



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 2 OF 3 – MAIN REPORT

FEBRUARY 2010

**BORD NA MÓNA**   
PLC





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### VOLUME 2 OF 3 – MAIN REPORT

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**Abstract:** This document has been 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. Based on an assessment of the potential impacts of the proposed development and the implementation of appropriate mitigation measures, it is considered that there will be minimal impact on the existing environment from the proposed development.

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# 1 INTRODUCTION

## 1.1 Project Overview

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, as shown on Figure 1-1. An aerial view of the site is presented in Figure 1-2.

The proposed development will consist of a waste reception and processing building and a bale storage building. Access 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, primarily collected by AES Ireland Ltd, a subsidiary of Bord na Móna PLC.

Approximately 50,000 tonnes of mixed dry recyclables will be accepted at the facility and this material will be processed within the facility prior to transport off site for recovery/ recycling. This material will be brought from other AES Ireland Ltd. transfer stations for processing at the proposed facility such that the proposed facility will operate as the primary AES Ireland Ltd. mixed dry recyclables processing facility. Processing will comprise the mechanical separation, sorting and baling of the various recyclable waste streams.

The remaining 49,000 tonnes of material will be mainly C&D and C&I material with approximately 5,000 tonnes of brown bin organic material being accepted also. These materials will not be processed, other than some recovery from the C&D/C&I material and will be bulked up and transported off site, for further treatment and/or disposal in the case of the C&D/C&I material and for biological treatment in the case of the brown bin organic material. 'Bulking up' refers to the process of accepting smaller volumes of waste from refuse collection vehicles (RCV's), skips etc. and transferring this material to larger volume trailers for more efficient and economic transportation of the waste material.

The proposed site currently consists of cutaway peat bog from which peat abstraction is no longer feasible. The site is 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.

It is envisaged that the proposed development will supplant the mixed dry recyclables operations at an existing AES Ireland Ltd. facility at Cappancur, Tullamore.

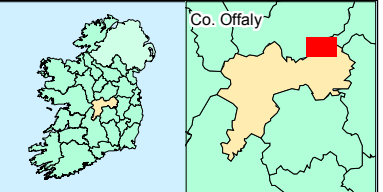
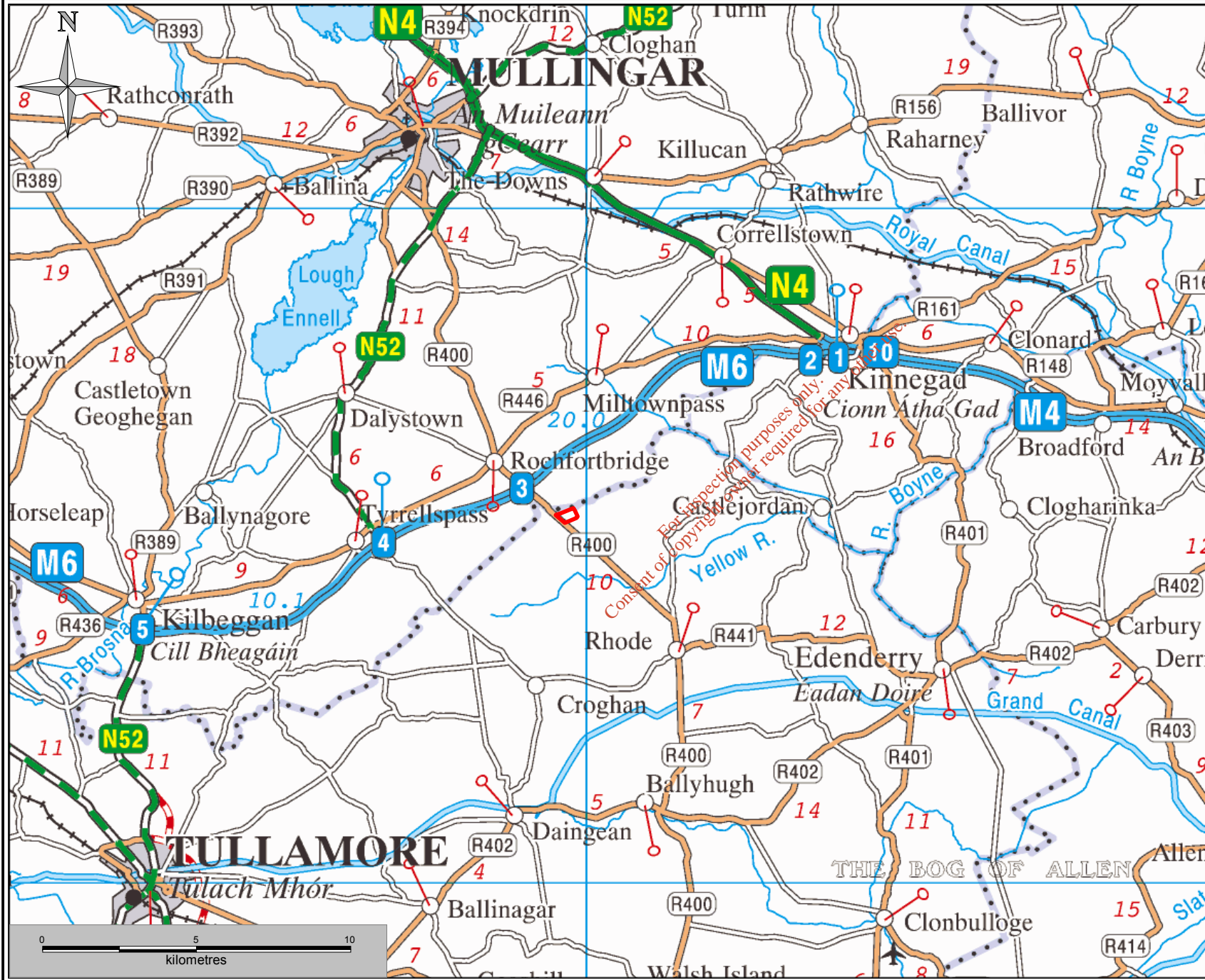
In addition and at the time of preparation of this EIS, the Derrygreenagh Works site located adjacent to the proposed facility site is subject to a planning application to An Bord Pleanála (ABP) for the development of a gas fired power station under the Strategic Infrastructure Development process. This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

To this end, the overall approach to be taken to the environmental impact assessment of the proposed materials recycling & waste transfer facility is to consider the impacts of the proposed power plant cumulatively with the impact of the proposed facility in relevant areas of the assessment so that a thorough evaluation is undertaken in the event of both proposed developments proceeding. (refer to Section 1.5.1).

## 1.2 The Applicant

Bord na Móna (BnM) was created in 1946 with its primary function being the governance and development of the State's 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.

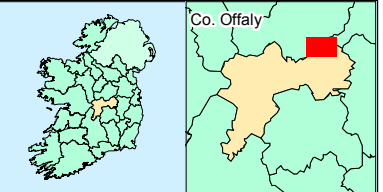
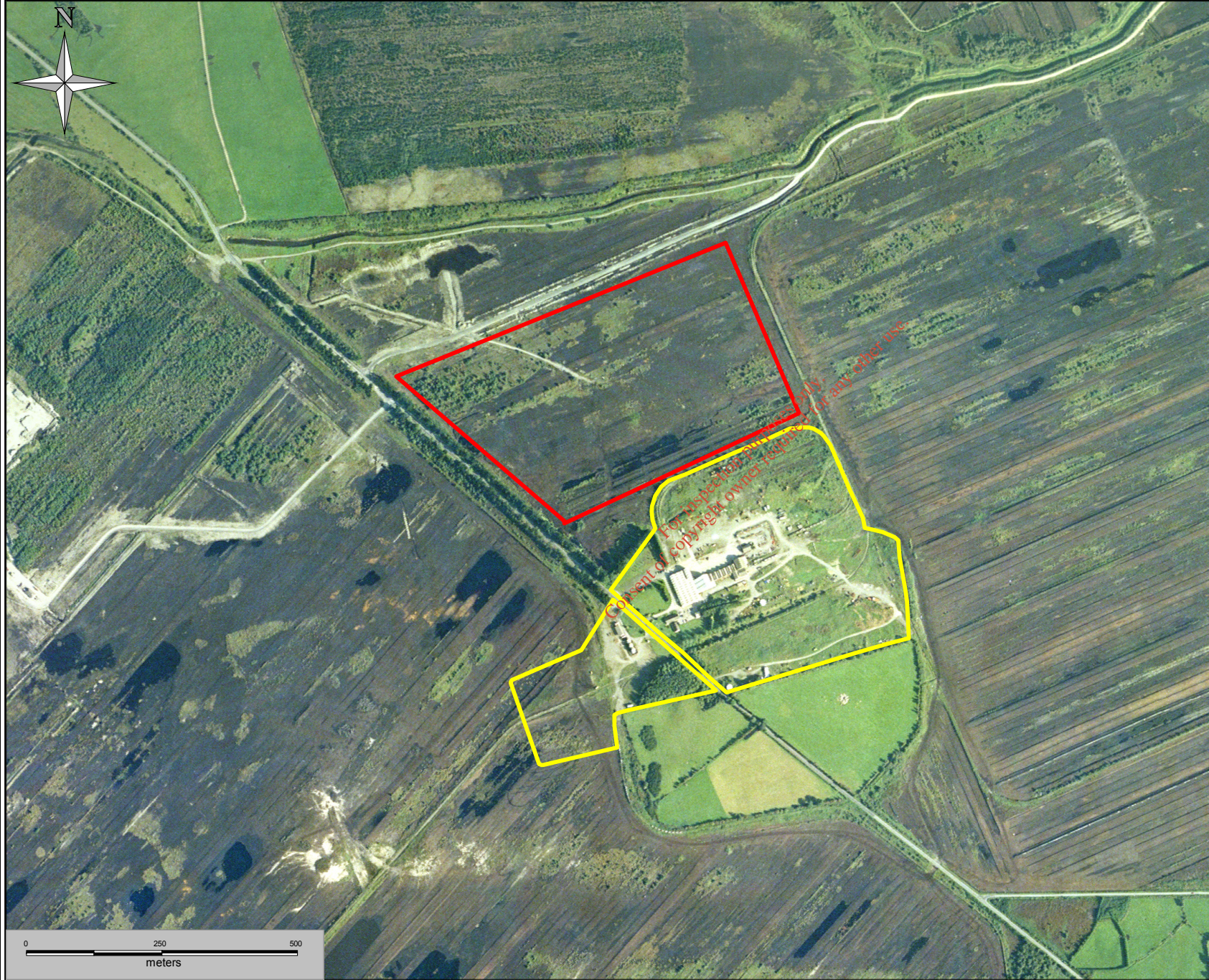




**Legend**  
 selected overall site boundary

Date	24/11/09	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Site Location	
Scales Used	1 : 175,000 @ A4	
Figure No.	1.1	Rev A

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**Legend**

selected overall site boundary

Derrygreenagh power plant site boundary

Date	23/11/09	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Aerial Photograph of Site	
Scales Used	1 : 10,000 @ A4	
Figure No.	1.2	Rev A

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In May 2007, Bord na Móna PLC acquired Advanced Environmental Solution (AES) Ireland Ltd., one of Irelands leading waste management companies which services 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 PLC 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 of the company being the desire to become Irelands 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 operations and expansion of AES Ireland Ltd.

### 1.3 National & 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 are outlined in the following sections.

#### 1.3.1 European and National Legislation and Policy

##### **Council Directive 1999/31/EC on the Landfilling of Waste**

The overall objective of this Directive is to tightly define and unify the nature of acceptable landfill usage, by reducing and minimising the potential environmental impacts which may otherwise occur at any point in the life-cycle of a landfill.

As well as technical standards, the Directive also contains binding obligations for an EU-wide reduction of the use of landfill as an option for the disposal of biodegradable municipal waste (BMW). It contains specific reduction targets for biodegradable waste which must be applied nationally. These targets are to be viewed against baseline BMW landfilled in each member state for the year 1995. Ireland applied for derogations for the first two target years due to an over reliance on landfill. The target years in Ireland are shown in Table 1.1.

**Table 1-1 Irelands Landfill Directive target years for BMW reduction**

Target (of 1995 levels)	Target Years
75 %	2010
50 %	2013
35 %	2016

##### **Council Directive 1994/62/EC on Packaging and Packaging Waste**

The aim of the Packaging Directive 94/62 is to harmonise measures on the management of packaging waste across the EU. It covers all packaging, including that from industry, commercial activities and householders.

The Directive requires member states to have 'recovered' between 50–65% by weight of packaging by 30<sup>th</sup> June 2001. Within this general target, between 25–45% of packaging must be 'recycled', with individual minimum limits being set so that the recycling rate is to be no less than 15% for each packaging material. The Directive makes a distinction between 'recovery' and 'recycling'. Recycling excludes combustion and subsequent energy recovery.

The Packaging Directive was significantly amended in 2005 (Directive 2004/12/EC) with new and more onerous recovery and recycling targets being set. These require that, by 31st December 2008, no less than 60% of packaging waste is recovered or incinerated and that between 55% and 80% of packaging waste is recycled. Recycling targets are also set for a range of different types of packaging: glass 60%; paper and board 60%; metals 50%, plastics 22.5%; wood 15%. The distinction between recovery and recycling applies in respect of these percentages also.

In 2008, further measures were introduced aimed at optimising the recovery and recycling of packaging waste in Ireland, including a reduction from 25 tonnes to 10 tonnes in the de minimis to spread the burden of compliance more equitably across all obligated producers in light of the higher targets that have to be achieved under Directive 2004/12/EC.

As of 2009, Ireland has exceeded its obligation with respect to the packaging Directive, although better data is required for the verification of a number of the specific targets outlined.

### Council Directive 2008/98/EC on waste (and repealing certain Directives)

A revised Waste Framework Directive (the New Waste Framework Directive) was adopted in 2008 which introduces a number of new targets for member states. These revisions include setting new recycling targets to be achieved by EU member states by 2020 i.e. a recycling rate of 50% for household derived paper, metal, plastic and glass (achieved) and 70% for construction and demolition waste (currently at 62%). It also places a binding obligation on member states to develop national waste prevention programs and report on prevention and waste prevention objectives.

The Directive also clearly defines a number of important definitions, such as recycling, recovery and waste in order to resolve previous interpretation problems. It also aims to alter the impression of waste as an unwanted burden to become a valued resource in Europe, for example, incineration will be considered a recovery operation provided it meets certain energy efficient standards. The five stage waste hierarchy has also been more clearly defined and lays down waste operations in prevention, re-use, recycling, recovery and safe disposal in order of preference.

### Waste Management: Changing Our Ways

Government policy in relation to waste management is set out in the policy statement entitled *Waste Management: Changing Our Ways* published by the Department of the Environment and Local Government (DoELG) in September 1998. The policy statement incorporates the EU Waste Management hierarchy of waste prevention/minimisation/reuse/recycling/energy recovery/disposal as well as earlier policy statements including Government strategy documents such as *Recycling for Ireland* (July 1994) and *Sustainable Development: A Strategy for Ireland* (April 1997).

It outlines a clear commitment to reduce dependency on landfill as a primary waste disposal route. It encourages the development of a smaller number of well-designed and managed landfills for the receipt of *residual* waste. Residual waste is waste which has undergone some form of treatment to remove recyclable material or to further process the waste in order to achieve a volumetric reduction.

The policy document *Waste Management: Changing Our Ways* outlines ambitious targets for waste management as follows:

- a diversion of 50% of overall household waste away from landfill
- a minimum 65% reduction in biodegradable wastes consigned to landfill
- the development of waste recovery facilities employing environmentally beneficial technologies as an alternative to landfill, including the development of composting and other feasible biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum nationally
- recycling of 35% of municipal waste

- recycling at least 50% of construction and demolition (C & D) waste within a five year period, with a progressive increase to at least 85% over fifteen years
- rationalisation of municipal waste landfills, with progressive and sustained reductions in numbers, leading to an integrated network of some 20 state-of-the-art facilities incorporating energy recovery and high standards of environmental protection
- an 80% reduction in methane emissions from landfill, which will make a useful contribution to meeting Ireland's international obligations.

The proposed development at Drumman will facilitate the collection, sorting and processing of recyclable materials prior to sale on the recyclables market. This development will contribute to a reduction in waste consigned to landfill and contribute to an increase in the recycling rates of municipal and industrial wastes within the Midlands Region.

### Preventing and Recycling Waste – Delivering Change – a Policy Statement

A second policy statement was issued by the Minister for the Environment and Local Government in 2002. In this policy statement entitled 'Preventing and Recycling Waste - Delivering Change', the Government sets out objectives for developing recycling and recovery facilities.

This policy statement incorporates the EU waste management hierarchy of waste prevention, minimisation, reuse, recycling, recovery and disposal as outlined in '*Waste Management: Changing our Ways*' published in September 1998, as well as earlier policy statements, including Government strategy documents such as 'Recycling for Ireland' (July 1994) and 'Sustainable Development: A Strategy for Ireland' (April 1997). This policy document:

- highlights the necessary disciplines that must be imposed within waste management systems to secure real progress on waste prevention, reuse and recovery
- outlines a range of measures that will be undertaken in the interests of minimising waste generation and ensuring a sustained expansion in reuse and recycling performance and
- sets out a number of clear objectives which the Government propose to implement to meet the targets identified in *Changing Our Ways*.

### The National Strategy on Biodegradable Waste

The National Strategy on Biodegradable Waste was launched in April 2006 by the DoEHLG, and clearly highlights the urgent need for waste management facilities with infrastructure to deal with biodegradable waste. It focuses on biodegradable waste from municipal sources, such as from domestic dwellings and commerce.

Ireland's performance in terms of these targets is outlined in the most recent national waste data outlined in the National Waste Report 2008 and presented in Table 1-2.

**Table 1-2 Irelands current performance versus Landfill Directive obligations**

Target Year	Maximum Quantity allowed to be landfilled
2010	916,000
2013	610,000
2016	427,000
Current Position	Quantity biodegradable municipal waste landfilled
as per 2008	1,196,004
Current Position	Distance to first EU Landfill Target (July 2010)
as per 2008	280,000

The Strategy also sets down targets for individual waste streams. Each regional waste management plan is required to propose arrangements on how these targets are met:

- for paper and cardboard, the recycling targets for 2010 are set at 45% for households and 61% for commerce going up to 55% and 71% in 2013 and to 60% and 73% respectively in 2016. It is acknowledged that these levels will require significant investment in both kerbside collection arrangements, as well as 'bring' facilities and civic waste sites
- a national home composting target of 20% of in urban households and 55% of rural households has been set.

The means by which these targets will be achieved has been recently augmented by a number of actions taken by the Environmental Protection Agency (EPA) in terms of limitation being placed on landfill with respect to the amount of BMW that can be accepted at these facilities. In addition, clear guidance on the means of calculating BMW content has been developed.

The requisite reduction in biodegradable municipal waste passing to landfill in turn implies the development of alternative waste management capacity. The proposed facility at Drumman will accept and process source separated biodegradable waste from the domestic and commercial sectors and in doing so, will contribute to achieving the diversion of biodegradable wastes such as paper, cardboard and organic waste from landfill.

Paper and cardboard waste will be sorted and baled at the proposed facility prior to recycling while source separated organic materials will be bulked up at the Drumman site prior to use as feedstock in an aerobic composting facility currently being developed at an alternate Bord na Móna PLC site.

### National Spatial Strategy

The National Spatial Strategy (NSS) is a planning framework document that is designed to achieve a better balance of social, economic, physical development and population growth between the various regions of the country. The Strategy introduces the concept of particular locations as 'hubs' and 'gateways' which will deliver the services and infrastructure required and drive development in particular regions.

Under the Strategy, the towns of Tullamore, Mullingar and Athlone have been identified as Gateway towns in which key elements of infrastructure such as "city-scale water and waste management services" need to be developed. The location of the proposed development at Drumman, adjacent to the M6 motorway, is well situated to service these three gateway towns.

A critical mass of labour skills and infrastructure such as waste management facilities is vital to promote enterprise activity and employment creation. The NSS aims to capitalise on the location of the Midlands by improving access through the east-west and north-south connections between the towns of Athlone, Mullingar and Tullamore.

The development of the proposed facility at Drumman will provide employment for c. 35 persons. The development of an industrial facility will also provide support for local goods and services that will be required by the facility e.g. fuel, consumables, office equipment etc.

### The National Development Plan 2007 – 2013

The management of waste is identified as a central tenet of the National Development Plan 2007 – 2013. it is stated that *'a sustainable approach to dealing with this (waste management) requires the integration of a number of elements — reducing the extent of waste generation through waste prevention strategies, maximising the recycling and recovery of waste and minimising the environmental impacts of the final disposal of waste, particularly through reducing the reliance on landfill.'*

It is considered that the proposed development at Drumman is consistent with this approach through the maximising of recycling and recovery by the processing of mixed dry recyclables at the facility and the bulking of other waste materials prior to further suitable treatments or disposal at an engineered landfill facility.

### 1.3.2 Regional Policy

In demonstrating compliance of the proposed development with regional policy, consideration is given to policy set forth in the Midlands Waste Management Plan 2005 – 2010 and the Offaly County Development Plan 2009 - 2015.

#### Waste Management Plan for the Midland Region 2005 – 2010

The central objectives of the Waste Management Plan for the Midland Region are:

1. Prevention and minimisation
2. Materials recovery (recycling/recovery)
3. Energy recovery
4. Safe disposal including landfill

It also sets a recycling target of 46%, thermal treatment of 37% and landfill disposal of 17% for the region.

The Plan policy (Part 4) sets out specific objectives and targets for the Region for the period 2005 – 2010 in relation to materials recovery facilities and waste transfer facilities (Section 16.6);

- *Local authorities shall support the development of additional transfer facilities where they can be shown to be consistent with the overall objectives of the Plan and have regard to good principles of siting*
- *Local authorities shall ensure MRF's and Waste Transfer Stations are operated in compliance with Waste Permits and the expansion of existing facilities to include pre-treatment technology is supported*

It is considered that the proposed development is consistent with the overall objectives of the plan through the provision of infrastructure for the recycling and recovery of materials in compliance with the requirements of the waste hierarchy.

The proposed facility will be subject to a waste licence from the Environmental Protection Agency (EPA) and will incorporate best available techniques (BAT) which will ensure performance to the highest environmental standard.

It is also stated in Section 16.6 of the Plan that *'it is anticipated that these facilities will be expanded should the demand arise'*. The development of the proposed facility is in keeping with this statement.

In addition, the 'Target to 2010' identifies that *'local authorities shall ensure that the future development of MRF's in the region include provision for the pre-treatment of mixed municipal and industrial waste prior to disposal to landfill from 2007 onwards'*. The proposed development adheres to this desire through the processing of material that has been pre-treated through source segregation in the case of paper, card and organic materials.

Section 16.12 of the Plan addresses the issue of the Proximity Principle with the policy set out as follows: *'The proximity principle should be taken into account however it is recognised that there should be flexibility with respect to the movement of waste across regional boundaries and within the Region. The capacity of waste facilities in the Region should, as far as possible, satisfy the needs of the Region whilst allowing some element of flexibility of movement of waste into and out of the Region in line with the policy direction issued by the Minister in May 2005 under section 60 of the Waste Management Act, 1996 (as amended).'*

The proposed development adheres to the policy outlined in the Plan through the servicing of the needs of the region in terms of material recycling and waste transfer facility capacity while balancing this with the requirement for AES Ireland Ltd. to operate a centralised material recycling for mixed dry recyclable material under its control, whereby some materials are imported into the region from other regions for the purpose of processing, as is the case of the existing AES Ireland Ltd. materials recycling and waste transfer station in Tullamore.

Section 16.12 of the Plan makes recommendations with regard to the siting of particular types of waste management facilities. With respect to material recovery facilities, it is recommended that the following site selection criteria should apply:

1. The facility to be placed within an urban area or as near as possible
2. Where practical, consideration should be given to locating the facility in proximity to a strategic transport route
3. If development zoning exists an area zoned as industrial is preferable
4. Location of facility to be convenient to majority of householders
5. Particular regard to be had to traffic considerations

These criteria should also be applied to the siting of civic amenity facilities, according to the Plan. It can be reasonably argued that different criteria should be applicable to the siting of a civic amenity site that would handle 2,000 – 5,000 tonnes of waste material versus a materials recovery & waste transfer facility that processes 99,000 tonnes per annum. The proposed location at Drumman is considered as follows with respect to the selection criteria.

1. It is considered that this criterion is more applicable to civic amenity facilities where proximity to the facility is an important consideration in relation to customers using the site. This is less of a consideration when siting a materials recycling & waste transfer facility that serves a wider region as waste will be transported to the facility from both urban and rural areas across the region by dedicated waste vehicles as opposed to waste being brought to a civic amenity site by the public
2. The location of the proposed facility approximately 2 km from the M6 motorway satisfies this criteria
3. Development zoning does not exist in the area and the location can be considered as 'white lands' (refer to text regarding white lands in Chapter 18 of the Offaly County Development Plan 2009-2015 in the following sections)
4. This criteria is exclusively relevant to civic amenity sites
5. As per point 2 above, the convenient location of the facility in relation to the M6 motorway is a prime siting consideration for the development of this facility (refer to Section 3.3 Roads, Traffic and Transportation).

### Offaly County Development Plan 2009 - 2015

The development of the proposed facility has relevance to a number of areas considered within the Offaly County Development Plan 2009 – 2015, most notably:

- Chapter 6 Employment, Economy & Enterprise
- Chapter 10 Rural Development
- Chapter 12 Environment
- Chapter 16 Landscape and Amenities
- Chapter 18 Land use & Zoning
- Chapter 19 Built Form and Urban and Rural Development Standards

#### Chapter 6 Employment, Economy & Enterprise

Chapter 6 of the Development Plan addresses the employment and enterprise strategy for the county over the plan lifetime. The provision of and investment in infrastructure is identified as being of paramount importance to facilitate *'future economic development activity within the county'*. Waste management infrastructure is identified as one of the key infrastructure sectors.

#### Chapter 10 Rural Development

In terms of the location of certain developments outside of areas covered by settlement plans, Section 10.3 of the Plan identifies that *'certain commercial/industrial activities may need to be accommodated in areas outside of existing settlements and these are acceptable where it can be demonstrated that they support and enhance rural communities'* and *'..certain industries are more suited to rural environments rather than urban environments. Such developments will be considered in rural areas.'*



In addition, specific policy considered relevant in terms of rural development includes:

**P10-15** *It is Council policy to support the development of the peatlands within the county for appropriate alternative uses, subject to environmental considerations and nature designations.*

It is considered that a development of the nature of that proposed is best suited to development in a rural location and that the proposed development will support and enhance the local community through the provision of employment and the requirement for support services. In addition, the proposed development presents an appropriate alternative use for the cutaway peatlands at that location and will be developed in accordance with all appropriate consideration of potential impacts on the existing environment and natural designations.

## Chapter 12 Environment

Section 12.4 addresses waste and waste management in the County and commits to the implementation of the Waste Management Plan for the Midlands Region 2005 – 2010. In terms of recycling infrastructure, the Council 'will encourage the provision of recycling infrastructure'.

Specific related policy and objectives outlined in Chapter 12 are:

**P12-06** *It is Council policy to ensure the provision of quality cost effective waste infrastructure and services, which reflect and meet the needs of the community and to ensure that the 'polluter pays principle' is adhered to in all waste management activities.*

**P12-09** *It is Council policy to co-operate with the Environmental Protection Agency in regard to licensing arrangements for Scheduled Industries in County Offaly in accordance with the provisions of the Environmental Protection Agency Act 1992.*

**O12-08** *It is an objective of the Council to implement the provisions of the Waste Management Hierarchy and the current Waste Management Plan for the Midlands Region. As a result, developments in the county will be expected to take account of the provisions of the Waste Management Plan for the Midlands Region and adhere to those elements of it that relate to waste prevention and minimisation, waste recycling facilities, and the capacity for source segregation.*

It is considered that the proposed development will contribute to the aims and objectives of the Waste Management Plan for the Midlands 2005 – 2010, as identified through O12-08. In addition, the proposed development is also in keeping with P12-06 through the provision of cost effective waste infrastructure and P12-09 through the requirement for licencing of the facility by the EPA.

## Chapter 16 Landscape & Amenities

Chapter 16 outlines the different landscape areas of the county so as to characterise their degree of sensitivity to various kinds of development. As per Map 16.1, the location of the proposed development at Drumman is considered an area of 'moderate sensitivity'. Moderate Sensitivity Areas are described as areas that are 'generally open in character with intrinsic quality and moderate capacity to adsorb new development'.

Given the proposed location is situated in an area of cutaway bog, Table 16.4 identifies the particular sensitivities of these types of sites where it is stated that 'some cutaway bogs are more robust and may be considered for other uses (other than wilderness, grassland, forestry and recreation)' and 'some of these cutaway bogs may be appropriate for other sensitively designed and located developments including renewable energy (wind farms, biomass crops) **and/or industrial use**'.

Relevant policy outlined in Chapter 16 is:

**P16-01** *It is Council policy that landscape considerations will be an important factor in all land use policy and decision making for the county, ensuring that a pro-active view of development is undertaken whilst maintaining respect for the environment and heritage, as per the general principles of sustainable*

development. Further it is policy to conserve, protect and enhance the landscape of Offaly at a number of levels:

- The value of the landscape itself, as open countryside and the associated form and character of settlements.
- The value of the landscape as a resource for economic growth in accordance with its physical and visual attributes.
- The value of the landscape and its role with habitats and species whose diversity enriches the environment.

**P16-02** It is Council policy to control development as per the county's landscape classification listed in Tables 16.2-16.5.

It is felt that, in terms of landscape sensitivity, the location for the proposed development is suitable given the other established industrial activities in the area i.e. quarrying activity, piggery and Works and, when considered in conjunction with the proposed power station development at the adjacent site, the impact from the material recycling facility is minimal. In addition, there is existing screening in the form of a mature treeline on the south western edge of the identified footprint adjacent to the R400 that will mitigate against any potential visual impact.

A landscape and visual assessment will be carried out as part of the environmental impact assessment that will fully assess the potential impact of the proposed development with respect to the landscape considerations of the Development Plan.

### Chapter 18 Land use and Zoning

In terms of the zoning considerations of the proposed site location, the land use zoning matrix presented in Table 18.1 outlines the most common forms of development in accordance with the county's zoning objectives.

Specifically, in respect of materials recovery/composting/waste transfer facilities, Table 18.1 identifies areas zoned as industrial as 'normally permitted' for these forms of development and areas zoned as white lands as 'open for consideration'.

White land are identified in Section 18.5 as *'lands immediately adjacent to (and generally outside of) the delineated boundary of the county's settlements...largely agricultural use and may contain some isolated development which is not zoned for specific use at this time'*.

It is considered that the location for the development of the proposed facility at Drumman can be described as 'white lands' as there are no specifically zoned areas in terms of sraids or villages in the vicinity of the Drumman site, as per the Sraid and Village plans of the Development Plan.

### Chapter 19 Built Form and Urban and Rural Development Standards

Chapter 19 of the Development Plan provides standards for development in urban and rural areas. Standards of relevance to the proposed development are outlined with respect to flooding, waste water disposal, water supply, road layout, design and traffic management and environmental impact assessment.

These standards have been considered and adhered to as part of the design of the proposed facility.

#### 1.3.3 Compliance of the proposed development with Policy

The proposed development at Drumman is in compliance with the policy objectives listed previously. In terms of European and national policy and legislation, the proposed facility will ensure the ongoing adherence to targets that have already been achieved nationally e.g. the Packaging Directive targets and will support the achievement of target that have yet to be met e.g. Landfill Directive targets through the recovery and recycling of the various waste fractions accepted at the facility.

The proposed development will strengthen key waste management infrastructure in the vicinity of the regional gateway towns of Tullamore, Mullingar and Athlone, as per the key goals outlined in the National Spatial Strategy.

The Waste Management Plan for the Midland Region 2005 – 2010 and the Offaly County Development Plan 2009 – 2015 support the development of the requisite infrastructure to ensure the achievement of the objectives of the regional waste management plan. The expansion of waste transfer facilities and material recycling facilities is anticipated and the development of the proposed facility realises that anticipated development. The location of the proposed facility adheres with the zoning designations within the County Development Plan.

## 1.4 Need for the Development

As identified, it is envisaged that the proposed development at Drumman will supplant the mixed dry recyclables (MDR) processing activities of the existing AES Ireland Ltd. facility at Cappancur, Tullamore with the Drumman facility becoming the central hub for the processing of 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 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 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 is developing a centralised biological treatment facility at its Drehid waste management facility in Co. 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/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.

## 1.5 EIS Methodology & Structure

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)

Information pertaining to the proposed development and the receiving environment was gathered through a number of means:

- Site Visits
- Field Surveys
- Site Investigation works
- Existing data in relation to the proposed site and environs

- Discussions with individuals familiar with the proposed location
- Discussions and meetings with representatives of the Environmental Protection Agency and Offaly County Council
- Consultation with statutory bodies

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

As per the Second Schedule of the European Communities (Environmental Impact Assessment) Regulations, 1999 (S.I. No. 93 of 1999), the topics identified for consideration in these Regulations are addressed in Sections 3 - 9 of Volume 2 as follows:

- Human Beings  
*Section 3 – Human Environment*
- Fauna & Flora  
*Section 6 – Flora & Fauna*
- Soil  
*Section 4 – Geology & Hydrogeology*
- Water  
*Section 5 – Hydrology & Water Quality*
- Air & Climatic Factors  
*Section 3.4 – Climate & Air Quality*
- Landscape  
*Section 7 – Landscape Impacts & Visual Assessment*
- Material Assets (including Architectural, Archaeological and Cultural Heritage)  
*Section 8 – Archaeology & Cultural Heritage*
- The interrelationship of these factors  
*Section 9 – The Development and its Impacts in context*

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### 1.5.1 Cumulative Assessment

As previously identified, 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. At the time of writing of this EIS, a decision has not been reached regarding this development.

Particular sections of this EIS will 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. An EIS prepared as part of the power plant application to An Bord Pleanála, available at [www.derrygreenaghpower.ie](http://www.derrygreenaghpower.ie), has been used to provide certain relevant information for consideration as part of the preparation of this environmental impact statement.

The sections in which potential cumulative impacts have been assessed are:

- Section 3.2 Noise
- Section 3.3 Roads, Traffic & Transportation
- Section 5 Hydrology and Water Quality
- Section 7 Landscape Impacts & Visual Assessment
- Section 9 The Development and its Impact in context

## 1.6 Scoping & Consultation

The environmental impact assessment process is initiated by a scoping process which determines the key environmental aspects relating to a development. There are nine areas that should be addressed in an environmental impact statement (EIS): These are:

- Landscape and visual impact
- Noise
- Hydrology
- Air and climate
- Geology/Hydrogeology
- The development & its impacts in context
- Cultural heritage
- Ecology
- Land use
- Material assets
- Traffic

The scoping process for this EIS was based on:

- consultation with Offaly County Council and the Environmental Protection Agency
- examination of environmental impact statements for developments in similar circumstances, which were deemed to be of an acceptable standard by the relevant authorities
- examination of the environmental impact statement for the proposed power plant at the Derrygreenagh Works site
- experience of the consultants in preparing environmental impact statements for infrastructural developments

### 1.6.1 Impact Description

This EIS provides for an assessment of a range of potential impacts from the proposed development. These include:

- Direct impacts
- Indirect impacts
- Secondary impacts
- Cumulative impacts
- Short-term impacts
- Medium-term impacts
- Long-term impacts
- Permanent impacts
- Temporary impacts
- Positive impacts
- Negative impacts

For the purposes of this EIS the following concepts are applied:

- an *imperceptible impact* is one that is capable of measurement but without noticeable consequences
- a *slight impact* is an impact which cause noticeable changes in the character of the environment in a manner that is consistent with existing and emerging trends
- a *moderate impact* alters the character of the environment in a manner that is consistent with existing and emerging trends
- a *significant impact* is one which by character, magnitude, duration or intensity alters a sensitive aspect of the environment
- a *profound impact* obliterates sensitive characteristics.

Descriptions of potential impacts as well as relevant and appropriate mitigation measures are presented within the individual Sections of this document. A summary of impacts, positive, negative and cumulative, is presented in Section 9.

### 1.6.2 Pre-Submission Scoping Consultations

#### Consultation with the Environmental Protection Agency

A meeting was held with the EPA on the 27<sup>th</sup> of November 2008. Discussions primarily focused on the content of the EIS.

#### Consultation with Offaly County Council

A pre-application meeting was held with Offaly County Council on the 02<sup>nd</sup> of December 2009. This afforded Bord na Móna the opportunity to outline the proposed development and allowed Offaly County Council to advise on their requirements regarding the EIS and planning application. A document outlining the nature of the proposed development was subsequently submitted to the Council. In addition, Offaly County Council also provided the Manager's report in relation to the proposed adjacent power plant as a means of identifying similar potential environmental impacts.

#### Other Consultees

In addition to the above consultees, consultation letters were sent to a number of statutory bodies and non governmental organisations on the 24<sup>th</sup> of November 2009. A copy of the consultation letter sent is included in Appendix 1. The list of consultees is contained in the following table.

Table 1-3 Consultees

Contact	Organisation
Sir/Madam	An Chomhairle Ealaíon – The Arts Council
Mr. Ian Lumley	An Taisce
Sir/Madam	Bat Conservation Ireland
Dr. Stephen Newton	BirdWatch Ireland
Sir/Madam	BirdWatch Ireland
Sir/Madam	Bus Éireann
Sir/Madam	Central Regional Fisheries Board
Sir/Madam	Coillte Teoranta
Sir/Madam	Commission for Electricity Regulation
Ms. Patricia Kelly	Department of Agriculture and Food - Environmental Section
Mr. Donal Redington	Department of Arts, Sport and Tourism
Sir/Madam	Department of Arts, Sport and Tourism
Ms. Una Nic Ghoille Choille	Department of Communications Energy and Natural Resources
Head Office	Department of Community, Rural and Gaeltacht Affairs
Sir/Madam	Department of Enterprise, Trade and Employment
Mr. Michael McCarthy	Department of Environment, Heritage and Local Government - Environmental Assessment Division
Sir/Madam	Department of Environment, Heritage and Local Government - National Monuments Section
Dr. Linda Patten	Department of Environment, Heritage and Local Government – National Parks and Wildlife Service
Sir/Madam	Eastern Regional Fisheries Board
Secretary	Edenderry & Castlejordan Angling Association

Contact	Organisation
Sir/Madam	Eircom
Sir/Madam	Eirgrid
Sir/Madam	Electricity Supply Board
Sir/Madam	Failte Ireland
Dr. Ronnie Creighton	Geological Survey of Ireland
Sir/Madam	Health & Safety Authority
Sir/Madam	Health Service Executive
Sir/Madam	Irish Peatland Conservation Council
Ms. Sarah Fields	Irish Wildlife Trust
Sir/Madam	National Roads Authority
Ms. Amanda Pedlow	Offaly County Heritage Office
Sir/Madam	Offaly County Council - Planning
Sir/Madam	Offaly County Council - Roads
Sir/Madam	Offaly County Council – Environment
Sir/Madam	Offaly County Enterprise Board
Mr. Conor McDermott	Office of Public Works - Engineering Services
Mr. David McInerney	Southern Regional Fisheries Board
Mr. Paddy Matthews	The National Heritage Council
Sir/Madam	Tullamore Town Council
Sir/Madam	Westmeath County Council – Planning
Sir/Madam	Westmeath County Council - Environment

### 1.6.3 Submissions from Statutory Bodies and Non-Governmental Organisations

A number of submissions were received in relation to the proposed development in response to the consultation letters sent. Copies of these submissions are included in Appendix 1. In summary, the main issues identified in the submissions received are as follows:

#### National Roads Authority

The Authority identified that it is not in a position to directly engage with applicants in relation to proposed developments and that information provided is best practice guidance only. The Authority indicated that consideration should be given to;

- Location of existing and future national road schemes
- The proximity of the existing M6 and associated junctions
- Visual impact of proposed development from the M6 motorway
- Potential cumulative impacts
- The developer should have regards to NRA DMRB and NRA manual of Contract Documents for Road Works
- The developer should have regard to the NRA Environmental Assessment and Construction Guidelines
- The EIS should consider the Environmental Noise Regulations 2006 (S.I. 140 of 2006)
- A Traffic and Transport Assessment should be carried out where appropriate
- It should be considered whether a Road Safety Audit is required

#### Department of Agriculture, Fisheries and Food

A number of issues for consideration were identified by the Department including potential impacts of traffic, vermin, dust, litter, odour, noise and on local water supplies.

## Geological Survey of Ireland

The GSI identified that no geological heritage sites lie within or near the proposed facility area.

## ESB Networks

An application form was provided by ESB Networks in relation to a new connection application. Further contact with ESB will be made during the detailed design phase of the project.

## OPW

The OPW has identified that the proposed development is adjacent to channel C1/64/1 of the Boyne Certified Drainage Scheme. It was requested that a Flood Risk Analysis be carried out.

## Failte Ireland

A copy of Draft Guidelines on the treatment of tourism in an Environmental Impact Statement was provided by Failte Ireland for consideration.

## Health Service Executive

The HSE responded requesting further information on the proposed development. A response was sent to the HSE on the 6<sup>th</sup> January 2010. A further reply was received on the 27<sup>th</sup> January 2010 which identified that the EIS should address the transportation of waste, wastewater treatment, odour control, further processing of waste, vermin control, the provision of welfare facilities and the chemical and microbiological analysis of the proposed water supply.

## Irish Peatlands Conservation Council

The IPCC refers to the indication on the National Parks and Wildlife Designations map of the presence of European otter within the 10 km grid in which the development is proposed and that this species should be considered when carrying out any Environmental Assessment on the site.

## 1.7 Sub-Consultants Engaged

The following sub-consultants were engaged in the preparation of this EIS:

- Roadplan Consulting Ltd. – *Road Safety Audit*
- Southern Scientific Services Ltd. – *Baseline Surfacewater Monitoring Analysis*
- Alcontrol Laboratories (Ireland) – *Baseline Dust Monitoring Analysis*

## 1.8 Examination of Alternatives

This section assesses the alternatives options available to Bord na Móna PLC for the development of a materials recycling & waste transfer facility at Drumman and references the guidance provided by the EPA in relation to the consideration of alternatives.



### 1.8.1 EPA Guidance on Alternative Developments

The following extract is provided from the EPA's 'Guidelines on the Information to be contained in Environmental Impact Statements' (March 2002):

#### 2.4.3 ALTERNATIVES

*The consideration of alternative routes, sites, alignments, layouts, processes, designs or strategies, is the single most effective means of avoiding environmental impacts. The acceptability and credibility of EIA findings can be significantly affected by the extent to which this issue is addressed. For linear projects, such as roads and power lines, alternative routes may be the most important and effective mitigation strategy while for major infrastructure projects the intrinsic suitability of the site is the principal amelioration strategy. However, it is important, from the outset, to acknowledge the existence of difficulties and limitations when considering alternatives. These include:-*

##### Hierarchy

*EIA is only concerned with projects. Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon.*

*It is important to acknowledge that in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority (such as a national plan or regional programme for infrastructure or a spatial plan).*

##### Non Environmental Factors

*EIA is confined to the environmental effects which influence the consideration of alternatives. It is important to acknowledge that other non-environmental factors may have equal or overriding importance to the developer, e.g. project economics, land availability, engineering feasibility, planning considerations.*

##### Site Specific Issues

*The consideration of alternatives also needs to be set within the parameters of the availability of land (it may be the only suitable land available to the developer) or the need for the project to accommodate demands or opportunities which are site specific. Such considerations should be on the basis of alternatives within a site e.g. design, layout.*

#### 3.2.2 ALTERNATIVES

*The presentation and consideration of the various alternatives investigated by the applicant is an important requirement of the EIA process.*

*Thus an outline of the main alternatives examined throughout the design and consultation processes is described. This serves to indicate the main reasons for choosing the development proposed, taking into account the environmental effects. For the purposes of the Regulations, alternatives may be described at three levels:-*

- *Alternative Locations*
- *Alternative Designs*
- *Alternative Processes*

With cognisance to the guidelines provided above, alternatives in relation to the Drumman project are considered under the following headings:

- Alternative site location
- Alternative locations within the preferred site
- Alternative processes at the preferred site
- 'Do-nothing' alternative

### 1.8.2 Alternative Site Location

A number of alternatives sites were assessed for suitability for development of a 99,000 tonnes per year material recycling/waste transfer facility. These sites were assessed from the significant land bank under the ownership of Bord na Móna PLC.

A site suitability assessment was carried out by FTC on behalf of Bord na Móna PLC and the findings of this assessment are included in Appendix 2 and summarised in the following.

Sites under the ownership of Bord na Móna PLC and within the areas in which AES Ireland Ltd. operate were identified. A list of 35 potential sites was prepared and these are listed in Table 1-4.

**Table 1-4 Potential Bord na Móna PLC sites**

	Location	County	Current Use
1	Lough Ree Power	Longford	Yard serving Power Station
2	Mountdillon	Longford	Works
3	Coolnagun	Westmeath	Works
4	Navan	Meath	AES waste transfer facility
5	Ballivor	Meath	Works
6	Derryfadda	Galway	Works
7	Clonfert	Galway	Works
8	Cloonburren	Galway	Works
9	West Offaly Power	Offaly	Yard serving Power Station
10	Blackwater	Offaly	Works
11	Bellair	Offaly	Works
12	Lemanaghan (Celtic Roots)	Offaly	Works
13	Ferbane	Offaly	Yards serving Power Station (closed)
14	Boora	Offaly	Works
15	Derrinlough	Offaly	Peat Briquette Factory
16	Tullamore	Offaly	AES MRF/waste transfer facility
17	Monettia	Offaly	Loading site
18	Derryarkin	Offaly	Sand & Gravel
19	Derrygreenagh	Offaly	Works
20	Drumman	Offaly	Cutaway Bog
21	Rhode	Offaly	Yard serving Power Station (demolished)
22	Ballycon/Mount Lucas	Offaly	Works/Yard
23	Clonsast	Offaly	Works
24	Edenderry Power	Offaly	Power Station
25	Portlaoise	Laois	AES waste transfer facility
26	Coolnamona	Laois	Works
27	Kilberry	Kildare	Works
28	Ummerus	Kildare	Yard
29	Ballydermot	Kildare	Works
30	Lullymore	Kildare	Works
31	Drehid	Kildare	Waste management facility
32	Timahoe	Kildare	Works
33	Mouds	Kildare	Loading Site
34	Nenagh*	Tipperary	AES waste transfer facility
35	Littleton*	Tipperary	Peat Briquette Factory

This list of potential sites was reduced by the application of two high level criteria. These were:

- The location of a site within a 30km radius of the existing Tullamore facility
- The requirement for ready access from a national route

After application of these criteria, the list of 35 potential sites was shortened to 6 potential sites, as presented in Table 1-5.

**Table 1-5 Shortlist of Potential sites**

	Location	County	Current Use
1	Lemanaghan (Celtic Roots)	Offaly	Works
2	Derrinlough	Offaly	Peat Briquette Factory
3	Derryarkin	Offaly	Sand & Gravel
4	Derrygreenagh	Offaly	Works
5	Drumman	Offaly	Cutaway Bog
6	Portlaoise	Laois	AES waste transfer facility

A number of further criteria were applied to the above list of potential sites. These were:

- Current site use
- Access
- Ground conditions
- Site Services i.e. ESB, water
- Potential Planning & Environmental Issues
- Suitability for Development

When the current use of the potential sites was taken into consideration, a shortlist of three potential sites was created.

**Table 1-6 Finalised Shortlist of potential sites**

	Location
1	Lemanaghan (Celtic Roots)
2	Derrygreenagh Works
3	Drumman

These three sites were assessed against the criteria listed above. The results of the scoring matrix created are shown in Table 1-7.

**Table 1-7 Scoring Matrix**

Criteria	Lemanaghan (Celtic Roots)	Derrygreenagh Works	Drumman
Access	2	3	3
Ground Conditions	2	2	2
Site Services	2	2	2
Potential Planning & Environmental Issues	2	1	3
Suitability for Development	1	2	3
<b>Total</b>	<b>9</b>	<b>10</b>	<b>13</b>

Based on the assessment of the identified criteria, it was concluded that the preferred site for the development of a materials recycling & waste transfer facility was the Drumman site.

### 1.8.3 Alternative locations within the preferred site

The Drumman site covers an area of approximately 21 hectares. The footprint required for the development of the proposed facility is 3.22 ha.

Two factors were identified as influencing the location of the facility within the wider Drumman site, namely:

- Proximity to the proposed power plant at the adjacent Derrygreenagh Works site and
- Ground conditions within the Drumman site.

### Proximity to Proposed Power Plant at Derrygreenagh Works

Under S.I. 74 of 2006 (implementing Council Directive 96/82/EC on the control of major accidents involving dangerous substances, amended by 2003/105/EC), the proposed power plant at the adjacent Derrygreenagh Works site is considered a 'Seveso' site due to the storage of specified materials in excess of thresholds identified in regulation.

As part of the EIS prepared to accompany the application for the power plant development to An Bord Pleanála, a Major Accident Hazard Report<sup>1</sup> was prepared to assess a number of potential Major Accident Hazards (MAHs) that could occur in the event of an incident onsite. Scenarios were modelled in the event of worst case fire and explosion events at the proposed power plant.

Guidance is provided by the Health and Safety Authority (HSA) and UK Health and Safety Executive in relation to land use in the vicinity of Seveso sites and the distance of other developments from the Seveso sites.

**Table 1-8 HSA Advice in relation to siting of Seveso sites**

Zone	Heat Effect	HSA Advice
Inner	1800 thermal dose units (11.0 kWm <sup>-2</sup> over 60 seconds)	Advise against residential, office and retail, permit occasionally occupied developments e.g. pump houses, transformer stations. Consult with the HAS re, industrial developments
Middle	1000 thermal dose units (7.0 kWm <sup>-2</sup> )	Permit workplace development. Permit residential densities from 28 to 90 persons/ha, density increasing as risk decreases across the zone in developed areas and 22 to 70 persons/ha in less developed areas. Permit modest retail and ancillary local services. Advise against shopping centres, large scale retail outlets, undue concentrations of restaurants/pub facilities
Outer	500 thermal dose units (4.0 kWm <sup>-2</sup> )	No restrictions except for sensitive developments, which would be subject to consultations if inside the consultation range and should not be at risk greater than 0.3 x 10 <sup>-6</sup> /year. Sensitive developments include crèches, schools, hospital and nursing homes. Location of major public assembly will be subject to individual assessment.

(Source: Proposed Power Plant at Derrygreenagh, Co. Offaly EIS, Mott McDonald Pettit)

<sup>1</sup> <http://www.derrygreenaghpwr.ie/docs/EIS%20Appendices/Appendix%20%20Major%20Accidents%20Report.pdf>

Table 1-9 UK HSE Guidance on siting of Seveso sites

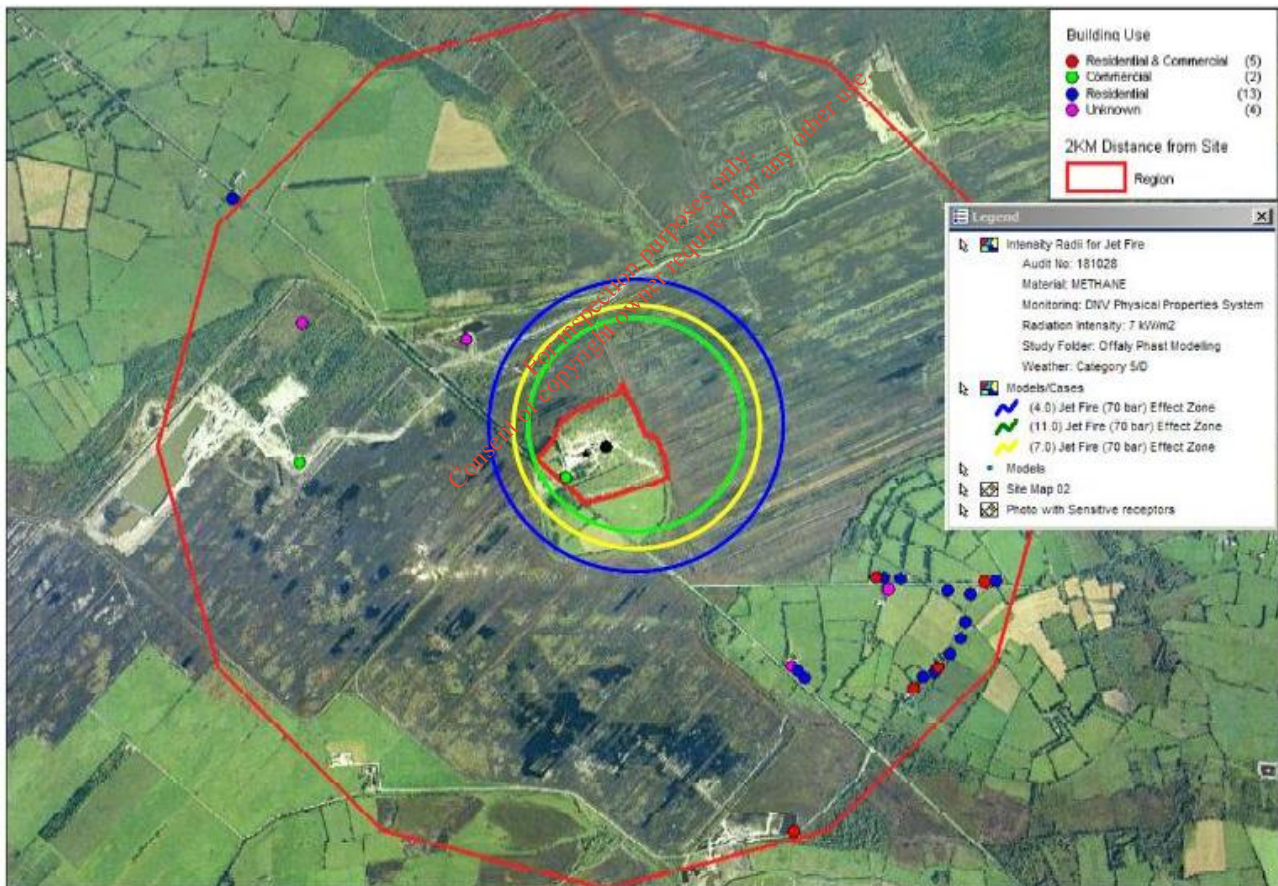
Zone	Overpressure	Effects on people and buildings (UK HSE)
Inner	600 mbar	Serious level of death
Middle	140 mbar	Dangerous level (1 % lethality)
Outer	70 mbar	Windows usually shattered (all sizes)

(Source: Proposed Power Plant at Derrygreenagh, Co. Offaly EIS, Mott McDonald Pettit)

Of the range of fire and explosion scenarios examined as part of the Major Accident Hazard Report, the most serious potential impact in terms of distance from the power plant was in the modelling of a jet fire based on the incoming 70 bar(g) gas supply.

The zones of influence resulting from an event of this nature are presented in Figure 1-3.

Figure 1-3 Zones of influence in event of serious incident at proposed power plant



(Source: Proposed Power Plant at Derrygreenagh, Co. Offaly EIS, Mott McDonald Pettit)

The outer blue radius indicates a zone of influence of 500 thermal dose units at 70 mbar overpressure. Beyond this zone of influence, development is not restricted in any way and impacts resulting from overpressure would be limited.

Within this zone of influence, sensitive developments require consultation and there is a likelihood of shattering windows resulting from overpressure. The proposed materials recycling & waste transfer facility is not deemed to be a sensitive development.

The middle yellow radius indicates a zone of influence of 1000 thermal dose units at 70 mbar overpressure. As per the HSA guidance regarding land use, workplace development is permitted in these zones.

Development of the nature of that proposed within the inner green radius zone of influence i.e. 1800 thermal dose units is advised against.

In conclusion, an area beyond the green zone of influence, as identified in Figure 1-3, would be suitable for the location of the proposed materials recycling & waste transfer facility. The orientation and design of the facility buildings can account for the potential of windows shattering as a result of overpressure of 70 mbar.

### Ground Conditions at the Drumman Site

A site investigation was carried out by FTC geotechnical personnel on the 14<sup>th</sup> and 15<sup>th</sup> of December 2009, the results of which are presented in Section 4. A series of 24 trial pits were prepared and assessed to determine peat depths and underlying ground conditions across the site. Peat depth probing produced a profile of the depth of peat across the site (refer to Figure 4-1 in Section 4).

Based on the results of the site investigations and further to the information presented in Section 4 of this document, the shallowest peat depths (therefore requiring the least amount of peat extraction) and most stable underlying ground conditions were located in the south western portion of the site.

Upon consideration of the issues prevented by the Seveso classification of the proposed power plant and the results of the geotechnical site investigations, the most appropriate location for the location of the proposed materials recycling & waste transfer facility was determined to be that shown in Figure 1-4.

#### 1.8.4 Alternative Processes considered

While the site was chosen primarily for the development of a materials recovery & waste transfer facility to service the infrastructural requirements of AES Ireland Ltd., a number of alternative waste management processes that could potentially be developed at the Drumman site are addressed here.

#### Landfill

The location of the Drumman site may provide a suitable location in terms of access for the development of a landfill facility. However, Bord na Móna PLC operates a landfill facility at the Drehid Waste Management facility in Co. Kildare with a current waste acceptance rate of 360,000 tonnes per annum. To this end, there is no strategic requirement for the development of a landfill facility by Bord na Móna PLC at this time.

#### Biological Treatment

The scale of the site and its location may be suitable for the development of a biological waste treatment facility at Drumman. However, Bord na Móna PLC is developing a 25,000 tonnes per annum composting facility at the Drehid Waste Management Facility to ensure that there is adequate capacity for the treatment of biodegradable municipal waste under the control of AES Ireland Ltd. as per the national commitments in relation to the objectives of the Council Directive 1999/31/EC. The proposed materials recycling & waste acceptance facility will serve the composting facility at Drehid through the acceptance and bulking up of 'brown bin' material prior to transportation to the Drehid Waste Management Facility.

The development of another Bord na Móna PLC biological treatment facility is, at this juncture, not strategically nor economically justified.

#### Energy from Waste

Although the proposed site at Derrygreenagh may be suitable for the development of Energy from Waste (EfW) infrastructure, incineration of residual waste does not currently form part of the strategic vision of Bord na Móna PLC in terms of infrastructural requirements for integrated waste management.

### 1.8.5 'Do-nothing' alternative

The primary objective of the proposed development is the recovery and recycling of a number of recyclable waste streams and the management of other wastestreams such that the volumes of waste disposed to landfill is minimised. The Midland waste management region currently depends largely on landfill for waste disposal. Therefore, there is considerable pressure in the Region to establish alternative treatment capacity for municipal solid waste (MSW) management in order for the region to achieve its targets as outlined in the regional waste management plan.

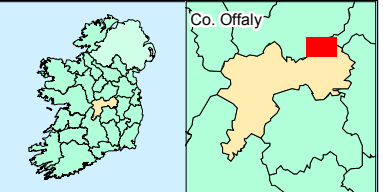
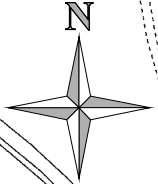
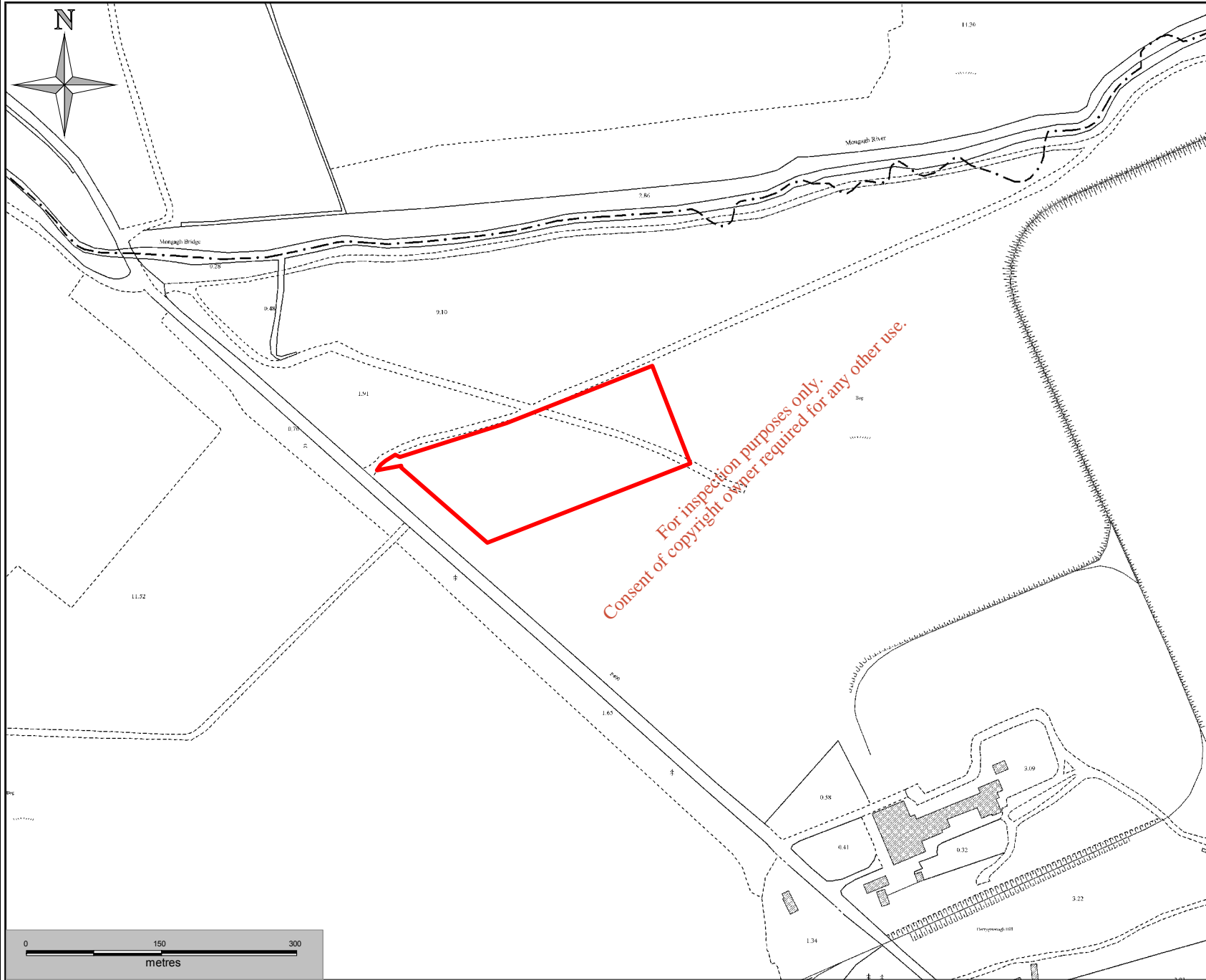
In the event of the development of the proposed facility not occurring, there will be a deficit in the waste management infrastructure of AES Ireland Ltd. which may result in delays in the implementation of national, regional and local waste policy objectives in relation to increasing the recovery of waste materials and minimising the volumes of treated waste disposed to residual landfill, given that AES Ireland Ltd. is a significant waste management service provider in the midland and other waste management regions.

The proposed location will remain in its current status as a post extraction cutaway bog.

## 1.9 Technical difficulties

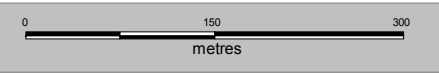
There were no technical difficulties encountered during the environmental impact assessment carried out for the proposed development at Drumman.

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**Legend**  
 site boundary

Date	23/11/09	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Chosen Location for Facility Development within Wider Site	
Scales Used	1 : 6,000 @ A4	
Figure No.	1.4	Rev A



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## 2 DESCRIPTION OF THE DEVELOPMENT

This section of the EIS describes the proposed development in detail. It will provide information on the design, construction and operation of the proposed facility, the acceptance procedures for waste and details of processing carried out on-site.

### 2.1 Existing Site Description

The proposed site for the development of the facility is at Drumman which is located in the townland of Derrygreenagh in Co. Offaly, approximately 7 km to the north west of the village of Rhode, Co. Offaly and 3 km to the south east of Rochfortbridge village in Co. Westmeath. The River Mongagh, which flows in a west to east direction within 500 metres of the site, represents the boundary between counties Westmeath and Offaly.

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 north 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 km to the north west of the site with two further dwellings located 1.5 km 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 which is adjacent to the Derrygreenagh Works from which peat extraction in the Derrygreenagh group of bogs was previously managed. Operations associated with these works have been scaled back in the recent years due to the closure of the Rhode power station.

The topography of the site is generally flat and scrubland has developed in the western corner of the site since the cessation of peat extraction, as can be seen in Figure 2-3.

An existing gated entrance of 7.5 m diameter (as shown in Figure 2-1) provides access to the site and a gravel based haul road extends parallel to the proposed site 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 weighbridge is currently installed approximately 75 metres north of the existing entrance, as shown in Figure 2-2. It is not envisaged that this weighbridge will be utilised as part of operations at the proposed facility.

**Figure 2-1 Existing entrance to site**



Figure 2-2 Existing weighbridge & haul road



Figure 2-3 presents the general area proposed for development viewed from the approximate centre of the proposed site in a south westerly direction towards the southern perimeter of the site. As is evident, a substantial treeline runs along the southern perimeter 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.

Figure 2-3 South westerly Aspect



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## 2.2 Proposed Adjacent Development

The Derrygreenagh Works is located directly to the east of the proposed site. This facility was responsible for the management of peat extraction from the Derrygreenagh Group of bogs in the past and currently acts as the headquarters for Bord na Móna Energy Ltd.

This site is, at the time of writing, 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 located at the Derrygreenagh site. These are 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. The primary fuel source for the CCGT unit will be natural gas with distillate stored onsite as a back up fuel, as required by the Commission for Energy Regulation's (CER) Secondary Fuelling Obligation.

The OCGT unit will be capable of dual firing, running on either natural gas or distillate. The proposed development will also include all necessary ancillary structures and equipment to allow for the efficient and safe running of the power plant. Further to this, it is proposed that Bord na Móna PLC's Power Generation business unit headquarters will be located at the site in future. The site of the proposed development occupies a total area of 22.8 ha. 5.3 ha of this area comprises of an adjacent switchyard site on the western side of the R400 roadway. The main site for the proposed development occupies an area of 17.5 ha.

As identified in Section 1.5.1, the potential impacts from the proposed materials recycling & waste transfer facility and from the proposed power plant are considered cumulatively in a number of sections of this EIS.

## 2.3 Detail of the Proposed Development

### 2.3.1 Proposed Site Infrastructure

This section outlines the proposed elements of site infrastructure of the materials recycling & waste transfer station. Figure 2-4 presents the layout of the proposed facility.

#### Site Access

Access to the site will be via the existing entrance gate, situated along the R400 road. Vehicles will utilise the existing haul road (to be upgraded) for approximately 100 m before passing onto a dedicated facility haul road and through a second gated entrance into the facility. Appropriate signage will direct employees and visitors to the designated car parking areas and waste vehicles to the weighbridge.

#### Site Security

The site will be bound in its entirety by 2.5 high metre 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.

A CCTV system will be installed at the facility which will be used to monitor the perimeter and main yard area. Monitoring, logging and supervision of all waste vehicles and other visitors will be carried out. Visitors to the site will be required to log in at the reception of the administration building.

#### Administration Building

The Administration 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 430m<sup>2</sup> on a footprint of 352m<sup>2</sup>.

The building will be constructed in traditional style concrete block cavity walls with prefabricated timber roof trusses. The first floor will be formed using a concrete slab. Alternatively, the building will be a prefabricated building constructed in sections off site, supplied and erected on site by a specialist

contractor. The building shall conform to the Building Regulations in all respects and will use energy saving technologies where appropriate.

Internally, the building will be subdivided using a block work or stud partition construction. Staircases will be constructed of concrete. Externally, the walls will be finished in smooth plaster weathering and/or faced with selected stonework. Security shutters will be fitted externally over doors and windows.

The building will require power which will come into the building at a centralised point. From this point it will be distributed internally to the necessary areas. The building will be equipped with security and fire alarm systems. The building will incorporate low voltage equipment where appropriate.

### Waste Reception and Processing Building

The Waste Reception & Processing Building will be a single storey construction with internal floor area of 6,810m<sup>2</sup> approximately. It will be subdivided internally by reinforced concrete walls and cladding partitions. The subdivided areas are the materials recovery area (4,674 m<sup>2</sup> approx), the waste transfer area (1,583 m<sup>2</sup>) and the biowaste reception and processing area (552 m<sup>2</sup>).

The structure will be based on a steel portal frame on reinforced concrete foundations. The external envelope will be formed using a cladding panel to approved fire resistant specification. Opaque rooflights and side panels will be included to maximize the use of natural daylight. Steel roller shutter doors will be installed to provide access for incoming trucks and facilitate loading/unloading operations

Internally, the individual areas are divided by concrete walls that also act as 'push' walls for loading recovered materials. These are typically 3m high and 0.3m thick reinforced concrete. Floors will be reinforced concrete with a minimum thickness of 0.2m approx. The loading area in the residual waste reception area is 2.5m below the finished floor level of the rest of the building to cater for loading of high sided ejector trailers used to transfer waste for further processing. This area is served by a ramp for access/egress. This area will be drained at the external/internal envelope interface which will discharge to surfacewater collection system. Internally the floors will be engineered for collection of periodic wash down water for discharge to foul water collection and treatment systems.

The building will have a 3-phase power requirement which will come into the building at a centralised point. From this point it will be distributed internally to the necessary areas. The building will be equipped with security and fire alarm systems.

### Bale Storage Building

The Bale Storage Building will be a single storey construction with internal floor area of 978m<sup>2</sup> 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 2.7m canopy will shield the open side of the building. Lorries moving the bales off site will be loaded within the building.

The structure will be based on a steel portal frame on reinforced concrete foundations. The external envelope will be formed using a single steel cladding panel. Opaque rooflights and side panels will be included to maximize the use of natural daylight. Steel roller shutter doors will be installed to provide access for incoming trucks and facilitate loading operations

Internally, the floor area will be divided by concrete walls that also act to stabilise bale stacking. These are typically 3.5m high and 0.3m thick reinforced concrete. Floors will be reinforced concrete with a minimum thickness of 0.2m approximately. The floor level will be above ground i.e. no sublevel access will be provided. Loading of trucks will be through the use of a mobile ramp.

The building will have a relatively low power requirement which will come into the building at a centralised point. From this point it will be distributed internally to the necessary areas. The building will be equipped with lighting and fire alarm systems.

## Materials Recycling Plant

The following items of mobile and stationary plant may be utilised at the facility:

- Conveyors – feed, metering, incline & in-floor
- Picking Stations – locations for the manual capture of recyclable materials or contaminants
- Screens – paper & card separation
- Magnetic & eddy current separators – metals separation
- Optical separator – plastics separation
- Balers – for the baling of separated, recyclable waste streams
- Loading shovel(s) – for the loading of the materials recovery plant
- Forklift(s) – for the movement of baled materials

## Weighbridge

A dual weighbridge system is proposed for the facility. The weighbridges and weighbridge hut will be located some 40 m from the facility entrance gate and will be 5 – 10m from the administration building. The weighbridges will either 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. The weighbridge system will be linked to a digital weight indicator and the software will record all information required by the waste licence, such as the gross weight, tare weight, vehicle registration, name of haulier, waste type, waste permit number and waste source. This information will be relayed to the central computer system in the administration office.

## Site Roads, Parking and Hardstanding

The site will be finished with a hardstanding area that consists of a 200 mm reinforced steel concrete slab laid on top of a 2000 gauge visqueen membrane on top of a minimum of 300 mm of hardcore laid in 150 mm layers. Internal Roads will have an asphalt finish. Internal traffic on the hardstanding areas will be directed along marked portions. There will be 63 no. parking spaces for visitors and staff. The drainage system in these areas is discussed in detail in Section 5 of this document.

## Fuel Storage

Two 1,100 litre diesel tanks will be installed adjacent to the waste reception and processing building which will be used for re-fuelling of on-site machinery and waste collection vehicles. These tanks will be bunded as per EPA specifications and any run-off from this area will be directed via a hydrocarbon interceptor prior to discharge to the attenuation pond. A spill kit will be located adjacent to the re-fuelling area. Drip trays will be used during re-fuelling.

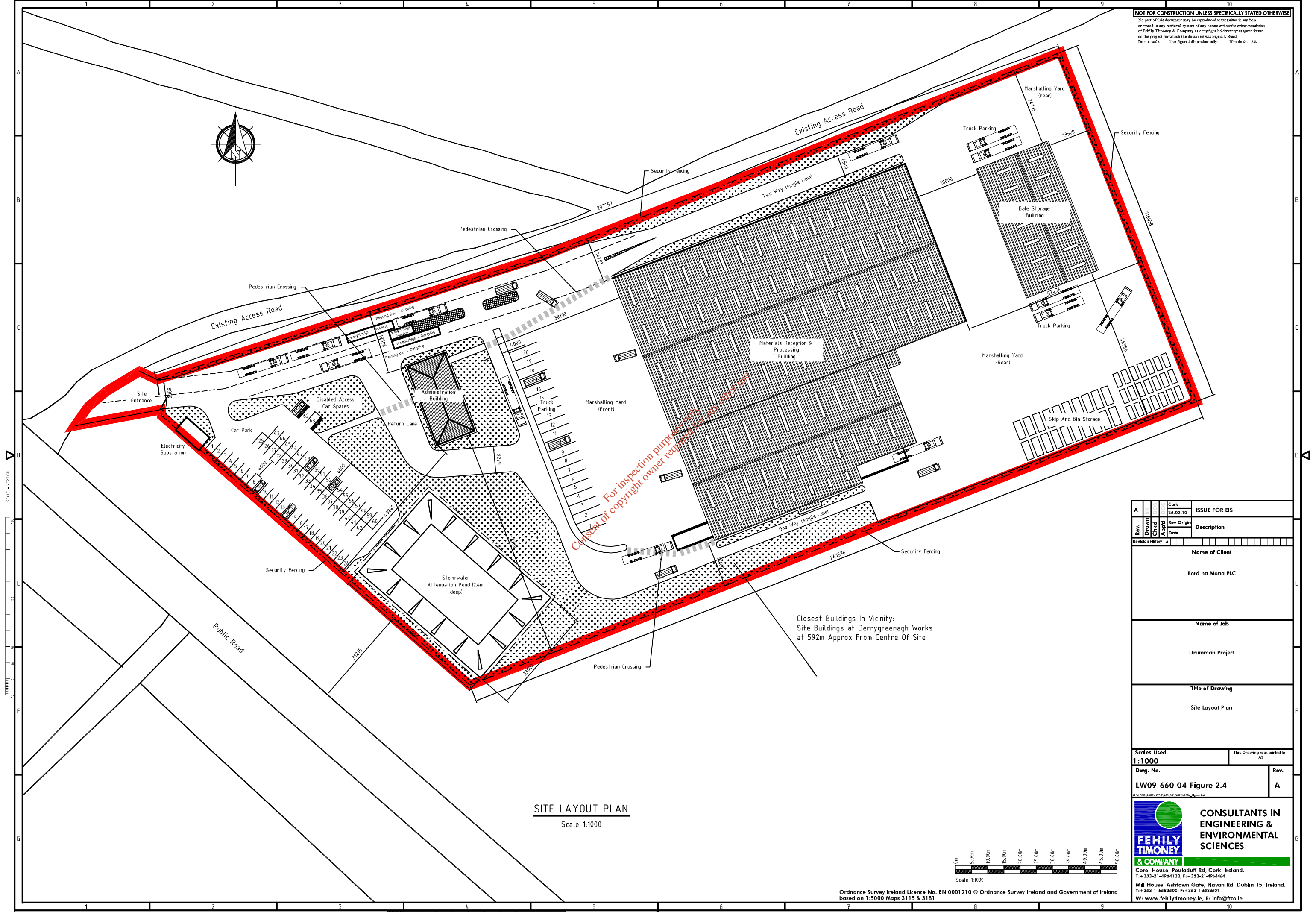
## Waste Quarantine & Waste Inspection Areas

Dedicated areas for waste inspection and quarantine will be established within the materials recycling and waste transfer sections of the waste reception and processing building.

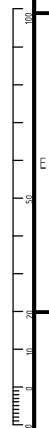
## Traffic Control

Traffic entering the facility will be directed to the designated car parking areas in the case of employees and visitors and to the weighbridge in the case of waste vehicles. All traffic entering the waste reception and processing building must pass over the weighbridge. Similarly, vehicles will be weighed when exiting the site. A turning circle will be provided to allow vehicles that may be over or under weight to return to the facility to amend their load before passing over the weighbridge once again.

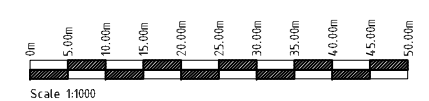
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SCALE - VERTICAL



**SITE LAYOUT PLAN**  
 Scale 1:1000



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Rev.	Drawn	Check	Appd	Rev Origin	Date	Description
A				Cork	25.02.10	ISSUE FOR EIS
Revision History						
Name of Client						
Bord na Mona PLC						
Name of Job						
Drumman Project						
Title of Drawing						
Site Layout Plan						
Scales Used						This Drawing was printed to
1:1000						A3
Dwg. No.						Rev.
LW09-660-04-Figure 2.4						A

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## Surface Water and Foul 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 Puraflo unit or similar. Effluent from this unit will be discharged to the Mongagh River (refer to Section 5 for assimilative capacity assessment).

In addition, rainwater from the waste reception and processing building will be harvested using a Bord na Móna Rainsava unit or similar for reuse in grey water applications through out the site.

Section 5 of this EIS provides further detail in relation to surface and foul water management.

## Site Services

An Engineering Services Report is included in Appendix 3 of this EIS which identifies existing and proposed services at the site.

## Biofilter

A proprietary biofiltration system will be installed onsite for the treatment of potentially odiferous air from the acceptance of 'brown bin' biowaste material within a dedicated, enclosed section of the materials reception and processing building. This stand alone unit will be located adjacent to the biowaste section of the building and will ensure treatment of building air to the limit values specified in the facility licence.

## Dust Extraction

Processing operations within the mixed dry recyclables processing and waste transfer section of the processing building will be maintained under negative pressure in order to control potential dust emissions resulting from operations within the building from an environmental and health and safety viewpoint. Extracted air will pass through a dust filtration system prior to venting to atmosphere. This system will be a standalone unit installed to the rear (north) of the waste reception and processing building.

## Fire Control

In facilities of this nature, fires are prevented by operating best practice including:

- Inspection of loads at the weighbridge
- Control of loads to ensure no burning or smouldering loads enter the facility
- Designation of smoking/non smoking areas
- Security
- Smoke detectors and fire alarm
- Fire extinguishers, hoses and hydrants
- Staff training

All buildings will be equipped with heat and smoke sensors so that in the event of a fire both the site management and emergency services can be quickly alerted. Portable fire fighting equipment will be located at various locations throughout the buildings and the rainwater harvesting tank and surface water attenuation tank will also act as back up fire-fighting water storage tanks.

The fire authority will be informed of the development prior to commencement of operations as part of the preparation of emergency procedures for the site in line with the requirements of the waste licence.

### 2.3.2 Proposed Site Operation

The main activities to be undertaken on-site will be the delivery of waste by refuse collection vehicles, skip lorries and trucks, its reception, processing, storage and bulking up prior to removal off-site.

In accordance with the Third and Fourth Schedules of the Waste Management Acts, 1996 to 2010, the following are the classes of activity for which a waste licence application is submitted:

**Table 2-1 Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2010**

<b>Class 11</b>	<b>Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.</b> This activity is limited to the mixing of waste prior to baling/bulking
<b>Class 12</b>	<b>Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.</b> This activity is limited to the baling/bulking of waste prior to the transfer for disposal off site
<b>Class 13</b>	<b>Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.</b> This activity is limited to the storage of waste prior to the baling/bulking and transfer for disposal off-site

**Table 2-2 Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Acts 1996 to 2010**

<b>Class 2</b>	<b>Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes):</b> This activity is limited to segregation and baling of plastics, cardboard and paper as well as collection of newsprint, textiles, timber, biowaste, waste oils, wood, paints prior to recovery off-site
<b>Class 3</b>	<b>Recycling or reclamation of metals and metal compounds:</b> This activity is limited to the segregation of aluminium cans, tin cans, scrap metal, batteries and white goods prior to recovery off-site
<b>Class 4</b>	<b>Recycling or reclamation of other inorganic materials:</b> This activity is limited to the segregation of construction and demolition waste, DIY waste, electronics, glass and tyres prior to recovery off-site
<b>Class 12</b>	<b>Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule:</b> This class of activity allows for waste containing recyclables to be processed at the facility
<b>Class 13</b>	<b>Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced:</b> This activity allows for the storage of waste accepted at the facility prior to recovery off-site



The application submitted is for the acceptance of 99,000 tonnes of waste per annum as detailed in Table 2.3. Class 2 of the Fourth Schedule is proposed as the principal activity at the site.

**Table 2-3 Breakdown of waste materials to be accepted at facility**

Waste Type	Tonnes Per Annum	EWC Code
<b>Municipal Solid Waste</b>	<b>80,000</b>	15 01 06 – mixed packaging
		19 12 12 - other waste (including mixtures of materials) from mechanical treatment of waste other than those mentioned in 19 12 11
		20 03 01 – mixed municipal wastes
		20 03 02 – waste from markets
		20 03 03 – street cleaning residues
		20 01 01 – paper and cardboard
		20 01 02 - glass
		20 01 08 – biodegradable and kitchen waste
		20 01 38 – wood other than that mentioned in 20 01 37
		20 01 39 - plastics
<b>Commercial &amp; Industrial Waste</b>	<b>10,000</b>	15 01 01 – paper and cardboard packaging
		15 01 02 – plastic packaging
		15 01 03 – wooden packaging
		15 01 04 – metallic packaging
		15 01 05 – composite packaging
		15 01 07 – glass packaging
<b>C &amp; D waste</b>	<b>9,800</b>	17 01 07 – mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
		17 02 01 – wood
		17 02 02 – glass
		17 02 03 - plastic
		17 04 07 - mixed metals
		17 05 04 – solid and stones other than those mentioned in 17 05 03
		17 06 04 – insulation materials other than those mentioned in 17 06 01 and 17 06 03
		17 09 04 – mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
<b>Household Hazardous waste</b>	<b>200</b>	13 02 04 – mineral-based chlorinated engine, gear and lubricating oils
		13 02 05 – mineral-based non-chlorinated engine, gear and lubricating oils
		13 02 06 – synthetic engine, gear and lubricating oils
		13 02 07 – readily biodegradable engine, gear and lubricating oils
		13 02 08 – other engine, gear and lubricating oils
		16 01 07 – oil filters
		16 02 11 – discarded equipment containing chlorofluorocarbons, HCFC, HFC
		20 01 23 – discarded equipment containing chlorofluorocarbons
		20 01 27 - paint, inks, adhesives and resins containing dangerous substances
		20 01 28 - paint, inks, adhesives and resins other than those mentioned in 20 01 27
		20 01 33 – batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
		20 01 36 – discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
<b>TOTAL</b>	<b>99,000</b>	

## Hours of Operation

It is proposed that the operating hours of the facility will be:

- Hours of operation of the facility – 06:00 to 00:00 Monday to Saturday inclusive
- Hours of waste acceptance at the facility – 07:00 to 23:00 Monday to Saturday inclusive

## Waste Acceptance & Handling

All waste accepted at the facility will be subject to waste acceptance measures which will be outlined in the facility's environmental management system (EMS) and approved by the EPA. The likely waste acceptance procedures will involve the use of an integrated waste software system.

When waste arrives on-site, it will be weighed at the weighbridge and the vehicle registration number and origin of the load entered into the software system. A weight docket will be printed for each waste load. The waste vehicle will then be directed to the appropriate area of the Waste Reception and Processing building. The Waste Reception and Processing Building will be divided into three sections:

- Materials recovery area
- Waste Transfer area
- Biowaste area

### Materials Recovery Area

Mixed dry recyclable (MDR) waste material will be deposited in the incoming material deposit bunker and visually inspected. Material will be loaded into a metering hopper that feeds the material recovery plant using a loading shovel. Through a system of conveyors, picking stations, screens, magnetic and eddy current separators, optical separators and other plant, the waste material will be separated into its various fractions such as mixed papers, cardboard, plastics and ferrous and non-ferrous metals. The final configuration of the materials recycling plant will be determined based on, among other factors, market considerations and the characteristics of the accepted waste material.

Once segregated into the different fractions, the recyclable material will be baled with the bales of material being transported for storage to the Bale Storage Building using a forklift. When determined by the operations manager and based on market conditions, the baled material will be loaded into trailers and transported off site for sale on the recyclables market.

### Waste Transfer Area

Material accepted at the facility for bulking up will be unloaded in the waste reception area of the waste transfer section of the building and inspected. The material will then be placed in an appropriate bunker using a loading shovel until such time as a sufficient quantity of the material is received. These bunkers are likely to be constructed using moveable, precast concrete walls or blocks of the Alfabloc variety. Waste materials to be accepted in the waste transfer section will be construction and demolition (C&D) waste, 'black bag' residual waste and certain commercial and industrial (C&I) waste materials.

Once a sufficient quantity of a waste type is accumulated, this waste material will be loaded into high sided trailers in the loading pit in the waste transfer building. The lower level of the loading pit allows the loading shovel operator to accurately and cleanly load the trailer prior to the transportation of this material offsite for further treatment or disposal.

### Biowaste Area

It is generally 'brown bin' biowaste material that will be accepted in this section of the building, typically from refuse collection vehicles that have collected organic waste from household and commercial premises. Vehicles will access the building through rapid opening and closing doors. This material will be deposited on the floor of the building and inspected for contamination.

If it is expected that the material will have a high moisture content then material such as wood chip or paper/card will be laid on the floor in order to prevent spillage and difficulties in handling.

The biowaste material will be stockpiled within the building to be loaded into a low sided trailer for transportation to a designated biological treatment facility.

In all sections of the facility, waste deemed unacceptable for acceptance at the facility will be moved to the designated waste quarantine areas and loaded into designated compactor bins, prior to its removal off site and transfer to an appropriate facility for disposal or recovery.

### Pest Control

Vermin and insects can potentially be a nuisance at waste management facilities. A vermin control specialist will be retained to implement vermin control measures on site. The facility will be regularly inspected and the required measures taken if evidence of vermin is found on site.

Regular litter patrols of the site perimeter will also be undertaken at the site and a road sweeper vehicle will be contracted to visit the site on a regular basis to clean down all hardstanding surfaces.

### Monitoring

AES Ltd. personnel and/or retained consultancies will carry out the sampling and monitoring programme in accordance with the facility waste licence. The Bord na Móna Environmental Manager will have responsibility for the implementation of the monitoring programme. Samples will be collected and transported under chain-of-custody to a laboratory. Locations of proposed monitoring points are indicated on Figure 2-5 and referred to in more detail in the following sections of this document.

## 2.4 Project Construction Phase

The following outlines the main elements of the construction phase of the development. These 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.

### 2.4.1 Waste generated during the Construction Phase

The wastes/spoils likely to be generated during the construction phase are presented in Table 2-4 below.

Table 2-4 Potential wastes generated during construction phase

Waste	Source
Hardcore, stone, gravel, concrete and plaster	Surfaces to facilitate construction
Timber	Temporary supports, concrete shuttering and product deliveries
Miscellaneous building materials	Left over from construction of the waste reception and processing building and accommodation building
Waste from chemical toilets	Chemical toilets
Plastics	Packaging of material
Lubricating oils, diesel	Unused quantities at end of construction period

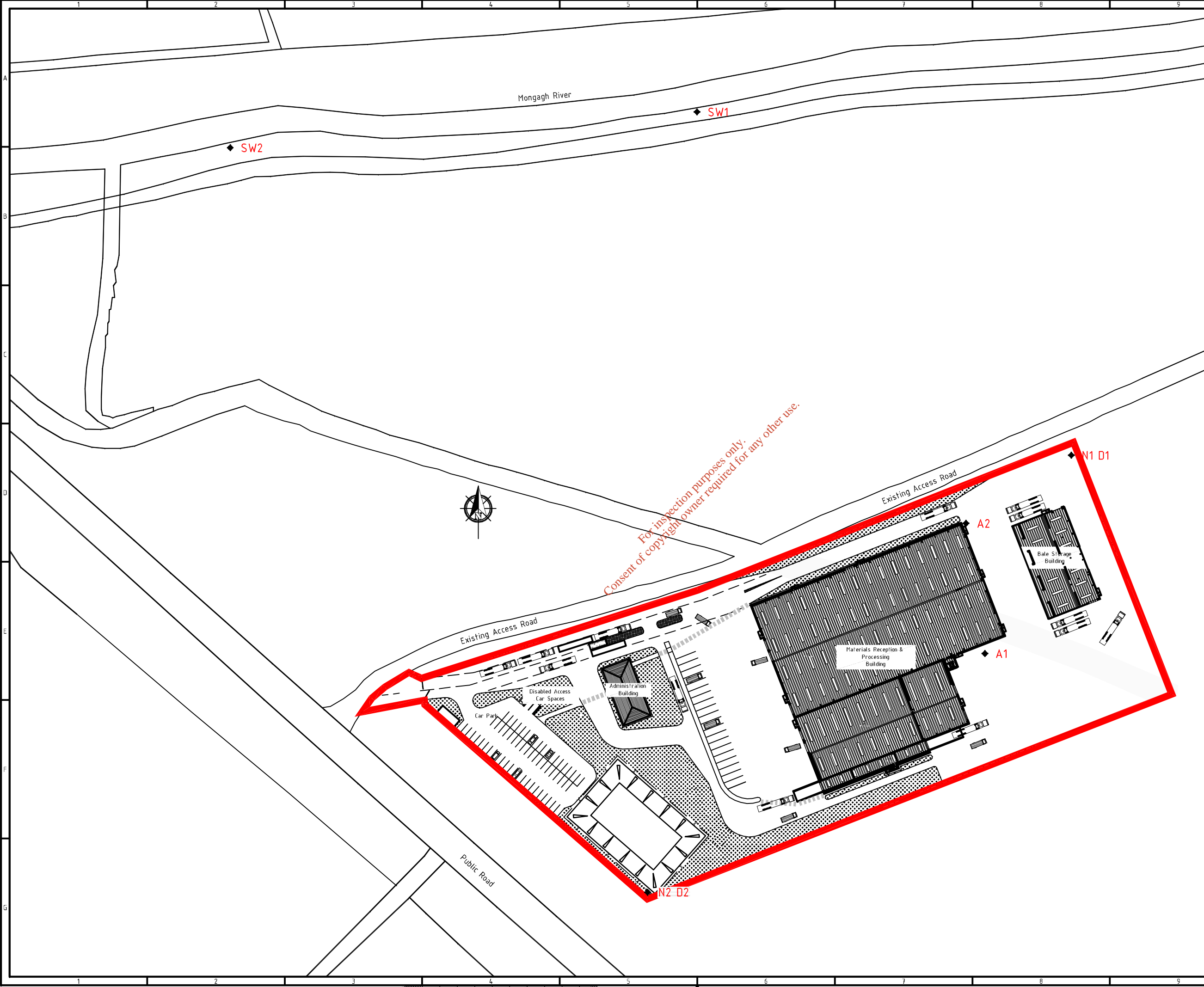
All wastes will be collected at the end of the construction phase, taken off site, and reused, recycled and disposed of according to best practice in an authorised facility. Lubricating oils and diesel will be removed from the site and disposed of by an approved waste contractor in accordance with the European Communities (Waste Oil) Regulations, 1992. (S.I. No. 399 of 1992).

## 2.5 Construction Scheduling, Phasing and Accommodation

### 2.5.1 Duration and Timing of the Works

The main elements of the proposed construction are outlined above. It is estimated that the project will take 9 -12 months to complete. It would be preferable that the construction of the facility take place during the summer months to take advantage of longer daylight hours and drier weather but this will be dependant on a number of factors.

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**Emission Locations**  
A1, A2 - Air Emission Points (indicative)  
SW1 - Surface Water Emission Points

**Monitoring Locations**  
D1, D2 - Dust Monitoring Locations  
N1, N2 - Noise Monitoring Locations  
GW1 - To Be Comformed

**Grid Reference Of Emission & Monitoring Locations (Indicative Only)**

A1:	E: 249148.17	N: 238629.39
A2:	E: 249148.10	N: 238685.26
N1, D1:	E: 249185.28	N: 238774.49
N2, D2:	E: 249003.48	N: 238767.00
SW1:	E: 249024.69	N: 238861.78
SW2:	E: 248824.37	N: 238846.42

Rev.	Drawn	Check	Appd	Rev Origin	Date	Description
A				Cork	25.02.10	ISSUE FOR EIS

**Name of Client**  
Bord na Mona PLC

**Name of Job**  
Drumman Project

**Title of Drawing**  
Proposed Emission and Monitoring Locations

**Scales Used**  
1:1500

**Dwg. No.**  
LW09-660-04-Figure 2.5

**Rev.**  
A

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### 2.5.2 Hours of Work

Construction work will generally be carried out during daylight hours. Construction work will generally be confined to the following times:

- 08:00 to 20:00 Monday to Saturday

### 2.5.3 Construction Traffic and Access

The facility's construction will lead to construction-related traffic on the roads in the proximity of the development. It will include:

- Site personnel driving to the work site and site compounds (by car, van and 4x4)
- Delivery of materials cladding and steel and other construction materials by van and HGV
- Movement of construction equipment and refuelling trucks to and around the site
- Potential import of fill material from the Derryarkin Sand and Gravel site or other source locations

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.

Potential impacts on traffic are further dealt with in Section 3.3 of this EIS.

### 2.5.4 Construction Compound

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.

Temporary toilet facilities will be required for construction workers. These will consist of temporary 'portaloo' type chemical toilets located throughout the site.

### 2.5.5 Construction Environmental Management

The contractor will prepare a Construction Environmental Management Plan. 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. In addition, the contractor will identify the means by which potential issues in relation to noise and traffic will be managed during the construction phase. Mitigation measures presented in relevant sections of this EIS will be incorporated into this plan.

## **2.6 Decommissioning**

In the event of cessation of waste acceptance and processing activities at the site, it is anticipated that the following closure and restoration measures will be undertaken: -

- Bord na Móna PLC will ensure that all waste material is removed off site for appropriate treatment at licenced/permitted facilities
- The plant used at the existing site will be removed from the site by Bord na Móna PLC
- Portable structures will be removed from the site, where applicable
- Road sweeper vehicles will be employed to clean the site
- Bord na Móna PLC will remove all office equipment
- The weighbridge facility will be decommissioned and removed

If a decision is taken to decommission the facility, the required statutory bodies will be notified at least six months in advance of the closure and an aftercare management plan will be prepared.

## 2.7 Health & Safety

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

### 2.7.1 Health and Safety during Design

Design stage risks can be described as risks which can easily be identified at the design stage, generally being eliminated or minimised with careful design. Bord na Móna PLC has appointed Fehily Timoney & Company (FTC) to carry out the preliminary design of the materials recycling & waste transfer facility.

FTC has also been appointed as Project Supervisor for the Design Process (PSDP) for the preliminary design phase of the development. This role is carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2006.

The PSDP ensures that the appropriate Design Stage Risk Assessments are prepared. These are required to demonstrate that the designers have taken account of the General Principles of Prevention as required by the Safety, Health and Welfare at Work (Construction) Regulations 2006.

Where possible, the facility design stage will eliminate and minimise many of the potential risks at construction stage. However, health and safety risks at construction stage will need to be properly managed.

### 2.7.2 Health & Safety during Construction

The contractor will be appointed as Project Supervisor for the Construction Stage (PSCS) in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2006. The suitability and competence of the contractor to fulfill this role will be carefully assessed by Bord na Móna PLC prior to the appointment.

A site specific Health and Safety Plan for the construction phase of this project will be prepared in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2006. This will address all safety aspects of the construction project including, but not limited to:

- site access and general induction training
- general site safety
- chains, ropes and lifting gear
- special provisions for hoists
- protective clothing and footwear required
- lockout/tag-out procedures for safe electrical
- method statements for work procedures
- miscellaneous

### 2.7.3 Operational Health and Safety

Access to the site will be restricted to employees, waste trucks and occasional visitors. Procedures will be in place at the facility to ensure the health and safety of all persons entering the site, including the signing in/out of all visitors.

All staff working at the site will be made familiar with the contents of the site specific Health and Safety Plan. Health and safety practices will be reviewed on an annual basis to ensure that they are in line with best practice in this sector. Regular safety audits will be carried out on-site to ensure the safety of all personnel working there. Furthermore, suitable operation and maintenance procedures will be put in place to facilitate the safe operation of the facility.

Vehicular traffic movements within the site will be restricted and monitored and all traffic movements subject to strict procedures, in full accordance with health and safety requirements.

Other operational health and safety aspects, such as noise and air quality are discussed in other Sections of this EIS. Measures have been taken in the design of the proposed infrastructure to minimise the potential impact of these aspects on health and safety.

Based on similar waste licences granted by the EPA, it is likely that the facility licence will require the following procedures/systems to be in place at the facility:

- Full training for all employees
- Environmental management system (EMS) including the setting of objectives and targets for environmental control at the site and updating documented procedures for operations and environmental controls at the site
- Emergency response procedures - setting out all procedures that, in the event of an emergency, will be undertaken by personnel at the facility. The document will contain a list of contact names and numbers for emergency personnel
- Corrective action procedures – outlining the process which will be taken in the event of an accident of environmental incident at the site.

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### 3 THE HUMAN ENVIRONMENT

This section describes the existing human environment in the area of the proposed development. It examines the potential effects of the proposed development on that environment and outlines the measures proposed to mitigate any potential impacts. The main areas examined with respect to the potential effects of the proposed development on the human environment are:

- Socio-economic factors
- Noise
- Traffic
- Health and safety
- Climate & air quality
- Visual impacts

Socio-economic factors, noise, traffic and climate & air quality are discussed in this Section. Health and safety issues have been addressed in Section 2 and visual impacts are discussed in Section 7. The locations of baseline environmental monitoring associated with the assessment of noise and air quality are identified in Figure 3-3.

#### 3.1 Socio-economic Factors

This section describes the existing socio-economic environment in the area of the proposed development. It examines the potential impacts of the proposed development on that environment and outlines the measures proposed to mitigate any potential impacts, where appropriate. The main areas examined with respect to the potential effects of the proposed development on the socio-economic environment in the area are:

- Settlements & population
- Land use
- Local employment and economic activity
- Transportation network
- Utilities
- Amenity & tourism

##### 3.1.1 Methodology

The baseline condition in relation to human beings in the area of the proposed development was assessed by means of a desk-based study to assess the available information in relation to the population in the area of the proposed development, the current levels of housing, the current employment levels and the baseline in relation to land use, tourism, amenities, public transport and public utilities.

Once the baseline assessment had been carried out, an assessment of both the positive and negative impacts of the proposed development on the surrounding area in terms of socio-economic factors was undertaken. These impacts are presented in this chapter as well as the mitigation measures proposed, if appropriate, to mitigate the negative impacts.

The data and publications used to compile the baseline assessment are listed below:

- Offaly County Council, *Offaly County Development Plan 2009-2015*, 2009
- Central Statistics Office, *Quarterly National Household Survey - Quarter 3 2009*, December 2009
- Central Statistics Office, *A Profile of the Working Population of Large Towns*, April 2009
- Westmeath County Council, *Westmeath County Development Plan 2008-2014*, 2008
- Central Statistics Office, *Regional Population Projections 2011-2026*, December 2008
- Central Statistics Office, *Census 2006: Principal Economic Status and Industries*, September 2007
- Central Statistics Office, *Census 2006: Housing*, August 2007
- Central Statistics Office, *Census 2006: Ages and Marital Status*, May 2007
- Central Statistics Office, *Census 2006: Population Classified by Area*, April 2007
- National Development Plan 2007-2013, *Transforming Ireland: A Better Quality of Life for All*, January 2007

- Midlands Regional Authority, *Regional Planning Guidelines*, 2004
- Department of Environment, Heritage and Local Government, *The National Spatial Strategy (NSS) 2002-2020*, November 2002

### 3.1.2 Existing Socio-economic Environment

#### Settlements and Population

The proposed site is located adjacent to the existing Derrygreenagh Works in an area of cutaway bog. Rochfortbridge village in County Westmeath is located 3 km to the north west of the site and the River Mongagh, which flows in an west to east direction within 500 m of the site represents the boundary between counties Westmeath and Offaly. Rhode village is located 7 km to the south east of the site.

Derryarkin Sand and Gravel Ltd. is located approximately 500 m to the south west of the site and at a location approximately 2.5 km north of the site while 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.

Figure 3-1 presents the existing developments and dwellings in the vicinity of the site.

The proposed development site is located in the townland of Derrygreenagh in the Electoral Division (ED) of Knockdrin, Co. Offaly. Rhode village is part of Ballyburly ED. The closest Electoral Division in County Westmeath to the proposed development site is Castlelost ED, which includes Rochfortbridge.

Table 3-1 presents the local population as per the three most recent census surveys.

**Table 3-1 Populations as per most recent census surveys**

Location	1996	2002	2006	% Change 1996 – 2002	% Change 2002- 2006
	Persons	Persons	Persons		
State	3,626,087	3,917,203	4,239,848	8.0	8.2
<b>Offaly</b>	59,117	63,063	70,868	7.7	11.3
Knockdrin ED	113	141	157	24.8	11.3
Ballyburly ED	861	1,148	1,291	33.3	12.5
<b>Westmeath</b>	63,314	71,858	79,346	13.5	10.4
Castlelost ED	920	1,594	1,690	73.3	6

#### Land Use

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.

The proposed site location lies within the Derrygreenagh group of bogs. Peat extraction in these bogs is managed under Integrated Pollution Prevention Control (IPPC) Licence No. P0501-01 but has declined in intensity since the closing of the Rhode peat fired power station. This location is identified in the Offaly County Development Plan 2009 - 2015 as an area of 'moderate sensitivity'. Moderate Sensitivity areas are described as areas that are '*generally open in character with intrinsic quality and moderate capacity to adsorb new development*'.

The adjacent Derrygreenagh Works, from which peat milling activities on the Derrygreenagh bog are managed, is currently subject to a separate application to An Bord Pleanála for the development of gas fired power plant at that location.

Derryarkin Sand and Gravel Ltd., a joint venture between Bord na Móna PLC and Cement Roadstone Provinces, operate sand and gravel quarries on their site on the south western side of the R400 road.

In addition, periodic extraction of sand occurs at a location approximately 2.5 km to the north of the proposed development. The entrance junction to the quarry is within 200 m of the existing entrance to the proposed site location.

The lands beyond the extent of the Derrygreenagh group of bogs and the Derryarkin Quarry to the north, south, east and west of the proposed facility are predominantly agricultural fields. A number of areas of cutaway bog in the vicinity of the proposed development have been leased to Coillte and which are planted with coniferous forestry. Land use in the vicinity of the proposed development, as per the Coordination of Information on the Environment (CORINE) mapping, is identified in Figure 3-2.

### Local Employment and Economic Activity

Being predominantly rural in character, the local economy traditionally revolved around agriculture and peat production. However, with diminishing peat reserves and declining farming incomes, employment is increasingly provided in the economic centres of Tullamore, Athlone and Mullingar.

Bord na Móna PLC is traditionally a significant employer in the region and continues to provide employment for approximately 600 persons in County Offaly at the peat works in Derrygreenagh, Boora and Blackwater, the briquette factory in Derrinlough and at the Edenderry power station.

The existing AES Ireland Ltd. facility employs approximately 40 staff thereby significantly contributing to employment in the locality and the overall economy of Tullamore. The transfer of mixed dry recyclables processing to the proposed facility at Drumman will secure these positions with there being a strong likelihood of increased employment at the proposed facility given the increased level of activity when compared with the Tullamore facility. The commencement of waste activities at the proposed facility will also create a demand for local goods and services to support activities at the facility.

The proposed facility will accept household and commercial recyclable waste material from Tullamore town and the wider Offaly and Midland region. This benefits the local economy as it reduces the financial cost involved with disposal of waste. It also benefits the community socially and environmentally, prompting sustainable development, reducing the need for landfills, preventing pollution, saving energy and reducing greenhouse gas emissions.

### Transport Network

The proposed site is approximately 1.75 km south west of Junction 3 of the M6 Dublin Galway motorway on the R400 Rochfortbridge – Rhode road. Rochfortbridge is served by the Bus Eireann Dublin - Galway bus route on an hourly basis and the nearest train station is located in Mullingar.

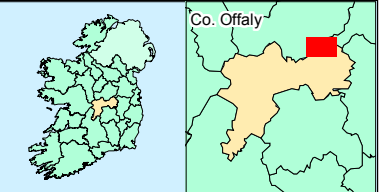
It is proposed that all heavy goods vehicles (HGV) entering and exiting the proposed facility during the construction **and** operational phases access the site primarily via Junction 3 of the M6. This route will be identified to all HGV drivers as the preferred access route to the facility.

### Utilities

A 10/20 kV MV electrical supply is located at the entrance to the facility and serves the existing weighbridge. This supply will be upgraded as required during the construction phase of the project.

No public or group water schemes are located in the vicinity of the proposed development site. A telecoms line runs parallel with the R400 road.

A mobile phone mast is located at the adjacent Derrygreenagh site and this comprises a 30 m high antenna support structure, carrying four GSM antennas and five 6 m diameter link dish antennas. The mast has associated telecommunications equipment and is surrounded by security fencing.



**Legend**

site boundary

**Dwelling Classification**

- commercial
- residential
- residential and commercial

data source - derived from Geodirectory 2009 and windscreen survey

Date	25/01/2010	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Dwellings in Vicinity of Proposed Development	
Scales Used	1 : 22,000 @ A4	
Figure No.	3.1	Rev A

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### Amenity/Tourism

As per the Tourism Map for County Offaly presented in Chapter 17 of the Offaly County Development Plan 2009 – 2015, the closest tourist attractions to the proposed Drumman site are Croghan Hill and the Grand Canal Way. In addition, the peat lands of the Derrygreenagh group of bogs and of the wider peatlands in County Offaly as a whole are identified in the Plan as *'a unique environment for tourists'*.

Tullamore town, to the south west of the proposed development, is a designated Heritage town and the town's distilling and canal heritage attracts a significant number of tourists each year. The Tullamore and Environs Development Plan aims to enhance and protect the tourist attractions in the town to benefit the economy and the environment of the town.

The area immediately surrounding the development site has a wide diversity of recreational and sporting activities available to tourists in a landscape dominated by flat bog lands and agricultural land. The area surrounding Derrygreenagh contains significant natural and cultural heritage attractions in its landscape, most notably bog lands, the Grand Canal and numerous historical artefacts.

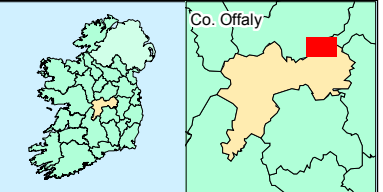
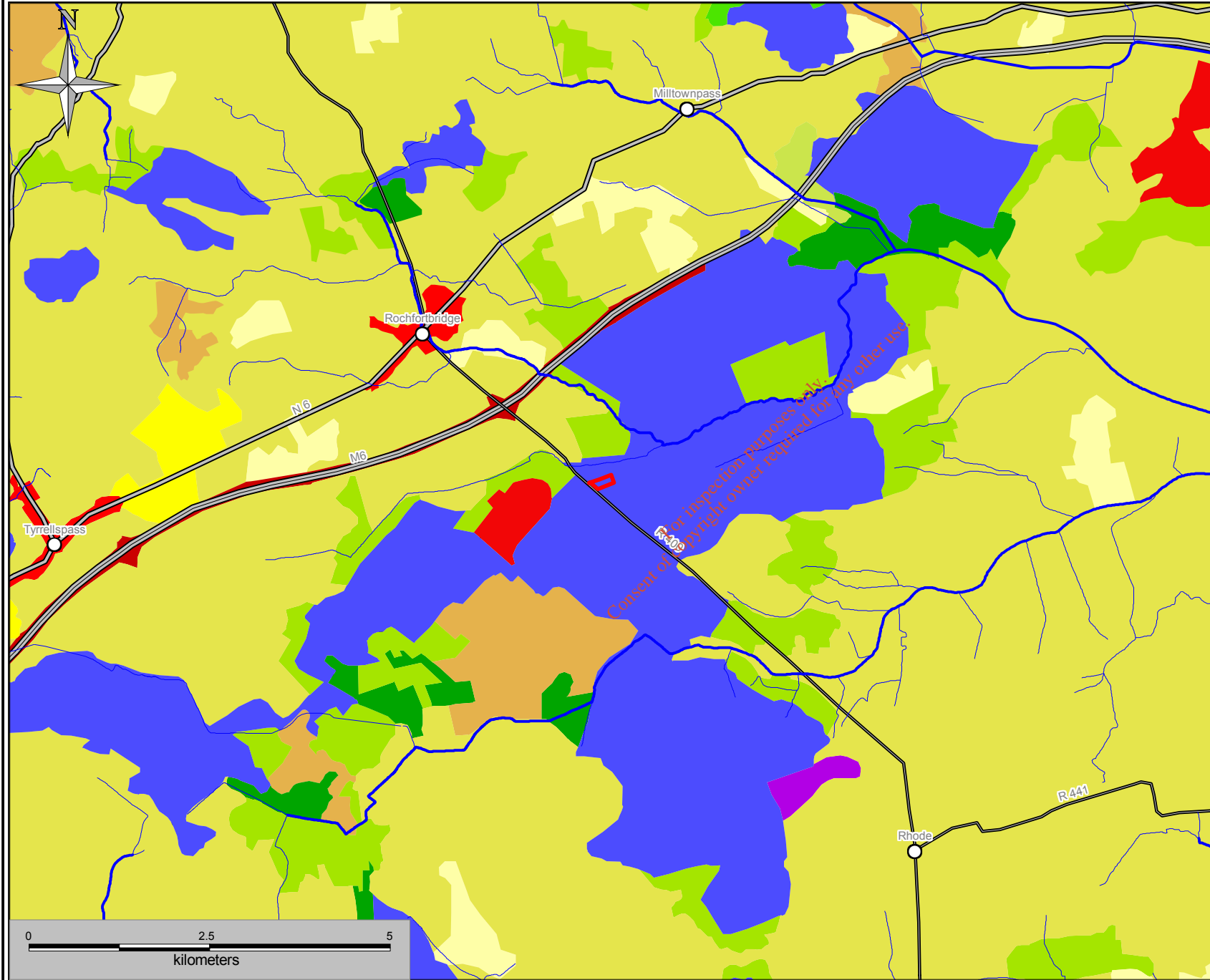
The Grand Canal is located approximately 9 km south of the proposed site. The 131 km of the Grand Canal is navigable and coarse and pike fishing is possible. The Canal Way is a 130km walk along the Grand Canal from Ringsend in Dublin to Shannon Harbour. The way is divided into nine sections each representing a half days walking.

Croghan Hill is the remains of an extinct volcano and rises from the Bog of Allen. The hill offers extensive views of the surrounding midland counties and the mound at the summit is thought to be a Bronze Age burial place.

The villages of Rochfortbridge and Rhode provide a variety of amenities to the local population and visitor alike as well as providing a support to the sustaining of tourism services within the area.

Bord na Móna PLC contributes significantly to the development of the tourism potential of the county as a whole with the development of amenities such as the Lough Boora Parklands. Lough Boora Parklands is a 2,000 hectare site that is acting as a blueprint for the future development of cutaway bogs under Bord na Móna PLC ownership. The parklands consist of a magnificent collection of natural & manmade lakes, wetlands, woodland areas, 50km of walkways, natural recolonisation and pastureland while providing a new habitat for wildlife, flora & fauna.

The proposed development site is also located in proximity to a number of larger settlements, including Mullingar, Edenderry and Tullamore. These settlements, particularly the larger towns, have an important role within a tourism context by supporting and sustaining tourism services. The Offaly County Development Plan 2009-2015 states that the county's *'landscapes, cultural heritage, environment and linguistic heritage all have an intrinsic value which outweighs their value simply as a tourism asset'*.



**Legend**

- site boundary

**Land Use (CORINE 2006)**

- complex cultivation patterns
- coniferous forests
- discontinuous urban fabric
- green urban area
- land principally occupied by agriculture
- mineral extraction sites
- natural grassland
- non-irrigated arable land
- pastures
- peat bogs
- road and rail network
- transitional woodland scrub

Data Source - EPA

Date	15/12/09	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Land Use in Existing Environment	
Scales Used	1 : 75,000 @ A4	
Figure No.	3.2	Rev A

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### 3.1.3 Potential Impacts on the Socio-economic environment

#### **Construction Phase Impacts**

##### Settlements and Population

Potential impacts on residents in the vicinity of the proposed development site may arise from a combination of noise, traffic and air emissions, which are addressed in detail later in this chapter. No impact on the settlements and populations in the surrounding area is envisaged.

##### Local Employment and Economic Activity

During the peak construction period, which is estimated to last for 9 - 12 months, the proposed development is estimated to employ up to 50 construction workers and tradesmen, resulting in a significant positive short-term impact for the local economy of the area as they will positively impact on businesses in the surrounding area that provide services such as accommodation, food and other services.

##### Transport Network

The potential construction phase impacts on the local road network are discussed in further detail in Section 3.3.

##### Amenity/Tourism

Due to its location in an already developed area surrounded by peatlands, the construction phase of the facility will not impact on the tourism and amenity in the surrounding area. A more detailed visual and landscape assessment is described in Section 7 of this EIS.

In summary, it is considered that construction phase impacts will be slight and temporary in nature in terms of any impact on the socio-economic environment.

#### **Operational Phase Impacts**

##### Settlements and Population

There are no residential developments within 1 km of the proposed development. The closest residential property to the proposed development site is approximately 1.5 km from the site. The nearest population centre is Rochfortbridge c. 3 km to the north of the site and Rhode which is located c. 7 km south of the proposed development site. In total there are 19 residential houses within 2 km of the proposed development site. This EIS has adequately assessed the impact of the development on the environment and recommended appropriate mitigation measures where necessary.

Potential impacts on residents in the vicinity of the proposed development site may arise during the operational phase from a combination of noise, traffic and air emissions, which are addressed in detail later in this section of the EIS.

##### Land Use

The land use of the proposed site will change from that of unutilised cutaway bog to that of industrial use for an area of 3.22 ha. The land use of the lands surrounding the proposed site will not be impacted.

### Local Employment and Economic Activity

Regarding employment during the operational phase of the proposed development, the impact is anticipated to be positive as long-term employment will be created for the operation and management of the facility. The operational and maintenance staff will be sourced locally, where possible.

The operation of the facility will also supply the commercial and industrial sector with an outlet for the disposal of their waste, thus making the area attractive to industry and will contribute to meeting the needs of the Midlands region in terms of waste management.

### Transport Network

The potential operational phase impacts on the local road network are discussed in further detail in Section 3.3.

### Amenity/Tourism

The operation of the facility is not predicted to have an impact on tourism in the area. A number of significant bog lands that are proposed National Heritage Area lie within a 10km radius of the proposed development, namely the Raheenmore Bog (also a Special Area of Conservation), the Black Castle Bog, the Cloncrow Bog and the Milltownpass Bog but it is not expected that the operational phase of the development will have an impact on these areas. These designated areas are presented in Figure 6.1 and discussed further in Section 6 of this EIS.

The proposed development will result in the loss of small areas of trees, hedgerows, shrubs and scrub within the site boundary. The sensitivity of the vegetation to be removed is low, as there is abundant such vegetation elsewhere in the study area. The impact of the proposed development on landscape character areas in Co. Offaly and Co. Westmeath is not considered to be significant. Refer to Section 7 of this EIS for further detail.

Overall, it is considered that the operational phase impacts will be slight in terms of any impact on the socio-economic environment, with some positive long-term impacts in terms of local employment and waste management in the Midlands region.

#### 3.1.4 Socio-economic Environmental Mitigation Measures

Having regard to the potential impacts outlined above, no further mitigation measures are required for the proposed development at the facility, over and above those presented within applicable sections of this EIS.

Individual assessments of predicted noise, air and traffic emissions have been conducted and are outlined as follows in this Section. Any potential short term impacts associated with the construction phase of the development will be addressed under the environmental management plan developed during construction.

All assessments have indicated that following the implementation of a number of mitigation measures, impact on the socio economic environment in the vicinity of the proposed development will not be significant.

#### 3.1.5 Monitoring

No ongoing monitoring is proposed in relation to the potential socio-economic impacts of the proposed development.

#### 3.1.6 Conclusion

The socio-economic environment in the vicinity of the proposed development will not be significantly impacted. The proposed facility will provide employment and demand for local goods and services, during the construction and operational phases, as well as providing requisite waste management infrastructure for the Midland waste management region and beyond.



## 3.2 Noise

This section assesses the impact of the potential noise emissions from the proposed materials recycling & waste transfer facility on local noise sensitive receptors. A noise survey was carried out in the vicinity of the proposed development site to determine ambient noise levels in the existing environment at the proposed site and at four off-site noise sensitive locations (residences). The impact of construction and operational noise on the existing environment is assessed and mitigation measures are outlined, where necessary, to reduce any significant impacts predicted.

This assessment consists of baseline noise measurement on-site and at four additional noise sensitive locations to determine existing noise levels, noise prediction to determine potential noise emissions from the proposed development and an impact assessment of noise from the proposed facility at the noise sensitive locations.

The objective of this assessment is to identify significant impacts on the noise environment and, if significant adverse impacts are identified, to propose mitigation measures, where necessary to reduce the impact.

Each of the proposed major noise sources from the development has been identified and reference sound level data for each source has been sourced. This data has been used to develop a noise prediction model of the proposed facility. The noise model methodology is used to calculate the noise contribution of the proposed facility on pre-existing noise levels at the noise sensitive locations. In addition to assessing the impact of the proposed facility on baseline noise levels and to assess the likelihood of complaints, the Environmental Protection Agency (EPA) noise limits of 55 dB (A) daytime and 45 dB (A) night-time have been used as the appropriate noise impact criteria in establishing the significance of impacts.

Noise modelling was carried out without any specific mitigation measures directed at the noise sensitive locations (e.g. noise barriers, earth bunds). However, two different scenarios were considered:

- Scenario 1 - Operation of the waste reception and processing building with doors open and
- Scenario 2 - Operation of the waste reception and processing building with doors closed (standard operating conditions)

The noise assessment predicts noise levels at the noise sensitive locations and in the area in general, in the form of noise contour mapping. The model indicates that noise levels at the noise sensitive locations will not exceed 55 dB (A) during daytime hours as a result of noise emissions from the proposed facility.

### 3.2.1 Noise & Characteristics of Sound

To assist in the understanding of the terms, measurement methods and assessment criteria used in this report, the following is a brief introduction to the fundamental terms of noise.

Noise is defined as unwanted sound. The impacts of noise are subjective and can vary from person to person. Noise factors such as the frequency, tonal aspects, patterns, existing background noise levels and the activities being carried out when the person experiences the noise all impact on the noise levels experienced by people.

Noise is measured as sound pressure level; the unit of sound pressure level is the decibel (dB). This is calculated as a logarithm of sound. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound. The use of decibels (A-weighted), dB (A) as the basic unit for general environmental and traffic noise is widely accepted. Decibels measured on sound level meters incorporating this frequency weighting, differentiates between sounds of different frequency in a manner similar to the human ear. That is, measurements in dB (A) broadly agree with human beings assessment of loudness. It has been demonstrated that noise levels in dB (A) from a wide range of sources adequately represent loudness.

Sound pressure levels are not directly added to one another, that is if a sound level of 30 dB is added to another sound level of 30 dB the combined sound level is not a doubling to 60 dB. Rather, as a result of the logarithmic addition, the combined sound level would be 33 dB. Every increase of 3 dB represents a doubling of sound energy levels. Related to this, is the fact that the smallest noise change detectable by the human ear is 3 dB.

Another property of the sound decibel scale is that if a sound is 10 dB less than another sound, then the total noise level is simply the louder of the two noises. For example, the combined noise level from a source at 30 dB added to another source at 40 dB is 40 dB. As a result, noise assessments are limited to the loudest sources on a site, which determine the sound levels experienced at the noise sensitive locations.

To assist in the understanding of the noise measurement scales, Table 3-2 is presented below. This gives the A-weighted decibel scale (dB (A)) and some common place activities which would typically give rise to environmental noise at these decibel levels.

**Table 3-2 Examples of Indicative Noise Levels<sup>2</sup>**

Situation/Noise Source	Approximate Noise Level dB(A)	Sound Pressure $\mu$ Pa	Subjective Description
30 metres from a military jet aircraft take-off	140	200,000,000	Painful, intolerable
Rock/ Pop concert	105	3,500,000	
Nightclub	100	2,000,000	
Pop/ Concert at mixer desk	98	1,600,000	
Passing Heavy Goods Vehicle at 7 m	90	630,000	Very noisy
Ringling Alarm Clock at 1 m	80	200,000	
Domestic Vacuum cleaner at 3 m	70	63,000	Noisy
Busy Office	60	20,000	
Normal Conversation at 1 m	55	11,000	
Reading room of the British National Museum	35	1,100	
Bedroom in a quiet area with the windows shut	30	360	Very quiet
Remote location without any identifiable sound	20	200	
Theoretical threshold of hearing	0	20	Uncanny Silence

Noise level and frequency varies constantly with time. It cannot be described with a single number. As a result, statistical metrics are commonly used to describe the noise levels.

In order to understand the terms used in this report, some definitions of the terms used are outlined as follows:

- L<sub>AF10</sub>** Refers to those noise levels in the top 10 percentile of the sampling interval; it is the level which is exceeded for 10% of the measurement period. It is used to determine the intermittent high noise level features of locally generated noise and usually gives an indicator of the level of traffic.
- L<sub>AF90</sub>** Refers to those noise levels in the lower 90 percentile of the sampling interval; it is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to estimate a background level.
- L<sub>Aeq</sub>** The average level recorded over the sampling period. The closer the L<sub>Aeq</sub> value is to either the L<sub>AF10</sub> or L<sub>AF90</sub> value indicates the relative impact of the intermittent sources and their contribution. The relative spread between the values determines the impact of intermittent sources such as traffic on the background.

**Impulsive noise:** a noise of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background.

<sup>2</sup> Brüel & Kjær. (2000). Environmental Noise. Brüel&Kjær Sound & Vibration Measurement A/S.

**Tonal noise:** A noise source that is concentrated in a narrow band of the frequency spectrum.

**A-weighted** sound levels emphasise the middle frequencies of the noise spectrum, while putting less emphasis on the higher and lower frequencies. This emulates the way that the human ear responds to sound.

### 3.2.2 Methodology

To establish the noise levels in the existing environment, noise measurements were taken at the site and at the nearest noise sensitive locations during daytime and night-time hours. Noise sensitive locations (NSL) are defined as any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which requires the absence of noise at nuisance levels for its proper enjoyment (EPA, 2006)<sup>3</sup>.

The only NSL's in the vicinity of the proposed development are dwelling houses. The baseline noise monitoring locations were selected to represent the identified NSL or groups of adjacent NSL's. The noise monitoring location (NMLs) are presented in Table 3-3 and shown in Figure 3-3.

**Table 3-3 Baseline Noise Monitoring Locations**

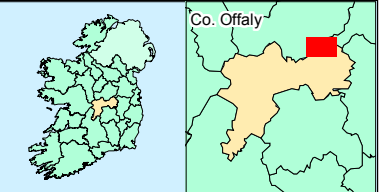
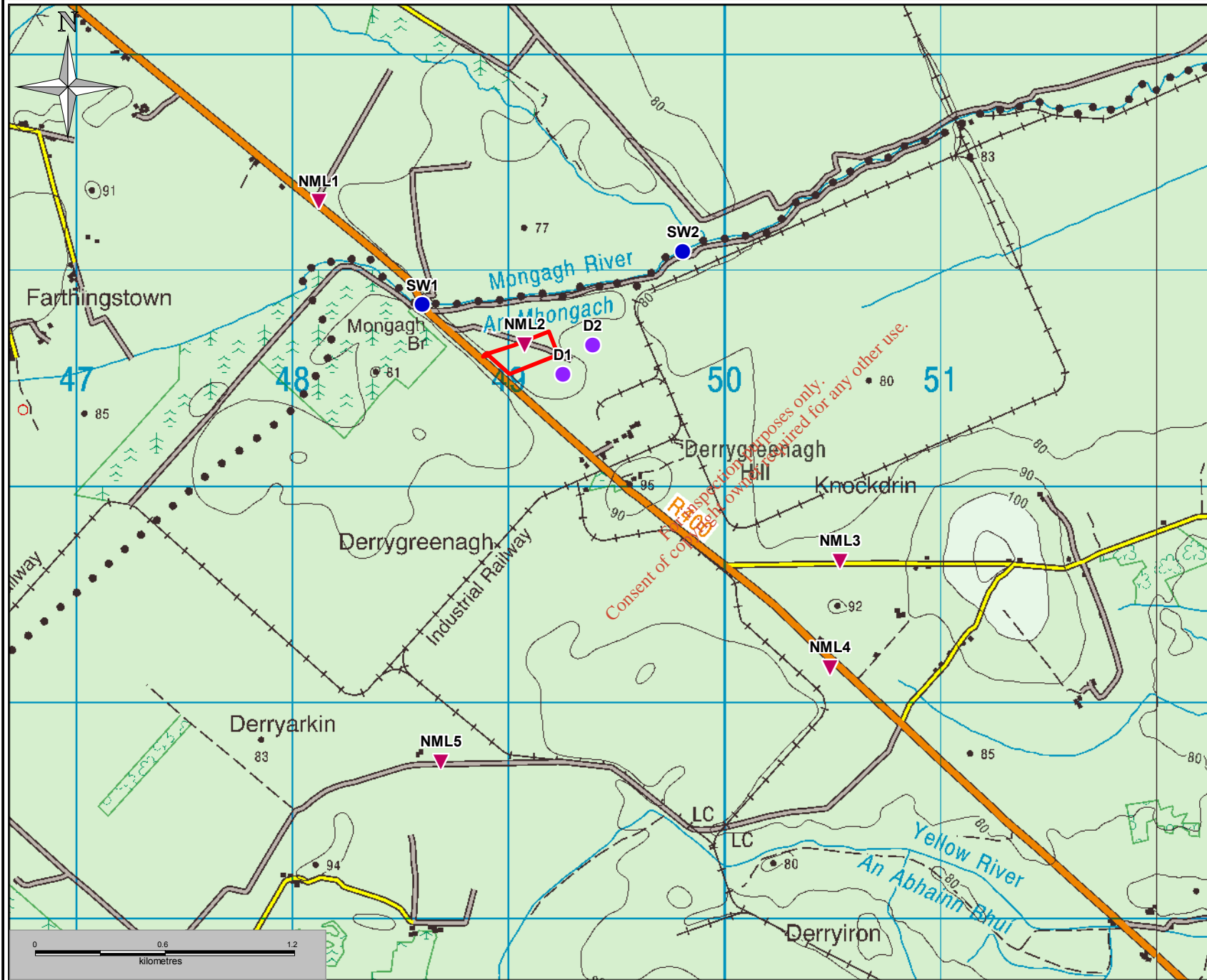
Monitoring point reference	Location
NML1	Approximately 1.5 km north west of the site. In a lay-by adjacent to a two story house on the R400 (approximately 150 m south east of house)
NML2	On-site
NML3	Approximately 1.6 km south east of the site. Located adjacent to house (approximately 200 m west of house) on a local road off the R400
NML4	Approximately 1.8 km south east of the site. Located adjacent to a house on the R400 to the south east of the site
NML5	Approximately 1.9 km south of the site, in field adjacent to a pig farm (approximately 100 m west of pig farm)

### 3.2.3 Description of Existing Baseline Environment

#### Baseline Noise monitoring methodology

Daytime noise measurements were taken at the site during a single monitoring event on 14 December 2009. Night-time noise monitoring was carried out during a single event on the 22 February 2010. All measurements were taken for a period of 30 minutes at the five identified noise monitoring locations. Measurements were taken in accordance with ISO 1996 Acoustics: Description and Measurement of Environmental Noise Part 1 (ISO, 2003) & Part 2 (ISO, 2007), EPA Environmental Noise Survey Guidance Document (EPA, 2003) and EPA Guidance Note for Noise in Relation to Schedule Activities, 2nd Edition (EPA, 2006).

<sup>3</sup> EPA, 2006. Guidance Note For Noise In Relation To Scheduled Activities *2nd Edition*



**Legend**

- site boundary

**Monitoring Location**

- dust (2)
- ▼ noise (5)
- surface water (2)

Date	25/01/2010	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Baseline Environmental Monitoring Locations	
Scales Used	1 : 25,000 @ A4	
Figure No.	3.3	Rev A

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The noise survey was carried out using a Brüel and Kjær 2260<sup>4</sup>. Type 1 Integrating, Data logging, Sound Level Meter (SLM) with microphone unit Brüel & Kjær Type 4198<sup>5</sup>.

The instrument was calibrated using a Brüel & Kjær Type 4231 calibrator<sup>6</sup> prior to commencing the survey using the recommended calibration procedure and a known pure tone noise source. Additionally, the SLM is calibrated every two years by an external, independent laboratory. The most recent calibration was carried out by Brüel & Kjær on 22 January 2009.

The unit was again calibrated on completion of the survey to record drift during the course of monitoring. Drift is normally associated with battery fade and temperature. The unit did not drift significantly during the survey.

The range of the meter was set to the band most appropriate to the sampling being carried out and set to record an A-weighted noise level. The noise meter carried out octave band analysis to a precision of 1/3 octave.

All measurements were taken outdoors and are considered representative of the noise levels in the area. To minimise the influence of reflections all measurements were taken at least 3.5 m from reflecting surfaces (including hedgerows) other than the ground. All measurements were taken using a tripod at a height of approximately 1.2 m above the ground and a microphone wind guard was used.

Good measurements require calm conditions to avoid spurious effects on the microphone, particularly at low frequencies. An average wind speed of less than 5 metre per second (m/s) is the preferred limit when noise measurements are being taken, with an upper limit of 7 m/s. Weather conditions during both day and night time monitoring event and during all monitoring surveys were dry and calm and wind speed was observed to be less than 5 m/s for each monitoring period.

### Noise Prediction Modelling Methodology

A site-wide noise model was used to calculate the noise contribution from the operational phase. The noise impacts associated with stationary or minimal movement sources, as well as on-site traffic movements, at the proposed facility were predicted according to the International Standard ISO 9313-2: 1996 Acoustics - Attenuation of sound outdoors- Part 2: General Method of Calculation (ISO, 1996) using Brüel & Kjær Predictor Type 7810 Version V5.0 - Revision 4 software. This noise propagation model allows for octave band calculation of noise from multiple sources, including diffraction and reflection around buildings, terrain and ground effects. This allows all significant noise sources and propagation effects to be accounted for in the model.

The modelling conservatively assumes that all sources will be operating simultaneously. The reality is that many of the sources will only operate intermittently. This makes the noise modelling assessment a conservative exercise.

Additionally, the noise propagation model calculates noise pressure levels by using worst case scenario wind direction and wind speeds (i.e. down wind). When the wind is blowing in opposite direction noise levels would be significantly lower, especially when shielding exists between the noise source and the NSL.

The geographical features of the region, including existing and proposed structures buildings and all significant noise sources and propagation effects were accounted for in the model. This includes site structures, neighbouring structures and 10 m ground contours. The ground type was set at 0.75, representing typically soft ground. A receptor grid was located at approximately 2 km square around the site, at a reference height of 1.5 metre (m), at 50 m by 50 m intervals. The model did not include any mitigation measures, such as barriers.

Each of the major potential noise sources on the site was identified and reference sound level data assigned. Noise sources inputted to the model included the delivery of waste to the facility and the processing and operation associated with the facility.

<sup>4</sup> Serial Number 2168472, calibration certificate B&K – C0900511

<sup>5</sup> Serial Number 2625261, calibration certificate B&K - C0900511

<sup>6</sup> Serial Number 2169963, calibration certificate B&K – C17834

Any transport noise effects resulting from the operation of the proposed project will be permanent. Appropriate guidance for prediction and assessment of traffic noise from new road schemes can be found in the *NRA Guidelines – Guidelines for the Treatment of Noise and Vibration in National Road Schemes, October 2004*. Changes in existing traffic noise are also to be reported using these guidelines and in general, if road traffic noise is increased by at least 3 dB due to transport noise, then the resultant effect is reported as significant.

### 3.2.4 Noise Assessment Criteria

#### Construction

There are no legal or statutory criteria relating to the maximum permissible noise levels which may be generated by construction projects. The only published guidelines on construction noise are the 'National Roads Authority's Guidelines for the Treatment of Noise and Vibration in National Road Schemes, 2004' indicative noise values as shown in Table 3-4. Only daytime values are given, as construction outside of the times below is not proposed on this project.

While the NRA guidelines does make reference to night-time noise levels, only daytime hours are considered for this evaluation as no night-time construction work is anticipated during the construction phase of the proposed development.

**Table 3-4 National Roads Authority Construction Phase Noise Guidelines (NRA, 2004)**

Day & Time	$L_{Aeq}(1 \text{ hr})$ dB	$L_{pA(max)slow}$ dB
Monday to Friday 07:00 to 19:00 hrs	70	80
Saturday 08:00 to 16:30 hrs	65	75
Sunday and Bank Holidays 24 Hours	No construction work	No construction work

#### Operations

##### Environmental Protection Agency Waste Licence

The operation of the proposed facility will be subject to a waste licence from the Environmental Protection Agency (EPA) and as such is required to comply with noise limit values imposed by the EPA. These are outlined in guidance documents issued by the EPA, 'Guidance Note for Noise In Relation To Scheduled Activities, 2<sup>nd</sup> Edition, 2006'

The results of the noise model are compared with noise criteria presented in Table 3-5. This allows the impact of the predicted noise levels on the receptors to be objectively assessed. The comparison focuses on the noise level predictions at the nearest noise sensitive locations to the proposed facility, since the EPA criteria apply at these receptors.

**Table 3-5 Noise Emission Limits for waste facilities from the EPA**

Day dB(A) $L_{Aeq}$ (30 minutes)	Night dB(A) $L_{Aeq}$ (30 minutes)
55	45
08:00 – 21:59 hrs	22:00 – 07:59 hrs

*Assessment of tonal components*

All noise measurements are subject to a one-third octave band analysis for each measurement to investigate the presence of any tonal components within the measurements. On occasions where tonal elements were identified in the 1/3 octave analysis, a + 5 dB penalty is applied to the  $L_{Aeq}$  as per the 'Guidance Note for Noise In Relation To Scheduled Activities, 2<sup>nd</sup> Edition, 2006'.

*Annoyance Criteria*

In addition to the waste licence criteria, an assessment of the likelihood of complaints is made by analysing the difference in measured background levels from the predicted environmental concentrations as per BS 4142 'Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas'. The greater the difference between the noise levels, the greater the likelihood of complaints.

**Table 3-6: Noise Assessment Criteria (BS: 4142: 1997)<sup>7</sup>**

Difference over Baseline	Impact
+ 10 dB	Significant Impact
+ 5 dB	Marginal Significance
< 5 dB	No Significant Impact

**3.2.5 Description of the Existing Environment**

The proposed site is located in a rural agricultural area within an area of cutaway bog. Ground levels on-site range from c. 75 to 85 m OD. Land levels in the vicinity of the site are generally flat, varying by as little as 30 m over a 2 km radius of the site. No amenities are identified within 2 km of the site. The Derryarkin Sand and Gravel quarry operation is located in the vicinity and the Bord na Móna Derrygreenagh Works are located adjacent to the proposed site location. A number of potential noise sensitive residential properties and farm buildings around the site have been identified (Table 3-3), but are all located in excess of 1 km from the site.

The site is located along the R400, which links Rochfortbridge to Rhode. Rochfortbridge is the nearest population centre, approximately 3 km north of the site. The M6 motorway intersects the R400 approximately 2 km north of the site towards Rochfortbridge.

The rural environment has typical low ambient noise levels. However, the presence of quarrying activity in the area does result in intermittent HGV vehicle movements. There is therefore an existing industrial type noise source present in the environment. The dominant noise emission in the area is traffic movements on the R400, while traffic sounds from the M6 motorway are always present in the background.

**Results of baseline noise monitoring**

Daytime noise surveys were carried out on the 14<sup>th</sup> December 2009 between the hours of 08:00 and 22:00 hrs for 30 minute intervals. Night-time noise surveys were carried out on the 22<sup>nd</sup> February 2010 between the hours of 22:00 and 08:00 for 15 minute intervals. On both occasions, weather conditions were considered to be suitable for noise monitoring.

All measurements were taken outdoors at the identified noise monitoring locations and are considered representative of the noise regime in the locality. The noise survey was carried out using a Brüel and Kjær Model No. 2250 Type 1 SLM, referred to earlier.

A summary of the noise monitoring results are presented Table 3-7 and a full set of results is presented in Appendix 4.

<sup>7</sup> BS:4142:1997: Method for Rating Industrial Noise Affecting Mixed Residential & Industrial Areas.

### Assessment of the Baseline noise monitoring results

Overall, the 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. Baseline noise monitoring results are presented in Table 3-7.

Daytime  $L_{Aeq}$  levels of between 46 – 62 dB were recorded during monitoring. Noise levels over 55 dB were recorded at NML1 and NML4. However, at both locations the number of passing vehicles on the R400 greatly influenced the results. 69 no. traffic movements recorded during the 30 minutes of monitoring at NML1 and 51 no. traffic movements recorded at NML4. The  $L_{AF10}$  of 65 dB at NML1 and 63 dB at NML4 during the monitoring period shows the traffic influence on baseline noise levels at the locations, while background levels,  $L_{AF90}$ , were 56 dB at NML1 and 37 dB at NML4, which is more typical of the noise levels at the locations. The  $L_{AF90}$  at NML1 is high due to the number of vehicles that passed during the monitoring period, more than two vehicles every minute.

The  $L_{A90}$  noise levels were lower than the  $L_{Aeq}$  noise levels at all locations. The daytime  $L_{AF90}$  levels range from 37 - 56 dB. The  $L_{AF90}$  at each location, excluding the upper 10% of noise, such as noise from traffic movements, is considered more representative of the background noise levels in the area.

The monitoring environment was noted to be quiet with no tonal element identified while monitoring. The presence of tonal elements was assessed by 1/3 octave analysis of the results (Appendix 4).

Night-time  $L_{Aeq}$  levels of between 37 – 57 dB were recorded during monitoring. Noise levels over 45 dB were recorded at NML1, NML2 and NML4. At NML1 and NML2 4 no. vehicle movements were recorded passing during both monitoring periods. The vehicle movements impacted the  $L_{Aeq}$  levels. At NML1 the  $L_{A10}$  of 54 dB and the  $L_{A1}$  of 66 dB and at NML2 the  $L_{A10}$  of 43 dB and the  $L_{A1}$  of 68 dB shows that the noise occurring for 10% and 1% of the monitoring period contributed greatly to the high  $L_{Aeq}$ . At NML4, 1 no. vehicle movement was recorded during the monitoring period. Again  $L_{A10}$  of 39 and  $L_{A1}$  of 59 dB show the impact on the  $L_{Aeq}$  of short duration noise events during the monitoring period.

The  $L_{A90}$  noise levels were lower than the  $L_{Aeq}$  noise levels at all locations. The night-time  $L_{A90}$  levels ranged from 19 – 32 dB which is more representative of the background noise levels in the area.

The night-time monitoring environment was quiet but a tonal element was identified at NML4. It was not identified during monitoring but was identified during 1/3 octave analysis of the results (refer to Appendix 4).

### 3.2.6 Potential Impacts

#### Construction phase

The construction phase of the project would have the potential to give rise to noise nuisance. In general, there are statutory criteria relating to the maximum permissible noise levels which may be generated by construction projects. Instead, the planning authority can control noise nuisance by imposing construction time limits on duration instead or by the setting of discretionary noise limits in planning permission conditions.

The construction phase of this project will consist of site clearance activities, building and ancillary infrastructure construction. Construction noise will be temporary. The likely programme for construction of the site will be scheduled to run for 9 - 12 months. Normal construction working hours of between 08:00 to 20:00 hrs will apply and it is not anticipated that night-time construction works will be necessary on this project. Each phase of the construction will entail the use of different machinery and plant, across various locations on the site which will be deployed.

As the exact construction methods and approach are not known at this stage, it is not proposed to model the construction noise. However, it is anticipated that the impacts will be limited in duration and not significant at the noise sensitive locations, because of attenuation due to distance from the proposed site to the receptors.



Table 3-7 Summary of monitoring results

Location	Start Time	Tonal*	L <sub>Aeq,30</sub>	L <sub>AF90</sub>	L <sub>AF10</sub>	Comments
<b>Daytime Monitoring – 14 December 2009</b>						
NML1	09:37:59	0	62	56	65	Cold and frosty weather conditions, with a very faint breeze. The dominant noise during the monitoring period was the sound of local traffic movements and traffic movements on the nearby M6. 69 no. cars pass the monitoring location on the local R400 road route. A loud working tractor was recorded contributing to the background during the final three minutes of the monitoring period.
NML2	13:47:37	0	55	46	54	Cold and frosty weather conditions. On-site location. Quiet noise environment. Background noise consists of birdsong and intermittent traffic movements on both the M6 and the R400. Tipper trucks accessing the Derryarkin Sand & Gravel Quarry influenced monitoring.
NML3	11:26:03	0	46	39	49	Cold and frosty weather conditions. Dominant noise during monitoring was the sound of distant traffic movements on the M6, while traffic movements on the R400 also contributed, with 2 no. vehicles recorded passing during the monitoring period. Background noise consisted of birdsong.
NML4	12:09:55	0	59	37	63	The weather was very cold and still, with no breeze noted. Dominant noise during the monitoring was from passing vehicle movements. 51 no. movements recorded during the monitoring period. Background noise consists of birdsong, distant traffic movements sounds on the M6 and the sound of distant plant machinery operating, including intermittent reversing beacons.
NML5	12:49:25	0	54	43	57	Cold with a very slight breeze noted. Dominant noise consists of frequent engine movements sounds from a tractor in the farm yard adjacent to the monitoring location. Also includes intermittent reverse beacons. 7 no. trucks passed on the road during the monitoring period. Birdsong and cattle bellowing contributed to background noise levels. An overhead plane was also recorded during the monitoring period.
<b>Night-time Monitoring – 22 February 2010</b>						
NML1	00.34.48	0	53	32	54	Dark with very cold frosty conditions. Background noise is dominated by the sound of traffic movements from the nearby M6. No. 4 vehicle movements on the R400 during the monitoring period. Intermittent barking dogs also contributed to the background noise.
NML2	00.12.19	0	56	24	43	On-site location. Dark with very cold frosty conditions. Background noise is dominated by the sound of traffic movements from the nearby M6. No. 4 vehicle movements on the R400 were recorded during the monitoring period. Intermittent barking dogs contributed to the background noise.
NML3	22.25.26	0	37	22	39	Dark with very cold frosty conditions. Quiet with the constant sound of distant traffic from the M6 in the background, while traffic movements on the R400 also contributed, with No 1 vehicle recorded passing during the monitoring period.
NML4	23.24.51	+ 5 dB	52 + 5 = 57	19	39	Dark with very cold frosty conditions. Quiet with the constant sound of distant traffic from the M6 in the background and intermittent barking dogs. No. 1 vehicle passed during the monitoring period.
NML5	22.53.08	0	37	22	36	Dark with very cold frosty conditions. Quiet with the constant sound of distant traffic from the M6 in the background.

+/- 1 dB (reported to the nearest full decibel)

\* Note Tonal assessed using ISO 1996-2:2007(E)

### Operational Phase

The noise sources associated with the operation of the development will include:

- Delivery of waste material to the facility
- Processing and bulking up of waste material in the waste reception and processing building
- Transportation of waste material off site

The operational phase potential noise impacts are predicted using the noise propagation model, thus enabling their potential impacts to be accessed against the criteria referred to earlier. Reference sound level data from each significant source on the site has been collected. The data has been sourced from literature, FTC file measurements from similar sites/equipment and potential equipment suppliers.

**Table 3-8 Reference Noise Sources for the Site**

Source	Lw
	dB(A)
Waste Delivery Trucks *	96
Material Export Trucks *	96
Breakout at Door 1	95
Breakout at Door 2	95
Façade 1	79
Façade 2	79
Façade 3	79
Façade 4	79
Façade 5	79
Façade 6	79
Façade 7	79

\* BS 5228-1:2009, Table C6; 23.

An estimate has been made for the acoustic performance of the building shell, based on FTC file measurements and published data. While no noise attenuation berms or barriers were modelled, mitigation due to the doors of the waste reception and processing building being closed was assessed in Scenario 2.

### Cumulative Impacts considering the proposed power plant

Given the proposed development of the gas fired power plant at the adjacent Derrygreenagh Works, cumulative impacts of the power plant and materials recovery & waste transfer facility were assessed based on information presented in the environmental impact statement prepared in relation to the power plant development<sup>8</sup>.

#### 3.2.7 Results

##### Operational Modelling

The results of the noise modelling are presented in Table 3-9 and 3-10. Figures 3-4 and 3-5 show iso-plots for predicted noise contributions for each of the scenarios modelled. The contribution of the proposed facility as calculated in the model with the doors of waste reception and processing open (Scenario 1) and the doors closed (Scenario 2) and the corresponding predicted environmental noise level (PEL) is calculated from the logarithmic addition of the predicted contribution to the baseline. This model calculates a worst-case scenario.

<sup>8</sup> Mott MacDonald Pettit . (2009). Proposed Power Plant at Derrygreenagh, Co. Offaly – Environmental Impact Statement.

Table 3-9 Predicted Daytime Operational Noise Levels (Scenario 1)

Location	Background Baseline, L <sub>90</sub> dB(A)	Specific Facility Contribution, dB(A)	Operational traffic prediction dB(A)	PEL, dB(A)
NML1	56	21	39	56
NML2 *	46	46	-	46
NML3	39	16	37	41
NML4	37	8	36	40
NML5	43	9	36	44

\* NML2 is on-site

Table 3-10 Predicted Operational Noise Levels (Scenario 2, Standard Operating Conditions)

Location	Background Baseline, L <sub>90</sub> dB(A)	Specific Facility Contribution, dB(A)	Operational traffic prediction dB(A)	PEL, dB(A)
<b>Daytime</b>				
NML1	56	21	39	56
NML2*	46	46	-	46
NML3	39	16	37	41
NML4	37		36	39
NML5	43		36	44
<b>Night-time</b>				
NML1	32	21	39	40
NML2*	24	46	-	46
NML3	22	16	37	39
NML4	19	7	36	40
NML5	22	8	36	37

\* NML2 is on-site

### Cumulative Impact

The contribution of the proposed facility, as calculated in the Scenario 2 model, plus the predicted noise impact from the proposed power station at the Derrygreenagh site, is presented. In the right hand column the predicted environmental noise level is calculated from the logarithmic addition of the predicted contribution to the baseline. This assessment was performed for off-site noise monitoring locations therefore NML2 (onsite) is not presented.

Table 3-11 Potential Cumulative Impact on Background Noise Levels

Location	Background Baseline, L <sub>90</sub> dB(A)	Proposed Facility Contribution, dB(A)	Proposed Power Plant Contribution, dB(A)	Cumulative PEL, dB(A)
NML1	56	10	27	56
NML3	39	9	34	42
NML4	37	0	37	41
NML5	43	0	30	44

### Noise Impacts of off-site development generated Traffic

Operations at the site will result in an increase in traffic levels along the R400 from the M6, as discussed in more detail in Section 3.3. The noise impact of the predicted traffic increase is assessed (as per BS 5228-1) and compared to the existing baseline noise levels in the area. An increase in traffic levels, as predicted in the traffic impact assessment, will have an imperceptible impact on the noise existing measured noise emissions from the local road network.

### Compliance Assessment with EPA Limits

When compared to the outcomes of the modelling, Tables 3-9, 3-10 and 3-11 shows with the exception of NML1 all predicted noise levels will be within the EPA daytime noise emission limit of 55 dB and the night-time noise emission limits of 45dB. NML1 would have a PEL of 56 dB in the event of one or both developments progressing. It is noted that the background baseline ( $L_{A90}$ ) results for this monitoring location are also 56 dB and that the location is approximately 1.5 km north west of the site and is being presently being influenced by traffic movements on the M6.

The assessment shows that the proposed developments will not have an affect on daytime baseline noise levels at all noise monitoring and noise sensitive locations.

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Figure 3-4 Scenario 1

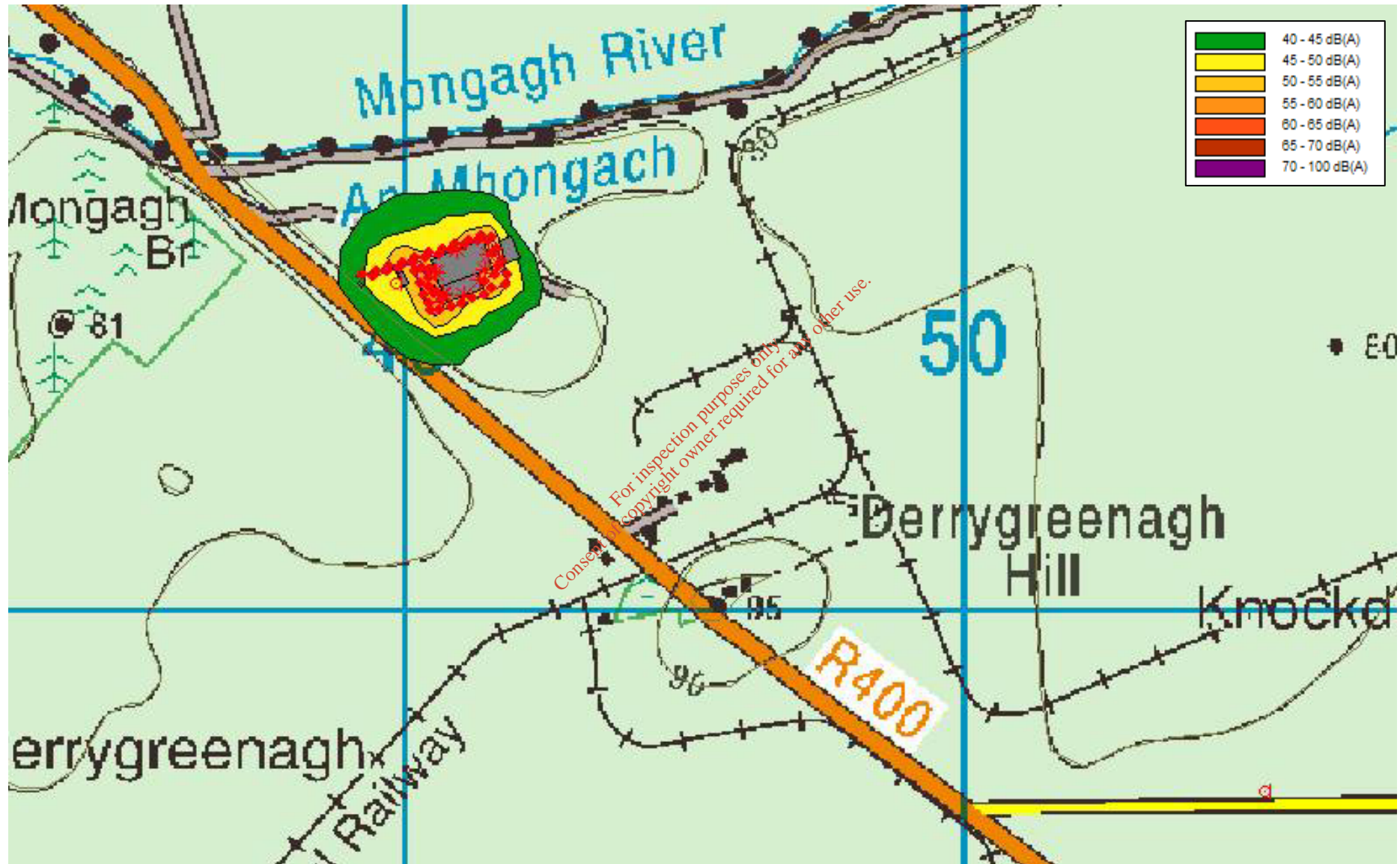


Figure 3-5 Scenario 2 (Standard Operating Conditions)



**Compliance with Annoyance assessment criteria**

Table 3.12 summarises whether the proposed development will give rise to annoyance at the nearest sensitive receptors. Increases of 5 dB(A) over existing background noise levels are considered marginal with increases of greater than 10 dB(A) considered significant. The existing daytime and night-time background noise levels at the noise sensitive locations are all greater than the predicted noise levels from the proposed development. Therefore, it is predicted that the proposed development will not give rise to annoyance at these locations.

**Table 3-12 Impact on Background Noise Levels (Scenario 2)**

Location	Difference between Daytime Background Baseline L <sub>90</sub> dB(A) & Specific contribution	Predicted impact with no mitigation measures in place
NML1	- 35	No impact predicted
NML3	- 23	No impact predicted
NML4	- 30	No impact predicted
NML5	- 35	No impact predicted
Location	Difference between Night-time Background Baseline L <sub>90</sub> dB(A) & Specific contribution	Predicted impact with no mitigation measures in place
NML1	- 11	No impact predicted
NML3	- 6	No impact predicted
NML4	- 11	No impact predicted
NML5	- 13	No impact predicted

NML2 is on-site and not assessed for impact

**3.2.8 Mitigation Measures****Construction**

During the construction phase of the development, the noise generated on the site will be managed so as to minimise potential impacts on any local noise sensitive location. All plant and equipment used during the construction phase will comply with noise regulations on outdoor plant and machinery.

The site operations will be conducted using best practice methods, for example, BS 5228:1997 Noise and Vibration Control on Construction and Open Sites, which are considered to be transferable and appropriate for construction projects in the Republic of Ireland. It also provides guidance in relation to acceptable noise levels during construction.

Measures will be put in place to control noise from construction plant, equipment and activities at source. Particularly noisy activities will be carefully planned and timed to cause the least impact. Noise monitoring will be carried out, as necessary, during the construction phase to ensure the site is operating without undue noise impact.

Construction noise will be temporary. The likely programme for construction of the site will be scheduled to run for 9 -12 months. Normal construction working hours of between 08:00 to 20:00 hrs will apply and it is not anticipated that night-time construction works will be necessary on this project. In addition, work on Sundays and Bank Holidays will be avoided, except for emergency situations.

## Operations

The assessment of the predicted noise levels from the operation of the proposed facility showed that there will not be any significant noise impacts on the local environment. Nonetheless a number of preventive measures have been incorporated into the design and management of the proposed facility. These include:

- All waste handling operations at the site will occur indoors and doors will be closed
- Maintenance of plant and machinery will occur on a regular basis and will ensure correct operation of these items to manufacturers specifications
- All trucks delivering waste to the site will unload waste in the indoor waste intake area. These areas will have rapid closing roller shutter doors and standard operating procedure will be to operate with these doors closed
- The speed limit on the site for all vehicles will be a maximum limit of 25 kph.

### 3.2.9 Monitoring

The facility will operate under the control of a waste licence granted by the Environmental Protection Agency. This licence will specify the noise emission limits for the facility, as identified previously, and the operator will be required to present the results of noise monitoring as part of the licence reporting regime.

Proposed locations for the monitoring of noise are presented in Figure 2-5.

### 3.2.10 Conclusion

The assessment has shown that the development 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. 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 daytime and night-time EPA guidelines.

The noise associated with the increased heavy goods vehicles and traffic associated with the site will be imperceptible in the context of the existing traffic levels on the road.

## 3.3 Roads, Traffic & Transportation

This section will examine the traffic implications associated with the proposed development in terms of how it can integrate with existing traffic in the area. This section of the EIS will determine and quantify the extent of additional trips generated by the proposed development and the impact on operational performance of such trips on the local road network and junctions, in particular the junction of the R400 and the old N6 in Rochfortbridge, the junction of the R400 and the R441 in Rhode, the existing entrances to the development site and elements of the interchange between the R400 and the M6. Where necessary, mitigation measures are proposed to address negative impacts or to improve shortcomings in relation to the existing roads network.

### 3.3.1 Methodology

The methodology adopted in this assessment can be summarised as follows:

- Manual classified traffic counts were undertaken on the 25<sup>th</sup> June 2008 (these traffic counts were carried out as part of the traffic assessment for the proposed power plant at Derrygreenagh Works and were made available for consideration as part of this EIS)



- Incoming and outgoing weighbridge data for the existing AES Ireland Ltd. materials recovery & waste transfer facility at Tullamore in Co. Offaly was interpolated for the modelling of this proposed development
- Existing Traffic Assessment – A spreadsheet model was created which contains the base year DO-NOTHING traffic count data. The traffic counts were used to develop PICADY & ARCADY models of the junctions and of the entrance to the proposed development
- Future Year Assessments – The estimated future year traffic volumes on the road network, which result from increases in background traffic and the associated traffic with the development traffic, were considered in the context of the future operational performance of the junctions up to 15 years after opening.
- Site and Junction walkover on 5<sup>th</sup> January 2010
- Road Safety Audit prepared following site visit on 5<sup>th</sup> January 2010

In preparing this section, reference is made to:

- the Offaly County Development Plan 2009- 2015
- the Westmeath County Development Plan 2008 - 2014
- National Roads Authority (NRA) 'Future Traffic Forecasts 2002 to 2004'
- National Roads Authority (NRA) 'Traffic and Transport Assessment Guidelines'
- NRA Design Manual for Roads and Bridges (DMRB)
- NRA DMRB HD19
- Traffic Signs Manual
- Institution of Highways & Transportation and the Transport Research Laboratory (TRL)

### 3.3.2 Existing Road Network

The site is located on the R400 between Rhode and Rychfortbridge, 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.

The existing pavement along the R400 between Rhode and the site is showing signs of stress in the wheel track zones. Slight deformation of the pavement could be seen on the 5<sup>th</sup> January 2010. It is assumed that the surrounding topography together with the HGVs used to access the surrounding quarries are the main contributing factors in weakening the pavement structure. Bord na Móna PLC (as part of its JV operation with Cement Roadstone at Derryarkin quarry) makes annual contributions to both Offaly and Westmeath County Councils in respect of the upkeep and maintenance of the R400.

There are no public transport services in operation to the site and there are currently no dedicated pedestrian or cycle linkages to the site of the proposed development.

From the proposed site entrance to the M6 junction the R400 exhibits three pavement surfaces as outlined below:

- The first section (approximately 1 km) was improved by Bord na Móna PLC/Roadstone to an Offaly County Council specification prior to the opening of the gravel quarry
- The second section (the next 0.7 km) is unimproved over peat.
- The final section (0.4 km) has an improved surface and leads into the M6 junction. Pavement surfaces that were improved or constructed as part of the M6 Scheme were carried out in accordance with National Roads Authority (NRA) specification.

Offaly County Council & Westmeath County council together with the NRA are actively working towards 'The Midlands Gateway' transport network. The Midlands Gateway transport network is characterised by a number of nationally strategic roads (M4/N4, N6/M6, N52, N62, N55, N80) and rail routes (Dublin-Galway / Mayo and Dublin-Sligo) that traverse the Midlands Region and provide key external and internal linkages for the gateway towns, particularly to Dublin, Galway, Sligo, Portlaoise and Longford

At the time of writing, the following roads have been constructed and enable waste vehicles to access the proposed facility:

- The M6 from Kinnegad to Athlone, which intersects the R400 in the form of a grade separated interchange, comprises of 57.5 km of motorway from Athlone to the M4 at Kinnegad.
- The M6 Kinnegad Kilbeggan consists of 29 km of high quality dual carriageway which runs from the Kilbeggan grade separated interchange at the end of the N6 Phase 1 bypassing Kilbeggan, Horseleap and Moate on the existing N6 and tying into the existing Athlone Bypass. The scheme was officially opened to traffic on 16 July 2008
- The N52 Tullamore bypass Design & Build scheme involved the construction of approximately 11.5 km of standard single carriageway and 2.5 km of wide single carriageway. The bypass departs from the existing line of the N52 in the townland of Heath, approximately 6 km southwest of Tullamore town, and rejoins the existing N52 in the townland of Gormagh, approximately 3 km north of Tullamore town. The scheme was officially opened on 23rd October, 2009.
- The N52 Tullamore-Kilbeggan Link is a continuation of the N52 Mullingar Bypass and involves 4.2 km of standard single carriageway cross-section. The route commences on the existing N52 at Carrick south of Mullingar and connects to the N52 Mullingar Bypass at Tullanisky. The scheme was officially opened on 16th May, 2007.
- Standard single carriageway of 4.9 km in length consisting of a 3.2 km North-South connection between the N52 Mullingar-Belvedere scheme and an existing roundabout in Marlinstown which is located just off the existing N4 Mullingar Bypass, together with a 1.7 km East - West link to the existing N52 in Lynn south of Mullingar. The scheme includes two bridges, one over the Royal Canal and a second over the Dublin-Sligo railway line. The scheme was officially opened on 4th August, 2006.

The proposed facility at Drumman will provide centralised mixed dry recyclable processing infrastructure for the entire AES Ireland Ltd. operation. No private companies will deliver waste to or collect waste from the proposed materials recovery & transfer station at Drumman.

It is anticipated that heavy goods vehicles shall only access the proposed materials recovery and transfer facility from the M6. As a result, no operational waste vehicle traffic, other than vehicles collecting waste in the locality, are expected to travel through Rhode or Rochfortbridge.

### 3.3.3 Traffic & Transportation Assessment

A Traffic and Transport Statement (TTS) must accompany all planning applications for developments that could potentially generate additional traffic. A TTS is a brief outline of the transport requirements for the development and is used as a first step to identifying the likely traffic impact of any development. A TTS is also used to determine if any further and more significant detailed traffic analysis is required. An in-depth analysis of the impact of a development in terms of traffic is carried out through a Traffic and Transport Assessment (TTA).

The NRA Traffic and Transport Assessment Guidelines, September 2007 recommend the following thresholds for undertaking a TTA:

*“Applications that exceed **any** of the following thresholds will be required to produce full TTAs, in addition to completing a TTS. The TTS should summarise the findings of the TTA and briefly outline the mitigating measures proposed by the developer or agent:*

- *Traffic to and from the development exceeds 10% of two-way traffic flow on adjoining road*
- *Traffic to and from the development exceeds 5% of two-way traffic flow on adjoining road if congestion exists or the location is sensitive*
- *Industrial development in excess of 5,000 sq.m*
- *Distribution and Warehousing in excess of 10,000 sq.m*
- *Residential development in excess of 200 dwellings*

- Retail and leisure development in excess of 1000 sq.m
- Office, education and hospital development in excess of 2,500 sq. m"

(Reference-NRA Traffic and Transport Assessment Guidelines 2007: Table 2.1, page 7)

The thresholds considered as most pertinent in relation to whether the proposed development at Drumman requires a TTA are:

- Industrial development in excess of 5,000 sq. m
- Traffic to and from the development exceeds 10% of two-way traffic flow on adjoining road.

The combined area of the proposed buildings is c. 8,000 sq. m, which is in excess of 5,000 sq. m threshold for industrial development. The trips generated by the facility (as outlined in Table 3-14), represents approximately 13% of the two-way traffic flow on the adjoining road which is slightly above the threshold.

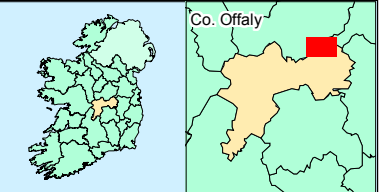
This suggests that a TAA in accordance with the NRA Traffic and Transport Assessment Guidelines 2007 is warranted in this case.

### 3.3.4 Results of Traffic Survey

As indicated, traffic survey data previously carried out for the proposed power plant development has been made available for consideration in this EIS. This traffic turning count survey was carried out at key junctions on Wednesday 25<sup>th</sup> June 2008 for the 12 hour period 07:00 to 19:00hrs. It is considered that the data obtained during this survey event is accurately representative of the existing baseline condition.

Counts were taken at the following locations (refer to Figure 3.6):

- Location 1: Main crossroads in Rhode town where the R400 traverses the R401
- Location 2: Traffic Counts passing the proposed materials recovery and waste transfer facility along the R400 were used for the analysis of the entrance to the proposed materials recovery and waste transfer facility
- Location 3a: South eastern roundabout on the M6 interchange
- Location 3b: North western roundabout on the M6 interchange
- Location 4a: Roundabout on the old N6 through Rochfortbridge
- Location 4b: 'T' junction to the North east of Rochfortbridge where the R400 traverses the old N6



- Legend**
- site boundary
  - traffic count survey location

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Date	25/01/2010	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Traffic Count Survey Location	
Scales Used	1 : 50,000 @ A4	
Figure No.	3.6	Rev A

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The traffic count was carried out on a Wednesday as it is recommended practice in the gathering of base traffic data that surveys are carried out on a 'neutral' day of the week. Traffic flows manifest on this day of the week are normally representative of typical weekday traffic conditions, not only on the local roads network but also in the villages of Rochfortbridge and Rhode. The results of the survey carried out are provided in Appendix 5 which categorises vehicle turning movements on each junction every 15-minute interval of the count period.

The general pattern and characteristics of the traffic flows at each of the four count locations recorded over the 12-hour survey period are described below. In general, the traffic survey results show that there is a constant flow of traffic along the R400 and the connecting local road network throughout the day with the busiest periods generally being in the morning from 07:30 to 09:30 and in the evening from 17:00 to 18:30.

An exception to this pattern appeared in the data at location 4b. Here, the busiest period was between 11:30 and 12:30 and was thought to be a consequence of local activities within the village.

### Survey Results at Location 1 – crossroads in Rhode town where the R400 traverses the R401

Over the entire surveyed period the number of vehicles recorded at the R400/R401 crossroads was 4,550 vehicles with approximately 5% of these vehicles being HGVs. The R400 is the busiest road at the junction with a two-way flow of, 3,144 vehicles recorded north of the junction during the survey period, 6.6% of these being HGV. A significant number of traffic movements between the R400 and R401 were recorded with 631 vehicles turning right from the R401 recorded. These right turn movement represent 13.8% of the overall vehicles using the junction and 3% of the HGV's using the junction.

### Survey Results at Location 2 – R400 (in the vicinity of Facility Entrance)

At location 2 over the entire surveyed period the R400 carried 1,944 vehicles. Approximately 10% of these vehicles were HGVs. The R400 is the busiest road at the junction with a two-way flow of 1,944 vehicles recorded during the survey period, 12.4% of these being HGV. The survey recorded 2 vehicles turning right out of the existing Derrygreenagh Works onto the R400. These right turn movement represent 2.3% of the overall vehicles using the junction and 0.22% of the HGV's using the junction.

### Survey Results at Locations 3a & 3b – Dumbbell interchange on the M6

During the survey period the north eastern roundabout (Location 3b) of the M6 & R400 to Rhode junction carried 2,329 vehicles. Approximately 11% of these were HGVs. The survey recorded that 1,995 vehicles travelled either to or from Rochfortbridge. Approximately 12% of these vehicles were HGVs. 11% of the junction traffic came from Rochfortbridge.

Similarly, during the survey period the north western roundabout (Location 3a) of the M6 & R400 to Rochfortbridge junction carried 2,266 vehicles. Approximately 13% of these were HGVs. The survey recorded that 1,909 vehicles travelled either to or from the direction of Rhode. Approximately 14% of these vehicles were HGVs. From these 1,909 vehicles 1,033 vehicles travelled south east in the direction of Rhode. These vehicles account for 44% of the junction traffic. 11% of the junction traffic that utilises the R400 to Rhode road are HGVs.

### Survey Results at Location 4 - roundabout on the old N6 through Rochfortbridge (site 4a) and 'T' junction to the North east of Rochfortbridge where the R400 traverses the old N6 (site 4b)

Over the entire surveyed period the R400/Old N6 'T' Junction and roundabout together carried 6,164 vehicles. Approximately 5% of these vehicles were HGVs. The two way traffic recorded over the surveyed period at the R400 was 1,338 vehicles with approximately 8% of these vehicles being HGVs. The main street is the busiest road at the junction with a two-way flow of 2,046 vehicles recorded during the survey period, 5% of these being HGV. From both the roundabout and T junction on the main street, 1,187 vehicles turn onto the R400 heading in the direction of the M6 junction and Rhode. These represent 19% of the overall vehicles using the junction and 19% of the HGV's using the junction.

The results of the complete traffic count are included in Appendix 5.

### 3.3.5 Potential Impacts

#### Construction Related Traffic

The construction phase of the development will generate traffic on the regional road network. It is considered that the primary generators of traffic will be deliveries of construction materials and construction staff. Bearing in mind the estimates of traffic generation to the proposed development, construction related traffic activities are not expected to outnumber those generated by the development upon opening. Accordingly, traffic generation and therefore impact on capacity during the construction period is likely to be similar or lower than forecast above.

Considering the lower levels of traffic attraction during the construction period it has been deemed unnecessary to carry out an assessment of the 'short term' impact on the capacity or load carrying capacity of the local roads network in the vicinity of the development during construction. It is also considered that all construction traffic will access the proposed site via the M6 only and will travel the short distance between the site entrance and the M6 interchange along the R400.

There is potential for fill material to be imported to the proposed site during the construction phase. This fill material is likely to come from the quarry opposite the proposed site. It has been deemed unnecessary to carry out an assessment of the 'short term' impact on the capacity or load carrying capacity of this additional site traffic to the R400 in the vicinity of the development during construction given its temporary nature.

#### Trip Generation from Proposed Development

The following estimates the number of vehicles or trips which could be generated by the proposed materials recovery and waste transfer facility when it is fully operational. Data received from the existing Tullamore AES Ireland Ltd. materials recycling & waste transfer facility collected over a 6 month period was examined and the maximum incoming and outgoing data was used to determine the daily and hourly operational traffic movements of the proposed materials recovery and waste transfer facility.

For the purpose of this assessment the maximum outgoing and the maximum incoming data were added together. This is considered a robust assessment of the daily number of trips as it assumes that the busiest day for deliveries and the busiest day for collection will occur on the same day. A copy of the weighbridge data from the existing materials recovery and waste transfer facility can be viewed in Appendix 5.

For the purpose of this assessment, the following definitions apply:

- A **movement** refers to either an in or outward movement of a vehicle when it is either entering or exiting the facility.
- A **trip** refers to a single vehicle and consists of two movements, a movement into the facility and a movement from the facility i.e. one vehicle trip = two vehicle movement.

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 collected by AES Ireland Ltd.

Approximately 50,000 tonnes of mixed dry recyclables will be accepted at the facility and this material will be processed within the facility prior to transport off site for recovery/ recycling. The remaining 49,000 tonnes of material will be mainly C&D and C&I material with approximately 5,000 tonnes of brown bin organic material being accepted also. These materials will not be processed and will be bulked up and transported off site. Essentially, all of the material entering the facility will leave the facility at a further point in time.

Due to the similarity between the activity carried out at the existing Tullamore facility and that proposed for Drumman, it is considered that the interpolation of traffic data from the Tullamore facility will accurately represent the expected traffic movements at the proposed facility at Drumman.

In the 6 month period between 1<sup>st</sup> January 2009 and 30<sup>th</sup> June 2009, the Tullamore facility accepted 24,782 tonnes of waste. Therefore it is assumed that in any 1 year the existing facility can process 49,564 tonnes of waste (24, 782 tonnes x 2). The weighbridge data for this facility was then interpolated for the proposed facility at Drumman.

It is anticipated that the facility will operate Monday through Friday between 8am and 10pm. The facility may also operate on Saturdays within these times, dependant on operational requirements. Therefore, the facility is modelled to operate for 312 days per year and a maximum of 93,600 waste collection vehicle movements (46,800 trips) are expected to be generated by the delivery and collection of materials to the proposed facility annually.

In order to account for any peaks in the delivery of material to the facility throughout the year a conservative approach was adopted when calculating the maximum daily number of trips for the purpose of this traffic assessment. The number of daily trips for both incoming and outgoing vehicles were added together to give the maximum daily number of trips generated by the delivery and collection of materials to the proposed facility. As mentioned above, this is considered a robust assessment of the daily number of trips as it assumes that the busiest day for deliveries and the busiest day for collection will occur on the same day, which may or not be realised in practice.

The table below shows the actual daily weighbridge data for the existing facility and shows the interpolated figures that represent traffic movement across the weighbridge for the proposed facility.

**Table 3-13 Daily Traffic Figures generated by the proposed facility**

Existing Waste Transfer Facility Annual Weighbridge data (tonnes)	Maximum Daily Incoming vehicles ('Loads in')	Maximum Daily Outgoing vehicles ('Loads out')	No. of HGVs	% of HGVs	No. of LGVs	% of LGVs
49,564	48	17	36	55.4	29	44.6
Proposed Materials Recovery & Waste Transfer Facility Capacity (tonnes)	Interpolated Maximum Daily Incoming	Interpolated Maximum Daily Outgoing vehicles	Predicted No. of HGVs	Interpolated % of HGVs	Predicted No. of LGVs	Interpolated % of LGVs
99,000	111	39	83	55.4	67	44.6

Table 3-13 shows that the maximum trips generated by the proposed facility daily is 150 (111 + 39 = 150). Therefore approximately 300 waste collection vehicle movements will be generated.

The traffic generated by the proposed facility adopted for the analysis carried out in the following sections will be the 85% percentile figure. Therefore, the daily movements for the proposed materials recovery and waste transfer facility are 255. 114 of these vehicles are expected to be LGV and 141 of these vehicles are expected to be HGV.

- $((111+39) \times 2) \times 0.85 = 255$  movements

For the purpose of this analysis, it is assumed that the employees will commute to and from the facility during the existing morning and evening peak traffic hours.

For the purpose of assessing the impact that the traffic generated from the proposed facility will have during the peak hours on the existing roads a conservative peak-hour factor of 20% was assumed. Therefore, it is assumed that there will be a maximum of 51 movements during the peak hours.

- $255 \times 0.2 = 51$  movements

It is expected that there will be a maximum of one visitor to the facility per day and that there will be a maximum of 35 employees (10 office employees and 25 operational employees). This will give a total of 36 daily car trips or 72 daily vehicle movements per day.

In addition, a conservative estimate of one HGV (Heavy Goods Vehicle) trip per peak hour has been included for traffic generated in association with the existing quarrying operations to the north east of the proposed Drumman site which will utilise the existing entrance.

The addition of this trip is considered conservative given that this quarry was non-operational in 2009 and that activity in 2010 cannot be determined at this point.

The maximum number of peak hour trips generated by the proposed facility is summarised in Table 3-14.

**Table 3-14: Daily Trips Generated by the Proposed Facility**

Vehicle Type	Total Peak Hour Trips
	Proposed Facility
HGVs*	28
Cars/Private vehicles	36
LGVs*	23
<b>Total</b>	<b>87</b>

\*Waste Collection Vehicles will either be Heavy Goods Vehicles (HGVs) i.e. trucks, RCVs or Light Good Vehicles (LGVs) i.e. skip lorries

### 3.3.6 Trip Distribution

Vehicles bringing material to and from the proposed facility will be instructed to access the facility via the M6. This instruction will be recorded as a standard operational procedure at the facility. Some refuse collection vehicle movements in the vicinity of Rochfortbridge and Rhode villages may be expected but these will only be in association with existing waste collection arrangements in those areas and, as such, represent the existing baseline condition.

Therefore, almost all delivery and collection vehicles will access the proposed site via the M6. It is estimated that 50% of these vehicles will approach the M6 junction from the eastern diverge slip road and that 50% of these vehicles will approach the M6 junction from the western diverge slip road.

These additional movements are added to the survey result recorded at Junctions 3a and 3b.

As previously mentioned, it is anticipated that there will be c. 35 individuals employed at the proposed facility. It is estimated that 50% of these people will access the proposed site via the M6 (Junctions 3a & 3b).

It is considered that 25% of employees will commute from Rhode and that 25% will commute from Rochfortbridge. These employees will access site via the existing R400.

These trip distributions are used in the junction capacity assessment presented in Section 3.3.7.

### 3.3.7 Traffic Growth and Junction Capacity Assessment

For the purpose of this assessment, it is considered that the proposed materials recovery and transfer facility will be operational by 2011. It is therefore necessary to consider any increase in traffic volumes by applying a growth factor to the 2008 data. A conservative factor of 3% per year has been used and the results are presented in Appendix 5 for forecast years 2011, 2016 and 2026.



As recommended by the NRA in its Design Manual for Roads and Bridges (DMRB) and by the Institution of Highways & Transportation and the Transport Research Laboratory (TRL), the computer modelling programs PICADY (Priority Intersection Capacity and Delay) and ARCADY (Assessment of Roundabout Capacity and Delay) have been used for the assessment of major/minor priority junctions on the local road network.

In general terms, this program operates on the gap acceptance theory. It is intended primarily as a means of assessing junction performance and can also be used as an aid in junction design. Generally a level of saturation of 85-90% corresponding to a ratio of flow to capacity (RFC) of 0.85-0.90 is accepted at priority junctions in urban areas. However, this figure should not be considered in isolation during the peak hour period and should be viewed together with queuing and delay information.

The traffic volumes used in this analysis are the peak hour flow rate for each junction. The survey indicated that this occurred in the evening between 3.30pm – 6.15pm, depending on the junction. The survey indicated that the morning peak hour flow rate occurred between 7.45am – 9am, with the exception of Junction 4b. Junction 4b experienced its busiest period between 11:30 and 12:30 and, as previously mentioned, is thought to be a consequence of local activities within the village.

**Table 3-15 Survey Junction Peak Hours**

Junction	Morning Peak Hour AM	Evening Peak Hour PM
1	8.00 to 9.00	4.30 to 5.30
2/Site Entrance	7.45 to 8.45	5.15 to 6.15
3a	8.30 to 9.30	5.00 to 6.00
3b	7.45 to 8.45	3.30 to 4.30
4a	11.30 to 12.30	5.15 to 6.15
4b	11.30 to 12.30	5.15 to 6.15

The outputs from the PICADY and ARCADY analysis for the junctions are included in Appendix 4.

- Location 1: Main crossroads in Rhode town where the R400 traverses the R401
- Location 2: Traffic Counts passing the proposed materials recovery and waste transfer facility along the R400 were used for the analysis of the entrance to the materials recovery and waste transfer facility
- Location 3a: South eastern roundabout on the M6 interchange
- Location 3b: North western roundabout on the M6 interchange
- Location 4a: Roundabout on the old N6 through Rochfortbridge
- Location 4b: 'T' junction to the North east of Rochfortbridge where the R400 traverses the old N6

The results of the analyses show that, at none of the locations above, will the junctions reach capacity due to the additional traffic introduced by the proposed materials recovery and waste transfer facility at Drumman.

### 3.3.8 Entrance Visibility

A visual inspection of the existing site entrance junction during the site visit concluded that visibility can be provided in accordance with NRA DMRB TD 41-42/09.

### 3.3.9 Cumulative Assessment with proposed power plant

The impact of the proposed power plant at Derrygreenagh Work was assessed using the peak construction year 2011, the expected year of opening 2014, and fifteen years from the year of opening, 2029. The analyses undertaken indicate that, even with the addition of the development generated traffic, the local road network operates well within its optimum design capacity. The Derrygreenagh Power Plant site will be accessed from the R400 by means of a simple priority junction.

It is 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.

### 3.3.10 Mitigation Measures & Road Safety Issues

Notwithstanding the fact that the proposed development project is currently at preliminary design stage, a number of issues, which would normally be considered at a detailed design stage, have been identified from both a site visit on 5<sup>th</sup> January 2010 and separately from the results of the Road Safety Audit (RSA) carried out (refer to Appendix 5).

The Stage 1 RSA was carried out on the proposed material recycling facility at Drumman, Co. Offaly by Roadplan Consultancy. The audit was carried out on the 5th January 2010 at the site by the audit team.

This Stage 1 Audit was carried out in accordance with the relevant sections of NRA DMRB HD19 as appropriate. The team examined only those issues within the proposal relating to road safety. The team reviewed the existing site access located on the R400 approximately 2km southeast of Junction 3 on the M6 within the 80kph speed limit and the route from the motorway.

As a result of this, the following mitigation measures are proposed to ensure that the issues identified in the RSA are effectively addressed:

#### **Construction**

- If, during construction, material is to be drawn from the nearby Derryarkin quarry to the proposed site, mitigation measures such as flagmen and/or temporary traffic lights will form part of the Traffic Management Plan to enable vehicles to cross the R400 in a safe manner.
- 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.
- The internal roadways for the facility will be integrated with the existing haul road as part of the construction programme.

#### **Operations**

- Suitable road markings and signage in accordance with the requirements of the Traffic Signs Manual will be provided at the facility
- A turning circle will be provided within the facility for vehicles entering and exiting the site to allow vehicles that may be over or under weight to return to the facility to amend their load before passing over the weighbridge once again.
- The requirement for road markings and signage along the existing M6 and R400 will be discussed with both the Local Authorities and the National Roads Authority, as required
- Adequate surface water drainage provisions will be provided and incorporated into the site layout (refer to Section 5).
- Appropriate street lighting is to be provided at the entrance to the development.

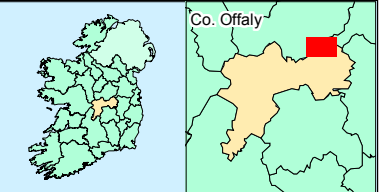
- Vehicles accessing the facility will primarily utilise the M6 for the transportation of waste material to and from the facility, other than refuse collection vehicles collecting waste in the direct vicinity of the facility. This transportation route via the M6 is identified in Figure 3-7.

### 3.3.11 Conclusion

The main points with regard to the traffic assessment for the proposed development are summarised as follows:

- The additional annual vehicle movements on the R400 due to the proposed facility are expected to be 45,248 movements annually of which 12,534 are HGV movements
- The typical increase in daily vehicle movements on the R400 is expected to be 255 vehicles of which 141 are HGV movements. This represents an increase of 11.6% on the two-way traffic flow recorded on the R400 and an increase of 17% on the existing two-way HGV's movements on the R400
- From the peak hour analysis on the R400 of 5.15pm to 6.15pm it is expected that 88 additional vehicle movements will be generated, of which 49 will be HGV
- The junction capacity assessments at Junction 1, Junction 2/Entrance, Junction 3a, 3b, Junction 4a and 4b has shown the junctions will operate within their capacity in the existing and future year scenarios.
- Additional traffic flows will be generated during the operational phase of the proposed facility; however, waste collection and delivery vehicles will primarily utilise the M6 when delivering to or collecting from the facility

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**Legend**

- site boundary
- ➔ proposed transportation route

Date	25/01/2010	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Proposed Transport Route	
Scales Used	1 : 50,000 @ A4	
Figure No.	3.7	Rev A

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## 3.4 Climate & Air Quality

### 3.4.1 Introduction

This section of the EIS presents details on the microclimate in the existing environment in the vicinity of the site. Potential impacts on the microclimate, the global climate and mitigation measures, where necessary are also described in this section.

### 3.4.2 Methodology

This assessment involved a desktop study of available information. Existing meteorological data has been examined and assessed in order to predict potential impacts from the proposed development.

Data for localised climatic conditions has been derived from meteorological measurements at the Mullingar synoptic station, which is the nearest station to the site, located approximately 17 km north of the site.

The weather station is located approximately 1.7 km northwest of Mullingar Town Centre (533214 N: 072144 W). This station is location at 104 m mOD above mean sea level, approximately 20-25 m higher than the propose site location.

Table 3-16 summarises the long-term weather patterns recorded at Mullingar from 1961 - 1990. The data includes temperature, humidity, sunshine hours, rainfall and wind.

### 3.4.3 Climate & Air Quality in Ireland

#### Climate

Typically the weather experienced in Ireland is a west maritime climate, consisting of relatively mild, moist winters and cool cloudy summers. For substantial periods of the year, Ireland is subject to maritime air, associated with the Gulf Stream. This helps to maintain a moderate climate with few extremes experienced by other countries at similar latitude. Prevailing winds are westerly to south westerly and average humidity is high. The west coast and inland areas of high relief are subject to the highest levels of annual average precipitation.

Rainfall is greatest in the northwest, west and southwest of the country, especially over the higher ground. Rainfall accumulation tends to be highest in winter and lowest in early summer. The annual number of days with more than 1 mm of rain varies between about 150 in the drier parts and over 200 in the wetter parts of the country (<http://www.met.ie/climate/rainfall.asp>).

The potential effects of climate change on a global scale have been investigated by the Intergovernmental Panel on Climate Change (IPCC). The predicted impacts in Ireland are outlined in the National Climate Change Strategy and state that Ireland will become warmer, with drier summers and wetter winters. Serious flooding events, more frequent than at present are also predicted.

It is recognised that Ireland cannot, on its own, prevent climate change impacts. However, the National Climate Change Strategy states that Ireland must meet its responsibilities with regard to reducing CO<sub>2</sub> emissions in partnership with the EU and the global community.

Changes in Ireland's climate are predicted to continue to change in the coming decades (Desmond *et al.*, 2009)<sup>9</sup>. With some meteorological records in Ireland over 100 years old, published data shows changes in Ireland's climate in line with global and regional trends.

<sup>9</sup> Desmond, M; O'Brien, P & McGovern, F. 2009. CCRP 2007-2013 Report Series No. 1 – A Summary of the State of Knowledge on Climate Change Impacts for Ireland. Prepared for the Environmental Protection Agency by The Office of Climate, Licensing and Resources, EPA, Dublin.

### Air Quality

The report entitled 'Air Quality in Ireland 2008: Key Indicators of Ambient Air Quality' published by the EPA in 2009 indicates that air quality in Ireland can be considered to be of good quality. Monitoring results for sulphur dioxide, nitrogen dioxide, particulate matter, lead, benzene, carbon dioxide and ozone indicated that all of these parameters were below the respective concentrations set down in the Air Quality Standards Regulations 2002 (S.I 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. 53 of 2004) and the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I 58 of 2009). In Offaly, an air quality monitoring station is located in Ferbane. The results from monitoring at this location contribute to the overall assessment of national air quality.

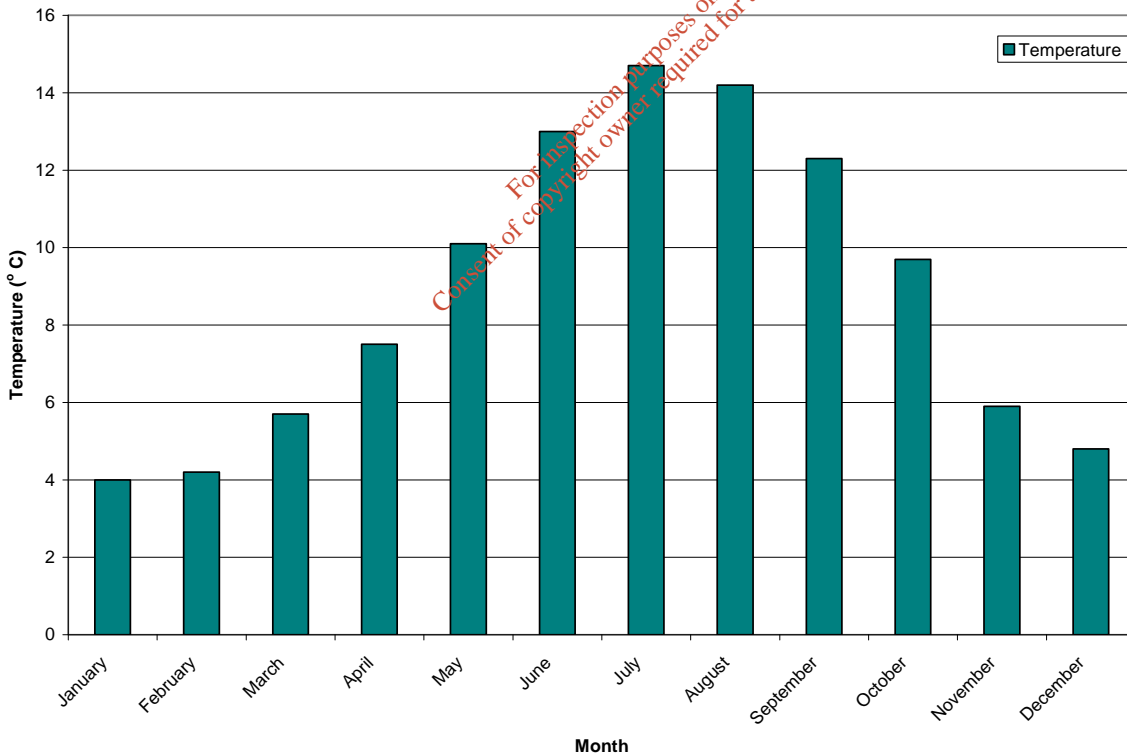
#### 3.4.4 Existing Climate & Air Quality Characteristics

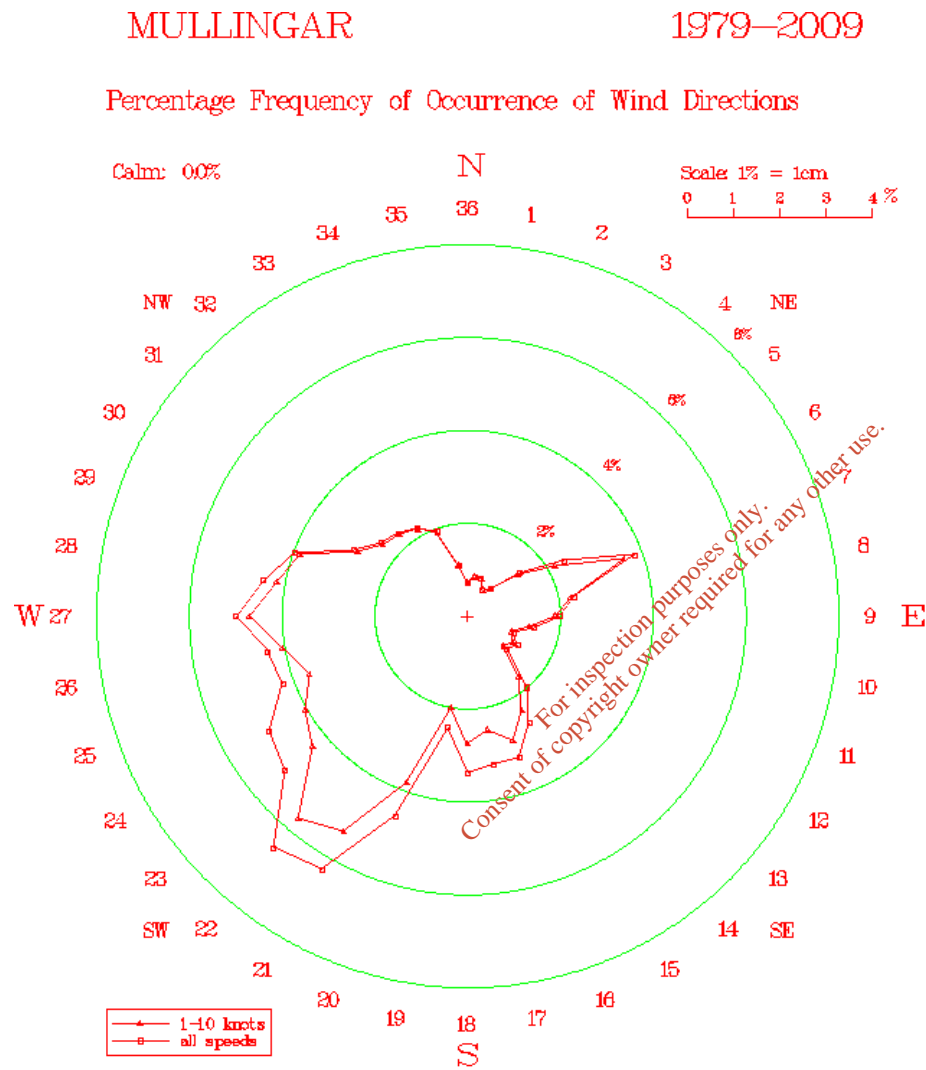
##### Climate

Data for localised climatic conditions has been derived from meteorological measurements at the Mullingar synoptic station and is presented in (Table 3-16).

Data from Mullingar indicates that the mean air temperature is approximately 8.8 °C. The annual temperature profile is presented in Figure 3-8. The average wind speed and direction indicates that the prevailing winds are south westerly, based on a Met Éireann Wind Rose plot over a 30 year period, presented in Figure 3-9. The mean wind speed is 8.5 knots (4.37 m/s), with approximately 2 – 3 days of gale force winds per year.

Figure 3-8 Temperature Average at Mullingar Synoptic Station over 30 year period





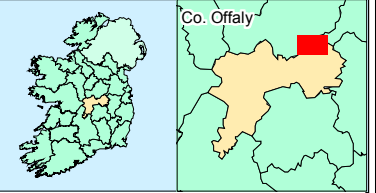
Percentage Frequency of Occurrence of Wind Speeds + less than 0.1

0	1-6	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	over 48	knots
0.0	25.4	36.6	28.0	9.4	0.6	+	0.0	0.0	0.0	0.0	%

mean wind speed: 6.0 knots  
anemometer height: 12m

standard deviation: 33 knots

Met Eireann, Glasnevin Hill, Dublin 9.



Date	25/01/2010	
Name of Client	Bord na Mona	
Name of Job	Drumman EIS	
Title of Figure	Wind Rose for Drumman Site (Mullingar Synoptic Station)	
Figure No.	3.9	Rev A

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Table 3-16 Mullingar Synoptic Station Monthly &amp; Annual Mean and Extreme Values (1961-1990; 30 Year Average)

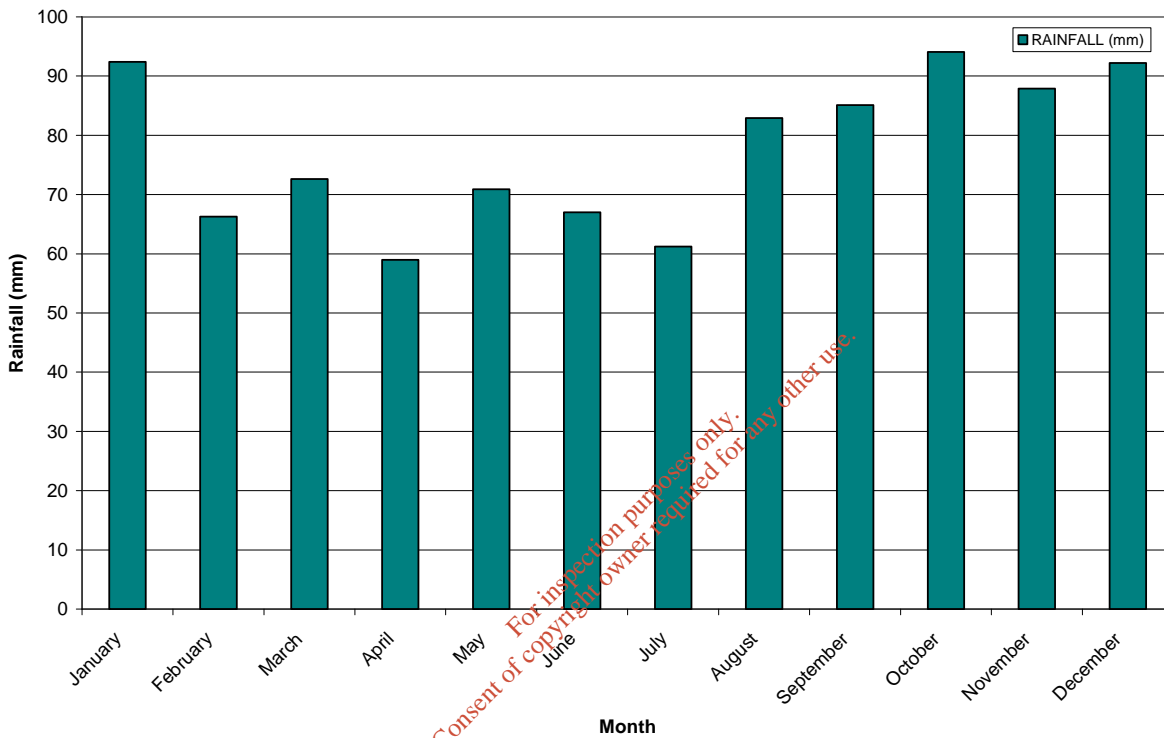
TEMPERATURE (degrees Celsius)	January	February	March	April	May	June	July	August	September	October	November	December	Year
<i>mean daily max.</i>	6.8	7.2	9.4	11.8	14.7	17.5	19	18.6	16.4	13.2	9.1	7.5	<b>12.6</b>
<i>mean daily min.</i>	1.2	1.2	2	3.3	5.6	8.5	10.3	9.8	8.1	6.1	2.7	2	<b>5.1</b>
<i>mean</i>	4	4.2	5.7	7.5	10.1	13	14.7	14.2	12.3	9.7	5.9	4.8	<b>8.8</b>
<i>absolute max.</i>	13.3	14.7	20.1	22.6	25	28.8	29.7	28.9	24.4	21.6	17.3	14.6	<b>29.7</b>
<i>absolute min.</i>	-14.9	-8.7	-8.4	-3.9	-2.6	0.7	3.4	2.1	0	-4.2	-6.9	-12.4	<b>-14.9</b>
<i>mean no. of days with air frost</i>	10.6	9.1	8	3.7	0.6	0	0	0	0	1.3	7.2	9.5	<b>50</b>
<i>mean no. of days with ground frost</i>	17.5	15.6	14.2	10.8	4	0.6	0	0.2	1.4	4.6	13.2	15	<b>97.2</b>
<b>RELATIVE HUMIDITY (%)</b>													
<i>mean at 0900UTC</i>	92	90	89	83	79	80	82	85	88	91	92	92	<b>87</b>
<i>mean at 1500UTC</i>	85	79	73	68	68	70	70	72	74	79	83	86	<b>76</b>
<b>SUNSHINE (hours)</b>													
<i>mean daily duration</i>	1.73	2.31	3.3	4.83	5.56	5.17	4.57	4.39	3.7	2.74	2.18	1.53	<b>3.5</b>
<i>greatest daily duration</i>	8.1	9.5	11.8	13.9	15.5	16	15.6	14.4	11.7	10	8.9	7	<b>16</b>
<i>mean no. of days with no sun</i>	11	8	5	3	2	2	2	2	4	6	9	12	<b>66</b>
<b>RAINFALL (mm)</b>													
<i>mean monthly total</i>	92.4	66.3	72.6	59	70.9	67	61.2	82.9	85.1	94.1	87.9	92.2	<b>931.6</b>
<i>greatest daily total</i>	31	38.7	29.5	21.6	42.2	26.2	69.8	49.9	42.2	60.2	48.6	54.1	<b>69.8</b>
<i>mean no. of days with &gt;= 0.2mm</i>	20	17	19	16	17	16	16	18	17	20	18	20	<b>214</b>
<i>mean no. of days with &gt;= 1.0mm</i>	16	12	14	12	14	12	11	13	13	14	13	15	<b>157</b>
<i>mean no. of days with &gt;= 5.0mm</i>	7	4	6	4	5	5	4	5	6	6	6	6	<b>65</b>
<b>WIND (knots)</b>													
<i>mean monthly speed</i>	9.7	9.7	10	8.5	8	7.4	7.3	7.2	7.6	8.4	8.5	9.3	<b>8.5</b>
<i>max. gust</i>	76	71	64	60	58	52	48	57	79	67	59	68	<b>79</b>
<i>max. mean 10-minute speed</i>	45	41	42	37	36	35	28	34	45	45	39	45	<b>45</b>
<i>mean no. of days with gales</i>	0.7	0.6	0.2	0.1	0.1	0	0	0	0.1	0.2	0.2	0.3	<b>2.5</b>
<b>WEATHER (mean no. of days with...)</b>													
<i>snow or sleet</i>	6.4	5.7	4.4	1.9	0.2	0	0	0	0	0	1.2	3.6	<b>23.5</b>
<i>snow lying at 0900UTC</i>	3.9	1.8	0.9	0.2	0	0	0	0	0	0	0.4	1.2	<b>8.4</b>
<i>hail</i>	0.7	1	3.4	2.6	2	0.4	0.1	0.2	0.2	0.6	0.5	0.3	<b>12.1</b>
<i>thunder</i>	0.1	0.1	0.3	0.3	0.9	1.1	1.3	0.7	0.3	0.2	0.2	0	<b>5.3</b>
<i>fog</i>	6	4.5	3.3	3.2	2.7	2.5	2.8	5.3	5.8	5.6	5.6	5.5	<b>52.6</b>



Precipitation is the discharge of water, in liquid (rain and dew) or solid state (snow, hail, sleet and frost) from the atmosphere. It is the common process by which atmospheric water becomes surface or subsurface water. In Ireland it is observed that hail and snow contribute relatively little to the precipitation measured.

The mean annual precipitation data recorded at Mullingar shows a mean average rainfall of 931.6 mm over a 30 year period (Table 3-16). The average monthly precipitation varies; slightly higher levels are recorded during the winter period compared to the summer period (Figure 3-10). The wettest months are October to January, over the 30 year period, while April represents the driest month.

**Figure 3-10 Rainfall Average at Mullingar Synoptic Station over 30 year period**



**Air Quality**

There is no EPA air monitoring station in the vicinity of the proposed site ([www.epa.ie/ourenvironment/air/accessmaps](http://www.epa.ie/ourenvironment/air/accessmaps)). Consequently, to assess the ambient air quality at the proposed site location, total dust deposition monitoring was conducted by an FTC scientist in November 2009. The locations of this monitoring are indicated in Figure 3-3.

Bergerhoff gauges were used to determine total dust deposition at the site during a single monitoring event in 2009 at two locations. Monitoring was carried out in accordance with the Standard Method VDI 2119 (Part 2, 1996) - (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute) for a 30 day period. Dust deposition was measured for both organic and inorganic dust.

Under the Air Pollution Act 1987, dust is considered a pollutant if concentrations are such that it is injurious to public health, deleterious to ecology, or impairs or interferes with amenities or the environment. This definition of air pollution has been transposed into the Protection of the Environment Act 2003. There are no statutory standards in Ireland for the control of dust nuisance.

The TA Luft Guideline entitled 'Technical Instructions on Air Quality Control, 2001', which is frequently applied as a guideline in Ireland, sets a limit of 350 mg/m<sup>2</sup>/day for dust deposition. A review of existing waste licences for similar facilities indicates that the EPA typically propose dust deposition limits (for fugitive emissions) as not exceeding 350 mg/m<sup>2</sup>/day per monthly mean in accordance with the TA Luft VDI Method 2119.

Dust Monitoring Results

The results of the monitoring carried out are presented in Table 3-17 and copies of the laboratory reports are included in Appendix 6. The results show that the background dust levels present on-site was low during the monitoring period. All results are within the evaluation criteria level of 350 mg/m<sup>2</sup>/day.

**Table 3-17: Results of Total Dust Deposition**

Location	Total Dust mg/m <sup>2</sup> /day	Organic mg/m <sup>2</sup> /day	Inorganic mg/m <sup>2</sup> /day
D1	58	53	<10
D2	55	43	12

3.4.5 Potential Impacts on Climate & Air Quality**Climate**Construction Phase Impacts

No impact on the microclimate is anticipated during the construction phase of the proposed development.

Operational Phase Impacts

Under the requirements of the Kyoto Protocol, Ireland is required to reduce its emissions of greenhouse gases. The way in which these targets will be achieved is outlined in the National Climate Change Strategy 2007 – 2012. The landfilling of waste results in the production of significant quantities of greenhouse gases particularly methane (CH<sub>4</sub>). The achievement of national targets with respect to the commitments under the Landfill Directive will, in parallel, contribute to the achievement of the national Kyoto Protocol targets.

The proposed facility at Drumman will, through the contribution to regional and national recovery and recycling targets as outlined in Sections 1.3.1 and 1.3.2, positively contribute to achievement of the national commitments regarding climate change.

In the absence of any development on-site there would be little change from the microclimate conditions present on site as the proposed location would remain as cutaway bog.

**Air Quality**Construction Phase Impacts

Dust emissions arise when an operation causes particulate matter to become airborne. This airborne dust is then available to be carried downwind from the source. The amount of dust generated and emitted from a working site and the potential impact on surrounding areas varies according to the following:

- The type and quantity of material and working method
- Climate/local meteorology and topography

The principal source of dust emissions during construction will be associated with the:

- Clearing and peat stripping at the site
- Placement of fill material during construction
- Construction of key infrastructure
- Construction of access road

The potential impacts from construction will be temporary in nature as the proposed construction programme is estimated at 9 - 12 months.

### Operational Phase Impacts

During the operation of the facility potential dust emissions may arise from:

- Waste delivery, processing and the movement of vehicles to and from the site
- Storage of waste material
- Traffic generated emissions

The potential dust impacts arising from the proposed development have been assessed qualitatively by considering the following factors:

- the likelihood of dust arising during the process, with regard to the design and process flow of the operation
- the location of sensitive receptors in relation to the proposed facility
- the effect of varied meteorological conditions on the dispersion of dust emissions
- general housekeeping practices adopted at the site

The greatest impact of dust blowing from the proposed development must be expected at sensitive receptors directly downwind of the site. Based on the Mullingar synoptic station windrose depicted in Figure 3-9, the prevailing wind direction is from the southwest. Dust impact would therefore be expected to be most apparent downwind of the prevailing wind. No sensitive receptors have been identified downwind of the site.

The Waste Reception and Processing Building will accept 'brown bin' biowaste material for bulking up prior to transportation on for further processing. This material has the potential to generate some minor localised odour with the impact depending on the degree of degradation of the material prior to acceptance at the facility.

### 3.4.6 Mitigation Measures

#### **Climate**

As it is not expected that there will be potential negative impacts on the microclimate as a result of the proposed development, no mitigation measures are proposed.

#### **Air Quality**

##### Construction Phase

During the construction phase, a dust control plan will be implemented as part of the Construction Environmental Management Plan. Adherence to this plan will form part of the civil works contract. The dust control plan will include the following best practice measures:

- During stripping of the top layer of peat, a water bowser will be available to spray exposed materials if material is deemed to be giving rise to dust generation. Additionally, the stripping of peat will be avoided (where possible) during periods of dry, windy weather
- Wheel mats will be used where required throughout the site
- All loads entering and exiting the site will be required to be covered or damp to avoid dust emissions along local roads
- Stockpiles, if present, will be sprayed during periods of dry weather, if necessary
- A strict speed limit of 20 km/hr will be enforced for vehicles

- Regular cleaning of public roads will be carried out where necessary

### Operational Phase

Best available technology (BAT) considerations will be employed in all design aspects of the proposed facility. The Waste Reception and Processing Building will be operated under negative pressure such that extracted air will pass through an appropriate dust filtration system located to the rear of the processing building.

The area of the Waste Reception and Processing Building where biowaste material will be accepted will be operated under a separate negative pressure extraction system with extracted air being passed through an appropriate peat or woodchip based biofiltration system to ensure adequate treatment of potentially odiferous air. Regular vehicle services will ensure that engines are in prime working condition so that vehicle emission will be within required limits at all times. In addition, the internal facility roads will have an asphalt finish which will mitigate against traffic related dust emissions.

### 3.4.7 Monitoring

#### **Climate**

It is not proposed that site specific meteorological monitoring will be undertaken. If required in the future, data will be obtained from the Mullingar synoptic station which can be taken as being appropriately representative of meteorological conditions at the proposed site location.

#### **Air Quality**

Figure 2-5 presents the proposed environmental monitoring location for the materials recycling & waste transfer facility. Monitoring for air quality parameters will be carried out at these locations as per the frequency and methodology specified in the facility waste licence and results of this monitoring will be presented in the quarterly and/or annual reporting requirement for the facility.

### **3.5 Conclusion on the Human Environment**

The developer of the proposed materials recycling & waste transfer facility, Bord na Mona PLC, is, and has been in the past, a significant provider of employment in the local region. The development of the proposed facility will provide a number of employment opportunities for local people in an area which is dominated by peat harvesting and agricultural related employment. The facility will generate a demand for local goods and services during the construction and operational phases which will further benefit the local economy, both directly and indirectly. The site is an existing, spent cutaway bog and the development of a facility of 3.22 ha. will not have any significant impact on the surrounding land use or tourism in the area.

The propose development will increase traffic levels on the R400 road from the deliveries and collection of waste material. Vehicles will be instructed to utilise the nearby M6 motorway at all time when accessing the facility and assessment has indicated sufficient capacity at all relevant road junctions when the facility is operational. The use of the M6 motorway as the primary access route will mitigate against any potential impact on the R400 road network, particularly at Rhode village.

The potential impact of noise from the construction and operation of the proposed facility at noise sensitive locations is expected to be insignificant, due to the distances of potential receptors from the proposed facility. The expected increase in traffic volume is not expected to increase traffic related noise emissions at noise sensitive locations.

Air quality and climate in the existing environment will not be impacted as a result of the proposed development. It is proposed to install a dust extraction system and a biofiltration unit to mitigate against potential emissions of dust and odours resulting from activities at the facility. Licence related monitoring of air related emissions will ensure the proposed mitigation measures prove effective.