17. SCHEDULE OF MITIGATION

17.1 Introduction

All control measures that have been implemented at the Application Site from 1948 at the onset of site preparation up to July 1988, control and monitoring measures implemented from July 1988 to the cessation of peat extraction in June of 2020, control and monitoring measures implemented during the management of the Application Site since June 2020 and the mitigation measures proposed for the activities intended to be carried out at the Application Site into the future are set out in the relevant chapters of this rEIAR.

All control and mitigation measures for the Project are presented in Table 17-1 below. The measures have been grouped together according to the relevant phase of the Project. The Project formed part of an overall development at the Application Site which commenced many years prior to July 1988. For completeness, measures undertaken from 1948 at the onset of preparation works up to July 1988 are also presented below in Table 17-1. As such the measures are grouped under the following headings:

- **Pre-July 1988:** activities employed at the Application Site from 1948 at the onset of preparation works up to July 1988.
- **Peat Extraction Phase:** peat extraction activities and all ancillary works at the Application Site from July 1988 to the cessation of peat extraction in June of 2020 (July 1988 – June 2020).
- **Current Phase:** the management of the Application Site since June 2020 (June 2020 to present).
- **Remedial Phase:** the activities intended to be carried out at the Application Site into the future.

Table 17-1 Historical and Current Control Measures, and Proposed Mitigation Measures at the Application Site

Pre July-1988				
Control Measures Pre-July 1988 as per Section 4.3.5 in Chapter 4 of the rEIAR				
Measure	**Location in rEIAR**	**Receptor**	**Control Measure**	**Impact**
Emissions Control (dust, noise, water, silt run off)	Section 4.3.5.1 Chapter 4	Surface and ground water, Residential receptors, Habitats, aquatic species, Traffic users	**Peat Harvesting Machinery – maintenance programmes and storage:** 1. A range of peat harvesting machinery listed in Section 4.2.2.1 of **Chapter 4 Description of Development** were stored at the Ballivor Works at the end of the workday. 2. All machinery were regularly inspected serviced and maintained; 3. All machinery was regularly cleaned via power steam wash system at a wash bay and drained into an interceptor tank and associated gravel soak pit. The interceptor unit facilitated the removal of any floatable oil/grease components. This was done to minimise dust and particle release; and, 4. Self-contained machine parts washer was located at the Workshop.	Containment of dust, surface and groundwater emissions, traffic disruption/soiled roads, Minimisation of fuel leak/groundwater contamination
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety**	Section 4.3.5.2 Chapter 4	Surface and ground water, Residential receptors, Habitats, aquatic species	**Refuelling Facilities:** Refuelling and maintenance of all vehicles was undertaken at the Works. When machinery required refuelling on the Application Site, it was done so by a bunded mobile (rail or tractor transport) fuelling unit which travelled out from the Ballivor Works to the bogs across the Application Site where the machinery was located. The following emergency action procedure was implemented at the Application Site prior to IPC licencing (pre-2000) and was recorded as part of the IPC Licence application process: 1. When a spill occurs, the General Manager must be immediately informed of the incident;	Containment of dust, surface and groundwater emissions, traffic disruption/soiled roads,

Terrestrial Habitat protection **Aquatic habitat protection**			2. The spill must be assessed by the General Manager for potential risk to the health and safety of employees and the potential environmental consequences; 3. If there is a risk of explosion, all personnel in the area must be evacuated from the area; 4. The spill should be sourced, isolated and contained with polystyrene booms or dry peat (moisture content of 10%); 5. All effort should be made to prevent the spill from entering a storm drain or nearest outfall; 6. Once the spill has been contained, a suitable absorbent (dry peat) is to be used to soak the spillage; 7. All possible ignition sources such as electoral equipment, naked lights, machinery should be removed from the area. Any combustibles in the spill area should be removed; 8. Follow up action measures taken must include the implementation of appropriate remedial work to prevent such a spillage recurring in the future; and, 9. In the event of a significant spillage, the General Manager must notify the local authority.	Minimisation of fuel leak/groundwater contamination
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Section 4.3.5.3 Chapter 4	Surface and ground water, Residential receptors, Habitats, aquatic species Bord na Móna Employees	**Fire Safety:** 1. Annual training provided for bog fires crew and factory personnel and all general staff are provided with a minimum of 2 hours training in fire prevention; 2. Fire exits should be designated. These doors should be fitted with push-bar mechanisms only and lighted form independent sources. They shall be unobstructed inside and outside at all times and open outwards; 3. Each canteen/office equipped with a fire blanket and fire extinguisher; 4. There should be at least 1 fire point at all office premises; 5. Petrol and other oils should only be stored in designated oil stores; 6. Batteries should not be charged in working areas unless suitable protection is provided; 7. Training provided for Oxygen cylinder storage and use; 8. Fire Wagons: Designated rail wagons for fire prevention which contain: hoses, shovels, fire beaters, baskets, buckets, breathing apparatus, first aid kit, drums of foam and foam making machine, extinguishers etc.; 9. Stockpiles were covered with polythene film gauge sheets and secured in position by spreading an even layer of high moisture content milled peat. This prevented spontaneous combustion of certain peat types by excluding air as much as possible; and, 10. Fire Safety Audits undertaken at six monthly intervals along with random audits. Yearly assessments of all audits	Prevention/minimisation of environmental impacts by dust and pollutant release to air Prevention/minimisation of environmental impacts dust and pollutant release to surface waters Prevention/minimisation of impacts to human health

				by personal injury Prevention/minimisation of impacts to human health from dust and air pollutant emissions
Emissions Control (dust, noise, water, silt run off) **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Section 4.3.5.4 Chapter 4	Surface and ground water, Residential receptors, Habitats, aquatic species	**Dust management at boundaries of the bogs and headlands:** Dust emissions were higher from the milled peat extraction process than the sod peat extraction process. Tree cover along the fringes of bogs minimised the amount of dust that would travel off-site. In 1976 Bord na Móna established a policy to preserve the vegetation and tree cover on all bog fringes and on any mineral islands. (Brown Gold 'A History of Bord na Móna and the Irish Peat Industry', 2010 Clarke, Donal, Chapter 10 Pg 206). In addition, the following measures were undertaken at a minimum to minimise dust emissions and later expanded under IPC licence. 1. Stockpiles were compacted on either side by large rollers drawn by 65H.P tractors; 2. Stockpiles were covered with polythene film gauge sheets and secured in position by spreading an even layer of high moisture content milled peat; 3. Avoid extraction during windy weather; 4. Keep headlands clean- remove loose peat; 5. Drive slow along dusty headlands; and, 6. Clean road crossing.	Prevention/minimisation of environmental impacts by dust and pollutant release to air Prevention/minimisation of environmental impacts dust and pollutant release to surface waters Prevention/minimisation of impacts to human health from dust and air pollutant emissions

Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Section 4.3.5.5 Chapter 4	Surface and ground water, Bord na Móna Employees Residential receptors	**Internal rail network maintenance** Railway tracks and railway locomotives underwent continuous inspection and maintenance to prevent de-railments, fires, accidents and fuel leaks. The locomotives were fitted with beam lighting, electric windscreen wipers and driving mirrors for both directions of travel. Wagons were also designate as fire safety wagons and were stocked with various fire safety paraphernalia including hoses, buckets, breathing apparatus, first aid kit, drums of foam and foam making machine, extinguishers.	Containment of dust, surface and groundwater emissions, Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts and human health impacts by fire, dust and pollutant release to air
Emissions Control (dust, noise, water, silt run off) **Health and Safety**	Section 4.3.5.6 Chapter 4	Surface water Habitats, aquatic species Residential receptors	**Surface Water Management** 1. Onsite water emission from workshop and hard standing areas drained via onsite surface water drainage systems implemented as part of building and hardstand construction over the decades, into adjacent peatlands surface water drainage network; and, 2. All machinery were regularly inspected, serviced. All machinery was regularly cleaned via power steam wash system at a wash bay and drained into an interceptor tank and associated gravel soak pit. The interceptor unit facilitated the removal of any floatable oil/grease components. This was done to minimise dust and particle release.	Containment of dust, surface and groundwater emissions Minimisation of fuel leak/groundwater contamination

Terrestrial Habitat protection **Aquatic habitat protection**			Formal silt control measures adopted in 1974 are outlined below under Silt Management.	
Emissions Control (dust, noise, water, silt run off) **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Section 4.3.5.7 Chapter 4	Surface water Habitats, aquatic species/habitats	**Maintenance Programme for Internal Drains** 1. Internal drains cleaned on a regular basis in suitable weather. This was necessary to remove sludge from the bottom of milled peat field ditches and dispose of it by spreading it on the adjacent field. 2. Drain maintenance was carried out using draglines and excavators 3. These works were programmed to ensure that the drainage servicing the harvesting areas were fit for purpose. 4. Visual inspection of pumps daily 5. Operational check of pumps biweekly 6. Service of pumps monthly 7. Drain maintenance was carried out mainly prior to and post the harvesting season	Containment/minimisation silt run off
Emissions Control (dust, noise, water, silt run off) **Health and Safety**	Section 4.3.5.8 Chapter 4	Surface water Habitats, aquatic	**Maintenance Programme for Onsite Surface Water Pumps** 1. Visual inspection of pumps daily; 2. Operational check of pumps biweekly; and, 3. Service of pumps monthly	Containment/minimisation silt run off

Terrestrial Habitat protection **Aquatic habitat protection**		species/habitats		
Emissions Control (dust, noise, water, silt run off) **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Section 4.3.5.9 Chapter 4		**Silt Management** As part of the Third Development Programme in the 1970s, Bord na Móna decided in 1974 to control all effluent by means of specially designed and constructed silt ponds, thereby trapping more than 90% of the suspended solids present in the drainage water. A silt committee was set up in October 1975 to study the feasibility of removing silt from the bog effluents. Recommendations of an interim report prepared by the committee in 1975/1976 were as follows: 4. Provision of silt ponds should be a basic feature of new bog development for milled peat and their construction should be planned for all outlet systems; 5. Ideally, silt ponds should be located in cutaway bog; 6. Sufficient area should be acquired at the initial stage to provide for silt ponds; 7. In production bogs, existing large catchments should be broken up into manageable proportions and ponds constructed to accord with local topography; 8. Revision of drainage techniques should be considered such as arranging flatter gradients in external and internal outfalls and extending their width and length in the lower reaches to encourage settlement of silt; 9. Initial drainage effluent should be allowed to spill over face banks (where practicable) until adequate silt ponds have been provided. This should be applied to all new bog development immediately. Similarly, growth and vegetation should not be removed from external outfalls until interference with drainage and/or complaints force us [Bord na Móna] to act; 10. It is recommended that catchments to be protected by silt ponds should not be greater than 500 acres;	Containment/minimisation silt run off

			11. Ponds should be designed for maximum run-off of 1 cubic foot per minute per acre and run-off controlled by provision of small diameter culverts, weirs or sluices; 12. For milled peat, 50 square foot of pond per acre of catchment. For 500 acres, 45-foot-wide x 555-foot long x 7-foot deep, i.e., 6-foot maximum of silt and 1 foot minimum of water; 13. Ponds should be provided in pairs each sufficient for the catchment protected; 14. Ponds should be cleaned out at regular intervals as required but at least four times a year using dragline or Hymac retained permanently for this purpose. Investigations to be made into the suitability of pumping units; 15. Second parallel pond should be used during excessively large water flow (storm water); and, 16. The problem of discharging into the Clodiagh River at Monettia [County Offaly] has become difficult in view of ESBs requirement that the entire river be kept free of silt. Silt ponds will be essential and provision should be made in their layout to allow for further extension of the ponds if decantation needs to be improved further. 17. A copy of a memo sent to Ballivor Works from the Bord na Móna Production Manager in March 1976 setting out the recommendations of the silt committee is included in Appendix 4-8, which directs that "at all milled peat bogs in production, works should carry out surveys and select sites for silt ponds as recommended". Further Bord na Móna records show that silt pond measures were introduced across all Bord na Móna bogs in the early to mid-1980s in response to the 1977 Water Pollution Act. 18. Silt ponds were installed to trap and reduce the emission of suspended solids to surface water bodies originating from activities associated with peat extraction, such as suspended peat particles generated from the production fields and collected in the bog drainage network as well as run-off from workshop areas. Silt ponds were designed and constructed, primarily, with a width of 8m, however, in some cases, silt ponds of up to 12m in width were constructed. The larger silt ponds up to 12m wide are only provided in areas where access is available to both sides of the silt ponds for cleaning. The length of the silt pond varies depending on the capacity required (i.e., the length is proportional to the area of catchment being drained). In some locations, baffles (i.e., obstructing panels or vanes) have been installed within the ponds to reduce the energy in the flow and elongate the pond thereby increasing residence time and aiding settlement. Silt ponds are generally excavated to a depth of 1.5m below the pipe invert level, however in some locations, due to restricted space, the silt pond depth is greater than this. Low-velocity flow through the silt pond is generally controlled by inlet and outlet pipes at the silt ponds or upstream	

			of the silt pond. These pipes control the velocity of the flow into and out of the silt ponds so that the velocity within the silt pond itself is less than 0.1 m/sec. This slow flow through the pond allows suspended sediment (mainly peat) particles to fall out of suspension and build up on the base of the pond, thereby reducing the sediment loading of the outflow from the pond. The principle behind the design of the silt ponds is an application of Stoke's Law. Stokes' Law describes how small solid particles move through a viscous fluid, stating that the drag force on these particles is directly proportional to their size, velocity, and the fluid's viscosity. The silt ponds are cleaned twice a year and are all located hydraulically upgradient of discharge/outfall points to the adjacent surface watercourse. Access to the silt ponds is via headlands and machine passes which were created to facilitate vehicle movements within the site. Other records of Silt Committee meetings in April 1984 (which are included in Appendix 4-8) set out acceptable standards of effluent and note a decision from ABP on a licence for effluent from the Littleton Briquette Factory in County Tipperary, which set an upper limit of 100mg/l for suspended solids. The records note that *"although the legalities regarding obligation to treat bog effluent and briquette factory effluent may be dissimilar the waste involved is similar. It would, therefore, seem reasonable to assume that a target value of 100mg/l in the case of bog effluent would satisfy potential complainants whose complaints are based on genuine dissatisfaction with the present standard of our* [Bord na Móna] *effluents".* These records are evidence of early control measures implemented across the Bord na Móna landbank, including the Application Site, to control sediment levels in effluent.	
Emissions Control (dust, noise, water, silt run off) **Health and Safety**	Section 4.3.5.10 Chapter 4 Appendix 4-8	Surface and ground water, Residential receptors, Employees,	**Waste Management** 1. Waste oils and break fluids drained from machinery during servicing were collected in drums and emptied to a designated waste oil storage tank; 2. Waste oil storage tank contents transported off-site by a licenced waste disposal contractor. 3. Oil and fuel filters changed at vehicle service intervals; 4. Spent filters collected and disposed thorough a waste disposal contractor; 5. Used batteries are collected by battery collection contractor;	Containment of dust, surface and groundwater emissions, Minimisation of fuel

Terrestrial Habitat protection **Aquatic habitat protection**		Bog Habitats Aquatic species	6. Off-washings form the self-contained machine parts washer was collected within a sludge tank at the Works; 7. Ash from the onsite boiler was stored in a skip onsite and collected by a licenced contractor and taken to landfill; 8. Waste polythene removed from stockpiles was collected at the roadside by plastic recycling company; and, 9. Workshop waste and general refuse from canteens/offices were historically burned on site or disposed into waste disposal areas at the Works. This practise changed to the use of skips which were then collected by licenced contractors.	leak/groundwater contamination Prevention/minimisation of environmental impacts and human health impacts by fire, dust and pollutant release to air
Archaeological Preservation	Section 4.3.5.11 Chapter 4	Unrecorded subsurface Archaeology	**Archaeological Disturbance** 1. As part of peat processing training, all bog employees must read and adhere to the recommendations 'Ancient Objects in Irish Bogs and Farmlands: A Guide for Finders' Department of Education 1942; and, 2. All bog workers must stop all works and report to the Bog Manager if archaeological finds are encountered. If materials thought to be of archaeological interest are encountered, the Bog Manager must report the findings to the Garda Síochána within 7 days who will then contact the Commissioner of Public Works.	Minimisation/prevention of subsurface archaeological destruction, loss or interference through drainage and extraction operations and/or failure to recognise/report finds.

Peat Extraction Phase (July 1988 – June 2020)				
Control Measures July 1988 to June 2000 as per Section 4.6 in Chapter 4 of the rEIAR				
Discipline	**Location in rEIAR**	**Receptor**	**Control Measure**	**Impact**
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Section 4.3.5 in Chapter 4 Section 4.6 in Chapter 4 Appendix 4-8 Appendix 4-9 Chapters 4 to 15	Surface and ground water, Residential receptors, Habitats, aquatic species, Traffic users Bord na Móna Employees Residential receptors Bog Habitats	Post-July 1988 but prior to the implementation of the IPC Licence at the Application Site in 2000, the environmental management measures set out in Section 4.3.5 in Chapter 4 or the rEIAR and detailed above in Pre-July 1988 were in place across the Application Site. In addition, as evidenced in the 1991 Harkins Report, Appendix 4-9, silt control measures in the form of silt ponds were in place prior to 1988, with Bord na Móna carrying out further studies and surveys throughout the 1980s and 1990s to make improvements to how silt ponds operated so that suspended solids emissions in surface run-off were reduced. This included the construction of new ponds (as described in Section 4.3.5.9) to maintain treatment of run-off while cleaning of existing ponds was in progress.	Containment of dust, surface and groundwater emissions, traffic disruption/soiled roads, silt run off Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts by dust

				and pollutant release to air Prevention/mini misation of environmental impacts dust and pollutant release to surface waters Prevention/mini misation of impacts to human health by personal injury Prevention/mini misation of impacts to human health from dust and air pollutant emissions Prevention/mini misation of environmental impacts and human health

				impacts by fire, dust and pollutant release to air
Archaeological Preservation	Section 4.6.1 in Chapter 4 Chapter 13	Unrecorded subsurface Archaeology	**Archaeological Code of Practice** Bord na Móna has a long history of co-operation with the National Museum of Ireland, the National Monuments Service and the relevant governmental departments overseeing heritage at the time, in relation to the cultural and archaeological importance of wetlands as well as the potential for, and handling of, archaeology discovered in bogs. After the discovery and subsequent preservation of trackways at Corlea Bog, Co. Longford by Bord na Móna employees in the 1980s, a new programme for peatland archaeology was established. Since 1991 an annual programme of archaeological survey, initially funded by the National Monuments Service, has been conducted in Bord na Móna Bogs, with the results being forwarded for inclusion in the Sites and Monuments Record. Since 1998, Bord na Móna has a statutory duty under the Turf Development Act 1998 (Section 56) to afford appropriate protection for the environment and the archaeological heritage. Section 56.- *The Company and each subsidiary shall ensure that its activities are so conducted as to afford appropriate protection for the environment and the archaeological heritage.* The 1998 Act was in accord with the development of an *Agreed Principles for the Protection of Wetlands Archaeology in Bord na Móna Bogs* (1998) between the Minister for Arts, Heritage and the Gaeltacht, the National Museum of Ireland and Bord na Móna. The Agreed Principles set out 10 standards within which archaeology in the Bord na Móna peatlands were managed. Five Archaeological Liaison Officers were spread across the Bord nan Móna Bog Groups and received training on how to deal with and report finds. Since 1998, all archaeological surveys were funded by Bord na Móna. The surveys have been accompanied by an annual programme of selective	Minimisation/prevention of subsurface archaeological destruction, loss or interference through drainage and extraction operations and/or failure to recognise/report finds.

			archaeological excavation and paleo-environmental analysis. By 2013, 64,000 of the c. 80,000-hectare land holdings of Bord na Móna had been subject to archaeological survey.[1] A Code of Practice between the Department of Arts, Heritage and the Gaeltacht, the National Museum of Ireland and Bord na Móna was established in 2012.[2] This Code superseded the Agreed Principles. The Code provided a framework within existing legislation, policy and practice to enable Bord na Móna to progress with peat extraction activities and all ancillary works and simultaneously ensure archaeological control measures are in place. The measures Bord na Móna are responsible for are listed below: *Bord na Móna will:* 1. *Engage a Project Archaeologist* 2. *Maintain the network of Archaeological Liaison Officers.* 3. *Disseminate a set of Archaeological Protection Procedures* 4. *Ensure that any monuments or archaeological objects discovered during peat extraction are protected in an appropriate manner by following the Archaeological Protection Procedures.* 5. *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.* 6. *Ensure that any archaeological objects discovered on Bord na Móna lands are reported immediately to the Duty Officer of the National Museum of Ireland.* 7. *Prioritise monuments for investigation taking account of monument vulnerability, contractual obligations and peat production targets.* 8. *Prepare tenders for archaeological mitigation of impacts on monuments, to include excavation and recording, in consultation with the Project Archaeologist and the Minister.* 9. *Engage professional Consultant Archaeologists to carry out mitigation of monuments, including the required palaeo-environmental assessment and post-excavation studies.*	

[1] *Department of the Arts, Heritage and the Gaeltacht 2013 Review of Archaeological Survey and Mitigation Policy relating to Bord na Móna Peatlands since 1990. https://www.archaeology.ie/sites/default/files/media/pdf/bnm-peatland-review-final-report-20-06-2013.pdf*
[2] *2012 Code of Practice between the Department of Arts, Heritage and the Gaeltacht, the National Museum of Ireland and Bord na Mónahttps://www.archaeology.ie/sites/default/files/media/publications/cop-bord-na-mona-en.pdf*

			10. *Provide the necessary finance to fulfil the post-excavation requirements of the Minister and the Director including the conservation of archaeological objects and the provision of scientific analyses and dating, as well as the production of reports on all archaeological work, to a standard which will meet the approval of the Minister.*	
Peat Extraction Phase (July 1988 – June 2020)				
Control Measures 2000 to Present-Day (Post IPC Licence) as per Section 4.7 in Chapter 4 of the rEIAR				
Measure	**Location in rEIAR**	**Receptor**	**Control Measure**	**Impact**
Emissions to Atmosphere **Emissions to Water** **Waste Management** **Noise** **Water Protection** **Decommissioning and Cutaway Bog Rehabilitation**	Chapters 4–15, Appendix 4-1 IPC Licence PO 501-01	Environmental Monitoring	**Environmental Monitoring and Conditions under IPC Licence** Bord na Móna were granted an IPC Licence (P0501-01) for the Derrygreenagh Bog Group (which encompasses the Ballivor Bog Group, and therefore the Application Site) in April 2000. Following this grant, the control measures listed above have been updated and expanded. The background to the IPC Licence application and implementation at the Ballivor Bog Group can be found in Chapter 2 Background and a copy of the licence is provided in Appendix 4-1. The licence application is publicly available and can be viewed on request at EPA headquarters PO Box 3000 Johnstown Castle Estate County Wexford Y35 W821. The EPA licencing inspectors' reports can be viewed at the following webpage: https://epawebapp.epa.ie/terminalfour/ippc/ippc-view-filter.jsp?regno=P0501-01&filter=c&docfilter=go Furthermore, Bord na Móna staff underwent an EPA IPC training programme following the grant of the IPC Licence in 2000, which resulted in the development of an environmental management system. This system addresses emissions to water and air, noise, vibration and odour emissions, waste management, use of natural resources, visual effects and the natural environment and eco-system. Please see Appendix 4-5 for the Bord na Móna IPC training programme.	

			The conditions of the IPC Licence are intended for the protection of the environment and apply from the time of grant of the IPC Licence. The EPA has undertaken Technical Amendments of the IPC Licence for the purpose of aligning the conditions of the IPC Licence to the objectives of national and European environmental protection legislation enacted over the lifetime of the IPC Licence. The IPC Licence was subject to a Technical Amendment for the purpose of the European Communities Environmental Objectives (Surface Water) Regulations, 2009 and it now contains an objective to 'maintain' or 'restore' the water surface water quality to the defined 'Good Status'. With the implementation of conditions listed in the IPC Licence, the potential environmental effects of peat extraction activities and all ancillary works on water quality (such as the release of elevated concentrations of suspended sediments, and by association on aquatic ecosystems and protected species), have and continue to reduce through the implementation of IPC Licence conditions. Please see Chapter 8 Hydrology and Hydrogeology of this rEIAR and the Annual Environmental Reports (AER) included as Appendix 4-3 for details. The IPC Licence is subject to 14. No conditions pertaining to the ongoing monitoring and maintenance to ensure any emissions from site activities will comply with and not contravene, any of the requirements of Section 83(3) of the Environmental Protection Agency Act, 1992 outlined below: (3) The Agency shall not grant a licence or revised licence for an activity unless it is satisfied that– (a) any emissions from the activity will not result in the contravention of any relevant air quality standard specified under section 50 of the Air Pollution Act, 1987, and will comply with any relevant emission limit value specified under section 51 of the Air Pollution Act, 1987, (b) any emissions from the activity will comply with, or will not result in the contravention of, any relevant quality standard for waters, trade effluents and sewage effluents and standards in relation to treatment of such effluents prescribed under section 26 of the Local Government (Water Pollution) Act, 1977, (c) any emissions from the activity or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of, any	

			relevant standard including any standard for an environmental medium prescribed under regulations made under the European Communities Act, 1972, or under any other enactment, (d) any noise from the activity will comply with, or will not result in the contravention of, any regulations under section 106, (e) any emissions from the activity will not cause significant environmental pollution, and (f) the best available technology not entailing excessive costs will be used to prevent or eliminate or, where that is not practicable, to limit, abate or reduce an emission from the activity, and, where appropriate, the Agency shall attach conditions relating to the matters specified in the foregoing paragraphs to the licence or revised licence. Conditions 1 to 4 of the licence outlined the Scope, Management, Interpretation and Notification procedures required by the Applicant, respectively. Conditions 11 to 14 detail the Monitoring (equipment use), Recording and Reporting, Emergency Response and Financial Provisions duties of the Applicant. Conditions 5 to 10 pertain to environmental monitoring and management: › Condition 5 Emissions to Atmosphere › Condition 6 Emissions to Water › Condition 7 Waste Management › Condition 8 Noise › Condition 9 Water Protection › Condition 10 Decommissioning and Cutaway Bog Rehabilitation In compliance with Condition 5, the Applicant must undertake annual tests on boiler combustion efficiency and dust monitoring. Please see Chapter 9 Air Quality for further details. Condition 6 ensures the Applicant establishes a surface water discharge monitoring programme which is reviewed annually, and a report submitted to the EPA quarterly. The Applicant is also required to submit water sample results annually, implement and maintain silt ponds. Condition 9 pertains to the 'Water Protection' and outlines the daily, weekly, monthly, quarterly, and annual inspections Bord na Móna must carry out to provide for the protection of surface and groundwater. There are currently silt pond inspections and	

			maintenance including quarterly grab sampling ongoing at the application site. Please see Chapter 8 Hydrology and Hydrogeology for further details. Condition 7 compels the Applicant to correctly dispose of waste to licenced facilities. Please see Chapter 14 Material Assets for details. Condition 8 ensures that any on site activities do not give rise to noise exceedances at noise sensitive locations. Please see Chapter 11 Noise and Vibration for further details. Condition 10 pertains to site decommissioning followed by peatland rehabilitation and is detailed in Section 4.9 below which details the Remedial Phase, and Chapter 6 Biodiversity. It is the intention of the of the Applicant to continue implementing and practising the mitigation and monitoring measures as listed in the Licence after the site is decommissioned, where applicable.	
Emissions Control (dust, noise, water, silt run off) **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapters 4–15, Appendix 4-1 IPC Licence PO 501-01	Surface and ground water, Residential receptors, Habitats, aquatic species	**IPC Licence Condition 5 Emissions to Atmosphere:** *Boiler Combustion Efficiency shall be tested annually, and results reported on annually as part of the AER. The licensee shall ensure that all operations on-site shall be carried out in a manner such that air emissions and/or dust do not result in significant impairment of, or significant interference with amenities or the environment beyond the site boundary.* *Within three months of the date of grant of the licence, the licensee shall submit to the Agency for agreement, a proposal for the identification and monitoring of Dust Sensitive Locations (DSL's) on and off site for dust deposition. A report on this monitoring shall be submitted annually as part of the AER.* *Activities on-site shall not give rise to dust levels off site at any Dust Sensitive Location which exceed an emission limit of 350 mg/m2/day. [The sampling method to be in accordance with German TA Luft Immission Standards for Particle Deposition (IW1)].* *In relation to Dust Control the licensee shall, within six months of date of grant of this licence, develop and implement procedures to ensure that:* • *shelter belts are planted in sensitive areas,* • *harvesting in sensitive areas is avoided during windy weather,* • *where possible machinery uses grassed pathways,* • *headlands are kept clean and free of excessive loose peat,* • *stockpiles are sheeted where possible,* • *moving machinery maintains slow speeds when travelling along dusty headlands,*	Prevention/minimisation of environmental impacts by dust and pollutant release to air Prevention/minimisation of environmental impacts dust and pollutant release to surface waters Prevention/minimisation of impacts to human health from dust and air pollutant emissions

			• *when harvesting, the jib is maintained low to the stockpile,* • *shelter belts are planted around out loading facilities,* • *road transported peat is adequately covered (sheeted or similar),* • *wind breaks are planted where-ever possible.* *Reason: To provide for the protection of the environment by way of control, limitation, treatment and monitoring of emissions.* **Comment:** In accordance with IPC Licence requirements, Bord na Móna submit Annual Environment Reports (AER) since 2001 which include: Boiler Combustion Efficiency is tested annually, and results are detailed in the AERs a requirement of the IPC Licence › The Applicant submitted proposed Dust Sensitive Locations on and off site for dust deposition monitoring within three months of the grant date of the licence as a requirement of the said Licence › Dust sampling was undertaken annually during the Peat Extraction Phase in accordance with German TA Luft Immission Standards for Particle Deposition (IW1), the results of which were detailed in each Annual Environment Report.	

Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapters 4–9, Chapter 13 Appendix 4-1 IPC Licence 501-01	Surface water Habitats, aquatic species Residential receptors Surface water Habitats, aquatic species/habitats	**IPC Licence Condition 6 Emissions to Water:** *No specified emission to water shall exceed the emission limit values set out in Schedule 1(i) Emissions to Water subject to Condition 3 of this licence. There shall be no other emissions to water of environmental significance.* *The licensee shall within three months of date of grant of this licence submit to the Agency for approval, a proposal for a surface water discharge monitoring location programme. This programme shall, inter alia, have regard to the current status of each bogland (virgin, under development, operational or worked out), sensitivity of the receiving water, status of silt pond upgrade programme.* *This programme shall be reviewed and revised as necessary each year as part of the AER. Monitoring and analyses of each agreed emission monitoring location shall be carried out as specified in Schedule 1(ii) Monitoring of Emissions to Water of this licence. A report on the results of this monitoring shall be submitted to the Agency quarterly.* *The licensee shall, within six months of date of grant of licence, present a proposal for the installation (on a long term basis) of a composite sampler to one representative discharge point within the licensed area. The proposal shall set out the rationale for selection of the nominated discharge point as well as the sampling programme. The results of this monitoring are to be reported each year as part of the AER. Any proposal to relocate the composite sampler is to be dealt with under Condition 6.3.* *A summary report of emissions to water shall be submitted to the Agency as part of the AER. The information contained in this report shall be prepared in accordance with any relevant guidelines issued by the Agency.* *The licensee shall, within six months of the date of grant of licence, develop and implement a programme to ensure that all drainage water from all boglands in the licensed area is discharged via an appropriately designed silt pond treatment arrangement. The programme, to be implemented within a period to be agreed with the Agency, shall ensure that all discharges associated with operational boglands should be prioritised within this programme.*	Containment of dust, surface and groundwater emissions, traffic disruption/soiled roads, silt run off Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts dust and pollutant release to surface waters

			Within three months of the date of grant of licence, the licensee shall prepare an operational procedure for de-silting of the silt ponds. The procedure shall as a minimum provide for visual inspection of all ponds on a fortnightly basis. The de-silting roster shall be based on recommendations of such visual inspection. A log of visual inspection and de-silting shall be maintained and a summary report on the de-silting programme shall be included in the AER. The licensee shall, within twelve months of the date of grant of this licence, demonstrate to the satisfaction of the Agency that the programme of inspection is adequate. *Silt ponds serving operational bogs shall be cleaned as a minimum twice a year, once before ditching and once before harvesting, and more frequently as inspections may dictate (refer Condition 6.7).* *Within six months of the date of grant of licence, the licensee shall prepare a programme, for agreement with the Agency, to upgrade all the sedimentation pond treatment systems. The programme shall, inter alia, address provision of additional ponds, weir or pipe installation (inlet and outlet), pond configuration, use of baffles, performance efficiency and frequency of de-silting. The upgrade shall have regard to the minimum silt pond specifications detailed in Condition 6.10.* *Within three years of date of grant of this licence all existing silt ponds serving operational bogs shall achieve the following minimum performance criteria (flood periods excepted):* *• Maximum flow velocity < 10 cms-1* *• Silt design capacity of lagoons, minimum 50 m3 per nett ha of bog serviced* *All new ponds installed shall be designed to achieve these stated minimum design criteria.* *All silt ponds prone to flooding shall be de-silted by 1st November of each year. Excavated sludge shall be removed for disposal to a location outside the flood plain.* *In respect of silt control the licensee shall, within nine months of date of grant of this licence, prepare and implement procedures to ensure that:* • *drainage manholes are protected and maintained free of excessive peat,* • *headlands are kept clean and free of excessive loose peat,* • *all new manholes and outfalls are set well back from turning grounds, drivers of bog plant do not turn short (over drains) at headlands,*	

			• *harrows, millers, ridgers do not drag loose peat onto manholes or into drains, outside harrow spoons are directed away from drains,* • *silt run-off, while piping or ditching, is minimised,* • *outfalls are controlled to minimise silt discharge during cleaning operations,* • *drains are ditched in dry weather,* • *while ditching, outfalls are blocked and ditch towards outfall,* • *outlets from stockpile field drains are blocked during stockpile loading,* • *field drains adjacent to stockpiles are cleaned as soon as practicable after stockpile loading,* • *adequate room is allowed for rail bed beside Peco stockpiles,* • *all fields that have been milled are ridged at the end of the production season,* • *all fields liable to winter flooding have been cleared of milled peat or re-compacted at the end of the production season.* **Reason: To provide for the protection of the environment by way of control, limitation, treatment and monitoring of emissions.** **Comment** › The Applicant undertakes a comprehensive emissions monitoring programme as set out in Schedule 1 and Schedule 3 of the EPA Licence, the results of which are included in each AER. › All automatic monitors and samplers are regularly tested, serviced and calibrated. If/When the Applicant requests to use alternative monitors and samplers, prior written agreement is sought from the EPA. › Prior written agreement for the use of alternative equipment, other than in emergency situations, shall be obtained from the Agency. Likewise, any deviations to the frequency, methods and scope of monitoring, sampling and analyses, as set out in the licence, are sought through written agreement with the EPA prior to undertaking such deviations. › Permanent, safe and clear access to waste storage areas on-site, surface water discharges and dust sampling locations for staff and Agency visitors are provided at all times.	

Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapters 4—15 Appendix 4-1: IPC Licence 501-01	Surface and ground water, Residential receptors, Employees,	**IPC Licence Condition 7 Waste Management** *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.* *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.* *A full record, which shall be open to inspection by authorised 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:* • *The names of the agent and transporter of the waste.* • *The name of the persons responsible for the ultimate disposal/recovery of the waste.* • *The ultimate destination of the waste.* • *Written confirmation of the acceptance and disposal/recovery of any hazardous waste consignments sent off-site.* • *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.* • *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.* *Within nine months of the date of grant of licence, the licensee shall submit to the Agency for agreement, a proposal for identification and management of all ash and screening disposal areas. Once agreed, the proposal shall be implemented within a time-scale stipulated by the Agency.*	Containment of dust, surface and groundwater emissions, Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts and human health impacts by fire, dust and pollutant release to air

			Reason: To provide for the disposal of waste and the protection of the environment.	
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapters 4—15 Appendix 4-1: IPC Licence 501-01	Surface and ground water, Residential receptors, Employees,	**IPC Licence Condition 8 Noise** *Activities on-site shall not give rise to noise levels off site at any noise sensitive location which exceed the following sound pressure limits (Leq,30min) subject to Condition 3 of this Licence:* • *Day-time: 55 dB(A)* • *Night-time: 45 dB(A)* *There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.* *Reason: To provide for the protection of the environment by control of noise.* **Comment:** Since 2000 there have been no breaches of noise limits by the onsite activities or noise complaints from noise sensitive locations in the vicinity of the site.	Containment/minimisation of health impacts by noise and vibration emissions.
Emissions Control (dust, noise, water, silt run off) **Terrestrial Habitat protection**	Chapters 4—15 Appendix 4-1: IPC Licence 501-01	Surface and ground water, Residential receptors,	**IPC Licence Condition 9 Water Protection** *Surface & Groundwater Protection-Workshop areas and Depots:* *No potentially polluting substance or matter shall be permitted to discharge to off-site surface waters, off site storm drains or groundwaters.* *Monitoring and analyses of surface water discharges shall be carried out as specified in Schedule 3 Monitoring of Workshop/Depot Surface Water Run-off of this licence. A report on the results of this monitoring shall be submitted to the Agency quarterly.*	Containment of dust, surface and groundwater emissions, Minimisation of fuel leak/groundwater contamination

Aquatic habitat protection			*In the event that any analyses or observations made on the quality or appearance of surface water runoff should indicate that contamination has taken place, the licensee shall carry out an immediate investigation to identify and isolate the source of the contamination,* *i. put in place measures to prevent further contamination and to minimise the effects of any contamination on the environment,* *ii. and notify the Agency as soon as is practicable.* *Within twelve months of the date of grant of licence, all tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, tank and drum storage areas shall, as a minimum be bunded, either locally or remotely, to a volume not less than the greater of the following;* *i. 110% of the capacity of the largest tank or drum within the bunded area* *ii. 25% of the total volume of substance which could be stored within the bunded area.* *Drainage from bunded areas shall be diverted for collection and safe disposal.* *The integrity and water tightness of all the bunding structures and their resistance* *to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee to the satisfaction of the Agency and shall be reported to the Agency within eighteen months from the date of grant of this licence and every two years thereafter. A report on such tests shall be included in the AER.* *Within twelve months of the date of grant of licence, the loading and unloading of fuel oils shall be carried out in designated areas protected against spillage and eachate run-off. While awaiting disposal, all materials shall be collected and stored in designated areas protected against spillage and leachate run-off.* *With the exception of roof water, all surface water discharges from workshop areas shall, within twenty-four months of date of grant of this licence, be fitted with oil interceptors.*	

			A maintenance/cleaning log for all oil interceptors and septic tanks shall be maintained. This log shall also record the observations made during weekly inspections of all oil interceptors and bi-annual inspections of septic tanks. *An inspection for leaks on all flanges and valves on over-ground pipes used to transport materials other than water shall be carried out weekly.* *The provision of a catchment system to collect any leaks from flanges and valves of all over ground pipes used to transport material other than water shall be examined.* *The licensee shall undertake a programme of testing and inspection of underground fuel pipelines to ensure that all underground fuel lines are tested at least every three years. A report on the first testing shall be submitted to the Agency within twelve months of the date of grant of licence and as part of the AER thereafter.* *The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage.* *The licensee shall within twelve months of the date of grant of licence, arrange for* *the removal and safe disposal of waste oil and oil contaminated soil from the scrap storage area at Derrygreenagh Works.* *The licensee shall maintain a log of bi-annual inspections of all rail and tractor transported fuelling units. These inspections as a minimum should record any damage or leaks or flaws in rolling stock that could result in accidental spillage.*	

			Reason: To provide for the protection of surface waters and groundwater **Comment:** • The Applicant undertakes a programme of surface water monitoring, and the results of which were submitted to the EPA quarterly. In recent years, it has been agreed with the EPA that only occurrences of exceedances are submitted to the EPA. Should the results indicate contamination of waters, the Applicant undertakes investigations to identify the source of the contamination and controls to eliminate/minimise the impact are implemented and alerts the EPA immediately. • Within 12 months of the grant of IPC licence, all tank and drum storage areas were bunded and rendered impervious according to the requirements set out in the licence. Drainage from bunded areas is diverted for collection and appropriate disposal by a licenced operator. • Maintenance of the bunding is inspected regularly and tested every two years, the results of which are included in the corresponding AER. • All loading and unloading of fuel oils is undertaken and distillate is stored in designated areas. • All surface water discharges from workshop areas, except roof run off, is fitted with oil interceptors. • A maintenance/cleaning log for all oil interceptors and septic tanks is maintained. The log contains weekly observation notes on oil tanks and biannual inspection notes of septic tanks. • Inspections for leaks on all flanges and valves on over-ground pipes used to transport materials other than water are be carried out weekly. • The Applicant carries out a programme of testing and inspection of underground fuel pipelines every three years. The results are included in the corresponding AER. • The Applicant holds in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage. • As part of the licence agreement, the Applicant removed and safely disposed of waste oil and oil contaminated soil from the scrap storage area at Derrygreenagh Works. The removed materials were disposed of at licenced facilities.	

			The Applicant maintains a log of bi-annual inspections of all rail and tractor transported fuelling units. These inspections include records of any damage or leaks or flaws, if present, that could result in accidental spillage.	
Emissions Control (dust, noise, water, silt run off) **Terrestrial Habitat protection** **Aquatic habitat protection**	Emissions Control (dust, noise, water, silt run off) Appendix 4-1: IPC Licence 501-01	Surface and ground water, Residential receptors,	***IPC Licence compliance measures from 2000 onwards:*** ***Condition 11 Monitoring*** *The licensee shall carry out such sampling, analyses, measurements, examinations, maintenance and calibrations as set out in Schedules: -* *Schedule 1(ii) Monitoring of Emissions to Water* *Schedule 3 Monitoring of Workshop/Depot Surface Water Run-off of this licence.* *Where the ability to measure a parameter is affected by mixing before emission, then, with prior written agreement from the Agency, the parameter may be assessed before mixing takes place.* *All automatic monitors and samplers shall be functioning at all times (except during maintenance and calibration) when the activity is being carried on unless alternative sampling or monitoring has been agreed in writing by the Agency for a limited period. Prior written agreement for the use of alternative equipment, other than in emergency situations, shall be obtained from the Agency.* *Monitoring and analysis equipment shall be operated and maintained as necessary so that monitoring accurately reflects the emission or discharge.* *The frequency, methods and scope of monitoring, sampling and analyses, as set out in this licence, may be amended with the written agreement of the Agency following evaluation of test results.* *The licensee shall clearly identify and label all emission points.*	Containment of dust, surface and groundwater emissions, Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts and human health impacts by fire, dust and pollutant release to air

			The licensee shall install on all emission points such sampling equipment, including any data-logging or other electronic communication equipment, as may be required by the Agency. All such equipment shall be consistent with the safe operation of all sampling and monitoring systems. *The licensee shall provide safe and permanent access to the following sampling and monitoring points:* *i. Waste storage areas on-site,* *i. (ii)Surface water discharges,* *ii. (iii)Dust sampling locations,* *and safe access to any other sampling and monitoring points required by the Agency.* *Reason: To ensure compliance with the requirements of other conditions of this licence by provision of a satisfactory system of measurement and monitoring of emissions.* **Comment** The Applicant undertakes a comprehensive emissions monitoring programme as set out in Schedule 1 and Schedule 3 of the EPA Licence, the results of which are included in each AER. All automatic monitors and samplers are regularly tested, serviced and calibrated. If/When the Applicant requests to use alternative monitors and samplers, prior written agreement is sought from the EPA. Prior written agreement for the use of alternative equipment, other than in emergency situations, shall be obtained from the Agency. Likewise, any deviations to the frequency, methods and scope of monitoring, sampling and analyses, as set out in the licence, are sought through written agreement with the EPA prior to undertaking such deviations. Permanent, safe and clear access to waste storage areas on-site, surface water discharges and dust sampling locations for staff and Agency visitors are provided at all times.	

Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapters 4—15 Appendix 4-1 IPC Licence 501-01 Appendix 5-1 Fire Prevention and Fire Fighting Procedures for Peat Production Bogs Appendix 5-2: Bord na Móna Health and Safety Statement.	Surface and ground water, Residential receptors, Habitats, aquatic species Bord na Móna Employees Surface and ground water, Residential receptors, Habitats, aquatic species	**IPC Licence Condition 13 Emergency Response** *The licensee shall, within six months of date of grant of this licence, ensure that a documented Emergency Response Procedure is in place which shall address any emergency situation which may originate on-site. This Procedure shall include provision for minimising the effects of any emergency on the environment.* Reason: To provide for the protection of the environment. Comment: Bord na Móna has long been a cognisant of Health and Safety. Following a number of explosions in Lullymore Briquette Factory in the late 1940s and early 1950s[3], the comprehensive scheme for accident prevention was devised[4]. In 1958, a permanent committee was established in Bord na Móna to administer accident prevention schemes. Each Works site had a first aid team consisting of trained volunteers who partook in regular training and administered first aid as required during operations. In 1981, a new safety policy was adopted across the company. Health and Safety has been an evolving field since 1988, with improvements being made to Bord na Móna's health and safety policies over the years. This has been aided by the introduction of Safety Health & Welfare at Work Act 2005, the SHWW (General Application) Regulations 2007, as amended, and the SHWW Construction Regulations, 2013. Bord na Móna provide various training to their employees to minimise any negative impacts on health and safety on all of their sites. Bord na Móna have produced and implement an annual Health and Safety Statement which aims to: 1. *Comply, as a minimum, with all statutory requirements, common law duties, codes of practice and best industry practice relating to our activities, including the Safety Health & Welfare at Work Act*	Prevention/mitigation of environmental impacts by dust and pollutant release to air Prevention/mitigation of environmental impacts dust and pollutant release to surface waters Prevention/mitigation of impacts to human health by personal injury Prevention/mitigation of impacts to human health from dust and

[3] *Donal Clarke (2010) Brown Gold: A History of Bord na Móna and the Irish Peat Industry, pp. 84*
[4] *Donal Clarke (2010) Brown Gold: A History of Bord na Móna and the Irish Peat Industry, pp. 102*

			2005, the SHWW (General Application) Regulations 2007, as amended, and the SHWW Construction Regulations, 2013; *Provide and maintain a safe and healthy place of work & working conditions, and to develop & maintain safe systems of work;* *Ensure adequate resources, structures and systems to effectively manage workplace safety, health and welfare;* *Identify all workplace hazards, assess the associated risks, implement appropriate control measures, taking account of the principles of prevention, to eliminate where possible or minimise such risks to acceptable levels, and monitor their effectiveness;* *Provide information, instruction and training - in a manner and language understood by the trainee - and supervision to enable employees to perform their work safely and effectively;* *Provide necessary protective equipment and safety devices and supervise their use;* *Protect, as far as is reasonably practicable, persons not employed by the company who may be affected by our activities;* *Ensure contractors and service providers comply with company safety requirements;* *Strive to continuously improve health and safety management based on performance monitoring and in line with changes in legislation and best practice;* *Build on its safety culture & continue to raise health & safety awareness amongst employees;* *Consult with employees and contractors on matters of health, safety & welfare and take account of representations made by employees on such matters; and* *Review this policy & the safety statement, as per legislative requirements, and to ensure their validity and effectiveness.*	air pollutant emissions

			Fire safety and awareness is provided as part of Bord na Móna's general safety induction with reoccurring refresher training every three years. Please see Appendix 5-1 Fire Prevention & Fire Fighting Procedures for Peat Production Bogs for further details.	
Archaeological preservation	Chapter 13 Appendix 13-1 Bord na Móna Code of Practice Appendix 13-4: 'Ancient Objects in Irish Bogs and Farmlands: A Guide for Finders' Department of Education 1942	Unrecorded potential subsurface Archaeology	**Archaeological Disturbance** 1. *As part of peat processing training, all bog employees must read and adhere to the recommendations 'Ancient Objects in Irish Bogs and Farmlands: A Guide for Finders' Department of Education 1942 (Appendix 13-4).* 2. *All bog workers must stop all works and report to the Bog Manager if archaeological finds are encountered.* 3. *If materials thought to be of archaeological interest are encountered, the Bog Manager must report the findings to the Garda Síochána within 7 days who will then contact the Commissioner of Public Works.* **2005 onwards** The 2005 Peatland surveys initiated by the National Monuments Service would have led to the discovery of any potential features within the peat. This control measure allowed for the investigation of features within the bog. **2011 onwards** The 2011 Code of Practice (Appendix 13-1) also saw the introduction of agreed principles between the National Monuments Service, the National Museum and Bord na Mona. The control measures from 2011 onwards were as follows: 1. *The Minister for Arts, Heritage and the Gaeltacht has a responsibility to protect the archaeological heritage and to exercise powers of preservation, under the National Monuments Acts 1930-2004, taking account of the European Convention on the Protection of the Archaeological Heritage (Valletta).*	Minimisation/prevention of subsurface archaeological destruction, loss or interference through drainage and extraction operations and/or failure to recognise/report finds.

			2. *The Minister's statutory responsibilities include the maintenance of the Record of Monuments and Places, with the aim of providing protection to all known archaeological monuments including those uncovered in Bord na Móna bogs.* 3. *The Director of the National Museum of Ireland has a responsibility to enforce state ownership of all archaeological objects and to safeguard the treatment of all archaeological objects before their accession into the State's repository, under National Monuments Acts 1930-2004 and the National Cultural Institutions Act 1997, taking account of the European Convention on the Protection of the Archaeological Heritage (Valletta)* 4. *Bord na Móna plc is a company with a statutory mandate, under the Turf Development Acts 1946-1998, to develop the national peat resource.* 5. *The development of peatlands has considerable archaeological implications which must be addressed given that the archaeological heritage is a non-renewable resource.* 6. *Bord na Móna has a statutory duty under the Turf Development Act 1998 (section 56) to afford appropriate protection for the environment and the archaeological heritage.* 7. *Bord na Móna will finance a balanced and cost effective approach to archaeological investigation, excavation, postexcavation and mitigation on the basis of the developer pays principle and in keeping with the Minister's stated policy in this regard.* 8. *Bord na Móna will engage a Project Archaeologist to develop archaeological strategy and to oversee the smooth running of the archaeological response to peat extraction in Bord na Móna bogs.* 9. *The adoption of a partnership approach between the Minister, the Director and Bord na Móna in pursuit of the delivery of Government policy taking account of the implications for archaeology. To this end the Archaeology Management Liaison Committee has been set up consisting of representatives of the Department of Arts, Heritage and the Gaeltacht, the National Museum of Ireland and Bord na Móna, including the Project Archaeologist and Consultant Archaeologists working on Bord na Móna peatlands. The Committee will meet regularly to agree overall strategies in relation to the mitigation of peat extraction.* 10. *Appropriate strategies will be developed by the Archaeology Management Liaison Committee to minimise direct impacts on archaeology taking account of Bord na Móna's contractual obligations, annual production plans, design and safety implications, environmental and other impacts and costs.*	

			11. *All parties agree that mitigatory planning at the earliest opportunity minimises the impact on the archaeological heritage.* 12. *Bord na Móna will strive, as far as is reasonably possible, within its statutory remit, to avoid negative impacts on archaeological monuments. In cases where it is not possible to avoid impacting on monuments Bord na Móna, the Minister and the Director will cooperate to ensure, as far as possible, that appropriate archaeological mitigation is carried out in advance of peat extraction.* 13. *Prospecting for archaeological monuments, archaeological objects and other such remains, other than in circumstances approved by the Minister, in consultation with the Director, is limited to the confines of the area under peat extraction.* 14. *All parties are committed to dealing with the archaeological implications of peat extraction in a balanced and cost effective manner consistent with* i. *Observing Bord na Móna's requirement to extract peat on an extensive scale* ii. *Annual production targets in relevant bogs* iii. *A level of excavation, post-excavation and recording of archaeological monuments and archaeological objects, impacted upon by peat extraction, that is acceptable to the Minister, having consulted with the Director, and preservation in-situ of monuments in those particular circumstances where required by the Minister and which would be reasonable in practice.* 15. *Each party reserves the right to review decisions.* 16. *All parties agree that the Archaeology Management Liaison Committee will monitor the operation of this Code of Practice and carry out a formal review within three years of its adoption and at agreed intervals thereafter*	

Current Phase (June 2020 to Present Day)				
Control Measures 2000 to Present-Day (Post IPC Licence) as above and as per Section 4.7 in Chapter 4 of the rEIAR have been and are currently implemented during the Current Phase. Please refer to Sectio above for Control Measures 2000 to Present Day (Post IPC Licence)				
Decommissioning Process and Peatland Climate Action Scheme				
Discipline	**Location in rEIAR**	**Receptor**	**Control Measure**	**Impact**
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapter 4 Appendix 4-1 IPC Licence 501-01 Appendix 4-2: Cutaway Bog Decommissioning and Rehabilitation Plan	Bog habitats, aquatic habitats, mammals, bird species, surface and groundwaters Residential receptors	**Condition 10. Decommissioning** *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.*	Containment of dust, surface and groundwater emissions, Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts and human health impacts by fire, dust and pollutant release to air Containment/minimisation of health

				impacts by noise and vibration emissions.
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection**	Chapter 4 Appendix 4-2: Cutaway Bog Decommissioning and Rehabilitation Plan	Bog habitats, aquatic habitats, mammals, bird species, surface and groundwaters Residential receptors	**Peatland Climate Action Scheme (PCAS)** The Peatland Climate Action Scheme (PCAS) is a programme of enhanced peatland rehabilitation measures with the primary aim of optimising climate action benefits of rewetting former industrial peat extraction areas by creating soggy peatland conditions that will allow compatible peatland habitats to redevelop. These measures are separate to those defined by the IPC Licence. This scheme is in addition to the IPC licence requirements and therefore does not form part of this Substitute Consent application and is being applied at specific locations across the Bord na Móna landbank that are identified as suitable for the prescribed enhancement measures e.g., bogs such as Carranstown East, Lisclogher West and Bracklin West where PCAS is currently underway. The scope of proposed rehabilitation measures, including control/mitigation measures for the three bogs that are currently active under the PCAS programme include the following, which is directly taken from Section 8 of each relevant Bog report included in Appendix 4-2 Cutaway Bog and Decommissioning and Rehabilitation Plan.	Containment of dust, surface and groundwater emissions, Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts and human health impacts by fire, dust and pollutant release to air Containment/minimisation of health impacts by noise and vibration emissions.

Remedial Phase-				
Discipline	**Location in rEIAR**	**Receptor**	**Mitigation Measure**	**Impact**
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection** **Noise and Vibration emissions**	Chapter 4 Appendix 4-1 IPC Licence 501-01 Appendix 4-2: Cutaway Bog Decommissioning and Rehabilitation Plan Bord na Móna Code of Practice	Bog habitats, aquatic habitats, mammals, bird species, surface and groundwaters Residential receptors	**Condition 10 Cutaway Bog Rehabilitation** *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.*	Environmental stabilisation raised bog restoration, and the development of active raised bog, where possible. Enhance the ecosystem services of application in particular, optimising climate action benefits.

			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. *Reason: To make provision for the proper closure of the activity ensuring protection of the environment.*	
Emissions Control (dust, noise, water, silt run off) **Fire Prevention** **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection** **Noise and Vibration emissions**	Chapter 4-15 Appendix 4-1 IPC Licence 501-01 Appendix 4-2: Cutaway Bog Decommissioning and Rehabilitation Plan Bord na Móna Code of Practice	Bog habitats, aquatic habitats, mammals, bird species, surface and groundwaters Residential receptors	Continuation of all IPC Licence compliance measures from 2000 onwards detailed above, where applicable	Environmental stabilisation raised bog restoration, and the development of active raised bog, where possible. Enhance the ecosystem services of application in particular, optimising climate action benefits.
Emissions Control (dust, noise, water, silt run off)	Chapter 4-15	Bog habitats, aquatic habitats, mammals, bird species,	The Applicant has committed to continuing compliance with conditions outlined in the IPC Licence during the Remedial Phase, where applicable. Below is a summary of the specific mitigation measures proposed for the Remedial Phase beyond that of compliance with the IPC Licence.	Containment of dust, surface and groundwater emissions,

Fire Prevention **Health and Safety** **Terrestrial Habitat protection** **Aquatic habitat protection** **Noise and Vibration emissions** **Traffic and Transport**	Appendix 4-1 IPC Licence 501-01 Appendix 4-2: Cutaway Bog Decommissioning and Rehabilitation Plan Bord na Móna Code of Practice	surface and groundwaters Residential receptors	**Biodiversity** › Bog restoration/rehabilitation measures will be restricted to within the footprint of the proposed rehabilitation area as outlined in the rehabilitation plans. › Measures will be carried out using a suitably sized machine and, in all circumstances, excavation depths and volumes will be minimised where possible. See mitigation measures for Chapter 7 Land Soils and Geology and Chapter 8 Hydrology below **Land, Soils & Geology** The following environmental control measures will be implemented during the Remedial Phase in order to mitigate against leaks and spills: › All peat harvesting machinery were stored at the Ballivor Works at the end of each workday. › All machinery were regularly inspected, serviced. › All machinery was regularly cleaned via power steam wash system at a wash bay and drained into an interceptor tank and associated gravel soak pit. The interceptor unit facilitated the removal of any floatable oil/grease components. › A self-contained machine parts washer was located at the Workshop. › All refuelling and vehicles maintenance was undertaken at the Ballivor Works depot. › If on-site refuelling was required it was done so with a mobile fuelling unit. › In the event of a spill, the General Manager was immediately informed of the incident. ○ The spill was assessed by the General Manager for potential risk to the health and safety of employees and the potential environmental consequences. ○ A spill would be sourced, isolated and contained with polystyrene booms or dry peat (moisture content of 10%). ○ All effort should be made to prevent the spill from entering a storm drain or nearest outfall. ○ Once the spill has been contained, a suitable absorbent (dry peat) is to be used to soak the spillage.	traffic disruption/soiled roads, silt run off Minimisation of fuel leak/groundwater contamination Prevention/minimisation of environmental impacts by dust and pollutant release to air Prevention/minimisation of environmental impacts dust and pollutant release to surface waters Prevention/minimisation of impacts to human health

			○ All possible ignition sources such as electoral equipment, naked lights, machinery should be removed from the area. Any combustibles in the spill area should be removed. ○ Follow up action measures taken must include the implementation of appropriate remedial work to prevent such a spillage recurring in the future. ○ In the event of a significant spillage, the General Manager must notify the local authority. › All waste oil and break fluids drained from machinery were collected in drums and emptied into a waste oil storage tank which were transported off-site by a licenced disposal contractor. › All used oil and fuel filters and used batteries were collected by licenced disposal and battery collection contractors respectively. › All washing from the self-contained machine parts washer was collected within a sludge tank at the Ballivor Works.. **Hydrology & Hydrogeology** *Surface Water Quality* The existing drainage systems and silt control measures, which have proven effect, will continue to operate during the early stages of the Cutaway Bog Decommissioning and Rehabilitation Plans when there is the potential for the entrainment of suspended solids in surface waters during drain blocking. During this time no remedial works will be completed during periods of prolonged rainfall. Silt ponds will continue to be in use and will be regularly inspected and maintained as per IPC licence requirements. All onsite activities will be completed in accordance with 'best practice' procedures. Following implementation of the rehabilitation measures a programme of aftercare and maintenance, designed in accorded to meet the Conditions of the IPC Licence, will be completed at the Application Site. This will comprise of initial quarterly monitoring, with the number of site visits reducing after 2 years to bi-annually and then after 5 years to annual visits. A water quality monitoring program will be established to monitor the impact of rehabilitation on water quality discharge from the bog. The monitoring results will be reported on each year to the EPA with the parameters to be included as	by personal injury Prevention/mini misation of impacts to human health from dust and air pollutant emissions Prevention/mini misation of environmental impacts and human health impacts by fire, dust and pollutant release to air

			follows: monthly monitoring for pH, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD and DOC. *Fertiliser Application* The Carranstown Bog – Cutaway Bog Decommissioning and Rehabilitation Plan (2022) includes mitigation measures for the application of fertiliser which are summarised below: › Fertiliser will not be applied on land which is waterlogged, flooded, likely to flood, frozen or covered with snow; › No fertiliser will be applied when heavy rain is forecast within the succeeding 48 hours; › No fertiliser will be applied on steeply sloping ground or where there is a rick of water pollution (i.e. the presence of drains); and, › No fertiliser will be spread on land within 2m of a surface watercourse. › Buffer zones, in accordance with EPA guidelines (www.epa.ie), will be utilised and adhered to in respect of waterbodies during fertiliser application. *Groundwater Quality* The following environmental control measures will be implemented during the remedial measures phase in order to mitigate against leaks and spills: › All machinery will be regularly checked and maintained prior to arrival at the site; › Fuelling and lubrication of equipment will only be completed in designated areas and away from surface water features; › Vehicles will never be left unattended during refuelling; › All refuelling will occur in mobile fuel bowsers; › Only dedicated, trained and competent personnel will complete refuelling operations; › Fuel bowsers will be bunded to 100% capacity to prevent any spills; › Storage tanks for bowsers and generators will be double-skinned; › Waste oils and fluids will be collected in leak proof containers and removed from the site for disposal;	

			• Spill kits will be kept on site; and, • All activities will be completed in accordance with current 'best practice' procedures. **Noise & Vibration** • 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 Application 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 Remedial Phase activities will be restricted to daylight hours and there will be no requirement for artificial lighting. **Cultural Heritage** • Since peat activities associated with the Applicant fall under the 2012 Archaeological Code of Practice, any potential effects may be dealt with in the same way as past peat extraction activities and all ancillary works, through the implementation of mitigation measures detailed in the 2012 Code of Practice. **Material Assets** • All HGVs used on site will undergo regular inspection and maintenance checks. • All HGVs used on site will undergo wheel washing prior to crossing the local road network to access other bogs or return to the Ballivor Works for storage. • Only HGV licence holders operated the HGVs and will undergo regular re-training on HGV safety operations and vehicle maintenance. • Refuelling of all HGV vehicles was undertaken at the Ballivor Works only. • Machinery crossing points on local roads between bogs were cleaned down at the end of each working day • Car sharing by personnel and bike to work schemes will be encouraged. As part of Bord na Móna's vision for a climate neutral Ireland by 2050, the applicant encourages and promotes car sharing and cycle to work schemes where possible for its personnel	

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