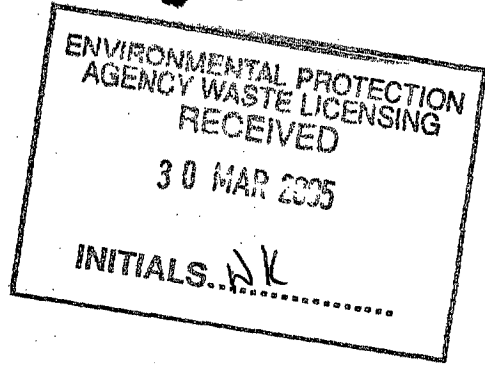


131-2



**REVIEW OF WASTE LICENCE FOR
MIDLAND WASTE DISPOSAL
COMPANY LTD.,
PROUDSTOWN, NAVAN,
COUNTY MEATH**

- An Environmental Impact Statement -

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Date: March 2005

A Submission to the Environmental Protection Agency by Bord na Móna Environmental Limited on behalf of Midland Waste Disposal Company Ltd.

SECTION 1

INTRODUCTION

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1.1 GENERAL

The environmental impact assessment concept originated in North America in the late 1960's. It was developed in response to a number of environmental 'catastrophes' which had highlighted a failure in the integration of environmental matters in the project planning process. The concept was introduced in Europe in the late 1970's but it was not until 1985 that the procedural requirements were harmonised throughout the European Community with the adoption of a directive on Environmental Impact Statements (EIS). This directive was enacted in Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. 349 of 1989) and subsequently amended by the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1999 (S.I. 93 of 1999).

The more important aspects of the new regulations are as follows:

- The number of categories of activities to be regulated by Environmental Impact Assessment (EIA) has been expanded and some of the original thresholds have been changed.
- The competent authority is given guidance on how the environmental sensitivity of a site may be evaluated.
- If the developer so requests, the Local Authority must give an opinion on the issues that must be considered within an EIS (e.g. scoping).

The First Schedule of the Regulations lists the infra-structural developments for which an EIS is required. The Second Schedule details information, which must be contained in such a study. In accordance with paragraph 2(b), Second Schedule of the regulations, the impacts of a proposed development must be examined under the following headings:

Human Beings	Flora and Fauna
Soil	Water
Air	Climatic Factors
Landscape	Material Assets
Cultural Heritage	Interactions of the above

1.2 SCOPE

This report presents the results of an Environmental Impact Study (EIS) carried out at the Midland Waste Disposal Company Limited's existing waste transfer station at Clonmaggadan, Proudstown Road, Navan, County Meath. Midland Waste Disposal Company Ltd., currently operate their waste transfer station under a Waste Licence (reg: 131-1) issued by the Environmental Protection Agency (EPA).

Midland Waste Disposal Company Ltd., are seeking a review of their Waste Licence (WL131-1) (refer to Attachment 01) with the EPA. The application for the review of the waste licence (WL131-1) is to seek approval from the EPA for the following:

- Increase the annual tonnages;
- Extent the hours of operation;
- Increase the number of waste containers held outside over night at the facility.
- Introduce Class II of the fourth schedule "Use of waste obtained from any activity referred to in a preceding paragraph of this schedule"

This EIS has been compiled with regard to attachment (I) of the waste licence review application and is in compliance with the requirements of an accompanying EIS with all waste license applications to the EPA. The scope of this EIS covers the environmental impacts associated with that of the existing development.

The existing facility requires an Environmental Impact Statement under Part 5 of the Planning and Development Act 2001 (S.I. 600 of 2001):

Part 2 – Paragraph 11 (b): Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part I of this schedule.

In determining the information required to comply with these specifications an environmental impact matrix was prepared. The matrix predicts the likely impacts of the existing development on the various categories listed above. Table 1.1/1 presents the matrix from which the scope of this study was established. Table 1.1/2 represents the interactions between the various environmental media's and identifies the sections of the EIS where the interactions are addressed.

The findings of the EIA investigation are presented as follows (group format structure):

- | | |
|-----------|--|
| Section 1 | Introduction (including site development and operations). |
| Section 2 | Environmental Impacts (including existing information and prediction of the likely impacts of the development) and Remedial Measures (steps necessary to minimise environmental impacts) |

A range of government departments, agencies and bodies, non-governmental organisations and interest groups were consulted during the preparation of the EIS in order to ensure that all relevant issues were addressed. Specific concerns raised relating to any issue, environmental or otherwise, could subsequently be considered via design or procedural modifications or by the implementation of appropriate mitigation measures. Attachment 02 details the range of bodies which were consulted and the views expressed by same.

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TABLE 1.1/1: MATRIX FOR THE POSSIBLE ENVIRONMENTAL IMPACTS ASSOCIATED WITH MIDLAND WASTE DISPOSAL COMPANY LTD., WASTE TRANSFER STATION, CLONMAGADDAN, POUNDSTOWN, NAVAN, CO. MEATH				
	Structure/Operations	Air Emissions	Noise	Waste Generation
Human Beings	Amenity value, visual aspects Operation Disturbance	Dust Emissions	Noise generated from Construction & Operation Disturbance	Stock Piled Overburden Material, Visual and Dust Generation
Flora & Fauna	Habitat loss Operation Disturbance	Dust Emissions	Noise generated from Construction & Operation Disturbance	Habitat Loss
Geology	Excavation of Material	-	-	-
Hydrology	No Surface Water Body in Vicinity of the Facility. No discharges to Surface Water			
Hydrogeology	Groundwater Pollution	-	-	Groundwater Pollution
Air	Dust Emissions	Dust Emissions	-	-
Climate	-	Mircoclimate	-	-
Landscape	Visual Aspects	-	-	Visual Aspects
Material Assets	Property Value: Visual Aspect NIMBY Affect	Property Value: Dust Aspect	Property Value: Noise Aspects	Property Value: visual/Aesthetic
Cultural Heritage	Existing & Undiscovered Archaeological Features	-	-	-

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**TABLE 1.1/2: SUMMARY OF THE ENVIRONMENTAL IMPACTS OF THE MIDLAND WASTE DISPOSAL COMPANY LTD.,
WASTE TRANSFER STATION , CLONMAGADDAN, POUNDSTOWN, NAVAN, CO. MEATH**

	Human Beings	Ecology	Geology	Water	Air	Noise	The Landscape	Cultural Heritage
Human Beings		none	none	2.3 & 2.5	2.1 & 2.5	2.4 & 2.5	2.5 & 2.7	none
Ecology	none		none	2.1 & 2.6	2.1 & 2.6	none	none	none
Geology	none	none		none	none	none	none	2.9
Water	2.3	2.3 & 2.6	2.2		none	none	none	none
Air	2.1 & 2.5	2.1 & 2.6	none	none		none	none	none
Noise	2.4 & 2.5	none	none	none	none		none	none
Landscape	2.5 & 2.7	none	none	none	none	none		none
Cultural Heritage	none	none	2.9	none	none	none	none	

Any interactions which will not be impacted upon or affected by the facility are not described in the EIS.

1.3 PROJECT DESCRIPTION

1.3.1 Introduction

Bord na Móna Environmental Ltd., were contacted by Midland Waste Disposal Company Ltd., to carry out an Environmental Impact Assessment of their existing waste transfer facility at Clonmagaddan, Proudstown, Navan, County Meath. This Environment Impact Statement (EIS) will accompany an Application to the Environmental Protection Agency (EPA) for the review of their Waste Licence (Register No. 131-1).

The application has been made in accordance with Part V of the Waste Management Act, 1996 and supporting documentation: Waste Management (Licensing) Regulations, S.I. No. 185 of 2000 (and subsequent amendments) and EPA Guidance Notes for Applicants – Waste Licensing: Waste Disposal Activities (Other than Landfill Sites).

Under the conditions of the existing waste licence Midland Waste Disposal Company Ltd., are licensed to handle a maximum tonnage of 32,000 tonnes per annual. Over the previous 2-3 years the volume of waste accepted and handled at the facility has increased significantly, as a result of both an increase in the population within the Navan catchment and an increase in the recycling rate of all waste types. The waste volumes accepted at the facility has increased from ca. 15,000 tonnes in 2001, to 30,407 tonnes in 2002 and to over 40,000 tonnes in 2003. Consequently Midland Waste Disposal need to increase the volumes of waste allowed to be accepted at the facility under the conditions of the waste licence.

The nature of the waste is that of domestic household waste, industrial (non-hazardous), commercial and construction and demolition. It is proposed that when the facility is operating at full capacity that it will accept 95,000 tonnes of waste per annum.

Since the granting of the existing licence in 2001, a number of infrastructural improvements have been carried out at the facility, to allow all waste handling procedures and operations at the facility to be carried out in an appropriate manner thus minimising any environmental emissions. As part of any future developments, BAT technologies (Best Available Technology) will be used in all situations for site management and for the minimisation of any future environmental contamination.

1.3.2 Need for the Development

Midland Waste Disposal Company Ltd., have been operating a waste transfer facility at the facility since 1991. In 2001, an EPA Waste Licence was obtained for the facility which allowed a maximum tonnage of 32,000 tonnes per annum. As part of the initial licence application a maximum tonnage of 50,000 tonnes per annum was requested by Midland Waste Disposal Company Ltd, however this was not agreed with the agency at that time. Since applying for the initial waste licence in 1999, the waste industrial has changed with more recycling of all waste types occurring (including 30% of household and up to 85% of Construction & Demolition waste) thus diverting waste for disposal at landfill.

In addition to this, Midland Waste Disposal Company Ltd are located within the outskirts of Navan town in County Meath. (see figure 1.3/1 below)

Figure 1.3/1: Site Location



The population figures for County Meath have showed an increase by over a fifth (22%) of the population between the period from 1996 – 2002 (CSO July 2002). Within the Navan rural electoral division the population has increased by 53.6% for this same period. These figures illustrate the increasing population growth of the region as it becomes part of the Dublin commuter belt. It has been estimated that

these population figures are likely to grow by 49.7% over the next thirty years (CSO July 2002).

Since granting of the waste licence in 2001, waste volumes accepted at the facility have increased from 13,633 tonnes (2001) to 30,407 tonnes (2002), to 40,712 tonnes (2003) and 50,491 tonnes in 2004. With the increasing population and increasing recycling rates, these tonnages are expected to increase to a maximum tonnage of 95,000 tonnes/annum by the year 2007/8. The need to development the facility to handle this tonnage (95,000 tonnes/annum) is imperative to ensure the recycling rates are kept up and waste is diverted from landfilling.

1.3.3 Alternatives Considered

Midland Waste Disposal Company Ltd., have been operation at the facility in Proudstown since 1991. Since commencement of the operations there have been no complaints or grievances from any members of the public in relation to any on-site operations. The facility is located on the outskirts of the town of Navan, and close to other urban areas of Kells, Asbourne and North County Dublin. The facility is located off a cul-de-sac within an industrial area with adjoining industrial units.

The existing location of the waste transfer station is considered to be situated in a highly suitable location, both commercially and environmentally. Consequently, the re-locating of the facility to a new alternative site would not be deemed suitable.

1.3.4 MIDLAND WASTE DISPOSAL COMPANY LTD

The applicant, Midland Waste Disposal Company Ltd., were established at the facility since 1991 and became part of the Advanced Environmental Services (AES) group in 2000.

The facility is located in a former limestone quarry, located on the northern outskirts of the town of Navan in County Meath. The site is situated within an industrial area of the town with industrial premises located to the north of the facility. There are agricultural lands situated to the east and west of the facility. There is a residential area located ca. 300 m south of the facility. The site is located off a cul-de-sac from the main R162 Navan-Kingscourt Road with other industrial units of the roadway.

Planning permission obtained from Meath County Council in relating to the development of the facility are as follows:

- Development of the land as a recycling plant (P90/1370)
- Extension to the recycling plant, workshop, portocabin offices and permission to erect new extension to recycling plant, to replace existing septic tank and percolation areas with a puroflo wastewater treatment system. (99/1518)
- Extension to segregation area; Installation of mobile home; and Installation of weighbridge and hut at the facility. (NA20088)

1.3.5 EXISTING WASTE TRANSFER STATION

Midland Waste Disposal Company Ltd., operate a waste recycling plant at Clonmaggadan, Proudstown, Navan, County Meath. Operations at the facility include the receipt of domestic, commercial, industrial and construction/demolition waste, which is sorted in accordance to its recycling potential. Waste deemed unsuitable for recycling/recovery is segregated and compacted for final disposal off-site.

The licenced waste disposal and waste recovery activities that take place at the site as per the Waste Management Act, 1996, are outlined as follows:

Third Schedule -Waste Disposal Activities

- Class 11: Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this schedule.
- Class 12: Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
- Class 13: 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.

Fourth Schedule -Waste Recovery Activities

- Class 2: Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
- Class 3: Recycling or reclamation of metals and metal compounds

- Class 4: Recycling or reclamation of other inorganic materials
- Class 12: Exchange of waste for submission to any activity referred to in a preceding paragraph of this schedule.
- Class 13: 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.

It is proposed to include the Class 11 of the Fourth Schedule "Use of waste obtained from any activity referred to in a preceding paragraph of this schedule" as part of the licence review.

The facility is made up of office building, recycling plant building, maintenance shed and hardstanding operational areas. The southern sections of the site have been left undeveloped.

1.3.6 EXISTING SITE INFRASTRUCTURE

Site Security

Site security at the facility consists of 810m of 8 ft continuous palisade fencing along the entire boundary. There are three entrance ways into the site (office entrance, general site entrance and weigh-bridge entrance) and these are located along the northern boundary of the site. All entrance ways are fitted with electronic security gates operational only by authorised zapper holders. Entry to the yard area of the site is restricted to employees of Midland Waste Disposal Company Ltd. A separate entrance is used to the office complex with car parking facilities available. Outside of opening hours all entrances are locked with secure gating.

Site Accommodation

Site accommodation at the facility consists of an office building, (housing all administration & management offices), port-a-cabin for canteen facilities for the site staff and a mobile home for site security and a weighbridge hut to hold the computerised system. The locations of these are shown in *Site Infrastructure*. (Attachment 03)

Weighbridge

A 15m surface weighbridge is located along the northern boundary of the site. The weighbridge deck is constructed using a modular structural steel frame with a reinforced concrete deck.

Services

The facility is serviced with drinking water supplied by the Kilsaran groundwater supply source, adjacent to the facility. This supply is used for drinking water purposes and to top-up the process water for washing purposes which predominantly utilised rainwater collected from the roof areas at the facility.

Electricity at the facility is supplied through an on-site generator and the ESB. It is proposed to up-grade the electrical supply at the facility in 2005, thus removing the need for the generator. The facility is serviced by telecommunication systems (tel/fax).

Waste Inspection Areas

Waste Inspection Areas are located at the facility within the Recycling Building/Operation areas. Each waste inspection area is identified by a sign on the wall of the Recycling Plant Building.

Waste Quarantine Areas

A Waste Quarantine Area was constructed within the Recycling Plant Building. This covers a 5 m² area and is contained within a 150 mm bund (Capacity of 0.75 m³).

Design and Location of Fuel Storage Areas

The main bulk fuel storage as the facility consists of the following:

- 6000 gallon main diesel tank
- 200 L kerosene storage tank relocated within the wash room
- Hydraulic oil/Engine oil tanks in workshop/diesel shed (2 x 300 gallon)

All tanks and fuel dispensing areas are held within banded areas. The integrity and water tightness of the bunds on site were undertaken and all bunds were certified by watertight.

There are 4 no. spill kits, containing absorbent materials and booms, located throughout the facility. In the event of any spillages or leakages occurring at the facility, the spill will be retained with absorbent booms and material. Any used material will be removed and disposed of off site by an appropriate waste contractor.

Surface Water Drainage Infrastructure

Surface water run-off from all hardstanding areas is directed into the surface water drainage system. Currently there is one surface water drainage systems at the facility which directs all water from the site towards the north-west corner of the site where the water is discharged to the ground through a soakpit via an oil interceptor. It is proposed to install a second drainage system at the facility to divert the surface water run-off from the southern section of the site towards the eastern boundary, where the water will be discharged to the ground through a soak pit (via an oil interceptor).

An oil interceptor (class I separator as described in the European Standards prEN858) is located in the north-west corner of the site along the clean surface water drainage system after the sedimentation trap and prior to discharge to ground. Two shut off valves are also fitted to the drainage system, one prior to the sedimentation tank and one after the oil interceptor. It is proposed to install a second oil interceptor into the southern drainage system prior to the discharge into the soak pit.

Wastewater Infrastructure

A small scale treatment system (Bord na Móna Puraflo™ system) is installed at the facility to services all domestic wastewaters emanating from the office buildings, canteen and site accommodation. The discharge from the treatment system discharges into the foul water holding tanks which are emptied on a regular basis and discharged into the local authority treatment plant. There is a high level visual alarm attached to the foul water storage tank and Puraflo system to indicate when the level of the water is high to ensure that the overflowing of the tank does not occur.

Any waters generated within the Recycling Plant Building, the glass storage bays, composting area, and the washing area are directed through the foul water drainage system into the foul water storage tanks.

Waste Recovery Infrastructure/Plant

The following operation units are located at the facility for the processing of waste. Currently waste handling and processing equipment at the facility are capable of handling 2880 tonne/day and 1296 tonne/day respectively.

• 2 no. Industrial compactors	• 2 x Shredder
• 1 no. Baler	• 2 x Trommell & conveyor system
• 1 no. Bobcat	• 1 no. Blender unit
• 1 no. Forklift	• 1 no. VCU Composting unit
• 1 no. Samsung grab	
• 1 no. Volvo loading shovel	
• 2 x Hitachi & grab	

Trommel

The trommel system is used for the processing of Construction & demolition wastes, household municipal wastes and commercial wastes. This system is located along the eastern wall of the Recycling Plant Building and consists of a 30 ft barrel trommel (hourly capacity: 20 tonne), M&J Shredder: 4000 series (hourly capacity: 50 tonne) and Conveyor Belt System including hand picking line.

In-Floor Baling System

An in-floor baler system is located within the western sections of the Recycling Plant Building. This consists of a 6.3 m x 2.7 m and 1.25 m deep pit with an in floor conveyor system into the on-site baler system.

Timber Shredding Machine

The timber shredder is located by the composting unit and is used for the shredding of all wood and timber to be used in the composting unit itself.

Composting Unit

A VCU composting unit is located on a hardstanding area to the west of the Recycling Plant Building. The composting unit consists of 4 chamber units with a capacity of 21 tonne/day. There is no leachate generated in the process as all moisture is lost as steam, due to the temperature profile within the units. Surface water run-off from the hardstanding area is collected and directed into the foul water storage chamber on-site for final disposal off-site by an appropriate contractor. A concrete lip is constructed around the hardstanding area on which the composting unit is located to prevent any unauthorised discharges to ground.

1.3.6 SITE OPERATIONAL DETAILS

Opening Hours

Currently, normal operational hours at the Midland Waste Disposal Company Ltd. facility are between the hours of 08:00 to 20:00 Monday to Saturday. It is proposed to extend the hours of operation within the facility from 06:00 to 20:00 Monday to Saturday. All wastes accepted at the facility for disposal is removed from the facility within 48 hours of its arrival on-site (during bank holidays/weekends waste removed within 72 hours).

Staffing

Midland Waste Disposal Company Ltd. make up part of the Advanced Environmental Services. Overall responsibility of the management of the site is held by Mr. Francis Flynn (General Manager). Mr. Flynn is also responsible for the maintenance of the licence. Day to day management of operations, as directed by the managing director, is carried out by Mr.

Mark Duffy. Either the General Manager or the Operations Manager is present at the facility during all hours of operations.

Segregation of the waste and visual inspections are carried out Mr. Bernard Kelly. Other staff members include 8 no. administration staff, 9 no. yard operatives and 20 no. vehicles operatives.

Waste Quantities

A weighbridge has been in operation at the site and details of the waste tonnages are available for outgoing wastes for the recording periods 2001 to 2004. These are detailed in table 1.3/1 below:.

Table 1.3/1: INCOMING WASTE AT MIDLAND WASTE DISPOSAL COMPANY LTD.,

Code	Waste Type	Tonnage			
		2001 (13/3 – 31/12)	2002	2003	2004
1	Industrial	5252	6602	7723	8566
2	Commercial	3038	5037	5482	9507
	Cardboard			2000	
	Glass			105	
	Timber			214	
3	Construction & Demolition	893	2546	5471	10565
4	Household	4450	16222	17878	21853
	Dry Recyclable			1839	
Total Incoming Waste		13,633tonnes	30,407tonnes	40,712tonnes	50,491tonnes

It is proposed to increase the tonnages of waste accepted at the facility to 95,000 tonnes/annum. This will be made up of 15% Industrial, 20% commercial, 15% Construction & Demolition and up to 50% Household.

Waste Handling Procedure

All wastes entering the site are forwarded to the weighbridge system which records the details and quantities of waste accepted on-site. After weighing, each waste load is brought to the enclosed Recycle Plant Building, where it is deposited on the floor for visual inspection to ensure that all wastes comply with the requirements of the existing Waste Licence, Register No. 131-1. The Waste Segregation Manager (Mr. Bernard Kelly) is responsible for carrying out the waste visual inspections and for maintaining a written record of all inspections. Written records of each inspection is recorded.

Within the Recycling Plant Building the waste is sorted according to its recycling potential and is either deemed suitable for recycling/recovery or compacted within one of the compactors on-site and transported off-site for final disposal (non-recoverable waste). The categories of waste deemed suitable for segregation and recycling is dependent on available markets for such materials. Materials commonly accepted for recycling include Steel/ Iron, Cardboard/Newsprint, Timber, Construction & Demolition waste, Green Waste, Plastic and Glass and on occasion empty gas cylinders and tyres. All waste not deemed suitable for recycling/recovery is loaded into designated Ro-Ro Bins, or a 40 foot injector trailer or is compacted within one of two compactors on-site. All compacted wastes are sealed within specialised containers and are subsequently transported for authorised disposal. All waste being transported from the facility by Midland Waste Disposal Company Ltd. is weighed on the weighbridge. An individual weigh docket is printed for each waste load.

Construction and Demolition waste is sorted through the trommel and sorting line. All recyclable material is forwarded to off-site licenced facilities for recovery. Stone & bricks is used for the construction of roadways and soils/subsoils are used in land reclamation. Industrial & commercial waste is directed either to the trommel where recyclable matter is recovered or directly to the in-floor baler for recovery off-site. Any residual material is forward to landfill for disposal. Household waste is directed through the trommel and sorting line. Recovered organic fines are directed to the VCU unit for composting. Dry mixed recyclables are directed to the in-floor baler for bulk load to be forwarded off site for recovery.

1.3.7 AFTERCARE MANAGEMENT SYSTEM

Midland Waste Disposal Company Ltd have operated their waste transfer station at Clonmaggadam, Navan since 1991 and as such it is not anticipated that the facility will shut down or decommission in the near future.

In the unlikely event however, that the facility has to close, a decommissioning plan will be adopted. The decommissioning procedures will include the following:

- Risk assessment of facility, in terms of activities on site, material stored and handled on site and likely receptors.
- Decommission, render safe or remove for disposal/recovery, of all materials, waste, ground, plant and equipment at the facility that may result in environmental pollution. Where possible equipment and materials (fuel etc) will be sold-off for use at facilities.
- Due diligence exit audit to ensure there is no risk to the environment.

- Post closure measures for the monitoring and maintenance of the building and the restored areas will be agreed with the Agency.
- In the unlikely event that closure did occur, it is considered likely that the site would be used for industrial purposes.

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SECTION 2

**ENVIRONMENTAL IMPACTS AND REMEDIAL
MEASURES**

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2.1 AIR

The air study for the existing waste transfer station and its environs was undertaken using the following information:

- As part of the initial EIS undertaken at the facility, air quality was carried out by Bord na Móna Environmental Consultancy Services in November 1999.
- Since the granting of the Waste Licence 131-1 in November 2001, on-going dust depositional monitoring and dust directional monitoring has taken place at the facility.
- An Odour assessment was carried out at the facility in December 2004.

These were subsequently assessed to predict the potential impact of the development.

2.1.1 OVERVIEW OF POTENTIAL POLLUTANTS

If uncontrolled, the operation of the waste transfer station can give rise to the following air emissions.

- Odour
- Dust

(i) Odour

An odour is defined as a sensation resulting from the reception of a stimulus by the olfactory sensory system. Odorous air pollutants are often judged important, primarily for their nuisance value and the number of complaints they generate. By definition $1\text{ou}/\text{m}^3$ is the detection threshold of 50% of a panel of trained observers working in an odour free environment. Moreover, it is generally accepted that ambient odour concentrations in excess of $5\text{ou}/\text{m}^3$ above the baseline concentration give rise to complaints of odour nuisance ('Odour Control – a concise guide' Dept. of Environment UK Warren Springs Laboratory 1980) and concentrations greater than $30\text{-}40\text{ou}/\text{m}^3$ above baseline can give rise to serious nuisance. In general, it may be stated that normal rural open-air background concentrations typically range from $10\text{--}40\text{ou}/\text{m}^3$. These may occur as a result of natural odour sources (woods, pasture, peatland, surface waters etc.) and are not usually considered as being a nuisance.

(ii) *Dust*

Airborne particulate matter varies widely in its physical and chemical composition, source and particle size. Particles are often classed as either primary (those emitted directly into the atmosphere) or secondary (those formed or modified in the atmosphere from condensation and growth). Particulate matter arises from both man-made and natural sources. Natural sources include wind-blown dust, sea-salt and biological particles e.g. pollen. Man-made sources include large carbon particles from incomplete combustion, ash, dust particles from quarrying and construction activities and road traffic generated dust. In general large particles do not stay in the atmosphere for long and are deposited close to their source, whereas small particles can be transported long distances.

Particles, which are deposited to ground, give rise to problems such as soiling of buildings and other materials and also cause a general nuisance. The Technical Instructions on Air Quality Control TA Luft - 1986 recommended value for dust emissions is 350 mg/m²/day.

Table 2.1/1 overleaf is a general guideline in relation to the response of people to dust deposition rates.

TABLE 2.1/1: DUST DEPOSITION RATES AND HUMAN RESPONSE	
mg/m²/day	Response
< 30	No Problem
30 - 100	Hardly Noticeable
100 - 150	Occasional Complaints
150 - 300	Regular Complaints
> 300	Frequent Complaints

2.1.2 EXISTING ENVIRONMENT

(i) Odour

Due to the nature of the development the generation of odours may occur through the handling of waste, mainly the household municipal waste fraction, at the facility. The generation of odours and the associated nuisance it can potentially cause depends on the (i) dispersion of the odours, (ii) the prevailing wind and (iii) the distance to the nearest sensitive receptors i.e. nearest residential dwelling.

As part of the Environmental Management System at the facility, a weekly inspection of the facility is carried out to assess if any odours are detected at the boundary of the site. In the event that odours are detected, corrective action procedure is undertaken to determine the source of the odours and carry out works to prevent the generation of such odours.

In December 2004, an odour assessment was carried out at the facility, (see attachment 04) to determine if any nuisance causing odours are generated during a typical working day. This assessment was carried out at a period when both the trommel and composting unit were in operation.

In summary the assessment concluded that the upwind and downwind odour concentrations were similar on the day of sampling. During the specific meteorological conditions on the day of sampling, the results recorded support the observations that the potential odorous emissions from the Midland Wastes Disposal Company Ltd's facility did not contribute to increased odour levels downwind of the site facility. Odour monitoring concentrations recorded 133 OuE/m³ and >2 OuE/m³ downwind of the facility and 185 OuE/m³ & 100 OuE/m³ upwind respectively.

In addition, it should be noted that no reports of odour nuisance have been reported to the facility since the commencement of Waste Licence in 2001.

(ii) Dust

In compliance with the existing conditions of their Waste Licence (131-1), Midland Waste Disposal Co. Ltd, carried out dust monitoring at the facility.

- Sampling Methodology

Dust monitoring is conducted using dust gauges conforming to the Standard Method VD12119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff

Instrument (Standard Method) German Engineering Institute). Each dust sampling bottle is securely capped and returned to the laboratory for analysis.

- Analysis

The collected solid material is subsequently filtered onto pre-weighed glass fibre filters, dried and re-weighed. Results are expressed in mg/m²/day.

- Results

The results of the annual dust monitoring from the June 2001 to December 2004 are detailed in Table 2.1/2 below. The location of the dust monitoring stations are shown in Drawing *Environmental Monitoring* in Attachment 03:

	Jul-01	Aug-01	Mar-02	Jul-02	Sep-02
D1	61.2	114	135.8	73	119.2
D2	153	331.3	450.7	679	477
D3	408	<86.9	173.8	2452.2	306.7
D4	51	124.9	135.8	123.5	175.6

	Jan-03	Jun-03	Aug-03	Jul-04	Jun-04	Jul-04
D1	224.5	17.4	1975.30	84.2	613.3	39.28
D2	948.4	685	1997.80	1334.8	1521.2	746.35
D3	3,485	2,293	78.56	3162.6	3673.6	6329.97
D4	56.2	156.7	212.34	505.1	709.5	151.52

In addition to dust depositional monitoring, dust directional monitoring is carried out to determine the source of the dust at the facility (see Attachment 04).

The results of the dust monitoring at the facility indicate that levels of dust are higher along the northern boundary (D2 & D3) of the facility in comparison to the south (D1) and east (D4). D2 & D3 are located along the roadway, and close to an adjacent industrial site. Dust directional gauges at these monitoring stations predominantly indicate that dust is being generated from the east and west (traffic movement) and from the north (off-site activities), rather than from the working areas of Midland Waste Disposal Company Ltd.

In July 2003, dust collected from the dust depositional monitoring locations D2 and D3 along the northern boundary of the site were forwarded to CMA laboratory in Trinity College Dublin for electron microscopy and X-ray micro analysis. The analysis indicated that off-site activities were considered to influenced the levels of dust detected in the area.

2.1.3 ENVIRONMENTAL IMPACTS

(i) Odour

The results of the odour assessment at the facility indicated that potential odorous emissions from the Midland Wastes facility did not contribute to increased odour levels downwind of the site facility.

The main source of odour at the facility is a result of waste handling/sorting within the Recycling Plant Building. The nearest residence at the facility is located ca. 300m to the south-west. Any potential odours generated at the facility are likely to disperse and as such will not become a nuisance. In order to further reduce any odours generated at the facility, good working procedures will continue to adopted at the facility.

(ii) Dust

Midland Waste Disposal Co. Ltd., is situated within an Industrial area with quarry activities occurring immediately north of the facility. While high levels of dust have been recorded at the facility, these predominantly originating from off-site activities (i.e. nearby industrial unit). Dust may be generated at the facility through the movement of HGV's within the site boundary and the movement of friable material within the site.

2.1.4 MITIGATION MEASURES

(1) Odour Control

In order to reduce the generation of odours at the facility the following mitigation measures are carried out at the facility:

- The waste acceptance and handling procedures are carried out to ensure the waste is sorted as quickly as possible to reduce the generation of odours.
- All wastes are sorted within the Recycling Plant Building.

- All wastes not suitable for recycling/recovery are compacted and held within sealed containers.
- Any wastes held within skips outside of the Recycling Plant Building are covered to reduce any odours emanating from the waste stored therein.
- Daily nuisance inspections are carried out at the VCU Unit and the trommelling unit for the presence of odours.
- Weekly nuisance inspections are carried out at the boundary of the facility, which include the presence of odour.

(2) Dust Control

Dust control procedures are implemented at the facility on a daily basis thus greatly reducing any local problem due to dust deposition. These procedure include the following:

To ensure these emission are minimised the following measures have been put in place:

- Speed restrictions are in place from traffic movement on-site.
- All waste handling and processing is conducted within the Recycling Plant Building in order to prevent dust emanating off-site as a result of waste handling activities and to prevent an increase of noise levels in the vicinity of the facility.
- Nuisance inspections are carried out for litter, noise, vermin, dust, odours and flies are carried out weekly. Any observations were recorded and corrective action procedures carried out where necessary.
- The waste is processed through the system as efficiently as possible in order to prevent odours emanating from the process. The waste fines are removed from the vicinity of the recycling plant building as quickly as possible in order to prevent flies and odours.
- Twice weekly road sweeping at the facility.

- The Composting (VCU) Unit and the trommelling system are inspected on a daily basis to ensure there are no nuisances caused as a result of dust, noise, odours, leachate, debris and/or flies.

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2.2 GEOLOGY

2.2.1 INTRODUCTION

Desk-based information on the substrata underlying the facility was obtained through the Geological Survey of Ireland and a desk-based assessment of the geology in the area carried out as part of the EIS carried out in 1999.

There were no intrusive ground investigations undertaken as part of this study. The site is predominantly covered by impervious hardstand with green areas along the margin of the site. The site is located within an area of an old quarry.

- Quaternary Geology

Limited published Quaternary information is available for the surrounding area. However, given the historical quarrying nature of the site, coverage of overburden subsoils immediately overlying the target site is potentially absent (subsoils were removed during former quarrying activities) with the exception of a thin layer at the perimeter of the site. As such, the site is set in an extreme vulnerable area. In addition, information obtained from the GSI revealed that the surrounding area is generally underlain by glacial till deposits with sand and gravels and glaciofluvial gravel. Reported thickness of the overburden materials is generally <10m with several bedrock outcrops observed in the vicinity of the site.

- Bedrock Geology

According to published literature the bedrock geology in the vicinity of the site is documented as being dominated by Lower Palaeozoic Metasedimentary and Metavolcanic Bedrock units. Immediately to the south of the site, the surrounding area is indicated to be underlain by bedrock associated with the Navan Group Basal Lower Carboniferous Formations. The surrounding area to the north-west of the site is indicated to be underlain by Pre-Carboniferous felsic to intermediate intrusive rocks.

The bedrock in the area is extensively faulted with two main fault zones located within 200m of the site. Published geological information indicates that the Navan Fault may possibly cut the western boundary of the site. The majority of the faults in the area are trending in a SW-NE direction.

2.2.2 ENVIRONMENTAL IMPACTS

As there are no geological features of any significance present at or beneath the site, the proposed development will have no impact on local geology.

The proposed development will entail the construction of a hardstand cover over a majority of the site and as such there will be no discharges to the subsoil. Therefore it is considered that there will be no impacts to the underlying subsurface.

It is contended that any negative impacts of the continuation of current recycling activities can be minimised or eliminated by adherence to current procedures in addition to the proposed protection programmes (increasing hardstanding areas). On-going monitoring at the facility, (groundwater monitoring) indicate that the groundwater is free from contamination.

2.2.3 MITIGATION MEASURES

All wastes and fuels will be stored in fully bunded areas in accordance with relevant environmental guidelines and recognised standards. All bunds will be tested in accordance with the waste licence conditions. In addition, oil absorbent materials will be kept on site in close proximity to any fuel storage tanks or bowsers during site development works. The refuelling of vehicles will be undertaken in a designated area, which will be fully contained to prevent spillage into the surface water network.

All wastes being delivered to or removed from site will be loaded/unloaded in fully bunded areas. New leachate drains installed on site will be constructed in accordance with all applicable building standards thereby minimising the potential for leaks in underground pipes.

2.3 WATER

Midland Waste Disposal Co. Ltd., is located on the outskirts of Navan in County Meath. There is no surface water features located within the immediate vicinity of the facility, with the nearest water coarse located ca. 500m north of the site. This stream is a minor tributary of the River Blackwater.

Any surface water run-off from hardstanding areas at the facility, is currently directed towards the front of the site, where it is collected in the surface water drainage system. This collected water is discharged through a soakaway (via a siltration trap and oil interceptor) to ground.

There are no discharges to surface water and no surface water bodies within the vicinity of the site, as a consequent of this there is no impact to surface waters at the facility, and as such is not dealt with in this EIS.

2.3.1 HYDROGEOLOGY

Desk-based information on the hydrogeological conditions beneath the facility was obtained through the Geological Survey of Ireland as part of the EIS completed in 1999. As part of the conditions of the existing waste licence, groundwater monitoring of the nearby groundwater supply source (Kilsaran Well), is carried out annually. There were no intrusive ground investigations undertaken as part of this study.

Midland Waste has an agreement with Kilsaran to utilise this well as they're main source of water for facility operations. The site does not have an on-site water well and is not on the main Navan town municipal water supply system.

2.3.2.1 Groundwater Resources & Aquifer Classification

The majority bedrock units underlying the site and surrounding area are classed by the Geological Survey of Ireland as poor aquifers except in localised zones (PI) with locally important aquifers which are moderately productive only in local zones to the south (LI).

Published information indicated that the majority of the wells in the surrounding area are poor yielding (<40 m³/d), however localised good yielding wells (100 – 400 m³/d) were indicated to the south of the site.

2.3.2.2 Groundwater Usage

Local information from the GSI revealed several hand dug and bored wells within a 1km radius of the target site. The nearest potable groundwater well is located on the adjacent Kilsaran site to the north of the facility.

Local well records indicate that the static groundwater levels are reportedly shallow, generally <5m bgl, however this has not been confirmed. It was also not feasible to record the static water level in the adjacent Kilsaran well. It is assumed that groundwater is flowing in a northerly direction towards the River Blackwater.

2.3.2.3 Groundwater Vulnerability

Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activity.

Using the criteria as established by the GSI and based on current assessment data the groundwater resources in the vicinity of the Site may be classified as Extremely vulnerable (E). This is based on bedrock located at the surface.

It should be noted however that all working areas within the facility is covered with a hardstanding cover thus protecting the underlying groundwaters. Quarterly inspections of all hardstanding areas are carried out at the facility, as part of the EMS, to ensure no cracks are left un-repaired.

2.3.2 GROUNDWATER QUALITY

In compliance with the Waste Licence (131-1), on-going monitoring of the Kilsaran Well is carried out annually. The analytical results for the 1999-todate are given in Table 2.3/1 overleaf.

Table 2.3/1: On-Going Groundwater Monitoring Results

Date	Feb-02	Jul-02	Dec-02	Apr-03	Nov-03	Dec-04	Dec-04
PARAMETERS							
pH	7.6	7.4	7.4	7.3	7.4	7.4	7.7
Conductivity uS/cm	813	809	821	722	849	822	796
TON mg/l N	-	0.304	<0.04	0.42	0.27	-	-
Chloride mg/l	24.9	23	24.9	23	28.4	30	27
Sulphate mg/l	48.5	48	45.5	48	52.3	44.5	48.3
Ammonia as N mg/l	<0.2	-	<0.2	0.01	<0.02	<0.02	<0.02
Total Phosphorus mg/l	-	-	<0.05	-	<0.05	0.05	<0.05
TOC mg/l	<5	-	42	-	42	<5	6
Nitrate as N mg/l	0.2	-	<0.03	-	0.27	0.2	<0.2
Nitrite as N mg/l	<0.03	-	<0.04	-	<0.03	<0.02	<0.02
Phosphate	-	-	-	<5	<0.16	<0.02	<0.02
Sodium mg/l	17	17	15	17	16	21	21
Potassium mg/l	2.3	2.6	2.3	2.4	1.7	1.6	6.2
Calcium mg/l	111	70	106	133	161	172	172
Boron mg/l	14	<0.5	-	<0.05	37	20	21
Chromium mg/l	<2	<0.01	<2	0.018	<2	<2	<2
Iron mg/l	<0.1	<0.5	0.3	<0.001	0.3	0.3	0.2
Nickel mg/l	<2	<0.01	<2	0.022	3	<2	<2
Manganese mg/l	24	0.169	104	-	26	4	4
Copper mg/l	<2	0.014	<2	-	3		
Zinc mg/l	4	<0.04	8	0.0008	<2	10	10
Arsenic mg/l	-	<0.01	-	<0.001	<2	-	-
Selenium mg/l	-	<0.01	-	<0.001	<2	-	-
Silver mg/l	-	<0.5	-	<0.05		-	-
Cadmium mg/l	<2	<0.001	<2	<0.0001	<2	<2	<2
Barium mg/l	24	<0.5	300	0.236	178	264	262
Lead mg/l	<2	<0.01	<2	<0.001	<2	<2	<2
USEPA micro g/l	<10	-	<10	<0.5	<0.5	<0.5	-
Total coliforms MPN/100ml	<10	-	<1	-	11	<10	-
Faecal Coliforms MPN/100ml	<10	-	<1	-	<1	<1	-

The results to date indicate that the quality of the groundwater beneath the site is clean and free from contamination. The majority of the parameters have remained constant since monitoring commenced in February 2002. pH levels indicate that the water is neutral to slightly alkaline, ranging from 7.3 to 7.7. Levels of nutrients in the water are very low. Ammonia was detected only in the April 2003 sampling round and levels were low recorded at 0.01mg/l as N. Similarly, nitrate levels have been absent in a number of sampling rounds and when detected levels remain low (<0.27 mg/l-N). There have been no levels of nitrite or phosphates detected in any of the samples taken.

Levels of anions and cations have not varied and are generally present in low concentrations. Levels of Sodium, chloride, calcium and sulphate average at concentrations of ca. 17 mg/l, 26 mg/l, 132 mg/l, and 48 mg/l respectively.

Levels of heavy metals are low, levels of boron, iron, manganese and barium detected at higher concentrations in comparison to other metals. It should be noted that these parameters are common in Irish groundwaters. Trace levels of nickel, copper and zinc were detected (concentrations <10 µg/l). There were no levels of chromium, arsenic, selenium, silver, cadmium, or lead detected in any of the samples.

No levels of volatile organic compounds have been detected in any of the samples taken to date.

Total coliforms were detected in low (11 no. per 100ml) concentrations in the November 2003 sampling round. These levels are not considered significant and may be a result of sampling technique rather than the groundwater itself. No level of faecal coliforms have been detected in the sample.

2.3.2 ENVIRONMENTAL IMPACTS

It is contended that any negative impacts of the continuation of current recycling activities can be minimised or eliminated by adherence to current procedures in addition to the proposed protection programmes (Increasing hardstanding areas). On-going groundwater monitoring conducted to date indicates no significant adverse effect on the environment. Groundwater extracted from the Kilsaran well, downgradient of the facility has been reported clear of contamination.

The proposed development will entail the construction of a hardstand cover over a large area of the site and as such allows for the protection of groundwaters.

(i) Groundwater Discharges

Surface water run-off from the hardstanding areas is directed through a soakaway via a siltration trap and oil interceptor, for discharges to ground. The monitoring of groundwater emissions from the facility is carried out on a quarterly basis in compliance with Schedule (E) the existing Waste Licence (Reg. No. 131-1). A visual inspection is undertaken on the clean roof water collected at the north-east corner of the Recycling Plant Building prior to discharge into the ground. To-date all inspections reported the clean roof water to be clear and free of suspended solids. There has been no odour or evidence of iridescent reported.

All waters are directed through a siltration trap and oil interceptor prior to discharge to groundwater. It is proposed to install a second discharge point to groundwater along the eastern boundary of the site to collect waters from the southern sections of the site. These waters will be directed through a siltration tank and oil interceptor.

As a result of the mitigation measures currently in place at the facility, it is considered that there is no impacts to groundwaters from discharges to ground.

(ii) Sewage

Sewage emanating from the office and site toilet facility (13 people at a hydraulic loading of 50 l per person per day = 0.65 m³/d) is directed into a wastewater treatment system (Puraflo™) for treatment. The final effluent is directed into the foul water storage tank which is emptied on a regular basis. The Puraflo™ system is fitted with an automatic level alarm to ensure the tank does not overflow.

There are no discharges of effluent to groundwater, therefore, it is concluded that there is no impact to groundwater as a result of sewage treatment at the facility.

(iii) Leachate Generation

A leachate collection system is in place in order to collect leachate emanating from the recycling plant. Leachate is conveyed via dedicated drains to the foul water storage tank. The foul waters are temporarily stored within the tank for subsequent collection when required by tanker. Final disposal is through Navan wastewater treatment plant. The foul water storage tank is fitted with an automatic level alarm to ensure the tank does not overflow.

There are no discharges of leachate to groundwater, therefore, it is concluded that there is no impact to groundwater as a result of leachate generated at the facility.

(iv) Storage of Fuels

The major diesel storage tank is located within bunded structure (Refer to drawing 'Site Design') which identifies all storage areas. The integrity of existing bunds is not known. Midland Waste Disposal Company Ltd. propose to install new oil interceptor units for the diesel tank/dispensing unit and absorbent kits for placement at various strategic locations across the site.

2.4 NOISE

2.4.1 EXISTING NOISE ASSESSMENT

A survey of the noise levels at the facility was carried out by Bord na Móna Environmental Consultancy Services, as part of the initial EIS in 1999. Since the commencement of the Waste Licence in 2001, annual noise monitoring has been carried out at the facility. This information is used as part of this EIS.

A day time acoustic assessment (as the site shall only operate during the daytime 08:00 – 18:00 hours) was undertaken in April 1998 at the locations given in Table 2.4/1 overleaf and shown in Drawing A1.2: Environmental Monitoring and Sampling Points.

Established acoustics methodologies as outlined below were applied through the assessment and subsequent interpretation of the resultant data.

(1) Standards and Guidance

The acoustic assessment and subsequent reporting are in accordance with International Standard Organisation (ISO) 1996 Acoustics – Description and Measurement of Environmental Noise Part 1, 2, and 3 in addition to relevant sections of the Environmental Protection Agency Integrated Pollution Control Licensing Guidance Note for Noise In Relation To Scheduled Activities.

(2) Tonal and Impulsive Characteristics

For the purpose of this assessment, tonal noise is characterised in accordance with ISO 1996-2, which indicates that a noise source being tonal at a particular frequency is either clearly audible or exceeds the level of the adjacent bands by 5dB or more.

An impulsive noise is of short duration (typically less than one second), it is brief and abrupt, its startling effect causes greater annoyance than would be expected from a simple measurement of sound pressure level. For example an instantaneous bang/thud that may associate with pile driving, hammering etc. At present current guidance (EPA) recommends that **audible** impulsive noise at sensitive locations at night should be avoided, irrespective of the noise level.

Table 2.4/1 below presents the geographical description of the four site boundaries and our nearest noise sensitive location selection to determine the site specific noise environment.

TABLE 2.4/1: LOCATION OF NOISE MONITORING POINTS

Sample Point Reference ID	Location (geographical reference from site center)	Justification
N1	North East Corner	To assess the background noise levels at the perimeters of the site
N2	North West Corner	
N3	South west Corner	
N4	South west Corner	
N5	Noise sensitive location South of Site	Nearest sensitive receptor
N6	Noise sensitive location North-east of Site	Nearest sensitive receptor

Measurements were carried out using a Quest Technologies Model No: Integrated sound level meter (Serial No. CC9060018) with B&K 4936 microphone (Serial No: 2064721) and tripod. A current certified UK National Physical laboratory (BS EN ISO 9001 & BS EN 46001) calibrating meter QC-20 (Serial No. Q09060028) was used to calibrate the instrument immediately before and after the measurement periods. No drift in the calibration level was noted and field calibration is considered satisfactory.

Each ambient noise level measurement was approximately 15 minutes in duration. Weather on the day was calm and dry with clear skies and wind speeds less than 5 m/s. The monitoring equipment was manned throughout the sampling intervals and observations on noise sources on and off site was noted in order to aid the interpretation of the results. All measurements were taken with the noise meter positioned at 1.5 m height above local ground level and 1-2 m away from reflective surfaces.

At each of the monitoring locations the following data parameters were recorded:

- L_{eq} Values
 L_{eq} (t) values represent the continuous equivalent sound level over a specified time (t). This value expresses the average levels over time and is a linear integral.

- **Max. P Values**
The Max. P value represents the maximum sound pressure level produced by a source during the monitoring period.
- **L₉₀ and L₁₀ Values**
The L₉₀ and L₁₀ values represent the sound levels exceeded for a percentage of the instrument measuring time. L₁₀ indicates that for 10% of the monitoring period, the sound levels were greater than the quoted value. L₁₀ is a good statistical parameter for expressing event noise such as passing traffic. The L₉₀ represents post event sound levels and is a good indicator of background noise levels.

2.4.2 RESULTS OF ON-GOING NOISE SURVEYS

Table 2.4/2 below presents the on-going results of the noise survey undertaken at the facility for 2001 and 2004.

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TABLE 3.4/2: SITE NOISE MEASUREMENTS

	Map Ref.	Period (mins)	L _{eq} dB(A)	L ₁₀ dB(A)	L ₉₀ dB(A)	Max. P dB(A)
2001	N1	30	64.2	63.5	46.5	88.1
	N2	30	62.7	61.9	54.8	87.7
	N3	30	52.5	55.7	42.0	75.9
	N4	30	55.6	54.9	44.1	80.8
	N5	30	62.9	59.1	44.0	85.4
	N6	30	69.1	67.8	43.9	89.6
2002	N1	30	59.0	58.3	42.5	90.9
	N2	30	61.9	65.9	53.3	102.1
	N3	30	52.9	55.8	49.1	89.4
	N4	30	59.4	62.5	50.5	91.4
	N5	30	60.1	61.6	45.5	94.6
	N6	30	59.4	55.3	47.5	95.4
2003	N1	30	63.3	64.7	56.9	82.4
	N2	30	57.7	60.2	54.4	75.8
	N3	30	58.0	60.6	55.0	70.4
	N4	30	64.7	66.6	61.5	80.4
	N5	30	61.4	63.4	46.2	85.8
	N6	30	60.8	64.2	41.6	81.6
2004	N1	30	56.4	57.6	51.4	82.3
	N2	30	57.9	58.8	54.8	84.8
	N3	30	62.9	66.0	47.0	80.0
	N4	30	59.6	61.6	53.4	80.6
	N5	30	58.3	54.2	39.0	81.8
	N6	30	66.8	65.8	42.6	90.9

The noise levels of the site boundary Leq levels determined ranged from 52.5 to 64.7 which in most cases was attributed to passing road traffic. Levels of the L₉₀ values (noise levels experienced for 90% of the monitoring period) ranges from 42.0 to 61.5, which is much lower than the Leq recording indicating that over much of the noise monitoring periods noise levels are quieter.

At the two noise sensitive receptors, the majority of the noise recorded was as a result of passing traffic.

2.4.3 ENVIRONMENTAL IMPACTS

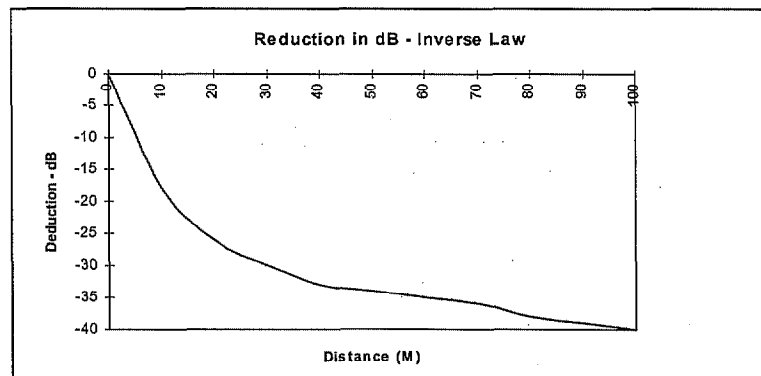
Noise is described as unwanted sound and, because of its subjective nature, the level of annoyance is difficult to measure. There are standards which define levels of acceptability for various commercial and residential developments and these are detailed in the previous sections. In addition, the daytime noise limit for the nearest noise sensitive location is 55 dB A as specified in Waste Licence No 131-1.

No complaints have been received at the facility as a result of noise levels since the commencement of the Waste Licence in March 2001.

Noise emissions from the facility are generated through the operation of equipment on-site and the movement of vehicles within the facility. Noise predictions on the impact of the facility at the nearest sensitive receptor has been carried out.

To predict the noise level of identified on-site noise sources at the noise sensitive locations the sound pressure reference level of each source was obtained at a reference distance within its near field, usually 1m. This reference level is in most cases provided by the manufacturer of specific items of equipment and in other cases was obtained by actual noise measurements for operating equipment in similar composting scenarios. Predictions shall be carried out by employing the inverse square law, which is a "rule-of-thumb" used to calculate the expected reduction in noise levels as one moves away from the source. Generally, as one doubles the distance from the source, a reduction of 6 dB is expected. Within a confined space, however, this rule does not apply due to reflection where a diffuse field is set up at a level higher than that expected from this law. The graph below indicates the expected reduction in sound level as one moves away from the source. The curve flattens out as the distance increases due to the logarithmic function that determines the noise level at a particular distance.

Graphically this may be represented as follows overleaf:



The Inverse Square law is defined as.

$$Lp_2 = Lp_1 - 20 \text{ Log } (R_2/R_1)$$

Lp_2 is the calculated sound pressure level at R_2 meters towards the receiver location

Lp_1 is the measured reference sound pressure level at R_1 meters from the source

Table 3.4/3: Sound Pressure Reference levels for the proposed equipment to be employed at the facility and their predicted noise impact

Proposed Equipment	SPL Ref. dB A	Distance (m) of Noise Source(s) to Noise Sensitive Location(s) (Approx.) <small>note 1</small>	Predicted Noise Levels (dB A) At the Noise Sensitive Locations
		NSL1	NSL1
Trommel	76@15m	250	52
Bobcat operator Forklift	78.6@1m	220	32
Volvos & Hitachi & grab	90@1m	250	42
Shredder	75@20m	300	51
<i>Accumulative Noise when working in unison</i>	-		55
<i>Accumulative Noise when working in unison taking into account the existing quarry face which acts as an attenuation barrier (Minimum 5 dB(A))</i>	-		50

2.4.4 MITIGATION MEASURES

The results of the on-going monitoring at the facility indicate that noise within the area is resulting predominantly traffic noise. The levels of noise coming from the facility at the noise sensitive receptor were insignificant in comparison to traffic noise and these locations. It is therefore concluded that the any noise generated at the facility will not have any undesirable impacts on the existing neighbouring noise environment.

Notwithstanding that good operational practises at the facility will be maintained to ensure no noise nuisances are caused as a result of the workings of the facility.

- Proper maintenance of vehicles and equipment, including the conveyors, screening equipment, shovel loaders and compacting machinery.
- All operations concerning sorting / recycling of material will take place indoors
- Monitoring of site noise levels to ensure compliance and implementation of cost effective control measures.
- The control of on-site activities through the implementation of good management practices will combine to ensure that the noise generated at the site will not have any undesirable effects on the existing neighbouring environment.
- Selection of plant with low inherent potential for generation of noise and / or vibration

2.5 HUMAN BEINGS

Human beings are one of the most important elements of the 'environment' to be considered. One of the principal concerns in the execution of a development is that the local population experience no diminution in the quality of life as a result of the development on either a temporary or permanent basis. All the effects of a development on the environment impinge upon human beings. Any significant impact on the status of humans that may be potentially caused by a development proposal must, therefore, be comprehensively addressed. Air quality, water quality, noise and landscape impact directly while flora, fauna and road traffic impact more indirectly.

2.5.1 HUMAN BEINGS IN THE EXISTING ENVIRONMENT

The proposed development site is located on the northern outskirts of the town of Navan in County Meath within the townland of Clonmagaddan. The site is access via a cul-de-sac of the R162 Navan-Kingscourt Road. The site is situated within an industrial setting with a number of industrial units located along the roadway. The site is surrounded to the South, East and West, by low grade agricultural land used for grazing of livestock. To the North of the facility, there is a sand & gravel quarry. The nearest dwelling to the site is located ca. 300 metres to the south of the site.

2.5.2 IMPACTS ON HUMAN BEINGS

(1) Noise

Noise is an identified form of air pollution and uncontrolled it can cause nuisance or a deterioration of amenities and the quality of human life. The potential impact of the proposed development on noise levels within the area is described in §2.4:Noise. In summary, it is concluded that the noise levels from on-site activities associated with the operational phase of the facility site will not pose a significantly impact on the ambient noise levels. Specifically, it is concluded that noise levels at the nearest sensitive locations (occupied residential premises & GAA pitch) will not significantly deviation above background daytime noise levels and no clear audible tonal noise emissions will emanate from the facility.

On-going noise monitoring at the facility, indicate that identified noise sources were that of passing traffic rather than the facility itself. In addition, it should be noted that no nuisance complaints as a result of noise emissions have been received at the facility since the Waste Licence commenced in 2001.

(2) Traffic

The Midland Waste Recycling plant is situated on the northern outskirts of Navan town. The site is accessed via the R162 Navan - Kingscourt Road and is situated approximately 500m down a cul-de-sac to the townland of Clonmagaddan. The facility is situated adjacent to the southern side of this cul-de-sac and is accessed via one of 3 No. entrance ways (Office complex, weighbridge and general entrance).

The potential impact of the proposed development on traffic levels within the area is described in §2.8:traffic. In summary it is considered that the road is of good design and state of repair and is maintained by Midland Waste Disposal Company Ltd. Traffic management on-site is satisfactory and the hardstanding area on-site is of sufficient size to accommodate present and future volumes of traffic.

(3) Human Health

A variety of air pollutants have known or suspected harmful effects on human health and the environment. The primary potential air pollutants derived from the facility are detailed in §2.1:Air.

- Particular dust emissions.

Particles that are suspended in the atmosphere give rise to health implications. In addition, particles, which are deposited to ground, give rise to problems such as soiling of buildings and other materials and also cause a general nuisance. There is therefore a requirement to minimise and if possible eliminate such emissions. Dust monitoring at the facility were elevated along the northern boundary of the site however dust directional monitoring and dust identification have determined that these dust levels predominantly originate from off-site activities (i.e. nearby industrial unit).

Furthermore, dust mitigation measures associated with the working procedures at the facility ensure that any potential problems associated with fugitive dust emissions from the site will be minimal.

(4) Site Structure / Land Use

The facility is situated within an industrial area on the northern outskirts of Navan town. Any potential impacts of the proposed development on the existing structural and land usage of the area are considered insignificant. The area is being developed for industrial usage with a number of industrial units being development along the roadway over the past four years.

There will be no change to the operation of the site as a waste transfer station. This site is located within a disused quarry, with the old quarry walls acting as protective berms around the east, west and south. Views for the northern boundary are protected by existing line of mature trees.

(5) Socio-Economic

The development will have, although limited, varied social and economic effects. These effects may be categorised as follows:

- Primary Socio-Economic Effects. These effects are directly related to the development itself such as Job Creation.

The job creation benefits are secondary to the development, as it is the service provided by the development that will benefit the local and regional community. The function of the facility for recycling and processing facility will develop such that the maximum recycling/recovery potential of all waste accepted will be assessed. The categories of waste deemed suitable for segregation and subsequent recycling is dependent on available markets for such materials. The benefits of this activity are obvious with regard to the volume of waste that is directed to landfill.

It is considered likely that the proposed development will have minimal impacts on the existing population structure of the area.

- Secondary Socio-Economic Effects. These include those effects, which arise as a result of services required (e.g. Water Supply, etc.) by the operation of a development.

Electricity Supply

Electricity at the facility is supplied through an on-site generator and the ESB. It is proposed to up-grade the electrical supply at the facility in 2005, thus removing the need for the generator.

Water Usage

Water usage at the facility is supplied by Kilsaran's groundwater supply well.

Telecommunications

The facility is serviced by telecommunication systems (tel/fax).

(6) Nuisances

In compliance with condition 6.2 of the existing waste licence (re. No. 131-1), weekly environmental nuisance inspections are carried out at the facility. These inspections are carried out and recorded on the "*Weekly Environmental Nuisance Inspection Form EWF 1.3*". Inspections are carried out for any nuisances caused by the presence of vermin, birds, flies, mud, litter, dust and odours.

Bird Control

Waste handling operations at the facility is carried out in such a manner to ensure that waste is never exposed for long periods of time and as such there is no readily available food source presented to the localised bird population. All waste tipping, sorting and segregation is carried out within the recycling plant building and all wastes (other than C&D and glass) are held within sealed covered containers. Any temporary skips stored outside of the recycling plant building are covered. It is not considered that birds cause a nuisance to the immediate surrounds of the facility as a result of on-site activities.

Dust Control

Waste handling operations at the facility is carried out in such a manner to ensure that waste is never exposed for long periods of time and as such the potential for dust emissions from the facility is considered minimal. All waste tipping, sorting and segregation is carried out within the recycling plant building and all wastes (other than C&D and glass) are held within sealed covered containers. Any temporary skips stored outside of the recycling plant building are covered.

Litter Control

Waste handling operations at the facility is carried out in such a manner to ensure that waste is never exposed for long periods of time and as such the potential for

litter escape is considered minimal. All waste tipping, sorting and segregation is carried out within the recycling plant building and all wastes (other than C&D and glass) are held within sealed covered containers. Any temporary skips stored outside of the recycling plant building are covered.

A net curtain has been placed along the entrance into the Recycling Plant Building to prevent any debris from the building from escaping. In addition daily litter patrol of the site perimeter and access road is undertaken. Where the escape of litter has occurred it is immediately collected and returned to the site.

The site has a natural barrier surrounding the southern, eastern and western boundaries which helps to minimise any litter from escaping from the site. The northern boundary of the site comprises of a palisade fencing and evergreen hedge which also prevents any litter from escaping.

Vermin Control

Waste handling operations at the facility is carried out in such a manner to ensure that waste is never exposed for long periods of time and as such the potential for litter escape is considered minimal. All waste tipping, sorting and segregation is carried out within the recycling plant building and all wastes (other than C&D and glass) are held within sealed covered containers. Any temporary skips stored outside of the recycling plant building are covered.

Independent vermin control company carries out the setting of traps (35 rat traps) around the facility. These traps are inspected weekly by site personnel, as part of the weekly inspection of the facility, and eight times per annum.

Fly control systems have been installed within the recycling plant building within the immediate vicinity of the trommel. These control systems entails the periodic release of fly repellent/pesticide into the atmosphere. The systems are checked eight times annually.

2.6 ECOLOGY

2.6.1 Introduction

This chapter assesses the potential impacts of the existing waste transfer facility on the habitats of flora and fauna. This approach and methodology of the survey was undertaken in accordance with the EPA Guidelines on the Information to be contained in Environmental Impact Statements (2002).

In compiling this chapter, due regard was given to relevant legislation pertaining to flora and fauna assessment. This included :

- Wildlife Act, 1976,
- EC Council Directive on the Conservation of wild birds (Birds Directive - 1979)
- European Communities (Conservation of Wild Birds) Regulations, 1985 to 1999
- EC Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (Habitats Directive - 1992)
- European Communities (Natural Habitats) Regulations, 1997
- Wildlife (Amendment) Act, 2000.
- And relevant protection Orders.

2.6.2 Description of the Receiving Environment

The facility is located in a former limestone quarry, located on the northern outskirts of the town of Navan in County Meath. The site is situated within an industrial area of the town with industrial premises located to the north, west and east of the facility. There is a residential area located ca. 300 m south of the facility. The site is located off a cul-de-sac from the main R162 Navan-Kingscourt Road

2.6.3 Study Methodology

An ecological survey of the existing waste transfer facility and its environs was undertaken in order to:

- Determine the existing ecology and diversity of the site;
- Establish the presence or absence of important species or habitats.

A baseline survey was undertaken on 7th November and the 17th November 1999.

Consultation was undertaken with statutory (National Parks and Wildlife Service, Eastern Regional Fisheries Board) bodies, in order to collate all recorded data for the site and its environs. This included the assimilation of information on nearby designated wildlife sites, watercourses and protected species.

Under Meath County Council Development Plan 2001, the Midlands Waste Disposal site is not within nor indeed in the vicinity of 'Areas of High Natural Beauty and High Amenity – CDP Map No. 3' or 'Areas In which Tree Preservation Orders have been made - CDP Map No. 3' or 'Areas with Views and Prospects to be Protected - CDP Map No. 4' or 'Areas of Scientific Interest – CDP Map No. 5'.

All major habitat types occurring on the site were mapped and classified according to dominant species. Belt transects (n=10) measuring ca. 10m length were taken to represent each habitat type recorded and species were recorded in order to collect adequate floristic information for habitat descriptions. Plant cover was subjectively assessed using the DAFOR (Dominant, Abundant, Frequent, Occasional, Rare) scale (Kershaw, 1966). It should be noted that this assessment of occurrence relates to the site itself, and does not reflect the status of the species in a national context. Nomenclature followed Webb (1996) for higher plants, and Hubbard (1984) for the identification of grasses.

Flora and Fauna Habitats

Flora:

The main habitats occurring within the site area are detailed below, with their classifications (according to the Heritage Council) in parentheses.

- Recolonising bare ground (ED3)
- Hedgerows (WL1)
- Treeline (WL2)

Of these, the most dominant habitat type was the recolonising bare ground, which is located at the southern boundary of the site..

Recolonising bare ground

This is the most dominant habitat located within site, with the dominant grass species present Creeping bent (*Agrostis stolonifera*). Other species present include common nettle (*Urtica dioica*), creeping thistle (*Cirsium arvense*), buttercup

(*Ranunculus repens*), wild strawberry (*Fragaria vesca*), white clover (*Trifolium repens*), and dandelion (*Taraxacum officinale*). In exposed areas gorse (*Ulex europaeus*) is present.

Hedgerows;

Along the perimeter of the site hedgerows are present, which contain woody species such as Elder (*Sambucus nigra*), Sycamore (*Acer pseudoplatanus*), and beech (*Fagus sylvatica*). Other species present include wild strawberry (*Fragaria vesca*), broad leaved dock (*Rumex obtusifolius*), ivy (*Hedra helix*), bramble (*Rubus fruticosus*) and prickly sow thistle (*Sonchus asper*).

Treeline

Along the northern boundary of the site there a palisade fence has been installed. As part of the screening for this area, a treeline of Cypress cultivar were planted.

Fauna

A large number of Irish land mammals are nocturnal and therefore activity on site during a survey can be quite low making identification difficult. However, during this survey observation of track and any other visible signs were recorded. Due to the species poor habitats at the site as a result of the industrialized nature of the area, and the lack of any suitable adjacent green belt or landscaped areas it is believed that the number of mammals that would be present on site would be low. There were no badger (*Meles meles*) setts or likely roosts for bats located on site.

Even though there was no evidence recorded during the survey, there are some habitats present that would be ideal for many mammals including the field mouse (*Apodemus sylvaticus*), brown rat (*Rattus nor*) and fox (*Vulpes vulpes*).

Bird fauna, spotted or heard in the vicinity during the survey, included common scavenger species such as hooded crow (*Corvus corone*), magpie (*Pica pica*) and rook (*Corvus frugilegus*). Other species observed during the survey included the great tit (*Parus major*), pied wagtail (*Motacilla alba*), blackcap (*Sylvia atricapilla*), wren (*Troglodytes troglodytes*), robin (*Erithacus rubecula*), dunnock (*Prunella modularis*), siskin (*Carduelis spinus*), meadow pipit (*Anthus pratensis*) and blackbird (*Turdus merula*).

Conservation Value and Designated Areas

Nature conservation within the Republic of Ireland

Nature conservation in the Republic of Ireland is been governed by the Wildlife Act 1976 and the Wildlife (Amendment) Act 2000. The basic national designation for wildlife is the Natural Heritage Area (NHA), which have been in force in Ireland since the initial designation in 1995. However it was not until the enactment of the Wildlife (Amendment) Act, 2000 that NHAs were be legally protected from damage. There are approx. 1200 proposed NHAs in Ireland, to which the process of formal designation commenced in 2002.

Nature conservation within European Community

Two major pieces of European legislation on nature conservation and the designation of site have adopted by all member states. This legislation is EC Council Directive on the conservation of wild birds, 1979 (Birds Directive), and the EC Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora, 1992 (Habitats Directive).

Under the Birds Directive, Ireland is obliged to protect the habitats of birds, which are vulnerable to habitat change or to low population numbers. Aspects of habitat protection include pollution, deterioration of habitat and disturbance, with identified habitats designated as Special Protection Areas (SPA). Under the Habitats Directive habitats that have either international or community interest are given legal protection. This directive seeks to establish 'Natura 2000', a network of protected areas throughout the European Community, through the designation of areas as Special Areas of Conservation (SACs).

Designated sites within 10km of proposed development site

There are no Natural Heritage Areas, Special Protection Areas, and Special Areas of Conservation within 10 km of the proposed development site

Conservation value of existing site

The habitats encountered on the site are widespread and very typical throughout the Irish countryside and as none of the habitats recorded are of high conservation value the overall impact of the proposed development on habitats will be negligible.

2.6.4 Potential Impacts of the Proposed Development

It is proposed to remove the recolonising bare ground up to the quarry face and convert into hardstand.

2.6.5 Mitigation Measure

As this habitat is common throughout Ireland, and does not have a conservation value it is deemed that the impact of removing this habitat will be negligible and therefore there are no mitigation measures planned.

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2.7 LANDSCAPE

2.7.1 SITE DESCRIPTION/LANDSCAPE CHARACTER

The Midland Waste Recycling plant is situated on the northern outskirts of the town of Navan in County Meath. The site is situated within an Industrial area with the nearest residential area located approximately 300m south of the facility. The site is accessed via the R162 Navan - Kingscourt Road and is situated approximately 500m down a cul-de-sac to the townland of Clonmagaddan. The facility is situated adjacent to the southern side of this cul-de-sac and is accessed via one of 3 No. entrance ways.

The site is located in an industrial setting, with a number of industrial premises located along the cul-de-sac. The facility is situated between agricultural lands to east and the west with quarrying activities occurring to the north of the site. The site itself was established within a disused quarry, which acts as visual shields of the all site buildings and activities to the East, West and in particular to the South. Additional screening is afforded by an established tree-line/shrubbery to the East and West. To the North, the site is exposed to an operational quarry. A row of ornamental trees of Cypress cultivars were planted along the northern boundary of the site and this provides screening of the facility from the roadway.

The area in general is dominated by a general increase in elevation North of the site towards the townland of Antylostown located 2Km north of the site and an apparent 28m difference in elevation. To the South, East and West the site environs outside the enclosure of the disused quarry is the dominant topographical feature. The remaining hill not subject to any excavation to the South of the site is some 10 m OD above surrounding areas. Surface water drainage in the area appears to be dominated by a minor tributary of the River Blackwater to the North (ca. 500m north of the facility) of the Midland Waste site.

2.7.2 ENVIRONMENTAL IMPACTS

It is considered that the Midland Waste Limited site does not visually impact on residential areas to the South and East of the site. As detailed visibility of the site is prevented by screening afforded by the disused quarry and established trees/shrubbery. The site boundaries of the facility are made up continue fencing

with hedgerow and shrubs. As part of the EMS in place at the facility, on-going landscaping of facility is carried out.

It is considered that no significant amenity value may be attached to the existing site or surrounding environs (site does not infringe on Views and Prospects to be Protected, Areas of High Natural Beauty and High Amenity or Areas of Scientific Interest, as detailed and illustrated in Appendices 1 and 2 C of the County Meath Development Plan - 1994). Nearby designated 'Views and Prospects' include Blackcastle Demesne, Donaghmore and Dunmoe located along the River Boyne approximately 1Km and onwards from the Midland Waste site. As stated however, the site does not impinge/impact on these areas.

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2.10 CLIMATIC FACTORS

2.10.1 BASELINE DATA

While the development will have no envisaged effects on climate, climatological factors will have a direct impact on possible air emissions from the facility (i.e air dispersion).

Methological data has been obtained by Met Eireann for the Mullingar weather station. It is considered that Mullingar is the nearest weather station that is representative of the climate conditions at the facility. This weather station is located ca. 46 km southwest of the facility in County WestMeath.

(1) Precipitation

Annual rates of precipitation for the facility are given in table 2.10/1 below. In 2004 the rainfall figures have averaged at approximately 694.8 mm with the months of August and October receiving the greatest monthly rates. Winter rainfall is commonly associated with Atlantic frontal depressions whereas during the summer months high rainfall amounts will tend to be associated with intense thundery showers which may be localised in rainfall intensity.

Table 2.10/1 Precipitation Rates (mm).

Period	J	F	M	A	M	J	J	A	S	O	N	D	Ann
2004	108	31.9	62.8	58.7	51.6	68.2	51.1	121	86.8	156.3	69.1	86.4	953.1
Average (1961-1990)	93.1	66.3	72.3	59.1	72.4	66.2	61.8	81.2	85.9	94.0	88.2	93.8	934.3

(2) Air Temperature

The pattern of monthly temperatures at the facility are available and are shown in Table 2.10/2 below.

**Table 2.10/2
Monthly Air Temperature**

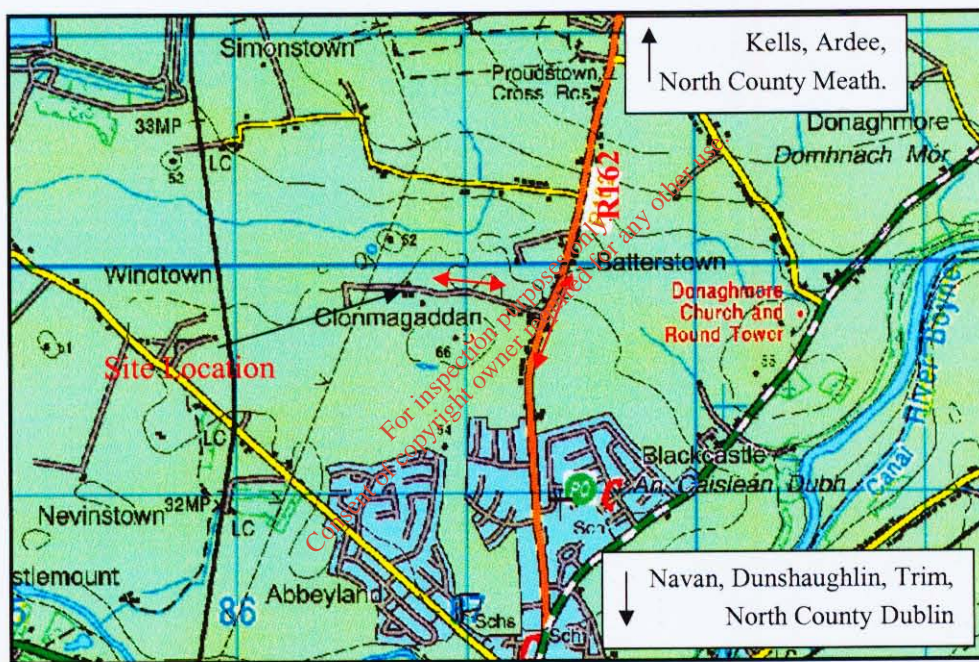
		J	F	M	A	M	J	J	A	S	O	N	D
Average (1961-1990)	Mean max.	6.8	7.2	9.4	11.8	14.7	17.5	19.0	18.6	16.4	13.2	9.1	7.5
	Min max.	1.2	1.2	2.0	3.3	5.6	8.5	10.3	9.8	8.1	6.1	2.7	2.0

2.8 TRAFFIC

2.8.1 Overview of the Road Network

The Midland Waste Recycling plant is situated 2 Km north of the centre of Navan town and approximately 300m North of the nearest residential area. The site is accessed via the R162 Navan - Kingscourt Road and is situated approximately 500m down a cul-de-sac to the townland of Clonmagaddan. The facility is situated adjacent to the southern side of this cul-de-sac and is accessed via one of 3 No. entrance ways (Office complex, weighbridge and general entrance).

Figure 2.8/1: Traffic Movement



The roadway to the facility is of good design and state of repair and is maintained by Midland Waste Disposal Company Ltd with association with the other industrial units utilising the roadway. Vehicles arrive on-site every 30 minutes approximately. Traffic management on-site is satisfactory and the hardstanding area on-site is of sufficient size to accommodate present and future volumes of traffic.

As part of the proposed increase of waste handling, it is anticipated that traffic movements will increase from 60 traffic movements to approximately 80 traffic movements per day.

2.8.2 Environmental Impacts

The maximum amount of waste that will be accepted at the facility will be 95,000 tonnes per year. The predicted maximum volume of waste that will be accepted at the facility will be 2,000 tonnes of material per week. The waste will be transported to and from the site by 15 tonne refuse vehicles, and skip trucks, and 20 tonne C&D/industrial roll-on trucks based on this, it is anticipated that there will be a maximum of 80 traffic movements a day. Traffic movements associated with the waste recycling and processing facility will primarily be that of refuse vehicles and skip trucks entering the site laden with waste and outbound vehicles empty after discharging its load.

Traffic movements will commence from 06:00 to 20:00 from Monday to Saturday. Under normal working conditions there will be no traffic movements on Sundays and public holidays.

There will be additional traffic movement from a road sweepers (twice a week), ancillary vehicles servicing the site, employees and the customers.

3.8.3 Mitigation Measures

The following traffic management measures are proposed to ensure the practicable free flow of traffic during the life-time of the waste recycling and processing facility:

- Inspections of the public highway will be undertaken and in the event of significant quantities of mud on the road, the road shall be swept accordingly. The road will also be inspected for any wind blown litter, which will be collected accordingly. All trucks shall be suitably covered to prevent the accumulation of litter during transport.
- Traffic to and from the site will not be permitted to park on the public roadway or to impede the free flow of traffic on the adjoining road network.

2.9 CULTURAL HERITAGE

2.9.1 BASELINE CULTURAL HERITAGE ASSESSMENT

A cultural heritage assessment of the facility and its environs was undertaken by a specialist on behalf of Bord na Móna Environmental Consultancy Services as part of the original EIS in April 2000. This assessment has been used as part of this EIS.

This assessment was undertaken to examine Archaeological, Architectural and Historical assets of the area. This included all humanly created features on the landscape, including portable artefacts, which might reflect the prehistoric, historic, architectural, engineering and/or social history of the area. The cut-off point was based on obsolescence, e.g. having gone out of common use and/or reflective of skills and techniques no longer practised.

The study involved documentary search, discussions with a local historian and on-site field inspection of the area. As part of a documentary search, the following sources were examined from which a list of sites and areas of archaeological potential was compiled:

- Record of Sites & Monuments, Co. Meath.
- Ordnance Survey 6" maps for Co. Meath.
- Meath County Development Plan 1994.
- Discovery Series Map 42 for the area.

From the preceding Paper Survey, a list of archaeological sites/sites of archaeological interest was compiled for detailed inspection during the field inspection. In addition, the faces of the old quarry was examined.

The archaeological heritage of the general region, in particular beyond the general environs of the site is a rich and diverse resource. The monuments and artefacts which have survived bear testimony to a history of human settlement dating back to the Neolithic Period (c. 4000 – 2500 BC). The River Boyne acted as a cultural and economic corridor dating back to prehistoric and early historic times.

The site or general area is not designated as an 'Area of Special Archaeological Protection' within the County Meath Development Plan – 1994. With reference to the County Development Plan in addition to cartographic evidence the following

buildings and items of historical, artistic and architectural interest are listed within the general environs of the Midland Waste site.

- Athlumney Lodge (CDP Ref. H.11/C.2) – 3 Km South of site. (early 17th C house added onto a medieval tower).
- Blackcastle House (CDP Ref. H.19) – 1.5 Km South east of site.
- Rathaldron Castle (CDP ref. H.112) – 2.5 Km West of site.
- Kilberry Church (CDP Ref. CH.18) – 3 Km North of site.
- Liscarton (CDP Ref. C.11) – 3.5 Km West of site.

Additional features of note include:

- Donaghmore - Church and Round Tower – 1.5 Km East of site.
- Ardmulchan - Motte, Castle and Church – 4 Km East of site.
- Rathaldron – Mound, Castle and Holy Well – 2.5 Km West of site.

Specifically within the general environs of the site the remains of a ring fort was noted 150m the South East of the Midland Waste site. Its existence is not overly surprising given its elevated positioning relative to the surrounding areas and as such is indicative of historic/pre-historic secure holding.

2.9.2 ENVIRONMENTAL IMPACTS ON CULTURAL HERITAGE

There were no extant or surface traces of sites of archaeological potential and/or interest identified on the site and as such there are no direct impacts predicted.

It is considered that the Midland Waste site does not have a negative impact on the cultural heritage of the area as presented. Furthermore, activities at the site do not have any visual effect on any cultural heritage sites in the general environs.

2.9.3 MITIGATION MEASURES

In order to minimise the potential of impacts on the unknown deposits during the further development of the site all such activities will be monitored by an archaeologist, employed by the developer.

Should archaeological material be discovered during the construction programme, then provision will be made for the archaeological investigation/excavation of such material, including the arrangement, by the developer, of finances for reporting, conservation and dating, specialist reports, publication, etc.

2.10 CLIMATIC FACTORS

2.10.1 BASELINE DATA

While the development will have no envisaged effects on climate, climatological factors will have a direct impact on possible air emissions from the facility (i.e air dispersion).

Methological data has been obtained by Met Eireann for the Mullingar weather station. It is considered that Mullingar is the nearest weather station that is representative of the climate conditions at the facility. This weather station is located ca. 46 km southwest of the facility in County WestMeath.

(1) Precipitation

Annual rates of precipitation for the facility are given in table 2.10/1 below. In 2004 the rainfall figures have averaged at approximately 694.8 mm with the months of August and October receiving the greatest monthly rates. Winter rainfall is commonly associated with Atlantic frontal depressions whereas during the summer months high rainfall amounts will tend to be associated with intense thundery showers which may be localised in rainfall intensity.

Table 2.10/1 Precipitation Rates (mm).

Period	J	F	M	A	M	J	J	A	S	O	N	D	Ann
2004	108	31.9	62.8	58.7	51.6	68.2	51.1	121	86.8	156.3	69.1	86.4	953.1
Average (1961-1990)	93.1	66.3	72.3	59.1	72.4	66.2	61.8	81.2	85.9	94.0	88.2	93.8	934.3

(2) Air Temperature

The pattern of monthly temperatures at the facility are available and are shown in Table 2.10/2 below.

**Table 2.10/2
Monthly Air Temperature**

		J	F	M	A	M	J	J	A	S	O	N	D
Average (1961-1990)	Mean max.	6.8	7.2	9.4	11.8	14.7	17.5	19.0	18.6	16.4	13.2	9.1	7.5
	Min max.	1.2	1.2	2.0	3.3	5.6	8.5	10.3	9.8	8.1	6.1	2.7	2.0

(3) Wind

Wind field data was obtained from the facility indicates that the predominant wind direction is from the north-east.

2.10.2 ENVIRONMENTAL IMPACTS

No direct impacts on the climate (wind & rain patterns and ambient air temperatures) of the area are envisaged therefore no specific mitigation measures are proposed.

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2.11 INTERACTIONS OF THE FOREGOING

All environmental factors are inter-related to some extent. As defined in the Environmental Protection Agency 'Draft Guidelines on the Information to be Contained in Environmental Impact Statements', a cumulative effect is defined as '*..the addition of many small impacts to create one larger, more significant impact*'. A synergistic impact occurs where '*the resultant impact is of greater significance than the sum of its constituents*'. Cumulative and synergistic effects are, therefore, those which result from the incremental effect of an action when added to other past, present, and reasonably foreseeable actions. The European Communities Environmental Impact Assessment (Amendment) Regulations, 1998, demand that an EIS describes the impacts and likely significant effects on the interaction between any of the following principal elements of the environment media :

- human beings
- Geology
- soil
- water
- air
- climate
- the landscape

Tables 1.1/1 and 1.1/2 on pages 10 and 11 highlight the impacts and effects on interactions between these media and identifies the sections of the EIS where the interactions are addressed.

The main *potential* impact of the development is the *potential* impact to human beings. There will be no discharges from the facility to surface water and only clean roof-waters and surface waters will be discharged to ground via an oil interceptor and siltation trap.

2.11.1 HUMAN BEINGS: AIR/NOISE

Atmospheric and noise emissions from the waste recycling and processing facility site have the *potential* to impact on human beings in the vicinity of the site. Impacts from dust emissions have the potential of being the most significant impact of the waste recycling and processing facility. Mitigation measures to prevent the aforementioned impacts are given in Section 2.1 Air.

The waste recycling and processing facility will be constructed and shall operate in accordance with the BATNEEC principle, thus reducing any *potential* impacts.

Attachment 01

Waste Licence (WL131-1)

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Attachment 02

Consultation Letters & Responses

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4th February 2005

Re: Review of Waste Licence (Ref: 131-1) for Midland Waste Disposal Company's Waste Transfer Station at Clonmagaddan, Proudstown, Navan, Co. Meath

Dear Sir/Madam,

Bord na Móna Environmental Limited have been commissioned by Midland Waste Disposal Company Ltd., to undertake an Environmental Impact Statement (EIS), as part of an application for a review of their waste licence (131-1) for the facility at Clonmagaddan, Proudstown, Navan, Co. Meath

It is proposed that the allowable maximum annual intake of waste at the facility will increase from 32,000 tonnes to 95,000 tonnes per annum. This increase in tonnage is requested to allow for the processing of increased waste volumes generated within the catchment area of County Meath (as direct result of population increases) and the diversion of wastes to landfill. Waste acceptance and operational procedures at the facility will remain in line with the Environmental Protection Agency's '*BAT Guidance Notes for the Waste Sector: Transfer Activities*' (Draft, April 2003).

Under Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 '*Installation for the disposal of waste with an annual intake greater than 25,000 tonnes...*' requires the completion of an Environmental Impact Statement. In preparation of the EIS, due regard will be paid to the '*Advice Notes on Current Practice in the preparation of Environmental Impact Statements*' and '*Guidelines on the Information to be Contained in Environmental Impact Statements (March 2002)*' issued by the Environmental Protection Agency and the requirements of the Planning and Development Regulations, 2001 (S.I. No. 600 of 2001).

Bord na Móna Environmental Limited would, therefore, be grateful if you could provide any information relevant to the proposed development that you may hold and/or highlight any issues that you feel should be addressed in the EIS. As you are the central office for your organisation, you may also wish to involve your regional or local office, if you deem it appropriate. For your information, it is proposed to submit the completed Environmental Impact Statement to Meath County Council in March 2005.

Thanking you in anticipation of your co-operation in this matter.

Yours faithfully,

Ms. Sarah Casey
Environmental Consultant
For and on behalf of
Midland Waste Disposal Ltd.

Meath County Council,
County Hall,
Navan,
Co. Meath

Eastern Regional Fisheries Board
15A Main St.
Blackrock
Co. Dublin

The Department of Transport, Energy &
Communications,
44 Kildare St.,
Dublin 4.

The Environmental Protection Agency
PO Box 3000
Johnstown Castle Estate
C. Wexford

An Taisce
The Tailor's Hall
Back Lane
Dublin 8

The Department of the Environment and Local
Government,
Custom House,
Dublin 1.

The Department of Finance,
Government Buildings,
Upper Merrion Street,
Dublin 2.

North-eastern Health Board,
Bord Slainte An Oir Thuaiscirt,
Administration Head Office,
Kells
Co. Meath

Kilsaran,
Proudstown Rd.,
Navan,
Co. Meath

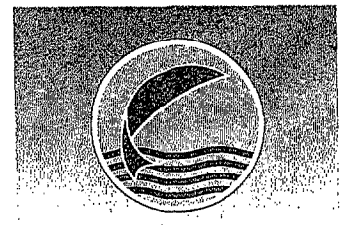
The National Roads Authority
St. Martins House
Waterloo Road
Ballsbridge
Dublin 4

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Response from Eastern Regional Fisheries Board



Eastern Regional Fisheries Board
Bord Iascaigh Réigiúnach an Oirthir



Fisheries Ireland
Our Natural Heritage

Our Ref: NMcG/R.BoyneEst-Navan

Sarah Casey
Environmental Consultant
Bord na Móna
Newbridge
Co. Kildare

Date: 25th February 2005

Re: Midland Waste Disposal Ltd – Waste Licence (Ref: 131-1)

At: Clonmagaddan, Proudstown, Navan, Co. Meath

Dear Ms. Casey

These premises appear to be located in the catchment of a tributary of the River Boyne.

Please address the issue of the highlighting of any potential effects on the local ground and surface watercourses.

Yours faithfully

Noel McGloin
Snr. Fisheries Environmental Officer
Eastern Regional Fisheries Board
Tel: 01 2787230 (direct line)
E-mail: noel.mcglain@erfb.ie

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The Eastern Regional
Fisheries Board
15a Main Street
Blackrock
Co. Dublin
T: (01) 278 7022
F: (01) 278 7025
E: info@erfb.ie
www.fishingireland.net

Attachment 03

Drawings

Site Infrastructure
Environmental Monitoring

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Rev.	DESCRIPTION	DATE
BORD NA MÓNA  BORD NA MÓNA ENVIRONMENTAL LIMITED Main St, Newbridge, Co. Kildare Phone 045 431201 Fax 045 432312 www.bnm.ie/environmental Email: ed.info@bnm.ie		
<small>© Copyright Bord na Móna Environmental Ltd. "Copyright and ownership of this drawing is vested in Bord na Móna Environmental Ltd., whose prior written consent is required for its use, reproduction or for publication to any third party. All rights reserved by the law of copyright and by international copyright conventions are reserved to Bord na Móna Environmental Ltd. and may be protected by court proceedings for damages and/or injunctive and costs."</small>		
Project: Waste Licence 131-1		
Client: Midland Waste Disposal Ltd		
Drawing Title: Environmental Monitoring		
Date: 20/03/05	Scale (A3): n/a	Drawn by: SC
		Checked by: FF
		Approved by: FF
Status: <input type="checkbox"/> FOR APPROVAL <input checked="" type="checkbox"/> FOR CONSTRUCTION <input type="checkbox"/> TENDER	Drawn by: SC Checked by: FF Approved by: FF	Dwg. No.

Attachment 04

Air Attachments

Odour Monitoring (ECS1075)
Dust Directional Monitoring Results

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**ODOUR MONITORING AT
MIDLAND WASTE DISPOSAL LTD.,
PROUDSTOWN, NAVAN,
CO. MEATH**

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For the Attention of:
Mr. Francis Flynn
Midland Waste Disposal Ltd
Proudstown
Navan
Co. Meath

Prepared by:
Mr. David O'Reilly
Environmental Consultant

Reviewed by:
Ms. Naomi Bermingham
Environmental Consultant

Report No: ECS1075-O
Date: January 2005

Executive Summary

Bord na Móna Technical Services was commissioned by Midland Waste Disposal Ltd. to carry out Odour monitoring. This followed a request from the Environmental Protection Agency to carry an investigation on odour as a result of new waste handling procedures at the facility. A total of 4 samples were taken, one at each of the site boundaries. Monitoring was carried out on the 15th December 2004.

There was a slight odour detected during sampling at OD-1, the wind was blowing from the facility toward the monitoring location yielding an odour concentration of 133 Ou_E/m³. Monitoring location OD-2 had an odour concentration < 20 Ou_E/m³, indicating no odour at this location during the sampling period. Monitoring Locations OD-3 and OD-4 were up wind of the facility during the odour survey and yielded odour concentrations of 185 Ou_E/m³ and 100 Ou_E/m³ respectively.

In summary, as the upwind and downwind odour concentrations were similar on the day of sampling, it may be concluded that under the specific meteorological conditions on the day of sampling, the results recorded support the observations that the potential odorous emissions from the Midland Wastes facility did not contribute to increased odour levels downwind of the site.

This report is certified as accurate and representative of the sampling and associated analysis carried out.

Respectively Submitted

Mr. David O'Reilly
Environmental Consultant

Ms. Naomi Bermingham
Environmental Consultant

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1.0 INTRODUCTION

2.0 METHODOLOGY

3.0 RESULTS

4.0 COMMENT

APPENDICES

Appendix 1 Location of Odour monitoring positions.

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1.0 INTRODUCTION

Midland Waste Disposal Ltd. was requested by the Environmental Protection Agency to carry an investigation on potential odour levels at the facility as a result of new waste handling procedures at the facility.

Bord na Móna Technical Services was commissioned by Midland Waste Disposal Ltd., to complete the investigation. The investigation comprised the taking of odour samples at four locations representative of boundary conditions at the facility at both upwind and downwind locations. On-site subjective observations relating to odour on the day of sampling were also recorded.

Normal operating conditions were in progress on the day of the odour assessment and as such, the odour samples and observations are considered representative of normal site conditions. It is noted, however, that odour emissions are often highly variable due to factors including wind speed and direction, precipitation and temperature.

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2.0 METHODOLOGIES

Odour Sampling

Samples of gas of approximately 60 litres were collected via Teflon tubing into Nalophane® gas sampling bags by means of the "lung principle" method. Using this method, the sample bag is housed in a sealed car buoy that is evacuated using a small air pump. The volume of air removed from the car buoy is replaced by sample gas entering the bag, thus avoiding contamination of sample by pumps or meters. Sampling shall be carried out in accordance with the standard I. S. EN 13725:2003 entitled 'Air Quality – Determination of Odour Concentration by Dynamic Olfactometry'.

Dynamic Olfactometry

The samples were analysed by Dynamic Olfactometry. The instrument used will be an Olfactomat-e Olfactometer (Project Research Amsterdam) and the analytical procedures were in accordance with the I. S. EN 13725:2003 using a trained panel of 4 assessors. The odour concentration of the sample is expressed in odour units per cubic metre of gas (ou_E/m^3). These values, sometimes referred to as "dilutions to threshold" are equivalent to the number of times the sample gas required dilution with odour free air to reach the panel's odour threshold (i.e. the concentration at which there is a 50% probability of the panellists detecting the odour). The results are expressed in ou_E/m^3 and ou_E/s .

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3.0 RESULTS

Sampling Conditions

The day of sampling was mild and hazy. A slight breeze was noted blowing in a North Easterly direction, with an ambient temperature of 14 C.

Sampling Results

Location	On site observation	Odour Description	Odour Concentration O _u _E /m ³
OD-1 Front Car park at D-4	Slight burning odour	Gassy Metallic odour	133
OD-2 Front boundary corner	No odour	Fume odour	<20
OD-3 Left corner facing Site	No odour	Yeast odour	185
OD-4 Beside D-1 point	No odour	Metallic Odour	100

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4.0 DISCUSSION

An odour is defined as a sensation resulting from the reception of a stimulus by the olfactory sensory system. The way the human response to an odour is evaluated depends on the particular sensory property that is being measured, including the intensity, detectability, character, and hedonic tone (acceptability) of the odour. The combined effect of these properties is related to the annoyance that may be caused by the odour. Odorous air pollutants are often judged important, primarily for their nuisance value and the number of complaints they generate.

The odour concentration of the sample is expressed as multiples of one European odour unit per cubic metre of gas (ou_E/m^3). By definition, $1\text{ou}_E/\text{m}^3$ is the detection threshold of 50% of a panel of trained observers working in an odour free environment. The recognition threshold is about 5 times this concentration i.e. $5\text{ou}_E/\text{m}^3$. This means that at a concentration of $1\text{ou}_E/\text{m}^3$ an odour can be detected and at $5\text{ou}_E/\text{m}^3$ the type of odour can be recognised. Moreover, it is generally accepted that odour concentrations between 5 and $10\text{ou}_E/\text{m}^3$ above the baseline concentration give rise to a faint odour and that only concentrations greater than $10\text{ou}_E/\text{m}^3$ above the baseline concentration constitute a distinct odour.

There was a slight odour detected during sampling at odour sampling location OD-1. At this location, the wind was blowing from the facility toward the monitoring location yielding an odour concentration of $133\text{ou}_E/\text{m}^3$. The sample taken at monitoring location OD-2 had an odour concentration of $< 20\text{ou}_E/\text{m}^3$ and on-site observations did not indicate an odour at this location during the sampling period, which would represent odour at the North West boundary. Monitoring Locations OD-3 and OD-4 were up wind of the facility during the odour survey and yielded odour concentrations of $185\text{ou}_E/\text{m}^3$ and $100\text{ou}_E/\text{m}^3$ respectively. Field observations did not indicate any odour at these locations during the monitoring event.

On-site observations during the monitoring event, on site indicated a slight odour coming from the site and a burning odour coming from the surrounding area which had an effect on the odour sample taken at OD-1. The downwind boundary location, OD-1, was subjectively determined on site to display a slight odour consistent with a characteristic refuse odour; in addition there was also a burning odour coming from the surrounding area upwind and off site of the facility which would have contributed to the level detected. There was no odour detected on site during monitoring at locations OD-3 and OD-4, which were up wind of the facility, the odour concentrations found may be taken to be indicative of the rural environs and background odour concentrations in the site area. However, this does not mean that this was the only odour present at this location during the sampling period and only partly contributed to the resultant odour concentration. It indicates however, that agricultural odour was the dominant source and as a result other odour types may have been masked. Other contributions can originate from other rural sources including flowers, smoke from fuel burning, odour from leaves and trees and general countryside type odour. There are also several other facilities in the vicinity of the site.

In summary, it may be concluded that under the specific meteorological conditions on the day of sampling, the results of the odour sampling support the on-site observations that the potential odorous emissions from the Midland Wastes facility did not contribute to increased odour levels downwind of the site.

Appendix 1

Location of Odour Monitoring Positions

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***ODOUR MONITORING AT
MIDLAND WASTE DISPOSAL LTD.,
PROUDSTOWN, NAVAN,
CO. MEATH***

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For the Attention of:
Mr. Francis Flynn
Midland Waste Disposal Ltd
Proudstown
Navan
Co. Meath

Prepared by:
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Environmental Consultant

Reviewed by:
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Appendix 1

Location of Odour Monitoring Positions

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Sampling Location Number	Deposition Rate (mg/m ² /day)												Running Avg																								
	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02		Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04
D1-N	39.6	120.2	26.1	17	<11	6.5	56.7	95.9	37.4	177.7	50.11	187.4	313.9	63.1	598.6	32.7	121.4	71.00	144	D1-N																	
D1-S	162.4	200.3	100.2	50	<11	80.6	202.6	125.1	46.7	122.8	197.3	71.9	-	40.6	603.5	60.7	175.1	119.83	142	D1-S																	
D1-E	9.9	196.1	15.2	27	91	10.9	32.7	1.7	32.8	128.7	63.18	407.4	161.2	27.0	494.6	42.0	102.7	28.32	123	D1-E																	
D1-W	19.8	31.6	13	26	20	26.1	115.5	180.8	102.8	290	52.29	161.2	19.6	74.9	274.5	228.8	140.1	143.79	105	D1-W																	
Sum																																					
D2-N	838.7	148.7	300.6	178	83	21.8	135.1	453.2	1461	1961	254.91	827.9	496.7	20.6	2311.2	364.2	539.3	363.84	639	Sum																	
D2-S	206	145.5	332.4	146	435	31.8	318.1	165.6	29.8	353.4	348.58	1834.9	379.8	1466.2	808.3	457.9	338.8	784.67	545	D2-N																	
D2-E	144.6	37.4	831.6	167	126	47.9	34.9	172.1	487.9	559.6	405.87	483.7	291.9	252.4	503.3	301.1	371.1	477.12	399	D2-S																	
D2-W	73.3	151.8	562.1	150	102	71.9	34.9	567.6	289.3	426.9	477.12	333.3	453.3	243.4	322.6	384.7	322.1	165.82	334	D2-E																	
Sum																																					
D3-N	132.7	44.3	231.5	102	24	54	54.5	204.8	277.8	228.7	815.98	398.7	938.1	1746.7	45.8	1809.1	417.8	511.99	1901	Sum																	
D3-S	None 1	37	257.1	109	30	19.6	91.3	494.6	268.4	273.7	474.85	300.7	354.3	432.7	69.72	1001.4	422.5	461.87	244	D3-N																	
D3-E	87.3	122.3	268	73	22	19.6	45.8	2387.3	284.8	347.3	807.63	463.9	873.8	1766.9	26.1	891.7	396.8	932.44	309	D3-S																	
D3-W	184.2	None 1	169.9	87	15	13.1	19.6	152.3	163.4	308.4	372.33	481.5	312.9	802.3	34.9	1065.8	357.1	448.41	302	D3-E																	
Sum																																					
D4-N	43.6	29.5	78.4	48	13	<6.5	26.1	163.4	81.7	245.1	87.15	213.7	56.6	239.2	141.6	18.7	37.3	12.9	99	Sum																	
D4-S	11.9	21.1	106.7	68	<11	<6.5	1699	666.7	102.7	194	47.93	65.4	17.4	121.7	69.7	499.5	60.7	194.08	282	D4-N																	
D4-E	13.8	23	39.2	69	24	<6.5	39.2	45.8	49	8.2	61	37.0	21.8	119.5	91.8	56.0	23.3	71.9	47	D4-S																	
D4-W	21.8	31	52.3	48	<11	8.7	63.2	143.8	91.4	72.5	37.44	37.0	69.7	164.5	132.8	29.0	317.3	349.19	93	D4-E																	
	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350																		

Note 1: Sample bottle broken

Note 2: Sample bottle had fallen off dust gauge

Figures in bold indicate an exceedance of 350mg/m²/day limit

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