

TABLE OF CONTENTS

SECTION 1 – INTRODUCTION

1.1	Environmental Impact Statement (EIS) Methodology	1-1
1.1.1	Requirement for and EIS	1-2
1.1.2	EIS Methodology	1-2
1.2	Company Background	1-3
1.2.1	Indaver NV Company Profile	1-3
1.2.1.1	Indaver's Activities	1-4
1.2.2	Indaver Ireland	1-6
1.2.2.1	Indaver Ireland Limited	1-6
1.3	Scoping	1-8
1.4	Consultation	1-9
1.4.1	Pre-Planning Consultation	1-9
1.4.2	Proposed Ongoing Consultations	1-10
1.5	Contributors to the EIS	1-12
1.6	Difficulties Compiling Specified Information	1-16
1.7	References	1-16

SECTION 2 – BACKGROUND TO THE PROJECT

2.1	Introduction	2-1
2.2	Need for the Scheme	2-2
2.2.1	Introduction	2-1
2.2.2	National Non-Hazardous Waste Arisings	2-2
2.2.3	Municipal Waste Management in the North East Region	2-5
2.3	Combustion as Fuel (Incineration with Energy Recovery)	2-10
2.4	Compliance with the Waste Hierarchy	2-11
2.4.1	Introduction	2-11
2.4.2	Summary of Indaver's Conformance with Integrated Waste Management Options	2-12
2.5	Site Selection	2-12
2.5.1	Introduction	2-12
2.5.2	Identification of Suitable Locations	2-14
2.5.3	Application of Criteria to Identified Areas	2-17
2.5.4	Waste-to-Energy (WTE) Facility at Carranstown	2-24
2.5.5	World Health Organisation: Site Selection Criteria for the Siting of a New Hazardous Waste Management Facility	2-26
2.5.6	Waste Management Plan for the North East Region 1999	2-26
2.6	References	2-28

LIST OF FIGURES

- Figure 1.1 Site Location Map
- Figure 1.2 Site Area Map
- Figure 2.1 Municipal Waste Generation 1995 to 2004
- Figure 2.2 Disposal of Municipal Waste (2004)
- Figure 2.3 Municipal & Industrial Waste Generation in the NE Region
- Figure 2.4 Projected Household Waste for NE Region
- Figure 2.5 Estimated Incineration Capacity (1996 – 2009)
- Figure 2.6 Waste Management Hierarchy

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LIST OF TABLES

Table 1.1	Indaver NV Waste Management Activities
Table 2.2	National Targets for Diversion of Biodegradable Waste from Landfill
Table 2.3	Proposed BMW Diversion Targets
Table 2.4	Waste Generated in the NE Region
Table 2.5	Population Statistics for North East Region (1996-2002)
Table 2.6	Percentage Growth in North East Population Statistics
Table 2.7	Headline Indicators and Target for the North East Region
Table 2.8	Municipal waste-to-energy Facilities in Europe operating in 2003
Table 2.9	Estimated Tonne-Killometre Analysis 2002 Census of Population (CSO)

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APPENDICES

Appendix 1.1 Pre Consultation Programme

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1 INTRODUCTION

This Environmental Impact Statement (EIS) has been prepared to accompany an application to Meath County Council for full planning permission for the development of a waste-to-energy facility at Carranstown, Duleek, Co. Meath.

Since announcing the project in November 2000 there have been significant developments in waste management in the Region. The North East Region has reviewed its waste management plan. The Proposed Replacement Plan the need for a 150,000 – 200,000 tonnes per annum waste-to-energy Regions waste management requirements in the future. For this reason Indaver has decide to reapply for planning permission and review its waste licence for the proposed facility.

The principal change would be an in creased capacity to allow the facility to operate within a range of 150,000 to 200,000 tonnes per annum, in line with the Proposed Plan. Other changes include a revised layout of the facility and new design features in line with best practice.

In addition, Indaver wishes to apply to Meath County Council to amend the existing planning condition which restricts the acceptance of waste at the facility to waste generated within the regional countries of Meath, Louth, Cavan and Monaghan.

This Environmental Impact Statement (EIS) has been prepared to accompany an application to Meath County Council for full planning permission for the development of a 70 MW waste-to-energy facility with an annual capacity of 150,000-200,000 tonnes at Carranstown, Duleek, Co. Meath.

White Young Green Ireland Ltd was commissioned by Indaver Ireland to prepare the Environmental Impact Statement (EIS) for the development.

Indaver Ireland intends to apply for full planning permission for the development of a 70 MW Waste-to-Energy Plant for the acceptance of Non Hazardous Waste on lands in the townland of Carranstown, approximately 2.7 km north east of Duleek in Co. Meath (Figure 1.1). The proposed facility will be located on an area of approximately 10 hectares (25 acres) which is currently used for agricultural purposes. Existing developments within the vicinity of the proposed facility include a cement factory located to the north of the property (Figure 1.2). The area of the site for development will be approximately 4 hectares, with the remaining areas of the site to be utilised for landscaping to minimise the visual impact of the proposed facility.

1.1 ENVIRONMENTAL IMPACT STATEMENT (EIS) METHODOLOGY

1.1.1 Requirement for an EIS

Environmental Impact Assessment (EIA) procedures are required for certain types and scales of development, as set out in the European Directive (85/226/EEC) amended by the Council Directive 97/11/EC and effected by the Statutory Regulations in Ireland (including S.I. No. 349 of 1989 and SI No's. 92 & 93 of 1999). Schedule 1 of the 1999 Regulations, (S.I. No. 93 of 1999), specifies development to which EIA applies and for which an EIS is required. The proposed Waste-to-Energy facility falls into the Category No. 10 of the First Schedule of S.I. No. 93 of 1999 defined as;

Waste disposal installations for the incineration, chemical treatment as defined in Annex IIA to Directive 75/442/EEC under heading D9, of non-hazardous waste with a capacity exceeding 100 tonnes per day.

The requirement for an EIS for this facility is also set out in Part 10 of the Planning and Development Regulations, (S.I. No. 600 of 2001). The prescribed classes of development requiring an EIA are set out in Schedule 5 attaching to the 2001 Act.

This EIS has been prepared in accordance with the following Environmental Protection Agency (EPA) documents "Guidelines on the Information to be contained in Environmental Impact Statements" and "Advice Notes on Current Practice in the Preparation of Environmental Impact Statements", published in 2002 and 2003 respectively.

The waste-to-energy facility will be operated under a waste licence issued by the EPA under the Waste Management Acts, 1996 to 2003.

1.1.2 EIS Methodology

The EIS is presented in the "Direct Format Structure" as set down in the "Guidelines on Information to be Contained in an EIS" produced by the Environmental Protection Agency (March 2002). In general, it follows the framework presented in the EPA Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (September 2003).

Under the EIA Regulations an EIS should contain the following:

Description of the proposed development (Sections 3 and 5)

- site, design and size of the proposed development
- outline of main alternatives studied by developer
- nature and quantity of materials to be used
- physical characteristics of the development and land-use requirements during construction and operation

Description of the existing environment (Sections 6-19)

- human beings
- flora and fauna (grouped under the title of Ecology within EIS)
- soil and water
- air and noise
- climatic factors and the landscape
- material assets and cultural heritage
- the inter-relationship between the above factors.

Description of the likely significant impacts (Sections 6-19)

- the existence of the proposed development
- residues from the proposed development
- emissions from the proposed development
- aspects of the environment to be affected by the proposed development
- the use of natural resources
- the emission of pollutants,
- the creation of nuisances

Description of the mitigation measures (Sections 6-19)

- Measures envisaged avoiding, reducing and if possible remedying those effects on each environmental aspect

1.2 COMPANY BACKGROUND**1.2.1 Indaver NV Company Profile**

Indaver NV, is the Flemish parent company of Indaver Ireland. Indaver is a waste management company that specialises in integrated waste management for industries and households. Indaver recycles, treats and disposes of both domestic and industrial waste. Advice on the prevention of waste is an integral part of the Indaver service.

Twenty years ago, the Flemish region of Belgium was in a similar situation to that of Ireland today as regards waste management. While it was still beginning to implement an integrated waste management system, the vast majority of waste was still being disposed of to landfill and there was a very low rate of recycling. Hazardous waste was being exported to other countries for disposal. The Flemish Government, in partnership with local industry, formed Indaver NV in 1985 to provide an integrated waste management strategy for Flanders in order to address the waste crisis.

Today, Flanders, with a population of 6 million, has a recycling rate of over 71%, the highest recycling rate of any region in the world and is self sufficient in the disposal of its residual waste. In addition, Flanders has developed an integrated hazardous waste management system which means the Region

no longer exports its hazardous waste to other countries for treatment or disposal. Since its establishment, Indaver has been and continues to be an important contributor to the development of this integrated waste management system.

Flemish Environmental Holding is the holding company of the Government of Flanders and it is the majority shareholder in Indaver NV. The remaining shares are held by a number of leading private companies in Flanders. The Indaver group plays a leading role in the implementation of the Flemish Government Waste Policy. The company employs over 800 people and has operations in 8 European countries. In 2004, Indaver managed approximately 1,480,000 tonnes of hazardous and non-hazardous waste at the company's waste recovery and disposal sites.

1.2.1.1 Indaver's Activities

Indaver NV is involved in a comprehensive range of waste management activities at its various facilities in Flanders, and elsewhere in Europe. A selection of such activities is listed in Table 1.1.



Municipal waste-to-energy facility, Flanders, Belgium

Table 1.1: Indaver NV Waste Management Activities

Site	Facility Description	Facility Tonnage	Total Tonnage
Hazardous Waste Management Facility Antwerp	Solvent Recovery	2,675	418,474
	Physico-chemical Treatment of liquid waste	152,788	
	Waste-to-Energy	90,820	
	Ash Recycling	30,795	
	Landfill	141,396	
Non Hazardous Waste Management Facility Doel	Fluorescent Lamp Recycling	2,189	570,347
	Timber Recycling	2,365	
	Refuse Derived Fuel	30,491	
	Transfer Station	2,696	
	Waste-to-Energy	400,188	
	Ash Recovery	103,232	
	Landfill	29,186	
Kallo	Waste Transfer Station		3,564
AROC	HCL Recycling Facility	-	180,655
Willebroek Recycling Park	Dry Recyclables (sorting for recycling)	20,390	74,674
	Tyres (Sorting and Recovery)	7,510	
	Timber	3,207	
	Green Waste	6,075	
	Glass/Carpets	4,721	
	Bulky Waste	13,121	
	Paper/Plastics	19,650	
Grimbergen	Composting Facility	-	46,395
VLAR Paper	Tisselt Recycling Facility (sorting for recycling)	-	186,954
	Ghent Recycling Facility (sorting for recycling)	-	

(Source: Indaver NV Annual Report 2004)

All the company's facilities are licensed by the regulatory authorities in the region in which they operate. Indaver is striving to have all its facilities accredited to the ISO 9002 Quality Assurance System, the ISO 14001 Environmental Management System and the OHSAS 18001 Health and Safety Standard. Indaver NV was the first waste management company in Flanders (and among the first in Europe), to attain accreditation to the ISO 14001. These certifications are independently audited on a regular basis to ensure company compliance.

An integral part of the above certifications is clear and regular communications with members of the public, customers, suppliers and regulatory authorities. Indaver is committed to permanent and open dialogue regarding environmental matters.

1.2.2 Indaver Ireland

Indaver Ireland, a wholly owned subsidiary of Indaver NV, was established in 1999 to develop waste infrastructure in Ireland. The branch is currently developing two Waste Management Projects – a non-hazardous incineration facility in Carranstown, Duleek, County Meath and an Industrial waste facility, which includes a hazardous waste incinerator, in Ringaskiddy, County Cork. Information on Indaver's Ringaskiddy project can be found on the website www.indaver.ie. Currently, five staff work for Indaver Ireland on infrastructural projects.

Cork Waste Management Facility

In January 2004, Indaver Ireland received planning permission, which is currently the subject of judicial review proceedings, for a Waste Management Facility at Ringaskiddy, Co. Cork. The facility includes a Waste-to-Energy plant with a capacity to treat approximately 100,000 tonnes of industrial hazardous and non-hazardous waste per annum, a waste transfer station for temporary storage/repackaging of industrial waste prior to shipment off-site and a community recycling park for household waste generated locally.



1.2.2.1 Indaver Ireland Limited

In 1999 Indaver acquired 60% of MinChem Environmental Services Limited, a hazardous waste management company operating in Ireland since 1977. In 2003 Indaver acquired the remaining 40% of MinChem and in 2004 changed the name of the company to Indaver Ireland Limited. Today, Indaver Ireland Limited, with offices in Dun Laoghaire, Dublin Port and Cork, employs approximately 80 people.



Export of Waste

Indaver exports hazardous waste from Ireland to Britain and other European countries for recovery, disposal or treatment as there are limited treatment facilities available in Ireland for these types of waste. Solvents from the pharmaceutical industry, obsolete, or out of specification products, contaminated packaging/clothing and laboratory chemicals are some of the waste streams handled by the company. The company exported over

85,000 tonnes of waste in 2005. Indaver operates an EPA licensed transfer station in Dublin Port for the export of these materials. The facility handled over 20,000 tonnes of material into storage in 2006.

Solvent Blending Facility

Indaver is constructing a blending facility for waste solvents at its existing Transfer Station. The facility will be operational in early 2006. It will have the capacity to blend 20,000 tonnes per annum of waste solvents generated by the pharmaceutical and chemical industry. Blended solvents can be used as a fuel in the cement industry.



On-Site Services

Indaver offers a wide range of on-site services to its customers including, diversion of waste to landfill overseas, export of car-shred for disposal, export of refuse derived fuels to power plants overseas, soil remediation & sludge disposal, site clean-ups, plant decommissioning and other large-scale waste treatment projects.

WEEE Recycling Collection Service

Indaver in partnership with Rehab, offers a recycling collection service to local authorities, businesses and manufacturers for waste electrical and electronic equipment. Material collected is treated / repackaged at depots in Dublin and Mallow prior to shipment off-site for recovery / disposal.



Total Waste Management

Indaver provides customer with a management service for all their waste generated on-site, including recycling of dry recyclables, disposal of residual waste, recovery / disposal solutions for waste electrical and electronic equipment, sludges and hazardous and non-hazardous industrial waste.

Paper Recycling

Indaver Ireland operates a paper recycling business. This business is currently serving Munster and Leinster, targeting newsagents, garage forecourts, local authority Bring Sites and Civic Amenity Sites and large employers. The paper recycling business, with warehouses in Dublin Port and Mallow, operates under the waste permitting system. Over 6,000 tonnes of paper was collected and sent to paper mills in Europe for recycling in 2004.





Recycling Centres

Indaver operates Community Recycling Centres in Navan and Trim on behalf of County Meath County Council and in Newcastle West and Killmallock on behalf of Limerick County Council. Indaver also provides a waste collection service from recycling centres for special waste stream in counties Meath, Limerick, Cork and Waterford.

Waste Education

As part of the company's communications programme, Indaver provides a waste education service to industry, other businesses and householders. The company produces guidelines on: waste prevention and minimisation programmes; recycling programme in the work place and in the home; current waste legislation; and packaging and transportation of hazardous waste.

1.3 SCOPING

The contents and scoping of the EIS were determined following consideration of:

- Detailed consultation with Indaver Ireland
- Consultation with Meath County Council Planning, Drainage and Roads Officers
- Meath County Council Environment Department
- Environmental Protection Agency
- Knowledge from the area from previous involvement with the 2001 planning application and from site visits; and
- 'Guidelines on the Information to be Contained in Environmental Impact Statements' (EPA 2002).

The following were also informed of the plans for the proposed facility.

- Electricity Supply Board
- Bord Gáis
- Commission for Electricity Regulation (CER)
- Department of the Environment Heritage and Local Government
- Eastern Regional Fisheries Board
- Aviation Authority
- Health and Safety Authority (HSA)
- Health Service Executive (North East Region)
- Newry and Mourne District Council
- Irish Farmers Association (IFA) (Meath and Louth Branch)
- United Nations Educational, Scientific and Cultural Organisation (UNESCO)

Scoping for the Environmental Impact Statement identified the principal matters of likely concern as;

- Human Health
- Landscape and Visual Amenity
- Traffic
- Air Quality

1.4 CONSULTATION

1.4.1 Pre-Planning Consultation

Indaver Ireland believes in a policy of openness and dialogue between the company and the local community. Indaver has undertaken a wide-ranging and ongoing pre-planning consultation campaign on the proposed facility.

A letter, together with an information booklet outlining the principle changes to the proposed waste-to-energy facility, was sent to over 750 people who have an interest in the project or who had previously registered on the Indaver Ireland Communications Database.

Public consultation notices outlining the company's intention to lodge a revised planning application; free availability of literature; and the dates and venues of open days and a public meeting to be held locally were advertised on local radio and in local newspapers during the month of January.

An information booklet outlining the principle changes to the proposed waste-to-energy facility was available on www.indaver.ie or by calling FreeFone 1800 200646 or writing to Indaver Ireland. The booklet included a prepaid reply card which could be returned to Indaver if he/she wished to be included on the Indaver Ireland Communications Database to receive regular updates on the project.

Open days were held locally on the 12th and 19th January 2006 to provide the public with an opportunity to obtain further information on the company's proposal, share their views with the company and participate in the Environmental Impact Assessment of the project. They were held from 11:30 to 19:30 to accommodate people in full-time employment. A plant model of the proposed facility and a display panel outlining how the facility would operate were on display. Literature from the World Health Organisation, the Environmental Protection Agency and the Food Safety Authority of Ireland, as well as the company information booklet, were freely distributed. In total over 50 people attended these open days.

A public meeting was held locally on the evening of the 19th January 2006 to provide the public with an opportunity to raise concerns they may have and to participate in the environmental impact assessment of the proposed facility. The meeting was attended by local residents, members of the local community, community groups and local elected representatives. There were approximately 130 attendees.

Relevant issues and concerns raised during the meeting have been addressed in the environmental impact assessment of the proposed development.

Further details of the pre-planning consultation programme, including literature and other communication tools used, are included in Appendix 1.1.

As part of the pre-planning consultation programme the company also met with the Environmental Protection Agency. Indaver provided details of the changes proposed for the waste-to-energy facility and the Agency outlined issues it wished to be assessed and included as part of the Environmental Impact Statement.

The company also met with representatives from Newry and Mourne District Council, the Health Service Executive (Cavan Office) and the Meath and Louth branches of the Irish Farmers Association.

1.3.2 Proposed Ongoing Consultations

Indaver Ireland believes in a policy of openness and dialogue between the company and the local community. Indaver is undertaking a wide-ranging and ongoing public information campaign about the proposed facility. The programme is aimed at addressing potential issues and concerns that may arise within the community from an early stage in the planning process.

Indaver Ireland's website (www.indaver.ie) includes the Non-Technical Summary of the EIS and details of the application for planning permission. The website also includes options to register with the Indaver Ireland communications database to obtain regular updates on further developments of the project..

Community Liaison Committee

Indaver Ireland will maintain this policy of openness throughout the lifetime of the facility. The most direct way of achieving a high level of communication is through face-to-face contact with all parties concerned, and to achieve this Indaver Ireland will establish a community liaison committee.

The formation of the community liaison committee will begin prior to the construction phase and in consultation with Meath County Council. The committee will have a minimum of eight members and include representation from Meath County Council, Indaver Ireland, local residents and elected members of Meath County Council. All individuals who have requested to be on the Indaver Ireland communications register, as well as neighbours of the facility and public representatives for the area, will be written to and invited to put their names forward for inclusion on the committee.

It is Indaver Ireland's intention that this committee will be formed promptly in order to help address issues regarding the facility from an early phase of the development. The committee will be scheduled to convene at quarterly intervals unless otherwise agreed.

The facility will operate under a Waste licence issued by the Environmental Protection Agency (EPA). The facility will be operated to relevant international standards for Environment, Safety and Quality Management Systems, namely ISO 14001 or EMAS for Environment, OHSAS 18001 for Safety and ISO 9002 for Quality. The facility will be subject to inspection by an independent body to verify compliance with these standards. The results of accreditation audits and inspections will be made available to the community liaison committee for discussion at the following scheduled quarterly meeting. In addition the results of independent monitoring inspections and audits carried out by the EPA will also be made available and discussed at the quarterly meetings.

Waste Education Centre

As part of the development Indaver Ireland is seeking planning permission for a Waste Education Centre. This will include a display area outlining household and commercial waste prevention and recycling programmes; updates on the Region's Waste Management Plan, such as current recycling, waste-to-energy and landfill targets; and how the waste-to-energy facility will operate.



Waste Education Centre operated by Indaver in Flanders, Belgium

The centre will include a meeting room which will be made available to the community liaison committee.

Information Available to the General Public

Indaver Ireland has an 'open door' policy, and it is envisaged that groups, such as local residents and students, may request a tour of the facility when operations commence. Indaver Ireland will be happy to accommodate such groups that may wish to visit the facility.

Access to information regarding the operation of the facility will not be restricted to members of the community liaison committee. It is standard practice for the Environmental Protection Agency to require a licence holder to institute a Communications Programme 'to ensure that members of the public can obtain information concerning the environmental performance of the facility at all reasonable times'.

Correspondence between the company and the EPA and information regarding the environmental performance of the facility will also be accessible at the EPA's offices at Johnstown Castle, Co. Wexford. Indaver's annual environmental report will be distributed locally and will be available on the company website.

1.5 CONTRIBUTORS TO THE EIS

The contributors to the Statement, in alphabetical order by topic, are as follows;

Air Quality	AWN Consulting Ltd
Climate	AWN Consulting Ltd
Construction	McElroy and Associates & White Young Green Ireland Ltd
Cultural Heritage	Archaeological Development Services Ltd
Ecology Fauna	Ecological Solutions
Ecology - Flora	White Young Green Ireland Ltd
Ecology - Birds	Biosphere Environmental Solutions
Human Beings	White Young Green Ireland Ltd
Human Health	Dr Martin Hogan
Interactions	White Young Green Ireland Ltd
Landscape and Visual Appraisal	Mitchell & Associates
Material Assets	White Young Green Ireland Ltd
Noise	AWN Consulting Ltd
Non-Technical Summary	White Young Green Ireland Ltd
Orchestration of Statement	White Young Green Ireland Ltd
Planning Issues	Kieran O Malley & Co
Project Development and Description	Indaver Ireland
Roads and Traffic	Roughan & O Donovan
Soils and Geology	White Young Green Ireland Ltd
Water	White Young Green Ireland Ltd

The team for the completion of the individual chapters is as follows.

**Climate and Air
Quality**

Dr. Edward Porter is Director with responsibility for Air Quality & Climate with AWN Consulting. He holds a BSc (Hons) from the University of Sussex (Department of Chemistry), has completed a PhD in Environmental Chemistry (Air Quality) in UCD where he graduated in 1997 and is a Full Member of the Royal Society of Chemistry (C Chem MRSC). He specialises in the fields of air quality, EIA and air dispersion modelling.

**Soils/ Geology,
Surface Water
and Groundwater/
Hydrogeology**

Kevin Cullen, BSc (Hons) Geology, MSc Hydrogeology and Carol Connery BSc, MSc., MCIWM. Kevin, acts as a consultant to WYG, has worked in Ireland for 30 years as a geologist and hydrogeologist in both the natural resource and environmental sectors. He has advised on numerous waste facilities and quarry developments and has provided the geological and hydrogeological aspects to many high profile EIS's where groundwater was a key regulatory concern. Carol Connery BSc, MSc., MCIWM is an Associate with *White Young Green Ireland* and has six years experience in the waste industry, including project management of environmental impact assessments, waste licence applications for public and private sector, planning applications for waste facilities, environmental monitoring, waste permitting, contamination investigations, environmental noise assessments and site investigations.

Ecology (Flora)

Carmel Brennan, BSc, MSc is a Senior Ecologist with *White Young Green Ireland Limited* with five years experience in habitat mapping and classification, management plans, botanical surveys, faunal assessment and woodland monitoring.

Ecology (Fauna)

Dr Christopher Small, BSc, PhD., M.I.E.E.M. has 30 years post graduate experience in research and consultancy in ecology, wildlife management, resource management, habitats assessment, landscape, ecology environmental impact assessment and planning. Significant expertise in cultural resources and planning including community led conservation projects.

Ecology (Birds)

Dr. Brian Madden BA, PhD is a Terrestrial Ecologist and Environmental Consultant managing Biosphere Environmental Services (BES) since 1994. Dr. Madden has over 15 years experience in ornithology, botany, coastal and peatland ecology, and Environmental Impact Assessment (EIA).

**Human
Beings/Material
Assets**

Mary O Hara, B.A (Hon's), P.G. Dip., Diploma in EIA/SEA management is a principal environmental scientist with *White Young Green Ireland* and has five years experience in the environmental management field including environmental management systems, waste licensing and enforcement, environmental auditing and remediation projects. Mary was responsible for the project management of a number of environmental impact assessments including a manufacturing redevelopment project in Co. Kildare and an anaerobic digestion facility in County Cork. Responsible for conducting EIS compliance reviews of waste facilities including landfills, civic amenities, waste transfer stations and material recovery facilities.

**Landscape/Visual
Assessment**

Colin Carroll, Diploma in Architectural Technology, Dip EIA Management, R.I.A.I. Colin has considerable experience working as a Landscape Technician on a large range of Environmental Impact Statements and is the EIA Manager for Mitchell + Associates. Some of the EIS projects Colin has worked on include design, remediation and restoration of existing landfill and land fill extensions, the preparation of Visual/Landscape Section of EIS Documents and Preparation of Master Plans.

William. H. Hastings, B.Arch, Fellow of the Royal Institute of the Architects of Ireland, RIAI accredited, is a lecturer at University College Dublin and Director of ARC Consultants. ARC Consultants uses a number of survey, modelling and electronic techniques to assess the potential visibility of development. In rural situations, digital terrain modelling of the landform and view shedding is used to predict the theoretical visibility of structures. This study is usually followed up by on site survey, where visibility is further assessed in the context of local features such as buildings, hedgerows and small changes in landform. In urban situations, potential visibility is initially assessed by mapping analysis, and is then assessed on site by electronic survey and digital modelling of urban form.

Traffic

Gareth Mitchell B.Eng. Hons, Dip EIA (Mgt) is an Associate with Roughan & O' Donovan Consulting Engineers and has 15 years experience in project and roads engineering. He has experience in route selection, preliminary design and preparation of D&B contract documents and CPO documentation.

Health

Dr. Martin Hogan AFOM, FFOMI, is a Medical Doctor specializing in Occupational Medicine. He is a full time consultant occupational & environmental physician and Director of Employment Health Advisers Ltd. He is an occupational physician to University College Cork, lecturer in occupational medicine, University College Cork and specialist trainer in occupational medicine for the Faculty of Occupational Medicine (FOM) Royal College of Physicians of Ireland RCPI since 1997

Cultural Heritage

Mr Eoin Halpin BA MIAI MIFA is Co-founder and Director of Archaeological Development Services Ltd and also the Chairman of the Institute of Archaeologists of Ireland with over twenty years experience in archaeology both in Ireland and abroad. Wide and extensive published literature on archaeology in Ireland and Scotland.

Dioxins

Dr. Fergal Callaghan BSc. Chemistry & Pollution Control, and Ph.D in environmental Engineering. He is an Associate Member of the Institute of Chemical Engineers (AMIChemE). He is a Director with AWN (founded AWN Consulting Ltd with 4 colleagues in 2000), which has grown the company to 20 technical staff in total. He has specific responsibility for Soil and Environmental Assessments and Environmental Audits, and is responsible for a team of 5 consultants. He has conducted numerous monitoring and modelling assessments of PCDD/F in soil in Ireland and provided consultancy services to a range of WTE projects with respect to polychlorinated dibenzodioxin and dibenzofuran (PCDD/F).

Noise

Andy Irwin BEng (HONS) is a senior acoustic consultant for AWN consulting Ltd. He is currently working on various projects including the preparation of EIS noise and vibration chapters for large infrastructure projects including major motorways and commercial sites. Recently completed projects include Wyeth Medica Ireland Ltd, numerous Tesco Ireland sites and several large greenfield quarry sites. Recent traffic noise modelling schemes include the M7/M8 and N9/N10 realignment projects and N11 Gorey bypass.

Odour

Brian Sheridan is a Senior Consultant with Odour Monitoring Ireland. Main responsibilities include sourcing industry contracts, expert consultancy, client liaison and research and development. Currently the company provides air quality services to 5 of the largest Engineering Consultancy Companies, many Local Authorities and many individual companies in Ireland.

Planning & Policy

John O'Malley BA BAI MRUP Dip Env Eng Dip EIA Mgt MIEI IPI MRTPI is a director of Kiaran O'Malley and Company Ltd. Town Planning Consultants. Having worked as an Engineer for 5 years in the USA, John returned to Ireland and obtained a Masters Degree in Regional and Urban Planning from University College Dublin in 1995. He is a Corporate Member of the Irish Planning Institute (MIPI) and a Chartered Member of the Royal Town Planning Institute (MRTPI). John has over 12 years of experience advising both private and private sector clients in relation to all aspects of land use planning and development in Ireland including extensive experience in the waste management sector.

In addition to the main contributors to the EIS a number of organisations provided services/information and are detailed in alphabetical order as follows;

Alcontrol Laboratories	-	Water Analyses
ARC	-	Photomontages
Geological Survey of Ireland	-	Geological/Hydrogeological Information
Met. Eireann	-	Meteorological Data
Ordnance Survey	-	Survey Maps and Aerial Photography

1.6 DIFFICULTIES COMPILING SPECIFIED INFORMATION

No difficulties were encountered during the compiling of the EIS

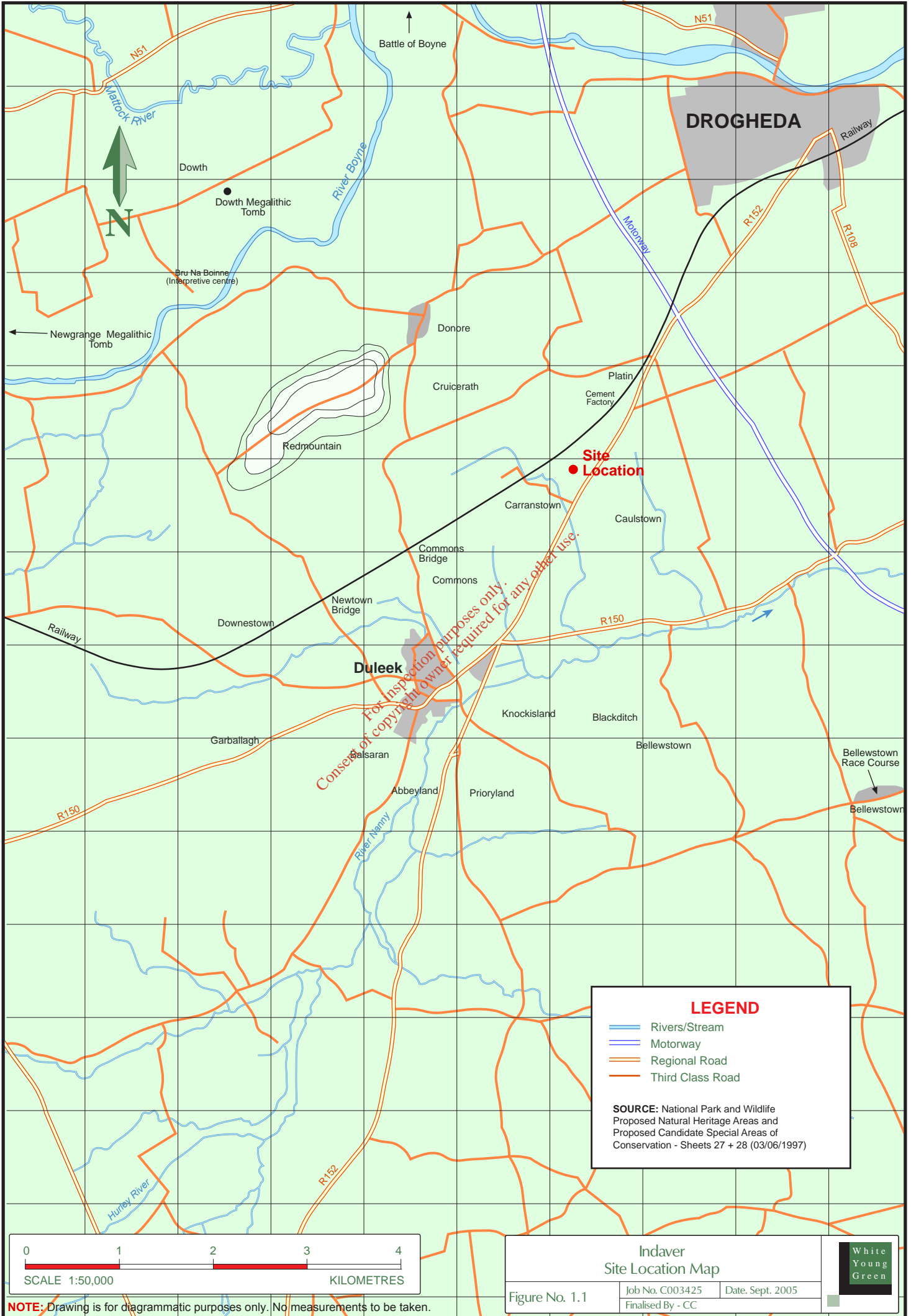
1.7 REFERENCES

Environmental Protection Agency (2002) Guidelines on the Information to be contained in Environmental Impact Statements

Environmental Protection Agency (2003) Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.

The European Communities Environmental Impact Assessment (Amendment) Regulations 1999, SI No 93 of 1999

Planning and Development Regulations 2001, S.I. No. 600 of 2001.



DROGHEDA

Duleek

Site Location

LEGEND

- Rivers/Stream
- Motorway
- Regional Road
- Third Class Road

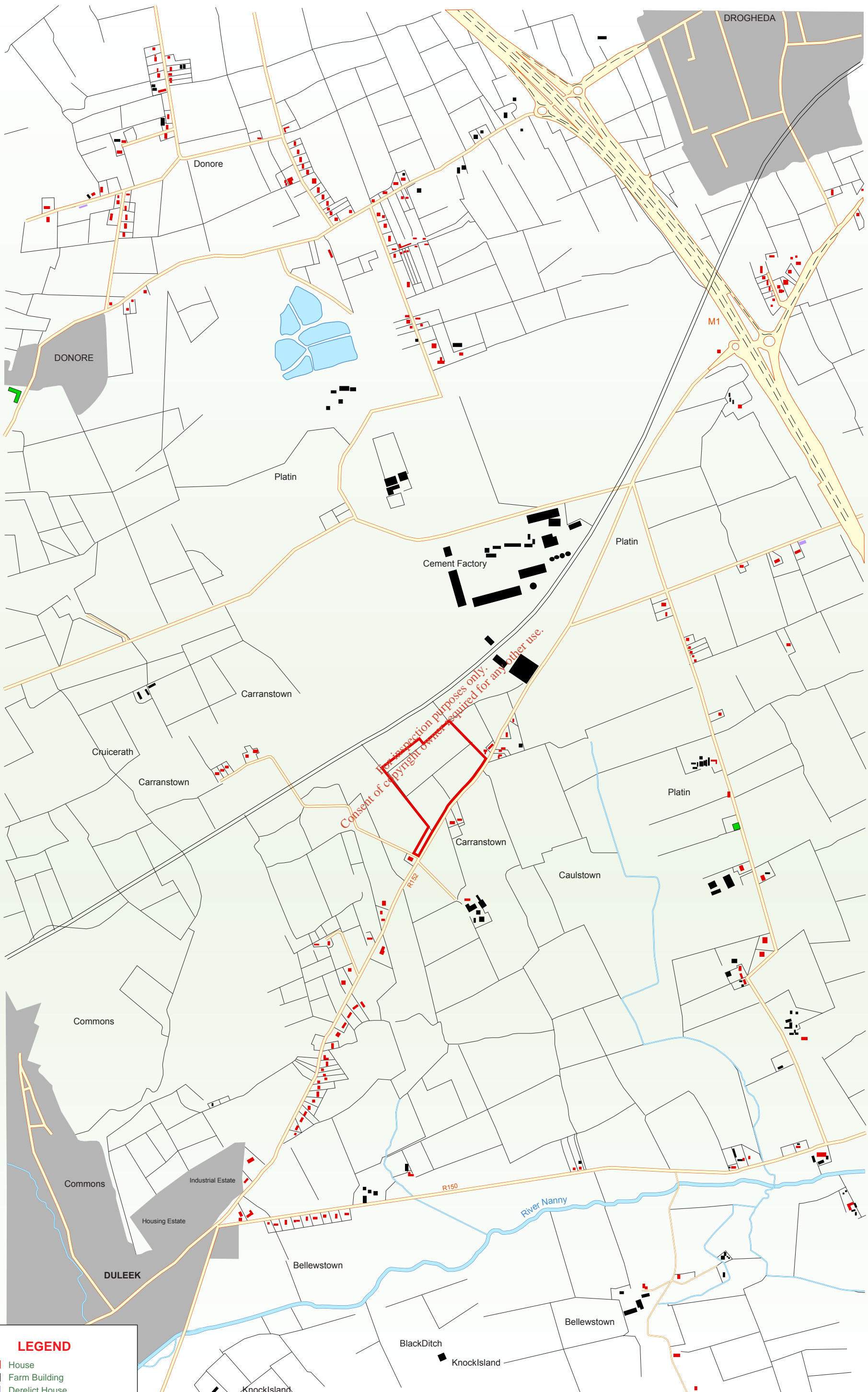
SOURCE: National Park and Wildlife Proposed Natural Heritage Areas and Proposed Candidate Special Areas of Conservation - Sheets 27 + 28 (03/06/1997)



NOTE: Drawing is for diagrammatic purposes only. No measurements to be taken.

Indaver
Site Location Map

Figure No. 1.1	Job No. C003425	Date. Sept. 2005
	Finalised By - CC	



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LEGEND

- House
- Farm Building
- Derelict House
- School
- Site Boundary

Indaver
Site Area

Figure No.1.2	Job No. C003425	Oct.2005
	Finalised By -	

NOTE: Drawing is for diagrammatic purposes only. No measurements to be taken.

Appendix 1.1
Public Consultation Programme

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Pre-Planning Consultation Programme

January 2006

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CONTENTS

Communications Register.....	3
Letter to Communications Register.....	4
Information Booklet.....	5
Advertisements in Local Papers.....	6
Open Days.....	8
Public Meeting.....	9

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Letter and booklet sent by Indaver to Communications Database:

Sent 30th December 2005

Communications Database include the following:

UNESCO

European Commission

National Director of Population Health, Health Service Executive, HQ

Principal Environmental Health Officer, Health Service Executive, Meath Office

Principal Environmental Health Officer, Health Service Executive, Louth Office

Principal Environmental Health Officer, Health Service Executive, Cavan Office

Principal Environmental Health Officer, Health Service Executive, Monaghan Office

Dept. of the Environment, Heritage & Local Government

Environmental Protection Agency

Food Safety Authority of Ireland (FSAI)

FSAI Consultative Council

Irish Aviation Authority

Irish Business and Employers Confederation (IBEC)

Chamber of Commerce

Engineers Ireland (formerly IEI)

Health & Safety Authority

Eastern Regional Fisheries Board

Commission for Energy Regulation

Roads Dept., Meath County Council

Drainage Dept., Meath County Council

Planning Dept, Meath County Council

Waste SPC, Meath County Council

North East Regional Waste Management Steering Group

Waste SPC of Louth, Cavan & Monaghan County Council

Officials from Louth, Cavan & Monaghan

MEPs, TDs & local political representative in the North East Region

Northern Ireland Council Officials, including Newry & Mourne District Council

Local residents

Local community groups

Other interested parties who have registered with Indaver Ireland

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Copy of Letter sent to Communications Database

Dear,

As you will be aware, Indaver Ireland has received planning permission and an EPA waste licence for a 150,000 tonne per annum incinerator with energy recovery in Carranstown, Duleek, County Meath

Indaver announced its intention to develop an incinerator with energy recovery for the North East Region in November 2000. In the last 5 years there have been significant developments in waste management in the Region. This has been reflected in the recently published Proposed Replacement Waste Management Plan for the North East Region.

The Proposed Plan identifies the need for a 150,000 – 200,000 tonnes per annum waste-to-energy facility to service the Region's future waste management requirements.

For this reason Indaver Ireland has decided to re-apply for planning permission and review its waste licence for the proposed waste management facility.

The principal change would be an increase in capacity to allow the facility operate within a range of 150,000 – 200,000 tonnes per annum, in line with the Proposed Plan. Other changes include a revised layout of the facility and new design features in line with best practice.

We would be interested in your views

We will be running a Public Consultation Programme for the month of January before we lodge a revised planning application with Meath County Council. This is to provide you with an opportunity to obtain further information on our proposal, share your views with us and participate in the Environmental Impact Assessment of our project. We would welcome any suggestions, queries or concerns you may have.

Please find enclosed our information booklet, which gives further details of our proposal.

As part of our Public Consultation Programme we are also holding the following Open Days and a Public Meeting:

Open Days:

Thursday 12 th Jan 2006	Boyne Valley Hotel	11:30-19:30
Thursday 19 th Jan 2006	Boyne Valley Hotel	11:30-19:30

Public Meeting:

Thursday 19 th Jan 2006	Boyne Valley Hotel	20:00
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For further information please visit our project page on www.indaver.ie, FreeFone us on 1800 200 646 or write to us at Indaver Ireland, 4 Haddington Terrace, Dun Laoghaire, Co Dublin.

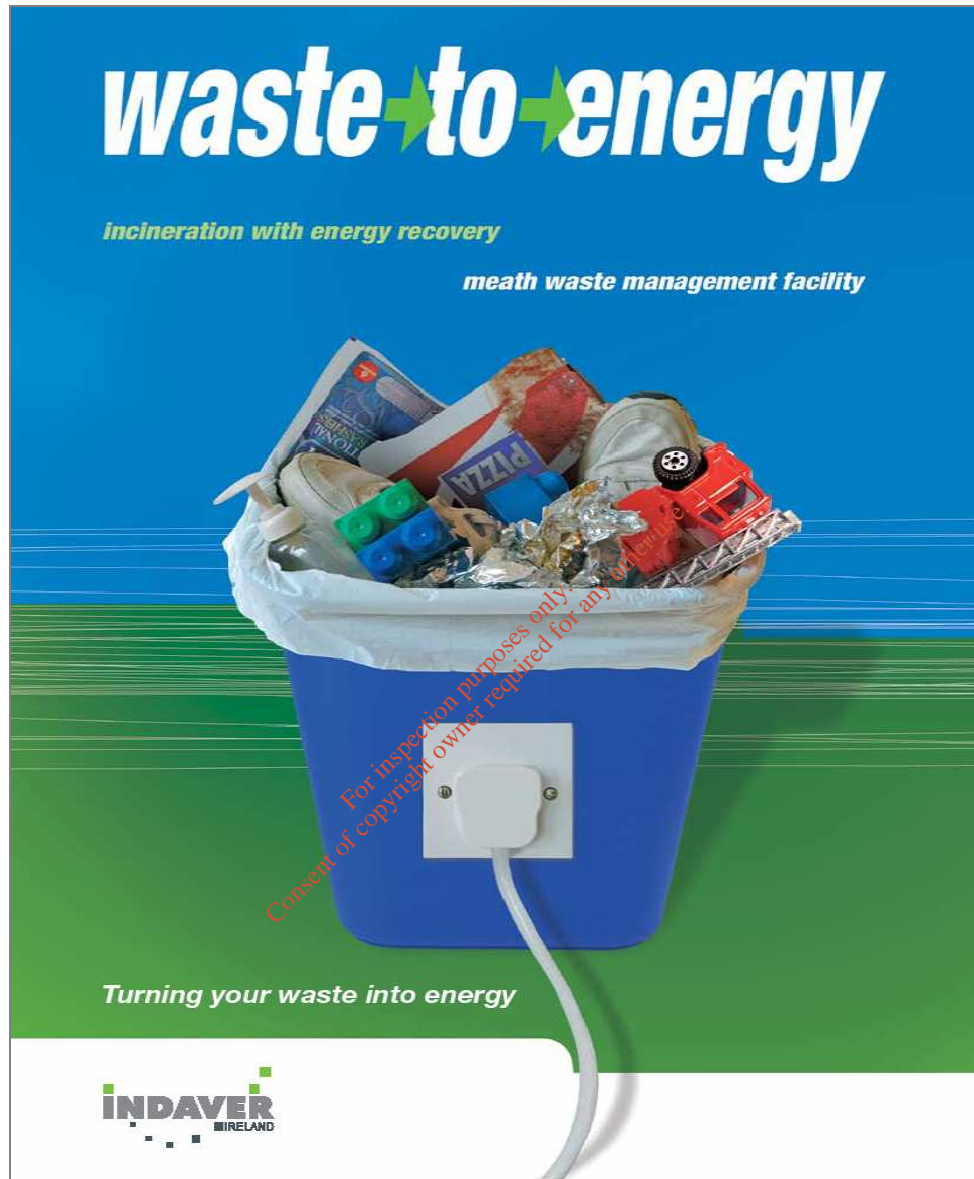
As always we will keep you updated on any further developments regarding our project.

Kind regards,

Jackie Keaney / Pat Kane
Project Manager / Communications Co-ordinator

Information Booklet sent to Communications Database

Booklet Attached



Advertisements

Newspaper	Publication Date	Size of Ad
<u>Meath Chronicle</u>		
Publication	4 th , and 11 th January 2006	½ Page Ad
Publication	18 th January	¼ Page Ad
<u>Drogheda Independent</u>		
	4 th and 11 th January 2006	½ Page Ad
	18 th January 2006	¼ Page Ad
<u>Drogheda Leader</u>		
	4 th and 11 th January 2006	½ Page Ad
	18 th January 2006	¼ Page Ad
<u>The Weekender</u>		
	10 th January 2006	½ Page Ad
	17 th January 2006	¼ Page Ad

Local Radio

LMFM Community Diary Week beginning 9th & 16th January

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Advertisement - Week 1 & 2

PUBLIC CONSULTATION NOTICE

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For a copy of our information booklet, or to register with us and receive regular updates on the progress of our project please:

- freefone 1800 200646
- visit our projects page on www.indaver.ie
- e-mail info@indaver.ie
- write to us at Indaver Ireland, 4 Haddington Terrace, Dun Laoghaire, Co. Dublin



Turning your waste into energy



We are also holding the following Open Days and a Public Meeting:

OPEN DAYS:

Thursday 12th Jan 2006 Boyne Valley Hotel 11:30-19:30

Thursday 19th Jan 2006 Boyne Valley Hotel 11:30-19:30

PUBLIC MEETING:

Thursday 19th Jan 2006 Boyne Valley Hotel 20:00

Advertisement – Week 3



Turning your
waste into
energy

PUBLIC CONSULTATION NOTICE

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Open Days

Boyne Valley Hotel

12th January 2006
19th January 2006

11:30- 19:30
11:30- 19:30

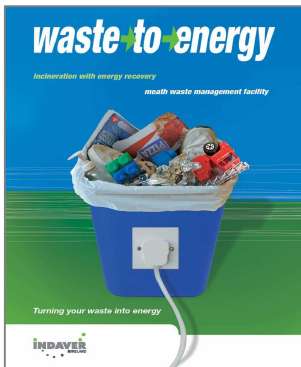
Display Panels



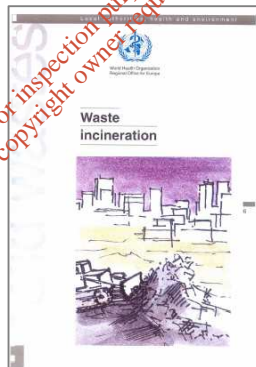
Plant Model



Available Literature



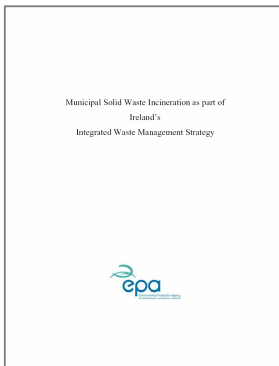
Information Booklet



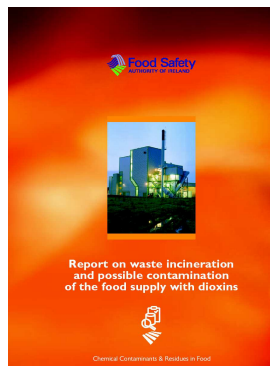
World Health Org. pamphlet on Waste Incineration



EPA Dioxin Levels in the Irish Environment



EPA Solid Waste Incineration as part of Ireland's Integrated Waste Management Strategy



FSAI Report on Waste Incineration and Possible Contamination of the Food Supply with dioxins

Public Meeting

Boyne Valley Hotel

9th January 2006

20:00



2 BACKGROUND TO THE PROJECT

2.1 INTRODUCTION

This section outlines the need for incineration as a key element of national waste infrastructure and how the Meath facility will meet the thermal treatment requirements of the North East Waste Region. Alternative locations are discussed in detail in Section 2.5 and alternative site design and alternative processes are discussed in detail in Section 3, Alternatives.

2.2 NEED FOR THE SCHEME

2.2.1 Introduction

The most comprehensive statement of Ireland's national environmental policy is contained in the 1997 Dept. of the Environment document "Sustainable Development - a Strategy for Ireland". The strategy document summarised a number of environmental trends and pressures and set out a systematic agenda for the development of environmentally sustainable sectoral policies.



Irish Government policy on waste management progressed significantly with the publication of the National Sustainable Development Strategy and in particular with the publication of the waste policy document Waste Management - Changing Our Ways in 1998. Changing Our Ways sets down a series of ambitious targets towards improved management of waste and an increased diversion away from landfill. These were set in 1998 with a 15-year horizon (2013) as follows:

- a diversion of 50% of overall household waste away from landfill,
- a minimum 65% reduction in biodegradable wastes consigned to landfill,
- recycling of 35% of municipal waste,
- recycling at least 50% of C&D waste within a five year period (2003), with a progressive increase to at least 85% over fifteen years,

These targets and later policy statements together with policy reviews indicate how the Government is committed to driving a continued improvement in waste management generally and to achieving the waste targets set out in Changing Our Ways and also those in the Landfill Directive regarding the diversion of biodegradable waste from landfill.

The waste policy document Taking Stock and Moving Forward (2004) restates the National Policy outlined in Changing Our Ways as follows:

The policy approach will remain grounded in the concept of integrated waste management, based on the internationally recognised waste hierarchy, designed to achieve, by 2013, the ambitious targets set out in 'Changing Our Ways.

The policy further states that the Waste Plans set targets for the diversion of waste away from landfill which can only be achieved if the recycling and thermal treatment aspects of the Plans are fully implemented. The review considers that good progress is being made in terms of the provision of the necessary recycling infrastructure while little progress is reported in terms of the Thermal Treatment facilities.

The importance of full and timely delivery on the recycling and thermal treatment objectives of the Waste Plans cannot be overstated. The alternative scenario would see greater pressure than expected on landfill capacity for longer periods of time, requiring the adoption by local authorities of responses which provide further short term solutions, without prejudicing the achievement of the longer-term goal of achieving maximum diversion from landfill.

European waste management policy recognises that waste-to-energy is an environmentally preferable waste management option to landfill. Hence its inclusion as one element in the integrated approach towards ensuring that the amount of waste which ultimately remains to be consigned to landfill is kept to a minimum.

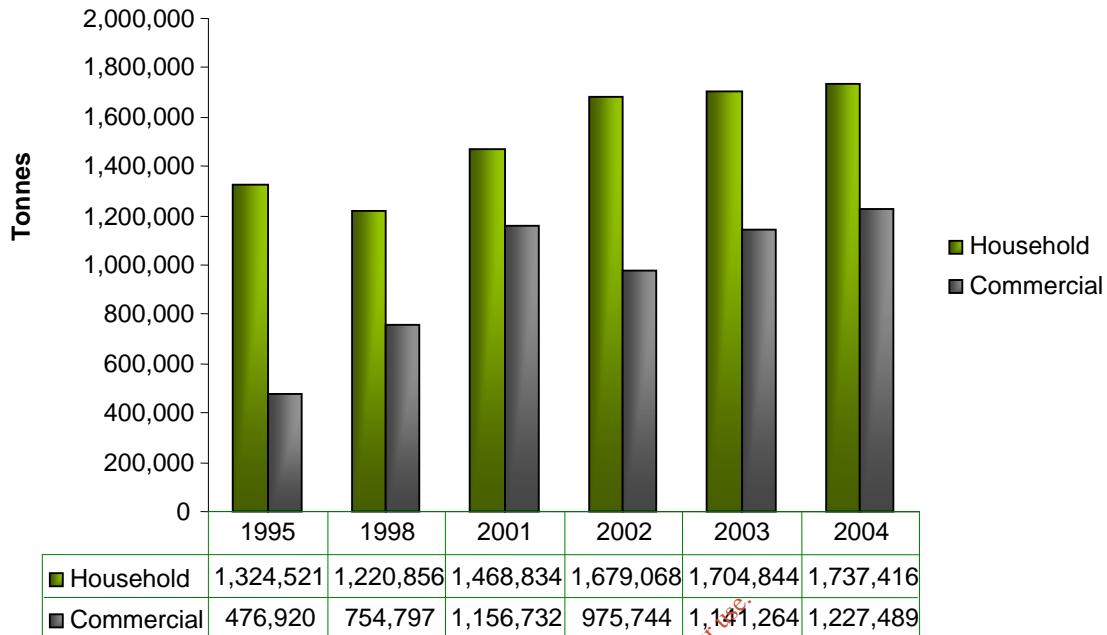
It is important to re-iterate that the concept of integrated waste management cannot reach its full potential unless all of the elements of the mix are put in place.

2.2.2 National Non-Hazardous Waste Arisings

The EPA's National Waste Report 2004 estimates that approximately 3M tonnes of municipal waste were generated in Ireland in 2004.

The increases in municipal wastes generated from 1995 to 2004 are illustrated in Figure 2.1 below.

Figure 2.1: Municipal Waste Generation 1995 to 2004



Source: EPA, 1996, National Waste Database Report for 1995.
 EPA, 2000, National Waste Database Report 1998.
 EPA, 2003, National Waste Database Report 2001.
 EPA, 200, National Waste Report 2004
 * Municipal waste generation estimates for 2002 and 2003 have been revised according to the new methodology in used in the 2004 National Waste Report.

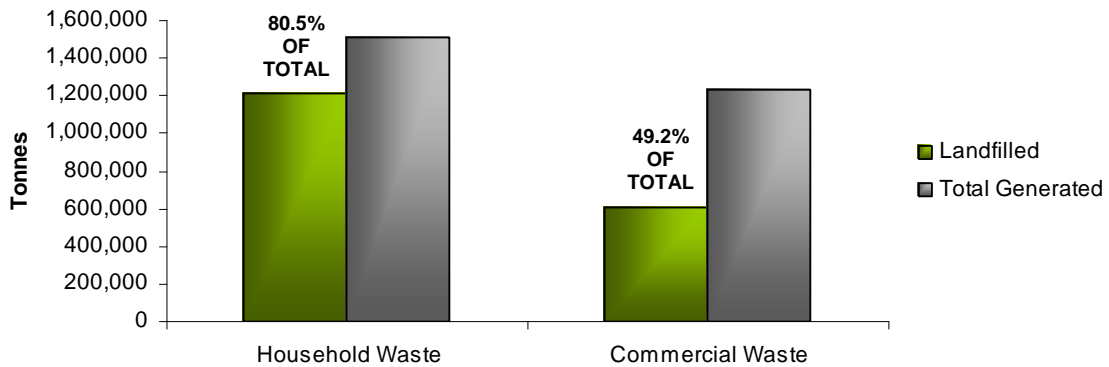
An increase of 4% in the municipal waste generation was reported in 2004 over the 2003 quantities. Household waste increased by 2% in 2004, while commercial waste increased by 7.6%.

The rise in population and current economic prosperity are key factors in the municipal waste growth within the country.

The EPA's National Waste Report 2004 reports that the quantity of municipal waste landfilled has decreased by 0.8% since 2003. The quantity of municipal waste recycled has increased by 26.5% in the same period. The overall increase in municipal waste recovery is from 28.4% in 2003 to 33.6% in 2004.

The EPA report estimates that 80.5% or some 1.2Mtonnes of the total of household waste generated in 2004 was consigned to landfill (Figure 2.2), while some 0.6Mtonnes of commercial waste was landfilled in the same period.

Figure 2.2 Disposal of Municipal Waste (2004)



The Landfill Directive 1999/31/EC set national targets for the diversion of biodegradable municipal waste (BMW) from landfill (based on the 1995 waste figures) as follows:

Table 2.2 National Targets for Diversion of Biodegradable Waste from Landfill

1995	Baseline BMW generation (Tonnes)	1,289,911 (Note 1)	2004 Scenario		
Year	Landfill Directive Target	BMW (Tonnes) Allowed to landfill	BMW Generation, 2003 (Tonnes)	Recovery (Tonnes)	BMW fraction sent to landfill, 2003 (Tonnes) (Note 2)
2006	75%	967,433	1,935,214	630,788	1,304,426
2009	50%	644,956			
2016	25%	451,469			

Note 1 - EPA National Waste Database 2004

Note 2 – 74% of municipal waste is biodegradable

Clearly the quantity of biodegradable waste going to landfill in 2004 of 1.3M tonnes (101% of the 1995 baseline figure) greatly exceeds the national target for these wastes set under the Landfill Directive for the year 2006 (870,517 tonnes or 75% of the 1995 baseline figure) and beyond.

Despite current progress it is clear that following the substantial increase in the amount of BMW generated over the past number years, additional BMW will need to be diverted from landfill. Therefore there is an urgent requirement to establish necessary recycling, biological and thermal treatment facilities in order to achieve these targets.

The BMW strategy document issued by the Government in April 2004 set a target of 18% for the biological treatment of biodegradable waste by 2009. This would account for some 0.42Mtonnes of biodegradable waste in 2009.

However, the BMW Strategy document also highlighted the need for a national incineration capacity of 0.64Mtonnes for biodegradable waste if the country is to meet its obligations under the Landfill Directive for 2009.

Meeting the national recycling and biological treatment targets and the EU landfill diversion targets will result in the diversion of 76% of all BMW. Approximately 1.8 million tonnes of BMW will need to be diverted annually from landfill by 2009 if current waste growth continues. This will require a substantial provision of additional recovery capacity as outlined below.

Table 2.3 Proposed BMW Diversion Targets

Total BMW Treatment (2009)		
	Percent of BMW	Tonnes Diverted
Recycled	approx. 30%	706,082
Biological Treatment	approx. 18%	424,788
Thermal Treatment	approx. 27%	641,681
Total Diversion	76%	1,772,551
Landfill	approx. 24%	569,881

Source: Department of the Environment, Heritage and Local Government, 2004, National Strategy on Biodegradable Waste – Draft Strategy Report

This situation arises even if all the recycling targets set out in Changing Our Ways are met in 2009. The Meath Waste-to-Energy facility is an integral part of the required national incineration capacity to meet the national BMW diversion targets set by the Landfill Directive generally and those set for the North East Region specifically.

2.2.3 Municipal Waste Management in the North East Region

Current Waste Generation in NE Region



The primary target market for the proposed plant is the four North Eastern counties of Meath, Louth, Monaghan and Cavan.

Disregarding agricultural, 954,746 tonnes of waste was produced in the four north east counties in 2003 as illustrated in Table 2.4.

Table 2.4 Wastes Generated in the NE Region

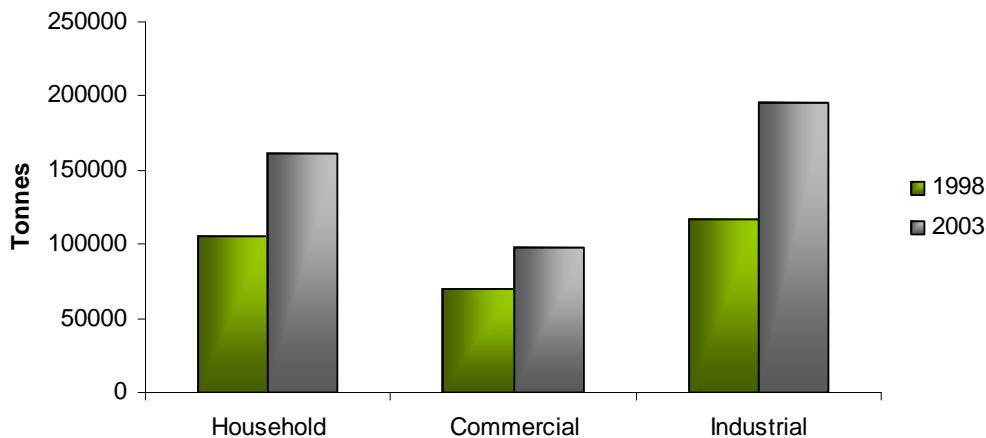
Waste Type	1999 Waste Management Plan (1998 Figures)	2005 Waste Management Plan (2003 Figures)
	Tonnes per annum (tpa)	
Household (Collected & Uncollected)	104,807*	161,350
Commercial and Industrial Waste	69,588	97,165
Industrial Waste	116,527*	195,683
Construction and Demolition Waste	174,251	469,939
Litter and Street Sweepings	7,482	5,237
Mining and Quarry Waste	20,078	4,000
Ash and other incineration residues	0	0
Healthcare Waste	1,783	1,079
Water & Waste Water Treatment Sludges	3,034	11,429
Industrial Sludges	18,598	8,797
Contaminated Soils	4.37	67

These figures may be underestimated as the methodology for estimating waste quantities has greatly improved (2003) due to more accurate waste data.

Source : Proposed Replacement Plan for the North East Region 2005-2010

An estimated 454,198 tonnes of household, commercial and industrial waste was generated within the North East Region in 2003. Overall 23% of municipal waste generated in the NE region was reported as recovered in 2003: 16% of household waste and 35% of commercial & industrial waste.

Figure 2.3 Municipal & Industrial Waste Generation in the NE Region



Source : Proposed Replacement Plan for the North East Region 2005-2010

Population Statistics for the NE Region

Waste growth within the North East Region is in line with the estimated growth presented in the CSO figures for 2002. The Region has a total population of 344,965 (recorded in Census 2002). A growth in population of almost 13% was recorded in the North East Region from 1996 to 2002 (see Table 2.5 below). The 2002 Census figures indicate that population growth in the North East Region is above the National Average of 8%. This is largely due to the increase in population of the counties that now contain commuter towns for Dublin.

It is anticipated that the current economic climate will continue to contribute to further population growth in the Region. Also the continued population growth in the Dublin area will be reflected in population trends in neighbouring counties with the region.

Table 2.5 Population Statistics for North East Region (1996-2002)

	1996	2002	% Increase
Meath	109,732	134,005	22.1
Monaghan	51,131	52,593	2.5
Louth	92,166	101,821	10.5
Cavan	52,944	56,546	6.8
Total	306,155	344,965	12.7

Source : Proposed Replacement Plan for the North East Region 2005-2010

This proposed replacement Waste Management Plan for the North East Region (2005) provides a projected population growth rate for the region for the period 2004 to 2020 (see Table 2.6 below).

Table 2.6 Percentage Growth Rate in North East Population Statistics

Year	% Growth Rate	Year	% Growth Rate
2004	2.00	2013	2.52
2005	2.12	2014	2.53
2006	2.13	2015	2.55
2007	2.13	2016	2.56
2008	2.44	2017	2.52
2009	2.45	2018	2.54
2010	2.46	2019	2.56
2011	2.47	2020	2.58
2012	2.48		

Source : Proposed Replacement Plan for the North East Region 2005-2010

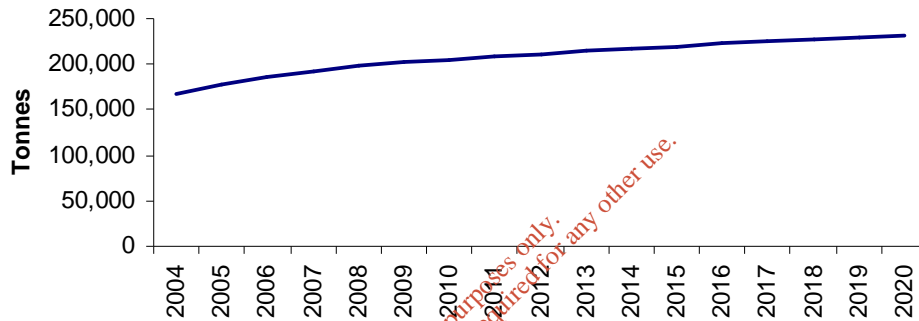
Waste Growth within the NE Region

In the five year period from 1998 to 2003 the generation of waste per household per annum has increased by 29% (i.e. from 1.15 tonnes to 1.46 tonnes per household per annum).

This replacement Waste Management Plan for the North East Region (2005) provides a profile of the future trend in household waste using household/waste projections for 2004 to 2020 (Figure 2.4).

In the North East Region the increasing trend in waste growth is in accordance with the percentage increase in population statistics. This trend is similar to that observed on a National level.

Figure 2.4 Projected Household Waste for NE Region



Source : Proposed Replacement Plan for the North East Region 2005-2010

Waste Targets for the NE Region

The Draft Waste Management Plan for the North East Region (2005) depicts a number of integrated Waste Management Strategies as detailed below. It is projected that the overall recycling target for the North East Region is 43% with 57% being left for a combination of thermal treatment and final disposal. Overall 23% of municipal waste was reported as recovered in the NE Region 2003: 16% of household waste and 35% of commercial & industrial waste.

Waste infrastructure in the North East Region has also grown significantly; however, progress is still required to meet the targets of the original Plan set out as follows.

- 43% recycling
- 39% thermal treatment
- 18% landfill

Key performance indicators are highlighted in the Proposed Replacement Plan 2005-2010 for the region as a tool for benchmarking the waste management performance of the Region and comparing progress with other regions. The proposed plan targets and headline indicators are outlined in Table 2.7.

It can be seen that a target of 39% energy recovery has been set for the region for the year 2013. The proposed Waste-to-Energy facility will have an annual capacity within the range of 150,000 and 200,000 tonnes per annum. The average annual capacity equates to approximately 37% of the household, commercial and industrial waste currently produced in the North East region.

Table 2.7 **Headline Indicators and Target for the North East Region**

Indicator	2003 Performance	Target
Household Waste Generated per Household	1.46 tonnes per HH	1.3 Tonnes per HH
Municipal Waste Recycling Rate	23%	43% by 2013
Energy Recovery Rate	0%	39% by 2013
Tonnage of Biodegradable Waste Landfilled	54%	24% of BMW produced in 2009 to landfill*
% C&D Waste Recycled	20.6%**	85% by 2013
% Packaging Waste Recycled	38%	55% by 2011
Kg of WEEE collected for recycling per capita	1.5kg	4kg by 2006
Kg of Household Hazardous Waste Recycled (per household)	Not available	0.75 by 2005

* Biowaste Strategy Target

** Most of remainder is recovered under permit

Source: Proposed Replacement Plan for the North East Region 2005-2010

Policy on Energy Recovery in the North East Region

The Proposed Replacement Plan for the North East Region 2005-2010 states that '*The policy and targets proposed in the original Plan are still valid*'. The policy of the Waste Management Plan for the North East Region 1999-2004, was to improve waste management and infrastructure in the region in line with government policy and in order to achieve National targets. The 1999-2004 plan highlights specific policy objectives in terms of energy recovery facilities and states '*Thermal treatment shall be an integral part of the solution to the management of the Region's waste.*' The 1999-2004 Plan indicated that thermal treatment of waste would satisfy the national requirement for diversion from landfill with energy recovery being a favoured environmental criteria compared with landfill disposal.

The Proposed Replacement Plan for the North East Region 2005-2010 (2005) states;

'Having regard to the wastes now arising in the North East Region, it is an objective of this Plan to develop a Thermal Treatment Plant with a capacity of 150,000 - 200,000 tonnes per annum. (2007/8).'

The proposed Waste-to-Energy facility will have an annual capacity within the range of 150,000 and 200,000 tonnes per annum.

2.3 COMBUSTION AS FUEL (INCINERATION WITH ENERGY RECOVERY)

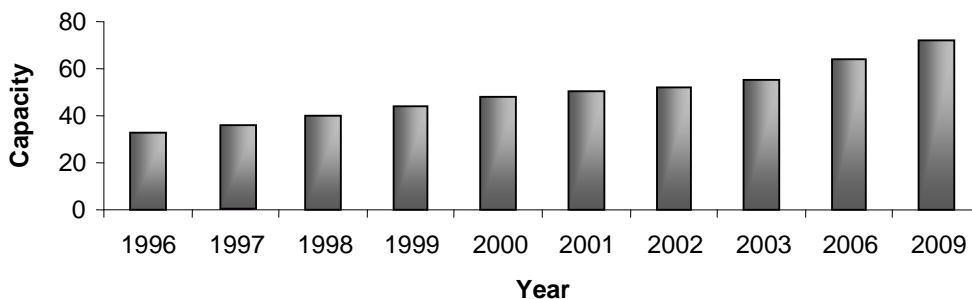
The combustion of waste in incineration plants dates back more than 100 years, with the first example in Europe going into operation in England in 1876. However these units were little more than covered bonfires with correspondingly high emission rates and no energy recovery. By the 1920's the technology had advanced with the development of automated grate firing and particulate removal. During the 1970's concern over the effects of acid gas emissions grew and incinerators began to be fitted with acid gas abatement systems. Concern over dioxins grew in the 1980's and 1990's and dioxin removal systems are now an essential part of a waste-to-energy plant.

Thus the modern waste-to-energy plant is a sophisticated refinement of a technology that has developed over 100 years, and incorporates flue gas cleaning and energy recovery. It is estimated that up to 50% of the plant investment is in the flue gas cleaning and residue treatment plant.

In 1996 it was estimated that there were some 2,400 waste incineration facilities world-wide, the majority being of grate furnace design. There were over 340 waste-to-energy facilities treating over 50 million tonnes of waste in Europe in 2002. Current projections by Frost & Sullivan (2003) suggest that twice as much waste-to-energy capacity will be required by 2020 as 85% of the 100-130 million tonnes of municipal waste generated annually in Europe is going to landfill. These projections have been confirmed as there are 450-500 waste-to-energy facilities currently operating in Europe.

Between 1999 and 2002 approximately 75 waste-to-energy facilities came online with a treatment capacity of nearly 12 million tonnes per annum. With implementation of the Waste Incineration and Landfill directives, it is estimated that 166 plants will be commissioned across Europe between 2003 and 2009. (Frost & Sullivan, 2003).

Figure 2.5. Estimated Incineration Capacity (1996-2009)



Source: Frost & Sullivan 2003; From Report *European Waste-to-Energy Plant Markets* January 2003

Table 2.8 Municipal Waste-to-Energy Facilities in Europe operating in 2003

Country	Number of WTE Plants
France	123
Spain	11
Portugal	3
UK	15
Belgium	17
Netherlands	12
Luxembourg	1
Switzerland	29
Italy	49
Austria	5
Germany	58
Czech Republic	3
Poland	1
Hungary	1
Denmark	31
Norway	21
Sweden	28
Finland	1
Total	409

Source; CEWEP

2.4 COMPLIANCE WITH THE WASTE HIERARCHY

2.4.1 Introduction

Options to the use of waste incineration as a waste management tool are addressed in the European Union's policy on waste, in the 5th Action Plan on the Environment (93/C138/56). The strategy includes a hierarchy of waste management options (Figure 2.6) in which primary emphasis is laid on waste prevention, followed by promotion of recycling and reuse, and then by optimisation of final disposal methods for waste which cannot be reused or recycled.

This Hierarchy is further strengthened in the EU's Sixth Environmental Action Programme which sets out the EU's Policy to give preference to waste prevention and waste recovery (including energy recovery) over waste disposal.

The waste management methods that form the Waste Hierarchy are discussed in more detail in Section 3.2 Alternative Waste Management Strategies with specific reference to the proposed waste management facility.



Figure 2.6 Waste Management Hierarchy

2.4.2 Summary of Indaver's Conformance with Integrated Waste Management Objectives

No single waste management option will solve the waste management difficulties that Ireland is currently facing. Indaver Ireland believes that the way forward is to adopt an integrated approach to the problem of waste disposal. A system is needed that combines a number of recovery, recycling and disposal options. The Waste-to-Energy facility will generate electricity from the wastes that are not suitable for recycling or recovery.

Waste-to-Energy plants (or thermal treatment plants) are higher up on the waste hierarchy than landfill, generating electricity, and producing ash with only approximately 10% of the volume of the original waste.

2.5 SITE SELECTION

2.5.1 Introduction

An assessment of the alternative location suitable for the Waste-to-Energy Facility was undertaken by Kieran O'Malley & Co. Ltd. Town Planning Consultants. The following is a description of the site selection process, which was undertaken for the proposed Meath waste-to-energy Facility. The site selection process involved the consideration of both technical and environmental criteria over an extended period of time to determine whether the application site is a suitable site for the development of the proposed waste management facility.

Indeed, as the waste management sector in Ireland is rapidly rolling out new waste management infrastructure in a changing policy environment, Indaver Ireland is continually evaluating the suitability of this site for the proposed development having regard to the trends in regional population, the waste industry and the local, regional and national waste policy environment.

The site selection process involved the following three stages.

Step 1:

Establish areas within the waste management region that require detailed examination. The key tool used to identify suitable areas is the 'centre of gravity' model, which relates the volume of waste arisings and the distances of these waste centres to each other centre within the catchment area. This exercise ranks the settlements in accordance with the total number of tonne-kilometres associated with each location.

Step 2:

Examine the highest ranked locations at Step 1 against the recognised site selection criteria from the following published documents.

- Feasibility Study of Thermal Options for Waste Treatment/Recovery in the North East Region (prepared by M. C. O'Sullivan Consulting Engineers on behalf of the local authorities of the NE Region and published in 1999).
- Waste Management Plan for the North East Region 1999.

Step 2 concludes by identifying a suitable site from the list of potential sites for more detailed consideration at Step 3.

Step 3:

The candidate site from Step 2 is considered having regard to the criteria for siting waste-to-energy (WTE) Facilities in the following documents.

- World Health Organisation-Site Selection Criteria for the siting of a New Hazardous Waste Management Facility (1993).
- Waste Management Plan for the North East Region 1999.
- Proposed Replacement Waste Management Plan 2005-2010.

Indaver Ireland directed and managed the original site selection as part of the application for permission Reg. Ref. No. 01/5006. Indaver Ireland instructed Project Management Limited and Wilson & Associates Architects to carry out specific technical aspects of the site selection process including the accessibility of utilities, building design and visual impact.

Kiaran O'Malley & Co. Ltd. Town Planning Consultants were appointed in June 2005 to review and to update the site selection having regard to the demographic changes since the original work was carried out, the trends in waste arising growth, the recent policy initiatives at both local and national levels and other relevant land use planning factors. Accordingly, the following updated site selection adopts a similar methodology to the original site selection and is presented herewith.

2.5.2 Identification of Suitable Locations.

One key factor in relation to the location of any waste treatment facility is that "waste is treated as closely as possible to where it is generated". This core objective is known as the "proximity principle" and is enshrined in EU Environmental Policy, such as "The Sixth Environmental Action Programme". Having regard to the wider objective of carrying out development in a sustainable manner to minimise environmental impact, adherence to this principle is achieved by reducing the extent of the travel distances associated with the haulage of treated waste material to waste management facilities. As well as reduced air emissions, the selection of a suitable site involving a lower amount of truck travel would reduce dependence upon fossil fuels, a finite natural energy resource, which is in keeping with the principles of sustainable development.

Given the catchment of the proposed facility, which is primarily the North East Region, this analysis uses a "centre of gravity" model based upon population distribution and the road distances between waste production centres to determine the centre of waste production for the region. The principles underpinning this model are as follows. It is assumed that the waste arising within a settlement is directly proportional to the population of that settlement. For analysis purposes only towns within the North East Region with a population greater than 1,000 persons were considered. To establish the "centre of gravity" of waste production the total haul distance expressed in "tonne-kilometres" is calculated for each town as follows.

Using Autoroute 2006, the distance by road from each town to each other selected towns in the Region is estimated. Distances between all of the towns are given equal weight irrespective of the road links between them. Once the distances were identified, their populations are determined from the Census of Population Statistics.

While the large population centres within the region are connected by good road transport links the model does not attribute any weighting to the standard of the roads linking various towns. (The Autoroute programme was pre-set to 'quickest route' rather than 'preferred route' which would select motorways and toll bridges over minor roads.) If the model were to include a weighting based upon the roads standard linking every pair of towns, the larger towns with the better road links would influence the calculation of the 'centre of gravity' even more than on this direct analysis. Drogheda and Dundalk, two large population centres within the North East Region, are both accessible by motorway and would likely score higher in the model if a weighting were applied. Therefore we consider this model is a valid method for determining the 'centre of gravity' of waste production with reference to the identification of a

suitable waste-to-energy site based upon its proximity to the waste as envisaged in the North East Region Waste Management Plan and EU Policy.

The model assumes the amount of waste produced in each selected town is directly proportional to the population of the town. In other words, it is assumed that a person in Drogheda produces the same volume of waste as a person in any other area within the North East Region. To determine the centre of gravity of waste production, a calculation was carried out based upon the combination of distances for each selected town. The method is best illustrated by way of an example.

At Drogheda, the proportion of the waste stream arising in each town is multiplied by the corresponding road distance between Drogheda and that town and the totals are added together to yield an overall figure for Drogheda in “tonne-kilometres” units. Towns with lower “tonne-kilometre” scores involve lower waste haulage trips and are therefore located closer to the centre of waste production within the North East Region.

A summary table demonstrating the “tonne-kilometre” figures for each selected town in the North East Region is presented overleaf and a full copy of the calculation is set out at Appendix 2.1.

Table 2.9 shows that Drogheda is the lowest ranking town in terms of total ‘tonne-kilometres’ followed by Ardee, Duleek, Dunleer, and Navan. However, the difference between the Drogheda (5,080,436 tonne-kilometres) and the third ranked town, Duleek (5,268,952 tonne-kilometres) is 188,516 tonne-kilometres, which is equivalent to approx. 3.7% of the Drogheda figure, which demonstrates that the three top ranked towns are covered by a relatively small spread. After that, there is a gap of 132,009 tonne-kilometres to Dunleer in fourth place, and a larger gap of 526,424 tonne-kilometres between Navan and Kingscourt the fifth and sixth ranked towns, respectively.

Based upon 1996 Census information the corresponding gravity model analysis in the Environmental Impact Statement, which accompanied the previous application (Reg. Ref. No. 01/5006), determined that the towns with the lowest haul distances were Ardee, Drogheda, Duleek, Dundalk, Navan and Kingscourt in that order (Section 2.10.2 in EIS).

Table 2.9 Estimated Tonne-Kilometre Analysis 2002 Census of Population (CSO)

Location	% of total waste	Estimated Total Tonne-Kilometres
Drogheda	19.65%	5,080,436
Ardee	2.50%	5,201,588
Duleek	1.59%	5,268,952
Dunleer	0.64%	5,400,961
Navan	12.30%	5,478,018
Kells	4.40%	6,006,597
Kingscourt	0.83%	6,004,442
Dundalk	20.59%	6,314,020
Carrickmacross	2.43%	6,365,597
Laytown	3.54%	6,699,596
Ashbourne	4.03%	6,994,750
Athboy	0.97%	7,193,779
Trim	3.73%	7,252,982
Dunshaughlin	1.94%	7,294,762
Ratoath	2.40%	7,387,941
Bailieborough	1.05%	7,401,427
Virginia	0.69%	7,842,743
Castleblaney	1.86%	8,148,389
Dunboyne	3.40%	8,585,134
Monaghan	3.76%	9,204,570
Cootehill	1.10%	9,288,171
Enfield	0.68%	9,901,605
Cavan	3.86%	10,785,934
Clones	1.23%	11,884,151
Belturbet	0.82%	12,955,315

Ardee and Drogheda occupy the top two places in both set of analysis. Although the order of the top ranked towns is changed slightly in the updated calculations, these differences are primarily due to demographic changes within the North East Region. Specifically, the population of Drogheda Borough Council increased from 24,497 persons in the 1996 Census to 28,337 persons in the 2002 Census, which is an increase of 15.7% in that inter-censal period. The Drogheda Borough Council Development Plan 2005-2011 predicts continued population growth in the Drogheda environs extending into the adjoining planning authorities of Meath & Louth County Councils. Section 2.6 of the Drogheda Town Development Plan predicts the “Greater Drogheda Area could be expected to expand to an urban area accommodating some 70,000 persons by the year 2020.”

By comparing the original analysis based upon the 1996 CSO population and the updated analysis at Table 2.9, which is based upon the 2002 Census it is predicted that the centre of waste production will be located further south towards Drogheda and away from Ardee. Projections from the County Louth Development Plan, Drogheda Town Development Plan and the Proposed Replacement Waste Management Plan anticipate sustained growth in the Drogheda area. If existing trends are continued, Drogheda's share of the population of the North East Region is predicted to increase in the short to medium term (i.e. up to 2020). This reinforces the suitability of the Drogheda area as a location for a waste-to-energy facility close to the centre of waste production in the North East Region.

While there are differences in the outcomes of the updated gravity model analysis and the analysis in the original EIS, both models identify four of the same top six locations as being close to the centre of waste production in the North East Region. The one exception is Dundalk, which even with the highest population in the Region, now ranks eighth in the updated calculation, mainly because of its location towards the edge of the Region.

It is reasonable to conclude therefore that the true centre of gravity of waste production in the North East Region is contained within the geographical area described by the top three towns. Based upon this information locations within towns with the lowest overall 'tonne-kilometres' were examined in more detail.

2.5.3 Step 2: Application of Criteria to Identified Areas.

Having assessed the selected towns within the North East Region and established the general locus of the centre of gravity of waste production, the next step involves a more detailed consideration of various technical and environmental criteria including those factors that the applicant company identified as essential to the project.

The criteria were applied in accordance with the Waste Management Plan for the North East Region, the Feasibility Study of Thermal Options for Waste Treatment/Recovery in the North East Region (1999) and the company's own siting criteria. Section 10.3 of the current Waste Management Plan states that "the siting criteria for the plant to have regard to most efficient use of heat/energy, transportation, industrial zoning and other relevant factors (sic)" and it lists the following criteria.

- Central location close to the Waste Production centre of gravity.
- Proximity to energy uses, ideally users of heat,
- Proximity to reasonable road access,
- Appropriate development zoning,
- Availability of cooling water and provision for its disposal,
- Availability of sites.

As the proposed facility employs an air-cooled water condenser, the need for cooling water is not applicable. Virtually identical site selection criteria are set out at Section 3.13.4 of the Proposed Replacement Waste Management Plan 2005-2010 (see below).

This original site selection considered possible sites at Ardee, Drogheda, Duleek and Carranstown (which is located approx. 2km northeast of Duleek), because these were amongst the highest ranking locations in the initial 'tonne-kilometres' analysis. Since these towns remain the highest rated options based upon the most recent census information, this review confirms the analysis and findings in the original site selection still hold and it is only necessary to update the analysis of each location to ensure there are no material changes in the underlying circumstances that might have a potentially significant bearing on the original site selection.

Each location is considered in turn in the same order as the original site selection having regard to the factors listed above. Since all of these locations are situated close to the centre of waste production, this factor is not used to distinguish between these possible locations.

Ardee, Co. Louth.

Proximity to Energy Users.

There is no large-scale industrial activity within Ardee that would utilise heat generated from the proposed waste-to-energy plant. However, there is a possibility the facility could export electricity to the national grid using the existing 20KV network.

Reasonable Road Access.

Ardee is located approx. 21 km. southwest of Dundalk and approx. 24 km. northwest of Drogheda. It is linked to Dundalk by the N52 and to Drogheda by the N2 & R168. Given its location on the N2 National Primary Route, Ardee enjoys good road access to many towns within the North East Region including Dundalk and Kells.

Since the original site selection the Ardee Link Road to the M1 Motorway has been opened thereby improving the town's links to the national public road network.

Appropriate Development and Zoning.

The Ardee Local Area Plan (LAP) 2003-2009 replaces Ardee Development Plan 1997. The original site selection reviewed the provisions in the 1997 Development Plan. The analysis considered that there is strong evidence of "light industry" in the zoned areas at Ardee, as distinct from large-scale heavy industry such as the proposed waste-to-energy facility.

Indaver Ireland considered the lack of any large-scale industrial activities within the town was a significant disadvantage in terms of finding a suitable site for the proposed facility. Having regard to the mass and scale of a similar Indaver facility at Flanders, Belgium, it was immediately apparent that the proposed development would be at variance with the existing character of Ardee and would be likely to dominate the town.

In the context of the suitably zoned lands at Ardee the photomontage at Appendix 2.2 illustrates the physical size of the proposed facility on the largest industrially zoned site within the Ardee town development boundary (1997 Development Plan). For obvious reasons of negative visual impact on the immediate location and the area generally it was considered that Ardee was not suitable for such a facility.

Two significant changes in the planning circumstances have occurred since the site selection was first carried out.

First, it was noted previously there was a shortage of serviced industrial land in Ardee. The 2003 Ardee Local Area Plan (LAP) zones considerably more industrial land than its predecessor mainly at the north of the town adjoining the Link Road.

The second important change is the opening of the Ardee Link Road in conjunction with the completion of the M1 Motorway. Accordingly, the Ardee Local Area Plan 2003-2009 proposes a new interchange on the Link Road to facilitate the development of lands to the north for industrial development purposes.

Section 5.2 of the 2003 Ardee LAP contains the following objective in relation to industrial and employment development lands in Ardee.

To ensure that sufficient serviced land is available for a variety of industrial/commercial and associated uses. Given that much of the land zoned industrial is highly visible and in strategic locations, an objective of the planning authority is to ensure that such land is developed to a high standard.

With particular regard to this objective, it is considered that the proposed waste-to-energy facility, which incorporates a building height of approximately 45 metres and a stack height of approximately 65 metres could not be accommodated within Ardee because of the visual sensitivity of the available industrial zoned lands in the town. This review therefore confirms the finding of the original site selection that there are no suitable sites for the proposed waste-to-energy facility at Ardee.

Drogheda, Co. Louth.

Proximity to Energy Users.

Drogheda has a significant industrial base founded on modern and traditional industrial forms. These industries could utilise the energy produced by the proposed waste-to-energy plant. In addition, the existing electricity supply network could accommodate the electrical production of the plant.

Reasonable Road Access.

Drogheda is located to the east of the M1 Dublin to Belfast road corridor, approx. 26 km. east of Navan and approx. 33 km. south of Dundalk. It therefore enjoys good road access to many towns within the North East Region and in neighbouring regions.

Appropriate Development and Zoning.

The Drogheda Borough Council Development Plan 2005-2011 replaces the 1999 Drogheda Development Plan. In general, similar land use planning considerations remain in relation to the available industrial land under both Development Plans. Nonetheless, there are a number of specific planning changes in the current Town Development Plan in respect of the industrial and employment zones at Drogheda. This analysis is updated with reference to these changes to test the validity of the original appraisal under the previous Town Development Plan.

Whereas industrial lands had previously been referred to as industrial or warehousing, the policy and zoning objective in the 2005 Town Plan now refer to employment zones, light industry and business parks, which reflects the shift from traditional manufacturing towards tertiary services employment. Industrial lands are referred to as 'employment generating zones (EGZ)' to allow greater flexibility to attract appropriate businesses to these locations (Section 4.13.2 of the 2005 Drogheda Development Plan) and the new Plan distinguishes between EGZ lands and EGZ lands that are premature pending the provision of services.

There are four main industrial/employment areas at Drogheda. Two of these areas lie to the east of the town on the north and south banks of the Boyne estuary, and two areas are located to the west. These areas are marked purple (EGZ) and light purple (EGZ (premature)) on the Drogheda Borough zoning map at Appendix 2.3.

Unlike Ardee, there is existing large-scale heavy-duty industry at Drogheda at Premier Periclase to the east of the town centre. However, the only available zoned lands in the vicinity are situated on higher ground than the existing manufacturing facility. Indaver Ireland considers these lands are not suitable for the proposed waste-to-energy facility comprising high buildings and other structures, which would tend to visually dominate the eastern side of the town when coupled with the elevated location of these industrial lands. Appendix 2.4 is a photomontage of the proposed waste management facility showing the unsuitability of the facility in this location.

The extent of employment/industry lands in this area is reduced in the current Town Development Plan because a portion of the lands are rezoned to RN 1 'Residential: New' and other former industrial land in the area is designated 'EGZ (premature pending the provision of services)'. Having regard to the trends in the 2005 Town Plan, this area appears less suitable for a proposed waste-to-energy plant now than when the original site selection was carried out.

Industrial land on the south bank of the river Boyne was also considered. However, these lands and the lands opposite on the north bank of the Boyne are located to the east of Drogheda town centre away from the M1 road junctions. From a transport perspective, in the absence of orbital routes linking these areas to the M1 Motorway the development of a waste-to-energy plant at either location to the east of the town centre would entail significant numbers of heavy goods vehicles movements eastwards and westwards between the M1 and the industrial areas thereby adding to the existing congestion on the local road network.

Indaver Ireland examined lands close to the town to the east at Marsh Road and in the Mornington area known locally as the "fish factory". It is considered that this area did not have an adequate road infrastructure to service the proposed facility, that there was no large industry in the vicinity and that the proposed development would dominate the area visually. It is also noted that the Mornington area is situated close to the nearby beaches at Laytown and Bettystown. Since the proposed waste management facility would not be compatible with a scenic coastal amenity, this area was not considered suitable.

A comparison between the zoning maps for this area in the previous Development Plan and the current Development Plan reveals important changes in the extent of suitably zoned land. The lands along the river Boyne are rezoned from port industry to general employment, EGZ. However, a large tract of industrial and light industrial land (1999 Plan) is zoned CCI (Civic Community & Institutional; to provide and protect necessary community, recreational & educational facilities). From the extent of nearby residential land it is apparent this area is intended to have a strong residential emphasis into the future and it is not suitable for a thermal treatment plant.

Indaver Ireland assessed the suitability of the lands within the two industrial areas at the west of the town. The industrial land to the south of the river on Donore Road is the largest concentration of industrial activity at Drogheda, however it is considerably smaller in scale than the current proposal and sufficient industrial land was not available within this area to accommodate the proposed waste-to-energy facility. The photomontages in Appendix 2.5 confirm that the proposed facility is not suitable in this location.

The zoning map in the 2005 Development Plan indicates significant changes in the former industrial lands at this location. IDA Ireland is completing the development of its 25.5 hectares Business & Technology Park near the Donore Road/M1 interchange. However, the industrial lands at the edge of the Borough are rezoned to include a retail park (marked blue) and a district centre (marked deep

purple) as shown on the zoning map. Having regard to the adjoining new retail park within the area of Meath County Council on the other side of the town boundary and the nature of the units operating at the Newgrange Business Park, it was decided to rezone this area as a retail park. In addition, the Planning Authority designated a former industrial area as a district centre “to create a sustainable district centre outside the Town Centre which will operate as a Complementary Retail Hub to the Existing Town Centre”.

Thus, the extent of suitably zoned lands at Donore Road is considerably reduced from the previous Development Plan, but perhaps more importantly there is a clear shift away from industry towards light industry, business and retail uses, which is not an appropriate environment for the proposed waste-to-energy facility.

The original site selection noted that the industrial lands located to the west of the town on the north side of the river Boyne contained predominantly light industrial units where the proposed facility would be visually intrusive.

With the opening up of the M1, the extent of the industrial zoned land at this location is changed considerably in the 2005 Drogheda Development Plan. Extensive tracts of formerly obsolete lands to the southeast are now zoned EGZ pending the provision of services. On the west edge the Development Plan designates an area at Mell/Collon Road for a new employment generation/business park and technology units marked green on the zoning map. Other industrial lands are now zoned for a retail park (blue) at the north of the business park. Section 4.13.1 of the 2005 Drogheda Development Plan envisages the preparation of a master plan to guide the future management of this land to include residential and amenity elements so the area will become an attractive Enterprise Park with office based employment, business campus, science & technology units in which the proposed facility would be an incongruent feature.

Based upon the above analysis, Indaver Ireland concluded there were no suitable sites at Drogheda to accommodate the proposed waste facility. Having regard to the current circumstances and the anticipated future growth during the next development plan period to 2011, the company's original assessment of the industrial land at Drogheda remains valid. No further sites at Drogheda were considered.

Duleek, Co. Meath.

Proximity to Energy Users.

There is no significant industrial development at Duleek, so there is no large scale heating requirement in the area to fulfil. Electricity generated from the proposed facility may be connected into the national electricity grid.

Reasonable Road Access.

Duleek is located approx. 8 km. southwest of Drogheda and approx. 19 km. east of Navan. Being located on regional road R150 close to the R152, which links the N2 National Primary Route to the M1 Motorway Duleek therefore enjoys good road access to many towns in the North East Region.

Appropriate Development and Zoning.

As at Ardee, Duleek contains no large-scale industry. There is no Development Plan or Local Area Plan for the town, so the provisions of the Meath County Development Plan 2001 govern industrial and other development in the town.

Carranstown, Co. Meath.

Whereas the other candidate locations were specifically examined in the centre of gravity of waste production model, the townland of Carranstown is not included in this analysis. However, Carranstown is located on the outskirts of Drogheda approx. 3km northeast of Duleek in County Meath. Given its location between Drogheda (the highest ranked town in terms of the lowest number of 'tonne-kilometres') and Duleek (the third ranked town) it can reasonably be described as close to the centre of gravity of waste production. Drogheda and Duleek were ranked second and third respectively in the original 'tonne-kilometres' analysis.

Proximity to Energy Users.

Carranstown is located less than 1km from Ireland's largest cement works, namely the Irish Cement works at Platin to the north of the site. There are two substations nearby so it is easy to connect into the ESB transmission network in the area. In addition to the local connections, the western fringe of Drogheda is a relatively short distance away so that transmission losses associated with a connection into the national grid would be greatly reduced compared to a more rural location.

Reasonable Road Access.

Carranstown is served directly by regional road R152, which connects Drogheda to the N2 to the west. The M1 Motorway passes approx. 2km to the north of the subject site and there is an interchange facilitating access to the motorway less than 3km. to the north. Regional road R150 links Julianstown on the former N1 to Kentstown on the N2 via Duleek and passes approximately 1km to the south of Carranstown.

The proximity of this site to Drogheda (the largest town within the North East Region) coupled with the proximity of the motorway means that a significant majority of the traffic generated by the facility enjoys relatively easy access to the site. The fact that Carranstown is proximate to Drogheda and connected by motorway to Dundalk, the second largest town within the Region, (which collectively account for 40% of waste generated within the Region) reconfirms the suitability of the area for the location of a waste-to-energy facility.

Appropriate Development and Zoning.

The lands at Carranstown are not zoned for industrial or other non-agricultural purposes in the Meath County Development Plan. Agriculture is the predominant land use in the area however there is a significant industrial presence in the area owing to Irish Cement's nearby Platin works and the associated extraction activities.

Although the surrounding lands are mainly in agricultural use, the nature and scale of the buildings and activities at the nearby cement works is such that the character of the immediate vicinity is considerably altered from undisturbed rural countryside. A site inspection will confirm the cement factory and the adjoining quarry occupy a large landholding and are dominant features in the local landscape. Indeed, these premises are visible from the southbound lane of the M1 when travelling from Drogheda. It provides an industrial backdrop for the proposed waste-to-energy facility and the potential visual impact of the proposed waste facility can be considerably ameliorated by virtue of the height, mass and scale of the heavy industrial activities at the Platin cement works.

Carranstown is therefore considered a suitable location that warrants further detailed examination at Step 3.

2.5.4 Waste-to-Energy (WTE) Facility at Carranstown.

Based on the above analysis it was concluded that the townland of Carranstown is suitably located within the locus (or point) of the centre of gravity of waste production for the North East Region and it was decided to examine specific sites within the area having regard to the availability of the sites and the following documents.

- World Health Organisation-Site Selection Criteria for the siting of a New Hazardous Waste Management Facility (1993).
- Waste Management Plan for the North East Region 1999
- Proposed Replacement Waste Management Plan 2005-2010.

Availability.

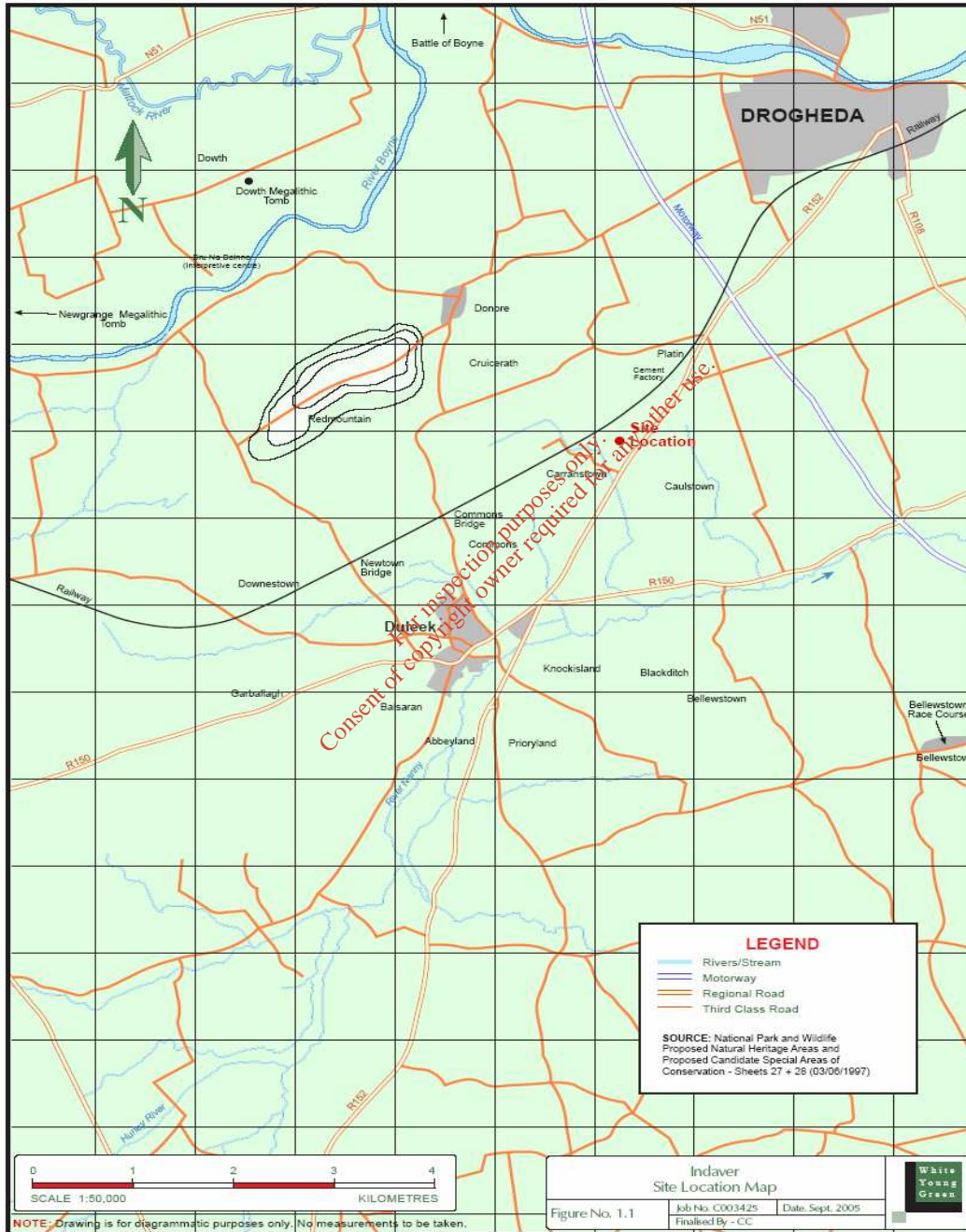
The availability of land is a critical factor in the site selection process. Unless the owner is prepared to sell lands it would not be possible to secure a suitable site. With this in mind a number of sites were chosen for detailed investigation and landowners in the area were approached.

Indaver Ireland secured an option agreement for the purchase of the most suitable site in the Carranstown area based upon the following main criteria.

- Lack of designation as a National Heritage Area (NHA) or a Special Area of Conservation (SAC)
- Topography of the site enables the construction of large building structures on lower ground thereby reducing potential visual impact.

- Low population density in the surrounding area, distance to large residential areas.
- Access to the R152 and wider National and Regional Road Network.
- Adequate road frontage at R152 to construct access junction.
- Proximity to the electricity distribution system.

The subject site and the main features in the vicinity are shown on the site location map below.



2.5.5 World Health Organisation: Site Selection Criteria for the Siting of a New Hazardous Waste Management Facility.

The proposed site at Carranstown was considered in relation to the four step approach recommended by the World Health Organisation (WHO) for a new hazardous waste facility (Appendix 2.6). Although the proposed waste-to-energy facility is for the management of non-hazardous waste, and the WHO approach may be regarded as conservative, it is a useful site evaluation tool especially Steps 1 & 2 where many similar considerations apply. The four stages of this model and the key points emerging from the appraisal of the subject site are set out below. Full details are set out in Appendix 2.6

Step 1 eliminates unsatisfactory areas and does not exclude Carranstown. Step 2 highlights promising areas and the Carranstown site ranks highly in three of the six categories, namely industrial areas, roads/highway access and location relative to waste generators (i.e. centre of gravity analysis at Section 2.0). The subject site ranks lowly with regard to the categories compatible public land and abandoned properties, which do not apply. However, these criteria have a low weighting at this stage. It also ranks lowly against the criterion of sites of existing waste management facilities, which has a high applicability.

Promising Areas are assessed in more detail at Step 3, which identifies visual amenity, proximity to existing development (industrial and non-industrial) and agriculture as the sensitive issues at Carranstown. Step 4 ranks sites in relation to a various criteria and is not dissimilar to the site selection analysis at Section 3.0 above. Specific site issues arising from the Step 4 assessment include population density, mineral development, slope, transport restrictions, historic sites, visual impact and feasibility of acquisition. From Step 4 in the table in Appendix 2.6 the site ranks highly in relation to six out of these seven important criteria and it rates a medium score in relation to structures along transport corridors, the only other high ranking criterion. Accordingly, the subject site enjoys a favourable rating based upon the WHO Selection Criteria in the original site selection and there are no significant changes in circumstances in the interim to affect that conclusion.

2.5.6 Waste Management Plan for the North East Region 1999.

The 1999 Waste Management Plan refers to the Feasibility Study of Thermal Options for Waste Treatment/Recovery in the North East Region, which identifies four possible locations for a thermal treatment plant. These four towns are Dundalk, Co. Louth, Carrickmacross, Co. Monaghan, Kingscourt, Co. Cavan and Navan, Co. Meath. These locations were selected within each constituent county in the waste management region based upon factors such as population size, growth rate and accessibility to road and rail transport links.

We understand this feasibility study was conducted primarily to examine the costs associated with the construction of a thermal treatment plant and to quantify the cost implications between different locations in each of the counties within the region. From the point of view of site selection, it follows therefore that the Waste Management Plan does not necessarily endorse one or any of the four named

locations but refers to them as possible locations. Instead, we would emphasise the criteria set out at Section 10.3 of the Waste Management Plan, which are referred to in Section 2.5.3 above as the salient factors in relation to the selection of a suitable site.

Proposed Replacement Waste Management Plan 2005-2010

The local authorities of the North East Region published the Proposed Replacement Waste Management Plan 2005-2010 in September 2005. Section 3.13.4 of the Proposed Replacement Waste Plan refers to waste to energy (WTE) Facilities and lists the following exclusionary factors to consider in relation to the siting of a Thermal Treatment Plant.

- Proposed National Heritage Area or Special Area of Conservation.
- Airport Exclusionary Areas.
- Areas of High Amenity or Archaeological Interest.

The proposed site at Carranstown does not lie within an area that should be excluded on the basis of any of these criteria. Having identified areas that are not suitable, the Proposed Replacement Waste Management Plan states that further facilities should be assessed in more detail with regard to the following criteria.

- General Planning and Environmental Considerations.
- Site Size and Current Land Use.
- Proximity to Residential Areas.
- End-Market Use.
- Road Access.
- Traffic.

The location at Carranstown has already been demonstrated to be a suitable site in accordance with these criteria (Section 2.5.3 – Carranstown and Section 2.5.4 above). In summary, the application site is located within an area where there is a cement works and quarry, so the impact in planning terms can be accommodated. The site measures c. 10.1 hectares, which is sufficient for the proposed waste-to-energy facility, and the lands are currently used for agricultural purposes. While there are a small number of one-off houses in the area, the immediate vicinity is dominated by the cement works so housing density is relatively low. There are no large residential areas in the vicinity of the proposed facility.

Ease of connection to the national electricity grid is one of the advantages of this site. Given its extensive R152 road frontage, site access can be provided in accordance with Meath County Council's Roads Department requirements. This site is well served by the network of public roads to all parts of the North East Region and adjoining waste management regions. It follows therefore that the site at Carranstown complies with all of the above criteria for the siting of a waste-to-energy facility.

Section 3.13.4 of the Proposed Replacement Waste Management Plan confirms the "location of a WTE Facility in the North East Region has already been approved through the planning process", from which it is inferred that the local authorities in the North East Region consider the Carranstown site is suitable for the proposed facility. Unlike any other site in the North East Region including the four possible locations identified in the report on *Feasibility Study of Thermal Options for Waste Treatment / Recovery in the North East Region* prepared as part of the current Waste Management Plan Carranstown is the preferred site for the location of a waste-to-energy plant in the Proposed Replacement Waste Management Plan.

Having regard to the location of this site relative to transportation links, the particular requirements of the proposed waste-to-energy facility, the distribution of waste arisings in the North East Region, and the established and permitted industrial land-use pattern in the vicinity including the nearby cement works and quarry we consider this site is suitable for a thermal treatment plant with energy recovery. Furthermore, the proposed location was objectively assessed and found suitable for a WTE facility in the Proposed Replacement Waste Management Plan for the North East Region 2005-2011 from which it follows this site accords with the principles of proper planning and sustainable development of the area.

In conclusion, following this update and review of the original site selection process, it is considered the site at Carranstown is a suitable site for the proposed waste-to-energy facility for the reasons set out above.

2.6 REFERENCES

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