



Noggusboy Bog Decommissioning and Rehabilitation Plan 2022

.....
SCREENING FOR APPROPRIATE ASSESSMENT | FEBRUARY 2022
.....



Noggusboy Bog Decommissioning and Rehabilitation Plan 2022 Appropriate Assessment Screening Report

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Background.....	1
1.2 Legislative Context.....	1
1.3 Screening Methodology.....	2
1.4 Ecological Assessment.....	3
1.4.1 Desk Study.....	3
1.4.2 Assessment.....	4
2.0 DESCRIPTION OF THE PLAN.....	5
2.1 Overview.....	5
2.2 Location of Plan.....	6
2.3 Receiving Natural Environment.....	6
2.4 Description of the Plan.....	7
2.4.1 Rehabilitation Methodology.....	8
2.4.2 Programme.....	11
2.4.3 Monitoring.....	11
2.5 Likely Effects of the Natural Environment.....	12
3.0 IDENTIFICATION OF LIKELY SIGNIFICANT EFFECTS.....	13
3.1 Establishing the Likely Zone of Impact.....	13
3.2 Site Descriptions.....	14
3.2.1 River Shannon Callows SAC.....	14
3.2.2 Middle Shannon Callows SPA.....	15
3.3 Evaluation Against Conservation Objectives.....	17
3.4 Summary of Likely Significant Effects.....	25
4.0 IN-COMBINATION EFFECTS.....	26
4.1 Introduction.....	26
4.2 Methodology.....	26
4.3 Outcome.....	26
5.0 CONCLUSION.....	31
6.0 REFERENCES.....	32
APPENDIX A	Noggusboy Bog - Cutaway Bog Decommissioning and Rehabilitation Plan 2022
APPENDIX B	Rehabilitation Methodology Drawings
APPENDIX C	Location and Likely Zone of Impact

1.0 INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) was appointed by Bord na Móna to produce, on its behalf, an Appropriate Assessment (AA) Screening Report in respect of the proposed Noggusboy Bog Decommissioning and Rehabilitation Plan 2022 (“the Plan”). The AA Screening Report is intended to determine whether or not the Plan, either individually or in combination with other plans or projects, is likely to have a significant effect on areas designated as being of European importance for nature conservation (“European sites”), thereby enabling the competent authority, either An Bord Pleanála or Bord na Móna in this case, to fulfil its obligations under Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (“the Habitats Directive”).

This document comprises the AA Screening Report in respect of the Plan and was prepared by ROD on behalf of Bord na Móna and in accordance with the requirements of the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) (“the Habitats Regulations”). The aim of this AA Screening Report is to inform and assist the competent authority in carrying out its AA Screening by determining whether or not the Plan, either individually or in combination with other plans and projects, has the potential to significantly affect one or more European sites, in view of their Conservation Objectives.

It is the considered opinion of ROD, as the author of this AA Screening Report, that the Plan, either individually or in combination with other plans or projects, in view of best scientific knowledge, does not have the potential to significantly affect the Clara Bog SAC, Charleville Wood SAC, the River Shannon Callows SAC and the Middle Shannon Callows SPA, or any other European site, in view of their Conservation Objectives, and, therefore, that AA is not required in respect of the Project.

1.2 Legislative Context

The Habitats Directive and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (“the Birds Directive”) list habitats and species which are, in a European context, important for conservation and in need of protection. This protection is afforded in part through the designation of sites that, in a European context, support significant examples of habitats or populations of species. These sites are generally referred to as “European sites”. Specifically, sites designated for wild birds are termed “Special Protection Areas” (SPAs) and sites designated for natural habitat types or other species are termed “Special Areas of Conservation” (SACs). The complete network of European sites is referred to as “Natura 2000”.

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive requires that:

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

The Court of Justice of the European Union (CJEU) has interpreted this requirement as follows¹:

“Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site’s conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects.”

In accordance with the Precautionary Principle, the CJEU interpreted the word “likely” as meaning that as long as it cannot be conclusively demonstrated that a given effect will not occur, that effect is considered “likely” to occur. A likely effect considered to be “significant” only if it interrupts or causes delays in progress towards achieving the Conservation Objectives² of the relevant European site(s).

In Ireland, this requirement for AA is transposed into national law by Part 5 of the Habitats Regulations, and the process is termed “Appropriate Assessment”. Stage 1 of the process, i.e. determining whether or not a plan or project meets the above criteria for requiring AA, is referred to as “AA Screening”.

In its judgment in *People Over Wind*³, the CJEU concluded that the determination of whether or not AA is required in respect of a project must be completed without consideration of “measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned”.

Article 6(3) of the Habitats Directive specifies that AA must be undertaken by the “competent national authorities”. In Ireland, the “competent authorities” are the national, regional or local authorities that are charged with or responsible for consenting, authorising, adopting or deciding to proceed with a plan or project. Consequently, the responsibility for carrying out AA Screening lies solely with the competent authority. In that respect, the AA Screening Report is not in itself an AA Screening but provides the competent authority with the information it needs in order to carry out its AA Screening.

1.3 Screening Methodology

At this stage of the process, the AA Screening Report assesses the potential impacts from the plan or project on the European sites within the likely zone of impact and evaluates them in view of the sites’ Conservation Objectives.

Best practice in undertaking AA Screening involves five steps as follows:

1. The first step involves gathering the information and data necessary to carry out a screening assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g. rare or protected habitats and species present or likely to be present, and the details of the European sites within the likely zone of impact.

¹ Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse vereniging tot Bescherming van Vogels v. Staatssecretaris van Landbouw, Natuurbeheer en Visserij (Waddenzee) [2004] C-127/02 ECR I-7405.

² Conservation Objectives are referred to, but not defined, in the Habitats Directive. In Ireland, Conservation Objectives are set for Qualifying Interests (the birds, habitats or other species for which a given European site is selected) and represent the overall target that must be met for that Qualifying Interest to reach or maintain favourable conservation condition in that site and contribute to its favourable conservation status nationally.

³ People Over Wind and Peter Sweetman v. Coillte Teoranta (People Over Wind) [2018] C-323/17.

2. The second step involves examining the information gathered in the first step and a scientific analysis of the potential impacts of the plan or project on the receiving environment, particularly the European sites in the likely zone of impact.
3. The third step evaluates the impacts analysed in the second step against the Conservation Objectives of the relevant European sites, thereby determining whether or not those impacts constitute “likely significant effects”, within the meaning of Article 6(3) of the Habitats Directive.
4. The fourth step involves considering the potential for likely significant effects to arise from the combination of the impacts of the plan or project with those of other plans or projects. If it is determined in the third step that Stage 2 (AA) is required, consideration of potential cumulative impacts may be deferred to that stage.
5. The last step involves the issuing of a statement of the determination of the AA Screening. Notwithstanding the recommendation made in the AA Screening Report, the responsibility for completing this step lies solely with the competent authority.

The following guidance documents informed the assessment methodology:

- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.
- EC (2021) *Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.
- EC (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission, Brussels.
- NPWS (2010a) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPWS 1/10 & PSSP 2/10. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- OPR (2021) *Appropriate Assessment Screening for Development Management*. Office of the Planning Regulator, Dublin.

1.4 Ecological Assessment

In order to fully inform this AA Screening Report in respect of the Plan, it was necessary to establish the baseline ecological conditions in the receiving environment, particularly with regard to European sites. The ecology survey and assessment were carried out by ROD Ecologists Patrick O'Shea Patrick holds a bachelor's degree in Botany from Trinity College Dublin and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. He is a full member of the Chartered Institute of Ecological and Environmental Management (CIEEM) and has 9 years' experience in ecological consultancy.

1.4.1 Desk Study

During the preparation of the AA Screening Report, the statutory consultee, the National Parks & Wildlife Service (NPWS), provided data on designations of sites, habitats and species (including birds) of conservation interest. This included reports pursuant to Article 17 of the Habitats Directive⁴ (NPWS, 2019a, NPWS, 2019b), Birds

⁴ Under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive.

Directive Article 12 Reporting 2008-2012 (NPWS, 2012a) and the Site Synopses, Natura 2000 Standard Data Forms and Conservation Objectives (including supporting documents) for the relevant European sites.

The desk study involved a thorough review of existing information relating to ecology in the vicinity of the Plan and in the surrounding area. The following web-based geographic information systems (GISs) were used to obtain information relating to the natural environment surrounding the Plan. These included the NPWS *Designations Viewer* (NPWS, 2022a), which provided information on the locations of protected sites and the Environmental Protection Agency's Unified GIS Application (EPA, 2022) which provided additional information on the wider environment.

The desk study was also informed by the following documents:

- Bord na Móna (2022) *Draft Noggusboy Bog Cutaway Bog Decommissioning and Rehabilitation Plan 2022*
- Bord na Móna (2021) *Noggusboy Bog - Engineering Report 2022*
- Bord na Móna and RPS (2022) *Noggusboy Bog GIS Map Book 2022*
- RPS (2021) *Bord na Móna – Noggusboy Bog Drainage Management Plan*
- Bord na Móna (2021) *Peatland Climate Action Scheme -Methods for Peatland Rehabilitation*
- Bord na Móna (2021) *Peatland Climate Action Scheme - Environmental Management Plan*

1.4.2 Assessment

Once established, the ecological baseline of the receiving environment was used to inform the assessment of the ecological effects likely to arise from the Plan, particularly with regard to European sites. Any assumptions that were made in view of gaps in the ecological data were made in strict accordance with the Precautionary Principle.

2.0 DESCRIPTION OF THE PLAN

2.1 Overview

Bord na Móna is planning to rehabilitate Noggusboy Bog, located 0.8km east of Cloghan and 1.8km south of Ferbane in Co Offaly. Peat harvesting has ceased at Noggusboy Bog, as of 2020. Decommissioning is a requirement of the 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.

Funding is provided by the Irish Government through the Peatland Climate Action Scheme (PCAS) 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, and minimising impacts to downstream. The bog was drained in the past to allow peat production. Better results for water quality improvements, climate action, the reduction of carbon emissions and biodiversity are achieved when the remaining peat is re-wetted. This means drain-blocking and other measures to raise water levels to the surface of the bog and 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 and Reeds will thrive. Many Bord na Móna bogs cannot be restored to raised bog, as so much peat has been removed and the environmental conditions have been modified. However other natural habitats will develop like shallow wetlands with Reedbeds and Birch woodland, and in time a naturalised peatland can be restored. Re-wetting peat is also better for climate action. This reduces carbon emissions as re-wetting the remaining peat reduces carbon losses such as the production of Carbon Dioxide, the main Greenhouse Gas. The site is expected to still be a reduced carbon source for some time, but eventually the carbon sink function can re-establish as peat-forming conditions are restored. The development of a range of habitats in Noggusboy 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 wetland habitats.

Measures proposed for Noggusboy Bog include internal drain blocking and other measures required to raise water levels to the surface of the peat (changing levels of pipes 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 2022. These rehabilitation measures will be planned by a team consisting of ecologists, hydrologists and engineers. It is a principle of Bord na Móna rehabilitation planning that no actions will be taken that would negatively impact on adjacent land. No boundary drains will be blocked. Water will still leave the site via the existing outlets. It will take some time for vegetation and habitats to fully develop at Noggusboy, and a peatland ecosystem to be restored.

However, it is expected that most of the site with bare peat will be developing pioneer habitats after 5-10 years. Other areas where pioneer habitats have already established will continue to develop.

“*Noggusboy Bog - Cutaway Bog Decommissioning and Rehabilitation Plan 2022*” is provided in full in Appendix A to this report.

The Plan is neither connected to, nor necessary for the management of any European Site.

2.2 Location of Plan

Noggusboy Bog is located approximately 20km west of Tullamore, Co Offaly. The nearest villages are Cloghan and Ferbane, 0.8km west and 1.8km north of the site, respectively. The bog is traversed by the R437 which bisects the bog. The location of the Plan is shown in Plate 1.

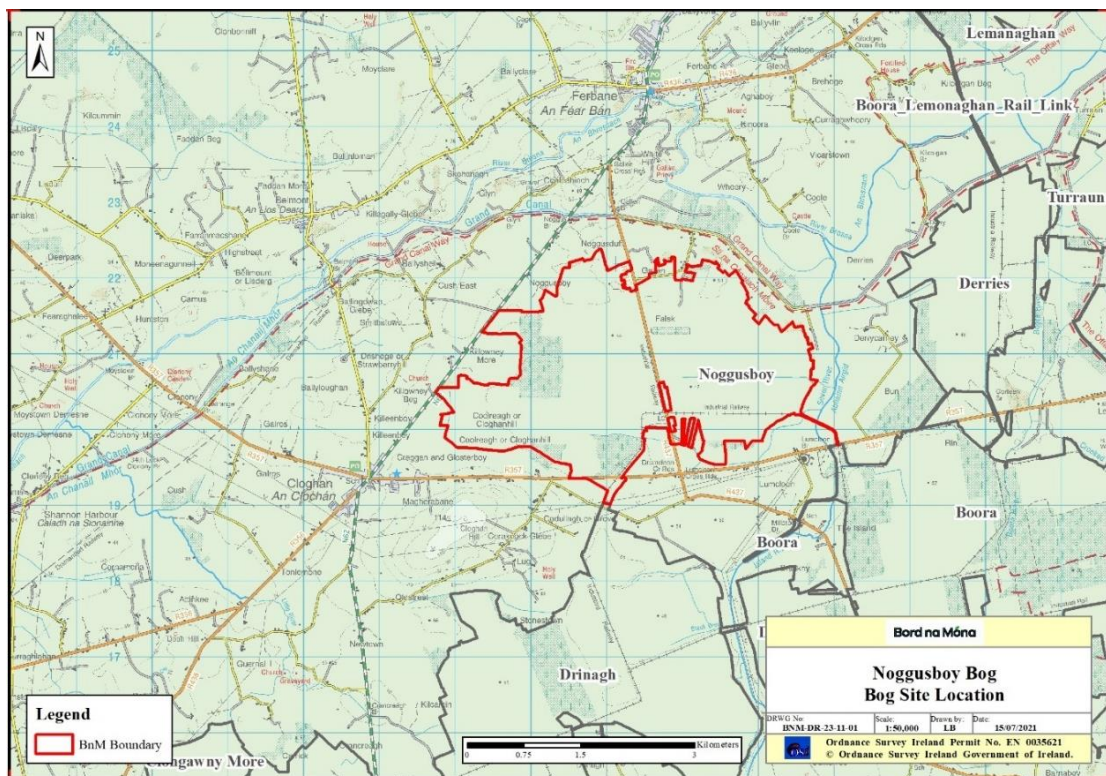


Plate 1 Noggusboy Bog Location

2.3 Receiving Natural Environment

Noggusboy Bog was drained and developed for industrial peat production in the 1950's. Industrial peat extraction ceased completely in 2020. The western side of the bog that has been out of production for a longer period has already developed a mosaic of wetland and peatland habitats. Part of Noggusboy was developed as Cloghan lake amenity. This area is managed by Cloghan Community Development Association as an amenity and fishing lake. This area is considered rehabilitated already. Cloghan Community Development Association have also leased an additional area of cutaway to the west of the site. Part of the site on the western boundary has also been developed for conifer forestry by Coillte. The rehabilitation plan for Noggusboy Bog does not cover this land, as future forestry management of these areas will be defined by Coillte.

The majority of the former production bog within the eastern parcel is still bare peat. There are some sections of older cutaway with Birch scrub (WS1), minor Birch woodland (WN7) and pioneer poor fen (PF2) habitats. Younger emerging cutaway areas tend to have pioneer poor fen and wetland communities dominated by marsh arrowgrass (*Triglochin palustris*), bog cotton (*Eriophorum angustifolium*) and or soft rush (*Juncus effusus*). The margins around the production bog contain various habitats including actively used cutover bog (PB1), birch scrub and woodland (WN7), and small remnant patches of high bog (PB1).

The remaining areas of the Plan area consist of transitional woodland, scrub and silt ponds. The bog is bisected by a regional road, R437, and the N62 and R357 are also located at the western and southern borders of the site, respectively. The site can be accessed by a Bord na Móna railway line, which is used to transport peat from Noggusboy Bog to Derrinlough and will continue to be used until the Derrinlough Brickette factory ceases production. The surrounding landscape is dominated by low-lying agricultural land (pasture), with other raised bogs scattered throughout as well as mixed woodland. Bog rehabilitation is in progress on Drinagh Bog, which lies to the south of Noggusboy Bog. The habitats found with the site are presented in Plate 2 below.

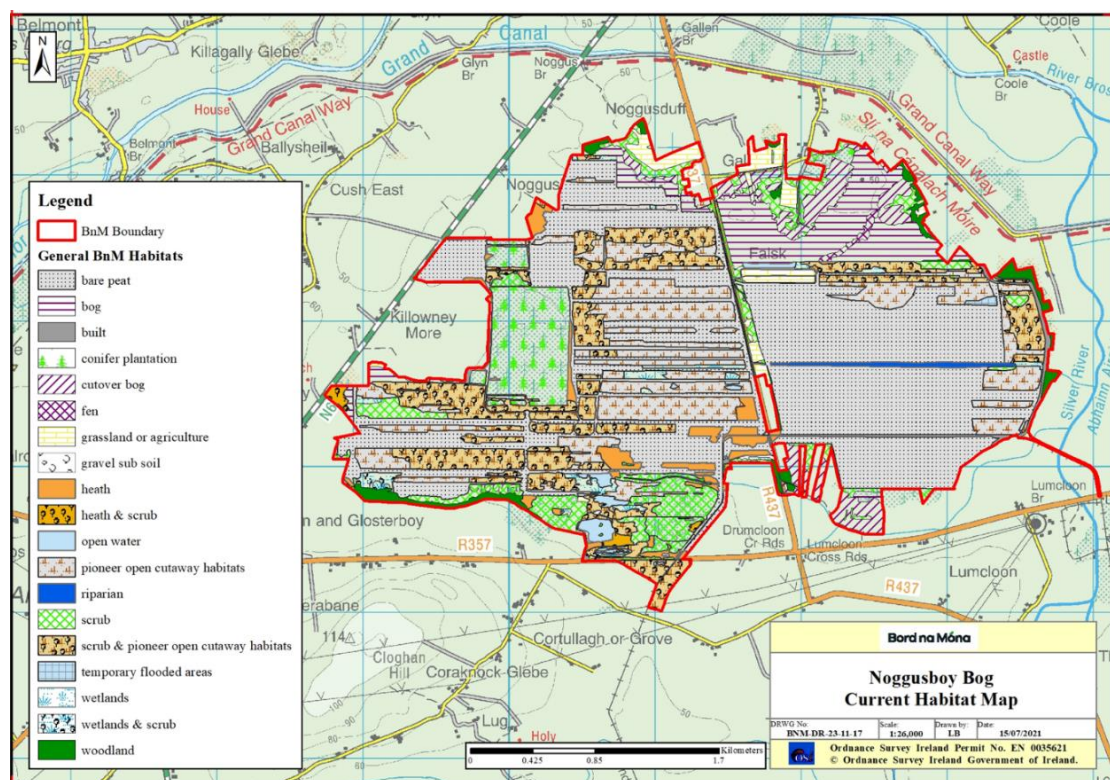


Plate 2 Noggusboy Bog Current Habitat Map

2.4 Description of the Plan

The following paragraphs describe the rehabilitation measures proposed at Noggusboy Bog:

- Re-assessment of the pumping regime; removal of the pump on site is desired if this has no significant external impact. The west of the site has already developed a mosaic of open water and wetland habitats with permanent deeper water when pumping is reduced or stopped. Hydrological management will look to optimise summer water levels to maximise the development of wetland vegetation (by looking to set water depths at < 0.5m, where possible).

It is inevitable that some sections will naturally have deeper water due to the topography at this site. Water-levels will be adjusted at outfalls and by adjusting piped drainage. More sustainable permanent gravity drainage solutions will be examined. Some targeted bunding may be required. It is expected that a natural seasonal regime of water fluctuation will develop, with water-levels fluctuating in association with levels in the adjacent water courses and associated groundwater conditions.

- Initial hydrological modelling (depression analysis) indicates that a significant part of the west of the site has the potential to retain wet conditions. It is anticipated that this will develop a mosaic of wetland and peatland habitats. Hydrological management will look to optimise summer water levels to maximise the extent and development of wetland vegetation.
- Re-wetting the extensive areas of peat remaining on site within the former production area using berms and drain blocking.
- Undertaking intensive drain blocking, blocking outfalls and managing overflows in areas where depression analysis predicts wet conditions will occur. Drain blocking will also occur across other areas in order to retain surface water locally.
- Modifying water levels at outfalls, as it may be desirable to change and control water levels at the site over time, e.g. to increase water levels as the site becomes increasingly vegetated. This will further slow the movement of water through and out of Noggusboy Bog.
- Some targeted drain blocking in marginal (degraded) remnant raised high bog areas is proposed as part of this plan, although they are small in size and degraded nature.
- The existing silt ponds will be retained and maintained during the rehabilitation phase. During the monitoring and verification phase the silt ponds will be continually inspected and maintained, where appropriate. When it is deemed that the silt ponds are not required, as the bog has been successfully stabilised and there is no run-off of suspended solids, the condition of the silt ponds will be reviewed. The silt ponds will either be de-watered (water levels lowered to a level where the silt pond will naturally develop as a small wetland feature), left in situ, or infilled (where discharges do not require silt control).
- Targeted fertiliser applications to accelerate vegetation establishment on areas of bare peat on headlands and high fields as required.

2.4.1 Rehabilitation Methodology

The following paragraphs describe the methodologies for each of the rehabilitation measures proposed at Noggusboy Bog:

Rehabilitation Method DCT 2: 'Speed Bump' Peat Dam

Typical existing bare peat fields are cambered (higher) in the centre and lower towards the drains, helping drainage of the fields but limiting the re-wetting of the central area. The concept of drain blocking is to raise the water levels in the drains to re-wet the cutaway and slow the water movement through the bog. 'Speed Bumps' allow for peat subsidence and to prevent water from flowing over the drain block and eroding it before it becomes stabilised.

Phase 1 begins with the creation of a 'key' on either side of the drain. The dozer cuts down and pushes out peat 0.5-1m from the edge of the drain, with an equivalent section on the other side of the drain.

The next step comprises forming the 'Speed Bump' itself. A strip of peat is taken from the central camber of the field, pushed into the drain and keyed area and compacted by a bull-dozer tracking over the drain block, to form an approximately 5m Wide 'Speed Bump'.

Fields are then completed with Speed Bumps (at an approximate ratio of 3 Per 100m). Speed bumps are profiled to ensure that the overall field profile is lower in the centre and higher over the drain blocks.

Rehabilitation Method DPT 4: 45m x 60m Cell with Berms

Phase 1 Drain Blocking and Re-Profiling of Fields Surface

Drain blocks are constructed using an Excavator operating at a perpendicular direction to the field drains. A key is cut in the drain approximately 500mm deep ensuring that it is wider than the actual drain. A 500mm depth of peat is removed from bottom of drain also and placed behind the machine for replacement later.

An area behind the machine, within reach of the excavator arm, is selected is to be used as a borrow pit. Turf and degraded peat is removed from the surface. This material is placed close by to be used as cover later. 'Clay' like peat is extracted from pit and compacted in 300mm layers using the excavator bucket, to form the drain block. The peat is firmly compacted using the machine bucket before laying more peat from the borrow pit. The drain block is built up at least 300-500mm above the ground level of the bog to allow for subsequent shrinkage of the peat as it dries.

The borrow pit is then back filled with the peat extracted from the bottom of the drain. The sides of the borrow pit are pressed down and graded with the excavator bucket. (If any vegetation present, it is carefully removed at the start and left aside for replacement at the end of the process, to help bind and stabilise the top of the drain block.

The centre of the cambered field is used as one side of the cell. A bulldozer is used to level and flatten the base of the cell and to infill the drains by removing the camber from the fields. Laser levels are mounted on bull-dozers to allow the machine drivers to move peat and create flat surfaces to the appropriate levels.

Phase 2: Formation of Surface Berms and Levelling Base of Cells

Berms are formed 45m in length and 60m across 4 fields to create an enclosed cell. The berms are relatively shallow (300mm high) and are 5.0m wide.

The berms are constructed using a bull-dozer pushing the peat obtained from the original field camber to form mounds. The mounds of loose peat are then levelled and compacted using the machine's tracks to ensure that the berm retains shallow water in the cell. The top surface level of the berms is constructed with a high level of accuracy.

Phase 3 Final Profile

Drainage pipes are incorporated into the berm construction at specific locations to manage overflows and prevent berm erosion.

Rehabilitation Method WLT 3 Peat Berm

Typical existing production fields are cambered (higher) in the centre and lower towards the drains, helping drainage of the fields but limiting the re-wetting of the central area. The concept of cross berms is to slow the water movement through the

bog and promote the creation of enclosed areas of wetland habitat with shallow water levels – in particular in areas where shallow peat depths remain.

The typical approach can be described as a number of phases.

Phase 1: Forming Key and Initial Drain Block

An Excavator is used to form a key in the Drain where the berm crosses. A strip of peat is taken from the central camber of the field, pushed into the drain and compacted by the bull-dozer tracking over the drain block from the opposite side of the drain to the excavator. A key is also formed similarly on the opposite side of the production field at the end of the proposed berm.

Phase 2: Forming Peat Berm

Next the bull-dozer is used to complete the central cross section of Berm by taking peat from the centre of the field and pushing it in line with the field to form an approximately 5m Wide x 500mm High Cross Berm.

Rehabilitation Method WLT 4 Peat Block

1. Before building of dams, the sides and bottom of the ditch is cleaned using the excavator to remove dry degraded peat, to ensure a good peat-to-peat contact. If any vegetation is present, it is carefully removed and left aside for replacement at the end of the process.
2. A 'key' is then cut in either side of the drain approximately 500mm deep, and it is ensured that the width is wider than the actual drain. Approximately 500mm depth of peat is removed from the bottom of the drain also and placed behind the machine for replacement later.
3. An area is opened behind the machine to be used as a borrow pit. Using the surface layer of peat (i.e. the top 100-200mm) is avoided, as it is likely to be very permeable. Only the deeper, more compacted peat is used to build the dam. (again, if any vegetation is present, it is carefully removed and left aside for replacement at the end of the process).
4. Peat is then dug out from the borrow pit and placed into the drain compacting it in 300mm layers. The peat is compacted firmly using the excavator bucket before laying more peat from the borrow pit.
5. The dam is built up to a height at least 300mm-500mm above the ground level of the bog to allow for subsequent shrinkage of the peat as it dries. Any vegetation taken in step 1 or step 3 is then placed on the top of the dam, to help bind and stabilise the drain block.)
6. The borrow pit is backfilled with the peat extracted from the bottom of the drain in step 2. The sides of the peat borrow hole are firmly pressed with the excavator bucket to grade the sides of the borrow pit.

This enhanced measure's main objective is to block drains with peat dams to raise water levels, re-wetting peat and slowing water movements through the bog.

This method is the same as that described under Deep Peat methodologies as 'DPT2' and Dry Cutaway methodologies as 'DCT3'.

Rehabilitation Method MLT 2 Peat Block

1. Before building of dams, the sides and bottom of the ditch is cleaned using the excavator to remove dry degraded peat, to ensure a good peat-to-peat contact.

- If any vegetation is present, it is carefully removed and left aside for replacement at the end of the process.
2. A 'key' is then cut in either side of the drain approximately 500mm deep, and it is ensured that the width is wider than the actual drain. Approximately 500mm depth of peat is removed from the bottom of the drain also and placed behind the machine for replacement later.
 3. An area is opened behind the machine to be used as a borrow pit. Using the surface layer of peat (i.e. the top 100-200mm) is avoided, as it is likely to be very permeable. Only the deeper, more compacted peat is used to build the dam. (again, if any vegetation is present, it is carefully removed and left aside for replacement at the end of the process).
 4. Peat is then dug out from the borrow pit and placed into the drain compacting it in 300mm layers. The peat is compacted firmly using the excavator bucket before laying more peat from the borrow pit.
 5. The dam is built up to a height at least 300mm-500mm above the ground level of the bog to allow for subsequent shrinkage of the peat as it dries. Any vegetation taken in step 1 or step 3 is then placed on the top of the dam, to help bind and stabilise the drain block.)
 6. The borrow pit is backfilled with the peat extracted from the bottom of the drain in step 2. The sides of the peat borrow hole are firmly pressed with the excavator bucket to grade the sides of the borrow pit.

This enhanced measure's main objective is to block drains with peat dams to raise water levels, re-wetting peat and slowing water movements through the bog.

This method is the same as that described under Deep Peat methodologies as 'DPT2' and Dry Cutaway methodologies as 'DCT3' and Wetland Methodologies as part of 'WLT4'.

Methodology Drawings are provided in Appendix B.

2.4.2 Programme

Timeframes for completion of the Plan are as follows:

- 2021-2022: Short-term planning actions.
- 2022: Short-term practical actions.
- 2022-2025: Long term practical actions. Evaluate success of short-term rehabilitation measures outlined above and remediate where necessary.
- 2025: Decommission silt-ponds, if necessary.
- All works will be scheduled to take place in the summer months when conditions are drier, and during daylight hours.

2.4.3 Monitoring

A programme for monitoring, aftercare and maintenance has been designed to meet the Conditions of the IPC Licence:

- Quarterly monitoring assessments of the site to determine the general status of the site, 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, if needed.

- Water quality monitoring will be established. Monitoring of key water quality parameters for 2 years after rehabilitation will include: Ammonia, Phosphorous, Suspended solids (silt), pH and conductivity.
- 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 appropriate assessment and planning procedures.

The monitoring, aftercare and maintenance programme is detailed in full in “*Noggusboy Bog - Cutaway Bog Decommissioning and Rehabilitation Plan 2022*” provided in Appendix A to this Report.

2.5 Likely Effects of the Natural Environment

Several elements of the Plan are considered likely to give rise to environmental and ecological impacts.

The Plan could lead to an increase in sediment laden runoff, an increase or a reduction in flows and changes to the flooding regime locally and downstream.

The presence of machinery on the bog could lead to disturbance of mammals, birds and other wildlife.

The Plan also has the potential to introduce and spread of invasive species through the movement of equipment to, from, or within the site.

3.0 IDENTIFICATION OF LIKELY SIGNIFICANT EFFECTS

3.1 Establishing the Likely Zone of Impact

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and cumulative effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

- All European sites within or immediately adjacent to the plan or project area;
- All European sites within the likely zone of impact of the plan or project; and,
- In accordance with the Precautionary Principle, all European sites for which there is doubt as to whether or not they might be significantly affected.

The “likely zone of impact” of a plan or project is the geographic extent over which significant ecological effects are likely to occur. In the case of plans, this zone should extend to a distance of 15km in all directions from the boundary of the plan area. In the case of projects, however, the guidance recognises that the likely zone of impact must be established on a case-by-case basis, with reference to the following key variables:

- The nature, size and location of the project;
- The sensitivities of the ecological receptors; and,
- The potential for in-combination effects.

For example, in the case of a project that could affect a watercourse, it may be necessary to include the entire upstream and/or downstream catchment in order to capture all European sites with water-dependent Qualifying Interests.

Having regard to the above key variables, the likely zone of impact was defined as:

- The entire area within 5km of the Plan boundary; and,
- All watercourses hydrologically connected to the Plan boundary, downstream as far as the River Shannon.

This was based on the maximum extent of potential effects associated with the proposed development.

A geographical representation of the likely zone of impact was produced in QGIS 3.16.9 using the proposed development boundary and publicly available OpenStreet Maps. This was used in combination with NPWS shapefiles to identify the boundaries of European sites in relation to the likely zone of impact (Appendix C).

It was determined that four European sites occur within the likely zone of impact, which are Ferbane Bog SAC, Moyclare Bog, the River Shannon Callows SAC and the Middle Shannon Callows SPA. These sites are listed in Table 3.1, which also assesses whether or not there are pathways for impacts to the sites. Where pathways exist, a detailed description is provided in Section 3.2.

Table 3.1 European sites with closest proximity to the Plan.

European site [site code]	Are there potential pathways for impacts from the Plan to this site? Explain.
Ferbane Bog SAC [000575]	No. This European site is located c. 2.7km to the north of the Plan. The Plan area is in the same sub-catchment as part of the SAC, however there is no direct hydrological connection. No pathways for effects exist between the Plan and this European site.
Moyclare Bog SAC [000581]	No. This European site is located c. 2.1 km to the northwest of the Plan. The Plan area is in the same sub-catchment as part of the SAC, however there is no direct hydrological connection. No pathways for effects exist between the Plan and this European site.
River Shannon Callows SAC [000216]	Yes. This European site is located c. 5.3km to the west of the Plan. The hydrological distance between the Plan and the SAC is c. 17.8km. Therefore, the effective distance to the SAC is c. 17.8km.
Middle Shannon Callows SPA [004096]	Yes. This European site is located c. 5.3km to the west of the Plan. The hydrological distance between the Plan and the SAC is c. 17.8km. Therefore, the effective distance to the SAC is c. 17.8km.

3.2 Site Descriptions

The following sections describe the European Sites where potential pathways for impacts between the Plan and these sites have been identified.

3.2.1 River Shannon Callows SAC

The description of the River Shannon Callows SAC provided here is based on the Site Synopsis (NPWS, 2020c), Conservation Objectives (NPWS, 2022b), and Natura 2000 Standard Data Form (NPWS, 2020d) for the site.

Site Overview

The River Shannon Callows is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50km long and averages about 0.75km wide (reaching 1.5km wide in places). Along much of its length the site is bordered by raised bogs (many, but not all, of which are subject to large-scale harvesting), esker ridges and limestone-bedrock hills.

Two habitats listed on Annex I of the E.U. Habitats Directive are well-represented within the site – Molinia meadows and lowland hay meadows. In places these two habitats grade into one another. All these communities are very diverse in their total number of plant species, and include the scarce species Meadow-rue (*Thalictrum flavum*), Summer Snowflake (*Leucojum aestivum*) and Marsh Stitchwort (*Stellaria palustris*). A further two Annex I habitats, both listed with priority status, have a minor though important presence within the site. Alluvial forest occurs on a series of alluvial islands just below the ESB weir near Meelick. Several of the islands are dominated by well-grown woodland consisting mainly of Ash (*Fraxinus excelsior*) and Willows (*Salix spp.*). At Clorhane, an area of limestone pavement represents the only known example in Co. Offaly. An area of low-lying terrestrial land west of the river comprises a large area of the Annex I habitat alkaline fen. The fen comprises a complex of rich-fen plant communities. Sedges (*Carex lasiocarpa*, *Carex acutiformis*) and Bogbean (*Menyanthes trifoliata*) dominate parts of the fens while other small sedges are common throughout.

This site holds a population of Otter, a species listed on Annex II of the E.U. Habitats Directive. The Shannon Callows are used for summer dry-stock grazing (mostly cattle, with some sheep and a few horses), and permanent hay meadow. The River Shannon is used increasingly for recreational purposes with coarse angling and boating accounting for much of the visitor numbers. Intermittent and scattered damage to the habitats has occurred due to over-deepening of drains and peat silt deposition, water-skiing, ploughing and neglect of hay meadow (or reversion to pasture). However, none of these damaging activities can yet be said to be having a serious impact. Threats to the quality of the site may come from the siting of boating marinas in areas away from centres of population, fertilising of botanically-rich fields, the use of herbicides, reversion of hay meadow to pasture, neglect of pasture and hay meadow, disturbance of birds by boaters, anglers, birdwatchers and the general tourist. The maintenance of generally high water levels in winter and spring benefits all aspects of the flora and fauna, but in this regard, summer flooding is a threat to breeding birds, and may cause neglect of farming.

Qualifying Interests of the Site

- [6410] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caeruleae*)
- [6510] Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)
- [7230] Alkaline fens
- [8240] Limestone pavements
- [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)
- [1355] Otter (*Lutra lutra*)

3.2.2 Middle Shannon Callows SPA

The description of the Middle Shannon Callows SPA provided here is based on the Site Synopsis (NPWS, 2012b), Conservation Objectives (NPWS, 2021b), and Natura 2000 Standard Data Form (NPWS, 2020e) for the site.

Site Overview

The Middle Shannon Callows SPA is a long and diverse site which extends for approximately 50 km from the town of Athlone to the town of Portumna; it lies within Counties Galway, Roscommon, Westmeath, Offaly and Tipperary. The site averages about 0.75km in width though in places is up to 1.5km wide. Water levels on the site are greatly influenced by the very small fall between Athlone and Portumna and by the weir at Meelick. The site has extensive areas of callow, or seasonally flooded, semi-natural, lowland wet grassland, along both sides of the river. The callows are mainly too soft for intensive farming but are used for hay or silage or for summer grazing. Other habitats of smaller area which occur alongside the river include lowland dry grassland, freshwater marshes, reedbeds and wet woodland. The diversity of semi-natural habitats present, and the sheer size of the site attract an excellent diversity of bird species, including significant populations of several. The site is of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The Middle Shannon Callows qualifies as a site of international importance as it regularly supports in excess of 20,000 wintering waterbirds (23,656 – four year mean peak for four of the winters between 1995/96 and 1999/2000). The site also supports

internationally important populations of Whooper Swan (305 – five year mean peak for the period 1995/96 to 1999/2000) and Black-tailed Godwit (485 – four year mean peak for four of the winters between 1995/96 and 1999/2000). Four further species of wintering waterbird occur in numbers of national importance, i.e. Wigeon (3,059), Golden Plover (4,133), Lapwing (13,240) and Black-headed Gull (1,209) – all figures are four year mean peaks for four of the winters between 1995/96 and 1999/2000. The Shannon Callows is the largest site monitored as part of I-WeBS and many parts of it are inaccessible on the ground. Annual monitoring of the wintering waterbirds of the Shannon Callows is undertaken by aerial surveys in January/February with some areas also covered by ground counts. The importance of the site for some species may have been underestimated if count coverage missed the brief spring peaks for these species, e.g. peak counts of Lapwing (23,409) and Black-tailed Godwit (1,096) recorded in the baseline period (1995/96 to 1999/2000) have been considerably higher than the four year means. A wide range of other species occurs within the site, including Mute Swan (407), Teal (88), Tufted Duck (41), Dunlin (335), Curlew (162) and Redshank (39). Small numbers of Greenland White-fronted Goose use the Shannon Callows (peak 55 in 1998/99) and these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows. The callow grasslands provide optimum feeding grounds for these various species of waterfowl, while many of the birds also roost or rest within the site. The Shannon Callows is also an important site for breeding waders with the total population on the Shannon and Little Brosna Callows being one of three major concentrations in Ireland and Britain in 1987. Numbers of some species have declined since then but a survey of the Shannon Callows in 2002 recorded the following breeding waders - Lapwing (63 pairs), Redshank (116 pairs), Snipe (139 drumming birds) and Curlew (8 pairs). Black-tailed Godwit, a very rare breeding species in Ireland, nests or attempts to nest in small numbers each year within the site. A further scarce breeding species, Shoveler, also nests in small numbers each year (an estimated 12 pairs in 1987). The Middle Shannon Callows SPA supports a breeding population of Corncrake (19 pairs - five year mean peak between 2003 and 2007, based on records of calling males). Corncrake winter in southern and eastern Africa, migrating northwards to arrive on their breeding grounds from early April onwards, departing again in August and September. They require the cover of tall vegetation throughout their breeding cycle and are strongly associated with meadows which are harvested annually, where they nest and feed. Annual cutting of these meadows creates a sward which is easy for the birds to move through. Other habitats, which can provide cover for Corncrake in the early and late stages of the breeding season, are also important for this species. Corncrake is listed on the 2010 International Union for Conservation of Nature (IUCN) Red List of Threatened Species. This is due to population and range declines of more than 50% in the last 25 years across significant parts of its range. Quail, a related, scarce species, is also known to breed within the callow grasslands. A good variety of other bird species are attracted to the site. Birds of prey, including scarce species such as Merlin and wintering Hen Harrier have been recorded hunting over the callows. A range of passerine species associated with grassland and swamp vegetation breed, including Sedge Warbler, Grasshopper Warbler, Skylark and Reed Bunting. Kingfisher is also known to occur within the site. Whinchat, an uncommon breeding species, occurs in small numbers.

Qualifying Interests of the Site

- [A038] Whooper Swan (*Cygnus cygnus*)
- [A050] Wigeon (*Anas penelope*)
- [A122] Corncrake (*Crex crex*)

- [A140] Golden Plover (*Pluvialis apricaria*)
- [A142] Lapwing (*Vanellus vanellus*)
- [A156] Black-tailed Godwit (*Limosa limosa*)
- [A179] Black-headed Gull (*Chroicocephalus ridibundus*)
- [A999] Wetland and Waterbirds

3.3 Evaluation Against Conservation Objectives

Tables 3.2 and 3.3 below detail the evaluation of the likely effects of the Plan in view of the Conservation Objectives of the sites identified in Section 3.1 and described in Section 3.2. As explained in Sections 1.2 and 1.3, AA Screening is carried out in view of the Conservation Objectives of the relevant European sites, which are in turn defined by detailed Attributes and corresponding Targets. Therefore, the evaluation of whether or not a likely effect is significant (in view of the Conservation Objective in question) is made with regard to these Attributes and Targets. Where Conservation Objectives have not been developed for a particular European Site, the Attributes and Targets for the same Qualifying Interests in a similar European Site have been used.

Table 3.2 Evaluation of the likely effects of the Plan in view of the Conservation Objectives of the River Shannon Callows SAC [000216]

Qualifying Interest	Conservation Objective (NPWS, 2022b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>) [6410]	<i>“To restore the favourable conservation condition of Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>) in the River Shannon Callows SAC”.</i>	Molinia meadows occur in this SAC which is at least 17.8 km downstream of the Plan. This habitat is terrestrial and therefore there are no pathways for impacts between the Plan and this Qualifying Interest. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest, in view of its Conservation Objective.	No
Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510]	<i>“To restore the favourable conservation condition of Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) in the River Shannon Callows SAC”.</i>	Lowland hay meadows occur in this SAC which is at least 17.8 km downstream of the Plan. This habitat is terrestrial and therefore there are no pathways for impacts between the Plan and this Qualifying Interest. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest, in view of its Conservation Objective.	No
Alkaline fens [7230]	<i>“To maintain the favourable conservation condition of Alkaline fens in the River Shannon Callows SAC”.</i>	Alkaline fens occur in this SAC at least 17.8 km downstream from the Plan. There is a potential hydrological connection between the Plan and this Qualifying Interest, however, owing to the nature and scale of the Plan, as well as the location of the Plan over 17.8 km upstream of the SAC, there is no potential for effects. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest, in view of its Conservation Objective.	No
Limestone pavements [8240]	<i>“To maintain the favourable conservation condition of Limestone pavements in the River Shannon Callows SAC”.</i>	Limestone pavements occur in this SAC which is at least 17.8 km downstream of the Plan. This habitat is terrestrial and therefore there are no pathways for impacts between the Plan and this Qualifying Interest. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest, in view of its Conservation Objective.	No

Qualifying Interest	Conservation Objective (NPWS, 2022b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]	<i>"To maintain the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) in the River Shannon Callows SAC".</i>	Alkaline fens occur in this SAC at least 17.8 km downstream from the Plan. There is a potential hydrological connection between the Plan and this Qualifying Interest, however, owing to the nature and scale of the Plan, as well as the location of the Plan over 17.8 km upstream of the SAC, there is no potential for effects. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest, in view of its Conservation Objective.	No
Otter (<i>Lutra lutra</i>) [1355]	<i>"To maintain the favourable conservation condition of Otter in the River Shannon Callows SAC".</i>	Otter is a Qualifying Interest of this SAC, which is 17.8 km downstream of the Plan. There is a hydrological connection between the Plan and this Qualifying Interest, and the Plan has the potential to affect this species outside the SAC boundary. There is considered to be no risk of likely significant effects on Otter for the following reasons: <ul style="list-style-type: none"> • The works will be temporary and will occur during daylight hours only. • The works will not involve the alteration of any watercourse. • Noise and vibration impacts from machinery will be temporary and very localised. • The SAC boundary is 17.8 km downstream, therefore any water quality impacts at the Plan site would dissipate long before reaching the SAC. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest in view of its Conservation Objective.	No

Table 3.3 Evaluation of the likely effects of the Plan in view of the Conservation Objectives of the Middle Shannon Callows SPA [004096]

Qualifying Interest	Conservation Objective (NPWS, 2021b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
<p>Whooper Swan (<i>Cygnus cygnus</i>) [A038]</p>	<p><i>“To maintain or restore the favourable conservation condition of Whooper Swan in the Middle Shannon Callows SPA”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of Whooper Swan in the SPA”</i> (NPWS, 2012d)</p>	<p>This SPA is 17.8 km downstream, or 5.3 km over land, from the Plan. The western side of the bog, where most of the works associated with the Plan are taking place have developed into a mosaic of wetland and peatland habitats. These areas are regularly used by wintering wildfowl including whooper swan (<i>Cygnus cygnus</i>) and wigeon (<i>Anas penelope</i>). Several pairs of Lapwing were recorded nesting on the site by Bord na Móna staff in 2010.</p> <p>There is considered to be no risk of likely significant effects on the Qualifying Interests of the SPA for the following reasons:</p> <ul style="list-style-type: none"> • The SPA is 5.3km from the Plan. • The works will take place in the summer months, thereby avoiding potential effects on Qualifying Interest species that are found on Noggusboy Bog. • The SPA is designated for 63 resident or breeding pairs of Lapwing (NPWS, 2020e). Due to the distance between the SPA and the Plan, Lapwing nesting on Noggusboy Bog are not part of the population for which the SPA is designated. • The wetland habitat available in the Plan area will not decrease in area or quality as a result of the Plan. 	<p>No</p>
<p>Wigeon (<i>Anas penelope</i>) [A050]</p>	<p><i>To maintain or restore the favourable conservation condition of Wigeon in the Middle Shannon Callows SPA”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of Wigeon in the SPA”</i> (NPWS, 2012d)</p>	<p>This SPA is 17.8 km downstream, or 5.3 km over land, from the Plan. The western side of the bog, where most of the works associated with the Plan are taking place have developed into a mosaic of wetland and peatland habitats. These areas are regularly used by wintering wildfowl including whooper swan (<i>Cygnus cygnus</i>) and wigeon (<i>Anas penelope</i>). Several pairs of Lapwing were recorded nesting on the site by Bord na Móna staff in 2010.</p> <p>There is considered to be no risk of likely significant effects on the Qualifying Interests of the SPA for the following reasons:</p> <ul style="list-style-type: none"> • The SPA is 5.3km from the Plan. • The works will take place in the summer months, thereby avoiding potential effects on Qualifying Interest species that are found on Noggusboy Bog. • The SPA is designated for 63 resident or breeding pairs of Lapwing (NPWS, 2020e). Due to the distance between the SPA and the Plan, Lapwing nesting on Noggusboy Bog are not part of the population for which the SPA is designated. • The wetland habitat available in the Plan area will not decrease in area or quality as a result of the Plan. 	<p>No</p>

Qualifying Interest	Conservation Objective (NPWS, 2021b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
<p>Golden Plover (<i>Pluvialis apricaria</i>) [A140]</p>	<p><i>“To maintain or restore the favourable conservation condition of Golden Plover in the Middle Shannon Callows SPA”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of Golden Plover in the SPA”</i> (NPWS, 2012d)</p>	<ul style="list-style-type: none"> The SAC boundary is 17.8 km downstream, therefore any water quality impacts originating at the Plan site would dissipate long before reaching the SAC. <p>Considering the nature, scale and timing of the proposed works, it can be concluded beyond reasonable scientific doubt that the Plan will not lead to likely significant effects on these Qualifying Interests, in view of their Conservation Objectives.</p>	<p>No</p>
<p>Lapwing (<i>Vanellus vanellus</i>) [A142]</p>	<p><i>“To maintain the favourable conservation condition of Lapwing in the Middle Shannon Callows SPA”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of Lapwing in the SPA”</i> (NPWS, 2012d)</p>		<p>No</p>

Qualifying Interest	Conservation Objective (NPWS, 2021b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
<p>Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</p>	<p><i>“To maintain or restore the favourable conservation condition of Black-tailed Godwit in the Middle Shannon Callows SPA”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of Black-tailed Godwit in the SPA”</i> (NPWS, 2012d).</p>		No
<p>Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]</p>	<p><i>“To maintain or restore the favourable conservation condition of Black-headed Gull in the Middle Shannon Callows SPA”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of Black-headed Gull in the SPA”</i> (NPWS, 2012d).</p>		No

Qualifying Interest	Conservation Objective (NPWS, 2021b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
<p>Corncrake (<i>Crex crex</i>) [A122]</p>	<p>“To maintain or restore the favourable conservation condition of Corncrake in the Middle Shannon Callows SPA”.</p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the Coll (Corncrake) SPA, [UK9003033] (NatureScot, 2020), which is:</p> <p>“To avoid deterioration of the habitats of the Qualifying Interest or significant disturbance to the Qualifying Interest, thus ensuring that the integrity of the site is maintained; and to ensure for the Qualifying Interest that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species”. 	<p>There is a potential hydrological connection between the Plan and Corncrake habitat, however, owing to the nature and scale of the Plan, as well as the location of the Plan; over 17.8 km upstream of the SPA, there is no potential for effects. It can therefore be concluded beyond reasonable scientific doubt that the Plan, will not lead to likely significant effects on this Qualifying Interest in view of its Conservation Objective.</p>	<p>No</p>

Qualifying Interest	Conservation Objective (NPWS, 2021b)	Does the Plan provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
<p>Wetland and Waterbirds [A999]</p>	<p><i>“To maintain or restore the favourable conservation condition of the wetland habitat in the Middle Shannon Callows SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.”</i></p> <p>The Attributes and Targets for this Qualifying Interest have been taken from the Conservation Objectives for the River Shannon and River Fergus Estuaries SPA [002165], which is <i>“To maintain the favourable conservation condition of wetland habitat in the SPA”</i> (NPWS, 2012d).</p>	<p>The Conservation Objective for Wetlands is defined by a single Attribute, namely “Habitat area”, the Target for which is <i>“The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 765 hectares, other than that occurring from natural patterns of variation”</i>. As the Plan will not lead to any reduction in the permanent area of this habitat within the site, it has no potential to delay or interrupt the achievement of this Conservation Objective nor will the Plan have any effect on the waterbirds associated with the SPA.</p>	<p>No</p>

3.4 Summary of Likely Significant Effects

In Section 3.1, it was established that four European sites, namely the Ferbane Bog SAC, Moyclare Bog SAC, the River Shannon Callows SAC and the Middle Shannon Callows SPA, occur within the likely Zone of Impact of the Plan. It was determined that potential pathways for effects exist between the Plan and two of the sites, namely the River Shannon Callows SAC and the Middle Shannon Callows SPA. There are no pathways for effects between the Plan and any other European sites. The sites were described in detail in Section 3.2.

In Section 3.3, it was established, in light of best scientific knowledge, that the Plan will not give rise to ecological impacts which would constitute significant effects on any of the sites, in view of the sites' Conservation Objectives. This finding had regard to the nature, size and location of the Plan as well as the sensitivities of the Qualifying Interests of the sites concerned.

4.0 IN-COMBINATION EFFECTS

4.1 Introduction

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European sites, “*either individually or in combination with other plans or projects*”. Therefore, regardless of whether or not the likely effects of a plan or project are significant when considered on their own, the significance of the combination of the effects of the plan or project under assessment with the effects of other past, present or foreseeable future plans or projects must also be evaluated.

4.2 Methodology

Plans and projects with potential for interactions with the proposed development were selected for assessment. For the purposes of the assessment, small scale and domestic developments were not considered given the nature of the proposed development and the fact that these developments would be subject to stringent planning controls.

The ePlanning website for Offaly County Council and EIA Portal was used to search for planning applications. Information provided by Bord na Móna on other bog rehabilitation plans was also considered.

4.3 Outcome

Table 4.1 below details the assessment of the likelihood of significant effects arising from the Plan in combination with other plans or projects. This assessment was undertaken in view of the Conservation Objectives of the relevant European sites and found that the Plan does not have the potential to significantly affect any European site in combination with other plans or projects.

Table 4.1 Assessment of the potential of likely significant effects in combination with other plans and projects.

Plan or Project	Description of Plan or Project	In-combination effect(s)
Derrinboy Cutaway Bog Decommissioning and Rehabilitation Plan 2022	Bord na Móna propose to 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). Derrinboy Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Derrinboy Cutaway Bog is located within a separate sub-catchment as the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Derrinboy Cutaway Bog Decommissioning and Rehabilitation Plan 2022.
Killaranny Cutaway Bog Decommissioning and Rehabilitation Plan 2022	Bord na Móna propose to 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). Killaranny Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Killaranny Cutaway Bog is located within a separate sub-catchment as the Noggusboy Bog.	Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Killaranny Cutaway Bog Decommissioning and Rehabilitation Plan 2022.
Blackwater Cutaway Bog Decommissioning and Rehabilitation Plan 2022	Bord na Móna propose to 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). Blackwater Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Blackwater Cutaway Bog is located within a separate sub-catchment to the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature, scale and location of the Plan in a separate sub-catchment, it does not have the potential to cause likely significant effects in-combination with the Blackwater Cutaway Bog Decommissioning and Rehabilitation Plan 2022.
Derrybrat Bog Decommissioning and Rehabilitation Plan 2022	Bord na Móna propose to 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). Derrybrat Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Derrybrat Bog is located within the same sub-catchment to the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature, scale and location of the Plan in a separate sub-catchment, it does not have the potential to cause likely significant effects in-combination with the Derrybrat Bog Decommissioning and Rehabilitation Plan 2022.
Boora Cutaway Bog Decommissioning and Rehabilitation Plan 2022	Bord na Móna propose to 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). Boora Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Boora Cutaway Bog is located within a separate sub-catchment as the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Boora Cutaway Bog Decommissioning and Rehabilitation Plan 2022.

Plan or Project	Description of Plan or Project	In-combination effect(s)
Oughter Cutaway Bog Decommissioning and Rehabilitation Plan 2021	Bord na Móna propose to 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). Oughter Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Oughter Cutaway Bog is located within a separate sub-catchment as the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Oughter Cutaway Bog Decommissioning and Rehabilitation Plan 2022.
Turraun Cutaway Bog Decommissioning and Rehabilitation Plan 2021	Bord na Móna propose to 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). Turraun Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Turraun Cutaway Bog is located within a separate sub-catchment as the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Turraun Cutaway Bog Decommissioning and Rehabilitation Plan 2022
Belmont Cutaway Bog Decommissioning and Rehabilitation Plan 2021	Bord na Móna propose to 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). Belmont Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Belmont Cutaway Bog is located within a separate sub-catchment as the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Belmont Cutaway Bog Decommissioning and Rehabilitation Plan 2022
Kilmacshane Cutaway Bog Decommissioning and Rehabilitation Plan 2021	Bord na Móna propose to 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). Kilmacshane Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Kilmacshane Cutaway Bog is located within a separate sub-catchment to the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature, scale and location of the Plan in a separate sub-catchment, it does not have the potential to cause likely significant effects in-combination with the Kilmacshane Cutaway Bog Decommissioning and Rehabilitation Plan 2022.
Garryduff Cutaway Bog Decommissioning and Rehabilitation Plan 2021	Bord na Móna propose to 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). Garryduff Bog is proposed to be part of this this proposed Scheme (PCAS) and this rehabilitation plan outlines the approach taken. The Garryduff Cutaway Bog is located within a separate sub-catchment to the Noggusboy Bog. This Plan is subject to Appropriate Assessment in accordance with Article 6(3).	Owing to the nature, scale and location of the Plan in a separate sub-catchment, it does not have the potential to cause likely significant effects in-combination with the Garryduff Cutaway Bog Decommissioning and Rehabilitation Plan 2022.

Plan or Project	Description of Plan or Project	In-combination effect(s)
Lemanaghan Wind Farm	<p>Bord na Móna is proposing to develop a wind farm on Lemanaghan Bog, located in northwest Offaly. Lemanaghan bog is adjacent to the communities of Ballycumber, Ferbane and Pollagh. Lemanaghan Wind Farm is located within a separate sub-catchment as the Noggusboy Bog.</p> <p>It is envisaged that a planning application will be lodged in Autumn 2022 for the proposed development. It is intended to submit the planning permission application directly to An Bord Pleanála, under the provisions of the Planning and Development (Strategic Infrastructure) Act 2006. An initial approach is therefore being made to An Bord Pleanála seeking a determination in relation to the Strategic Infrastructure Development (SID) status, or otherwise, of the proposed wind farm development.</p>	<p>Owing to the nature and scale of the Plan, it does not have the potential to cause likely significant effects in-combination with the Lemanaghan Wind Farm.</p>
Derrinlough Wind Farm	<p>Bord na Móna was granted permission to develop a wind farm on Clongowany and Drinagh bogs located in Co. Offaly. The proposed development will encompass 21 No. wind turbines up to a tip height of 185m and will have a maximum export capacity (MEC) in excess of 85MW. Derrinlough Wind Farm is located within a separate sub-catchment as the Noggusboy Bog.</p> <p>An NIS was prepared in respect of the proposed development. The potential for the proposed development to contribute to a cumulative impact on European Sites was considered in the NIS. The assessment concluded:</p> <p><i>Following an examination, evaluation and analysis, in light of best scientific knowledge and the conservation objectives of the site, and, on the basis of objective information, having taken into account the relevant mitigation measures, it can be concluded that the proposed development will not have an adverse impact on any European Site and cannot contribute to any cumulative or in-combination effect when considered alongside any other plan or project. In the review of the projects that was undertaken, no connection, that could potentially result in additional or cumulative impacts was identified. Neither was there any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed development.</i></p>	<p>Owing to the nature, scale and location of the Plan, it does not have the potential to cause likely significant effects in-combination with the Derrinlough Wind Farm.</p>

Plan or Project	Description of Plan or Project	In-combination effect(s)
Irish Water (Shannon to Dublin) Corridor	The project comprises of an abstraction of water from the lower River Shannon at Parteen Basin in Co. Tipperary, with a new water treatment plant nearby at Birdhill. Treated water will then be piped 170km to a termination point reservoir at Peamount in County Dublin, connecting into the Greater Dublin Area. The project has already gone through extensive non-statutory public consultation and there will be a further round of non-statutory public consultation before a Strategic Infrastructure Development Planning Application is submitted to An Bord Pleanála. Irish Water is continuing to progress the preparation of a Strategic Infrastructure Development planning application to An Bord Pleanála for the project, including an Environmental Impact Assessment Report and Natura Impact Statement following the enactment of new Abstraction legislation. The proposed Irish Water (Shannon to Dublin) Corridor is located adjacent to the northern boundary of Derrinboy Bog.	Owing to the nature, scale and location of the Plan, it does not have the potential to cause likely significant effects in-combination with the Irish Water (Shannon to Dublin) Corridor.
NPWS/ Coillte Raised Bog Restoration Project (LIFE09 222)	This Project "Demonstrating Best Practice in Raised Bog Restoration in Ireland" is a nature conservation project jointly funded by EU DG-Environment, the Department of Arts, Heritage, and the Gaeltacht and Coillte under the EU LIFE-Nature Programme. The project is being managed by Coillte and focuses on the restoration of 636 ha of raised bog habitat on 17 Coillte owned sites within the Natura 2000 Network and in Natural Heritage Areas. The closest bogs to the Plan are Cangort Bog NHA (26 km southwest of the plan) and Wooddown Bog NHA (74 km northeast of the Plan).	Owing to the nature, scale and location of the Plan, it does not have the potential to cause likely significant effects in-combination with the Raised Bog Restoration Project.

5.0 CONCLUSION

In accordance with Article 6(3) of the Habitats Directive, Regulations 42 of the Habitats Regulations, the relevant case law, established best practice and the Precautionary Principle; this AA Screening Report has examined the details of the Plan and the relevant European sites and has concluded, on the basis of objective information, that the Plan, either individually or in combination with other plans or projects, is not likely to give rise to impacts that would constitute significant effects in view of the Conservation Objectives of those sites.

In light of this conclusion, it is the considered opinion of ROD, as the author of this AA Screening Report, that the Competent Authority, Bord na Móna, may find in completing its AA Screening in respect of the Noggusboy Bog Decommissioning and Rehabilitation Plan, that the Plan, either individually or in combination with other plans and projects, is not likely to have a significant effect on any European site, in view of best scientific knowledge and the Conservation Objectives of the sites concerned. Therefore, it is the recommendation of the author of this AA Screening Report that the Competent Authority may determine that AA is not required in respect of the Plan.

6.0 REFERENCES

Bord na Móna (2022) *Noggusboy Bog Cutaway Bog Decommissioning and Rehabilitation Plan 2022*

Bord na Móna (2022) *Noggusboy Bog - Engineering Report 2022*. Bord na Móna, Co Kildare.

RPS (2021) *Bord na Móna – Noggusboy Bog Drainage Management Plan*. Bord na Móna, Co Kildare.

Bord na Móna (2021) *Peatland Climate Action Scheme -Methods for Peatland Rehabilitation*. Bord na Móna, Co Kildare.

Bord na Móna (2021) *Peatland Climate Action Scheme - Environmental Management Plan*. Bord na Móna, Co Kildare.

Bord na Móna and RPS (2021) *Peatlands Climate Action Scheme Noggusboy Bog Site Characterisation and Monitoring*. Bord na Móna, Co Kildare.

Bord na Móna and RPS (2021) *Noggusboy Bog GIS Map Book 2021*. Bord na Móna, Co Kildare.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Official Journal of the European Communities, L206/7.

DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.

Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive). Official Journal of the European Union, L20/7.

EC (2000) *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.

EC (2021) *Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Environment Directorate-General of the European Commission.

EC (2007) *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 European Commission.

EPA (2022) EPA Maps. [Accessed 10/01/2022] <https://gis.epa.ie/EPAMaps>. Environmental Protection Agency, Wexford.

European Communities (Birds and Natural Habitats) Regulations, 2011. *SI No. 477/2011*.

European Communities (Birds and Natural Habitats) (Amendment) Regulations, 2013. *SI No. 499/2013*.

European Communities (Birds and Natural Habitats) (Amendment) Regulations, 2015. *SI No. 355/2015*.

NatureScot, (2020) Conservation Objectives for Coll Corncrake Special Protection Area. Available at: <https://sitelink.nature.scot/site/8484> [Accessed 10/01/2022]. NatureScot, Great Glen House, Leachkin Road, Inverness, IV3 8NW, Scotland, UK.

NPWS (2022a) *Online Map Viewer* <<http://webgis.npws.ie/npwsviewer/>> [Accessed 10/01/2022]. Department of Culture, Heritage and the Gaeltacht, Dublin.

NPWS (2015a) *Conservation Objectives: Ferbane Bog SAC 000575. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

NPWS (2022b) *Conservation objectives for River Shannon Callows SAC [000216]. Generic Version 8.0.* Department of Housing, Local Government and Heritage.

NPWS (2021b) *Conservation objectives for Middle Shannon Callows SPA [004096]. Generic Version 8.0.* Department of Housing, Local Government and Heritage

NPWS (2013) *Site Synopsis for the Ferbane Bog SAC [000575] Published 29.08.2013.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2015b) *Conservation Objectives: Moyclare Bog SAC 000581. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

NPWS (2015c) *Site Synopsis for the Moyclare Bog SAC [000581] Published 2.09.2013.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2020c) *Site Synopsis for the River Shannon Callows SAC [000216] Published 22/10/2020.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2020d) *Natura 2000 Standard Data Form for the River Shannon Callows SAC [000216]. Updated October 2020.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2020e) *Natura 2000 Standard Data Form for the Middle Shannon Callows SPA [004096]. Updated October 2020.* National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2019a). *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

NPWS (2019b). *The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments.* Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

NPWS (2012a) *Ireland's Summary Report for the period 2008 – 2012 under Article 12 of the Birds Directive. Unpublished Report*, National Parks & Wildlife Services, Department of Culture, Heritage and the Gaeltacht, Dublin.

NPWS (2012b) *Site Synopsis for the Middle Shannon Callows SPA [004096] Published 10/01/2012*. National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

NPWS (2012c) *Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2012d) *Conservation Objectives: River Shannon and River Fergus Estuaries SPA 004077. Version 1.0*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2010) *Circular NPW 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.

People Over Wind and Peter Sweetman v. Coillte Teoranta [2018] C-323/17.

Rossmore v. An Bord Pleanála [2014] IEHC 557.

Sweetman & Others v. An Bord Pleanála [2013] C-258/11.

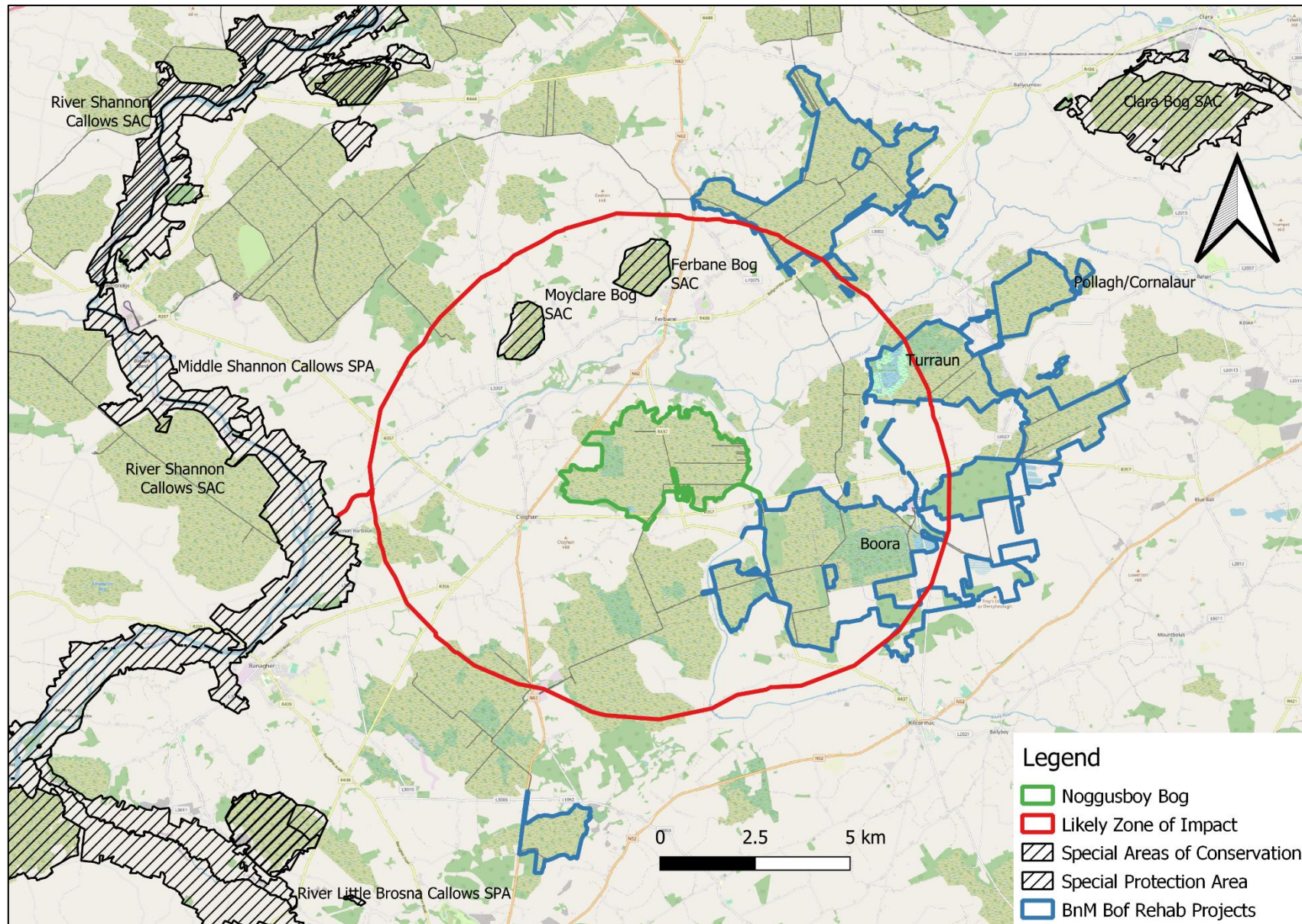
APPENDIX A
**Noggusboy Bog - Cutaway Bog Decommissioning and
Rehabilitation Plan 2022**

APPENDIX B

Rehabilitation Methodology Drawings

APPENDIX C

Location and Likely Zone of Impact





CONTACT

ROUGHAN & O'DONOVAN CONSULTING ENGINEERS

Arena House
Arena Road
Sandyford
Dublin 18
D18 V8P6
Ireland

Phone +353 1 294 0800
Email info@rod.ie