

Bord na Móna

Drehid Waste Management Facility – Further Development
Environmental Impact Assessment Report
Volume 2 – Main Body





Table of Contents

<u>1.0</u>	<u>Introduction</u>	1-1
<u>1.1</u>	BACKGROUND	1-1
<u>1.2</u>	SITE LOCATION	1-1
<u>1.3</u>	BORD NA MÓNA	1-3
1.4	SUMMARY OF THE PROPOSED DEVELOPMENT	1-3
1.5	LEGISLATIVE CONTEXT AND DEVELOPMENT GUIDELINES.	
<u>1.5.1</u>	Information to be Contained in an EIAR	
	Description Of Likely Significant Effects	
	EPA Licencing	
<u>1.6</u>	STUDY TEAM AND CONTRIBUTORS TO THE EIAR	1-12
<u>1.7</u>	SCOPING AND CONSULTATION	1-16
<u>1.7.1</u>	Consultation With An Bord Pleanála	1-16
<u>1.7.2</u>	Consultation With Statutory And Non-Statutory Bodies	1-17
<u>1.7.3</u>	Public Consultation	1-23
<u>1.8</u>	COMMUNITY BENEFIT	1-23
<u>1.9</u>	ASSUMPTIONS AND LIMITATIONS OF ASSESSMENT	1-23
<u>1.10</u>	LIST OF PLANNING DRAWINGS	1-24
2.0	Description of the Existing Infrastructure and	Proposed
	elopment	
<u>2.1</u>	EXISTING SITE AND INFRASTRUCTURE	
<u>2.1.1</u>	EXISTING SITE AND INFRASTRUCTURE	2-2
	Site Location	
<u> 2.1.2</u>	Site Location	2-2
		2-2 2-6
<u>2.1.3</u>	Site Location Topography	2-2 2-6 2-6
<u>2.1.3</u> <u>2.1.4</u>	Site Location Topography Land Use	2-2 2-6 2-6 2-7
<u>2.1.3</u> <u>2.1.4</u> <u>2.1.5</u>	Site Location Topography Land Use Surrounding Population Centres	2-2 2-6 2-6 2-7
2.1.3 2.1.4 2.1.5 2.1.6	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure	2-2 2-6 2-7 2-8 2-10
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity	2-2 2-6 2-7 2-8 2-10 2-13
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1 2.2.2	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity Increased Composting Facility Intake	2-22-62-72-102-112-13
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1 2.2.2 2.2.3	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity Increased Composting Facility Intake New MSW Processing and Composting Facility	2-22-62-72-72-102-112-132-17
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1 2.2.2 2.2.3 2.2.4	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity Increased Composting Facility Intake New MSW Processing and Composting Facility Waste Composition	2-22-62-72-82-102-132-172-182-19
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1 2.2.2 2.2.3 2.2.4 2.2.5	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity Increased Composting Facility Intake New MSW Processing and Composting Facility Waste Composition Output from the Proposed Development	2-22-62-72-72-102-112-172-182-19
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1 2.2.2 2.2.3 2.2.4 2.2.5 2.2.6	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity Increased Composting Facility Intake New MSW Processing and Composting Facility Waste Composition Output from the Proposed Development Proposed Site Infrastructure	2-22-62-62-72-102-112-132-172-182-192-25
2.1.3 2.1.4 2.1.5 2.1.6 2.2 2.2.1 2.2.2 2.2.3 2.2.4 2.2.5 2.2.6 2.2.7	Site Location Topography Land Use Surrounding Population Centres Existing Infrastructure Permitted Mechanical Biological Treatment (MBT) Facility DETAIL OF THE PROPOSED DEVELOPMENT Additional Landfill Capacity Increased Composting Facility Intake New MSW Processing and Composting Facility Waste Composition Output from the Proposed Development	2-22-62-62-72-72-102-172-172-182-192-252-34





<u> 2.2.9</u>	Screening and Planting	2-45
	<u>O Health and Safety</u>	
	1 Environmental Monitoring	
<u> 2.2.1.</u>	2	2-53
	3 Contingency Arrangements	
<u>2.3</u>	DETAILS OF ADDITIONAL LANDFILL CAPACITY	2-56
<u> 2.3.1</u>	Phasing of the Landfill	2-56
	Basal Lining System	
<u> 2.3.3</u>	<u>Leachate Collection System</u>	2-63
<u> 2.3.4</u>	<u>Landfill Gas Collection System</u>	2-64
<u>2.4</u>	LEACHATE GENERATION AND MANAGEMENT	2-65
<u> 2.4.1</u>	Leachate Quantity	2-65
<u> 2.4.2</u>	Composition of Leachate	2-68
<u> 2.4.3</u>	<u>Leachate Collection and Removal</u>	<i>2-68</i>
<u>2.5</u>	DESCRIPTION OF COMPOSTING PROCESS	2-69
<u>2.6</u>	DESCRIPTION OF MSW PRE-TREATMENT PROCESS	2-76
2.7	CONSTRUCTION MANAGEMENT	
<u> 2.7.1</u>	Construction Environmental Management Plan	
	Construction Programme and Sequencing of the Development	
	Construction Methodology	
	Excavated Materials Balance	
<u> 2.7.5</u>	Construction Compound	2-87
<u> 2.7.6</u>	Construction Quality Assurance	2-87
<u> 2.7.7</u>	Environmental Monitoring	2-88
<u>2.8</u>	DECOMMISSIONING MANAGEMENT	2-88
<u>2.9</u>	RESTORATION AND AFTERCARE	2-89
<u>2.10</u>	REFERENCES	
<u>3.0</u>	Reasonable Alternatives	
<u>3.1</u>	INTRODUCTION	
	Statement of Authority	
<u>3.2</u>	LEGISLATION, POLICY AND GUIDANCE	3-2
<u>3.3</u>	METHODOLOGY	3-2
<u>3.4</u>	CONSIDERATION OF ALTERNATIVES	3-3
<u>3.5</u>	DO NOTHING OPTION	3-3
	ALTERNATIVE LOCATIONS	3-6
	ALTERNATIVE LAYOUTS/DESIGN	
	Avoidance of Environmental Sensitivities	





<u>3.7.2</u>	Level of Environmental Capacity	3-9
	Alternative layouts	
<u>3.8</u>	ALTERNATIVE PROCESSES/TECHNOLOGIES	3-16
	Landfill Facility	
	Composting Facility	
<u>3.9</u>	ALTERNATIVE MITIGATION MEASURES	3-28
<u>3.10</u>	CONCLUSIONS	3-28
<u>4</u>	Planning Policy and Development Context	. 4-1
_ 4.1	BACKGROUND	
	Background Context and General Location of the Proposed Development	
	Consenting Route	
	The Proposed Development	
	NEED FOR THE PROPOSED DEVELOPMENT	
	Site Historical Context	
	Current Waste Management Context	
	Future Waste Management Needs	
	PLANNING HISTORY	
	Relevant Planning History for the Bord na Móna Landholding	
	2.300506	
	Planning History for Area Surrounding the Bord na Móna Landholding	
	Other Developments and Cumulative Impact Assessments	
	European Legislative and Policy Context	
	National Legislative and Policy Context	
	Regional Policy Context	
<u>4.3.7</u>	Local Policy Context	4-39
<u>4.3.8</u>	Other relevant Plans and Policies	4-46
	CONCLUSION	
5.0	Population & Human Health	. 5-1
	INTRODUCTION	
	Proposed Development	
	Statement of Authority	
	POPULATION, SOCIO-ECONOMICS & TOURISM	
	Methodology	
	Receiving Environment/Baseline Description	
	Potential Effects	
	Mitigation Measures	
<u> </u>	<u>g=</u>	





<u>5.2.5</u>	Residual Effects	5-13
<u>5.3</u>	HUMAN HEALTH	5-13
<i>5.3.1</i>	<u>Introduction</u>	<i>5-13</i>
<i>5.3.2</i>	Relevant Guidelines, Policy and Legislation	5-14
<u>5.3.3</u>	<u>Methodology</u>	<i>5-15</i>
<u>5.3.4</u>	Data Collection and Collation	<i>5-18</i>
<u>5.3.5</u>	Receiving Environment	<i>5-21</i>
<u>5.3.6</u>	Step 1 - Hazard Identification	<i>5-22</i>
<u>5.3.7</u>	Exposure Assessment	5-29
	Appropriate Health Based Standard	
<u>5.3.9</u>	Residual Health Effect by the Proposed Development	5-35
<u>5.4</u>	MAJOR ACCIDENTS/DISASTERS	5-35
<u>5.5</u>	CUMULATIVE EFFECTS	5-35
<u>5.6</u>	STATEMENT OF SIGNIFICANCE OF EFFECTS	5-36
<u>5.7</u>	CONCLUSION	5-36
	<u>Biodiversity</u>	
<u>6.1</u>	INTRODUCTION	
<u>6.1.1</u>	Proposed Development	6-1
<u>6.2</u>	STATEMENT OF AUTHORITY	6-1
<u>6.3</u>	METHODOLOGY	6-2
<u>6.3.1</u>	Assessment Approach	6-2
<u>6.3.2</u>	Legislation, Plans, Policies and Guidance	6-2
<u>6.3.3</u>	<u>Consultations</u>	6-3
<u>6.3.4</u>	Study Area	6-5
<u>6.3.5</u>	Desk Study	6-10
	Field Surveys	
<u>6.4</u>	BASELINE EVALUATION CRITERIA	6-17
<u>6.5</u>	EXISTING ENVIRONMENT	6-21
<u>6.5.1</u>	Output of Desktop Assessment	6-21
<u>6.5.2</u>	Output of Field Surveys	6-40
<u>6.6</u>	SUMMARY OF ECOLOGICAL EVALUATION	6-56
<u>6.7</u>	IMPACT ASSESSMENT	6-59
<i>6.7.1</i>	Do Nothing Effects	6-59
	Assessment of Impacts on Designated Sites	
	Construction Phase Impacts	
	Operational Phase Impacts	
<u>6.7.5</u>	Decommissioning Phase Impacts	6-68





<u>6.8</u>	MITIGATION MEASURES	6-68
<i>6.8.1</i>	Construction Phase Mitigation Measures	6-68
<i>6.8.2</i>	Operational Phase Mitigation Measures	6-73
	Decommissioning Phase Mitigation Measures	
	ENHANCEMENT MEASURES	
	<u>Bat Boxes</u>	
	Bird Boxes	
6.10	CUMULATIVE EFFECTS	6-76
6.10.		6-76
	RESIDUAL EFFECTS	
	<u></u>	
	References	
<u>U.12</u>	<u>NCICI CITCO</u>	
<u>7.0</u>	SOILS, GEOLOGY AND HYDROGEOLOGY	7-1
<u>7.1</u>	INTRODUCTION	7-1
<u>7.2</u>	CONTEXT AND OBJECTIVES	7-1
7.3	METHODOLOGY	7-2
<u></u> 7.3.1	Regulatory Requirements and Guidance	
	Appraisal Methodology	
	11mportance/Sensitivity of the Existing Environment	
	2Magnitude of Effects	
<i>7.3.3</i>	Desk Study	7-9
<i>7.3.4</i>	Site Investigation and Monitoring Conducted for this EIAR	<i>7-10</i>
<i>7.3.4.</i>	<u>1Drilling of Boreholes</u>	<i>7-10</i>
<i>7.3.4.</i> 2	2 <u>Installation of Monitoring Wells</u>	<i>7-14</i>
	3Groundwater Level Monitoring	
	4Hydraulic Testing	
	<u>5Groundwater Sampling</u>	
	6Surface Water Monitoring	
	<u>Difficulties Encountered in Compiling Information</u>	
	BASELINE ENVIRONMENT	
	Physiography and Topography	
	<u>Soils</u>	
	<u>Subsoils</u>	
	Bedrock	
	Lithological Detail of the Landfill Expansion Area	
<u>7.4.6</u>	Geological Resources	7-32





7.4.7 Geologi	<u>cal Heritage</u>	7-32
	<u>ards</u>	
7.4.9 Aguifer	Classification	7-36
7.4.10 Public a	and Private Water Supply	7-36
	lwater Vulnerability	
	lwater Response Matrix	
7.4.13 Ground	lwater Level Interpretations	7-40
<i>7.4.13.1</i>	Groundwater Flow Patterns	.7-40
<i>7.4.13.2</i>	Groundwater Level Fluctuations	.7-42
<i>7.4.13.3</i>	Vertical Hydraulic Gradients	.7-46
7.4.14 Ground	lwater-Surface Water Interaction	7-49
7.4.15 Hydrau	<u>ılic Properties</u>	7-50
<i>7.4.15.1</i>	Groundwater Flow Velocity	
7.4.16 Ground	lwater Baseflow to Cushaling River	7-52
	Froundwater Body Status and Risk	
	or Importance and Sensitivity	
	lwater Quality – Overview and Screening	
<u>7.4.19.1</u>	Summary of Leachate Quality	
7.4.20 Ground	lwater Quality - Leachate Indicators	
<i>7.4.20.1</i>	<u>Chloride</u>	
<i>7.4.20.2</i>	Specific Electrical Conductivity	
<i>7.4.20.3</i>	<u>Sodium</u>	
<u>7.4.20.4</u>	<u>Potassium</u>	.7-69
<u>7.4.20.5</u>	Ammonia/Ammonium	.7-69
<i>7.4.20.6</i>	Other Nutrients	. <i>7-71</i>
<u>7.4.20.7</u>	<u>pH</u>	.7-73
<u>7.4.20.8</u>	Sulphate	. <i>7-73</i>
7.4.21 Ground	lwater Quality - Trace Metals	7-76
7.4.22 Ground	lwater Quality - Organic Compounds	7-82
	lwater Quality - Private Well Near Western Landholding Boundary.	
	lwater Quality - Summary and Interpretation	
7.4.24.1	Influence of WMF on Groundwater Quality	
<u>7.4.24.2</u>	Influence of Reducing Conditions on Groundwater Quality	
	lwater Compliance Monitoring	
	otual Site Model	
	ed Groundwater Monitoring	
-	SIGNIFICANT EFFECTS OF THE PROPOSED DEVELOPMEN	
93		
7.5.1 Do Noti	hing Scenario	7-93
	uction Phase	
	ushing, Peat Stripping, and Earthworks	





<i>7.5.2.21</i>	Modification to Drainage Network in TSB	<i>7-97</i>
	Stormwater Runoff and Groundwater Recharge	
	Seepage and Pumping of Water From Open Excavations/Pits	
	Accidental Spills and Leaks	
<u>7.5.2.6</u>	Releases of Cement-Based Products	7-106
	Nastewater Management	
	NFD Status of Kildare and Trim Groundwater Bodies	
	Groundwater-Sourced Public and Private Water Supplies	
	<u> Operational Phase</u>	
	Maintenance Works	
	Modification to Drainage Network in TSB	
	Stormwater Runoff and Groundwater Recharge	
	<u> Groundwater Lowering by the Under-cell Drainage System</u>	
	NFD Status of Kildare and Trim Groundwater Bodies	
	Groundwater-Sourced Public and Private Water Supplies	
	<u>Post-Closure</u>	
<u>7.6</u> (CUMULATIVE EFFECTS	7-113
	Shannon Pipeline	
<u>7.6.2</u>	TSB Decommissioning and Rehabilitation Plan	<i>7-114</i>
	Other Developments Outside TSB	
<u>7.7</u> <u>F</u>	REFERENCES	7-115
<u>8.0 </u>	<u> </u>	8-1
<u>8.1</u> <u>I</u>	NTRODUCTION	8-1
<u>8.2</u> <u>C</u>	CONTEXT AND OBJECTIVES	8-1
8.3	METHODOLOGY	8-2
	Regulatory Requirements and Guidance	
	Appraisal Methodology	
	mportance/Sensitivity of the Existing Environment	
	<u>Desk Study</u>	
	Monitoring of Surface Water Conducted for This EIAR	
	Difficulties Encountered in Compiling Information	
	BASELINE ENVIRONMENT	
	Physiography and Topography	
	Rainfall and Evapotranspiration	
	<u> Drainage Network Within and Outflow From TSB</u>	
	Receiving Surface Waters	
	Designated Sites and Protected Areas	
	WFD Status - Surface Water Bodies	
<u>8.4.7</u> <u> </u>	Surface Water Importance and Sensitivity	<i>8-23</i>





<u>8.4.8</u>	Streamflow - Cushaling River	8-23
<u>8.4.9</u>	Measured (Estimated) Flow Rates From TSB	8-24
	<u>0 Flood Risk</u>	
	1 Streamflow Characteristics	
<i>8.4.12</i>	2 <u>Discharge from the Existing WMF</u>	8-28
<i>8.4.1</i> 3	<u> 3 Surface Water Quality – EPA Data</u>	8-31
	4 Surface Water Quality – BnM Data	
<u>8.4.14</u>		
<u>8.4.14</u>	4.2 Proportion of Unionized Ammonia (NH3):	<i>8-38</i>
<u>8.4.14</u>	4.3 Suspended Solids	8-39
<u>8.4.14</u>	4.4 Specific Electrical Conductivity	8-40
<u>8.4.14</u>	4.5 Biological Oxygen Demand	8-40
<u>8.4.14</u>	<u>9.6</u>	8-41
<u>8.4.14</u>	<u> Chloride</u>	8-42
<u>8.4.14</u>	4.8 Surface Water Sampling Conducted for the Current EIAR	8-42
	Total Ammonia	8-49
	Nitrate	
	Suspended Solids	
	Specific Electrical ConductivityOrthophosphate	
011		
<u>0.4.1.</u> <u>8.4.15</u>	5 <u>Relative Ammonia Loads to the Cushaling River</u>	
<u>8.4.15</u>	_	
	<u>6 Trace Metals</u> 6	
	<u>o Trace Metals7 VOCs, SVOCs and Pesticides</u>	
	<u>8 Summary of Key Surface Water Quality Observations</u>	
	<u> 9 Proposed Surface Water Quality Monitoring9 Proposed Surface Water Quality Monitoring</u>	
<u>8.4.19</u>		
<u>8.4.19</u>		
	<u> 0 Proposed Discharge Rate Monitoring</u>	
	1 <u>Drainage Management</u>	
62	LIKELY SIGNFICANT EFFECTS OF THE PROPOSED DEVELOPN	
	Do Nothing Scenario	
	Construction Phase	
<i>8.5.2.</i> :	1Vegetation Removal and Clear-brushing	8-64
<u>8.5.2.2</u>	<u>2Earthworks</u>	8-66
	3Modification to Drainage Network in TSB	
	4Pumping/Dewatering of Open Excavations/Pits	
<u>8.5.2.5</u>	5Accidental Spills and Leaks of Chemicals	<i>8-74</i>
<u>8.5.2.</u>	6Releases of Cement-Based Products	<i>8-75</i>
<u>8.5.2.7</u>	7Wastewater Management	8-76





<u>8.5.2.8</u>	8WFD Status of Surface Water Bodies	8-77
	9Designated Sites and Protected Areas	
<u>8.5.2.</u>	10 Surface Water-Sourced Public or Private Water Supplies	8-79
<u>8.5.3</u>	Operational Phase	8-79
<u>8.5.3.</u>	1Maintenance Works	8-80
<u>8.5.3.</u> 2	<u> 2Water Management and Discharges From New Attenuation Lagoons and ICW</u>	8-81
	3WFD Status of Surface Water Bodies	
	4Designated Sites or Protected Areas	
	5Surface Water-Sourced Public or Private Water Supplies	
	<u>6Flood Risk</u>	
<u>8.5.4</u>	Post-Closure	
<u>8.6</u>	CUMULATIVE EFFECTS	8-85
<u>8.6.1</u>	Shannon Pipeline	8-86
<u>8.6.2</u>	TSB Decommissioning and Rehabilitation Pipeline	8-86
<u>8.6.3</u>	Other Developments Outside TSB	8-87
<u>8.7</u>	REFERENCES	8-87
<u>9.0</u>	Material Assets	
<u>9.1</u>	INTRODUCTION	9-1
<u>9.1.1</u>	Proposed Development	9-1
<u>9.1.2</u>	Statement of Authority	9-1
<u>9.2</u>	METHODOLOGY	9-1
<i>9.2.1</i>	Land Use	9-1
<i>9.2.2</i>	Other Material Assets	9-2
9.3	EXISTING ENVIRONMENT	9-2
	Land Use	
	Other Material Assets	
	POTENTIAL EFFECTS, MITIGATION AND RESIDUAL EFFECTS O	
	POSED PROJECT	
	Do-Nothing Scenario	
	Construction/Operational Phase	
	<u> </u>	
	2Other Material Assets	
	Decommissioning Phase	
	Cumulative Effects	
	CONCLUSION	
<u> </u>	<u></u>	, 土土
<u>10.0</u>	NOISE & VIBRATION	10-1





10.1 INTRODUCTION	10-1
10.1.1 Statement of Authority	10-1
10.2 ASSESSMENT METHODOLOGY	10-1
10.2.1 Relevant Guidelines and Standards	10-3
10.3 RECEIVING ENVIRONMENT	10-10
10.3.1 Annual Noise Monitoring	
10.4 CHARACTERISTICS OF PROPOSED DEVELOPMENT	10-15
10.5 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT	
10.5.1 Do Nothing Impact	
10.5.2 Potential Effects During Construction Phase	10-16
10.5.3 Potential Effects During Operational Phase	10-19
10.5.4 Decommissioning Phase	
10.6 MITIGATION MEASURES	10-29
10.6.1 Construction Phase	10-29
10.7 CUMULATIVE IMPACTS	10-29
10.7.1 Construction Phase	10-29
10.7.2 Operational Phase	10-30
10.8 RESIDUAL IMPACTS	10-31
44.0.1 1 0.1%	44.4
11.0 Landscape & Visual	
11.1 INTRODUCTION	
11.1.1 Statement of Authority	
11.2 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA	
11.2.1 Landscape Impact Assessment Criteria	
11.2.2 Visual Impact Assessment Criteria	
11.2.2.1 Sensitivity Of Visual Receptors	
11.2.2.2 <u>Visual Impact Magnitude</u>	
11.2.3 Visual Impact Significance	
11.2.4 Study Area	
11.3 SITE CONTEXT	
11.3.1 Demesne Landscapes and Gardens	
11.3.2 Ecological Designations	
11.3.3 Walking Routes	
11.3.4 Likely Future Receiving Environment / Do Nothing Scenario	
11.4 CHARACTERISTICS OF THE PROPOSAL	
11.5 POLICY ENVIRONMENT	
11.5.1 Kildare County Development Plan	
11.5.1.1 Principal Landscape Sensitivity Factors	11-13



<i>11.5.1.2</i>	Policies and Objectives	11-14
	_BASELINE	
11.6.1 Views	of Recognised Scenic Value	11-15
11.6.2 Zone o	f Theoretical Visibility	11-16
11.6.3 Identifi	ication of Viewshed Reference Points as a Basis for Assessmen	<u>t 11-17</u>
11.7 PREDIC	CTED LANDSCAPE IMPACTS	11-18
11.7.1 Landsc	ape Character, Value and Sensitivity	11-18
11.7.1.1	Landscape quality (condition)	
<i>11.7.1.2</i>	Scenic quality	
<i>11.7.1.3</i>	Rarity and Representativeness	11-19
<u>11.7.1.4</u>	Recreation Value	11-19
<u> 11.7.1.5</u>	Perceptual aspects	11-19
<u>11.7.1.6</u>	<u>Associations</u>	
<u> 11.7.1.7</u>	Landscape Sensitivity Summary	
<u>11.7.2 Magnit</u>	ude of Landscape Effects	11-19
11.8 PREDIC	CTED VISUAL IMPACTS	11-20
11.8.1 Sensiti	vity of Visual Receptors	11-20
<i>11.8.1.1</i>	Scale of value for each criterion	11-20
11.8.2 Magnit	ude of Visual Effects	11-21
<i>11.8.2.1</i>	Construction Phase Impacts	11-21
<u>11.8.2.2</u>	Operational Phase Impacts	11-21
11.9 CUMU	LATIVE IMPACTS	11-27
11.9.1 (In Cor	nbination) Cumulative effects of the proposed landfill devel	lopment in
	ith other similar existing developments	
11.9.2 (In add	dition) Cumulative effects of the proposed landfill devel	<u>opment in</u>
<u>conjunction w</u>	ith other proposed developments	11-28
	Ballydermot Wind Farm	
	<u>Solar Farms</u>	
	l Cumulative effects	
11.10 LANE	DSCAPE AND VISUAL MITIGATION MEASURES	11-29
11.10.1 Ava	oidance Measures	11-29
11.10.2 Red	duction Measures	11-29
11.10.3 Rer	nediation Measures	11-29
11.11 RESII	DUAL EFFECTS	11-29
	<u>dscape Effects</u>	
	ual Effects	
	MARY	
	<u>dscape Effects</u>	
	<u>ual Effects</u>	
	<u>nulative Effects</u>	
<u> </u>	<u> </u>	11 ⁻ 32





12 Air Quality and Climate	12-1
12.1 INTRODUCTION	12-1
12.2 ASSESSMENT METHODOLOGOGY	12-2
12.2.1 Standards and Guidance for Odour	12-2
12.2.2 Standards and Guidance for Ambient Air Quality Standards	
12.2.3 Standards and Guidance for Climate	
12.2.4 Odour Assessment Methodology	12-9
12.2.5 Air Quality Assessment Methodology	12-15
12.2.6 Climate Assessment Methodology	
12.3 RECEIVING ENVIRONMENT	12-38
12.3.1 Sensitive Receptors	12-38
12.3.2 Meteorological Data	12-40
12.3.3 Background Concentrations of Pollutants	12-40
12.3.4 Climate Baseline	12-42
12.4 LIKELY SIGNIFICANT EFFECTS	12-45
12.4.1 Odour Emissions	12-45
12.4.2 NOx and Particulate Matter Dispersion Modelling	12-48
12.4.3 Climate Assessment	<i>12-55</i>
12.4.4 Climate Change Risk Assessment	<i>12-58</i>
12.4.5 Major Accidents and Natural Disasters	12-62
12.5 MITIGATION MEASURES	12-63
12.5.1 Construction Phase	<i>12-63</i>
12.5.2 Operational Phase Odour	<i>12-63</i>
12.5.3 Operational Phase Air Quality	12-64
12.5.4 Operational Phase Climate	<i>12-65</i>
12.6 WORST CASE IMPACT	12-66
12.7 DIFFICULTIES ENCOUNTERED	12-66
12.8 DO-NOTHING	12-66
12.9 RESIDUAL EFFECTS	
12.10 CUMULATIVE EFFECTS	
12.11 REFERENCES	
<u> </u>	12 0/
13 Cultural Heritage	13-1
13.1 BACKGROUND AND OBJECTIVES	
13.1.1 Statement of Authority	
13.1.2 Relevant Legislation, Policy & Guidance	
13.2.2. Kildare County Development Plan 2023-2029	





13.2. METHODOLOGY	13-7
13.2.1 Assessment Methodology	13-7
13.2.2. Desk Study	13-8
13.2.3. Field Surveys	13-10
13.2.4. Assessment of Likely Significant Effects	13-11
13.2.4.1. Level of Effect	
13.3 BASELINE DESCRIPTION	
13.3.1 Archaeological and Historical Background	
13.3.2 World Heritage Sites	
13.3.3 Record of Monuments and Places (RMP) & Sites and Monuments R	
13-17	
13.3.4 Topographical Files for the National Museum of Ireland	13-22
13.3.5 Aerial Photography	13-24
13.3.6 Kildare County Development Plan	13-24
13.3.7 National Inventory of Architectural Heritage	
13.3.8 Previous Archaeological Work in the Area	
13.3.9 Cartographic Analysis & Ordinance Survey Maps	
13.3.10 Schools Collection	
13.3.11	
13.4 FIELD SURVEY	
13.5 HAUL ROADS	
13.5.1 Proposed haul route along Enfield ring road	
13.5.2 Proposed haul route from Kilcock to Prosperous	
13.5.3 Proposed haul route from Maynooth to Clane	
13.5.4 Proposed haul route from Kildare to Milltown	
13.6 POTENTIAL IMPACTS	
13.6.1 Do Nothing Effects	
13.6.2 Potential Effects (Direct) - Construction	
13.6.2.1 Potential effects on sub-surface archaeology	
13.6.2.2 Proposed Residual Landfill Site	
13.6.2.3 Proposed Soil & Stones and C&D Waste (rubble) Processing Facility	
13.6.2.4 Proposed MSW Processing & Composting facility	
13.6.2.5 Proposed Maintenance Building	
13.6.2.6 Proposed Fuel Storage Area	
13.6.2.7 Proposed Carpark Area	13-43
13.6.2.8 Proposed Lagoons	<i>13-43</i>
13.6.2.9 Proposed Wetlands	
<u>13.6.2.10 Haul Routes</u>	
13.6.3. Potential Effects (Indirect)- Construction	
13.6.4 Cumulative	13-44





13.7 MITIGATION MEASURES	13-44
13.7.1 Pre-Construction	13-44
13.7.2 Construction	
13.8 RESIDUAL IMPACTS	13-45
13.8.1 Construction Phase Residual Effects	13-45
13.8.2 Operational Phase Residual Effects	
13.8.3 Decommissioning Phase Effects	
13.9 STATEMENT OF SIGNIFICANCE	13-45
13.9 REFERENCES	
14.0 TRAFFIC AND TRANSPORT	14-1
14.1 INTRODUCTION	
14.2 EXPERTISE AND QUALIFICATIONS	
14.3 RELEVANT PLANNING HISTORY	
Mechanical Biological Treatment (PL09.PA0027)	
Previous Development Proposal	
14.4 EXISTING DREHID WMF DEVELOPMENT	
14.5 PROPOSED DEVELOPMENT	
Aspects Relevant to this Assessment	
Development Site Access	
14.6 METHODOLOGY	
14.7 CONSULTATION	
14.8 DIFFICULTIES ENCOUNTERED	
14.9 BASELINE ENVIRONMENT	
Site Location	
Haul Routes	
Road Network Surveyed Traffic Flows	
Baseline Network Traffic Flow Model	
Estimate of AADT from Network Traffic Surveys	
Future Infrastructural Improvement	
14.10 POTENTIAL SIGNIFICANT EFFECTS	
Construction Phase	
Trip Generation 14-50	
Construction Trip Distribution	14-54
Operational Phase	14-57
Trip Generation14-57	
Operational Trip Distribution	
Impact on the Road Network	14-62





Assessment Criteria	
Traffic Assessment	
Decommissioning and Reinstatement Phase	
Cumulative Effects	
14.11 MITIGATION	
Construction Phase Mitigation	
Operational Phase Mitigation	
Decommissioning and Reinstatement Phase Mitigation	
14.12 RESIDUAL IMPACT ASSESSMENT	14-80
Construction Phase	14-80
Operational Phase	14-80
Decommissioning and Reinstatement Phase	14-80
Cumulative Residual Effects	14-80
14.13 INTERATIONS	14-81
Noise and Vibration	14-81
Air Quality and Climate	14-81
14.14 MONITORING	14-81
Construction Phase	14-81
Operational Phase	14-81
14.15 SUMMARY OF MITIGATION AND MONITORING	14-81
14.16 CONCLUSION	14-83
14.17 REFERENCES AND SOURCES	
150 Interactions of the forescine	15 1
15.0 Interactions of the foregoing	
15.1 INTRODUCTION	
15.2 DISCUSSION OF INTERACTIONS	
15.2.1 Population and Human Health	
15.2.1.1 Landscape and Visual Impact	
15.2.1.2 Biodiversity	
15.2.1.3 Traffic and Transportation	
15.2.1.4 Cultural Heritage	
15.2.1.5 Land, Soils and Geology 15.2.2 Note on Risk of Major Accidents and Disasters	
15.2.3 Conclusion15.2.3	
15.2.3 COTICIUSIOT	13-0
16.0 Schedule of Mitigation Measures	16-1
16.1 INTRODUCTION	16-1
16.2 SCHEDULE OF MITIGATION MEASURES FROM EIAR	16-1





<u>Appendices</u>

Appendix 1-1	SID Notice from An Bord Pleanála
Appendix 1-2	Scoping Document
Appendix 1-3	Responses received from consultees
Appendix 1-4	Community Grant Scheme
Appendix 2-1	A3 version of Planning Drawings
	Bog Decommissioning and Rehabilitation Plan 2022
Appendix 2-3	Engineering Services Report (ESR)
Appendix 2-4	ICW report
Appendix 2-5	CEMP
Appendix 2-6	Existing Waste Acceptance Proceedure
Appendix 2-7	Drehid Fire Prevention & Response Plan
Appendix 2-8	Drehid Emergency Response Plan
Appendix 2-9	BES Liner Method Statement
Appendix 2-10	Leachate Analysis
Appendix 2-11	Extract from CRAMP
• •	t to address matters arising from previous refusal
Appendix 4-2	Planning applications in surrounding area
Appendix 6-1	Natura Impact Statement (Abridged version)
Appendix 6-2	Lighting Design Ecological Considerations
Appendix 6-3	. Drehid Habitat Management and Enhancement Plan
Appendix 7-1	Factual Report, Site Investigation 2020-2021
Appendix 7-2	Chapter 6 of 2017 EIAR
Photographic L	og of Cored Boreholes within the Landfill Expansion
Area	Durantana Coranna di natan Ona l'Un Duta
	Previous Groundwater Quality Data
Appendix /-5	Hydraulic Influence Calculations





Appendix 7-6	Peat Stability Risk Assessment
Appendix 8-1	Rainfall Return Periods
Appendix 8-2	Flood Risk Assessment
Appendix 8-3	Drehid Surface Water Annual Monitoring Results
Appendix 8-4	WFD Compliance Assessment
Appendix 11-1	Photomontages
Appendix 12-1	Description of the Aermod Model
Appendix 12-2	Meteorological Data - Aermet
Appendix 12-3	Dust minimisation measures
Appendix 12-4	Climate Risk Register
Appendix 13-1	Recorded monuments within 2km
Appendix 13-2	Details of recorded artefacts from the area
Appendix 14-1	Traffic Surveys
Appendix 14-2	Road conditions survey report & calculations