Imagery 2023**

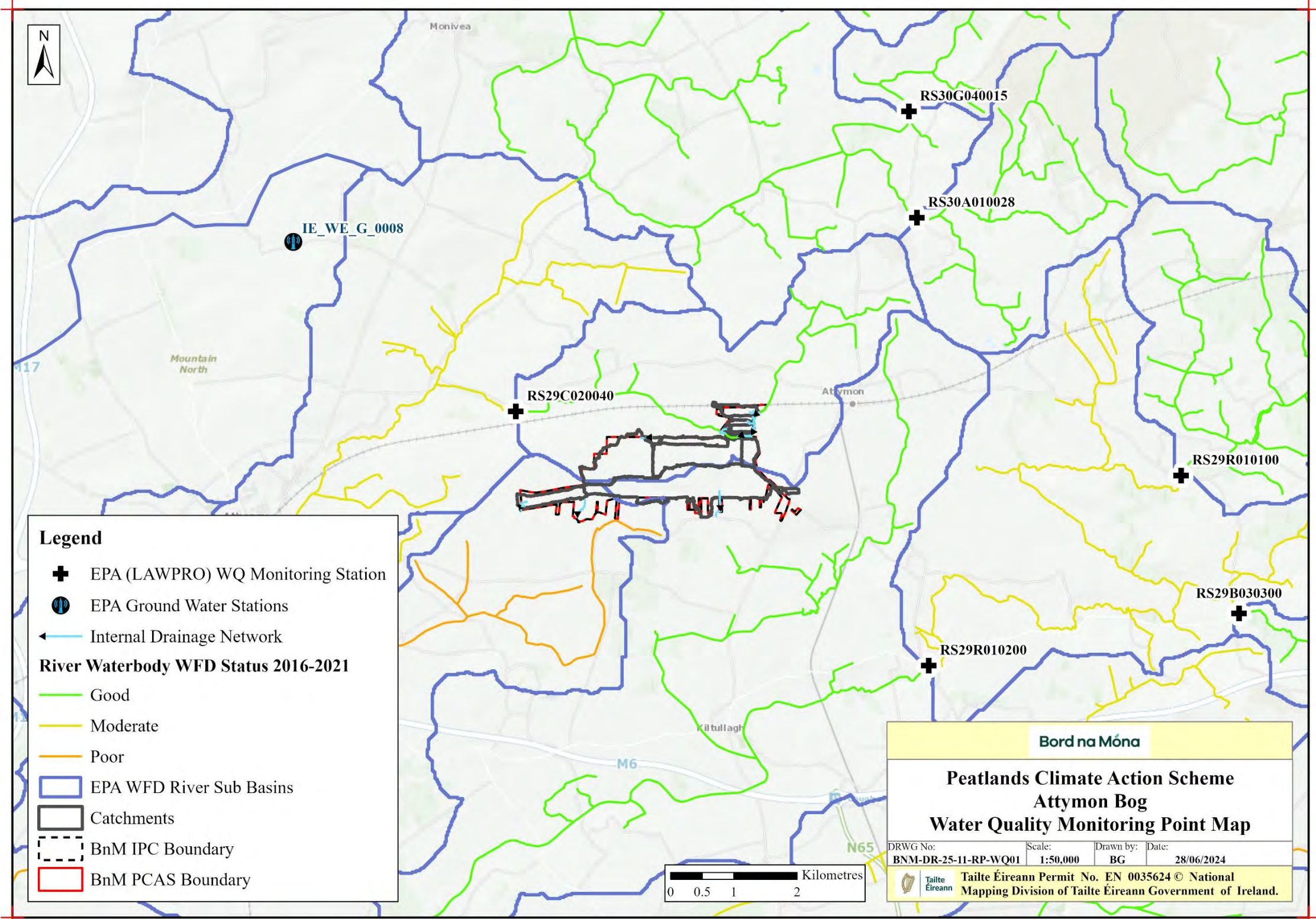
DRWG No:	Scale:	Drawn by:	Date:
BNM-DR-25-11-RP-22	1:22,000	BG	05/06/2024

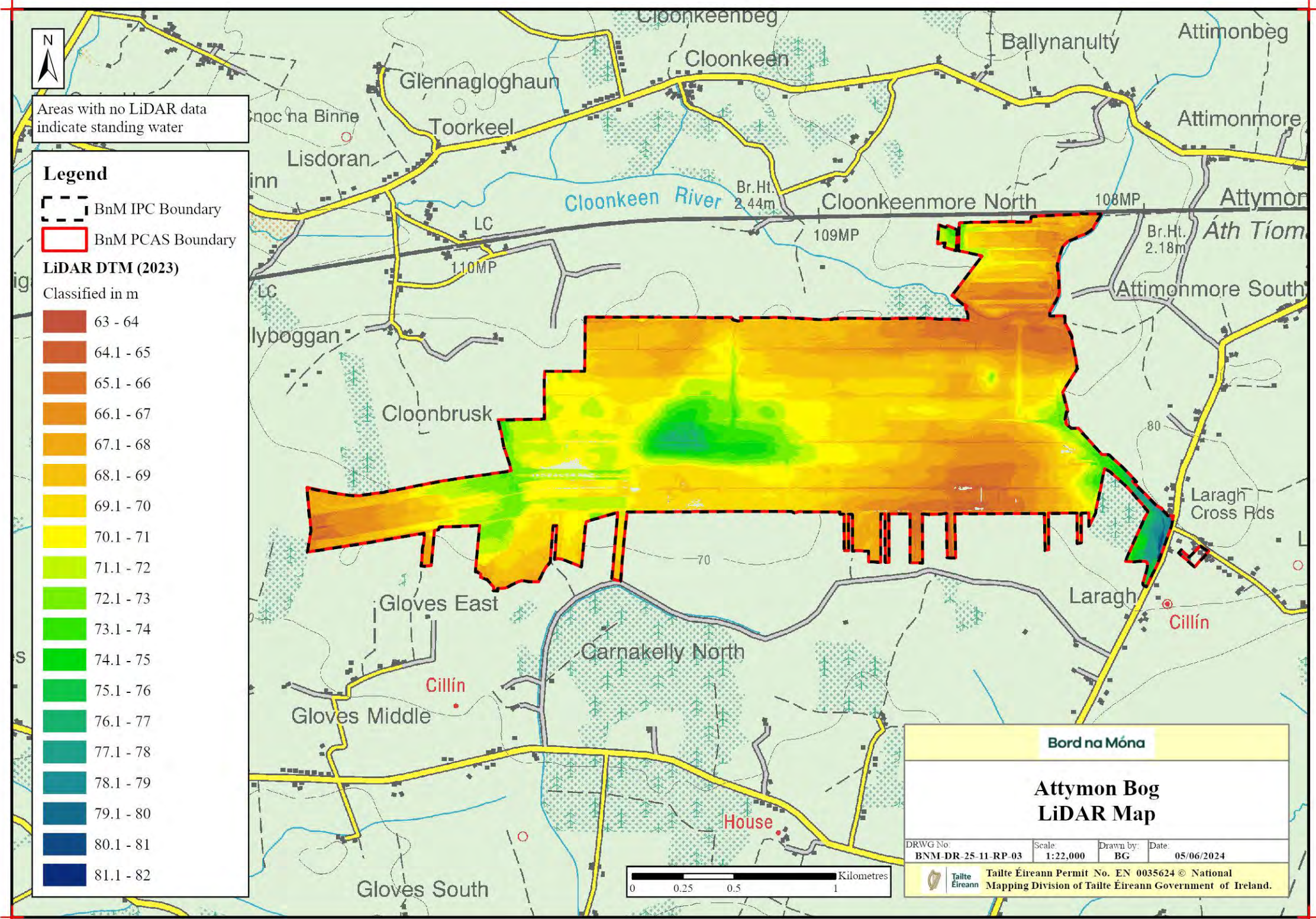
Tailte Éireann Permit No. EN 0035624 © National Mapping Division of Tailte Éireann Government of Ireland.

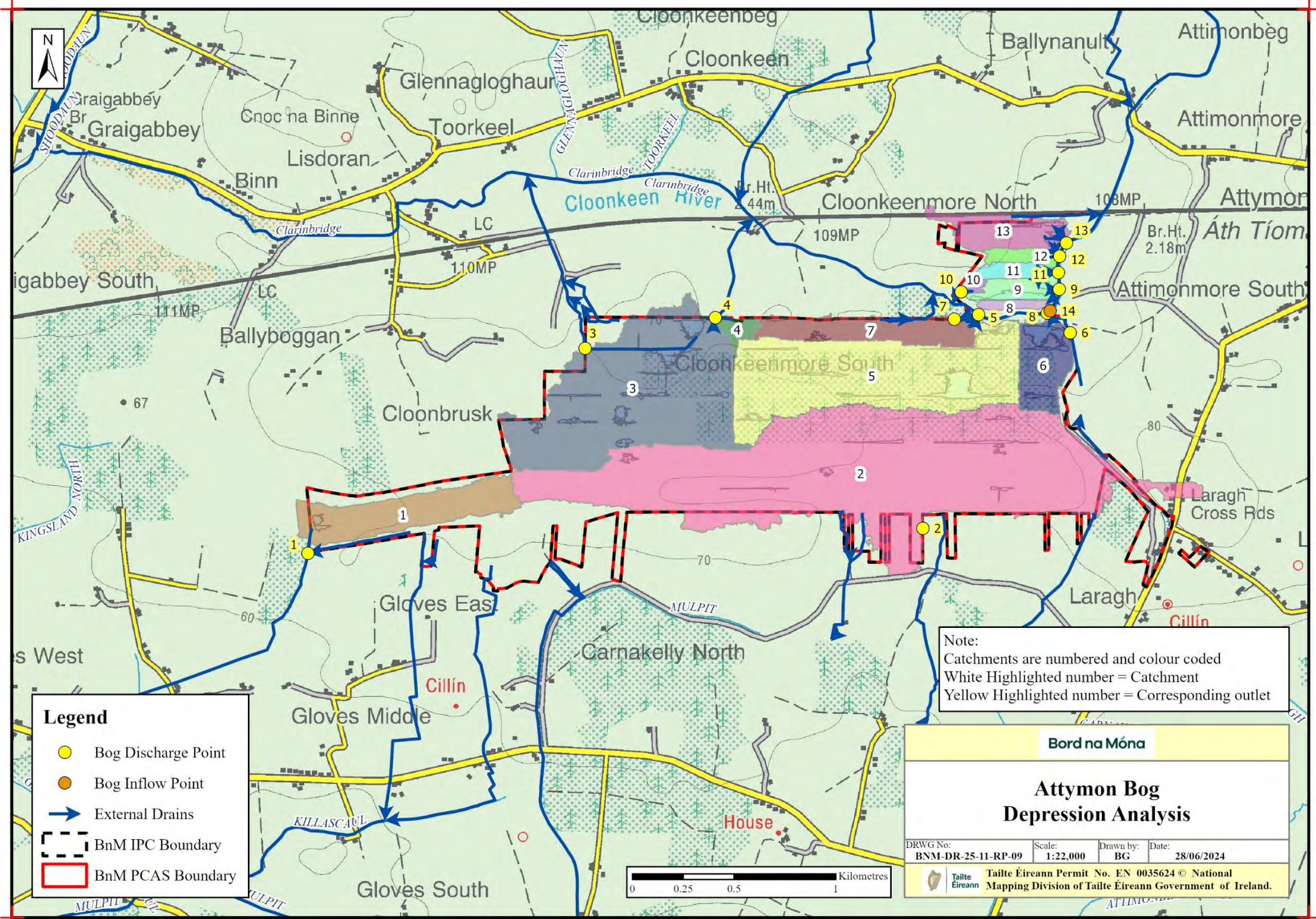


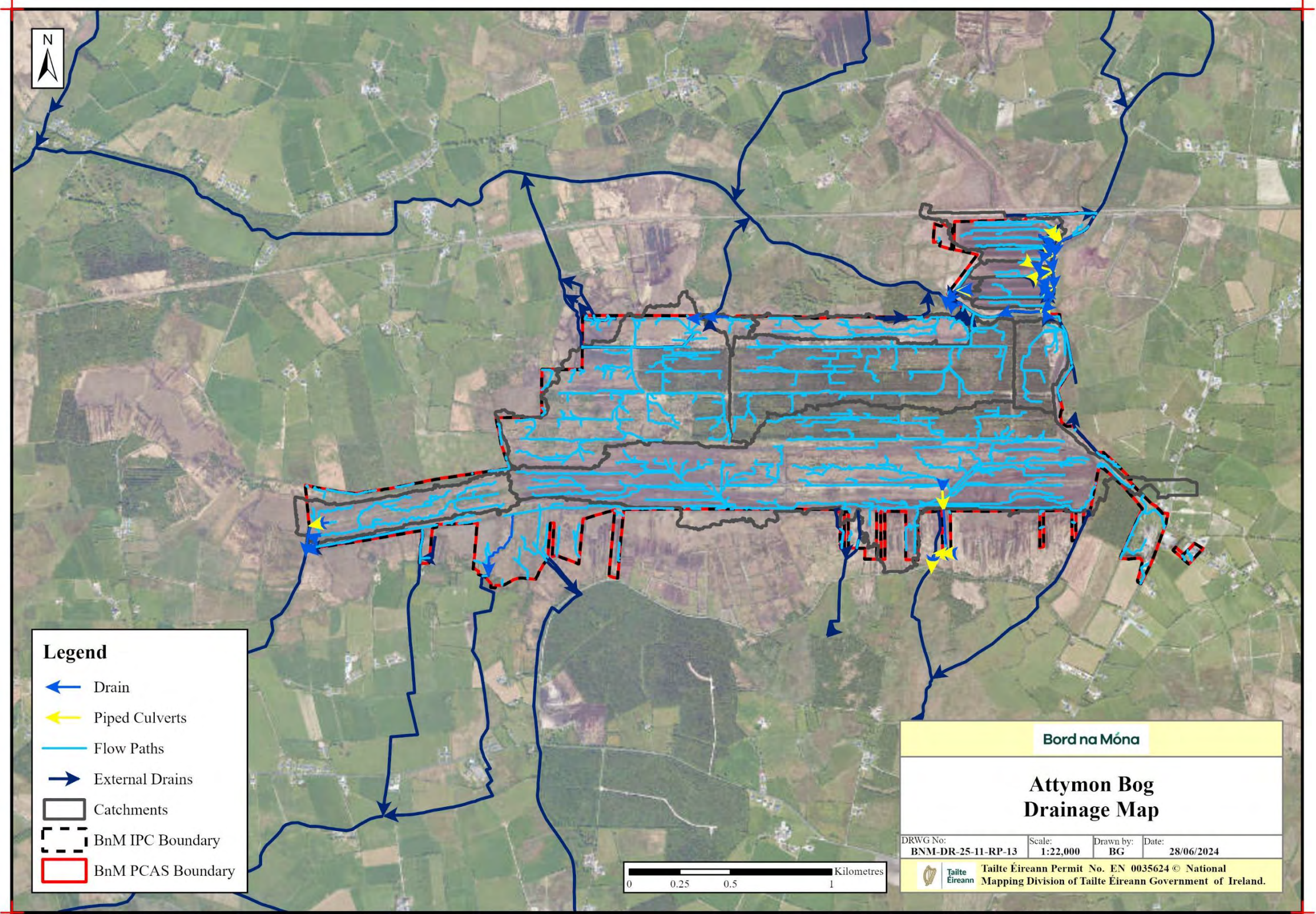


Hydrology / Topography Maps









Rehabilitation Maps

