JSPE

J Sheils Planning & Environmental Ltd

SAND & GRAVEL MERCHANTS LTD.

THORNBERRY TOWNLAND

KILL

Co. KILDARE

Waste Management Licence Application

W0264-01

ENVIRONMENTAL IMPACT STATEMENT

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1 INTRODUCTION

1.1 GENERAL BACKGROUND

Projects likely to have significant effects on the environment *by virtue of their nature, size and location* are subject to the requirement for an Environmental Impact Assessment (EIA), prior to gaining development consent. The EIA is a systematic process undertaken to identify and evaluate the potential environmental impact of proposed projects. The EIA also seeks to consider alternatives and propose mitigation measures to ensure the development is carried out within recognised and accepted standards. Thus, the EIA is a dynamic process in which environmental consideration delivers significantly improved project configurations in respect of environmental protection and sustainability. The Environmental Impact Statement (EIS) is the formal statement or document produced as a result of that process.

This EIS pertains to the continued operation of a Waste Recovery Facility (WRF) located at a quarry in Thornberry Townland, Kill, Co. Kildare.

The lands have a history of sand and gravel working. Planning Permission P.A. Reg. Ref. No. 771/85, PL 9/5/70970 was granted on 05/09/1985 for development comprising the restoration of derelict land to agricultural use by managed land fill scheme using dry non-industrial toxic waste. It should be noted that the only material imported to site has comprised inert soil and stones, and recovery of construction and demolition waste (concrete, bricks, tiles and ceramics).

The lands have been progressively restored subject to successive WMP's dating back to 2001. The current waste management permit (Waste Permit Reg. No. WMP 30/2001B) was granted by Kildare County Council for a 36 month period on 16th May 2007. In consideration of this application the file including the above planning permission was referred to the Planning Section of Kildare County Council. The Planning Section stated that they had no objection to the waste permit application subject to compliance with the conditions of planning. Details with respect to planning history have been provided in Attachment B.3 of the Waste Licence application.

The principal activity is Class R5 (recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials) of the Fourth Schedule of the Waste Management Act 1996, as amended. Other activities include Class R13 of the Fourth Schedule (storage of waste pending any of the operations numbered R 1 to R 12).

The nature of the development is the continued phased restoration of a sand and gravel pit using imported inert soils, stone, and recovery of inert construction and demolition waste. Up to 70,000 cubic metres per annum is being accepted to the site and circa 25,000 cubic metres is required to complete the restoration of the site.

The original void space was estimate to be c. 180,000 cubic metres on submission of the Waste Management Licence application in 2009. It has been calculated that the void space remaining is only c. 25,000 cubic metres based on the original scheme submitted with the Waste Management Application.

Changes in Waste Management legislation which came into effect in June 2008 (S.I. No. 821 of 2007, and S.I. No. 86 of 2008), now require a Waste Management Licence issued by the Environmental Protection Agency (EPA) in order to operate a waste recovery facility with a lifetime total intake volume in excess of 100,000 tonnes.

The waste licence application (W0264-01) was submitted on 13/02/2009. In accordance with Section 40 (2A)(C) of the Waste Management Acts (1996-2013), the Agency has assessed the information submitted and considers that the application must be made subject to an environmental impact assessment (EIA). As such the environmental impact statement will be submitted to the Agency with the application.

A copy of the application for a waste licence, environmental impact statement and such further information relating to the application as may be furnished to the Agency in the course of the Agency's consideration of the application, will, as soon as practicable after receipt by the Agency, be available for inspection or purchase at the headquarters of the Agency.

The EIS has been prepared and compiled under the supervision of John Sheils, (B.Eng. (Mining), MSCSI, MRICS) on behalf of the applicant, Sand & Gravel Merchants Ltd. John Sheils is the principal of "J Sheils Planning & Environmental Ltd", a company that provides planning, environmental services and specialises in the area of minerals extraction and inert waste management.

In addition to the studies within the EIS carried out by J Sheils Planning & Environmental Ltd, some additional technical studies have been carried out by independent consultants. These studies are incorporated within the EIS or are attached to the EIS as appendices.

1.2 SITE LOCATION

The site is located within the Townland of Thornberry, c. 2km southeast of Kill, on the east side of local L2019 road (Refer to Figure A1.0, EIS Section 2 Figures). The L2019 road runs from Rathcoole c. 12.5km in a southwesterly direction to Beggars End crossroads, and follows the southwesterly oriented topographic contours, which parallel the orientation of the leading edge of the Eastern Uplands and the Wicklow Mountains.

The site lies c. 2km southeast of Kill, whilst the next nearest major settlements or towns are Naas at c. 6.5km to the west, Sallins c. 7km to the west, Blessington c. 7.5km to the southeast, Rathcoole c. 8km to the northeast, Clane c. 10.5km to the west northwest, Cellbridge c. 12km to the north, Tallaght c. 15km to the northeast, Leixlip c. 15.5km to the east northeast, Maynooth c. 16.5km to the north, Kilcullen c. 17.5km to the southwest, Newbridge c. 17.5km to the west southwest, and Dublin City c. 25km to the northeast. Access to the site is gained from the local road L2109 adjoining the western site boundary. The site lies c. 2km south of Junction 7 on the N7 dual carriageway (north of Kill), and c. 6km northwest of the N81 (north of Blessington).

The site is situated at approximately 135-150m AOD in a predominantly rural area of northeast County Kildare. The surrounding landscape constitutes a transition from lowlands developed on limestones to the west, to the foothills of the Wicklow Mountains developed on more indurated Lower Palaeozoic siliceous metasediments. The sand and gravel workings at the

Thornberry site, and at the adjoining Arthurstown site, were developed on Quaternary glacial moraine deposits. Initial quarrying at Thornberry exploited the long, narrow, steep-sided topographic ridge of a moraine occurring along the southern boundary of the property, and subsequently worked the resource northwards, resulting in the current L-shaped quarry workings.

The site of the quarry and WRF comprises c. 10ha of a leasehold of 11.4ha, which the applicant, Sand and Gravel Merchants Ltd., lease from Mr. Patrick Cullen, the owner. As stated above, the site is L-shaped, being c. 700m in length, c. 100m wide, and c. 300m wide at the base of the L. The workings are effectively screened from views on local road L2019 by intervening mature and often heavily wooded hedgerows, but are open to distant, views from elevated ground to the east.

Thornberry sits near the headwaters, and on the south side, of the Kill River catchment basin, in which the river flows in a roughly west northwest direction, c. 500m north of the site. The Kill River merges with the Painestown River north of Kill, and in turns flows into the Morell River c. 3km south of Straffan. The Morell River is a tributary of the Liffey River, and drains into the Liffey, downstream of Straffan Demesne and the K club, c. 1km south of Straffan village.

Outside of the immediate environs of the towns, the settlement pattern can be described as low-intensity rural settlement. Residential property in the area typically comprises one-off single residences and farmsteads along public roads or at the end of lanes off the latter (Refer to Figure B 2.2, Rev. A, *EIS Section 2 Figures*, for locations of residences). Although there are no residences within the leasehold, there is a single farmstead within the landholding (i.e., landowners residence), whilst there are six residences within 500m of the site (i.e., one on the landholding, two adjacent to the site entrance, and three on the L2019 north of the site: Refer to Figures A1.0, B 2.2, EIS Section 2 Figures for site location details).

Land-use in the area consists of a patchwork of agricultural fields that are classed as pasture and subordinate non-irrigated arable land, reflecting medium-high intensity agricultural. Areas of industrial and commercial use occur at Arthurstown, Thornberry, as well as nearby at Hartwell Lower and Oldmilltown, whilst areas of discontinuous urban fabric occur at Kill and Naas.

1.3 LEGISLATION

1.3.1 ENVIRONMENTAL AND PLANNING & DEVELOPMENT LEGISLATION

As a member State of the EU, Ireland is required to transpose EU directives into Irish Law within specified periods of their enactment. The EIA process is covered by the EIA Directive (85/337/EEC), which has been amended three times, and more recently consolidated in the Directive 2011/92/EU. In particular, Annex I of the directive specifies projects requiring an EIA, whilst Annex II specifies those projects where the Member state decides on the thresholds in terms of project scale, as to whether an EIA is required.

Prior to 2000, the rules in respect of EIA contained in the various EC directives were brought into force by the European Communities (EIA) Regulations 1989 and the EC (EIA)

(Amendment) Regulations, 1999 and the Local Government (Planning & Development) Regulations 1999. These were largely consolidated within the terms of Part X of the Planning & Development 2000 Act, and Part 10 of, and Schedules 5, 6 and 7 of the 2001 Regulations. Therefore, under Irish Law, proposed developments are required to comply with the Planning and Development Acts, 2000-2010 and related secondary legislation in the form of Statutory Instruments or Regulations. These pieces of legislation require an EIA to be conducted, typically by specialist consultants on behalf of the developer, before consent is given for projects likely to have significant effects on the environment by reason of their *size, nature or location*.

In respect of the Planning & Development Regulations S.I. No. 600 of 2001, Schedule 5, Part 1 specifies projects requiring an EIA (reflecting Annex I of the EIA Directive), and Schedule 5, Part 2 specifies those projects where the Member state decides on the thresholds in terms of project scale, as to whether an EIA is required (reflecting Annex II of the EIA Directive). Schedule 6 specifies information to be contained in an EIA, whilst Schedule 7 specifies the criteria used for determining Sub-Threshold projects that for reasons of location and characteristics of the development and related impacts, require an EIA.

1.3.2 WASTE LEGISLATION

The Waste Framework Directive 2008/98/EC, which repealed previous Waste Directives 75/439/EEC, 91/689/EEC and 2006/12/EC, establishes a legal framework for the treatment of waste within the EU, excepting certain waste categories, such as radioactive elements, waste water, animal by-products, etc. The Directive seeks to protect the environment and human health through the prevention of the harmful effects of waste generation, and through waste management. Article 13 requires Member States to take measures to ensure that waste is managed while safeguarding human health and the environment, and in particular:

- without risk to water, air or soil or to plants or animals
- without causing a nuisance through noise or odour
- without adversely affecting the countryside or places of special interest

In order to address the whole waste cycle, Member States are required to implement legislation in accordance with a hierarchy for the treatment of waste, set out in Article 4, which ranges from prevention, reuse, recycle, energy recovery to disposal (i.e., analogous to Landlink's Ladder). The Directive also addresses issues of waste management, permits and registration, and the establishment of national waste management plans.

The management of waste in Irish Law is codified principally in the Waste Management (WM) Acts, 1996 and 2001, and Part 3 of the Protection of the Environment Act, 2003, which may be cited together as the Waste Management Acts, 1996, as amended. The European Communities (Waste Directive) Regulations, 2011 (S.I. 126 of 2011) represents the transposition of the Waste Framework Directive, 2008 into Irish Law, and amends these Acts.

The 2011 Regulations apply the definition of 'waste' established in the 1996 WM Act as "any substance or object belonging to a category of waste specified in the First Schedule or for the time being included in the European Waste Catalogue (EWC) which the holder discards or intends or is required to discard, and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved".

The Waste Management Acts, as amended, require that any person, with few exceptions, carrying out the recovery or disposal of waste shall hold a waste license, a waste facility permit or a certificate of registration, depending on the nature and extent of the activity. This requirement for waste disposal and recovery activities to be authorised is provided for in Part V, Section 39 of the Waste Management Acts. Sub-section 39(1) states that all such activities require a waste licence, except those classes of activities for which waste permit regulations have been provided under subsection 39(4). Sub-section 39(5) sets out that the waste permit regulations shall provide specifics on the quantities of waste that may be disposed or recovered under waste permits, and that waste permits or waste certificates, as opposed to waste licences, are obtained from the local authority, for privately operated waste facilities, or the Agency.

The Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. 821 of 2007), as amended (i.e., S.I. 86 of 2008), governs waste facility permits and certificates of registration. Schedule 3, Part I of the 2007 Regulations specifies the types of waste activities subject to a waste facility permit. Class 5 covers the recovery of excavation spoil, comprising natural materials (e.g., clay, gravel, etc.), and which constitutes inert waste, through deposition for the purposes of the improvement or development of land. This class of activity has a threshold of 100,000 tonnes for the total waste intake over the lifetime of the facility.

Where there are several classes of waste activities being undertaken within a facility, the quantity of waste for the purpose of the statutory thresholds refers to the total quantity of waste accepted at the facility (i.e., total of all classes of activity) and compared to the threshold for the principal class (EPA 2008). However, as Class 5 is the dominant class of activity at Thornberry, and the expected lifetime intake volume exceeds the 100,000 tonnes threshold for a Waste Permit, the operator is required to apply for a Waste Management Licence.

In order to continue the phased restoration of the quarry, Sand and Gravel Merchants Ltd. therefore applied to the EPA for a Waste Management Licence to replace the existing Waste Management Permit granted by Kildare County Council in 2006 (Ref. No. WMP 30/2001B).

According to Article 3(4) of the 2007 Regulations, “A waste permit granted under the Regulations revoked in respect of an activity which does not fall within part I of the third schedule and which requires a waste licence in accordance with the Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004), as may be amended from time to time, shall remain valid if an application for a waste licence is made to the Agency within 180 working days of the coming into operation of these Regulations, until such time as a decision is taken to grant or to refuse a waste licence under article 34 of the Waste Management (Licensing) Regulations 2004, as may be amended from time to time, at which point the waste facility permit will lapse.” Thus, the WRF at Thornberry has continued to operate under the conditions of the existing Waste Permit (Reg. No. WMP 30/2001B), whilst the application for a Waste Management Licence remains undecided.

The principal activity is Class R5 (recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials) of the Fourth Schedule of the Waste Management Act 1996, as amended. Other activities include Class R13 of the Fourth Schedule (storage of waste pending any of the operations numbered R 1 to R 12).

1.4 SCREENING

An EIA is a systematic process to identify and evaluate the environmental impact of proposed projects, developments and programmes, and is a key environmental policy instrument of the European Union (EU). The process requires proposed developments likely to have a significant impact on the environment to gain consent from the competent authority prior to proceeding with the project.

As stated above, in Irish Law, the principal Acts under which EIA's are regulated are the Planning & Development Acts, 2000-2010. The Act consolidates previous Planning Acts and much of the Environmental Impact Assessment Regulations, where the latter is covered in Part 10 of the Act. In addition, secondary legislation consisting of Statutory Instruments or Regulations, made under the Planning & Development Act are also applicable.

Screening is the initial phase of the EIA process, whereby the proposed project is evaluated to determine if an EIA is required. Projects requiring EIA are listed in Part 1 and 2 of Schedule 5 of the Planning and Development Regulations (PDR) 2001. Part 1 lists projects for which an EIA is obligatory under European law (specified in Annex 1 of the EIA Directive 2011/92/EU). In contrast, Part 2 lists projects for which an EIA is required, based on criteria and/or thresholds determined by the Member State, Ireland in this case (reflecting Annex II of the EIA Directive 2011/92/EU).

Any development which is seeking a waste licence which has not previously been subject to an Environmental Impact Assessment (EIA) is screened by the EPA to determine whether a waste licence application should be made subject to an EIA.

During the EPA waste licensing process, the legislation relating to EIA was revised subject to European Union (Environmental Impact Assessment) (Waste) Regulations 2012 (S.I. No. 283 of 2012). In accordance with Section 40(2A) of the Waste Management Act 1996, as amended, and with regard to Section 42(11) of the Act, as amended, the Agency has, as part of its consideration of the waste licence application determined that the application should be made subject to an Environmental Impact Assessment (EIA) as regards the matters that come within the functions of the Agency.

The EPA have determined that the activity to which the licence application relates exceeds the threshold under Section 11(b) of Part 2, of Schedule 5 of the Planning and Development Regulations (PDR) 2001, namely "Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule."

1.5 SCOPING & CONSULTATION

Scoping should ensure that the constituent environmental studies of the EIA provide all of the relevant information, particularly with respect to: (1) significant impacts of the project; and (2) alternatives to the project. As such, the scoping process identifies the issues that are likely to be important during the EIA and eliminates those that are not. The information can be compiled through a formal process, whereby the competent authority is asked to consult with relevant agencies to draw up an opinion about the scope of the coverage required. More

informal scoping can also be carried out to ensure that all relevant issues are identified and addressed to an appropriate level of detail.

A scoping exercise has been carried out in order to identify the range of impacts that may be associated with the proposed development, the likely concerns of local residents and landowners, and to assess the information and detail that is required to be included within the EIS.

Consultation for the purpose of an EIA provides an opportunity to solicit expertise and advice from a wide range of organisations and interested parties. Consultation has also taken place with sub-consultants appointed to prepare studies on specialised subjects. These include geologists, ecologists, traffic and archaeological consultants. Consultations were held with professional staff from the EPA as part of the scoping process.

In particular, a meeting was held with Patrick Geoghean and Brian Meaney, Senior EPA Inspectors at the Agency headquarters on 12th May 2014. Following on from this meeting it was decided to proceed with the Waste Licence Application (W0264-01). The inspectors outlined their requirements with respect to preparation of the EIS and that the EIS should be prepared in light of the Agency's guidance documents on EIS (Refer to Section 1.6 below).

Given the level of discussion with the EPA, including identifying the issues and emphasis that are likely to be important during the EIA, it was not considered necessary to formally request a written opinion ("scoping") on the information to be contained in the Environmental Impact Statement (EIS) in accordance with Section 173 of the Planning and Development Act 2000, as amended.

1.6 FORMAT OF ENVIRONMENTAL IMPACT STATEMENT

The format and scope of this document has been produced having regard to:

I. Schedule 6 and 7 of Planning & Development Regulation 2001 (S.1. No. 600 of 2001)

II. Kildare County Development Plan (2011-2017).

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

IV. Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (EPA 2003).

V. Waste Licensing: Application Guidance Notes for Waste Soils Recovery Facilities (EPA 2012a).

VI. Waste Licensing: Application Guidance Notes (EPA 2012b)

The EIS takes into account these and other Government and commonly accepted standards and guidelines that affect various aspects of the proposed development.

In order to ensure transparency and public awareness of the environmental implications of development decisions, an EIS is required to contain a non-technical summary according to Article 94 of the PDR 2001 (S.I. No. 600 of 2001). Clause 94(C) specifies "a summary in non-technical language of the information" required to be contained in the EIS by the preceding

clauses 94(a) and 94(b). Thus, the non-technical summary includes descriptions of the project, existing environment, impacts and mitigation measures, as well as graphic elements such as location map, site layout plan, etc. Furthermore, the non-technical summary is written in a format and language that can be understood by persons without the appropriate technical background.

In accordance with the guidance, the non-technical summary is provided as a separate, self-contained document, and is available to the public for inspection or purchase at the headquarters of the EPA.

1.7 OBJECTIVES OF ENVIRONMENTAL IMPACT STATEMENT

Formal environmental assessment enables the environmental effects which may be caused by a development to be systematically identified and evaluated. The EIS presents the results in a manner that enables the importance of the predicted effects, and the scope for modifying or mitigating these effects, to be properly evaluated by the relevant decision-making body prior to deciding with respect to development consent.

This EIS seeks to provide an objective analysis of the possible environmental effects resulting from the continued operation of the Waste Recovery Facility at Thornberry. These effects are assessed against a comprehensive checklist of relevant environmental criteria. The EIS then systematically evaluates the positive and negative impacts of the project on both natural and human environments.

The overall aims of the Statement are:

- To provide relevant and complete environmental information to all project stakeholders, including the general public, in a self-contained and comprehensive document.
- To identify and provide objective analysis of the potential effects of the proposed development on the existing environment, so as to inform the competent authority and other interested parties in the decision-making process.
- To describe available measures to mitigate, either by avoidance, reduction or remediation, any environmental effects that may be identified.
- To assess the likely effectiveness of the mitigation measures, and the acceptability of residual effects.
- To provide a framework for the ongoing monitoring of residual environmental effects.

The EIS is intended to be a self-contained document which addresses all of the potential environmental issues which may arise as a result of the proposed development.

1.8 LAYOUT OF ENVIRONMENTAL IMPACT STATEMENT

The EIS has been prepared in accordance with 'Guidelines on the Information to be contained in Environmental Impact Statement' published by the Environment Protection Agency. The second reprint of these guidelines was published in 2002. The EIS also takes into account current practice in Environmental Assessment. In addition, the policies contained within the Kildare County Development Plan (2011-2017) have been considered and taken into account.

The EIS has been prepared using the "Grouped Format Structure", where each topic is examined as a separate section referring to the existing environment, the proposed development, impacts and mitigation measures.

The Statement is sub-divided into three main sections:

Section 1 sets out general introductory comments concerning the project and a brief explanation of the aims and format of the EIS. It also identifies the various consultees and professional consultants who have contributed to this EIS and any difficulties encountered in preparation of the EIS.

Section 2 describes the details and nature of the proposed development and introduces some of the potential environmental effects which may result. It also explains the need for the proposed development, details any proposed or anticipated growth of the development and possible associated projects. Alternative project locations, designs and processes are also considered.

Section 3 provides detailed information on all aspects of the existing environment, identifies potential impacts on the environment by the proposed development, and recommends mitigation measures to avoid, reduce or remedy these impacts. They are grouped under the following sub-sections:

- Human Beings
- Flora and Fauna
- Soils and Geology
- Water (Surface and Groundwater)
- Climate
- Air Quality
- Noise & Vibration
- Landscape
- Cultural Heritage
- Material Assets
- Traffic
- The Interaction of the Foregoing (This section is an examination of any interaction between impacts identified in the previous sub-sections).

The associated references, plates, figures and appendices are provided at the end of each section for Sections 1 and 2 and at the end of each sub-section for Section 3.

1.9 THE PROJECT TEAM

The project has been managed by J Sheils Planning and Environmental Ltd. The principal J Sheils is a chartered minerals surveyor, mining engineer, with a postgraduate diploma in environmental protection, and has considerable experience in the compilation of planning applications and the carrying out of Environmental Impact Assessments (EIA's).

The Flora and Fauna EIS section 3.2 was carried out by the Ecologist, Roger Goodwillie. Roger Goodwillie is a Member of the Chartered Institute of Ecology and Environmental Management.

The Human Beings Section 3.1, Soils and Geology Section 3.3, Water Section 3.4, aspects of the Landscape Section 3.8, and Material Assets Section 3.10 were carried out with the assistance of Raymond E. Healy B.Sc., M.Sc., Project Geologist. Mr. Healy has over twenty years' experience in mining and exploration geology, and holds a Specialist Diploma in Environmental Sustainability from NUIG.

The Cultural Heritage EIS section 3.9 was undertaken by Dermot Nelis, BA ArchOxon AIFA MIAI. Dermot Nelis graduated from Queen's University Belfast, and after gaining extensive fieldwork experience undertook postgraduate studies at the University of Oxford in archaeological consultancy and project management. Dermot has carried out numerous walkover surveys, testing and monitoring programmes. He has completed over 100 Licensed fieldwork programmes and over 150 archaeological, architectural and cultural heritage desk-based assessments and Environmental Impact Assessments.

The traffic section 3.11 was prepared by Tony J. McNulty BE. F.I.E.I, chartered engineer. Tony was previously a Mayo County Council senior engineer and has 40 years' experience in road design, construction & maintenance, preparation of traffic management and safety plans, and traffic sections of Environmental Impact Assessments.

1.10 APPLICANT

Sand & Gravel Merchants Ltd has an established small family run business based in Thornberry, Kill, Co Kildare. The company employs up to 3 people directly on site (currently 2 due to recent economic recession). Mr Tom Gavin – Facility Manager will be responsible for the overall management of the facility including implementation of the proposed Environmental Management System.

Mr. Gavin has 30 experience in the extractive industry, and nineteen years experience operating and managing the existing Waste Recovery Facility. Mr. Mark Gavin is the site foreman with seventeen years experience at the Waste Recovery Facility, and is also responsible for the administration and record-keeping for the facility. An additional general operative is hired on an occasional basis.

The WRF requires one person operating a bull-dozer/back-hoe excavator, one general foreman to monitor and inspect the quality and suitability of imported materials being brought to the site for recovery/sorting/transfer, and one other general site operative.

1.11 ANY DIFFICULTIES IN COMPILING SPECIFIED INFORMATION

No major difficulties arising from either deficiencies in technology, knowledge or expertise were encountered in the preparation of the EIS. The EIS has been prepared by consultants with considerable experience in the compilation of waste licence applications and the carrying out of Environmental Impact Assessments (EIA's) for waste management developments (Refer to Section 1.9).

A Waste Management Licence application for a Waste Recovery Facility at the Thornberry quarry was submitted to the EPA in 2009, and ensured a considerable volume of relevant data was available. The contents of a 2006 EIS and several recent Annual Environmental Reports for the contiguous Arthurstown Landfill were also considered in the preparation of this EIS.

1.12 REFERENCES

1 DOECLG (2010) *Planning and Development Acts 2000-2010*, Dept. of the Environment, Community and Local Government (DOECLG), Dublin, Ireland, [Available at Irish Statute Book, Office of the Attorney General http://www.irishstatutebook.ie/home.html]

2 DOECLG (2011) *Planning & Development Regulations 2001 - 2011*, Dept. of the Environment, Community and Local Government (DOECLG), Dublin, Ireland, [Available at Irish Statute Book, Office of the Attorney General http://www.irishstatutebook.ie/home.html]

3 DOECLG (2001) *Planning & Development Regulation 2001 (S.1. No. 600 of 2001), as amended*, Dept. of the Environment, Community and Local Government (DOECLG), [Available at Irish Statute Book, Office of the Attorney General http://www.irishstatutebook.ie/home.html]

4 DOEHLG (2004) *Quarries and Ancillary Activities - Guidelines for Planning Authorities*, Dept. of the Environment, Heritage and Local Government (DOEHLG), Dublin, Ireland, [Available at http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/], 46 p.

5 DOECLG (1989 - 2006) European Communities (Environmental Impact Assessment) Regulations, 1989 to 2006, [Available at Irish Statute Book, Office of the Attorney General http://www.irishstatutebook.ie/home.html]

6 EPA (2002) Guidelines on the Information to be contained in Environmental Impact Statements, Environmental Protection Agency (EPA), Johnstown Castle, Co. Wexford, Ireland, [Available at http://www.epa.ie/pubs/] 33 p.

7 EPA (2003) Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), Environmental Protection Agency (EPA), Johnstown Castle, Co. Wexford, Ireland, [Available at http://www.epa.ie/pubs/] 140 p.

8 EPA (2006) *Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals)*, Environmental Protection Agency (EPA), Johnstown Castle, Co. Wexford, Ireland, [Available at http://www.epa.ie/pubs/] 28 p.

9 EPA (2008) Guidance Manual: Waste Facility Permit and Registration Regulations, Environmental Protection Agency (EPA), Johnstown Castle, Co. Wexford, Ireland, [Available at http://www.epa.ie/pubs/] 372 p.

10 EPA (2012a) Waste Licensing: Application Guidance Notes for Waste Soils Recovery Facilities, Environmental Protection Agency (EPA), Johnstown Castle, Co. Wexford, Ireland, [Available at http://www.epa.ie/pubs/] 22 p.

11 EPA (2012b) Waste Licensing: Application Guidance Notes, Environmental Protection Agency (EPA), Johnstown Castle, Co. Wexford, Ireland, [Available at [Available at http://www.epa.ie/pubs/] 31 p.

12 Kildare County Council (2011), Kildare County Development Plan (2011-2017), Kildare County Council, Naas, Co. Kildare, Ireland, [Available at http://kildare.ie/CountyCouncil/Planning/DevelopmentPlans/KildareCountyDevelopmentPlan2011-2017/]

2 DESCRIPTION OF THE DEVELOPMENT

2.1 ALTERNATIVES EXAMINED

Schedule No. 6 of the Planning and Development Regulation 2001 (reflecting Annex IV of Directive 97/11/EC) specifies the information to be contained in an EIS, and requires *"An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment"*. Current guidelines and practice for the preparation of environmental impact statements recommend that alternative project locations, designs and processes be considered with regards to environmental effects.

Alternatives to the development proposals are generally considered at three principal levels.

2.1.1 ALTERNATIVE SITES

Environmentally beneficial site reinstatement, such as that proposed at the application site, can only be undertaken where previous land-use activities have created a disturbed and degraded landscape.

The lands have a history of sand and gravel working. The lands have been progressively restored subject to successive WMP's dating back to 2001. The current waste management permit is Waste Permit Reg. No. WMP 30/2001B. As such it was not considered particularly relevant in this case for the applicant to identify and appraise the merits of alternative sites for the proposed material recovery activity. It is the existence of this requirement for reinstatement using inert materials, and the environmental gain derived therefrom, that constitutes the principal qualification of the application site.

Notwithstanding the foregoing, quarry restoration is typically ranked favourably in the hierarchy applied, for example by Kildare County Council (2005), to site selection for recovery of inert waste material:

- re-use of material where produced
- **quarry restoration**
- land reclamation
- agricultural/recreational use
- raising of development land
- raising of sites for one-off houses

Existing quarries and pits whether worked out or in operation are potentially useful sites for the management of C&D waste. The inert soil can be used to restore the topographical contours. It may be possible to use the same trucks to deliver aggregates / raw materials to building sites and remove soil, thereby reducing traffic impacts. With fewer of these sites, better regulation will be possible at a lower cost.

Local authorities should therefore encourage the use of quarries / pits for sustainable management of C&D waste as opposed to using agricultural land, with an emphasis on resource recovery. Local authorities should divert suitable C&D waste to relevant landfill sites where there is potential to use it for restoration and environmental protection.

Reclamation of the Thornberry quarry will result in infilling of a large exposed void and restoration of the disturbed landscape to its original pre-extraction condition, with emplacement of soil cover to protect the underlying groundwater.

The proposed development fully accords with the principles of sustainable development in that:-

- it reduces the negative environmental impacts of the proposed activity in that it is within an existing pit;
- it offers potential for reduced transport journeys to landfill / recovery sites further afield.
- it conserves limited void space within existing landfill sites

2.1.2 ALTERNATIVE DESIGNS

The design of the Waste Recovery Facility (WRF) is driven by the basic processes of recovery of C&D waste, with the recovery by backfilling of otherwise unusable materials to meet the requirement to reclaim the quarry back to the pre-extraction condition. Integration of the waste recovery activity with that of the existing quarry is driven by the numerous common processes of inert material recovery and quarry operations. Because the waste recovery facility will share much of the infrastructure of the quarry, design alternatives are constrained by the design of the existing facility and the imperative of achieving maximum synergy. Allocation of areas for inspection of intake material, quarantine material, and residual waste is an additional requirement of the waste recovery facility. The design and siting of these areas is driven by the need to maximise operational efficiencies and economic return, and offers the greatest latitude in facility design.

2.1.3 ALTERNATIVE PROCESSES

Waste recovery lies at the second lowest tier in the European Waste Hierarchy, and as such is the process of last resort prior to disposal. Process alternatives diminish as we descend the tiers of the hierarchy from the pinnacle of prevention to reduction, reuse, recycling, recovery and ultimately to disposal/landfill at the base.

The opportunities to exploit process alternatives lie further up the waste hierarchy with designers, producers, users and other participants in product lifecycles, and where adoption of the principles of product stewardship could significantly reduce the environmental impact of products, particularly resource utilisation. However, at this point in the product lifecycle, waste recovery and backfilling unusable waste represents the optimum economic utilisation of inert C&D waste. Diverting waste material out of the disposal stream into reuse off-site including secondary aggregates, and the improvement of land as part of the reinstatement of a quarry, with resulting reduction in primary resource utilisation, offer significant environmental gains.

2.2 CHARACTERISTICS OF THE PROJECT

2.2.1 THE EXISTING SITE

2.2.1.1 GENERAL DESCRIPTION OF SITE AND ENVIRONS

The site is located within the Townland of Thornberry, c. 2km southeast of Kill, on the east side of local L2019 road (Refer to Figure A1.0, EIS Section 2 Figures). The L2019 road runs from Rathcoole c. 12.5km in a southwesterly direction to Beggars End crossroads, and follows the southwesterly oriented topographic contours, which parallel the orientation of the leading edge of the Eastern Uplands and the Wicklow Mountains.

The site lies c. 2km southeast of Kill, whilst the next nearest major settlements or towns are Naas at c. 6.5km to the west, Sallins c. 7km to the west, Blessington c. 7.5km to the southeast, Rathcoole c. 8km to the northeast, Clane c. 10.5km to the west northwest, Cellbridge c. 12km to the north, Tallaght c. 15km to the northeast, Leixlip c. 15.5km to the east northeast, Maynooth c. 16.5km to the north, Kilcullen c. 17.5km to the southwest, Newbridge c. 17.5km to the west southwest, and Dublin City c. 25km to the northeast. Access to the site is gained from the local road L2109 adjoining the western site boundary. The site lies c. 2km south of Junction 7 on the N7 dual carriageway (north of Kill), and c. 6km northwest of the N81 (north of Blessington).

The site is situated at approximately 135-150m AOD in a predominantly rural area of northeast County Kildare. The surrounding landscape constitutes a transition from lowlands developed on limestones to the west, to the foothills of the Wicklow Mountains developed on more indurated Lower Palaeozoic siliceous metasediments. The sand and gravel workings at the Thornberry site, and at the adjoining Arthurstown site, were developed on Quaternary glacial moraine deposits. Initial quarrying at Thornberry exploited the long, narrow, steep-sided topographic ridge of a moraine occurring along the southern boundary of the property, and subsequently worked the resource northwards, resulting in the current L-shaped quarry workings.

The site of the quarry and WRF comprises c. 10ha of a leasehold of 11.4ha, which the applicant, Sand and Gravel Merchants Ltd., lease from Mr. Patrick Cullen, the owner. As stated above, the site is L-shaped, being c. 700m in length, c. 100m wide, and c. 300m wide at the base of the L. The workings are effectively screened from views on local road L2019 by intervening mature and often heavily wooded hedgerows, but are open to distant, views from elevated ground to the east.

Thornberry sits near the headwaters, and on the south side, of the Kill River catchment basin, in which the river flows in a roughly west northwest direction, c. 500m north of the site. The Kill River merges with the Painestown River north of Kill, and in turns flows into the Morell River c. 3km south of Straffan. The Morell River is a tributary of the Liffey River, and drains into the Liffey, downstream of Straffan Demesne and the K club, c. 1km south of Straffan village.

Outside of the immediate environs of the towns, the settlement pattern can be described as low-intensity rural settlement. Residential property in the area typically comprises one-off

single residences and farmsteads along public roads or at the end of lanes off the latter (Refer to Figure B 2.2, Rev. A, *EIS Section 2 Figures,* for locations of residences). Although there are no residences within the leasehold, there is a single farmstead within the landholding (i.e., landowners residence), whilst there are six residences within 500m of the site (i.e., one on the landholding, two adjacent to the site entrance, and three on the L2019 north of the site: Refer to Figures A1.0, B 2.2, EIS Section 2 Figures for site location details).

Land-use in the area consists of a patchwork of agricultural fields that are classed as pasture and subordinate non-irrigated arable land, reflecting medium-high intensity agricultural. Areas of industrial and commercial use occur at Arthurstown, Thornberry, as well as nearby at Hartwell Lower and Oldmilltown, whilst areas of discontinuous urban fabric occur at Kill and Naas.

Mitigation measures to alleviate any adverse impacts from the development on the environment have been incorporated into the design (Refer to Section 2 and Section 3) to ensure that the development can be operated within accepted standards for this type of development.

2.2.1.2 PLANNING HISTORY

The lands have a history of sand and gravel working. Planning Permission P.A. Reg. Ref. No. 771/85, PL 9/5/70970 was granted on 05/09/1985 for development comprising the restoration of derelict land to agricultural use by managed land fill scheme using dry non-industrial toxic waste. It should be noted that the only material imported to site has comprised inert soil and stones, and recovery of construction and demolition waste (concrete, bricks, tiles and ceramics).

The lands have been progressively restored subject to successive WMP's dating back to 2001. The current waste management permit (Waste Permit Reg. No. WMP 30/2001B) was granted by Kildare County Council for a 36 month period on 16th May 2007. In consideration of this application the file including the above planning permission was referred to the Planning Section of Kildare County Council. The Planning Section stated that they had no objection to the waste permit application subject to compliance with the conditions of planning. Details with respect to planning history have been provided in Attachment B.3 of the Waste Licence application.

2.2.2 THE PROPOSED DEVELOPMENT

2.2.2.1 DEVELOPMENT OVERVIEW

Sand and Gravel Merchants Ltd, Upper Punchestown, Rathmore, Naas, County Kildare has applied to the Environmental Protection Agency for a waste licence for the continued operation of its existing waste recovery facility on lands at Thornberry Townland, Kill, Co. Kildare (National Grid Reference 295986E 221275N). Refer to Figure A.1, *EIS Section 2 Figures,* for location of facility.

The principal activity is Class R5 (recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials) of the Fourth Schedule of the Waste Management Act 1996, as amended. Other

activities include Class R13 of the Fourth Schedule (storage of waste pending any of the operations numbered R 1 to R 12).

The nature of the development is the continued phased restoration of a sand and gravel pit using imported inert soils, stone, and recovery of inert construction and demolition waste. Up to 70,000 cubic metres per annum is being accepted to the site and circa 25,000 cubic metres is required to complete the restoration of the site. The original void space was estimate to be c. 180,000 cubic metres on submission of the Waste Management Licence application in 2009. It has been calculated that the void space remaining is only c. 25,000 cubic metres based on the original scheme submitted with the Waste Management Application.

It is considered that it will take approximately 4-6 months to complete the backfilling operations. An additional 6 months to a year should be allowed to complete final restoration to agricultural land. The existing site layout is shown by to Figure B.2.1 - Rev A.

The lands are to be restored to agricultural use by importation and recovery of inert materials in accordance with a phased restoration scheme. It is the intention to develop them for agricultural use. A bulldozer is used to appropriately grade and compact the material to the desired profile as shown by the detailed plans and sections (Refer to Figures B.2.4 and B.2.5).

Redundant structures, plant equipment and stockpiles will be removed from site on cessation of pit activity.

Clean construction and demolition waste will either be placed directly on haul roads or temporarily placed in storage awaiting recovery.

Sand & Gravel Merchants Ltd has an established small family run business based in Thornberry, Kill, Co Kildare. The company employs up to 3 people directly on site (currently 2 due to the recent economic recession). Mr Tom Gavin – Facility Manager will be responsible for the overall management of the facility including implementation of the proposed Environmental Management System.

Mr. Gavin has 30 experience in the extractive industry, and thirteen years' experience operating and managing the existing Waste Recovery Facility. Mr. Mark Gavin is the site foreman with seventeen years' experience at the Waste Recovery Facility, and is also responsible for the administration and record-keeping for the facility. An additional general operative is hired on an occasional basis.

The WRF requires one person operating a bull-dozer/back-hoe excavator, one general foreman to monitor and inspect the quality and suitability of imported materials being brought to the site for recovery/sorting/transfer, and one other general site operative.

Mitigation measures to alleviate any adverse impacts from the facility on the environment have been incorporated into the design to ensure that the facility can be operated within the accepted standards for this type of development.

2.2.2.2 THE CLASSES OF ACTIVITY

The Class(es) of Activity at the site, as specified in the Fourth Schedule of the Waste Management Act, 1996 (as amended), are as follows:

Fourth Schedule	
Class	Description
R5 *(Principle Activity)*	Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials
R13	Storage of waste pending any of the operations numbered R1 to R12

2.2.2.3 DURATION OF DEVELOPMENT

Up to 70,000 cubic metres per annum is being accepted to the site and circa 25,000 cubic metres is required to complete the restoration of the site. It is considered that it will take approximately 4-6 months to complete the backfilling operations. An additional 6 months to a year should be allowed to complete final restoration to agricultural land.

2.2.2.4 GOVERNMENT POLICY

The unsustainable levels of resource utilisation and waste generation within the EU have made waste management a central issue for policy makers in the EU (EPA 2012). Consequently, the EU passed the Waste Framework Directive in 2008. One of the main objectives of the Directive is to provide a framework to transform Europe into a society with high levels of recycling and resource efficiency. The Waste Framework Directive 2008/98/EC established a legal framework for the treatment of waste within the EU, through the prevention of the harmful effects of waste generation, and through waste management. In order to effect this transformation, Member States are required to implement legislation in accordance with a hierarchy for the treatment of waste.

Whilst EU legislation has been a primary driver of change in Ireland's posture with respect to waste management, the landfill levy introduced in 2002 was another key driver of change. These measures are driving the options for post-consumption management further up the waste hierarchy, away from reliance on disposal in landfill, and towards more sustainable behaviours (EPA 2012b).

Of particular importance is Article 11.2 of the Directive, which states that "Member States shall take the necessary measures designed to achieve that by 2020 a minimum of 70% (by weight) of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the List of Wastes shall be prepared for re-use, recycled or undergo other material recovery (including backfilling operations using waste to substitute other materials)".

2.2.2.4.1 The National Spatial Strategy

The National Spatial Strategy (NSS) was launched by the government in late 2002 and is designed to provide a framework for balanced social, economic and physical development between the regions for the next 20 years (DoELG 2002). The strategy is based on a hierarchy of settlement; Gateways, Hubs and County Towns along with the need to support the role of smaller towns, villages and diverse rural economies.

The NSS provides a framework to promote and balanced regional development and sustainable growth. It also guides policies, programmes and investment. The strategy emphasises continued strong growth in the Greater Dublin Area (GDA), but with significant improvement in the regions outside the capital and more particularly in the nine gateway cities and nine hub towns. Kildare has neither a gateway nor hub town and as such will have to compete with higher order cities and towns to secure funding for strategic investment opportunities. Naas, Newbridge and Kilculllen are recognised as the Primary Development Centres, strategically placed, strong and dynamic urban centres where development should be concentrated. Kildare Town, Monasterevin and Athy represent secondary economic growth towns, which are smaller towns that can cater for local growth in residential, employment and service functions.

Kildare occupies a strategic location in the Greater Dublin Area (GDA) and benefits from a wealth of natural resources. As a constituent of the GDA, it is part of the largest market in the country and at the centre of Ireland's primary economic hub. The transport infrastructure in the County provides easy access to Dublin Airport and Port. Meanwhile Kildare benefits from a strategic location along the M7/M8/M9 transport corridor, a major economic corridor, joining five of the six cities in the Republic (i.e., Dublin, Limerick, Cork, Kilkenny and Waterford).

The NSS recognises that quality of life is increasingly important to people and that unbalanced development affects quality of life. The growing trend of long distance commuting, and the dislocation between centres of employment and residential development are economically, socially and environmentally unsustainable. The NSS recognises that the solution lies in balanced regional development, whereby the potential of each area to contribute to the economic, social and environmental wellbeing of the State is developed. Ireland's growing population can be accommodated within existing settlements, by renewing and developing our cities, towns and villages, and ensuring that urban land is used sensitively and efficiently in order to provide attractive, sustainable, compact, public transport friendly forms, whilst avoiding urban sprawl.

2.2.2.4.2 The National Development Plan 2007-2013

The National Development Plan 2007-2013 sets out a detailed development strategy for the country supported by a multi-annual investment commitment in the key areas of infrastructural development, education and training, the productive sector and the promotion of social inclusion. The Plan also contains a commitment and accompanying framework for the promotion of more balanced regional development.

The Government committed itself in its Programme for Government to review progress on deficit reduction in order to achieve the objective of reaching the 3% of GDP deficit target by

2015[1]. The Department of Finance carried out a review of Infrastructure Investment Priorities for 2010-2016[2]. The review represents a reappraisal of the Government's Public Capital Programme, designed to re-focus investment plans and ready the Irish economy for a return to growth. Investment in economic infrastructure is a key element in the promotion of competitiveness and the generation of sustainable economic growth and employment. It also contributes to regional development and assists environmental sustainability.

The Government has through the National Development Plan and the National Spatial Strategy made clear its objective to facilitate more balanced social and economic growth throughout the State. Such balanced regional growth will result in an increased requirement for social and economic infrastructure with a consequential increase in demand for recovery and re-use of inert Construction and Demolition waste.

2.2.2.4.3 National Waste Policy

The waste policy statement entitled "Taking Stock and Moving Forward" published in April 2004 reiterates a commitment to the implementation of the internationally recognised waste management hierarchy. The integrated waste management approach is to implement maximum recycling, recovery of energy from residual waste and moving away from landfill disposal.

A policy direction WIR 04/05 was issued on 3rd May, 2005 in relation to the movement of waste. This was unforeseen in "Taking Stock and Moving Forward" and was intended to address concerns that relevant regulatory authorities were taking an unnecessarily restrictive approach in regard to the inter-regional movement of waste. This guidance is intended to provide greater clarity in regard to the appropriate application of the proximity principle so as to facilitate the provision of environmentally sustainable and economically viable waste infrastructure in accordance with national policy.

Section 21A. (1) of the amended Waste Management Acts 1996 to 2011 states that:-

The following waste hierarchy shall apply as a priority order in waste prevention and management legislation and policy:

(a) prevention;

(b) preparing for re-use;

(c) recycling;

(d) other recovery (including energy recovery); and

(e) disposal.

[1] Department of the Taoiseach, (April 2011) *National Reform Programme for Ireland under the Europe 2020 Strategy,* Dublin: Department of the Taoiseach.

[2] Department of Finance, (July 2010) *Infrastructure Investment Priorities 2010-2016*, Dublin: Department of Finance.

Measures at the top of the hierarchy have the inherent potential to be more environmentally beneficial and resource efficient. It implies that higher order strategies should be considered first and used where practicable.

Waste prevention is the top priority and when this has been exercised to its full potential then one should attempt to get the maximum benefit from the remaining waste at minimum environmental cost. This is the basis of the **'3 Rs'** which take account of the next steps in the hierarchy:

Reduction (Minimisation) is top of the list since it is the only complete way to reduce environmental impacts.

Reuse is generally better than recycling since there is no processing stage which would use energy and create its own waste.

Recycling is generally better than recovery of secondary materials or energy since it achieves a greater reduction in the demand for primary resources.

To increase the likelihood of applying the Reuse, Recycling, Recovery and Treatment strategies to the best potential it is usually important that the various components in the waste stream are segregated as much as possible so as to minimise contamination. This usually requires segregation at source and systems to prevent the mixing of different waste streams.

A new National Waste Management Policy was adopted in 2012, and the new Regional Waste Plans, due to be in place in 2014, are required to reflect this new National Policy (DoECLG 2012). A key objective of waste management plans is to "ensure self-sufficiency of waste management infrastructure within the State". The Plan incorporates several key obligations imposed by the 2008 Waste Framework Directive:

- Application of the Waste Hierarchy as a priority in legislation and policy
- Recovery of waste where practicable, or disposal without risk to environment or human health
- Prohibition of the abandonment or uncontrolled disposal of waste
- Establishment of an integrated network of waste disposal installations and of installations for the recovery of mixed municipal waste - aiming for self-sufficiency
- A system of permits and registration for all those involved in collecting, disposing of, preparing for the recovery of, or recovering waste
- Cost of waste management borne by original waste producer, through adoption of the polluter pays principle

2.2.2.4.4 Regional Planning Guidelines Greater Dublin Area

The National Spatial Strategy (NSS) for Ireland sets out the basis on which all areas of the country will have the opportunity to develop to their potential within a national spatial planning framework for the period up to 2020 (DoEHLG 2002). The Regional Authorities have been entrusted with the important responsibility of implementing the NSS at regional level.

The Planning and Development Act, 2000 conferred on the Regional Authorities the power to make Regional Planning Guidelines (RPGs) for their functional areas. The RPG, which also

incorporate a socioeconomic development strategy, are intended to constitute a strategic planning framework for the period 2010-2022 for the development of each region and for inter-regional cooperation. The strategic policies and objectives set out in the RPG will form the backdrop for socio-economic planning by national and regional agencies and will constitute the policy framework within which county, city, town and local area development plans will be made.

The Regional Planning Guidelines (RPGs) extend the implementation of the National Spatial Strategy (NSS) down to the regional and local levels, by linking national spatial policy with planning by local authorities.

The Regional Planning Guidelines for the Greater Dublin Area (GDA) combines two Regional Authority areas - the Dublin Regional Authority and the Mid-East Regional Authority. The Guidelines cover the Councils of Dun Laoghaire-Rathdown, Dublin City, Fingal and South Dublin in the Dublin Region and Kildare, Meath and Wicklow County Council areas in the Mid-East Region.

The Regional Planning Guidelines (RPG's) set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS).

The RPGs seek to deliver policies integrating land use, transport, economic growth and investment in utilities - water, broadband and energy so that the GDA can move towards becoming a sustainable high quality location for business, residents and visitors.

It is the strategic policy (PIP5) of the GDA to ensure, from environmental, business and public health needs, that waste management remains a priority for local authorities and waste management regions in continuing to invest in promoting and facilitating reuse and recycling by residential and commercial sources and that high standard options for treatment and final disposal of waste are available within the GDA.

The Waste management policy for the GDA needs to:

- Expand policies to promote and support source reduction and reuse, to reduce stresses on waste management infrastructure and to create better synergies between businesses and across sectors;
- Promote improvements to quality of recycling infrastructure to reduce costs;
- Continue to invest in increasing opportunities for recycling and safe disposal of waste;
- Development of opportunities, as outlined above, shall not compromise the integrity of ecologically sensitive areas, in particular infilling with inert materials which can give rise to fragmentation of habitats. A change in the regulations that effectively exempts land filling once it achieves land reclamation would support this endeavour.

Preservation of the environment and conservation of diminishing natural resources are key principles inherent within the concept of sustainable development. The RPGs support the waste management hierarchy and increased and coordinated effort should be made in the areas of source reduction and re-use of waste across the industrial, commercial and residential sectors of the GDA.

Local Authorities should seek to anticipate burgeoning waste streams, identify opportunities to integrate facilities where appropriate and identify current or future opportunities for re-use of waste, for example, the re-use of secondary aggregates as physical infrastructure construction bases or the potential reuse of suitable soil material in amenity projects or landfill restoration.

Strategic recommendations for the GDA include:

PIR39	The reuse of waste should be encouraged and reinforced through encouragement of business clustering across the GDA. Opportunities to facilitate source reduction, the reuse of wastes, by-products and associated energy throughout the GDA should be examined as part of economic policies. Development of these opportunities shall not compromise the integrity of ecologically sensitive areas, in particular infilling with inert materials which can result in loss and fragmentation of wetlands.
PIR 40	Waste management facilities should be appropriately managed and monitored according to best practice to maximize efficiencies and to protect human health and the natural environment.

2.2.2.4.5 Regional Waste Management Plan

The recycling of C&D waste is recommended in all of the Regional Waste Management Plans, which the local authorities are now implementing. Because of the high recycling potential of C&D waste stream, it is very significant in terms of meeting National and Regional targets. Therefore, local authorities encourage contractors to re-use C&D waste on site, or to transport the waste to a recovery facility. National policy ('Changing Our Ways') on construction and demolition waste has set an overall target of 85% recycling by 2013.

Kildare is not a member of any Regional Waste Management Authority, and developed its own 2000-2005 Waste Management Plan (WMP) in 2000. A replacement WMP was subsequently developed and covers the period 2005–2010, but remains in place while a new plan is being developed. The plan sets out the current policy to progress the sustainable waste management of waste arising in Kildare.

The WMP was subject to a review in 2012, pursuant to the requirement in the European Communities (Waste Directive) Regulations 2011 (S.I. 126 of 2011). As a result of this evaluation, a replacement Waste Management Plan will be required. The replacement Plan will reflect changes in both legislation and policy direction, regional changes and cross border opportunities and challenges since the original WMP was adopted. It will identify current progress on waste management, the policy vision for future development and the means to implement and monitor future progress.

The waste management regions are also being reconfigured, and Kildare will come under the Eastern & Midlands Waste Region (EMWR). The EMWR was established following on from the publication of Government Policy document "A Resource Opportunity - Waste Management Policy in Ireland" (DoECLG 2012), which reduced the Waste Management Regions from 10 to 3. The region includes Dublin City, Dun Laoghaire -Rathdown, South Dublin, Fingal, Wicklow, Kildare, Laois, Offaly, Westmeath, Longford, Meath & Louth County

Councils. A draft WMP is scheduled for publication in October 2014, with completion of a Final WMP in early 2015 (EMWR 2014, DCC 2013).

The 2005 - 2010 Plan identifies waste management solutions which shift the emphasis from disposal to prevention, minimisation, recycling, recovery and other forms of waste treatment.

The principal aim of this Plan is to promote waste prevention and minimisation through source reduction, producer responsibility and public awareness. The purpose of the Waste Management Plan is also to provide for management of the recovery/recycling/disposal of waste arisings.

The primary objective of the 2005 -2010 Plan is to secure the best environmental management of all waste, including preventing and minimising the generation of waste wherever practicable.

Construction and Demolition waste is classified as a priority waste stream in the Waste management plan (Refer to Kildare WMP (2005-2010) Section 3.1.12 & 8.12.7) i.e.,

The Council will:

- *promote the provision of **mobile crushing and screening systems** located at existing/proposed waste facilities were practical (open for consideration at other locations) in accordance with the objectives of the National Construction and Demolition Waste Council (NCDWC).*
- *promote the provision, by the **private sector**, of the necessary **infrastructure for the recovery and recycling of C&D waste***
- *promote and **encourage quarry operators** and large construction sites to develop temporary recycling facilities where possible*

The majority of facilities that have been developed in the region are privately operated and are often associated with quarry developments which have the necessary expertise, plant and infrastructure.

It is recognised within the Kildare WMP 2005-2010 that clean, uncontaminated soils are suitable for acceptance at waste permit facilities such as quarry restoration projects. *"Clean brick, block and concrete rubble are acceptable at permitted facilities for re-use for the construction of hardstanding areas, access roadways, drainage, etc".*

It is recognised within the Kildare WMP that a lack of suitable facilities for the acceptance of soils has resulted in a number of problems in the sector:

- *there is a prevalence of small scale unauthorised raising of one-off sites for development purposes*
- *unsuitable lands in low-lying areas with poor road networks are being targeted for filling*
- *spurious land reclamation projects are being applied for*
- *Soil haulers are reluctant to apply for such facilities in the absence of clear guidance. Unauthorised activities have caused problems, which in turn affects the construction sector*
- *extra costs are being borne by the construction sector*

- *extra costs are being borne by local authority projects and ongoing local authority works due to the lack of suitable facilities*
- *projects of national importance are also affected by the lack of facilities, and the timescales involved in establishing such facilities*

Waste permits for importation of inert waste soils are considered to be recovery activities. The WMP stresses the importance that "*there is beneficial re-use of the soil"* and that "*raising of land may be considered (in conjunction with Planning) for restoration of a worked out quarry".*

In terms of site selection, the following hierarchy shows the favoured options in order of preference:

- re-use of material where produced
- **quarry restoration**
- land reclamation
- agricultural/recreational use
- raising of development land
- raising of sites for one-off houses

2.2.2.4.6 Guidelines

The Dept. of the Environment, Heritage & Local Government has published "Quarries & Ancillary Activities – Guidelines for Planning Authorities" in April 2004 (DoEHLG 2004b). In this publication it is stated that as part of best practice.

- the availability of a choice of raw aggregates and C&D waste-derived aggregates for the purposes of new construction would serve to limit the depletion of natural resources.
- Quarries should consider using inert C&D waste arisings, which do not have the potential to displace natural aggregates, for reinstatement and restoration purposes on the quarry site.

2.2.2.4.7 County Development Plan

The purpose of the Kildare County Development Plan 2011-2017 is to set out an overall strategy for the proper planning and sustainable development of the area.

The development plan vision statement is "*To build on the strengths of the county by facilitating sustainable development, through the provision of high quality employment opportunities and residential developments supported by quality urban and rural environments with physical and social infrastructure to support communities throughout the county".*

The aim of the Kildare County Council Development Plan in respect of Environmental Services is "To conform to European, National and Regional policies in relation to the provision of waste management and to protect and enhance water, air and noise quality". The following policy statements in the Kildare County Council Development Plan are considered relevant with respect to the WRF at Thornberry:

Waste Management

WM 1	To have regard, in the assessment of planning applications for waste management facilities *inter alia*, to the Waste Management Plan for County Kildare then prevailing, Waste Management Act 1996, EU Landfill Directive, EPA Landfill Manuals, EU Packaging and Packaging Waste Directive and DoEHLG policy statements viz. Changing Our Ways and Preventing and Recycling Waste – Delivering Change and Taking Stock and Moving Forward.
WM 2	To require the submission of either a certificate of exemption or a valid planning permission for a Waste Facility Permit application, in accordance with the Waste Management (Facility Permit and Registration) Regulations 2007 as amended.
WM 4	To encourage waste prevention, minimisation, reuse, recycling and recovery as methods of managing waste. Where waste management is not being carried out properly, the Waste Management Acts 1996 to 2008, will be used as a means of ensuring specific national policies and regulations are adhered to.

Environmental Services

The following objectives in the Kildare County Council Development Plan are considered relevant with respect to the WRF at Thornberry:

EN 2	To facilitate the implementation of the County Kildare Waste Management Plan 2005–2010 and any subsequent revisions thereof during the period of this Plan.
EN 9	To require the submission of Annual Environmental Reports (which require ongoing monitoring of specified environmental parameters) on specified developments through the planning process.

The proposed facility will involve the recovery of inert C&D waste, mainly soil and stone, for the beneficial use of backfilling and restoring disturbed and degraded land back to agricultural use. Clean, uncontaminated soils are suitable for quarry restoration projects, whereas clean brick, block and concrete rubble are suitable for recovery as secondary aggregates for use in the construction of hard standing areas, access roadways, drainage, etc. The recovery of C&D waste is essential to divert reusable inert waste from disposal in landfill, as required under the Waste Framework Directive 2008 (2008/98/EC), and the European Communities (Waste Directive) Regulations, 2011 (S.I. 126 of 2011). Thus, the facility will result in a reduction of quantities of such waste being sent to landfill sites in the region. Furthermore, the recovery of waste also has the environmental benefit of enabling the lands to be restored to agricultural use in accordance with the restoration scheme proposed.

Architectural and Archaeological Heritage

County Kildare contains a wealth of architectural and archaeological heritage. This comprises country houses and demesnes, planned towns, vernacular structures, industrial heritage, ecclesiastical architecture and a considerable amount of features of interest including stone

walls and street furniture. A protected structure, generally includes the interior of the structure, the land lying within the curtilage of the structure and any other structure lying within the curtilage. The protection also extends to any features specified as being in the attendant grounds.

The strategy for the architectural and archaeological heritage of the county is:

- Protect and conserve buildings, structures and sites of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest.
- Protect and conserve the archaeological heritage of the county. Secure the preservation in-situ or by record of all sites and features of historical and archaeological interest.
- Protect and conserve areas that have particular environmental qualities that derive from their overall layout, design and character.
- Protect and conserve historic milestones, street furniture, and other significant features of interest wherever feasible.
- Encourage the rehabilitation, renovation and re-re-use of existing older buildings where appropriate.

Protected Structures

Kildare has an abundance of structures of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Such structures are contained in the Record of Protected Structures (RPS) and the Record of Monuments and Places. It is the policy of Kildare County Council:

PS 1	To conserve and protect buildings, structures and sites contained on the Record of Protected Structures of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest.
PS 3	To require that new works will not obscure views of principal elevations of protected structures.
PS 16	To protect and retain important elements of the built heritage including historic gardens, stone walls, landscapes and demesnes, and curtilage features.

Vernacular Architecture

Vernacular Architecture is generally classified as the homes and workplaces of the general population built by local people using local materials. The majority of vernacular buildings are domestic dwellings. Examples of other structures that may fall into this category include shops, outbuildings, mills, limekilns, farmsteads, forges, gates and gate piers. This architecture was once commonplace but is becoming increasingly rare. It is the policy of Kildare County Council:

VA 1	To encourage the protection, retention, appreciation and appropriate revitalisation of the vernacular heritage of the county.

Archaeological Heritage – Record of Protected Monuments and Places

The European Convention on the Protection of the Archaeological Heritage was ratified by Ireland in 1997. It relates to the protection of archaeological heritage and includes the setting and context of archaeological sites. Archaeological heritage is legally protected from unauthorised damage or interference under the National Monuments Acts 1930–2004. Section 12 of the National Monuments (Amendments) Act 1994 made provision for the compilation of all recorded sites and features of historical and archaeological importance in the County into the Record of Monuments and Places (RMP). It is the policy of Kildare County Council:

AH 1	To have regard to the Record of Monuments and Places (RMP) and the Urban Archaeological Survey when assessing planning applications for development. No development shall be permitted in the vicinity of a recorded feature where it detracts from the setting of the feature or which is injurious to its cultural or educational value.
AH 2	To seek to protect and preserve archaeological sites which have been identified subsequent to the publication of the Record of Monuments and Places (RMP).
AH 3	To ensure that development in the vicinity of a site of archaeological interest is not detrimental to the character of the archaeological site or its setting by reason of its location, scale, bulk or detailing and to ensure that such proposed developments are subject to an archaeological assessment. Such an assessment will seek to ensure that the development can be designed in such a way as to avoid or minimise any potential effects on the archaeological heritage.

Architectural and Archaeological Objectives

AAO 14	To safeguard sites, features and objects of archaeological interest generally and to secure the preservation (in-situ or by record) of all archaeological monuments included in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act 1994, and their settings.
AAO 16	To require that planning applications take into consideration the impacts of the development on their landscapes and demonstrate that the development proposal has been designed to take account of the heritage resource of the landscape.

Natural Heritage/Biodiversity Policies

Natural heritage is recognised as an important environmental and economic resource that requires care and management through the planning process. Kildare has a wide range of habitat types and landscapes supporting diverse species, both in natural and semi natural state and managed locations, including grassland, woodland, stream and canal habitats, bogland and riparian habitats. The strategy for the natural heritage of the county is:

- To protect and conserve nationally important and EU designated sites including Special Protection Areas, candidate Special Areas of Conservation and proposed Natural Heritage Areas.
- To promote conservation and development measures while promoting the orderly and sustainable development of County Kildare.
- To avoid undue negative impacts upon the natural environment.
- To promote appropriate enhancement of the natural environment as an integral part of future development.
- To mitigate the effects of harm where it cannot be avoided.

Much of our biodiversity occurs outside sites which are not subject to legal protection under national and EU law. These include: woodlands, hedgerows, watercourses and associated riparian zones, canals, freshwater wetlands, urban parks and gardens and demesne gardens. The CDP seeks to protect and enhance these elements and identify locally important biodiversity areas.

Heritage Plan

The Council adopted the County Kildare Heritage Plan 2005-2009, which comprises a five year action plan for the conservation, preservation and enhancement of Kildare's heritage, including natural heritage. In respect of the Heritage Plan, it is the policy of the Council:

HB 1	To implement the key objectives and associated actions identified in the County Heritage Plan and any revision thereof.

Natural Heritage

In respect of the Natural Heritage, it is the policy of the Council:

NT 1	To facilitate, maintain and enhance as far as is practicable the natural heritage and amenity of the county by seeking to encourage the preservation and retention of woodlands, hedgerows, stonewalls, rivers, streams and wetlands. Where the removal of such features is unavoidable appropriate measures to replace like with like should be considered, subject to safety considerations.
NT 2	To encourage the protection of historic hedgerows or significant hedgerows which serve to link habitat areas to each other and the surrounding countryside.
NT 3	To promote the carrying out of basic habitat assessments to inform the design of new developments in order to ensure that proposals for development integrate the protection and enhancement of biodiversity and landscape features wherever possible, by minimising adverse impacts on existing habitats (whether designated or not), by including mitigation and/or compensation measures, as appropriate.
NT 4	To require compliance with Article 10 of the Habitats Directive with regard to encouraging the management of features in the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of

their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species

Designated Sites and Species

European and national legislation protects the most valuable of our natural heritage areas. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are being, or have been, designated to conserve habitats and species of European importance pursuant to the EU Habitats and Birds Directives. Such sites form part of an EU network of ecologically important and protected sites known as Natura 2000.

Appropriate assessment was introduced by the EU Habitats Directive as a way of determining if a planned project is likely to have a significant effect on one of the Natura 2000 sites so far designated (i.e. the candidate SAC's and SPA's), or their conservation objectives.

At a national level, Natural Heritage Areas and Nature Reserves are designated to conserve species and habitats of national importance. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are designated under the Wildlife (Amendment) Act (2000) and encompass nationally important semi-natural and natural habitats, landforms and geomorphological features. It is important that the conservation value of these areas be maintained as they contribute to the county's green infrastructure.

The quarry site at Thornberry, which includes the application site, is not included in any area with an ecological designation (NHA, cSAC or SPA; See NPWS 2014). The only Natura 2000 sites within 15km of Thornberry are the Ballynafagh Bog SAC (Site Code 000391), Mouds Bog SAC (Site Code 002331), Red Bog, Kildare SAC (Site Code 000397), Rye Water Valley / Carton SAC (Site Code 001396), Red Bog, Kildare SAC (Site Code 000397), and Poulaphouca Reservoir SPA (Site Code 004063).

Screening for Appropriate Assessment was carried out with respect to the proposed development and a copy of this report is included with the planning application. The findings of the assessment, were, in view of best scientific knowledge, it is concluded that the activity, individually or in combination with other plans or projects is not likely to have a significant effect on the Natura 2000 network, and the conservation objectives of the sites. A Stage 2 Appropriate Assessment is therefore not required.

The nearest designated site to the Thornberry WRF is the pNHA at Kilteel Wood c. 2km to the east, whilst the nearest Natura 2000 site (i.e., SAC or SPA) is Red Bog, c. 4.5km to the south southeast, which has double designation as a SAC and pNHA. The nearest SPA is the Poulaphouca Reservoir SPA and pNHA, c. 8km southeast of the site. There will no direct or indirect impact on these sites as a result of the continued operation of the WRF at Thornberry.

It is the policy of the Council:

DS 1 To maintain, protect and where possible enhance the conservation value of existing European and national designated sites (NHA, SAC and SPA) in the county and any additional sites that may be proposed for designation during the period of this Plan.

DS 2	To have regard to the policies and guidance of the National Parks and Wildlife Service of the DoEHLG in respect of proposed development where it is possible that such development may impact on a designated European or national site or a site proposed for designation.
DS 3	To ensure the impact of proposed development on a pNHA is assessed by requiring the submission of an Ecological Impact Assessment (EcIA) prepared by a suitably qualified professional which should accompany planning applications and council developments.
DS 4	To ensure an Appropriate Assessment in accordance with Article 6(3) and Article 6(4) of the Habitats Directive and in accordance with DoEHLG guidance, is carried out in respect of any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects.
DS 5	To ensure that projects which may give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites will not be permitted (either individually or in combination with other plans or projects) unless for reasons of overriding public interest.
DS 6	To ensure that development does not have a significant adverse impact on plant species, animals and birds listed in the Flora Protection Order, Wildlife Act 1976–2000, those listed in Annex IV of the Habitats Directive, and those listed in Annex I of the Birds Directive.

Invasive Non-Native Species

Non-native species can represent a major threat to local, regional, and national biodiversity. Terrestrial and aquatic habitats can be negatively affected, resulting in significant damage to conservation and economic interests, such as agriculture, forestry and civil infrastructure. The Council adopted its first County Biodiversity Plan 2009-2013 in accordance with the National Biodiversity Plan, and this provides a framework for conserving biodiversity and natural heritage at a local level. It is the policy of Kildare County Council:

IS 1	To promote best practice with respect to minimising the spread of invasive species in the carrying out of development.
IS 2	To support measures for the prevention and / or eradication of invasive species as appropriate within the county as opportunities and resources allow. Targeted invasive species control should be informed by the current distribution of that species, the degree of threat posed and the resources available to control and/or eradicate them.

Inland Waterways, Rivers, Streams, Canals, Wetlands and Groundwater

These features provide a network of waterways that contribute to an important web of ecological corridors, and are home to a variety of habitats and species. The banks (riparian zones) of rivers and streams are particularly important as they contain a range of habitats and

species which are different from the surrounding landscape. The maintenance of rivers and streams in an open, semi-natural condition, is encouraged to protect and maintain biodiversity, landscape, and for flood protection control purposes. It is the policy of the Council:

IW 1	To require the submission of an Ecological Impact Assessment where deemed necessary by the planning authority (and where necessary an Appropriate Assessment in relation to Natura 2000 sites) including bat and otter surveys for developments along river, stream and canal corridors. These assessments should where appropriate suggest a minimum buffer of undisturbed vegetation to be retained to mitigate against pollution risks, reduce flooding potential, maintain habitats and provide an ecological corridor. This buffer zone shall, where possible be maintained free of development and hard surfaces.
IW 2	To seek during redevelopment the creation of a riparian buffer strip along either side of all watercourses where practicable.
IW 4	To require that runoff from a developed area will not result in deterioration of downstream watercourses or habitats, and that pollution generated by a development is treated within the development area prior to discharge to local watercourses.
IW 5	To protect rivers, streams and other water courses and, wherever possible, maintain them in an open state capable of providing suitable habitats for fauna and flora while discouraging culverting or realignment.
IW 6	To consult, as appropriate, with Inland Fisheries Ireland in relation to any development that could potentially impact on the aquatic ecosystems and associated riparian habitats.
IW 7	To ensure, where possible, residential and commercial developments use sustainable drainage systems in accordance with best current practice.

Geology

The Geological Survey of Ireland has identified 20 sites of geological importance (GSI 2005). Some of these sites may be designated as NHAs in due course, and the Council recognises the need to protect these sites in the interest of protecting our geological heritage. A search of the GSI Geological Heritage Database indicates that there are no sites of geological heritage within or near the site of the Thornberry WRF (Refer to EIS Section 3.3.6. It is the policy of the Council:

G 1	To require applications which require an EIS to have regard to the Irish Geological Institute “Geology in EIS – A Guide”, (Sept 2002).
G 2	To protect Geological Natural Heritage Areas that become designated during the life time of the Plan.

Natural Heritage/ Biodiversity Objectives

It is the objective of the Council:

NHO 6	To support measures for the prevention and/or eradication of invasive species as appropriate within the county as opportunities and resources allow.

Landscape

Kildare possesses a diverse range of landscapes, including extensive lowlands in the north and south, uplands at the foothills of the Wicklow Mountains in the east, tracts of boglands in the northwest, the undulating central undulating lands, including the Curragh, and several important waterways, such as the Liffey and Barrow River Corridors and the Royal Canal. These landscapes intrinsically constitute an invaluable element of Kildare's natural resource base. The sensitive development and conservation of this resource is essential to the underpinning of a strengthened rural economy and quality of life.

It is the aim of the Kildare County Development Plan "To provide for the protection, management and enhancement of the landscape of the county and to ensure that development does not disproportionately impact on the landscape character areas, scenic routes, or protected views through the implementation of appropriate policies and objectives to ensure the proper planning and sustainable development of the area." The following policies and objectives are considered relevant with respect to the landscape, and views and prospects:

In respect of General Landscape Policies, it is the policy of Kildare County Council:

LA 1	To ensure that consideration of landscape sensitivity is an important factor in determining development uses. In areas of high landscape sensitivity, the design, type and the choice of location of proposed development in the landscape will also be critical considerations.
LA 2	To protect and enhance the county's landscape, by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the existing local landscape.
LA 3	To require a Landscape/Visual Impact Assessment to accompany significant proposals, located within or adjacent to sensitive landscape. This assessment will provide details of proposed mitigation measures to address negative impacts.
LA 4	To seek to ensure that local landscape features, including historic features and buildings, hedgerows, shelter belts and stone walls are retained, protected and enhanced where appropriate, so as to preserve the local landscape and character of an area, whilst providing for future development.

The Thornberry site is located in the Eastern Transition Lands as defined in Chapter 14 of the Kildare County Development Plan. In respect of Transitional Character Areas, it is the policy of Kildare County Council:

TA 1	To maintain the visual integrity of areas, which have retained an upland character.
TA 2	To recognise that the lowlands in the transitional area are made up of a variety of working landscapes that are critical resources for sustaining the economic and social well-being of the county.
TA 3	To continue to permit development that can utilise existing infrastructure, whilst taking account of local absorption opportunities provided by the landscape, landform and prevailing vegetation.
TA 4	To continue to facilitate appropriate development, in an incremental and clustered manner, where feasible, that respects the scale, character and sensitivities of the local landscape, recognising the need for sustainable settlement patterns and economic activity within the county.

The Thornberry site is located within 5km of one Protected Scenic Route and three Protected Views. In respect of Scenic Routes and Protected Views, it is the policy of Kildare County Council:

SR 1	To protect views from designated scenic routes by avoiding any development that could disrupt the vistas or disproportionately impact on the landscape character of the area thereby affecting the scenic and amenity value of the views.

In respect of Hill Views, it is the policy of Kildare County Council:

HV 1	To protect the upland Landscape Character Areas as identified in the Landscape Character Assessment and to ensure that development on or in the vicinity of the upland areas does not disproportionately affect views to and from the hills, or impact on the landscape character of the area as a whole.

In respect of Landscape, it is an objective of Kildare County Council:

LO 1	To have regard to the Landscape Sensitivity Classification of sites in the consideration of any significant development proposals.
LO 2	To ensure landscape assessment will be an important factor in all land-use proposals.
LO 4	To protect the visual and scenic amenities of County Kildare's built and natural environment.
LO 5	To preserve the character of all important views and prospects, particularly upland, river, canal views, views across the Curragh, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty.

LO 6	To preserve and protect the character of those views and prospects obtainable from scenic routes identified in this Plan, listed in Table 14.2 and identified on Map 14.3.
LO 7	To encourage appropriate landscaping and screen planting of developments along scenic routes. Where scenic routes run through settlements, street trees and ornamental landscaping may also be required.

Rural Development – Sand and Gravel Extraction

Insofar as the current regime of landscaping, screening and phased restoration at the quarry site, which encloses the WRF site, is being operated and restored using imported inert soils, sections of Chapter 10 of the CPD dealing with rural development and extractive industries are relevant.

Chapter 10 of the Kildare CDP sets out the rural settlement strategy that will be applied by Kildare County Council to ensure the continued vitality and viability of the rural area. The Council's aim in terms of Rural Development is "To support the provision of a high quality rural environment; encourage diversification and improved competitiveness of the rural economy; sustain the livelihood of rural communities and promote the development of the wider rural economy, all within the context of the sustainable management of land and resources".

In section 10.7 of the County Development Plan, the Council acknowledges that gravel resources are important to the general economy and provide a valuable source of employment in some areas of the county. The Council's aim in terms of Sand and Gravel Extraction is "To ensure that adequate supplies of aggregates are available to meet the future needs of the county and region in line with the principles of sustainable development and environmental management".

The nature of the extractive industry is such that the development is required where the resource occurs, and may give rise to land use and environmental issues. However, it is essential that aggregates are sourced without significantly damaging the landscape, environment, groundwater and aquifer sources, road network, heritage and/or residential amenities of the area. In this regard, it is important to note that the Council states that "Sand and gravel workings on the other hand can easily be restored to agricultural use".

In respect of the Extractive Industry, it is the policy of Kildare County Council:

EI 1	To have regard to the Quarries and Ancillary Activities Guidelines for Planning Authorities (2004) published by the DoEHLG or as may be amended from time to time.
EI 4	To ensure that extraction activities address key environmental, amenity, traffic and social impacts and details of rehabilitation.
EI 5	To ensure that development for aggregate extraction, processing and associated concrete production does not significantly impact the following:

- Special Areas of Conservation (SACs).
- Special Protection Areas (SPAs).
- Natural Heritage Areas (NHAs).

- Other areas of importance for the conservation of flora and fauna.
- Areas of significant archaeological potential.
- The vicinity of a recorded monument.
- Sensitive landscape areas as identified at Chapter 14 of the Development Plan.
- Scenic views and prospects.
- Protected Structures.
- Established rights of way and walking routes

EI 7	To require submission of an Appropriate Assessment under Article 6 of the Habitats Directive where any quarry / sand and gravel extraction is likely to have an impact on a Natura 2000 site (see Chapter 14).
EI 10	To require detailed landscaping and quarry restoration plans to be submitted with each application. Habitats and species surveying shall be carried out and shall influence the restoration plan for the site.
EI 12	To ensure that all existing workings are rehabilitated to suitable land uses and that extraction activities allow for future rehabilitation and proper land use management.

In respect of the Extractive Industry, it is an objective of Kildare County Council:

EO 2	To ensure that the extractive industry minimises and/or mitigates any adverse visual and/or environmental impacts on the built or natural environment through adherence to the EPA publication Environment Management in the Extractive Industry (Non-scheduled minerals) 2006 and any subsequent revisions and the requirements of the Programme of Measures from the River Basin Management Plans.

2.3 CONSTRUCTION

The nature of the development is the continued phased restoration of a sand and gravel pit using imported inert soil and stone, and recovery of inert construction and demolition waste. As such all of the necessary infrastructure in relation to the operation of the WRF is in place. The location of all activities, buildings and facilities at the Recovery Facility are shown on the Site Plan Figure B 2.1 - Rev A.

2.4 DESCRIPTION OF THE PROPOSED OPERATIONS

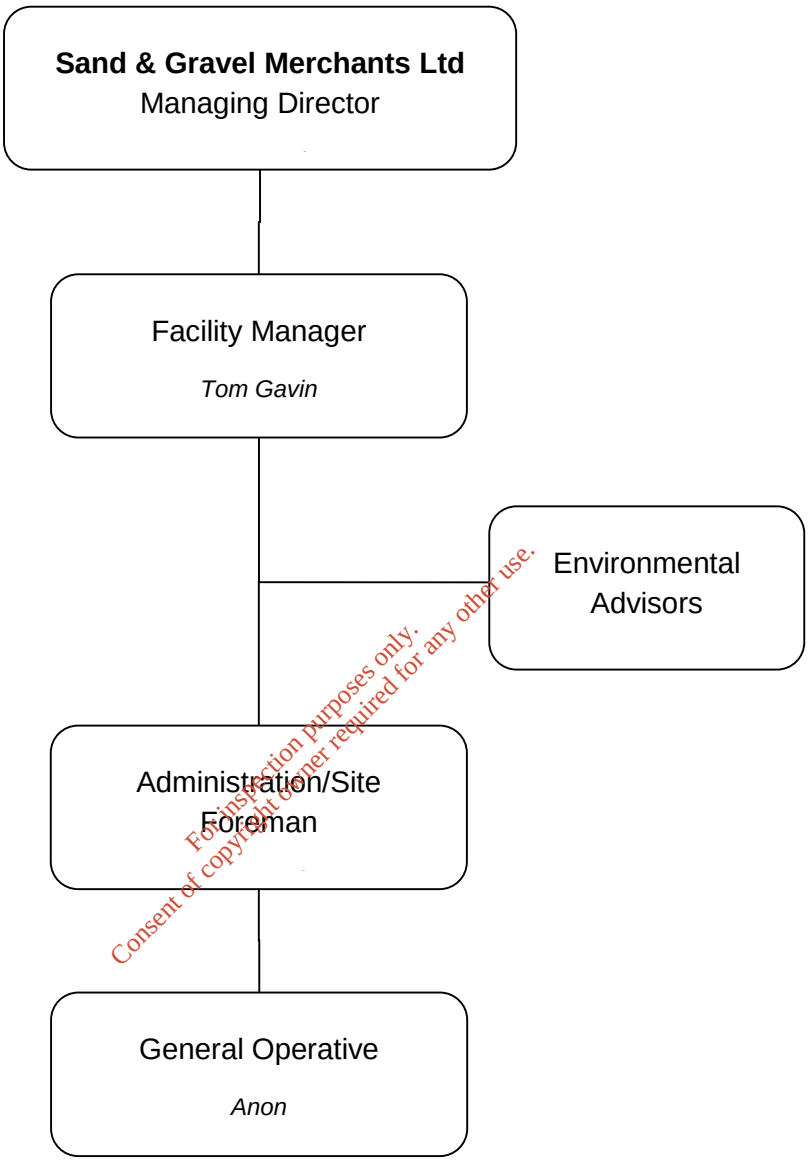
2.4.1 MANAGEMENT OF THE FACILITY

2.4.1.1 TECHNICAL COMPETENCE & SITE MANAGEMENT

Sand & Gravel Merchants Ltd has an established small family run business based in Thornberry, Kill, Co Kildare. The company employs up to 3 people directly on site (currently 2 due to recent economic recession). Mr Tom Gavin – Facility Manager will be responsible for the overall management of the facility including implementation of the proposed Environmental Management System.

Mr. Gavin has 30 experience in the extractive industry, and thirteen years experience operating and managing the existing Waste Recovery Facility. Mr. Mark Gavin is the site foreman with thirteen years experience at the Waste Recovery Facility, and is also responsible for the administration and record-keeping for the facility. An additional general operative is hired on an occasional basis. The organisational structure is shown by the following organogram.

Table 2.4-1 Organisational Structure



2.4.1.2 ENVIRONMENTAL MANAGEMENT AND MONITORING

Currently no Environmental Management System **(**EMS) has been developed for the existing facility. Sand & Gravel Merchants Ltd will implement an EMS for the facility subject to granting of the Waste Licence.

Mr Tom Gavin of Sand & Gravel Merchants Ltd is also responsible for the 'Environmental Management' of the facility. In this role, he has responsibility to ensure that the proposed Environmental Management System, Environmental Objectives & Targets and the Environmental Monitoring Plan are fully implemented.

The EMS will include an 'Environmental Monitoring Programme' for the monitoring of water, dust and noise, and will be subject to compliance with any conditions attached to any decision to grant Waste Licence for the facility. The monitoring programme results will be submitted to relevant regulatory authority on a regular basis, and therefore made available for inspection by interested parties.

2.4.1.3 RECORD KEEPING

In compliance with Condition No. 3 of Kildare County Council Waste Management Permit No. 30/2001B the following documents are required to be maintained on site and made available for inspection by Kildare County Council, or other authorised persons:

- The permit holder shall maintain a written record for each load of waste arriving at the site.
- The permit holder shall maintain a written record of all complaints of an environmental nature related to the site.
- The permit holder shall submit a written summary of compliance with all of the conditions attached to the permit i.e. Annual Report (AR).
- The permit holder shall immediately notify Kildare County Council by telephone of any incident which occurs as a result of the activity on the site, and which:-
    - Has the potential for environmental contamination of surface water or ground water, or
    - Poses an environmental threat to air or land, or
    - Requires an emergency response by the Council.

  Full details shall be forwarded in writing on the next working day.

An annual report is prepared by the site manager and submitted to the Local Authority not later than the 28th February of each year in accordance with the requirements of Waste Management Permit No. 30/2001B.

The record keeping will be revised in order to achieve compliance with any conditions attached to any decision to grant permission for a Waste Licence for the facility.

2.4.1.4 WORKING HOURS & EMPLOYMENT

It is proposed that working hours at the application site will be that waste is accepted at the site between the hours of 08:00 hours to 18:00 hours on working days Monday to Friday inclusive and 08:00 hours to 13:00 hours on Saturday. These hours of operation are as stipulated in Waste Management Permit No. 30/2001B. No operations will be carried out on Sundays or public holidays.

The company employs up to 3 people directly on site (currently 2 due to recent economic recession). Mr Tom Gavin – Facility Manager will be responsible for the overall management of the facility including implementation of the proposed Environmental Management System.

2.4.2 SITE INFRASTRUCTURE

2.4.2.1 INTRODUCTION

The facility's infrastructural requirements includes internal roads and quarry/WRF related plant and machinery. All of these are already in place and represent common infrastructure shared between the quarry and WRF. Provision of hard standing areas, quarantine material and residual waste is an additional requirement of the MRTF, and will be sited to maximise operational efficiencies. The existing quarry plant including mobile crushing and screening plant will be utilised to process C&D waste to produce saleable aggregates. The proposed facility site layout is shown by EIS Figure D.1.1 – Rev A.

2.4.2.2 SITE SECURITY

The boundaries of the site are secure being established hedgerows and stock proof fencing. The site benefits from being bounded to the west by the local county road, to the south by Arthurstown Landfill Facility (EPA Registration No. W0004-03).

The lands to the east and north are of pasture and a variety of agriculture type activity. The application site is leasehold and the neighbouring residence to the north is that of the Landowner. The site entrance gates will be locked outside of normal working hours and public warning notices posted at appropriate locations along the site boundary.

2.4.2.3 DESIGN FOR SITE ROADS

Access to the site will be gained through the existing entrance onto the Kilwarden to Punchestown Local L2019 Road. The site entrance has been adequately set-back and splayed. All materials will be transported to and from the application site using heavy goods vehicles (HGV's).

The site access road has been provided with an asphalt surface for a distance of c. 150 metres. Imported clean construction and demolition waste (concrete and brick) is used to construct internal haul roads as required on site. As such there is no evidence of mud and debris being carried out on to the public road.

2.4.2.4 DESIGN OF HARD STANDING AREAS

There are no hard standing areas currently on site.

The main site area is of a compacted insitu gravel surface with the effect that there will effectively be no surface run-off at the site and this allows the return of runoff to the natural drainage system as soon as possible.

2.4.2.5 PLANT

A Bulldozer, excavator, 2 loading shovels (Sand & Gravel Pit), water bowser and primary crusher and screening unit are all used intermittently on site.

2.4.2.6 WHEEL-WASH

The site access road has been provided with an asphalt surface for a distance of c. 150 metres. Imported clean construction and demolition waste (concrete and brick) is used to construct internal haul roads as required on site. As such there is no evidence of mud and debris being carried out on to the public road and a wheelwash is not considered necessary.

2.4.2.7 LABORATORY FACILITIES

Laboratory facilities on site will not be required as the services of an external accredited lab will be used as required.

2.4.2.8 DESIGN AND LOCATION OF FUEL AND OIL STORAGE AREAS

A mobile double skinned (integrated bunding) fuel bowser is proposed to be used to refuel mobile plant on site.

Oil and Waste oil products are stored under cover. All oil barrels and lubricants will be stored on spill pallets/ spill trays.

Spill kits will also maintained on site and the Company will put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.

Waste oils are disposed of by a licensed waste contractor and removed off site.

2.4.2.9 WASTE QUARANTINE AREAS

The site has a designated area for the quarantine of any inappropriate materials which may be found within loads accepted at the site. Skips have been provided within the designated quarantine area for the temporary storage of any inappropriate materials discovered (e.g. glass, plastic, timber, steel, etc). The materials are routinely removed by a licensed waste disposal contractor to an appropriate disposal facility.

2.4.2.10 WASTE INSPECTION AREAS

All truck loads entering the site are given a preliminary inspection on entering the site.

Secondary inspection is carried out after each load is tipped at the restoration infill area within the site. Should a load of material indicate contamination of non-inert material on inspection, the material is reloaded and the driver instructed to remove the load offsite to an approved facility.

Occasionally a load will contain minor contaminants (e.g. plastics, rebar, wood and paper). These items are removed on inspection by a site operative and stored in skips in a designated quarantine area pending removal offsite by a licensed waste disposal contractor to an appropriate disposal facility.

2.4.2.11 TRAFFIC CONTROL

Car parking including visitors parking will be provided at the site entrance. Trucks entering the site will report to the site Facility Manager/Site Foreman where each load will inspected as to its suitability to be recovered on site.

Traffic direction signs, warning signs, speed limit signs are established throughout the site.

2.4.2.12 SEWERAGE AND SURFACE DRAINAGE INFRASTRUCTURE

It is proposed to provide a portable chemical toilet for the site. The operators will enter a regular maintenance contract with a reputable supplier to be serviced as required.

As only inert materials are to be imported to site there will be no source of possible contamination of surface waters. The natural drainage pattern existing on site means that rain water falling on the site percolates through the existing soil strata to the underlying bedrock. The existing drainage pattern is expected to remain unaltered following cessation of the reclamation operations. There is no discharge of surface water run-off from the site. A Buffer zone of 30 metres has been provided to the nearest surface water course to the site. A further 30m strip has either been restored and/or used to store indigenous soils for final restoration along the eastern site boundary.

2.4.2.13 ALL OTHER SERVICES

All plant and machinery on site is diesel powered. Potable water is brought to site daily.

2.4.2.14 PLANT SHEDS, GARAGES AND EQUIPMENT COMPOUND

The operator has provided a steel storage container for the site, as a secure equipment storage area.

Oil and Waste oil products are stored in the container. All oil barrels and lubricants will be stored on spill pallets/ spill trays.

No major vehicle servicing/repairs are carried out on site.

2.4.2.15 SITE ACCOMMODATION

The business is a small family business with administration handled from the operators residence and business address in Rathmore. As such the personnel on site do not have need for office and canteen facilities. The log book and any relevant documentation is kept in possession of either the facility manager and/or Site Foreman on site.

2.4.2.16 CONSTRUCTION AND DEMOLITION WASTE INFRASTRUCTURE

Recovery and re-cycling activities at the application site involves tipping of previously stockpiled ‘unprocessed’ material into a mobile crushing & processing plant using a front-end loader. Material produced by the plant is then transported by front-end loader to ‘processed’ stockpiles. Recycled material is used for internal haul roads and/or dispatched offsite.

No sorting of materials other than separation of rebar from concrete will be undertaken on site as all material will be sorted and segregated at source before being brought to the application site. Rebar (reinforced steel) separated from concrete will be stored in the designated quarantine area awaiting removal off-site by a licensed scrap merchant.

2.4.3 FACILITY OPERATION

2.4.3.1 UNIT OPERATIONS

The necessary site infrastructure including portaloo, waste quarantine and inspection area, etc, will be located on a leveled out area to the south of the site access road.

The attached Site Infrastructure Plan (Refer to Figure D.1.1 – Rev A) indicates the location of all activities and facilities at the Recovery Facility.

2.4.3.1.1 Delivery, Inspection & Acceptance

Materials to be recovered will only be accepted from approved Contractors who are aware of the need for and who undertake strict segregation and sorting of waste prior to transporting it to the application site;

Typically loads of up to 9 cu.m will be imported to site. Only hauliers with the appropriate Waste Collection Permits will be accepted.

All truck loads entering the site will be given a preliminary visual inspection on entering the site. If the material is not considered acceptable the haulier will be refused entry and directed to an appropriate Waste Management Facility. Any Contractor who persistently carries unacceptable waste to the application site will be denied further use of the facility.

Details of all truckloads entering the site are entered into a logbook maintained by the operator. A designated internal haul road will be maintained to direct site traffic to the tipping area.

Accepted materials will be subject to a second inspection after each load is tipped at the restoration infill area within the site. Should a load of material indicate contamination of non-inert material on inspection, the material is reloaded and the driver instructed to remove the load offsite to an approved facility.

2.4.3.1.2 Quarantine

Occasionally a load will contain minor contaminants (e.g. plastics, rebar, wood and paper). These items are removed on inspection by a site operative and stored in skips in a designated quarantine area pending removal offsite by a licensed waste disposal contractor to an appropriate disposal facility.

2.4.3.1.3 Recovery of Soils

Following the second inspection the material will be accepted and placed within the restoration (placement by bulldozer) area or in the case of topsoil placed in temporary storage awaiting final placement.

2.4.3.1.4 Phasing of Restoration Works

The nature of the development is the continued phased restoration of a sand and gravel pit using imported inert soils, stone, and recovery of inert construction and demolition waste. Up to 70,000 cubic metres per annum is being accepted to the site and circa 25,000 cubic metres is required to complete the restoration of the site.

The original void space was estimate to be c. 180,000 cubic metres on submission of the Waste Management Licence application in 2009. It has been calculated that the void space remaining is only c. 25,000 cubic metres based on the original scheme submitted with the Waste Management Application.

It is considered that it will take approximately 4-6 months to complete the backfilling operations. An additional 6 months to a year should be allowed to complete final restoration to agricultural land. The existing site layout is shown by to Figure B.2.1 - Rev A.

The lands are to be restored to agricultural use by importation and recovery of inert materials in accordance with a phased restoration scheme. It is the intention to develop them for agricultural use.

A bulldozer is used to appropriately grade and compact the material to the desired profile as shown by the detailed plans and sections (Refer to Figures B.2.4 and B.2.5). Typically the soil is placed in 2-3 metre lifts with fill slopes of a safe angle of repose of 1:2.

It is proposed to reclaim the lands to a condition / gradient suitable for agricultural. Good quality imported soil will be conserved wherever possible to provide the subsoil/top-soil capping. These topsoil's/subsoil's will be handled under dry conditions to minimise compaction. For the purpose of restoration to agricultural the restored soil profile (capping) shall comprise 300mm topsoil over 1200-1350mm of subsoil.

The applicant is an experienced earthmoving contractor. Soils will be handled in accordance with accepted guidelines and good practice.

Good quality soil material for final capping will be placed in temporary storage areas. Topsoil and subsoil will be stockpiled separately to maintain the integrity of the soil.

To ensure that damage to these materials is kept to a minimum, movement and placement of topsoil and subsoil for final restoration will only take place during appropriate weather conditions and when the soils are in the optimum condition. This optimum soil condition may be described as moist but friable. No soils will be moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust. Conversely, soils will not be handled in wet conditions or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure.

Progressive restoration involving grass seeding of restored area's shall be carried out on a staged basis to reduce the effects of soil erosion, windblown dust, to aid ground stabilisation and as an effective means of weed control. On completion of each phase of development final restoration including grading, seeding and landscaping will be carried out. Final restoration is dependent on the availability of good topsoil/subsoil and subject to suitable weather conditions. In order to allow for continuity of operations it is necessary to have a

certain overlap between phases. The final contours and topography for the site is shown by the Final Landform Plan Figure B.2.4 and Cross Sections B.2.5.

Once the topsoil is re-instated it will be seeded with a suitable mix of grasses suitable for pasture in order to quickly stabilise the topsoil. Once the grass sward has become established the restored farmland can be kept either as pasture, hay meadow or arable land. Part of the area has already been restored to grassland.

2.4.3.1.5 Decommissioning

Redundant structures, plant equipment and stockpiles will be removed from site on cessation of activity. Plant and machinery will either be utilised by the operators on other sites, or be sold as working machinery or scrap. Any hard standing areas shall be broken up and the material incorporated into the final restoration scheme and or processed to produce secondary aggregates. The site access will be retained as agricultural access to the restored lands.

As part of the decommissioning process, all fuel and oil will be removed from the site by a licensed waste contractor. The portaloo will also be removed from the site. Therefore there will be no potential for fuel, oil or sewage to cause long-term water pollution following cessation of activities.

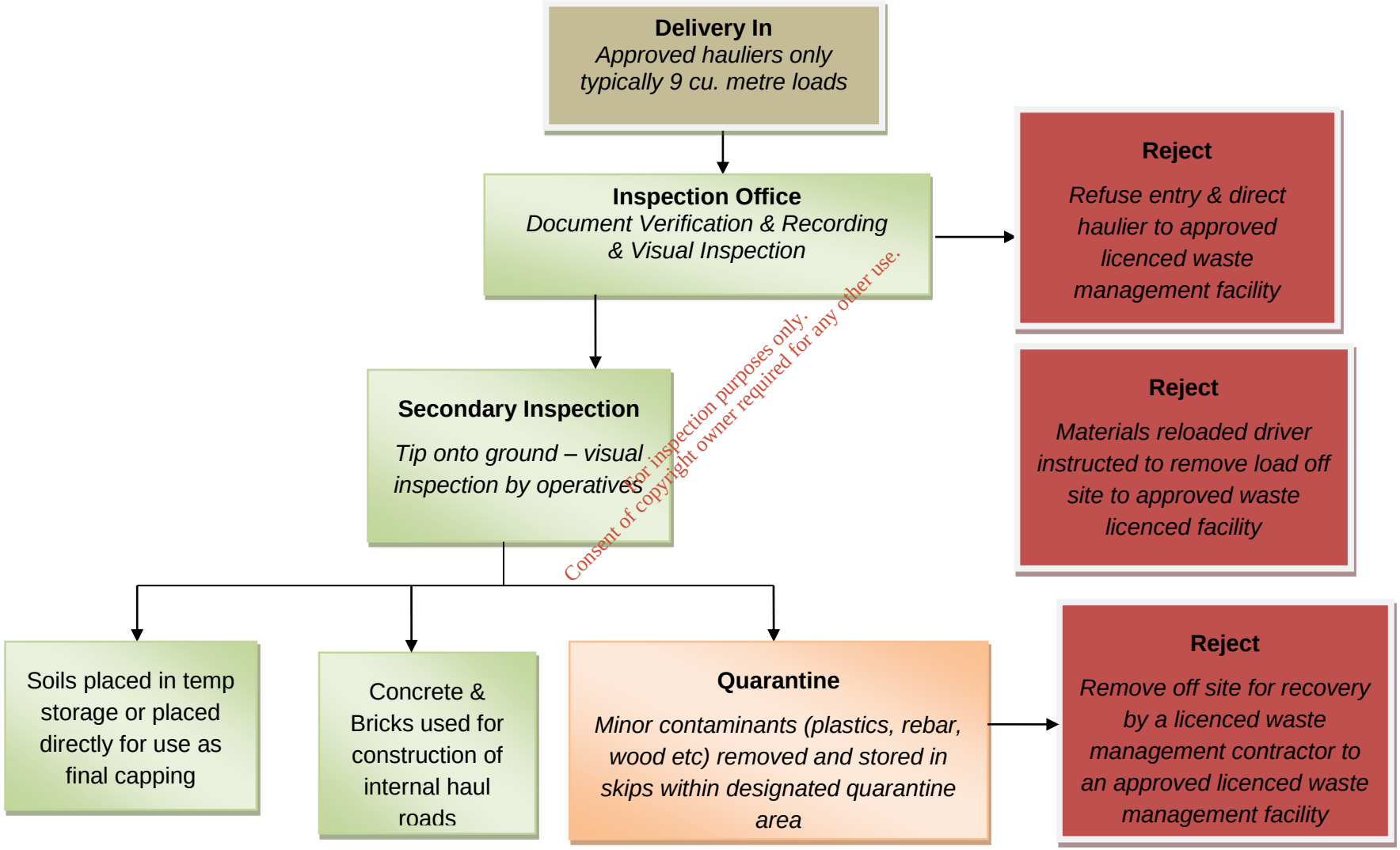
2.4.3.1.6 Recovery of Construction Materials

Clean construction and demolition waste will either be placed directly on haul roads or temporarily placed in storage awaiting recovery.

Recovery and re-cycling activities at the application site will involve tipping of previously stockpiled 'unprocessed' material into a mobile crushing & processing plant using a front-end loader (Refer to Figure D.1.1 – Rev A). Material produced by the plant will then be transported by front-end loader to 'processed' stockpiles. Recovered material will be used for internal haul roads and/or dispatched offsite.

No sorting of materials other than separation of rebar from concrete will be undertaken on site as all material will be sorted and segregated at source before being brought to the application site. Rebar (reinforced steel) separated from concrete will be stored in the designated quarantine area awaiting removal off-site by a licensed scrap merchant.

Figure 2.4 **Flow diagram of the whole process, along with a brief description (italics) detailing its management and maintenance plans**



2.4.4 ENVIRONMENTAL TREATMENT, ABATEMENT AND CONTROL SYSTEMS

The main potential sources of emissions from an inert waste recovery facility would be from noise or dust associated with the movement, handling and placement of materials. Possible other emissions to the atmosphere would be from machinery exhaust fumes and also possible emissions to surface and/or groundwater in the event of a fuel spillage.

2.4.4.1 EMISSIONS TO ATMOSPHERE

The following section details the techniques for preventing, or reducing the emissions from the WRF including treatment/abatement systems as necessary. The following activities may give rise to potential fugitive dust emissions.

- Internal movement of vehicles
- Tipping and levelling
- Loading and unloading vehicles
- Processing area

The materials to be recovered are principally “soils and stone” and inert construction and demolition waste. Any dust generated by the operation will comprise inert particulate matter.

Experience of reclamation workings indicates that mechanical activity is the most significant factor in material erosion and dust generation. Dust emanates from the placement of materials, the movement of vehicles on internal roads and loading and processing operations. However the effect of wind is also an important factor in dust generation and problems may arise at reclamation workings when both factors arise simultaneously.

The impact of fugitive dust will be direct, temporary and non-cumulative and largely confined to the application site.

The principal measures employed to control fugitive (ground) dust emissions from general site activity, internal haulage and tipping operations are:

- During dry weather the haul roads and stockpiles are sprayed with water to dampen any likely dust blows. A water bowser is maintained on site for this purpose.
- Consideration will be given to location of mobile plant so as to ensure that any principle dust sources cannot adversely affect sensitive off-site locations.
- Static and mobile wet dust suppression systems will be located at strategic points in the process if required.
- Drop heights are kept to a minimum by using short conveyors and maintaining stocks under the head drum load out points.
- Main site haulage routes within the site shall be maintained with a good temporary surface, as is the case at present.
- Suitable vegetation is to be provided on restored areas at the earliest opportunity

Dust emissions from the facility will be controlled and monitored. Dust emissions and their management will be addressed in the 'Environmental Management System' (EMS) for the Thornberry site.

2.4.4.2 EMISSIONS TO SURFACE WATER/GROUND WATER

As the only material imported on site is “soil and stone” and inert construction and demolition waste, it should not represent a source of possible contamination of surface water and/or ground waters.

The nearest watercourse to the application site is the Kill River (c. 550 metres to the north), a smaller tributary of this river forms the eastern boundary of the landholding. The nearest watercourse to the application site is the Kill River (c. 500 m to the north), a smaller tributary of this river forms the eastern boundary of the landholding. The natural drainage pattern existing on site means that a proportion of the rainwater falling on the site percolates through the existing soil strata (sand and gravel, and underlying glacial till) to the underlying bedrock.

A buffer zone of 30m has been provided to the nearest surface watercourse to the site. A further 30m strip has either been restored and/or used to store indigenous soils for final restoration along the eastern site boundary. On site activities will not discharge to any sewerage system, and it is proposed to use a portable chemical toilet.

With respect to the existing waste permitted area the following measures are in place/proposed:

- A mobile double skinned (integrated bunding) fuel bowser will be used to refuel mobile plant on site.
- Re-fuelling and maintenance of mobile plant will take place with due care and diligence to avoid spillages.
- Waste oil products are stored within the existing container on site. Waste oils are disposed of by a licensed waste contractor and removed off site.
- All oil barrels and lubricants are stored on spill pallets/ spill trays. .
- The operator will put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.
- Groundwater quality is currently monitored at the site in compliance with the Waste Management Licence for the adjoining Arthurstown Landfill Facility (EPA Registration No. W0004-03). A groundwater monitoring programme will also be put in place to ensure that there is no impact on water quality as a result of the recovery operations.

2.4.4.3 NOISE EMISSIONS

The main source of noise and vibration will be from the movement of trucks on internal haul roads, the tipping of material, placing and grading the infill material, and from the processing plant.

Given the nature of the development the location of the above will vary dependent on area of site being restored (Refer to B.2.1 - Rev A -Site Plan).

The type of mitigation techniques implemented to reduce noise are detailed below:

- The provision of temporary peripheral screen banks to screen site activities from outside views as necessary.
- General site activity will be within the existing pit and below the level of the nearest residences.
- The use of designated haul roads to ensure that site traffic is removed from nearest noise sensitive receptors.
- Regular maintenance of all plant and machinery is an integral part of site management and is important in helping to minimise noise impact.
- All plant and equipment will conform to noise emission limits set out in Statutory Instrument No. 320 of 1998 European Communities Construction Plant and Equipment-Permissible Noise Levels (Regulations, 1998) and amendment set out in Statutory Instrument No. 359 of 1996.

It is proposed to continue to carryout noise monitoring at the three locations (N4 to N6) which includes the nearest noise sensitive locations (Refer to Figure F.10 – Rev A, *EIS Section 2 Figures*). It is proposed to carryout noise monitoring on a bi-annual basis.

The results of monitoring to date shows that the development can comply with the noise level threshold as specified and as a consequence the development will have no significant effects regards noise levels in the area. Noise emissions and their management will be addressed in the 'Environmental Management System' (EMS) for the Thornberry site.

The issue of noise and the mitigation measures available to reduce noise to acceptable levels is dealt with in detail in EIS Section 3.7 - Noise.

2.4.4.4 ENVIRONMENTAL NUISANCE

2.4.4.4.1 Bird Control

It is not envisaged that birds will be a problem as all infill material is inert and no domestic or municipal waste will be accepted on site. As such there will be no need for any specific controls for birds.

2.4.4.4.2 Dust Control

Refer to EIS Section 2.4.4.1 above with respect to measures to control (abatement) of fugitive (ground) emissions.

2.4.4.4.3 Fire Control

The only waste to be accepted at the facility for recovery comprises inert soils and stone, and inert construction and demolition waste. As such it is not expected that the site activities concerned are likely to give rise to any significant risk of fire.

2.4.4.4.4 Litter Control

The only waste to be accepted at the facility for recovery comprises inert soils and stone, and inert construction and demolition waste. As such it is not expected that the site activities concerned are likely to give rise to litter.

The site entrance gates remain locked outside of normal working hours and public warning notices are posted at appropriate locations along the site boundary. These measures are to ensure that there is no unauthorised dumping of unacceptable wastes outside of operating hours likely to give rise to nuisance.

A daily site inspection including site boundaries adjoining public roads shall be carried out. Any litter observed will be removed as soon as possible and disposed of to a suitable Waste Management Facility.

Waste oils, batteries, scrap metal etc, will be removed from site for recycling by approved licensed contractors. A licensed waste collection contractor will remove any domestic waste requiring disposal to a licensed waste management facility.

Occasionally a load will contain minor contaminants (e.g. plastics, rebar, wood and paper). These items are removed on inspection by a site operative and stored in a designated quarantine area pending removal offsite by a licensed waste disposal contractor to an appropriate disposal facility.

2.4.4.4.5 Traffic Control

Car parking including visitors parking will be provided at the site entrance. Trucks entering the site will report to the site Facility Manager/Site Foreman where each load will inspected as to its suitability to be recovered on site.

The site entrance has also been designed to ensure that queuing for vehicles entering the site is safely accommodated off the main public road.

Traffic direction signs, warning signs, speed limit signs are established throughout the site.

2.4.4.4.6 Vermin Control

The only waste to be accepted at the facility for recovery comprises inert soils and stone, and inert construction and demolition waste. As such the site activities concerned will not give rise to a need to introduce vermin control.

2.4.4.4.7 Road Cleansing

The site access road has been provided with an asphalt surface for a distance of c. 150 metres. Imported clean construction and demolition waste (concrete and brick) is used to construct internal haul roads as required on site. As such there is no evidence of mud and debris being carried out on to the public road and a wheelwash is not considered necessary.

In the event of material being spilled on the public road the operator will ensure that spilled material is removed from the road surface in a safe and timely manner, as soon as they notice or are notified that a spillage has arisen. A road sweeper is readily available at short notice to sweep up any materials which may accidentally fall onto the public roadway.

2.4.4.5 ENVIRONMENTAL MONITORING

2.4.4.5.1 Air - Dust

The existing waste management permit (WMP 30/2001B) does not specifically set any limits on dust for the site *"The permit holder shall take adequate precautions to prevent undue noise, fumes, dust, grit, untidiness, and other nuisances during the course of the works which would result in a significant impairment of or a significant interference with amenities or the environment beyond the site boundary.* "

It is proposed that the operator set up a dust monitoring programme using Bergerhoff Dust Gauges. Two dust monitoring stations (A2-4 – A2-5) have been established at the site boundary (Refer to Environmental Monitoring Plan Figure F 1.0 – Rev A, *EIS Section 2 Figures*).

Dust fall is measured using the Bergerhoff method as set out in German Standard VDI 2119. The normal recommended standard for dust emissions for this type of development is that "dust deposition shall not exceed 350 mg/m^2/day measured at the site boundaries and averaged over 30 days". This limit refers to total dust (using DIN method).

The above standard is also in accordance with guidance issued by both the Department of the Environment and the EPA in relation to dust deposition monitoring for these types of developments and will continue to be applied.

This programme will allow on-going monitoring of fugitive dust emissions from the site, thereby assisting in ensuring compliance with any future requirements or regulations.

2.4.4.5.2 Surface Water

There are no surface water features on the site, including settlement lagoons or ponds. The majority of surface water run-off on-site will be allowed to percolate to the underlying water table or allowed to discharge to the existing land drainage system.

It is proposed to maintain the existing (30m) buffer zone between restoration areas and surface drainage to east of site. There will be no requirement to discharge surface water run-off directly from the site to adjacent watercourses.

2.4.4.5.3 Groundwater

Groundwater monitoring on-site is reduced to a single well that is contaminated by nearby agricultural activities. It is proposed that groundwater monitoring be carried out during the operation of the WRF and quarry restoration. It is our understanding that the Facility Management at Arthurstown are relocating a number of the ground water boreholes and that results will soon be made available to the EPA as part of the 2014 Annual Environmental Report (AER).

2.4.4.5.4 Noise

The operator has established an environmental monitoring programme to include noise monitoring.

It is proposed to continue to carryout noise monitoring at the three locations (N4 to N6) which includes the nearest noise sensitive locations (Refer to Figure F.10 – Rev A, *EIS Section 2 Figures*). It is proposed to carryout noise monitoring on a bi-annual basis.

In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise ELVs at the nearest noise-sensitive receptor:

Daytime:	08:00–20:00 h	LAeq (1 h) = 55 dBA
Night-time:	20:00–08:00 h	LAeq (1 h) = 45 dBA

It is therefore considered that the above EPA threshold should be applied for this development as this limit is a recognised standard within the industry and is a limit that is set by most of the Local Authorities. These levels are consistent with guidance issued by the Department of the Environment: “Quarries and Ancillary Activities – Guidelines for Planning Authorities (2004) DOEHLG”.

The results of monitoring to date shows that the development can comply with the noise level threshold as specified and as a consequence the development will have no significant effects regards noise levels in the area. Noise emissions and their management will be addressed in the 'Environmental Management System' (EMS) for the Thornberry site.

This programme will allow on-going monitoring of noise emissions from the site, thereby assisting in ensuring compliance with any future requirements or regulations.

2.4.4.6 RESOURCES USE & ENERGY EFFICIENCY

The only waste to be accepted at the facility for recovery comprises inert soils and stone, and inert construction and demolition waste. As such the material does not undergo any form of processing involving the use of chemicals or additives.

The potable water supply for the proposed temporary site office will be met by bottled water.

Water used for dust suppression, where possible, will be sourced from collection of surface water run-off and/or from an existing borehole on site. It should be noted that in Ireland rainfall

occurs on a daily basis about 50% of the year. On days requiring dust suppression water usage would amount to 5 to 10 m^3 per day.

The only raw materials used on site are diesel, hydraulic oil and engine oil which will used to operate diesel powered plant on site.

As only a single bulldozer is used on site to place and grade the inert fill material and a mobile crushing unit served by a loading shovel used to produce secondary aggregates the quantities of fuel oil used on site are relatively small. Other plant on machine serving the sand and gravel pit includes a loading shovel, screening unit and on occasion a back-hoe excavator. .

Energy efficiencies will be achieved by using modern plant and equipment and servicing the equipment on a scheduled basis. Plant and equipment not in use will be shut off.

2.4.4.7 WASTE ARISINGS

The applicant will endeavour to visit the construction sites to ensure materials are being properly sorted and segregated at source.

A licensed waste collection contractor will be appointed as necessary to remove any canteen waste requiring recovery/disposal to a licensed waste management facility.

Occasionally a load will contain minor contaminants (e.g. plastics, metal, wood and paper). These items are removed on inspection by a site operative and stored in the designated quarantine area pending removal offsite by a licensed waste disposal contractor to an appropriate recovery/disposal facility.

Waste oil products are stored within the existing container on site. Waste oils are disposed of by a licensed waste contractor and removed off site. All oil barrels and lubricants are stored on spill pallets/ spill trays. Spill kits are also maintained on site and the Company will put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.

Details with respect to the appointed waste recovery/disposal contractor including waste collection permit number and destination (waste licence/permit register number, licensing/permitting authority) are maintained.

2.4.4.8 GROWTH – POTENTIAL FOR FUTURE EXPANSION

There are no apparent opportunities with respect to future development at this site apart form return to agriculture at this time.

2.4.4.9 ASSOCIATED DEVELOPMENTS

There are no required or apparent opportunities for any associated developments at this time.

2.4.4.10 CUMULATIVE IMPACTS

The quarry at Thornberry lies directly to the north of the Arthurstown Landfill site. The Arthurstown landfill recently ceased operation (August 2014). The dust monitoring results shows that there has been no significant cumulative impact with respect to the operation of both developments.

The restoration works using imported "soil and stone" are no different from normal quarry restoration operations. As such there is no cumulative impact with respect to the movement and placement of materials during the progressive restoration of the quarry development.

Indirect or cumulative impacts associated with other similar developments within the area are dealt with where necessary under the relevant environmental topic in Section 3 of this EIS.

The proposed development will also be operated within acceptable standards for this type of development.

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2.6 SECTION 2 - FIGURES

Figure No.	Revision	Title	Scale	Size
A 1.0	-	Site Location Map	50000	A4
B 2.1	A	Site Plan	3000	A3
B 2.2	A	Location Map (500m)	5000	A3
B 2.4	-	Site Restoration Plan	3000	A3
B 2.5	-	Site Cross Sections	2000	A3
D 1.1	A	Site infrastructure	3000	A3
F 1.0	A	Environmental Monitoring Plan	3000	A3

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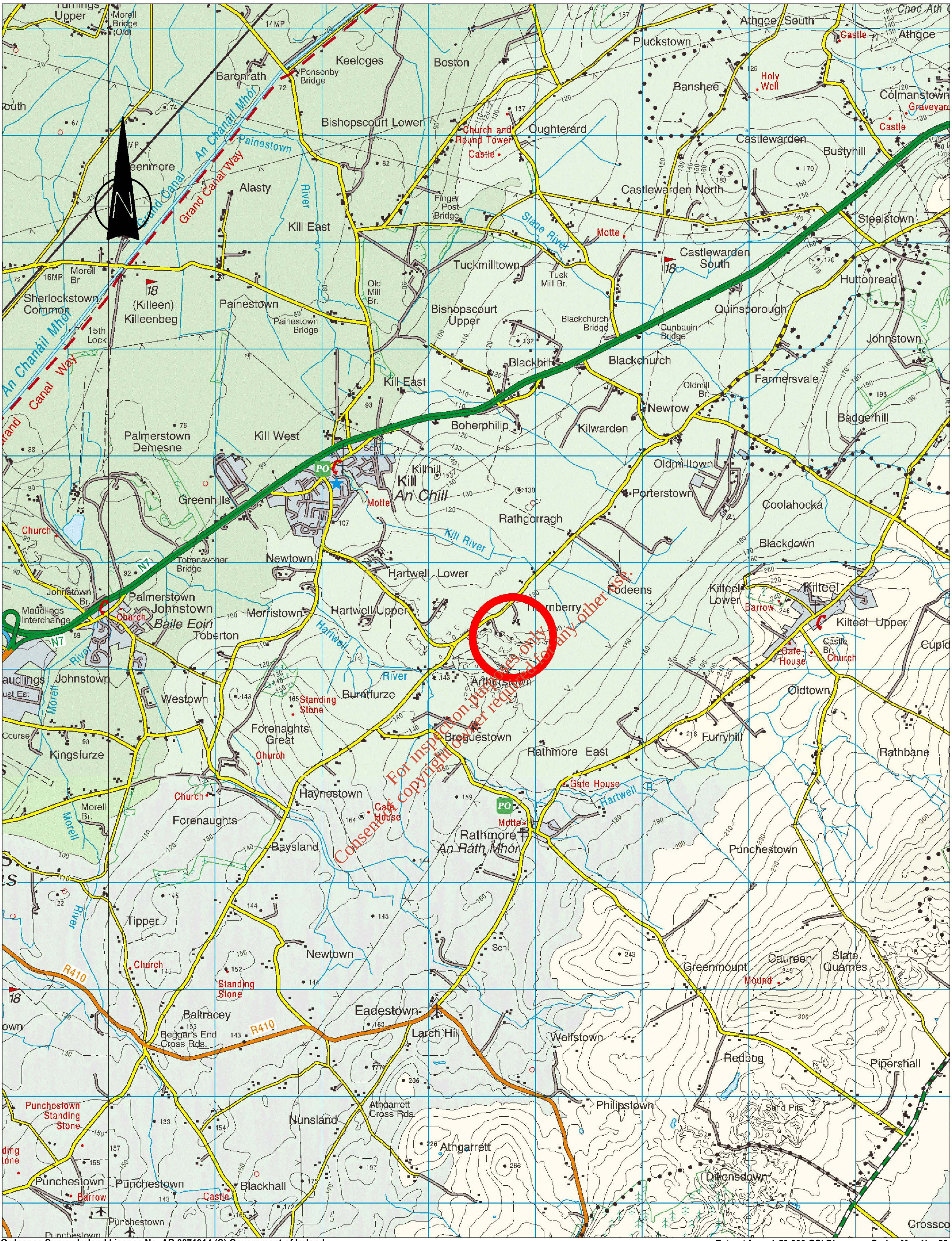


Extract from 1:50,000 OSI Discovery Series Map No. 56

Scale: 1:50,000

0m 500m 1km 2km

Legend

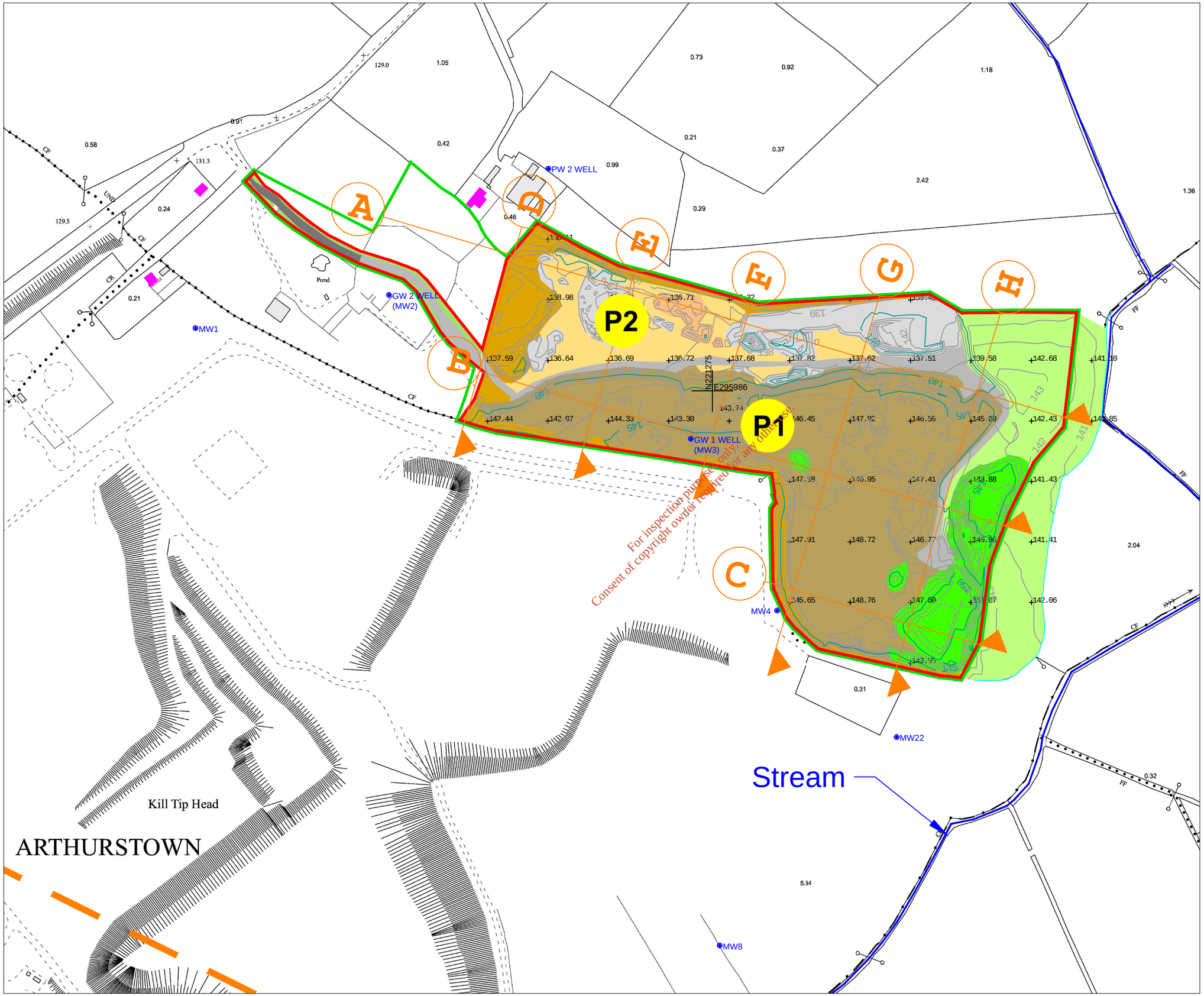
Site Location

31 Athlumney Castle,
Navan, Co Meath
Phone/Fax: 046 9073997
Mobile: John Sheils 087/ 273 0087
Email: john.sheils@jspe.ie

J SHEILS PLANNING & ENVIRONMENTAL LTD

Site Location Map
Sand & Gravel Merchants Ltd
Thornberry Townland
Kill
Co. Kildare

Author: John Sheils	Job No. JSPE 175
Date: 21/09/14	Ref No. A 1.0



Application Area (c.10.0ha)

Applicants Leasehold (c.11.4ha)

Residences

500m from Site Boundary

C & D Materials

Active Pit Area

Backfilling Area

Restored Area

Contours

Spot Levels (mAOD)

Sections

Phasing

Tarmacadam Surface

GW 1 WELL Wells

NG Centre Point Coords X, Y = 295986 221275

Scale 1:3000

0m 40m 120m

JSPE
31 Athlumney Castle,
Navan, Co Meath
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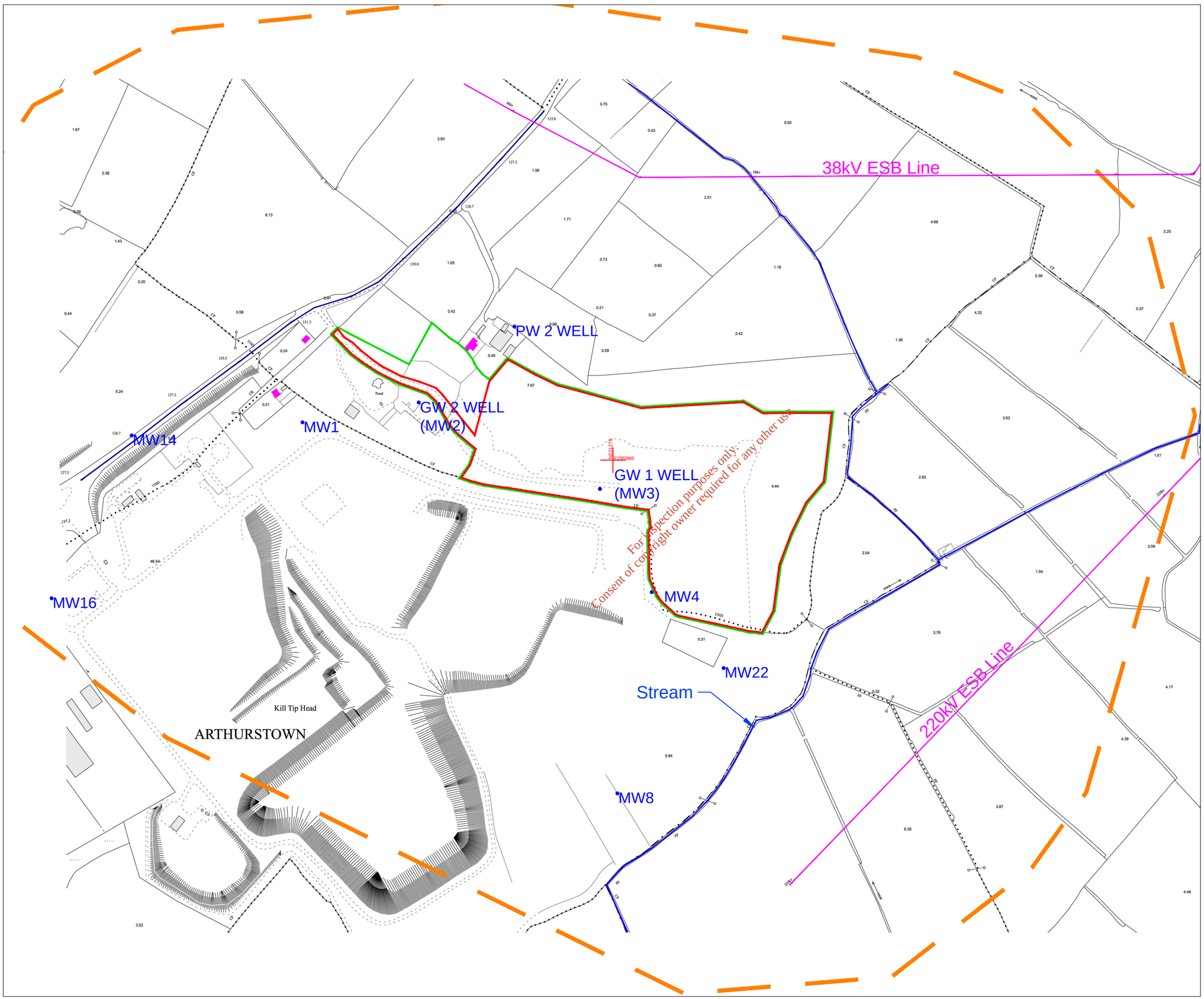
J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT
SAND & GRAVEL MERCHANTS LTD

DRAWING
SITE PLAN

LOCATION
THORNBERRY TOWNLAND
Kill, Co. Kildare.

Drawn by	Scale	
John Sheils	1 /3000	
Checked by	Job No.	
John Sheils	JSPE 175	
Date	Figure No.	Rev.
19/09/14	B 2.1	A



Application Area (c.10.0ha)

Leasehold Area (c.11.4ha)

Residences

GW 1 WELL Well

500m from Site Boundary

Power Lines

Surface Water

NG Centre Point Coords X, Y = 295986 221275

Scale 1:5000

0m 80m 240m

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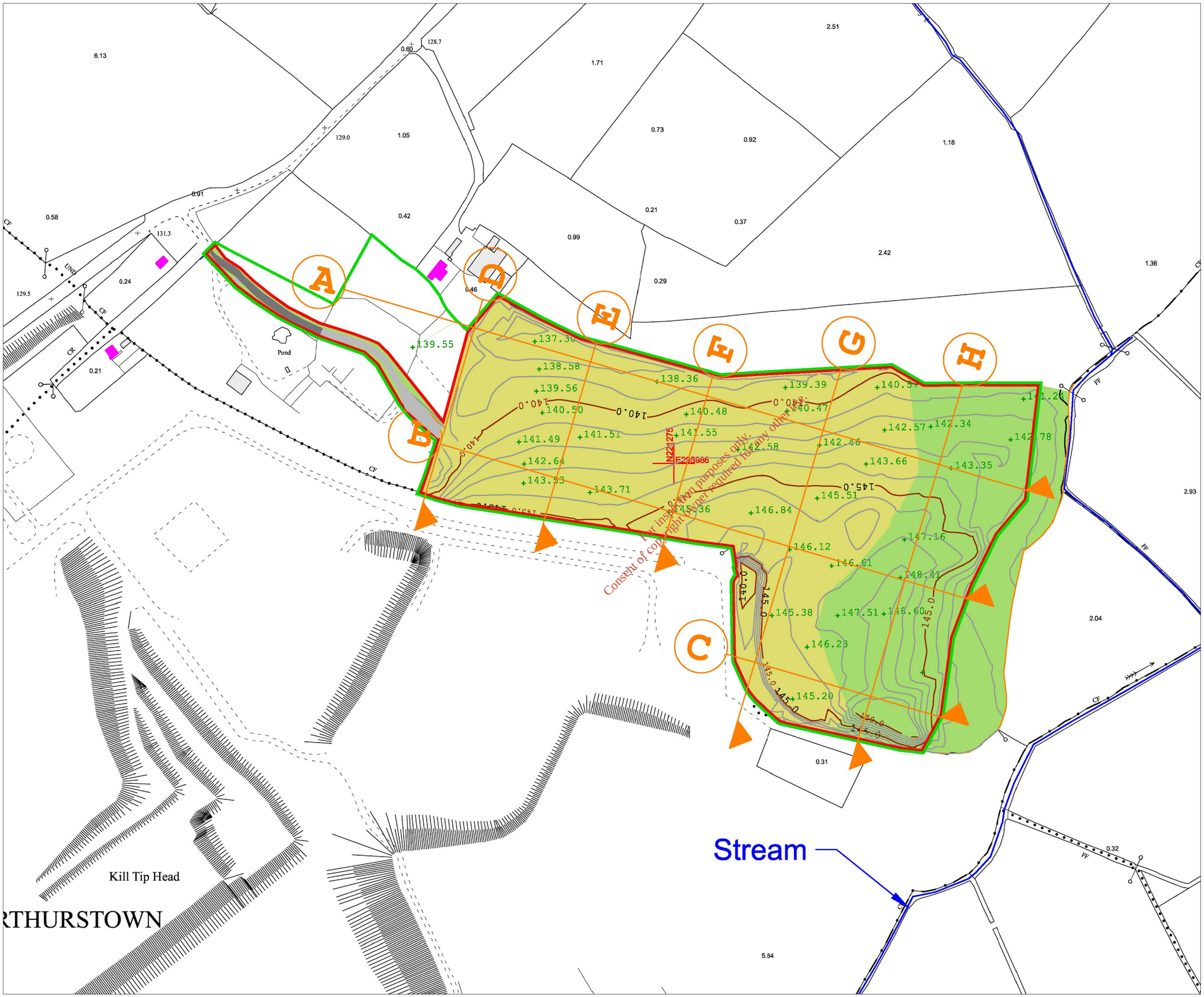
J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT
SAND & GRAVEL MERCHANTS LTD

DRAWING
LOCATION MAP (500m)

LOCATION
THORNBERRY TOWNLAND
Kill, Co. Kildare.

Drawn by: John Sheils	Scale: 1 /5000	
Checked by: John Sheils	Job No.: JSPE 175	
Date: 21/09/14	Figure No.: B 2.2	Rev: A



Scale 1:3000

0m 40m 120m

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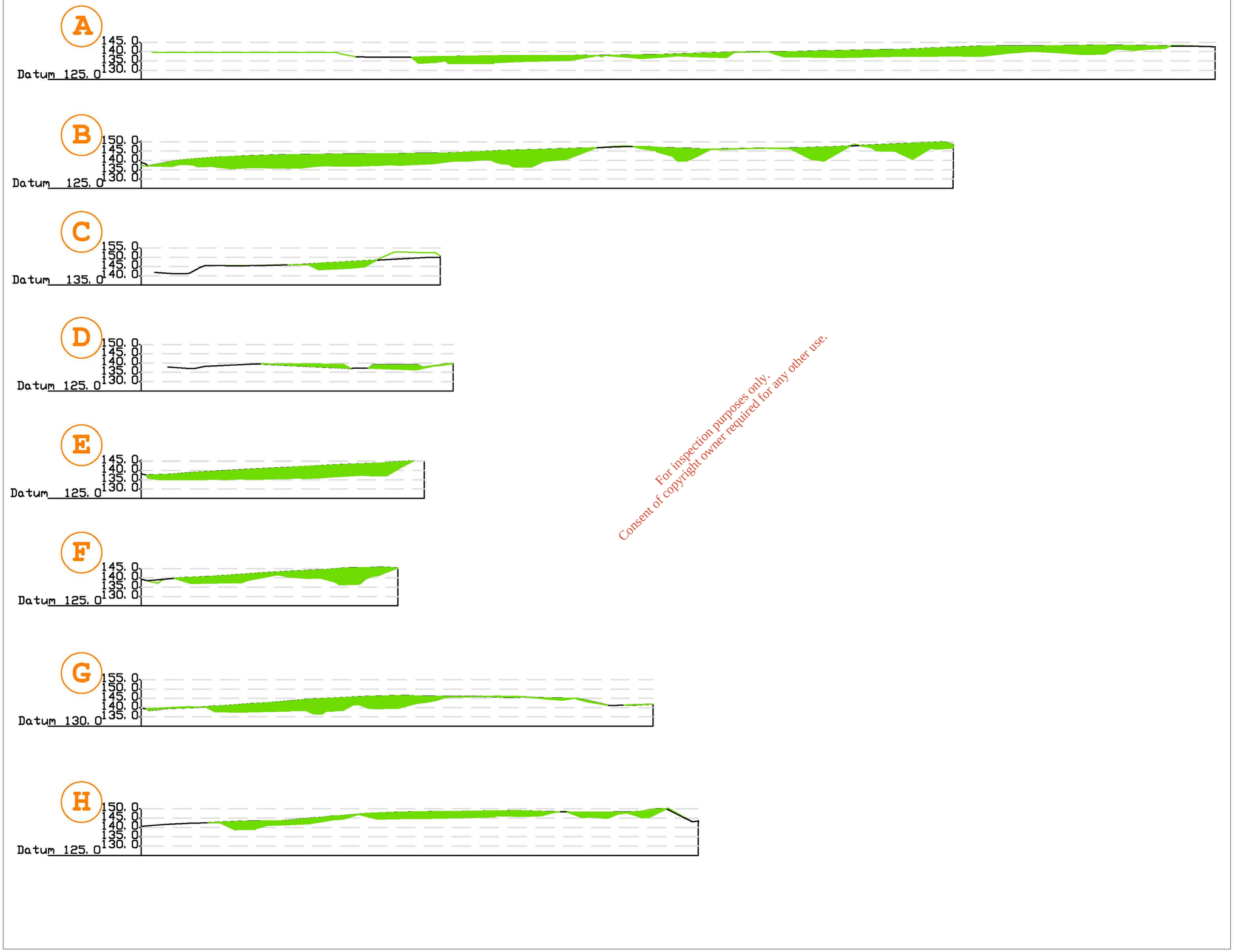
DRAWING
RESTORATION PLAN

LOCATION
THORNBERRY TOWNLAND
Kill, Co. Kildare.

Drawn by: Diarmuid O'Sullivan	Scale: 1 /3000
Checked by: John Sheils	Job No.: JSPE 175
Date: 20/01/09	Figure No.: B 2.4



Legend

- Final Landform Profile (mAOD)
- Restoration Profile
- Existing Ground Profile (mAOD)

Minimum Fill Depth <1m
Maximum Fill Depth 9m
Average Fill Depth 4 to 5m

Scale 1:2000

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DRAWING
SITE CROSS SECTIONS

LOCATION
THORNBERRY TOWNLAND
Kill, Co. Kildare.

Drawn by: Diarmuid O'Sullivan	Scale: 1 /2000
Checked by: John Sheils	Job No.: JSPE 170
Date: 18/01/09	Figure No.: B 2.5

PW 2 WELL

GW 2 WELL
(MW2)

Car Park

Toilet

Storage &
Inspection Area

Quarantine/
Inspection Area

ARTHURSTOWN
LANDFILL
SITE

GW 1 WELL
(MW3)

MW4

P2

P1

C&D Recovery Area
(Relocated as Necessary)

0.99
0.46
0.29
2.42

138.11
138.98
136.71
138.32
139.37
139.49
136.64
137.59
136.69
136.72
137.68
137.82
137.62
137.51
142.44
142.97
144.33
143.30
143.74
147.92
146.59
147.58
146.95
147.41
147.91
148.72
146.77
145.65
148.76
147.60

N221275
E295986

Application Area (c.10.0ha)
Leasehold Area (c.11.4ha)
Residences
C & D Materials
Active Pit Area
Backfilling Area
Restored Area
Contours
Spot Levels (mAOD)
Phasing
Traffic Out
Traffic In
Tarmacadam Surface
GW 1 WELL Well

Digital Raster Extract Ordnance Survey Data 2500 mapping
OS Sheets 3511 - A B C D 3510 - D

NG Centre Point Coords X, Y = 295986 221275

Scale 1:1500

0m 20m 60m

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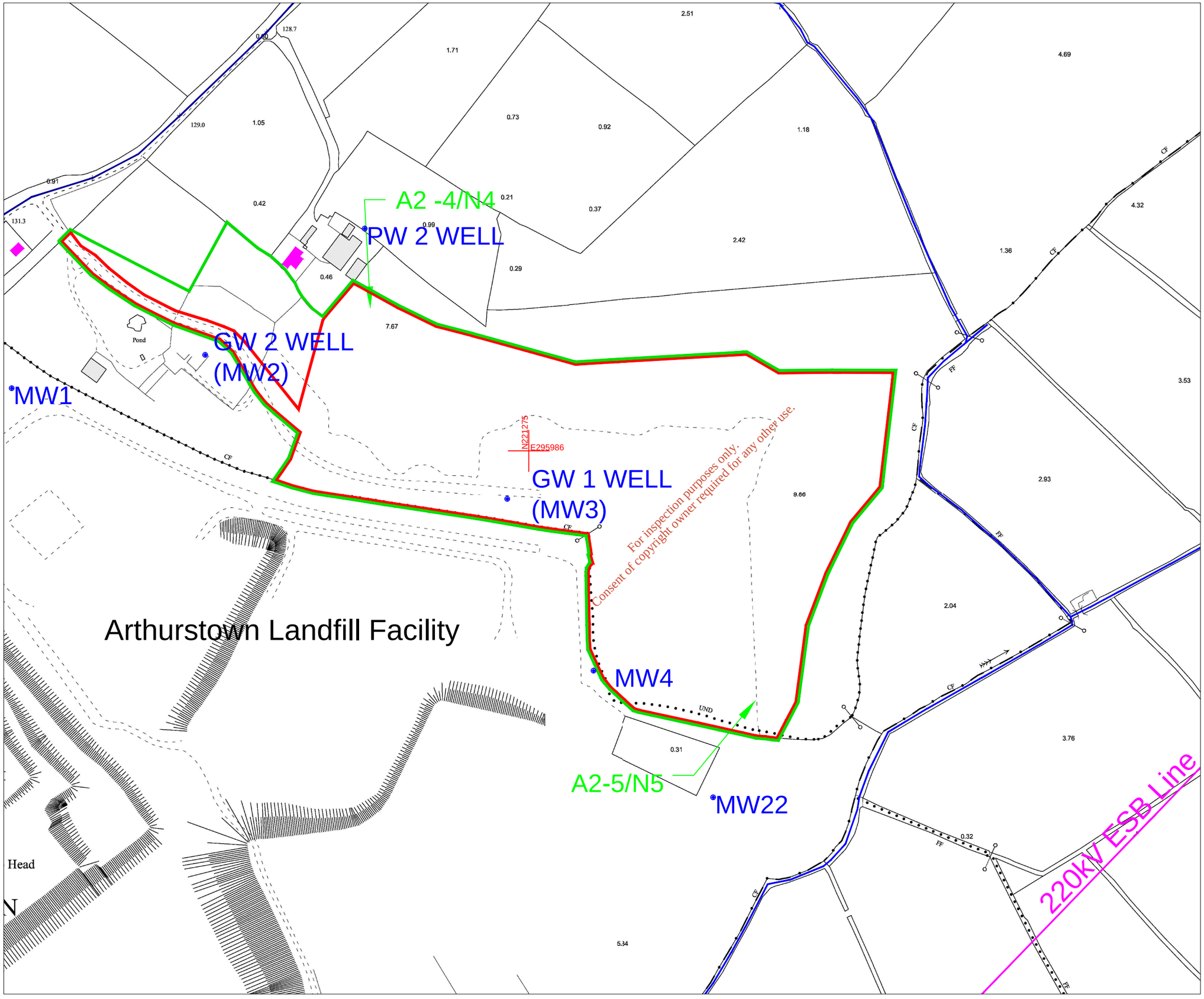
DRAWING
SITE INFRASTRUCTURE

LOCATION
THORNBERRY TOWNLAND
Kill, Co. Kildare.

Drawn by	Scale	
John Sheils	1 /1500	
Checked by	Job No.	
John Sheils	JSPE 175	
Date	Figure No.	Rev
21/09/14	D 1.1	A



Application Area (c.10.0ha)

Leasehold Area (c.11.4ha)

Residences

GW1 Ground Water monitoring point

A2 -4 Dust monitoring point

N1 Noise monitoring point

Monitoring Points National Grid Coordinates

A2-4/ N3 = IG Coords E295854, N221394

A2-5/N4 = IG Coords E296170, N221067

GW1 = IG Coords E295968, N221235

GW2 = IG Coords E295718, N221354

PW2 = IG Coords E295850, N221459

MW1 = IG Coords E295558, N221327

MW4 = IG Coords E296040, N221093

MW22 = IG Coords E296139, N220989

NG Centre Point Coords X, Y = 295986 221275

Scale 1:3000

0m 40m 120m

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DRAWING
ENVIRONMENTAL MONITORING PLAN

LOCATION
THORNBERRY TOWNLAND
Kill, Co. Kildare.

Drawn by: John Sheils	Scale: 1 /3000		
Checked by: John Sheils	Job No.: JSPE 175		
Date: 21/09/14	Figure No.: F 1.0	Rev: A	