



ENVIRONMENTAL BALANCE IN DESIGN AND CONSTRUCTION

BORD NA MÓNA PLC

ENVIRONMENTAL IMPACT STATEMENT FOR A PROPOSED MATERIALS RECYCLING & WASTE TRANSFER FACILITY AT DRUMMAN, CO. OFFALY

VOLUME 1 OF 3 - NON TECHNICAL SUMMARY
FEBRUARY 2010

BORD NA MÓNA 
PLC

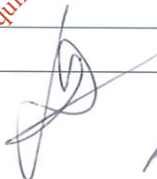



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Abstract: This document forms the non technical summary of the environmental impact statement prepared on behalf of Bord na Móna PLC in support of a planning application to Offaly County Council and a waste licence application to the Environmental Protection Agency for a 99,000 tonnes per annum materials recycling & waste transfer facility at Drumman in the townland of Derrygreenagh, Co Offaly.

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PREAMBLE

A material recycling & waste transfer facility is proposed for development at Drumman, Co. Offaly. The site is located adjacent to the existing Bord na Móna Derrygreenagh Works on the R400 Rochfortbridge to Rhode road, approximately 2 kilometres south of Junction 3 on the M6 motorway.

The proposed development will consist of a waste reception and processing building and a bale storage building. Access to the site will be via a double weighbridge system and a staff accommodation and office building will also be constructed. A marshalling yard will be located to the front and rear of the waste reception and processing building with dedicated areas for skip, container and trailer storage and parking.

The proposed facility will accept 99,000 tonnes per annum of mixed dry recyclables, mixed municipal wastes, construction and demolition (C&D) wastes, commercial and industrial (C&I) wastes and brown bin organic wastes. The proposed development will be operated by AES Ireland Ltd, the waste management company wholly owned by Bord na Móna PLC.

The proposed site lies within an area of cutaway peat bog from which peat abstraction is no longer feasible. The site in question is part of the Derrygreenagh group of bogs which is licenced under an IPPC licence (P0501-01) for peat extraction. An area of approximately 21 ha has been identified as suitable for the development with the facility footprint occupying approximately 3.22 ha within the wider 21 ha.

At the time of preparation of this environmental impact statement (EIS), the Derrygreenagh Works site located adjacent to the proposed facility site is subject to a planning application to An Bord Pleanála (ABP) for the development of a gas fired power station under the Strategic Infrastructure Development process. This application is currently being considered by ABP.

This environmental impact statement is submitted in accordance with the Planning and Development Acts 2000 – 2006. This EIS is prepared with regard to the following guidelines:

- Guidelines on the information to be contained in Environmental Impact Statements, (EPA, 2002)
- Advice notes on Current Practice (in the preparation of Environmental Impact Statements) (EPA, 2003)
- 'Geology in Environmental Impact Statements – A Guide', (Institute of Geologists of Ireland, 2002)

This document has been structured according to the grouped format structure, and comprises three volumes:

- Volume 1:** Non Technical Summary
- Volume 2:** Main Report
- Volume 3:** Appendices

1. INTRODUCTION

1.1 The Applicant

Bord na Móna (BnM) was created in 1946 with its primary function being the governance and development of the state peat resources. It continues in that function today but, given the finite nature of peat resources, has sought to diversify into other sectors in recent years, including electricity generation (renewable and fossil), resource recovery and waste management, horticulture, water treatment systems, clean air solutions and environmental consultancy.

In May 2007, Bord na Móna PLC acquired Advanced Environmental Solution (AES) Ireland Ltd., one of Ireland's leading waste management companies servicing 5,000 commercial customers and 60,000 domestic customers. The acquisition was a key part of the Bord na Móna PLC's diversification strategy and one which tied in perfectly with the existing Bord na Móna areas of operation.

AES Ireland Ltd. currently operates a network of recycling & transfer facilities throughout Leinster and further afield. These facilities are located in Navan, Co. Meath, Tullamore, Co. Offaly, Portlaoise, Co. Laois, Nenagh, Co. Tipperary and Rosslare, Co. Wexford.

AES Ireland Ltd. predominantly operates in the midland and wider Leinster areas and also within southern and eastern parts of Connacht and the north Munster area. The policy of the company is to manage waste in a manner which maximises the reuse and recycling of materials while minimising the volume sent to landfill; this is achieved by utilising the most modern technologies, ensuring regulatory compliance and working in partnership with customers and organizations at international, regional and local levels.

These policies are echoed in the sustainability objectives of Bord na Móna PLC with a key corporate sustainability objective being identified as the desire to become Ireland's leading organic waste/resource recovery company. The development of the proposed facility at Drumman, Co. Offaly is seen to reflect this objective by the provision of the necessary infrastructure to support the ongoing operation and expansion of AES Ireland Ltd.

1.2 The Consultant

The EIS has been prepared by FTC, an engineering and environmental science consultancy based in Cork and Dublin. Other specialist contributors were:

- Roadplan – *Road Safety Audit*
- Southern Scientific Services Ltd. – *Baseline Environmental Monitoring Analysis*
- Alcontrol Laboratories – *Baseline Dust Monitoring Analysis*

1.3 EIS Structure

Using the grouped format structure, this EIS covers the following topics:

- Introduction (including national & regional policy, the need for the development and the scoping and consultation processes)
- Description of the development
- The human environment (including socio-economic, noise, traffic and air & climate)
- Geology and hydrogeology
- Hydrology and water quality
- Flora and fauna
- Landscape and visual impacts
- Archaeology and cultural heritage
- The development and its impacts in context

Each section refers to the relevant topic by reference to the existing environment, impacts of the proposed development, and appropriate mitigation measures.

1.4 National and Regional Policy

European legislation and national and regional policy with relevance to the provision of waste management infrastructure in Ireland and with relevance to the proposed development includes;

European and National Legislation and Policy

- Council Directive 1999/31/EC on the Landfilling of Waste
- Council Directive 1994/62/EC on Packaging and Packaging Waste
- Council Directive 2008/98/EC on waste (and repealing certain Directives)
- Waste Management: Changing Our Ways
- Preventing and Recycling Waste – Delivering Change – a Policy Statement
- The National Strategy on Biodegradable Waste
- National Spatial Strategy
- The National Development Plan 2007 – 2013

Regional Policy

- Waste Management Plan for the Midland Region 2005 – 2010
- Offaly County Development Plan 2009 - 2015

It is considered that the proposed development at Drumman is in compliance with the objectives of the policy documents listed above.

1.5 The Need for the Development

It is envisaged that the proposed development at Drumman will supplant the activities of the existing AES Ireland Ltd. facility at Cappancur, Tullamore with the Drumman facility becoming the central hub for the processing of mixed dry recyclables (MDR) materials collected by AES Ireland Ltd. The development of the Drumman facility is a key strategic move for AES Ireland Ltd. through the provision of increased MDR processing capacity. Driven by the objectives of the wider Bord na Móna PLC Group, AES Ireland Ltd., as a leading national waste management company, is well placed to increase its market share and the development of the Drumman facility will provide the necessary infrastructural support for this objective.

In addition, the capacity of the existing Tullamore facility is limited due to a small facility footprint which was recently reduced further as part of a compulsory purchase order associated with the N52 Tullamore bypass development. Approximately 25,000 tonnes per annum of MDR material is processed at the Tullamore facility while the proposed Drumman facility will have the capacity to process 50,000 tonnes of MDR material. As a site to facilitate the anticipated increased MDR processing requirements, it is considered that the Tullamore facility will not be suitable.

The development of the Drumman facility will provide AES Ireland Ltd. with a centre of excellence for MDR processing. In addition, Bord na Móna PLC is developing a centralised biological treatment facility at its Drehid waste management facility in Kildare. Source separated organic material bulked up at the Drumman facility will be transported to this treatment facility for the production of compost. This demonstrates the inter relationship between the strategically located central processing sites operated by Bord na Móna PLC/AES Ireland Ltd. i.e. centralised MDR processing at Drumman and centralised biological treatment and landfill disposal at Drehid supported by a networks of transfer stations. The Drumman facility will be a key component of the fully integrated waste management service provided by AES Ireland Ltd.

The need for this proposed development is driven by the strategic objectives of AES Ireland Ltd. As a major provider of waste management services in the midland region, the development objectives of AES (Ireland) Ltd. are consistent and in conjunction with the requirements of the waste management plan for the midland region.

1.6 Pre-submission Scoping Consultation

A number of statutory and non-governmental bodies were consulted during the preparation of this EIS, including Offaly County Council and the Environmental Protection Agency. Letters were also sent to 41 statutory bodies, non-government organisations and public representatives to inform them of the proposal. A number of submissions were received in relation to the proposed development. The issues raised have been addressed, where practicable, in the relevant sections of the main volume of this EIS.

1.7 Cumulative Assessment

The Derrygreenagh Works site, directly adjacent to the proposed Drumman location, is subject to an application to An Bord Pleanála for the development of a gas fired power plant. Particular sections of the EIS address certain cumulative aspects of both the proposed materials recycling & waste transfer facility and the proposed power plant in order to accurately assess the potential combined environmental impacts in the event of both developments proceeding. The cumulatively assessed sections are in relation to noise, roads, traffic & transportation, hydrology and water quality, landscape impacts & visual assessment and the development and its impact in context.

1.8 Alternatives

Alternatives in relation to the Drumman project are considered in terms of site location, alternative locations within the available land area, alternative processes at the preferred site and a 'do-nothing' alternative.

A site selection process was undertaken that considered a range of potential sites under the control of Bord na Móna PLC with the Drumman site being identified as the preferred site.

The Drumman site presents a large area for the location of the proposed facility within its footprint. The Seveso classification of the proposed adjacent power plant and results from preliminary site investigations were factors considered in the chosen location for the siting of the materials recovery and waste transfer facility within the wider Drumman site.

Consideration was given to the development of alternative waste management processes at the Drumman site including landfill development, energy from waste development and biological treatment development. The development of material recycling and waste transfer infrastructure was identified as being more in keeping with the infrastructural requirements of AES Ireland Ltd.

2. DESCRIPTION OF THE DEVELOPMENT

2.1 Existing Site

The proposed site for the development of the facility is at Drumman, in the townland of Derrygreenagh, approximately 7 kilometres to the north west of the village of Rhode, Co. Offaly and 3 kilometres to the south east of Rochfortbridge village in Co. Westmeath.

Derryarkin Sand and Gravel Ltd. operates approximately 500 metres to the south west of the site and periodically at a location approximately 2.5 km to the northeast of the proposed facility. A commercial piggery is located approximately 2 kilometres to the south of the site. Two residential dwellings are located 1.5 kilometres to the north west of the site with two further dwellings located 1.5 kilometres to the south east.

The site is located within an area of cutaway bog which is part of the Derrygreenagh Group of bogs. Extraction of peat is no longer feasible at the proposed location as the peat resource is exhausted.

An existing entrance provides access to the site and a gravel based haul road extends parallel to the location and follows the course of the Mongagh River in a north easterly direction further into the network of the Derrygreenagh group of bogs.

A substantial treeline runs along the southern boundary of the proposed site location adjacent to the R400 road. This treeline is broken at the entrance to the site but runs the full extent of the southern perimeter, both east and west of the entrance.

2.1.1 Proposed Adjacent Development

The Derrygreenagh Works is located directly to the east of the proposed site. This site is subject to a separate application to An Bord Pleanála (ABP) for the development of a gas fired power plant under the Strategic Infrastructure Development (SID) Act application process. This application is under consideration by ABP.

The proposed power plant will consist of two generating units at the Derrygreenagh site; a flexible combined cycle gas turbine unit (CCGT) of c. 430 MW and a reserve/peaking open cycle gas turbine unit (OCGT) of c. 170 MW.

2.2 Proposed Development

The proposed development of a material recycling & waste transfer facility at Drumman will consist of the following elements:

2.2.1 Administration and welfare building

The administration building & welfare building will be a two storey construction used to provide welfare facilities for the site operatives and an administration centre for the site operations. The first floor is provided within the roof area. The total floor area of the building will be 430m² on a footprint of 352.5m².

2.2.2 Waste reception and processing building

The Waste reception & processing building is a single storey construction with internal floor area of 6,810m² approximately. It is subdivided internally by reinforced concrete walls and cladding partitions. The subdivided areas are the materials recovery area (4,674 m² approx), the waste transfer area (1,583 m²) and the biowaste reception and processing area (552 m²).

2.2.3 Bale storage building

The Bale Storage Building will be a single storey construction with internal floor area of 978 m² approximately. It will be subdivided internally by reinforced concrete walls used to support the stored bales. The building is open on one side which allows free access to fork lifts moving processed waste from the waste reception and process building. A 2.7 m canopy will shield the open side of the building. Lorries moving the bales off site will be loaded within the building.

2.2.4 Dual weighbridge system

A dual weighbridge system is proposed for the facility. The weighbridges are likely to be surface or pit mounted platforms consisting of a steel frame and reinforced concrete infill such that they will be fully compliant with European regulations and legal metrology.

2.2.5 Foul and surface water infrastructure

Surface water run-off from the hardstanding areas and buildings will be collected within the drainage channels that are located at various locations across the site. Surface water will be discharged via an interceptor to an attenuation pond prior to discharge to the Mongagh River.

Foul water generated from welfare facilities and intermittent washdown in the waste reception and processing building will be directed to and treated on-site using a proprietary package wastewater treatment plant, such as Bord na Móna Puralfo unit. Effluent from this unit will be discharged to the Mongagh River.

2.2.6 Site boundary fencing, hardstanding areas and other ancillary infrastructure

The site will be bound in its entirety by 2.5 m palisade fencing along each boundary. Access to the site outside of operational hours will be restricted by the main entrance gate and the facility entrance gate. The site will be finished with a hardstanding area that consists of a 200 mm reinforced steel concrete slab. Internal traffic will be directed along marked portions of the hardstanding. There will be 63 no. parking spaces for visitors and staff. A proprietary biofiltration system will be installed onsite and air extracted from the waste reception and processing building will pass through a dust filtration system prior to venting to atmosphere.

2.3 Project Construction, Decommissioning & Health and Safety

It is estimated that the project will take 9-12 months to complete.

The main elements of construction are identified as:

- Site clearance and excavation of peat material
- Filling of site to proposed elevation with a suitable fill material (typically a granular material to approved specification)
- Installation of drainage networks and construction of attenuation pond
- Installation of site fencing/installing lamp standards for site lighting
- Construction of building foundations for all buildings
- Preparation of hardstanding and road sub bases
- Filling of buildings sub base to underside of floor level
- Erection of structural steelwork/blockwork for all buildings
- Cladding of buildings/roofing and plastering of Administration building
- Pouring of internal floors and subdividing walls and installation of road kerbs etc.
- Finishing of internal roads and hardstandings (concrete and asphalt)
- Installation of electrical/mechanical equipment and roller shutter doors
- Site clean up and commissioning

All wastes generated during construction will be collected at the end of the construction phase, taken off site, and reused, recycled and disposed of according to best practice in an authorised facility. Construction work will generally be carried out during daylight hours.

The construction will lead to construction-related traffic on the roads in the proximity of the development. A detailed Traffic Management Plan will be prepared prior to the commencement of the construction work. This will be drawn up in consultation with Offaly County Council. Written procedures will also be put in place to deal with refuelling machinery in line with best practice.

It is likely that a temporary construction site compound will be required for the duration of the project. It will consist of a hardcored area surrounded by secure fencing, comprising site office, canteen, toilet facilities, storeroom, and staff parking areas. Fuel/oil storage areas will be bunded in accordance with best practice.

A Construction Environmental Management Plan will be created. This plan will include, as a minimum, the means by which the contractor will address the control of potential emissions to air, ground and/or surface waters.

The facility will be designed, constructed and operated in accordance with the:

- Safety, Health & Welfare at Work (Construction) Regulations 2006
- Safety, Health & Welfare at Work Act 2005
- Safety, Health & Welfare at Work (General Application) Regulations 2007
- Best practice guidelines

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3. THE MAIN IMPACTS OF THE DEVELOPMENT AND THEIR MITIGATION

The main potential impacts of the development of the proposed materials recycling & waste transfer facility are outlined in the following section.

3.1 Impacts on the Human Environment

3.1.1 Socio-economic Impacts

The proposed site is located within the Derrygreenagh group of bogs. Land use beyond the Derrygreenagh group of bogs is predominantly agricultural in nature. The Derryarkin Sand and Gravel Ltd. quarry is located approximately 500 m to the south west of the site and periodically at a location approximately 2.5 km to the north of the proposed facility. A commercial piggery is located approximately 2 km to the south of the site. Two residential dwellings are located 1.5 km to the north west of the site with two further dwellings located 1.5 km to the south east.

Socio-economic impacts from the proposed development will be observed during the construction phase where construction workers may utilise the services offered in nearby Rochfortbridge. Employment will be provided during both the construction and operational phases of the development and the ongoing operations at the site will create a need for local goods and services.

3.1.2 Noise Impacts

Baseline noise monitoring was carried out at the site and at potential noise sensitive receptors in the vicinity of the proposed development during daytime and night-time hours. Results indicate that noise in the area is dominated by the sound of traffic movements (including heavy goods vehicles) on the R400 road route and influenced by distant traffic movement sounds on the M6 motorway north of the monitoring locations.

It was concluded that the development of the proposed facility, either alone or considered cumulatively with the proposed power plant, will not have a significant impact on the existing noise environment. A full assessment of the baseline noise conditions was carried out. The existing noise in the region is typical of a rural environment, with locations close to roads showing higher noise due to the influence of traffic.

During the construction phase there may be short-term, temporary noise level increases. To mitigate the impacts of construction noise the site will implement a noise management plan for the duration of construction. Construction working hours will be limited to daytime during weekdays and Saturdays.

Operational phase noise levels will consist of static equipment related noise, vehicle noise and mobile plant related noise. The impacts are largely imperceptible and predicted noise levels from the site are within the EPA guidelines for both daytime and night-time activities. The noise associated with the increased heavy goods vehicles and traffic associated with the site will be imperceptible in the context of the exiting traffic levels on the road.

3.1.3 Roads, Traffic & Transportation Impacts

The site is located on the R400 between Rhode and Rochfortbridge, with a grade separated junction between the M6 and the R400 located approximately 2 km to the north west of the site. From Rhode to the development site entrance at Drumman, the R400 is rural in character with average widths of approximately 7 m.

Vehicles transporting waste to and from the proposed facility, other than refuse collection vehicles in the locality of the proposed facility, shall access the proposed development from the M6. It is also not considered that the impact of the proposed power plant development, throughout both the construction and operational phases, and considered with the potential overlap of the construction and operational phases of the proposed material recycling & waste transfer facility, will inhibit either through traffic or local traffic, from a capacity point of view.

It is expected that 255 daily vehicles movements will occur as a result of the proposed development which represents an 11.6% increase in two way traffic flow on the R400. Junction capacity assessments have shown that all relevant junctions will operate within their capacity in existing and future year scenarios.

3.1.4 Impacts on Air & Climate

It is not envisaged that the proposed development will have a significant impact on local air or climatic conditions. While there is potential for dust generation in both the construction and operational phases of the development, the site will be managed to ensure that emissions will not cause a nuisance. In addition, the operation of the facility under negative air pressure and the passing of air through a dust filtration system will ensure the minimisation of potential dust emissions from site operation. Regular monitoring of dust emissions will be carried out in accordance with the waste licence for the facility.

The potential for the generation of odour from the brown bin material accepted at the facility will be mitigated by the treatment of this air stream using a biofiltration system.

3.1.5 Conclusion

The potential impacts on the socio-economic environment of the proposed facility location are not expected to be significant. Positive impact will be seen in term of the provision of employment in the area and demand for goods and services. Impacts from noise will be minimal while operational measures will mitigate against any potential impact on the air quality in the area. While an increase in traffic will result from the construction and operation of the facility, impacts will not be significant.

3.2 **Impacts on Geology, Hydrology & Hydrogeology**

3.2.1 Existing Geology & Hydrogeology

Overburden Geology

The overburden geology of the site was determined by means of preliminary site investigations undertaken in December 2009 by FTC. The main soil associations in northern Offaly belong to the 'Flat to Undulating Lowland' broad physiographic division. The main Quaternary sediments identified in this area of Offaly are cutover basin peat deposits. Fieldwork confirmed the presence of peat at all areas of the site to depths of up to 3 m. The average depth of peat encountered was about 1.3 m, possibly as a result of peat harvesting over the site. The peat encountered within the trial pits typically comprised brown, wet, cohesive to fibrous peat.

Immediately underlying the peat layer is generally grey silty, sandy, cobbly gravel, which grades in places to soft, sandy, gravelly silt, particularly towards the north east part of the site. This granular soil has a thickness of at least 3 m over the majority of the site.

Bedrock Geology

The 1:100,000 scale bedrock geology maps for the region show that Lower Carboniferous (Upper Dinantian) rock underlies the site. The rock comprises Lucan Formation dark impure (muddy) limestone and shale usually referred to as 'Calp'.

Hydrogeology

The hydrogeological characteristics of the region are strongly influenced by the underlying rock type. The Lucan Formation underlying the site is part of the 'Carboniferous Limestone lowlands' which represents one of the six main hydrogeological units within the Offaly-Galway region. The Geological Survey of Ireland (GSI) classifies the Lucan Formation as a 'Locally Important Aquifer (LI) which is considered to be moderately productive only in localised zones.

Groundwater vulnerability is classified as being 'moderate' for the site based on the information available on the overburden. Based on the findings from the trial pit excavations and probes, the assessed vulnerability for the site is high, based on the thickness and permeability of the strata estimated from the fieldwork. The resource protection zone associated with the aquifer class and vulnerability is therefore classified as LI/H (Locally Important aquifer with High vulnerability).

Peat Stability

Based on fieldwork assessment and preliminary site investigations, it was determined that there are currently no peat stability issues or concerns on the site.

3.2.2 Potential Impacts

The following on-site activities have been identified as the causes of potential risks to the geology, hydrogeology & peat stability on the site:

- excavations
- access roads/car park construction
- foundation construction
- drainage
- peat excavation/reuse

Excavation of peat over the entire development area will occur during construction and granular fill will be imported from nearby quarries. This will have a permanent impact on the source quarries or borrow pits. It is possible that deep piled foundations may be required at some locations which would involve less soil excavation. In addition, bored piles, if utilised, would also require disposal of soil and possibly some bedrock.

It is proposed to construct a landscaped berm of excavated peat of maximum height 1 m over an area of approximately 18,900 m² (adopting 1:4 side slopes). The potential environmental impact of the use of peat berms is primarily related to the risk of oxidation of the peat and the release of sediment into surface waters. Removal of peat and subsoils can also result in exposure of the underlying rock to sources of contamination.

The formation of new site roads and drains will involve removal of linear areas of the peat and blocking or removal of existing drains. The excavation of peat and subsoils is a permanent impact that, without mitigation, could alter the existing hydrogeological balance of the site. Excavation below the water table could be required where pad or strip foundations are constructed. In this case, temporary dewatering or lowering of the water table could be required in the form of sheet piling, sump pumping, or possibly well pointing in extreme cases. After excavation, the water table adjacent to the excavations will return to its former level, although piled foundations extending below the water table will have some effect on the wider aquifer flow patterns within the overburden. The magnitude of this impact will depend on the size and density distribution of the piles installed. Given the moderately high permeability of the overburden, the effect is considered to be a minor, permanent impact.

The potential impact of the works on existing slopes and the potential for peat failure has been considered. Due to the relatively flat and low-lying nature of the topography, and the moderately thin cover of peat on the site, the risk of instability and peat failure at the site is considered to be low.

3.2.3 Mitigation Measures

To minimise the transportation of granular fill for access track construction, it is proposed to re-use excavated sand and gravel from within the adjacent sand and gravel quarries. To minimise the volume of imported aggregate, site-won aggregate will be re-used wherever possible.

If piles are required, precast driven piles would be preferred in granular strata and these tend to increase the density of the strata adjacent to the piles and hence would be unlikely to result in the creation of preferential pathways. The potential impact to the hydrogeology of the site caused by drawdown of the water table adjacent to roads has been minimised during preliminary design due to the choice of the construction area close to the existing access road.

The risk assessment for slope failure on the site is considered to be low and therefore no additional mitigation measures for slope failure are deemed necessary further to the best practice guidelines given below.

3.2.4 Conclusion

The potential impacts on the geology and hydrogeology of the site are considered to be minor and mainly short-term due to access road construction, foundation construction, excavations, drainage and dewatering measures. Although some long term impacts are likely to occur due to removal of soils and localised lowering of the water table and disruption of flow regimes, these are expected to be relatively insignificant given the scale of the development.

3.3 Impacts on Hydrology & Water Quality

3.3.1 Existing Hydrology and Water Quality

The Mongagh River bounds the site to the north at a distance of approximately 200m from the proposed site boundary. The Mongagh River flows in an easterly direction joining the Yellow River to the south of Castlejordan. The Yellow River continues in an easterly direction, flowing into the River Boyne to the north of Grange. The River Boyne flows in a north easterly direction passing through the towns of Trim, Navan and Drogheda before flowing out to the sea at Baltray. The River Boyne is in Hydrometric Area HA07, which is situated in the Eastern River Basin District (ERBD)

There are no protected sites, proposed Natural Heritage Areas (pNHAs), Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) within 5 km of the site. The national flood hazard mapping website does not indicate any history of flooding within 2.5 km of the proposed site to be developed at Drumman.

The proposed facility is located in the Eastern River Basin District (ERBD). There are 356 river water bodies in the ERBD comprising of the river catchments of the Boyne, the Liffey, the Avoca/Varty and the Nanny/Devlin. The facility is located close to the Mongagh River, which is a tributary of the River Boyne. The waterbodies within the ERBD are divided into 'water management units' (WMU). The Mongagh River is incorporated into the WMU entitled 'Boyne Upper WMU' via the water body 'YellowTRIB_Castlejordan'. Risk assessments within the ERBD indicate that the Mongagh River is 'at risk' of not achieving good status by 2015. The ERBD *River Basin Management Plan 2009-2015* currently classifies the 'YellowTRIB_Castlejordan' waterbody as having 'Poor Status' and the overall objective of the ERBD is to 'restore' the status of the river. The Boyne Upper WMU is not expected to achieve 'good status' until 2027 due to high levels of naturally occurring ammonia. Biological quality rating indicate that the Mongagh, at a monitoring station some 4 km from the proposed site, can be described as moderately polluted (Q3).

3.3.2 Potential Impacts

Potential impacts directly from the development of the facility may include increase in the volumes of surface water run-off, increase in suspended solids content of runoff, increase in hydrocarbon run off and the risk of pollution from accidental spills.

A flood risk assessment was carried out to examine the flood levels that could be expected in severe storm events in the Mongagh catchment i.e. in a 1 in 100 year flood event and a 1 in 1000 year flood event. The assessment took account of an increase in flows of 20 % to allow for climate change. The increased flow due to the development amounts to 1% and this could have the effect of increasing the river flows by 20 mm. Although this increase is considered to be of low significance, it is proposed to attenuate the flows running off the site to greenfield rates as it was determined that flooding would occur at a downstream structure in a 1 in 100 year flood event for existing flows.

The impact of the unattenuated run-off from neighbouring developments, together with the proposed development at Drumman is assessed in the flood risk assessment report. Only the cumulative impact from the proposed Derrygreenagh power station and the proposed facility at Drumman were considered. The M6 motorway drains to filter drains which detain the flows entering the receiving watercourses and there are no direct discharges from the Derryarkin Sand and Gravel site.

In the worst case scenario, a model of the cumulative impact of unattenuated drainage from the developments at the proposed Derrygreenagh power station and the proposed Drumman facility resulted in a flood level rise in a structure 2.5 km downstream of the Mongagh Bridge of 70 mm over the existing flood level. This is considered to be of low significance as the model does not take into account the available flood plain along the banks of the Mongagh River.

Wastewater will be produced on site from the welfare facilities (e.g. toilets, showers, canteen) and from washdown within the waste reception and processing building. The wastewater will be treated on site in a proprietary wastewater treatment plant (Puraflo of similar) and discharged to the Mongagh River. It is proposed that the effluent receive secondary treatment to a standard of 20:30 (BOD mg/l: Suspended Solids mg/l). The maximum flow to the onsite wastewater treatment plant and subsequently discharging to the Mongagh River is estimated as 9,000 l/day.

An assimilative capacity assessment of the receiving waters with respect to BOD and Orthophosphate has demonstrated that the Mongagh River is adequate to cater for the proposed discharge. The receiving waters have been found to contain elevated levels of naturally occurring ammonia. However, given the flows in the river and the associated dilution available, the proposed discharge will have a negligible effect on these concentrations.

3.3.3 Mitigation Measures

It is proposed to install an attenuation pond as a first element of construction of the proposed development. The attenuation pond will provide for the full attenuation of a 1 in 100 year event at the site in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) guidelines. Permeable paving will allow for some recharge into the groundwater on site with the most suitable area for permeable paving being the staff car park.

The contractor shall ensure that erosion control and attenuation facilities, namely sediment/silt-traps and ponds are regularly maintained during the construction phase. Any diesel or fuel oils stored on site will be banded to 110 % of the capacity of the storage tank.

A full retention petrol interceptor will be provided to remove hydrocarbons from the run-off coming from any areas at risk

The maintenance of the drainage system will include for the activities associated with keeping the system operating effectively such as inspecting manholes for blockages, inspecting outfalls to watercourses and testing water quality at outfalls.

3.3.4 Conclusion

The drainage layout incorporates mitigation measures for the attenuation of surface water flows from the development to greenfield (pre-development) rates. Assimilative capacity assessment of the Mongagh River indicates the suitability of the waterbody to receive treated effluent from the site with a negligible impact on existing chemical parameter levels in the river.

3.4 **Impacts on Flora & Fauna**

3.4.1 Existing Ecology

A total of four proposed Natural Heritage Areas (pNHAs), three designated NHAs and two Special Areas of Conservation (SACs) occur within 10 km of the site. The proposed development site does not lie within or adjacent to any site that has been designated for nature conservation. There are no designated sites within 5 km of the development site.

A total of three habitat types were identified within the Drumman site boundary. As per the Fossit classification, they are identified as Cutover Bog, Bog Woodland and Recolonising Bare Ground.

A total of 41 plant species were recorded during the field surveys. No rare or protected species of high conservation concern were recorded.

17 bird species were recorded on or within the vicinity of the site but a formal bird survey was not undertaken as field survey was not carried out during normal bird breeding season. The site in general has limited value for birds with the areas of bog woodland providing some nesting and feeding sites.

A total of three mammal species were recorded on, or in the vicinity of, the site during the site walkover i.e. Rabbit, Irish Hare and Fox. No evidence of Otter was found on the site or along the nearby Mongagh River. It is also highly unlikely that Badgers use the site due to the extensive water-logging on the site and limited availability of food.

A bat survey was not undertaken and no signs of bats were recorded during the site walkover. The wet habitats present on site do provide foraging habitats for bats but there is a lack of suitable roosting sites within the site.

Using the NRA (2006) guidelines for site evaluation, this site is given an E Rating – Low value, locally important. An E Rated site consists of artificial or highly modified habitats with low species diversity and low wildlife value.

3.4.2 Potential Impacts

Construction of the development will lead to some permanent loss of habitat and will involve the removal of the trees within a large area of the Bog Woodland habitat. Removal of areas of habitat will inevitably lead to removal of vegetation. The plant species that were recorded during the field surveys are all locally common and no rare or protected species of plant were noted.

The construction, operational and decommissioning phases of the project all give rise to potential impacts on the water quality of the Mongagh River through contamination by silts, suspended solids and other contaminants (e.g. fuels, oil).

Removal of areas of Bog woodland will lead to the loss of nesting and foraging habitat for birds and mammals. It is highly unlikely that there will be any residual long term impacts on the mammal communities occurring at the site.

The proposed development will have a permanent impact on a large part of the site. Therefore, using the NRA (2006) recommended criteria for assessing impact significance, the proposed development will have a Minor Negative impact.

3.4.3 Mitigation Measures

Where possible, the destruction or removal of any mature vegetative cover should be conducted outside of the avian breeding season (March-August). This will be offset against the benefits of conducting this work in months that are dry enough to allow movement of heavy machinery without excessive habitat damage.

Plans for the deposition of the peat spoil created during the construction of the facility are to be drawn in conjunction with a qualified ecologist. A pre-construction botanical and mammal survey is to be undertaken at an appropriate time of the year (May to July).

Good working practices will prevail throughout construction and operation of the development to prevent contamination of nearby watercourses, notably the Mongagh River with silt, fuels and other contaminants.

3.4.4 Conclusion

The area of the proposed development is not of conservation concern. Furthermore, there are no nearby designated sites. The habitats and flora found on the site are of low ecological value and much of the species diversity can be maintained by retaining a certain amount of existing vegetation within the wider Drumman site. With the careful application of the mitigation measures, there will be no significant impacts on the local surrounding flora and fauna community as a result of the proposed development.

3.5 Impacts on Landscape & Visual Assessment

3.5.1 Existing Landscape

The site is located within Co. Offaly and as part of the preparation of the Offaly County Development Plan 2009-2015, a landscape classification and sensitivity assessment was undertaken. As stated in the plan, Co. Offaly largely comprises a flat landscape, typified by the extent of its boglands. The landscape of the county is further typified by ancient religious traditions, monastic settlements and by an esker landscape, shaped by the Ice Age. The proposed development is located in a cutaway Bog, which has been defined as a Moderate Sensitivity Area. Cutaway bogs cover a large proportion of the landscape of Co. Offaly - approximately 42,000 hectares. The Development Plan states that some of the areas of cutaway bogs "may be appropriate for [...] sensitively designed and located developments including [...] industrial use".

The site is located close to the border with Co. Westmeath, and the Westmeath County Development Plan 2008 – 2014 has characterised the landscape of the county. The area immediately adjacent to the proposed development is Area 10: Lough Ennell and South Eastern Corridor. The lowland areas of County Meath are within 10 km of the proposed site location.

To the northwest of the site, within Co. Westmeath, there are a number of protected views in the area of Garrane High. This area is more than 5 km from the proposed development and the scenic views point towards Croghan Hill which is to the west of the proposed development. Within Co. Offaly, a number of protected views are present around the area of Croghan Hill, located to the south west of the proposed development.

3.5.2 Potential Impacts

To determine the visual impact on the facility, five viewpoints were selected for detailed assessment. In order to accurately determine this impact, the viewpoints chosen as part of this EIS are the same as those chosen when preparing the EIS in relation to the power plant development.

During the construction phase of the proposed development, there will be some short-term landscape and visual impacts arising from the erection of structures on site. Of the five viewpoints assessed, the facility, when constructed, will be directly visible at only two. Of the three locations where the proposed facility is not visible, the potential impact resulting from the development of the power plant will not be changed.

Of the two locations where the facility is visible, the view from the M6 motorway to the northwest of the proposed development presents the most direct view of the proposed facility. However, the facility will be below the existing treeline along the horizon and will not increase the impact resulting from the power plant development.

The view from Croghan Hill will present a partial view of the proposed facility above the existing treeline, as the view from Croghan Hill is elevated. However, the partial view of the proposed facility at a distance of 3.8 km will not increase the impact resulting from the proposed power plant.

3.5.3 Mitigation Measures

Construction materials chosen for the proposed buildings will be of a visually neutral colour that will blend with and be sympathetic to the visual character of the surrounding landscape. The maintaining of the existing treeline on the southern boundary of the site will ensure this impact observed from Croghan Hill will not be increased.

3.5.4 Conclusion

Five viewpoints were selected to assess the visual impact of the proposed material recycling & waste transfer facility in parallel with that of the proposed power plant at Derrygreenagh Works. The assessment of the viewpoints has indicated that there will be a moderate impact at one location and a minor impact at another.

3.6 Impacts on Archaeology & Cultural Heritage

3.6.1 Existing Archaeology and Cultural Heritage

A desk based assessment of archaeological features within 5 km of the facility was undertaken. Using a number of information sources including Sites and Monument Record (SMR), the Record of Monuments and Places (RMP), the Offaly and Westmeath County Development Plans, the National Inventory of Architectural Heritage (NIAH) and the Excavation Bulletins, it has been identified that there are no features of archaeological interest within 500 metres of the proposed facility location. 61 features have been identified within a 5 km radius of the site comprising:

- Ringfort – rath
- Road toghers (Primary, Secondary, Tertiary)
- Peatland post rows
- Earthworks
- Wayside cross
- Enclosures
- Fulacht Fia
- Religious House
- Buildings
- Bullaun stone
- Castle – motte
- Castle – Tower house
- Church
- Cultivation ridge
- Graveyard
- Ritual Site

3.6.2 Potential Impacts

Due to the high preservation levels of organic material in wetland environments, it is possible that archaeological features not yet identified are present throughout the proposed development site. As subsurface archaeological features cannot be identified at this point, it is possible that elements of the proposed development which require groundworks (e.g. foundations) may have an adverse direct and/or indirect impact on unrecorded archaeological features within the study area.

3.6.3 Mitigation Measures

Due to the potential for the presence of unrecorded subsurface archaeological material within the development area, archaeological monitoring of all excavation works will be undertaken. This will be undertaken by a suitably qualified archaeologist under licence and in accordance with Section 26 of the National Monuments Act 1930.

3.6.4 Conclusion

The proposed development site does not impact on any site of known archaeological significance. However, given the nature of the development site, the potential remains for the discovery of items of archaeological significance.

As a mitigation measure, it is proposed to monitor all excavations under licence and with the supervision of a qualified archaeologist.

4. THE DEVELOPMENT & ITS IMPACTS IN CONTEXT

The proposed development of a 99,000 tonnes per annum materials recycling & waste transfer facility at Drumman has the potential to cause both positive and negative impacts on the receiving environment.

Although a separate and unrelated development to the proposed facility, the development of the proposed power plant at the adjacent Derrygreenagh site has the potential, in conjunction with the materials recycling & waste transfer facility, to impact on the environment in the vicinity on greater scale than the proposed materials recycling & waste transfer facility.

Table 4.1: Summary of Interaction of Environmental Effects of the proposed development

Impact	Socio-economic	Known Archaeology	Air Quality & Climate	Geology & Hydrogeology	Landscape	Ecology	Water Quality	Traffic	Hydrology
Construction Phase (short term)									
Traffic	I	-	-	-	-	-	-	-	-
Excavations	-	I	-	I	-	-	I	-	I
Noise	I	-	I	-	-	-	-	-	-
Operational Phase (permanent)									
Noise	I	-	-	-	-	-	-	-	-
Traffic	S	-	-	-	-	-	-	-	-
Foul Water treatment	-	-	-	-	-	I	I	-	-
Site Drainage	I	-	-	I	-	I	I	-	-
Presence of Buildings	I	-	-	-	S	-	-	-	I
Operations on Site	P	-	-	-	-	-	I	I	-

- P = Positive Impact
 - = No Impact
 I = Imperceptible Impact
 M = Moderate Impact
 N = Negative Impact
 S = Slight Impact

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Table 4.2: Summary of Interaction of Environmental Effects of the proposed development & the proposed power plant

Impact	Socio-economic (noise)	Water Quality	Traffic	Hydrology
Construction Phase (short term)				
Traffic	I	-	-	-
Excavations	-	I	-	I
Noise	I	-	-	-
Noise	I	-	-	-
Operational Phase (permanent)				
Traffic	S	-	-	-
Foul Water treatment	-	I	-	-
Site Drainage	I	I	-	-
Presence of Buildings	I	-	-	I
Operations on Site	P	I	I	-

From Table 4-1, it is evident that following the implementation of a number of mitigation measures, the proposed development is not likely to have a significant environmental impact on the receiving environment when considered alone. Similarly, the cumulative impacts of the proposed facility and the proposed power plant are considered, at most, slight in terms of traffic and other relevant criteria.

4.1 Conclusion on the development and its impacts in context

The proposed development of the proposed materials recycling & waste transfer facility will reinforce the provision of waste management services in the midland and wider waste management regions.

The previous sections of this EIS have dealt with any potential impacts from the proposed development – where potential negative impacts are expected, mitigation measures have been proposed to minimise or eliminate these impacts. With the successful application of the mitigating measures presented and best practice construction techniques, the construction and operation of the proposed facility at Drumman is not anticipated to have any significant, long term negative impacts on the local environment.

When considered in parallel with the proposed power plant development at Derrygreenagh, it is concluded that the development of the proposed materials recovery & waste transfer facility will not increase or augment the potential impacts of the power plant, as identified by the environmental impact assessment for that facility.

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