



ENVIRONMENTAL BALANCE IN DESIGN AND CONSTRUCTION



KNOCKHARLEY LANDFILL LTD.

**ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)
FOR PROPOSED DEVELOPMENT AT KNOCKHARLEY
LANDFILL**

VOLUME 2 – MAIN EIAR

CHAPTER 1 - INTRODUCTION

NOVEMBER 2018



Knockharley Landfill Ltd.
Kentstown, Navan, Co. Meath



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1 INTRODUCTION

Knockharley Landfill Limited (KLL) wishes to propose further development at its existing landfill facility at Knockharley, Kentstown, Navan, Co Meath.

Fehily Timoney & Company (FT) has prepared this environmental impact assessment report (EIAR) on behalf of Knockharley Landfill Ltd. to accompany an application for permission made directly to An Bord Pleanála for the proposed development.

This chapter of the EIAR introduces the proposed development in the context of the application for permission and documents the procedure that was followed in preparing this EIAR.

1.1 The Applicant – Knockharley Landfill Ltd.

The applicant for the proposed development is Knockharley Landfill Ltd., which is the owner and operator of the Knockharley Landfill facility located in Co. Meath. The facility was developed and previously owned and operated by Greenstar Holdings Ltd. (previously known as Celtic Waste Ltd.). The site was acquired by Knockharley Landfill Ltd. in March 2014.

1.2 Proposed Development

Introduction

Knockharley Landfill is located approximately 1.5 km north of Kentstown village, Co. Meath in the functional area of Meath County Council. The existing landfill operates under an Industrial Emission (IE) licence (Licence No: W0146-02) from the Environmental Protection Agency (EPA) which permits the disposal of up to 200,000 tonnes per annum of waste i.e. 175,000 tonnes of municipal solid waste (MSW) for disposal and 25,000 tonnes of construction and demolition (C&D) waste for recovery. Figure 1.1 presents the site location while Figure 1.2 presents an aerial view of the site. The current facility licence W1046-02 is included in Appendix 1 of Volume 3 of this EIAR.

Condition 3 of the permission granted by An Bord Pleanála in March 2007 (Ref: PL17.220331) restricted disposal at the facility to 132,000 tonnes per annum until December 2010, thereafter reducing to 88,000 tonnes per annum for disposal.

The proposed development comprises:

- The acceptance of up to 435,000 tonnes per annum of non-hazardous wastes, which will comprise up to 150,000 tonnes of incinerator bottom ash (IBA), as well as household, commercial and industrial wastes including residual fines, non-hazardous contaminated soils, construction and demolition (C&D) wastes and baled recyclables. In addition, the acceptance of up to 5,000 tonnes per annum of stable non-reactive hazardous waste is proposed.
- The acceptance and placement within the existing permitted landfill footprint of incoming wastes for recovery or disposal as appropriate; the increase in height of the landfill body from the current permitted post settlement final contour height of 74 mOD to a post settlement contour height of 85 mOD – the proposed height increase will apply from the active landfill phase at the time of permission grant. Permission is sought for the acceptance of waste until the cells are full.
- The construction and operation of a dedicated IBA facility. Permission is sought to store IBA until recovery outlets are identified. Permission is sought for trials to prepare IBA for recovery and removal off site. The IBA facility will consist of 5 no. cells which will be constructed in accordance with the requirements of the Landfill Directive 99/31/EC for non-hazardous wastes. A final post settlement contour height of 85 mOD is proposed. Permission is sought for operation of the IBA facility until the cells are full and subsequent aftercare activities as may be required are complete. The development includes additional perimeter (haul) roads and screening berms.

The IBA facility will comprise 1 no. portal frame building 76 m x 76 m x 15.5 m to facilitate:

- weathering
- metals recovery trials
- crushing and washing to facilitate recovery trials and processing

The construction and operation of a building for:

- The extraction and biological treatment of the organic fraction of MSW (otherwise known as MSW 'fines' material) and;
- contingency storage of baled recyclables
- contingency storage of baled MSW

This facility shall comprise:

- a processing building of 108 m in length, 50 m in width and up to 17 m in height, of portal frame construction with 13 no. vehicle roller shutter doors and 7 or more pedestrian access doors (subject to fire certification requirements)
- internal storage bays as required
- 12 no. concrete composting tunnels located within the processing building of c. 6 m in width, 25m in length and 5 m in height
- a covered bio-filtration unit within the overall processing building footprint, with a stack of height of 20 m
- access from the internal site road with a marshalling yard area with egress from the existing site road to the landfill gas compound
- all other ancillary and associated works, including leachate storage in a below ground tank, bio-treatment system for sanitary wastewater drainage and fencing.

Permission is sought for the continued use of this building post filling of the landfill cells onsite.

- The construction and operation of a leachate management facility comprising:
 - 3 no. additional floating cover leachate storage lagoons (L2, L3 and L4) of c. 5,000 m² each
 - 2 no. bunded above ground tanks for raw leachate from IBA cells (S1 and S2) approximately 25 m diameter 6.0 m high.
 - 3 no. bunded above ground tanks:
 - 1 no. tank (S3) for treated leachate from landfill leachate approximately 22m diameter 6.0m high.
 - 1 no, tank for treated leachate from IBA approximately 25 m diameter 6.0 m high (S4).
 - 1 no. tank for leachate concentrate 16 m diameter by 6.0 m high (S5).
 - Modular - typically containerised plant units (C1 through C6), on concrete slab of c. 1,000 m² and 1 no. elevated tank 5 m diameter 10 m high (T1) with provision for 2 no. additional low level (<5.0 m high) bunded storage tanks for dosing and other compounds (T2 and T3).
 - Loading area for 2 no. 25 tonne articulated tankers.

Permission is sought for the continued operation of this plant post filling of the landfill cells to facilitate continued leachate management.

- Construction of screening berms along the western planning boundary to a maximum of 10 m in height, on the eastern boundary to a maximum height of 10 m and on the northern boundary, to a maximum height of 6 m, with a total berm footprint of c. 11.3 ha. Haul roads for construction will be in or immediately adjacent to berm footprint.
- Construction of surface management infrastructure, with discharge to the adjacent Knockharley Stream to the northern end of the landfilling footprint and the proposed IBA cell development.

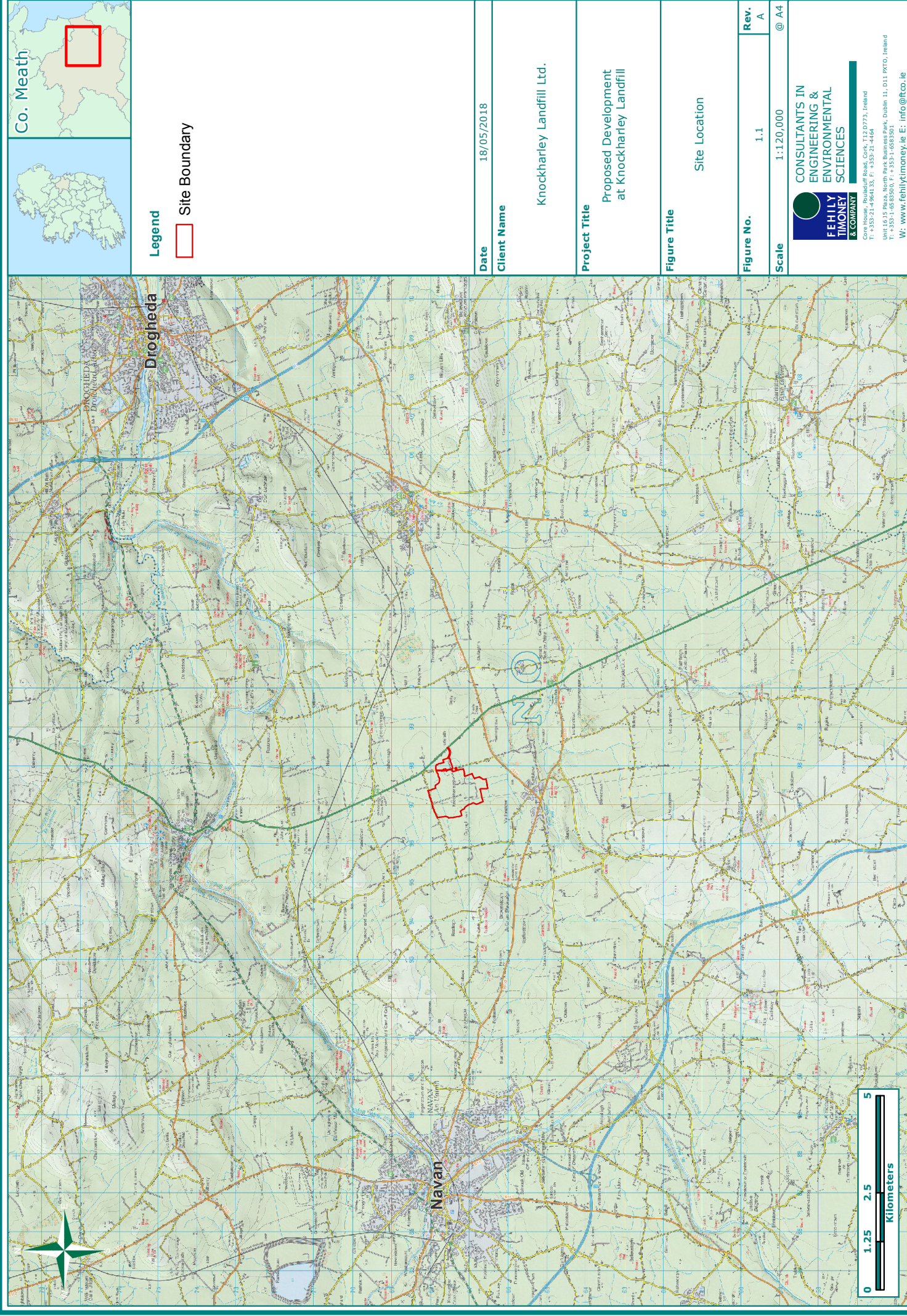
- Key elements will comprise:
 - holding pond for surface water runoff
 - storm water attenuation lagoon to maintain green field surface water discharges to Knockharley stream and to facilitate suspended solids management
 - wetland
 - flood compensation culvert to provide equivalent 1:1000-year flood plain storage
 - permitted stream diversion around permitted development
- Felling of c. 12.5 ha of the existing commercial broadleaf/conifer mix plantations to facilitate:
 - construction of the screening berms along the western boundary and to the north of the proposed IBA area, and
 - development of Phase 7 Cells 27 and 26 and the new northern surface water attenuation pond.

Replanting and new planting totalling (c.16.8 ha) will off-set loss of commercial forestry in the proposed development footprint at the following locations:

- replanting over screening berms
 - new planting on the cap over cells 25, 26, 27 and 28 in what is currently the permitted development
- Relocation of an existing 20 kVa overhead ESB powerline that provides power to the existing landfill facility administration buildings, that will be impacted by the development of the screening berm to the east of the proposed IBA cell area.
 - Construction of an additional ESB sub-station and new overhead ESB supply to the north-western corner of the currently permitted landfill footprint to facilitate power provision for pumps and other infrastructure.
 - Construction of a new ESB sub-station adjacent to the proposed building for biological waste treatment and storage with ESB connection to adjacent 20 kVA power lines.
 - Extension of existing below ground infrastructure (permitted development) and provision of additional below ground infrastructure. (Power, water, telemetry, leachate rising mains, drainage). Extension of the existing car park for the administration area.


More detailed descriptions of the elements of the proposed development are provided in Chapter 2 of this Volume 2 of the EIA 'Description of the Development'.

An application will also be made to the EPA to facilitate the licensing of the proposed development as outlined herein. The existing facility is licensed to operate by the EPA by IE W0146-02. Consultation with the EPA has commenced in relation to this review with further detail provided in Chapter 5 – EIA, Consultation & Key Issues.



Co. Meath

Legend

 Site Boundary

Date 18/05/2018

Client Name Knockharley Landfill Ltd.

Project Title Proposed Development at Knockharley Landfill

Figure Title Site Location

Figure No. 1.1

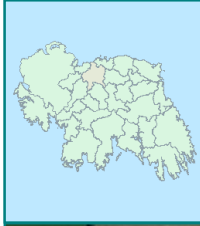
Rev. A

Scale 1:120,000 @ A4




**CONSULTANTS IN
ENGINEERING &
ENVIRONMENTAL
SCIENCES**

Core House, Boulduff Road, Cork, T12 D773, Ireland
T: +353-21-4964135, F: +353-21-4464
Unit 16/15 Plaza, North Park Business Park, Dublin 11, D11 PXT0, Ireland
T: +353-1-6683900, F: +353-1-6683901
W: www.fehilytimoney.ie E: info@ftco.ie



Legend

 Site Boundary

Date 18/05/2018

Client Name Knockharley Landfill Ltd.

Project Title Proposed Development at Knockharley Landfill

Figure Title Aerial View of Site

Figure No. 1.2

Rev. A

Scale 1:15,000 @ A4



**CONSULTANTS IN
ENGINEERING &
ENVIRONMENTAL
SCIENCES**

Core House, Bouldariff Road, Cork, T12 D773, Ireland
T: +353-21-4964138, F: +353-21-4464
Unit 16/15 Plaza, North Park Business Park, Dublin 11, D11 PXT0, Ireland
T: +353-1-6683900, F: +353-1-6683901
W: www.fehilytimoney.ie E: info@ftco.ie



1.3 Planning History

The following outlines the planning history relevant to the Knockharley Landfill site to date.

1.3.1 [Meath County Council Planning Reference: 01/5006](#)

Permission was granted to Celtic Waste Ltd. for the development and operation of an engineered landfill and ancillary facilities at the Knockharley site on August 26th, 2002. The permission was subject to a condition that restricted the acceptance of waste for disposal at the facility to waste arising from the North-East waste management region as defined by counties Meath, Louth, Cavan and Monaghan (Condition 2 (a)).

The quantities of waste accepted at the facility were restricted to 132,000 tonnes per annum until December 2007 and thereafter to a maximum of 88,000 tonnes per annum (Condition 2 (b)).

1.3.2 [An Bord Pleanála Reference: PL17.125891](#)

Upon appeal of 01/5006, An Bord Pleanála granted permission on appeal for a landfill with conditions specifying that only waste arising in the North East waste management region would be accepted and that the maximum rate of waste acceptance would be 132,000 tonnes per annum until December 2007 and 88,000 tpa thereafter.

1.3.3 [Meath County Council Planning Reference: NA50453](#)

In April 2006, Meath County Council refused permission to Greenstar Holdings Ltd. for a material change of use of maintenance building to offices, including a proposed new first floor within the existing building and for permission to omit condition no. 2(a) of 01/5006 which limits the waste to be accepted for disposal at the residual landfill facility to waste arising from the North East Region as defined by the counties Meath, Louth, Cavan & Monaghan.

1.3.4 [Meath County Council Planning Reference: NA60336](#)

Meath County Council, in November 2006, granted permission to Greenstar Ltd. for the removal of the regional restriction on the origin of the waste accepted at the Knockharley Landfill facility by modifying condition no. 2(a) of permission ref. no: 01/5006 and An Bord Pleanála decision PL17.125891 so the facility can accept waste from adjoining waste regions.

1.3.5 [An Bord Pleanála Reference: PL17.220331](#)

Upon appeal by the applicant Greenstar, the Board granted permission on 21st March 2007 for an extension of the landfill footprint (c. 2 ha), for the removal of the regional restriction on the origin of the waste accepted at the facility and for the continuation of the annual intake volume of 132,000 tonnes per annum until the end of 2010, reverting to 88,000 tonnes per annum thereafter. Permission was refused for an increase in the waste intake to 200,000 tonnes per annum.

1.3.6 [Meath County Council Planning Reference: NA70015](#)

Permission was granted to Greenstar Ltd. in April 2007 for the installation and operation of a gas utilisation plant on a 0.3 hectare site which will be phased and generate up to 4.2 MW of electricity for export to the national grid.

1.3.7 [An Bord Pleanála Reference: PL17.PA0009](#)

The Board refused permission to Greenstar Holdings Ltd. on the 14th May 2009 to increase the rate of waste acceptance at the permitted facility to 400,000 tonnes per annum for disposal, to alter the landfill phasing sequence, with no extension to the permitted landfill void, and all ancillary works including the installation of a second wheelwash.

The reason for refusal stated that the increase would compromise the viability of more sustainable waste infrastructure and the designation of Knockharley as the long-term residual landfill for the North East region and so would conflict with the waste management plan for that region.

1.3.8 An Bord Pleanála Reference: PL17.PA0019

In September 2011, Greenstar North East Ltd. withdrew an application to the Board for an increase in the rate of waste acceptance, an extension of the operational footprint and new waste treatment infrastructure i.e. an anaerobic digestion facility at Knockharley Landfill.

1.3.9 Meath County Council Planning Reference: AA161431

In December 2016, Knockharley Landfill Ltd. applied for an extension of the duration of planning permission 01/5006. Permission was granted by Meath County Council in January 2017.

1.3.10 Meath County Council Planning Reference: AA180145

In February 2018, Starrus LFG Ltd. applied for permission for the development of a solar farm over reclaimed landfill with an export capacity of approximately 3MW comprising photovoltaic panels on ground mounted frames, connection to existing single-storey ESB sub-station, installation of three no. transformers, ducting and underground electrical cabling and all associated ancillary works and services. Permission was granted by Meath County Council in June 2018.

1.4 EPA Licensing History

Under Waste Licence Ref. No. 103-1 (now W0103-01), Meath County Council applied to the Environmental Protection Agency [EPA] and was granted a licence authorising the acceptance of a total of 76,000 tonnes per annum [62,500 tonnes for disposal and 13,500 tonnes for recovery]. It is understood that waste licence W0103-01 was never commenced and has now ceased.

Waste licence W0146-01 was granted to Celtic Waste Limited in March 2003, and was amended in October 2005, to include conditions relating to resource use and energy efficiency, accident prevention and emergency response and restoration and aftercare.

W0146-01 was also reviewed by the EPA as part of a national review of landfill licences to ensure that the landfills were operating in compliance with all relevant requirements of the Landfill Directive, with the result that W0146-02 was granted to Greenstar Holdings Ltd. in March 2010.

W0146-02 was amended by Technical Amendment A in January 2013 for a conditional amendment relating to groundwater risk screening. The licence was subsequently amended by Technical Amendment B, regarding a trial for incinerator bottom ash metals recovery. A third amendment was effected by Technical Amendment C, in November 2016, in relation to the acceptance of further quantities of waste material for a limited period of time i.e. to 31 December 2016. Finally, in this content, Technical Amendment D was issued in March 2018 authorising the acceptance of waste from an unauthorised landfill remediation.

Furthermore, W0146-02 was changed in classification from a waste licence to an industrial emission (IE) licence in December 2013 by the EPA, while the licence was also transferred from Greenstar Holdings Ltd. to Knockharley Landfill Ltd. in March 2014.

A copy of W0146-02 (including technical amendments A, B, C and D) is provided in Appendix 1.1 to 1.5 of Volume 3 of this EIAR.

1.5 Application and EIA Process

1.5.1 Strategic Infrastructure Development Planning Process

The Planning and Development Act 2000 was amended in 2006 to require certain applications for permission for major infrastructure projects to be made directly to An Bord Pleanála, rather than to the local planning authority, as would have previously been the case.

In July 2016, Knockharley Landfill Ltd. wrote to An Bord Pleanála to formally request a pre-application consultation meeting under Section 37B of the Planning and Development Act 2000, as amended (“the 2000 Act”), in respect of their existing development at Knockharley Landfill.

In order to commence the pre-application consultation required under section 37B, a proposed development must fall within of a class specified in the Seventh Schedule to the 2000 Act.

Part 3 of the Seventh Schedule, as amended, specifies, *inter alia*, the following classes of development:

- “An installation for the disposal, treatment or recovery of waste with a capacity for an annual intake greater than 100,000 tonnes.”

Thereafter, the Board must satisfy itself that the proposed development meets one or more of the conditions set out in subsection 37A(2) of the 2000 Act, *namely*—

(a) *the development would be of strategic economic or social importance to the State or the region in which it would be situate,*

(b) *the development would contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situate,*

(c) *the development would have a significant effect on the area of more than one planning authority.”*

Following pre-application consultations held on 4th August 2016, 25th October 2016 and the 14th September 2017. An Bord Pleanála issued a notice to Knockharley Landfill Ltd. on 14th November 2017 (under Ref. No. 17.PC0223) indicating its determination that the proposed development is SID in accordance with the provisions of section 37A of the 2000 Act and, accordingly, an application for permission should be made directly to An Bord Pleanála. Consequently, this EIA is submitted with an application for permission made directly to An Bord Pleanála, in accordance with the requirements of Section 37E of the Planning and Development Act 2000, as amended.

Correspondence and detail relating to the pre-application consultation process undertaken are included in Appendix 1.6 of Volume 3 of this EIA.

1.5.2 Requirement for Competent Authority to Conduct an EIA

The European Union Directive 2014/52/EU (amending Directive 2011/92/EU) on the assessment of the effects of certain public and private projects on the environment, requires Member States to ensure that a competent authority carries out an appraisal of the environmental impacts of certain types of project, as listed in the Directive, prior to development consent being given for the project. Throughout this EIA, Directive 2014/52/EU (amending Directive 2011/92/EU) on the assessment of the effects of certain public and private projects on the environment, shall be referred to collectively as “the 2014 EIA Directive”.

With respect to waste-related projects, the 2014 EIA Directive requires that an EIA is required in relation to applications for development consent in relation to:

- “Installations for the disposal of waste (not included in Annex I)”

Article 4(2) of the 2014 EIA Directive stipulates that Member States are responsible for setting applicable thresholds in respect of EIA.

The requirement for EIA of certain types of proposed development is transposed into Irish legislation under the Planning and Development Acts, 2000 to 2018 and the Planning and Development Regulations 2001 to 2018, as amended (the "2001 Regulations"). Part 1 of Schedule 5 to the 2001 Regulations includes a list of projects which are subject to mandatory EIA based on, inter alia, their scale, nature, location and context. Part 2 of the same Schedule 5 includes a list of projects where, if specified thresholds are exceeded, or where it is determined that there is potential for significant environmental impact, an EIA is also required. Waste handling facilities that handle in excess of 25,000 tonne of waste per annum fall into Part 2 of Schedule 5 and therefore, pursuant to section 176 of the 2000 Act and article 94 of the 2001 Regulations, an EIA of the proposed development at Knockharley Landfill is required to be carried out by the competent authority prior to the decision to grant development consent.

In any event, separately, under section 37E of the 2000 Act all applications for permission made directly to the Board under that provision must be accompanied by an EIAR (formerly termed an environmental impact statement (EIS)).

Accordingly, the environmental impact assessment of the proposed development at Knockharley Landfill will be undertaken by An Bord Pleanála, in accordance with the requirements of the 2014 EIA Directive, Part X of the 2000 Act and the relevant provisions of the 2001 Regulations.

1.5.3 Appropriate Assessment

In compliance with the provisions of Article 6 of the Habitats Directive, as implemented by Part XAB of the 2000 Act, in circumstances where a proposed plan or project is likely to have a significant effect on a European (or Natura 2000) site, either individually or in combination with other plans or projects, an Appropriate Assessment (AA) must be undertaken by the competent authority of the implications for the site in view of the site's conservation objectives.

European sites comprise both Special Protection Areas (SPAs) for birds and candidate Special Areas of Conservation (cSACs) for habitats and species. The Habitats Directive (Council Directive 92/43/EEC) formed a basis for the designation of SACs while SPAs are designated for under the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds, now Directive 2009/147/EC).

Article 6 of the Habitats Directive envisages a two-stage process, which is implemented in some detail by the provisions of sections 177U and 177V of the Planning and Development Acts. Screening for appropriate assessment in accordance with section 177U is the first stage of the AA process (Stage One), in which the possibility of there being a significant effect on a European site is considered. Plans or projects that can have no appreciable effect on a European site are excluded, or screened out, at this stage of the process. Where screening concludes that the possibility of significant effects on a European site cannot be excluded, then it is necessary for the competent authority to carry out an AA (Stage Two) for the purposes of Article 6(3) and a Natura Impact Statement (NIS) is produced for the purposes of the Stage Two AA. The NIS considers the potential impact of a project or plan on the integrity of a European site and on its conservation objectives, and where necessary, draws up mitigation measures to avoid/minimise negative impacts.

In carrying out an Appropriate Assessment, the competent authority (in this case An Bord Pleanála) is required to make an examination, analysis, evaluation, findings, conclusions and a final determination as to whether or not the proposed development would adversely affect the integrity of the relevant European site in view of its conservation objectives.

In the context of the proposed development at Knockharley Landfill, an Appropriate Assessment Screening Report and Natura Impact Statement has been prepared, as required by Article 6 of the Habitats Directive. The Appropriate Assessment Screening Report and Natura Impact Statement are separate documents appended to Chapter 10 – Biodiversity and have been submitted to An Bord Pleanála with the application for permission. Both these documents will also be submitted to the EPA for the Industrial Emissions Licence

1.6 EIA Methodology and Structure

An EIA presents relevant information such that an environmental impact assessment (EIA) can be undertaken to assess the potential effects of certain development projects on the environment. The EIA process is undertaken by the relevant regulatory authorities.

The primary objective of an EIA is to ensure that projects which are likely to have significant effects on the environment are assessed and impacts avoided, where possible. This assessment process aims to achieve the most sustainable and environmentally friendly integration of a development with the local environment.

Firstly, the planning context, the background to the project including the need for the development, the alternatives assessed, and the existing and proposed development is described. This sets the reader in context as to the practical and dynamic process undertaken, to arrive at the layout and design of the proposed development that will cause least impact on the environment.

Subsequent sections deal with specific environmental topics, for example, population, human health, air, water, noise, etc. These sections may involve specialist studies and evaluations. The methodology applied during these specific environmental assessments is a systematic analysis of the proposed development in relation to the existing environment. The broad methodology framework for these assessments is outlined below and is designed to be clear and concise and allow the reader to logically follow the assessment process through each environmental topic. In some instances, more specific topic related methodologies are outlined in the relevant sections of the EIA.

The broad methodology framework used in all sections includes:

- Introduction
- Assessment Methodology
- Receiving Environment
- Potential Effects
- Mitigation Measures
- Residual Effects
- References

The advantage of using this framework is that it is easy to investigate each environmental topic and it facilitates easy cross-reference to specialist studies undertaken in the preparation of the EIA.

The EIA has been prepared in accordance with guidelines listed hereunder except where specific sectoral guidance was used e.g. traffic.

- European Commission "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)" (2017)
- Environmental Protection Agency (Draft - August 2017) "Revised Guidelines on the Information to be contained in Environmental Impact Assessment Reports";
- *Guidelines on the Information to be contained in Environmental Impact Statements*, (EPA, 2002)
- *Advice notes on Current Practice (in the preparation of Environmental Impact Statements)* (EPA, 2003)

Where specific sectoral guidance was used e.g. traffic, this guidance will be listed in the relevant sections of the EIA.:

The EPA's guidance published in 2002 and 2003 as outlined above was used only in so far as they comply with the requirements of the 2014 EIA Directive.

1.6.1 EIA Methodology

Introduction

The main aim of this EIA is to provide information on the project to the public, public concerned, prescribed bodies and the competent authority. To this end, Article 3(1) of the EIA Directive requires that significant effects are identified, assessed and described in an 'appropriate manner'. Article 5(1) sets the form – the information should be presented in an EIA Report that enables stakeholders and authorities to form opinions and to take decisions regarding the project. While there are no formal requirements concerning the format and the presentation of the report, this EIA clearly sets out the methodological considerations and the reasoning behind the identification and assessment of significant effects.

Article 5(1) sets out what must be included as a minimum in the EIA Report. Annex IV to the Directive, expands on these requirements. In short, this includes the following:

- a description of the project: this is an introduction to the project, and includes a description of the location of the project, the characteristics of the construction, and the operational phases of the project, as well as estimates of the expected residues, emissions, and waste produced during the construction and operation phases;
- baseline scenario: a description of the current state of the environment, and the likely evolution thereof without the implementation of the project;
- environmental factors affected: a description of the environmental factors impacted by the project, with specific emphasis being placed on climate change, biodiversity, natural resources, and accidents and disasters;
- effects on the environment: this section addresses the concept of 'significant effects' and the importance of cumulative effects;
- assessment of alternatives: alternatives to the proposed development are described and compared, with an indication of the main reasons for the selection of the option chosen provided;
- mitigation measures, i.e. features or measures to avoid, prevent or reduce, and offset adverse effects should also be considered;
- monitoring: monitoring measures proposed are included in the EIA, where potentially significant adverse effects have been identified. This monitoring will be carried out during the construction and operation of a project;
- Non-Technical Summary, i.e. an easily accessible summary of the content of the EIA Report presented without technical jargon, hence understandable to anybody without a background in the environment or the project;
- quality of the EIA: the experts responsible for preparing the EIA Report are competent.

The EIA has been prepared in accordance with the contents of Directive 2014/52/EU of the European Parliament which has amended Directive 2011/92/EU. Schedule 6 of the Planning and Development Regulations 2001, as amended, and Annex IV of the 2014 Directive sets out the contents of an EIA. In addition, in the preparation of this EIA a scoping of possible impacts of the proposed development was carried out to identify impacts thought to be potentially significant, not significant or uncertain. Consultation with the relevant private and public agencies ensured that the most significant impacts and the areas of greatest concern were addressed during the EIA process. Details of the consultation carried out for the proposed development are outlined in Chapter 5 EIA Scoping, Consultation and Key Issues of this EIA.

As set out in Schedule 6 of S.I. No. 296 of 2018 "European Union (Environmental Impact Assessment) Regulations 2018", the purpose of this EIA is to contain:

1. a) A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development;
- b) A description of the likely significant effects on the environment of the proposed development;

- c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development;
- d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.

2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:

- a) A description of the proposed development, including in particular –
 - i. A description of the location of the proposed development;
 - ii. A description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;
 - iii. A description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and;
 - iv. An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during construction and operation phases.
- b) A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;
- c) A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;
- d) A description of the factors specified in paragraph (b)(i) (I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development: population, human health, biodiversity (for example flora and fauna), land (for example land-take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape;
- e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things:
 - (I) the construction and existence of the proposed development, including, where relevant, demolition works,
 - (II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,
 - (III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,
 - (IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),

- (V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,
- (VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and
- (VII) the technologies and the substances used, and;
- (VIII) the description of the likely significant effects of the factors specified in paragraph (b)(i) (I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;
- f) A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;
- g) A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;
- h) A description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

Assessment Methodology

Specific topic related methodologies are outlined in each Chapter. This includes the methodology used in describing the existing environment and assessing effects.

Mitigation Measures

An Index of Mitigation Measures is included as Chapter 16 in Volume 2 of this EIAR. It includes all the mitigation measures in this EIAR.

References

Reports and data sources referred in the preparation of this EIAR are listed in each chapter.

1.6.2 EIAR Structure

The EIAR has been structured in accordance with the European Commission's Guidance "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)" (2017). Accordingly, the EIAR comprises:

- is presented with a clear structure with a logical sequence that describes, inter alia, existing Baseline conditions, predicted impacts (nature, extent and magnitude), scope for mitigation, proposed mitigation measures, significance of unavoidable/residual impacts for each environmental factor;
- contains a table of contents at the beginning of the document;
- comprises a description of the development consent procedure and how EIA fits within it;

- reads as a single document with appropriate cross-referencing and is concise, comprehensive and objective;
- is written in an impartial manner without bias;
- includes a full description and comparison of the alternatives studied;
- makes effective use of diagrams, illustrations, photographs and other graphics to support the text;
- uses consistent terminology with a glossary;
- references all information sources used
- has a clear explanation of complex issues;
- contains a good description of the methods used for the studies of each environmental factor;
- covers each environmental factor in a way which is proportionate to its importance;
- provides evidence of effective consultations;
- provides a basis for effective consultations to come;
- makes a commitment to mitigation (with a programme) and to monitoring;
- contains a Non-Technical Summary which does not contain technical jargon;
- contains, where relevant, a reference list detailing the sources used for the description and assessments included in the EIA.

Each section of the EIA is generally presented under the following headings:

- Introduction
- Assessment Methodology
- Receiving Environment
- Potential Effects
 - Do nothing Effect
 - Construction Phase
 - Operational Phase
 - Decommissioning Phase
 - Cumulative Effects
- Mitigation Measures
 - Construction Phase
 - Operational Phase
 - Decommissioning Phase
 - Cumulative
 - Monitoring
- Residual Effects
- References

The advantages of using this type of format are that it is easy to examine each environmental topic and it facilitates easy cross-reference to specialist studies undertaken as part of the assessment.

The EIA comprises of four volumes:

- Volume 1:** Non-Technical Summary
- Volume 2:** Main Report
- Volume 3:** Appendices
- Volume 4:** Drawings

1.7 Cumulative Assessment

Cumulative assessment assesses the changes to the environment that are caused by activities/projects in combination with other activities/projects. Thus, the potential impact of the proposed development is assessed in conjunction with other existing or proposed development located nearby or in the vicinity of the development in question, such that the potential combined environmental impacts can be accurately assessed in the event of the proposed development proceeding.

Cumulative effects are changes to the environment that are caused by an action in combination with other actions and can arise from:

- ☐☐ the interaction between all of the different Projects in the same area;
- ☐☐ the interaction between the various impacts within a single Project.

The coexistence of impacts may increase or decrease their combined impact. Impacts that are considered to be insignificant, when assessed individually, may become significant when combined with other impacts.

The requirement for cumulative assessment derives from the 2014 EIA Directive, where Annex IV requires that the EIA should describe “*the likely significant effects of the project on the environment resulting from... the cumulation of effects with other existing and/or approved projects taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources*”.

In the context of an EIA, cumulative effects can relate to two different aspects of a development.

Firstly, the various impacts of a particular project can interact in a manner which causes additional effects, which when taken together are greater than they appear when documented under separate topic headings.

Secondly, a project may magnify impacts already associated with other built development. This may mean that, when a development is proposed at a greenfield location which is devoid of other significant built development, its impact is acceptable; by contrast, where it is proposed in conjunction with other development, the cumulative effect may be much greater. In some cases, the impacts of these multiple developments collectively may exceed that which is tolerable.

In relation to the issue of cumulative effects between this proposed development and other projects, the most obvious is the effect of a combination of the proposed development and the existing landfill development. An analysis of the relevant cumulative effects is set out in Chapter 16 ‘Inter-relationships & Interactions’ of this EIA.

Other than the existing Knockharley Landfill, there are a number of facilities within the surrounding hinterlands that operate under licences issued by the EPA.

Facilities within a 10km radius of the Knockharley Landfill site have been identified as follows:

- Kentstown Sow Unit (transferred to Marry Pig Farms Limited) is located approximately 4 km south of the Knockharley Landfill facility in Danestown. It is operated under an IE licence P0456-01 from the EPA. It is a piggery with approximately 4,000 pigs and employs 3 people. Planning permission was granted in January 2015 for the demolition and reconstruction of facility buildings
- There is a poultry farm in Gerrardstown, Garlow Cross, located approximately 3.5 km south west of the facility. The poultry farm produces eggs and currently has capacity for 40,000 layers and is licensed for 117,500 layer spaces. The facility is licensed by the EPA through IE licence P0917-01. The 2015 AER lists one employee.
- A poultry farm in Garballagh, Duleek rears c. 3,000 broilers per annum. It is operated under IE licence P0887-01. It is approximately 4 km west of the facility and employs one person.
- Dunbia operates a meat processing facility in Beauparc under IE licence P0811-02 the operation of slaughterhouses with a carcass production capacity greater than 50 tonnes per day. It has over 70 employees and is 3.5 km north of the facility.

- Cooksgrove Ltd., trading as Euro Farm Foods, operates as cattle slaughterhouse in Cooksgrove, Duleek. It has an IE licence P0822-01 with a throughput of 300 cattle a day. It has over 100 employees. The facility is approximately 8 km west of the Knockharley Landfill facility.
- Nurendale Ltd. trading as Panda Waste Services Ltd. owns and operates a large Materials Recovery Facility at Rathdrinagh Cross Roads, approximately 4 km north east of the facility on the N2 to Slane. It is operated under a licence from the EPA, W0140-04 and is licenced to accept up to 250,000 tonnes per annum of household, commercial and industrial waste, biowaste and biodegradable waste, and construction and demolition waste and the facility employs approximately 160 people. A licence review application for, *inter alia*, the acceptance and processing of incinerator bottom ash is at time of writing under consideration by the Agency.
- Advanced Environmental Solutions (AES) Ltd. owns and operates a waste transfer facility in Navan under IE licence no. W0131-02, approximately 10 km west of Knockharley Landfill. The licensed capacity of the facility is 95,000 tonnes per annum. The facility has approximately 15 employees.
- Perma Pigs Limited, is an operational pig farm located at Littlegrange, Drogheda, County Louth, is operated under licence P0431-02.
- Irish Cement Limited, located at Platin Works, Platin, Drogheda, County Meath, is operated under licence register number P0030-04.
- A poultry farm, located at Dowth, Slane, County Meath is operated under licence P0951-01.
- Indaver Ireland Limited, operating at Carranstown, Duleek, Co. Meath, is licensed under register number: W0167-03.

Given the operation of a number of EPA licensed facilities within 10 km of the Knockharley Landfill facility, potential cumulative impacts with the proposed development to which this application relates, could be realised in relation to:

- Traffic movements along the N2 national primary route
- Air quality resulting from vehicles movements, potential odour emissions and emissions from boilers and engines and piggery operation

To this end, consideration is given to the potential cumulative impacts relating to both developments in the relevant sections of the EIAR i.e. Chapter 7 – ‘Air & Climate’, Chapter 8 – ‘Roads, Traffic & Transportation’ and Chapter 10 ‘Biodiversity’.

There are no other major or large-scale developments in existence in the vicinity of the development location, nor have there been in the past.

In terms of “*reasonably foreseeable actions*”, taken to be potential future development of scale, a number of data sources were consulted:

- Meath County Development Plan 2013 – 2019 (and variations)
- Meath County Council Online Planning Portal (<http://www.meath.ie/CountyCouncil/Planning/SearchPlanningPermissionApplications/>)

No future development of scale has been identified in the vicinity of the development location based on an assessment of these information sources and thus no further consideration in this regard is undertaken. However, planning applications made to Meath County Council have been considered, where relevant. A list of applications and permissions are in Appendix 1.9

1.8 Contributors to the EIA

Fehily Timoney and Company (FT) is a consultancy based in Cork & Dublin, specialising in civil and environmental engineering, and environmental science. FT is well established as a leading consultancy in waste management in Ireland. The company has established a professional team specialising in waste management infrastructure development, particularly landfill. This team has the support of many in-house engineers and scientists.

FT was retained by the applicant to undertake the detailed environmental appraisals and prepare the EIA for the proposed development, as well as preparing a planning application to accompany this EIA for submission to the relevant planning authority, An Bord Pleanála. Furthermore, FT has been retained to prepare the review application to the EPA for the existing industrial emissions (IE) licence for the facility.

Specialist contributors involved in the preparation of the EIA are outlined in Table 1.1 and a CV for each contributor is included in Appendix 1.8 in Volume 3 of this EIA.

Table 1.1: Contributors to the EIA

EIS Topic	Company	Name and Qualifications
Chapter 1 – Introduction	FT	Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM Bernie Guinan, B.Sc., M.Sc., Dip, IMI, MCIWM
Chapter 2 – Description of the Proposed Development	FT	Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM Tanya Ruddy, B.Sc., M.Sc., MCIWM, MCIWEM, C.Sci Chris Cronin, B.Sc. (Hons) M.Sc., C.Eng, C. Env, MCIWM, MIEI, MIAgEng Alice Riordan, B.Eng, C.Eng, MIEI, MIAH Bernie Guinan, B.Sc., M.Sc., Dip, IMI, MCIWM
Chapter 3 – Policy	FT	Bernie Guinan, B.Sc., M.Sc., Dip, IMI, MCIWM Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM
Chapter 4 – Need for the Development and Alternatives Considered	FT	Bernie Guinan, B.Sc., M.Sc., Dip, IMI, MCIWM Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM
Chapter 5 – EIA Scoping & Consultation and Key Issue	FT	Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM Bernie Guinan, B.Sc., M.Sc., Dip, IMI, MCIWM Tanya Ruddy, B.Sc., M.Sc., MCIWM, MCIWEM, C.Sci
Chapter 6 – Population and Human Health	FT	Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM Tanya Ruddy, B.Sc., M.Sc., MCIWM, MCIWEM, C.Sci Siún McCarthy, BA, MPlan, MIPI
Chapter 7 – Air Quality and Climate	FT	Tanya Ruddy, B.Sc., M.Sc., MCIWM, MCIWEM, C.Sci Derek Milton B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM & Donna O’Halloran, Dip Hort., BSc (Agr.), MSc (Agr) ERM., MSc Ecology
	Odournet	Nick Jones, B.Sc., MIWA, MIOd Adam Dawson, B.Sc. Dr Andrew Meacham, BSc and PhD in chemistry Paul Ottley, B,Sc

EIS Topic	Company	Name and Qualifications
Chapter 8 – Roads, Traffic & Transportation	Trafficwise	Julian Keenan, B.Eng.
Chapter 9 – Noise and Vibration	FT	Dr. John Mahon, Ph.D. in Acoustics & Vibration
Chapter 10 – Biodiversity	FT	Jon Kearney, M.Sc., B. Sc., MCIEEM Dr. Elaine Bennett, B.Sc., Ph.D Donna O'Halloran, Dip Hort., BSc (Agr.), MSc (Agr) ERM., MSc Ecology
Chapter 11 – Lands, Soils and Geology	FT	Tanya Ruddy, B.Sc., M.Sc., MCIWM, MCIWEM, C.Sci Tom Clayton, M.Eng, CEng James Dunn, M.Sc.
Chapter 12 – Hydrology and Surface Water Quality	FT	Mary Creedon, BE, CEng, MIEI, MIHT Alice Riordan, B.Eng, C.Eng, MIEI, MIAH Chris Cronin, M.Sc., C.Eng, C. Env, MCIWM, MIEI
Chapter 13 - Landscape and Visual Impact Assessment	FT	Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM Siún McCarthy, BA, MPlan, MIPI
Chapter 14 – Archaeology and Architecture and Cultural Heritage	Dermot Nelis Archaeology	Dermot Nelis, BA, ArchOxon, MIAI.
Chapter 15 – Material Assets	FT	Derek Milton, B.Sc., M.Sc., Pg. Dip, B.Sc., MCIWM Tanya Ruddy, B.Sc., M.Sc., MCIWM, MCIWEM, C.Sci
Chapter 16 – Schedule of Commitments	FT	Tanya Ruddy, M.Sc., MCIWM, MCIWEM, C.Sci

1.9 Difficulties Encountered

There were no technical difficulties encountered during the preparation of this environmental impact assessment.

1.10 Viewing and Purchasing of the EIAR

This EIAR is available for download at www.knockharleylandfill.ie.

Copies of this EIAR including the Non-Technical Summary and the Appendices may be inspected free of charge or purchased by any member of the public during normal office hours at the following locations:

- The offices of An Bord Pleanála, 64 Marlborough Street, Dublin 1.
- Meath County Council Planning Department, Buvinda House, Dublin Road, Navan, County Meath.

Submissions or observations may be made to An Bord Pleanála (the Board), 64 Marlborough Street, Dublin 1 within 7 weeks of the date of documentation being made available for inspection. Submissions/observations must be accompanied by a fee of €50.

1.11 References

1. **Meath County Council.** *Meath County Development Plan 2013-2019.*
2. **County Council.** *Online Planning Portal*
(<http://www.meath.ie/CountyCouncil/Planning/SearchPlanningPermissionApplications/>)
3. **European Commission.** *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, May 1999.* Available from: <http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf>
4. **Environmental Protection Agency.** *Guidelines on the Information to be contained in Environmental Impact Statements.* 2002.
5. **Environmental Protection Agency.** *Advice notes on Current Practice (in the preparation of Environmental Impact Statements.* 2003.
6. **Environmental Protection Agency.** *Draft publication Guidelines to be contained in Environmental Impact Assessment Reports (August 2017) produced by the EPA to address the transposition of the requirements of Directive 2014/52/EU.* 2017.
7. **European Commission** "Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)" (2017)
8. **Environmental Protection Agency** (Draft - August 2017) "Revised Guidelines on the Information to be contained in Environmental Impact Assessment Reports";
9. **European Parliament, Council.** *Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment.* 2014.
10. **European Parliament, Council.** *Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of public and private projects on the environment.* 2011.