May 2025

Environmental Impact Assessment Report (EIAR) – Volume 3

Appendices Part I

Proposed Whitestown Sand & Gravel Quarry

On behalf of

Mr. James Metcalfe & Mr. Thomas Metcalfe

Whitestown Lower, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

QUALITY
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Environmental Impact Assessment Report (EIAR) – Volume 3

Proposed Whitestown Sand & Gravel Quarry

Mr. James Metcalfe & Mr. Thomas Metcalfe

Whitestown Lower, Co. Wicklow

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RECEIVED: 23/05/2025

Appendix 1

APPENDIX 1-1

February 2025

Environmental Impact Assessment (EIA) Consultation Document

Proposed Sand & Gravel Quarry Whitestown, Co. Wicklow

On behalf of

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Mr Thomas Metcalf

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Title: Environmental Impact Assessment (EIA) Consultation Document, Proposed Sand & Gravel Quarry Whitestown, Co. Wicklow, on behalf of Mr James Metcalf and Mr Thomas Metcalf.

Job Number: E2169

Prepared By: Caoimhe Fox **Signed:** _____

Checked By: Mark Day **Signed:** _____

Approved By: Kenneth Goodwin **Signed:** _____

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01	06/02/25	Scoping Doc	FINAL	CF	MD	KG

Environmental Impact Assessment (EIA) Consultation Document

Proposed Sand & Gravel Quarry Whitestown, Co. Wicklow

On behalf of

Mr James Metcalf and Mr Thomas Metcalf

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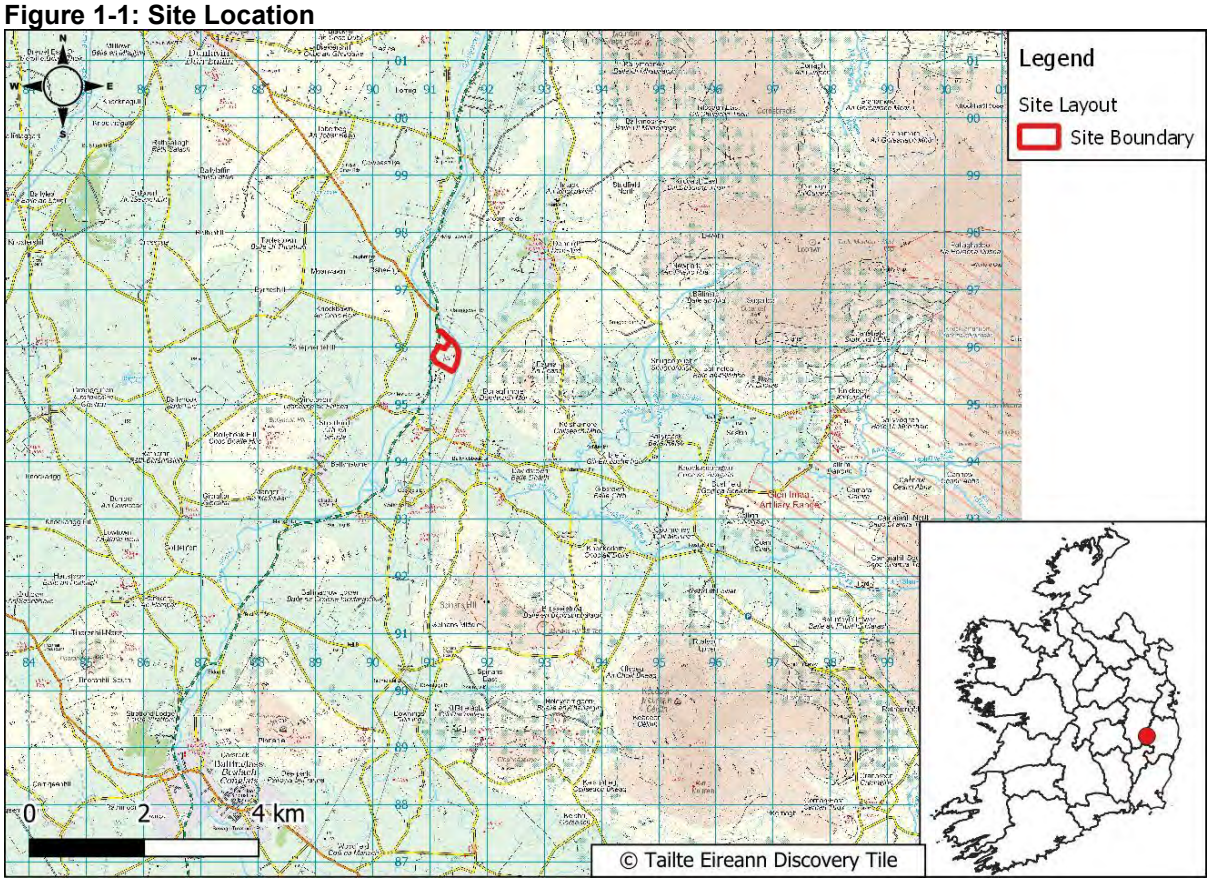
1 INTRODUCTION

Malone O'Regan Environmental (MOR Environmental) has been commissioned by Mr James Metcalf and Mr Thomas Metcalf (the Applicants) to conduct a Consultation Document for a Proposed Development in Whitestown, County Wicklow. The Applicants seek permission to extract, process, and temporarily store aggregates on a site spanning circa (ca.) 15.6 hectares (ha) within the townland of Whitestown Lower, County Wicklow, ca. 8.6 kilometres (km) northeast of Baltinglass (the Site).

The Proposed Development entails developing a sand and gravel extraction and processing development via a historic quarry pit floor, which is currently allowed as a soil and stone acceptance facility. The existing infrastructure, including access to the N81, a site office, a weighbridge, a wheel wash, a production well, and a toilet, will be used for the Proposed Development. The Site location is shown in Figure 1-1 below.

Figure 1-1: Site Location



The lands for the extraction are currently owned by the Applicants and are in agricultural use.

This document outlines the Site details, methodology and guidance documents to be used to prepare the EIAR, which will form part of the planning application.

1.1 Site Context

The Site is ca. 15.6 ha in total area and is located within the townland of Whitestown, Co. Wicklow ca. 8.6km northeast of Baltinglass and is shown in Figure 1-1 above. The Proposed Development is projected to be accessed via an existing access road to the Site from the N81. This entrance is currently in-use for the importation of inert soil and stones for use in on-site restoration of an extracted area of 2.73ha. This activity is authorised under planning reference 20/1117 and a waste facility permit reference FP-WW-21-0067-01. The permission authorises for importation of inert soils and stones at a rate of 23,000 tonnes (t) per annum and cumulative

tonnage of 115,000t. The objective of this authorised activity is the restoration of part of an existing pit using inert soils and stone materials on 0.21ha with associated civil works and site infrastructure, including wheel bath and access road.

1.2 Applicant

The applicants, Mr. James Metcalf of Newtown, Donard, Co. Wicklow, and Mr. Thomas Metcalf of Clonkeen, Carbury, Co. Kildare, own the land detailed in Folio 31829F. They have lived and farmed on these lands for over twenty years, giving them a deep understanding of the site's history and surroundings. This long-term local engagement, combined with their extensive industry experience, uniquely positions them to successfully carry out the Proposed Development.

Their expertise in the aggregates and quarrying business is further reinforced by a strong family background in the industry. Their uncle, Nicholas O'Toole, operated a successful business that supplied aggregates from local sand pits and quarries to farmers and construction sites throughout the area. By working closely with him for many years, both Tom and James gained invaluable experience and developed excellent customer relationships, further demonstrating their capability to manage and execute projects effectively in this sector.

1.3 Existing Development

A preliminary review of planning files available on Wicklow County Council's online planning portal revealed the following pertinent information:

- A soil recovery facility, Planning Reference 20/1117, is located within the northern portion of the Site. A partially completed (withdrawn) version of this application is listed under PR 201067; and,
- An unauthorised landfill, PR052224, is located to the south of the Site.

Adjacent to the Site, there are several other planning permissions:

- A series of planning permissions for Patrick O'Neill, granted between 2005 and 2008, authorise modifications and extensions to a residential property located adjacent the quarry entrance beside the N81 road. The relevant planning permissions are PR.054021, PR.064943, PR.07126, and PR.072495.
- A series of planning permissions for Michael Doran, granted between 1997 and 2005, permit modifications and extensions to a residential property situated west of the Site, adjacent to the N81 road. The relevant planning permissions are PR.977155, PR.977156, PR.052222, PR.052385, PR.052762, and PR.053325.

A planning permission for a bungalow, PR.894998, granted to P. O'Boyce & C. in 1989, appears on the council website; however, recent aerial photography reveals no building construction at the indicated location. As a result, this planning permission is considered obsolete. The points of interest (POI) surrounding the Site are shown in Figure 1-2 below.

Figure 1-2:Points of Planning Interest Locally

1.3.1 Soil Recovery Facilities PR.201117

The northern portion of the Site was previously used for aggregate extraction. Following the cessation of operations, planning permission was obtained under planning reference no. 20/1117 for the restoration of 2.73ha of the site by importing inert soils and stone as infill material. Additionally, a 0.21ha area was to be restored using site-won materials.

The EIA screening report submitted with the planning application indicated that no extraction below the groundwater table had occurred, and no groundwater monitoring data was provided.

This restoration project is ongoing and has been authorised by Wicklow County Council's Environment Section for the importation of waste soils, under waste facility permit (WFP) number WFP-WW-21-0067-01, issued on 24th August 2021.

1.3.2 Unauthorised Land Fill Restoration PR.052224

Located to the south of the Site, an application was submitted to the Local Authority (052224) for the construction of a series of engineered cells to receive residual industrial, commercial, and domestic waste derived from the excavation and processing of previously deposited waste. In addition, the applicants sought permission to import similar residual waste for disposal. The proposed infrastructure included a recovery building and composting facilities. This application was reviewed by the Environmental Protection Agency (EPA) and granted a waste license, reference number W0204. The facility was submitted under planning reference No. 052224.

Under the license, sixteen (No.16) groundwater monitoring wells were installed across the facility within a 5km buffer. The license stipulated quarterly reporting on monitoring data.

1.4 Description of the Existing Site

The Proposed Development is for the opening of a sand and gravel development, into available lands to the south of the existing operational waste facility permit for soil and stone importation. The Proposed Development will provide access to known quality aggregates to the local market.

The Site encompasses ca. 15.6ha, including service roads and boundaries. The northern portion consists of the authorised Waste Facility Permit. Proposed works in this area include for additional importation of inert soils, use of existing on-site infrastructure, and haulage route.

The remaining central and southern section of the Site consists of an isolated hill of gravels and sand, currently used for agricultural purposes. These fields are bound to the north and south by historic extraction sites (both now undergoing restoration works) to the east by the River Carrigower and the west by the N81 national road.

1.5 Description of the Proposed Development

The Proposed Development aims to open an extraction pit with associated stockpiling and dry screening. Following the initial development of a new pit floor, a washing plant will be established along with a water management system. The extraction area will cover ca. 7.75 ha and will feature two benches, each 10 meters high. Based on preliminary assessments of local sensitivities, the existing boundaries on the east, south, and west will remain undeveloped, while the northern boundary will be used to enable site entrance into the quarry resource. Refer to Figure 1-3 below.

Figure 1-3: Schematic Layout

Additionally, the importation of inert soils and stones will be sought to aid in the ongoing restoration of the historic quarry. The Proposed Development will include:

- Removal of soils.

- Use of soils for creating berms and on-site restoration work.
- Removal of a portion of the existing boundary between the WFP and the aggregate hill to enable access.
- Phased extraction of the hill over two benches.
- Installation of a settlement pond system and a washing plant following initial phase extraction.
- Short-term stockpiling of aggregates and overburden on-site.
- Importation of inert soils and stones for restoration of the existing WFP area and the proposed extraction area; and,
- Restoration of the site.

The proposed development will also include the operation of both dry and wet screening plants, a water management and recycling system, two loading shovels, an excavator, a bulldozer-type unit for site clearance works and restoration activities, a diesel generator, and existing on-site infrastructure.

2 LEGAL AND PLANNING CONTEXT

2.1 Legal Context

The Planning and Development Act 2000 (as amended) forms the foundations for planning regulation in Ireland. This Act covers a broad range of planning-related issues and combines a wide range of legislation under its guidance in one place.

The specific requirements for planning development are outlined within the Planning and Development Regulations 2001 as amended. These Regulations implement the Planning and Development Act, 2000. They consolidate all previous Regulations and replace the Local Government (Planning and Development) Regulations 1994-2000.

On 14th April 2014, the EIA Directive (2014/52/EU) was adopted, amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. The directive was transposed into Irish law through Statutory Instrument S.I. No. 296 of 2018 with a commencement dated 1st September 2018.

Developments that require EIA are specified in Schedule 5 of the Planning and Development Regulations 2001 (as amended), as follows:

Schedule 5 sets out the criteria for assessing whether a mandatory EIA is required for a development. It transposes Annex I and Annex II of the EU EIA Directive (85/337/ECC as amended) into Irish law under Parts 1 and 2 of the schedules.

There are no new criteria for EIA projects under the 2014/52/EU Directive.

Schedule 7 sets out the criteria for assessing the projects potential to have “likely” and “significant” effects on the environment, in which case an EIA is also required where the proposed project or development is listed under Schedule 5 but is not mandatory under Part II thresholds. These criteria include the following:

- “Characteristics of Proposed Development;”
- “Location of Proposed Development;” and,
- “Characteristics of potential impacts.”

The Environmental Impact Assessment Report (EIAR) is the document prepared by the proposer of a project setting out the effects (both positive and negative) that the Proposed Development would have on the environment.

2.2 Planning Context and Zoning

The Proposed Development is located on lands within County Wicklow and are subject to the provisions of the Wicklow County Development Plan 2022-2028. [1]

2.2.1 Planning Policies & Guidance

The following national, regional and local policies and guidance will be reviewed:

- Project Ireland 2040, National Planning Framework; [2]
- National Development Plan 2021-2030; [3]
- Regional Spatial and Economic Strategy for the Eastern and Midlands Region 2019; [4]
- Wicklow County Development Plan, 2022 – 2028; [1]
- The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009) [5];
- Sections 261 of the Planning and Development Act 2000 (as amended) [6];
- Environmental Management Guidelines – Environmental Management in the Extractive Industry [7]

- Quarry and Ancillary Activities – Guidelines for Planning Authorities [8];
- Geological Heritage Guidelines for the Extractive Industry – Geological Survey of Ireland [9]; and,
- Code of Practice between the department of the Environment, Heritage and Local Government and the Irish Concrete Federation 2009 [10];

Guidance specific to the individual chapters of the EIAR will be listed in section 3 below.

3 ENVIRONMENTAL IMPACT ASSESSMENT

3.1 Proposed Structure and Contents of EIAR

The EIAR will be prepared in accordance with the following guidance documents:

- EPA Advice notes on current practice in the preparation of Environmental Impact Statements [11];
- EPA Guidelines on the information to be contained in Environmental Impact Statements [12];
- Circular letter PL 1/2017; Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive) - Advice on Administrative Provisions in Advance of Transposition; issued by the Department of Housing, Planning, Community and Local Government, dated 15 May 2017.
- European Commission Guidance on the Preparation of the Environmental Impact Assessment Report [13]; and,
- Guidelines for Planning Authorities and An Bord Pleanála on conducting Environmental Impact Assessment [14].

The EIAR will contain the following key sections:

- Volume 1: Non-Technical Summary
- Volume 2: Main Text including:
    - Description of the Proposed Development
    - Main Alternatives Considered
    - Environmental Assessment (see below)
- Volume 3 Appendices

3.2 Non-Technical Summary

An overview of the proposed extension, its location, the identity of the applicants, and the reason the EIAR was prepared. The Non-Technical Summary is a review of the main EIAR text to enable clear identification of significant impacts, relevant mitigation measures where required and the residual impacts.

3.3 Description of the Proposed Extension

A full description of the Proposed Development in physical and functional terms during the Site preparation, operational and restoration stages.

3.4 Main Alternatives Considered

A summary of the alternatives considered in respect of the proposal and environmental aspects will be included within the EIAR, including alternative site layout and site use.

3.5 Assessment of Environmental Impacts

The significance of the impact of the Proposed Development on various aspects of the environment will be assessed under the headings set out in section 3.2.

3.5.1 Aspects of the Environment Considered in the EIAR

The EIAR will address the following environmental aspects:

- Population and Human Health.
- Biodiversity.
- Climate.
- Water, Hydrology and Hydrogeology.
- Lands, Soils and Geology.
- Air Quality.

- Climate
- Acoustics and Vibration.
- Landscape and Visual Impacts.
- Cultural Heritage.
- Material Assets including traffic, waste, and infrastructure; and
- Interaction of the above.

As far as practicable, the examination of each aspect of the environment will be undertaken as follows:

- The Receiving Environment ("baseline") - A description of the specific receiving environment into which the proposed extension will fit.
- The Characteristics of the Site - A projection of the specific "load" on each aspect of the environment which the Proposed Development would be likely to generate.
- The Potential Effects of the Proposed Development - A general description of the probable or 'likely' effects which the Proposed Development would be likely to produce.
- Cumulative Effects of the Proposed Development – The cumulative effects of the development will be assessed where relevant.
- Mitigation Measures - A description of any specific remedial or reductive measures considered necessary and practicable, resulting from the assessment of potential effects.
- Residual Effects of the Proposed Development - The assessment of the significance of direct and indirect effects of the proposed extension arrived at after mitigation measures have been employed.
- Interactions - A description of interactions of each environmental discipline with other environmental attributes.
- Monitoring - A description of any monitoring of effects on the environment which might be necessary, covering the monitoring methods and the agencies responsible for their implementation.
- Reinstatement - Where required, a description of reinstatement measures and the agencies responsible for their implementation; and,
- Difficulties Encountered - An indication of the difficulties encountered, if any, during the compilation of information.

3.6 Description of the Proposed Assessments

The approach to be taken on this EIAR under the specific headings, are outlined below.

3.6.1 Population and Human Health

Desk-based studies will be undertaken to assess the potential social and economic implications of the Proposed Development on human beings, at local and regional levels during both the construction and operation phases. Impacts on human health in terms of nuisance, noise, dust, traffic generation and loss of visual amenity will be addressed separately in other sections of the EIAR.

The key areas of assessment will be the potential effects of the Proposed Development, both positive and negative, in terms of its effects on local services, amenities and employment on the population. The assessment will include a desk-based review and assessment of the Proposed Development in the context of all relevant plans and policies at a local, regional and national level. The potential for any major accidents and disasters will also be considered as part of this assessment.

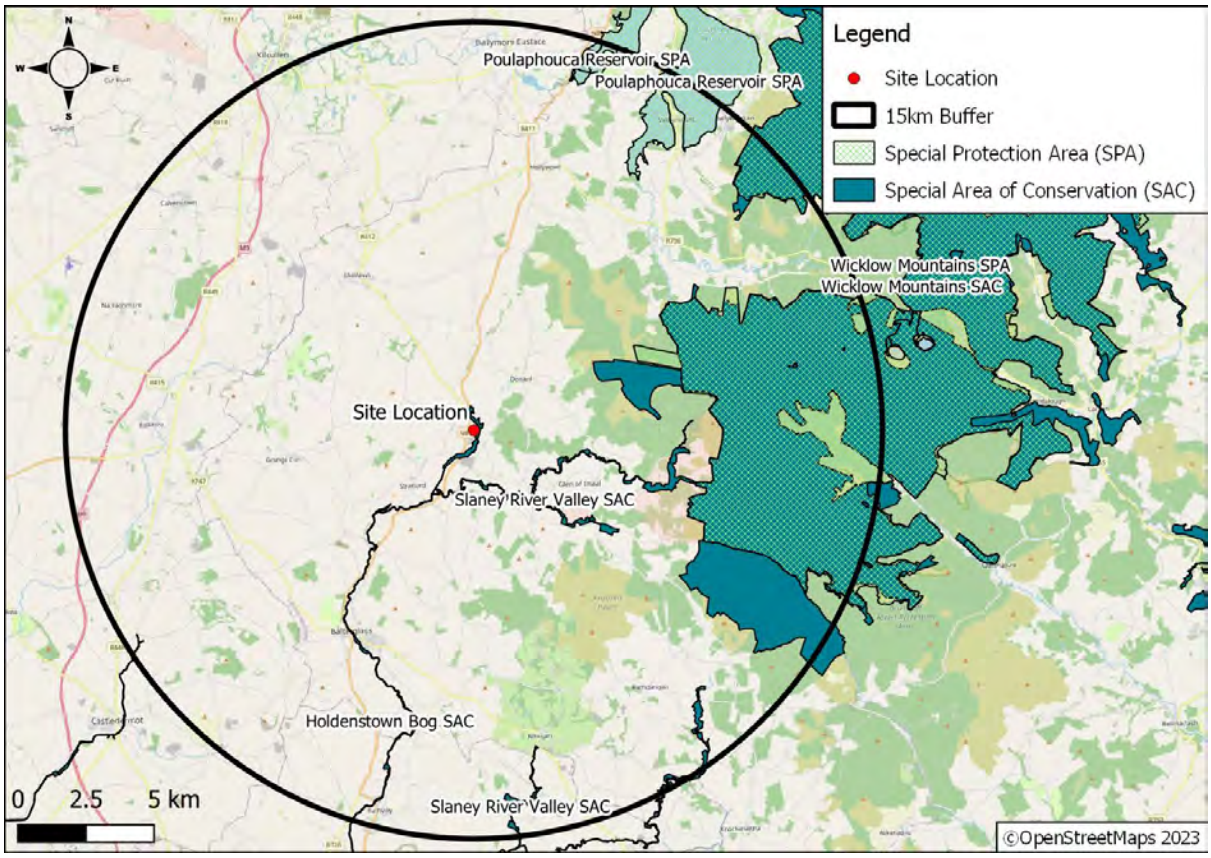
3.6.2 Biodiversity

Detailed baseline and habitat surveys are currently being undertaken by appropriately qualified Ecologists and may include:

- Habitat Surveys.
- Badger Surveys.
- Visual ground-based tree bat roost inspection.
- Bat emergence/dawn re-entry surveys.
- Static bat monitoring surveys; and,
- Breeding Bird Surveys.

These surveys will be used to assess the predicted effects of the Proposed Development on habitats and species in the area. Interactions between Landscape and Biodiversity and interactions with other topics such as noise, traffic, light, and air emissions will be assessed and commented upon in the EIAR.

Figure 3-1: Site Location and European Sites within 15km



3.6.3 Water, Hydrology and Hydrogeology

Hydrology and hydrogeology are highly interlinked, and as such a comprehensive joined assessment is proposed to clearly lay out the in-combination effects. The EIAR will assess the existing (baseline) surface water and groundwater quality at the Site and surrounding areas.

Existing surface water quality will be determined by carrying out a desktop assessment of the existing water quality for these streams/rivers. MOR Environmental will use information from the EPA's Catchment website to determine the Water Framework Directive (WFD) status of these waterbodies. The potential effects of the Proposed Development on surface water quality particularly at the River Carrigower and relevant waterbodies will be discussed in the EIAR.

Based on excavations to the north and south of the hill, the lower elevation of the road and the River Carrigower, the lack of springs or other groundwater features on the hill, and the depth of water from historically drilled wells near the Site, direct interaction with groundwater or surface waters is not expected within the excavation area.

As per EPA maps, there are three (3No.) hydrological features of note within proximity of the Site, the River Carrigower, the River Brown's Beck and the River Slaney. The Site is situated within the Slaney & Wexford Harbour Catchment [Catchment_ID: 12] and the Slaney_SC_010 Subcatchment [Subcatchment_ID: [12_12] [15]

- River Carrigower

The River Carrigower is located ca. 30m to the east of the Site, at its closest point. This river flows in a southern direction, and drains into the River Slaney, ca. 2.5km downstream of the Site. The River Carrigower forms part of the Slaney River Valley Special Areas of Conservation (SAC).

Under the Water Framework Directive (WFD) 2000/60/EC, the EPA classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland. According to the river waterbody WFD 2016-2021, the water quality within the River Carrigower is considered to be 'Good,' and the status of this river is under 'not at risk' [15].

- River Brown's Beck

The River Brown's Beck is located ca. 60m to the northeast of the Site, at its closest point. This river flows in a southern direction, and drains into the river Carrigower, ca. 30m downstream of the Site. The River Brown's Beck forms part of the Slaney River Valley SAC.

Under the Water Framework Directive (WFD) 2000/60/EC, as amended, the EPA classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland [15]. According to the WFD 2016-2021 monitoring events, the most up-to-date data at the time of writing this report, the water quality within the River Brown's Beck is considered to be 'Good,' and the status of this river is considered 'not at risk' [15].

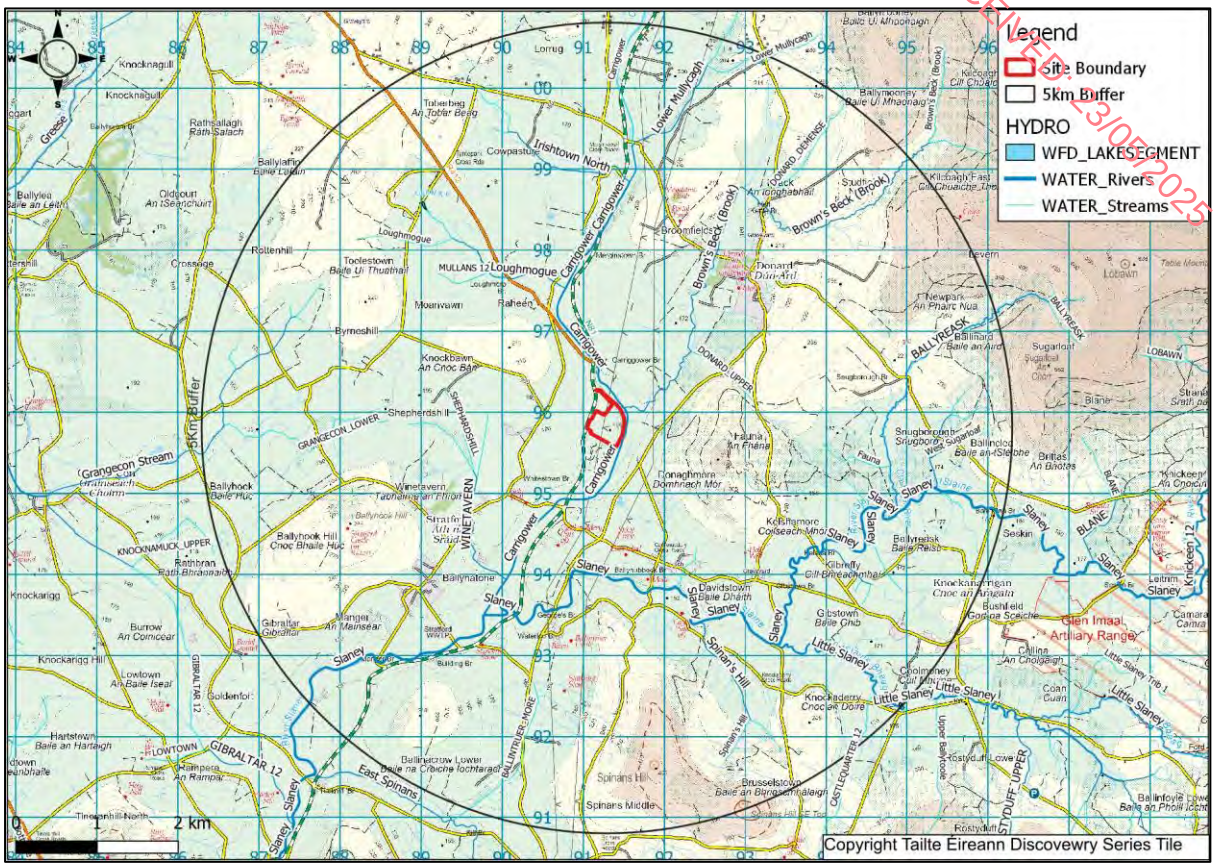
- River Slaney

The River Slaney is located ca. 1.6km to the south of the Site, at its closest point. This river flows in a western direction. The River Slaney forms part of the Slaney River Valley SAC.

Under the Water Framework Directive (WFD) 2000/60/EC, as amended, the EPA classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland [15]. According to the WFD 2016-2021 monitoring events, the most up-to-date data at the time of writing this report, the water quality within the River Slaney is considered to be 'Moderate,' and the status of this river is considered 'at risk ' [15].

The location of the key surface water features in the vicinity of the Site are illustrated in Figure 3-2 below.

Figure 3-2: Rivers near the Site and drainage ditch



The EIAR will comprehensively present the existing hydrogeological conditions at the Site and assess the potential effects posed by the Proposed Development, encompassing proposed needs for water, water management practices, local groundwater resources, surface water bodies, groundwater abstractions for public and private supply, and surface water features.

Site investigations as part of the hydrogeological assessment of the Proposed Development, including:

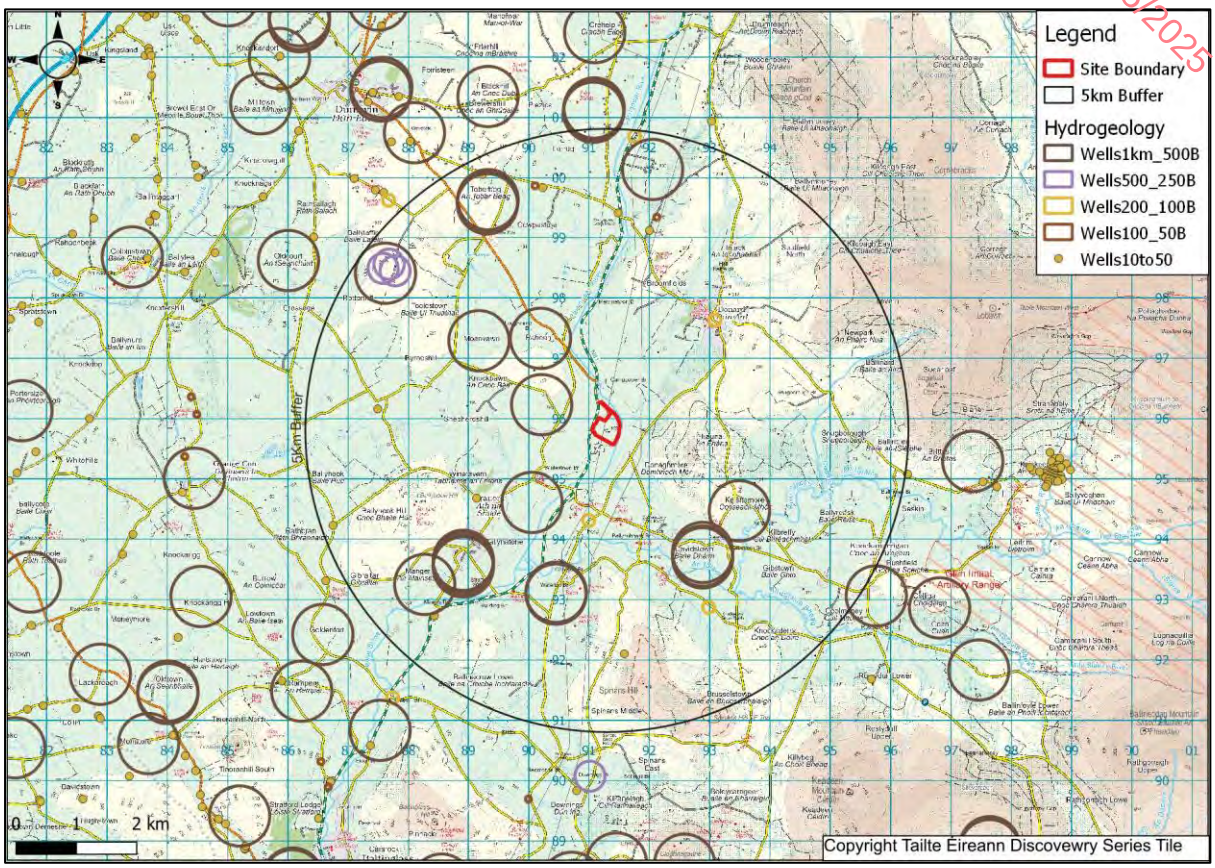
- A meticulous site walkover/survey of water features, involving geological mapping of bedrock and subsoil exposures, inspection, and mapping of all relevant hydrological features, such as existing drainage ditches, streams, and springs; and,
- A preliminary Flood Risk Assessment (FRA) for the Site and its surroundings.

The hydrogeological assessment will adhere to all relevant guidelines, and appropriate mitigation measures will be outlined as needed to avoid significant repercussions on the water environment. The following guidelines will be the basis for the assessment:

- Institute of Geologists of Ireland (IGI) Guidelines for Preparation of Soils, Geology & Hydrogeology Chapters in Environmental Impact Statements [16]
- National Roads Authority (NRA) Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes [17]
- CIRIA–C532 - Control of Water Pollution from Construction sites - Guidance for Consultants and Contractors [18]
- Department of Environment, Heritage and Local Government Quarries and Ancillary Activities - Guidance for Authorities [19]
- EPA Environmental Management in the Extractive Industry (Non-Scheduled Minerals) [7]

- Groundwater Regulations 2010 (S.I. No. 9 of 2010) as amended (S.I. No. 149 of 2012, S.I. No. 366 of 2016, and S.I. No. 287 of 2022) [20]
- Surface Water Regulations 2009 (S.I. No. 272 of 2009) as amended (S.I. No.327 of 2012 and S.I. No.386 of 2015 and S.I. No. 77 of 2019) [21]

Figure 3-3: GSI Registered Groundwater Wells with 5km



The Site is situated over a Locally Important bedrock aquifer that exhibits Moderate Productivity only in Local Zones. There is an indication of a locally Important gravel aquifer (Stratford Aquifer) directly south of the Site according to the Geological Survey of Ireland (GSI) datasets. However, the EPA dataset does not identify this aquifer. The County Groundwater Protection report lists eight potential gravel aquifers, including one near Baltinglass. However, this report acknowledges that the extent and thickness of these aquifers remain poorly defined in Wicklow. Considering this, the presence and extent of this potential aquifer are uncertain, but it is possible that it underlies the Site.

3.6.3.1 EPA Flood Maps

As per EPA Flood Maps, a drainage ditch channel was identified adjacent to the Site, on the eastern boundary, which is under the Carrigower Drainage District Scheme. (See Figure 3-2)

3.6.4 Land, Soils and Geology

The EIAR will assess the potential effects Proposed Development may have on the soils, geology and land use from the Proposed Development. A desk-based evaluation on soils and geology will be undertaken. The assessment will involve.

- Characterisation of the receiving environment by completing a desk-based review of the existing ground conditions utilising published GSI information and other publicly available information.

- The assessment will examine any proposed removal of topsoil, overburden and aggregates during the Proposed Development; and,
- The impact assessment will examine any proposed cut and fill operations, particularly the proposed ground levels for the Site.

The desk-based assessment will be supported by the Site visit performed by competent specialists and review of field testing of in-situ monitoring wells. The pumping tests will determine the volumes of groundwater that can be used for production purposes in supporting the aggregate washing plant. True ground information on geology and groundwater will be gathered from these exercises.

The soils and geology assessment will be conducted in accordance with all relevant guidelines, and suitable mitigation measures will be outlined where necessary. Guide to Geology in Environmental Impact Statements [9], published by the Institute of Geologists of Ireland will be used for this assessment.

3.6.5 Air Quality

The potential effects on air quality arising from the construction phase and operational phase of the Proposed Development will be assessed in the EIAR.

A desk-based review of the existing air quality at the receiving environment will be conducted which will include a review of the EPA published data on background air quality in the vicinity of the Site, and identification of any potential point sources (i.e., Industrial Emission Licensed facilities).

The construction phase of the Proposed Development has the potential to give rise to dust which may impact local receptors. A risk assessment will be completed in accordance with the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction 2016 [22] and mitigation measures listed.

For the operational phase of the Proposed Development a dust risk assessment for operations at the Site will be completed in accordance with best practices. This will assess the predicted impacts associated with all dust emissions arising from the Proposed Development.

An assessment of the Heavy Goods Vehicles (HGVs) movements throughout the phases of the Proposed Development will be conducted. Increased traffic flows resulting from the Proposed Development will be reviewed and the impact on local air quality will be assessed. Mitigation measures to reduce/remedy significant effects on air quality will be provided in this section of the EIAR.

Dust

The Site is situated near multiple residential properties. Additionally, a current estimate of six properties, including residences and businesses, are located within 350 meters of the Site boundary.

Air

The Site falls within Zone D, a designated rural zone. A review of the nearest Hourly Met Eireann Station, providing air quality monitoring data for the surrounding area will be undertaken. Additionally, the nearest EPA Monitoring Station in Zone D (Station 2415) is situated at Glen Imaal (For.Stn.), Co. Wicklow will be reviewed.

3.6.6 Climate

Potential Greenhouse Gas (GHG) emissions associated with the Proposed Development will be considered and assessed. Assessing GHG emissions will follow the Institute of Environmental Management and Assessment (IEMA) Guidance on ‘Assessing Greenhouse Gas Emissions and Evaluating their Significance’ [23]. The aim of the assessment is to

determine estimations of GHG emissions associated with the Proposed Development in the context of national legislation.

3.6.7 Acoustics

The EIAR will assess the potential impacts of the Proposed Development on acoustics during the two key stages of the development – construction and operation. Noise monitoring will be carried out in compliance with the following standards:

- Acoustics — Description, measurement, and assessment of environmental noise — Part 1: Basic quantities and assessment procedures- ISO 1996-1:2016; and,
- Acoustics — Description, measurement, and assessment of environmental noise — Part 2: Determination of sound pressure levels– ISO 1996-2:2017.

Construction noise utilising standard values for generic plant outlined within BS5228, as assessment of the likely noise arising from the construction stage will be developed. Potential impact from the construction stage noise will be assessed utilising the methodology within both BS5228 and the NRA 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes' (2004) [24], including the 2014 accompanying guidance document.

Noise predictions for the likely noise impact upon Noise Sensitive Receivers (NSRs) arising from the operation of the Proposed Development during proposed operating hours will be conducted. Noise modelling utilising modelling software will be carried out to evaluate predicted noise emissions from the Proposed Development. The noise model will present both a visual mapping output and receptor specific site emissions within the local environment.

MOR Environmental will use noise data provided by the suppliers of the equipment and plant that will be used at the facility during operations. This part of the EIAR will include the provision of noise control recommendations where necessary to reduce the noise impact predicted to arise from the proposed site operations.

3.6.8 Vibration

Noise and vibration impact assessments are closely related. Vibrational impacts arising from the construction and operational phases are not expected to be significant given the intervening distance to the nearest sensitive receptors. However, the potential for vibrational effects will be identified and mitigation measures derived where necessary.

3.6.9 Landscape and Visual

The EIAR will examine the potential landscape and visual impact of the Proposed Development. The landscape and visual impact assessment will describe the receiving environment in terms of landscape character and sensitivity. Representative viewpoints from the zone of visual influence will be assessed with several photomontages prepared to visually present the visibility at each location. Daytime photomontages will be prepared to assess the visual effects of the Proposed Development on the surrounding environment. Mitigation measures will be developed as appropriate.

The assessment will be carried out in accordance with the Landscape Institutes 'Guidelines for Landscape and Visual Impact Assessment' (3rd edition, GLVIA3), 2013 (UK) [25] and 'Landscape and Landscape Assessment Consultation Draft Guidelines for Planning Authorities', 2000 – Department of the Environment and Local Government [26]. Where the assessment predicts significant effects on landscape, mitigation measures to reduce/remedy the effects will be suggested in the EIAR, for example retaining hedgerows, landscaping, or tree planting.

3.6.10 Cultural Heritage

The EIAR will examine the potential impact of the Proposed Development on archaeology and cultural heritage both within and in the vicinity of the Site.

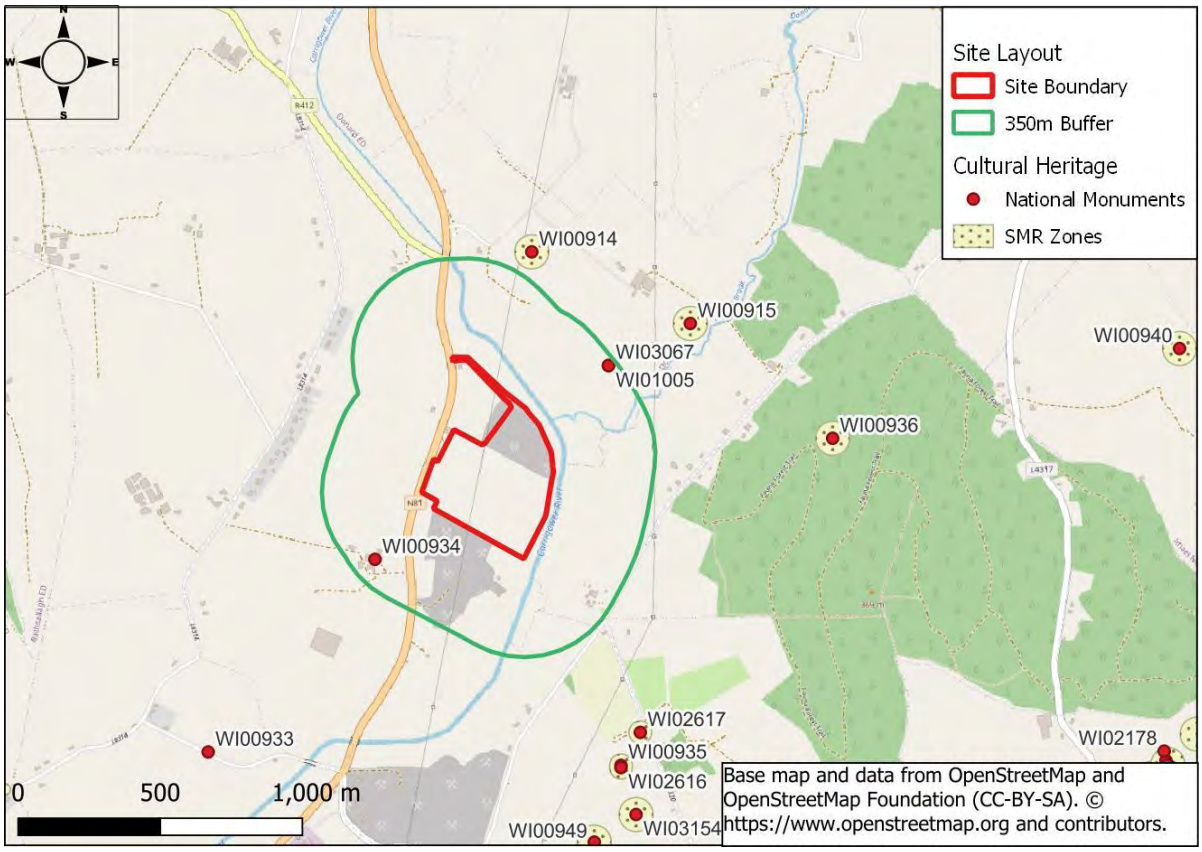
A competent and professionally accredited archaeologist will be employed to undertake the Cultural Heritage Assessment. The assessment will be used to assess the potential future impacts arising from the Proposed Development on Site Monument Records and any recorded archaeological features in the Site. Interactions with other environmental topics, including acoustics/vibration and visual impact will also be assessed. Consideration will be given to:

- Record of Monuments and Places (RMP) of County Wicklow.
- The Sites and Monuments Record.
- The Wicklow County Development Plan 2022-2028.
- The National Inventory of Architectural Heritage.
- Aerial photographs.
- Excavation reports.
- Cartographic.
- Documentary sources; and,
- A field inspection.

No monuments NIAH sites are located within the overall Site boundary, see Figure 3-4 below.

Interactions with other environmental topics, including acoustics and visual effect will be assessed. Where relevant, further mitigation will be identified. The EIAR will detail the findings of the archaeological and cultural heritage assessment for the Proposed Development.

Figure 3-4: National Monuments and NIAH Sites



3.6.11 Material Assets

The EIAR will examine the potential effect of the Proposed Development during the operation phase regarding traffic, roads, and waste management.

Traffic & Roads

The impact on road traffic arising from the construction phase and the operations of the Proposed Development, on the surrounding road network, the main access road will be assessed considering the Institute of Highways and Transportation, and the Guidelines for Traffic Impact Assessment (TIA). Traffic counts will be undertaken as part of the Traffic Impact Assessment to confirm existing traffic volumes using this road. The interactions between population and human health, ecology, noise and air quality and traffic will be commented on in the EIAR. Cumulative effects of the future operations at the Site will be carefully integrated into the assessment.

Waste

The potential impacts of the Proposed Development on solid waste management in the area during the construction and the operational phase will be examined. The assessment will be undertaken by means of a desk-based review of all relevant existing information, published EPA documents, and regional and national documents on solid waste management. The Proposed Development and its potential impact, both positive and negative, on the existing waste infrastructure both locally and nationally will be assessed.

4 ALTERNATIVES, INDIRECT AND CUMULATIVE IMPACTS

The requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (2014/52/EU) which state, "A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the Proposed Development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the Proposed Development on the environment."

This is expanded upon in Annex IV to the EIA Directive, which provides that the EIAR shall include:

> *"A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

The Proposed Development alternatives will include various alternative options that were considered during the design stage.

Indirect effects are defined within the EPA EIA Guidance 2022 as:

> *"…the effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway*" [12].

The indirect effect of the Proposed Development will be considered for each aspect of the Proposed Development (where relevant).

Cumulative effects will similarly be considered for each aspect of the EIAR and is defined as "the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects" [12].

5 CONSULTATION

This document forms the consultation document for the project and has been issued to relevant prescribed bodies. Responses to the project, specifically in relation to the scope and extent of the proposed environmental assessment are requested to be sent to the MOR Environmental offices within 6 weeks from the date of the issue. Submissions from the prescribed bodies will be taken into consideration when preparing the EIAR.

Correspondence should be submitted to the following address:

Malone O'Regan Environmental

Ground Floor - Unit 3

Bracken Business Park

Bracken Road, Sandyford

Dublin 18, D18 32Y

Or alternatively to: admin@mores.ie

To ensure that the response finds the relevant persons, in all correspondence ensure to reference the project as:

- E2169 Proposed Whitestown Quarry.

6 REFERENCES

[1] Wickow County Council, "Wicklow County Council," [Online]. Available: https://www.wicklow.ie/living/cdp2021. [Accessed 15 01 2024].

[2] DHPLG, "Project Ireland 2040 National Planning Framework," Department of Housing,Planning and Local Government, 2018.

[3] Department of Public Expenditure and Reform, "National Development Plan 2021-2030," Government of Ireland, Dublin, 2021.

[4] EMRA, "Eastern and Midland Regional Spacial and Economic Stratagey 2019-2031," Eastern Midland Regional Assembley, 2019.

[5] OPW, "The planning system and Flood Risk Managment," Stationary Office , Dublin, 2009.

[6] "Section 261 Planning and Development Act," Dublin , 2000.

[7] EPA, "Environmental Management in the Extractive Industry (Non-Scheduled Minerals)," Environmental Protection Agency, Wexford, 2006.

[8] DoEHLG, "Quarries and Ancillary Activities - Guidelines for Planning Authorities," Department of Environemnt Heritage and Local Government, 2004.

[9] GSI, "Geological Heritage Guidelines for the Extractive Industry," Geological Survey of Ireland, 2008.

[10] DoEH&LG and ICF, "Code of Practice between the Department of the Environment, Heritage and Local Government and the Irish Concrete Federation," Department of the Environment, Heritage and Local Government and the Irish Concrete Federation, 2009.

[11] EPA, "Advice Notes on Current Practice in the Preparation of Environmental Impact Statements," Environmental Protection Agency, Dublin, 2003.

[12] EPA, "Guidelines on the Information to be Contained in Environmental Impact Assessment Reports," Environmental Protection Agency, Dublin, 2022.

[13] European Commission, "Guidance on the Preparation of the Environmental Impact Assessment Reports," European Commission, Luxembourg, 2017.

[14] L. G. a. H. Department of Housing, "Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment," 08 2018. [Online]. Available: https://www.gov.ie/en/publication/53aee9-guidelines-for-planning-authorities-and-an-bord-pleanala-on-carrying/. [Accessed 16 01 2024].

[15] L. G. a. H. Department of Housing, "Water Framework Directive," 28 03 2022. [Online]. Available: https://www.gov.ie/en/publication/f7c76-water-framework-directive/. [Accessed 16 01 2024].

[16] IGI, "Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements," Institute of Geologists of Ireland, Dublin, Ireland, 2013.

[17] NRA, "Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes," National Roads Authority, Dublin, 2005.

[18] H. M.-W. e. al., "Control of water pollution from construction sites. Guidance for consultants and contractors (C532)," CIRCA, 01 2001. [Online]. Available: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C532&Category=BOOK. [Accessed 06 02 2024].

[19] L. G. a. H. Department of Housing, "Quarries and Ancillary Activities," Department of Housing, Local Government and Heritage , 23 12 2020. [Online]. Available: https://www.gov.ie/en/publication/a61d3-quarries-and-ancillary-activities/. [Accessed 06 01 2024].

[20] EU, "European Union Enviromnmental Objectives (roundwater) Regulations 2010 (S.I. No. 149 of 2012, and S.I. No. 366 of 2016, and S.I. No. 287 of 2022)," Office of the Attorney General, Dublin, Ireland, 2010 (with amendments in 2012, 2016 and 2022).

[21] EU, "European Communities Environmental Objectives (Surface Waters) Regulations 2009 ((S.I. No. 272 of 2009) as amended (S.I. No.327 of 2012, S.I. No.386 of 2015 and S.I. No. 77 of 2019)," Office of Atterney General, Dublin, Ireland, 2009 (with amendments in 2012, 2015 and 2019).

[22] IAQM, "Guidance on the assessment of dust from demolition and construction," 02 2014. [Online]. Available: https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf. [Accessed 16 01 2024].

[23] "EIA Guidance on Assessing GHG Emissions," IEMA, 02 2022. [Online]. Available: https://www.iema.net/resources/blog/2022/02/28/launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions. [Accessed 16 01 2024].

[24] NRA, "Guidelines for the Treatment of Noise and Vibration in National Road Schemes," National Roads Authority, Dublin, 2004.

[25] L. Institute, "Guidelines for Landscape and Visual Impact Assessment (GLVIA3)," [Online]. Available: https://www.landscapeinstitute.org/technical/glvia3-panel/. [Accessed 16 01 2024].

[26] L. G. a. H. Department of Housing, "Planning Guidelines/Standards," 15 01 2024. [Online]. Available: https://www.gov.ie/en/collection/85b83-planning-guidelines-standards/. [Accessed 16 01 2024].

RECEIVED: 23/05/2025

APPENDIX 1-2

A – Dept. of Housing, Local Government & Heritage

B – HAS

C – HSE

D – Úisce Éireann

E – Office of Public Works

F – Transport Infrastructure Ireland

RECEIVED: 23/05/2025

APPENDIX A

Fiachra MacLoughlin

From: Housing Manager DAU <Manager.DAU@npws.gov.ie>
Sent: Monday 24 March 2025 15:19
To: Anna D'arcy
Cc: Admin - (Mores)
Subject: RE: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Attachments: G Pre00042-2025 E2169 Malone O Regan - Whitestown Co Wicklow.pdf

A Chara,

Attached please find the Heritage observations/recommendations of the Department in relation to the aforementioned pre-planning consultation.

Kind Regards,
Diarmuid

Diarmuid Buttimer
Executive Officer

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage
Aonad na nIarratas ar Fhorbairt
Development Applications Unit
Oifigí an Rialtais
Government Offices
Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90
Newtown Road, Wexford, County Wexford, Y35 AP90
—

Diarmuid.Buttimer@npws.gov.ie
Manager.DAU@npws.gov.ie

From: Anna D'arcy <adarcy@mores.ie>
Sent: Friday 7 February 2025 11:38
To: NPWS Info <info@npws.gov.ie>
Subject: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Importance: High

To Whom It May Concern,

Please find attached an Environmental Impact Assessment Report (EIAR) Consultation Document in relation to a Proposed Sand and Gravel Quarry in Whitestown, Co. Wicklow. We invite your feedback regarding the proposed development. Any comments in relation to the attached should be sent either by replying to admin@mores.ie or by post to the address in the signature below on or before the close of business on Friday, 21st March 2025.

Please reference 'E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow' in your correspondence to ensure that it reaches the correct person.

Kind regards,

Anna D'Arcy
Operations Manager

for and on behalf of
Malone O'Regan Environmental
Ground Floor - Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
+353 1 567 76 55
✉: adarcy@mores.ie
Web: www.mores.ie

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Your Ref: **E2169**
Our Ref: **G Pre00042/2025** (Please quote in all related correspondence)

24 March 2025

Malone O'Regan
Ground Floor, Unit 3
Bracken Business Park,
Bracken Road
Sandyford
Dublin 18
D18 V4K6

Via email: adarcy@mores.ie; admin@mores.ie

Proposed Pre Planning Development: Malone O'Regan Environmental: EIA Scoping: Proposed Sand and Gravel Quarry: Whitestown, Co. Wicklow

A chara

I refer to correspondence received in connection with the above. Outlined below are heritage-related observations/recommendations co-ordinated by the Development Applications Unit under the stated headings.

Archaeology

The proposed 15.6 hectares development site is located in the environs of a cluster of archaeological sites identified in the Archaeological Survey of Ireland records including WI021-082 *standing stone*, WI021-003 *enclosure*, WI021-017003 *cairn - unclassified*, WI021-017002 *cairn – unclassified* and WI021-016 *redundant record (possible castle site)* and other archaeological monuments.

It is recommended that the developer engage an archaeologist to carry out a detailed and field-based archaeological impact assessment and to prepare a comprehensive report to be included in the EIAR submitted with any future planning application. The assessment will involve documentary and cartographic research, an analysis of all previous archaeological assessments carried out in the area and fieldwork including geophysical survey and archaeological testing within the proposed development site (licensed under the National Monuments Acts 1930-1994).

Following completion of the geophysical survey and archaeological testing, the archaeologist shall prepare a written report, including an archaeological impact statement, to form an integral part of any EIAR and future planning application. Where archaeological material/features are shown to be present, preservation *in situ*, preservation by record (archaeological excavation) or monitoring may be required. The establishment of a 'buffer

area' surrounding and including any identified archaeological features, in which no development or groundworks would be considered, might be recommended pending the results of the archaeological assessment. Mitigatory measures to ensure the preservation in-situ and/or recording of archaeological material/features should be suggested in the archaeological assessment report and the Department of Housing, Local Government & Heritage will advise further with regard to any further archaeological requirements following receipt of the assessment.

Framework and Principles for the Protection of the Archaeological Heritage

The developer should have regard to the archaeological policy of the Department of Housing, Local Government & Heritage as outlined in the policy document entitled *"Framework and Principles for the Protection of the Archaeological Heritage", (1999)* and summarised below.

With regard to the preservation in-situ of archaeological remains, it is stated in our policy document that *"there should always be a presumption in favour of avoiding developmental impacts on the archaeological heritage. Preservation in-situ must always be the preferred option to be considered rather than preservation by record in order to allow development to proceed, and preservation in-situ must also be presumed to be the preferred option."*

It should also be noted that *"if preservation by record is to be applied the developer must accept responsibility for the costs of archaeological excavation to the extent necessitated by the development. Such costs include those arising from the preparation of a report on the excavation."*

Wicklow County Development Plan 2022-2028

The developer should be aware of the archaeological objectives in the current County Wicklow Development Plan, including the following:

CPO 8.1 - To secure the preservation 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 of sites, features and objects of archaeological interest generally. In the development management process, there will be a presumption of favour of preservation in-situ or, as a minimum, preservation by record. In securing such preservation, the Planning Authority will have regard to the advice and recommendations of the Department.

CPO 8.3 - Any development that may, due to its size, location or nature, have implications for archaeological heritage (including both sites and areas of archaeological potential / significance as identified in Schedules 08.01 & 08.02 and Maps 8.01 & 8.02 of this plan) shall be subject to an archaeological assessment.

Nature Conservation

The following observations are made by the Department in its role as a prescribed body under planning legislation and as the authority with overarching responsibility for nature conservation and the nature directives (i.e. the Birds and Habitats Directives) and wider biodiversity.

It is noted that the proposed development is located directly adjacent to the Slaney River Valley SAC, which is designated for a range of Qualifying Interest (QI) Annex I habitats and aquatic species. Therefore, the proposed development is directly hydrologically linked to European sites, and an Appropriate Assessment should be undertaken by an ecologist. The AA should assess the implications of the proposed development, on its own and in combination with other plans or projects, for European sites in view of the conservation objectives of those sites. It should include a scientific examination of evidence and data to identify and assess the implications of the proposed development for any European sites in view of the conservation objectives of those sites. It should consider whether the proposed development, by itself and in combination with other plans or projects, would adversely affect the integrity of any European sites. In reaching a conclusion in this regard consideration is given to any mitigation measures necessary to avoid or reduce any potential negative impacts.

The Department notes the ecological surveys that are being undertaken currently for the Environmental Impact Assessment Report (EIAR). Given otter are a QI species of the Slaney River Valley SAC, the Department recommends that otter surveys along the River Carrigower (which forms part of the SAC), and within 150m of the proposed development are undertaken to inform the AA and the EIAR. The Department also recommends that the applicant reviews the requirement for aquatic surveys within the Zone of Influence of the proposed development, to ensure all potentially significant ecological effects are assessed and mitigated for, where relevant.

In addition, any appropriate compensation, enhancement or post-construction monitoring requirements should be identified and detailed within the EIAR and AA.

The above observations/recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations that the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority/ies, in the role as statutory consultee under the Planning and Development Act, 2000, as amended.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at manager.dau@npws.gov.ie, where used, or to the following address:

The Manager
Development Applications Unit (DAU)
Government Offices
Newtown Road
Wexford
Y35 AP90

Is mise le meas,

Diarmuid Buttimer
Development Applications Unit
Administration

APPENDIX B

Fiachra MacLoughlin

From: Tara Horigan <tara_horigan@hsa.ie>
Sent: Wednesday 19 February 2025 15:20
To: Admin - (Mores)
Subject: RE: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Attachments: LUPR9.Outside.Scope.of.Regs EIAR EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169.pdf

Good Afternoon,

Please see attached letter from the Health and Safety Authority regarding the above,

Kind Regards,

Tara Horigan

To Whom It May Concern,

Please find attached an Environmental Impact Assessment Report (EIAR) Consultation Document in relation to a Proposed Sand and Gravel Quarry in Whitestown, Co. Wicklow. We invite your feedback regarding the proposed development. Any comments in relation to the attached should be sent either by replying to admin@mores.ie or by post to the address in the signature below on or before the close of business on Friday, 21st March 2025.

Please reference 'E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow' in your correspondence to ensure that it reaches the correct person.

Kind regards,

Anna D'Arcy
Operations Manager

for and on behalf of
Malone O'Regan Environmental
Ground Floor - Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
+353 1 567 76 55
✉: adarcy@mores.ie
Web: www.mores.ie

****

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager.

The Health and Safety Authority, its servants or agents, accept no liability for any errors or omissions in the information provided in this correspondence or for any loss or damage occasioned to any person as a result of using the information provided.

This footnote also confirms that this email message has been swept for the presence of computer viruses.

****

An tÚdarás Sláinte agus Sábháilteachta
Health and Safety Authority
0818 289 389 landuseplanning@hsa.ie www.hsa.ie

Malone O'Regan Environmental
Ground Floor – Unit 3
Bracken Business Park
Bracken Road
Sandyford
D18 V32Y

Our Ref: **CAS-20601-G6P5**

10/02/25

Re: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169

Dear Sir/Madam,

The Health and Safety Authority (the Authority), acting as the Central Competent Authority under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) gives technical advice to the Planning Authority when requested, under regulation 24(2) in relation to:

(a) the siting and development of new establishments;

(b) modifications to establishments of the type described in Regulation 12(1);

(c) new developments including transport routes, locations of public use and residential areas in the vicinity of establishments, where the siting, modifications or developments may be the source of, or increase the risk or consequences of, a major accident.

Since the above-referenced application appears to be outside the scope of the Regulations, the Authority has no observations to forward.

If you have any queries please contact the undersigned.

Yours sincerely

Tara Horigan

Tara Horigan
Inspector,
COMAH, Chemical Production & Storage (CCPS)

APPENDIX C

Fiachra MacLoughlin

From: JOANNA TROUGHTON <JOANNA.TROUGHTON@hse.ie>
Sent: Monday 10 March 2025 15:53
To: MORES
Attachments: Cover letter for EHIS 4618.pdf; EHIS 4618 Scoping submission Proposed Sand Gravel Quarry Whitestown Co. Wicklow.pdf

Please find attached the submission prepared by the National Environmental Health Service on behalf of the HSE for the above proposal

Kind regards

Joanna Troughton
Senior Environmental Health Officer/ Oifigeach Sláinte Comhshaoil, Sinsearach
Seirbhís Sláinte Comhshaoil Náisiúnta FSS | National Environmental Health Service HSE

Joanna.troughton@hse.ie

Seirbhís Sláinte Comhshaoil
Cill Mhantáin
Feidhmeannacht na Seairbhíse Sláinte, ionad sláinte Cill Mhantáin, Bóthar Thaobh An Ghileanna, Cill Mhantáin, A67 HX3

Environmental Health Service
Wicklow
HSE Wicklow Area Health Centre,
Glenside Road, Wicklow A67 HX30

wicklowpeho@hse.ie
t 0404 63031

10/03/25

To: Malone O'Regan Environmental (MOR Environmental) Ground Floor – Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32Y
Re: Our Ref EHIS 461

Address of proposed development: EIA Scoping Application for the Proposed Sand & Gravel Quarry, Whitestown, Co. Wicklow

Dear Sir/Madam

Please find enclosed the HSE consultation report in respect of the above planning application. If you have any queries regarding this report, the initial contact is Mr Eugene Monahan Principal Environmental Health Officer who will refer your query to the appropriate person.

Yours faithfully

Eugene Monahan
Principal Environmental Health Officer

HSE EIA Scoping

Environmental Health Service Submission Report

Date: 10/03/2025

Our reference: EHIS 4618

Report to: Malone O'Regan Environmental (MOR Environmental) Ground Floor – Unit 3 Bracken Business Park Bracken Road, Sandyford Dublin 18, D18 V32YEmail: enviro@mores.ie

Type of Consultation: EIA Scoping Application for the Proposed Sand & Gravel Quarry, Whitestown, Co. Wicklow

Proposed development: Proposed Sand & Gravel Quarry, Whitestown, Co. Wicklow

Details of the application were circulated to the following HSE stakeholders on 10/12/2024:

- Emergency Planning – Brendan Lawlor
- National Capital Estates Office – Regional AND
- Director of National Health Protection – Eamonn O'Moore/ Ina Kelly
- REO Dublin and Midlands – Kate Killeen White

Introduction and Proposed site location

The Applicants seek permission to extract, process, and temporarily store aggregates on a site spanning circa (ca.) 15.6 hectares (ha) within the townland of Whitestown Lower, County Wicklow, ca. 8.6 kilometres (km) northeast of Baltinglass (the Site).

The Proposed Development entails developing a sand and gravel extraction and processing development via a historic quarry pit floor, which is currently allowed as a soil and stone acceptance facility. The existing infrastructure, including access to the N81, a site office, a weighbridge, a wheel wash, a production well, and a toilet, will be used for the Proposed Development.

Planning History

The Site is ca. 15.6 ha in total area and is located within the townland of Whitestown, Co. Wicklow ca. 8.6km northeast of Baltinglass.

The Proposed Development is projected to be accessed via an existing access road to the Site from the N81. This entrance is currently in-use for the importation of inert soil and stones for use in on-site restoration of an extracted area of 2.73ha. This activity is authorised under planning reference 20/1117 and a waste facility permit reference FP-WW-21-0067-01. The permission authorises for importation of inert soils and stones at a rate of 23,000 tonnes (t) per annum and cumulative tonnage of 115,000t. The objective of this authorised activity is the restoration of part of an existing pit using inert soils and stone materials on 0.21ha with associated civil works and site infrastructure, including wheel bath and access road.

A preliminary review of planning files available on Wicklow County Council's online planning portal revealed the following pertinent information:

•A soil recovery facility, Planning Reference 20/1117, is located within the northern portion of the Site. A partially completed (withdrawn) version of this application is listed under PR 201067; and,
•An unauthorised landfill, PR052224, is located to the south of the Site.

Unauthorised Land Fill Restoration PR.052224

Located to the south of the Site, an application was submitted to the Local Authority (052224) for the construction of a series of engineered cells to receive residual industrial, commercial, and domestic waste derived from the excavation and processing of previously deposited waste. In addition, the applicants sought permission to import similar residual waste for disposal. The proposed infrastructure included a recovery building and composting facilities. This application was reviewed by the Environmental Protection Agency (EPA) and granted a waste license, reference number W0204. The facility was submitted under planning reference No. 052224.
Under the license, sixteen (No.16) groundwater monitoring wells were installed across the facility within a 5km buffer. The license stipulated quarterly reporting on monitoring data.

General Scoping Introduction

The following documents should be taken into consideration when preparing the Environmental Impact Assessment Report:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment

https://www.housing.gov.ie/sites/default/files/publications/files/guidelines_for_planning_authoriti es_and_an_bord_pleanála_on_carrying_out_eia_-_august_2018.pdf

- EU publication: Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report, EU, 2017

  http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf
- Adoption of the Directive (2014/52/EU) in April 2014 initiated a review of the National Guidance for EIA and the EIAR accompanying a planning application.

- New guidelines can be seen at:

https://www.epa.ie/publications/monitoring--assessment/assessment/guidelines-on-theinformation-to-be-contained-in-environmental-impact-assessment.php

The introduction of the new Guidance is supported by a Webinar produced by the EPA and can be found at:

https://www.youtube.com/embed/ejKVFUztxBY

Generally the Environmental Impact Assessment should examine all likely significant impacts and provide the following information for each:

a) Description of the receiving environment
b) The nature and scale of the impact
c) An assessment of the significance of the impact
d) Proposed mitigation measures
e) Residual impacts

Directive 2014/52/EU has an enhanced requirement to assess likely significant impacts on Population and Human Health. It is the experience of the National Environmental Health Service (NEHS) that impacts on human health are often inadequately assessed in EIAs in Ireland. It is recommended that the wider determinants of health and wellbeing are considered in a proportionate manner when considering the EIA. Guidance on wider determinants of health can be found at www.publichealth.ie

In considering the measures to be employed by the developer to minimise the potential impacts of the proposed development to human health, reference was made by the EHS to the EPA's 'Environmental Management Guidelines on the

Environmental Management in the Extractive Industry (Non-Scheduled Minerals) 2006'
It is recommended that an Environmental Management System (EMS) is put in place, with training of all site staff. There should be on-going review of the effectiveness of the EMS. The EMS should be devised in accordance with international standards such as ISO 14001 2015 and EU EMAS (1993).

In addition to any likely significant negative impacts from the proposed development, any positive likely significant impacts should also be assessed.

As this is **an existing quarry containing a soil waste recovery/ land fill restoration**, a review should be undertaken of compliance with any current planning conditions and any complaints received and any action taken to resolve complaints. Particularly around noise and dust emissions and use of the local road network as part of the activities of the existing quarry. Because this is an application for the operation of an existing development the predictive methodology routinely employed in EIA can be supported by actual data of operation of the existing quarry. Therefore, any assessment of likely significant impacts from the continued use should be supported by data of actual impacts during the operation phase of the current development.

This assessment should include the effectiveness of any existing mitigation measures and identify where mitigation should be continued and/or reviewed. The public consultation should include consultation on how the existing quarry might or might not be impacting on local communities.

The HSE will consider the final EIAR accompanying the planning application and will make comments to An Bord Pleanála/Local Planning Authority on the methodology used for assessing the likely significant impacts and the evaluation criteria used in assessing the significance of the impact.

The National Environmental Health Service (NEHS) recommends that the following matters are included and assessed in the EIAR:

- Public Consultation
- Population and Human Health
- Water (Hydrology and Hydrogeology)
- Land and Soils
- Air, Dust and Odour
- Climate Change and Opportunity for Health Gain
- Noise and Vibration
- Waste Management
- Ancillary Facilities

• Cumulative Impacts

Public Consultation

The applicant should consider the appointment of a community liaison officer. Early and meaningful public consultation with the local community should be carried out to ensure all potentially significant impacts have been adequately addressed. All parties affected by the proposed development, including those who may benefit financially from the project, must be fully informed of what the proposal entails especially with regard to potential impacts on surrounding areas. Sensitive receptors and other stake-holders should be identified to ensure all necessary and appropriate mitigation measures are put in place to avoid any complaints about the proposed quarry development in the future.
Meaningful public consultation, where the local community is fully informed of the proposed development must be undertaken. Members of the public should be given sufficient opportunities to express their views on the proposed development.

The Environmental Impact Assessment Report (EIAR) should clearly demonstrate the link between public consultations and how those consultations have influenced the decision-making process in the EIA. The EIAR should state the period of planning permission sought, the length of time construction estimated, and if it is anticipated that the development will be decommissioned or will continue to operate (following any further planning consent) at the end of this period of planning permission (should permission be granted).

Population Health / human health

The opinion of the National Environmental Health Service (NEHS) is that the assessment of likely significant effects on Population and Human Health should be a proportionate assessment specific to the proposed development and to the Population and Human Health likely to be significantly affected by the proposed development
If assessment is made of likely significant effects on wider determinants of health or health inequalities, then this should be done in a proportionate manner with a demonstration of a likely significant effect as a direct result of the proposed development.
The preferred methodology for assessing likely significant effects on Population and Human Health is a source, pathway, receptor model; based on emissions through environmental media and population exposure. This approach is supported by the EPA issued National Guidance (known as the EIAR Guidance): Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022 https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf

In assessing likely significant effects on Population and Human Health any proposed mitigation measures should be identified. The residual impact should evaluated against a recognised Health Protection Standard.
Whilst current EIAR guidance recognises the requirement to identify sensitive receptors within the assessment process, it should be clear that this is within a Population Health approach and not an individual person approach.
It is therefore the opinion of the NEHS that a Population Health approach would not consider the likely significant effects on the sensitivity of an individual human receptor, but the sensitivity of the established land use or service provision.

Water (Hydrology and Hydrogeology)

The proposed development has the potential to have a significant impact on the quality of both surface and ground water.
All drinking water sources, both surface and ground water, must be identified. Public and Group Water Scheme sources and supplies should be identified in addition to any private wells supplying potable water to houses in the vicinity of the proposed development. Measures to ensure that all sources and supplies are protected should be described.

Water monitoring results should be reviewed and where there is indication of contamination or significant dewatering of drinking water supplies additional mitigation should be agreed with the Planning Authority. The effectiveness of the additional mitigation should be verified through a sampling programme. Any wells identified as a drinking water supply and located within 150m of the gravel extraction facility are sampled prior to the commencement of extension works. Sampling parameters should be agreed with the Local Authority. These wells should also be sampled at least biannually during the extraction period and once within the first year following cessation of operations on site to establish if there are any changes in water quality.
The National Environmental Health Service recommends that a walk-over survey of the site is undertaken in addition to a desktop analysis of Geological Survey of Ireland data in order to identify the location of private wells used for drinking water purposes. Any potential significant impacts to drinking water sources should be assessed. Details of bedrock, overburden, vulnerability, groundwater flows, aquifers and catchment areas should be considered when assessing potential impacts and any proposed mitigation measures.

Decommissioning /site restoration

The submission of a Site Restoration Plan, which includes a timeframe for undertaking restoration works, and actual works detail is included as a condition of planning permission, if granted.

To minimise the risk of future water safety issues, consideration be given to an alternative restoration plan for the quarry void involving filling the void and restoring it to agricultural use or as a public amenity.
As a minimum, regard should be had to the guidance issued by the Health and Safety Authority's on 'Quarrying – Trespass, Boundary Fencing and Prevention of Drowning'. To discourage trespassers a barrier of sufficient height and strength should be installed around the perimeter of the proposed water-filled void. Barriers should be inspected regularly and maintained in good condition.
Potential for future health gain from the restoration of the proposed development should be included in the EIAR.

Assessment of Consideration of Alternatives

The EIAR should consider an assessment of alternatives should be assessed as part of the EIAR.

Noise & Vibration

The potential impacts for noise and vibration from the proposed development on all noise sensitive locations must be clearly identified in the EIAR. The EIAR must also consider the appropriateness and effectiveness of all proposed mitigation measures to minimise noise and vibration. A baseline noise monitoring survey should be undertaken to establish the existing background noise levels. Noise from any existing industry /quarries or any potential sources in the area should not be included as part of the back ground levels.

Air Quality

An air quality assessment should be carried out following procedures described in the publications by the EPA and using the methodology outlined in the guidance documents published by the USEPA. An air dispersion model was created using input data which consisted of information on the physical environment, design details from all emission sources on-site and five full years of meteorological data.

Due to the nature of the construction works, generation of airborne dust has the potential to have significant impacts on sensitive receptors. Day to day activities have the potential to give rise to elevated dust levels if activities associated with extraction, processing, manufacturing of quarry products and transportation of product to market are not managed efficiently. The action of wind over dry ground can lead to particles being carried in the air. Processing can act as a point source of dust as it has the potential to generate dust emissions in a defined location. Aggregate stockpiled at the end of each conveyor attached to the processing plant

is also a potential source of dust blow during dry windy conditions. This activity will be undertaken on a daily basis which will results in a slight impact on the air environment within the quarry boundary. Fugitive dust emissions generated during the aggregate processing, screening and stockpiling of material is confined to the zone within the quarry void. Vehicle movements on the internal access/haul roads are a source of dust blow as emissions can increase rapidly in proportion to vehicle speed and traffic volume.

A **Construction Environmental Management Plan** (CEMP) should be included in the EIAR which details dust control and mitigation measures:

Measures should include:

• Sweeping of hard road surfaces
• Provision of a water bowser on site, regular spraying of haul roads
• Wheel washing facilities at site exit
• Restrict speed on site
• Provide covers to all delivery trucks to minimise dust generation
• Inspect and clean public roads in the vicinity if necessary
• Material stockpiling provided with adequate protection from the wind
• Dust monitoring at the site boundary
• Truck inspection and maintenance plan
• Details of a road maintenance agreement between the operator and the Local Roads Authority to clarify responsibility for the upkeep and repair of access roads during the construction phase of the project.

Ancillary Facilities

The EIAR should include details of the location of all site office, construction compound, fuel storage depot, sanitary accommodation and canteen, wheel washing/ vehicle washing, First Aid facilities, disposal of wastewater and the provision of a potable water supply to the site canteen.

Climate

The EIA should assess factors that contribute to climate change as a result of the development and should identify any mitigation or sustainability measures that can be incorporated into the development.

Cumulative Impacts

All existing or proposed Quarries/ industry or developments/housing in the vicinity should be clearly identified in the EIAR. The impact on sensitive receptors of the proposed development combined with any other developments in the vicinity should be considered. The EIAR should include a detailed assessment of any likely significant cumulative impacts of the new proposed Quarry application.

Eve Smith
Oifigeach Sláinte Comhshaoil | Environmental Health Officer
Environment/Climate Change, Network Support Unit (NSU)

Joanna Troughton

Senior Environmental Health Officer/ Oifigeach Sláinte Comhshaoil, Sinsearach

Seirbhís Sláinte Comhshaoil Náisiúnta FSS | National Environmental Health Service HSE

Joanna.troughton@hse.ie

*** All correspondence or any queries with regard to this report including acknowledgement of this report should be forwarded to : eugene.monahan@hse.ie**

APPENDIX D

Fiachra MacLoughlin

From: Planning <Planning@water.ie>
Sent: Thursday 20 March 2025 15:22
To: Anna D'arcy
Subject: E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow
Attachments: UÉ_PlanningResponse_EIAR_Scoping Whitestown.pdf

Dear Sir/Madam,

In response to a referral for an Environmental Impact Assessment (EIA) scoping request relating to a Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow.

Please find attached Uisce Éireann's observations.

I hope you find this information helpful. If you have any queries please do not hesitate to contact me.

Kind regards,

Martha Gilligan
Planning Application Specialist

Uisce Éireann
Teach Colvill, 24–26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86, Éire
Uisce Éireann
Colvill House, 24–26 Talbot Street, Dublin 1, D01 NP86, Ireland
T + 01 932 5582
M +353 86 932 5582
jbloggs@water.ie
www.water.ie
Facebook | Twitter | LinkedIn

From: Anna D'arcy <adarcy@mores.ie>
Sent: Friday, February 7, 2025 11:31 AM
To: Admin - (Mores) <admin@mores.ie>
Cc: Kenneth Goodwin <KGoodwin@mores.ie>; Mark Day <mday@mores.ie>
Subject: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Importance: High

To Whom It May Concern,

Please find attached an Environmental Impact Assessment Report (EIAR) Consultation Document in relation to a Proposed Sand and Gravel Quarry in Whitestown, Co. Wicklow. We invite your feedback regarding the proposed development. Any comments in relation to the attached should be sent either by replying to admin@mores.ie or by post to the address in the signature below on or before the close of business on Friday, 21st March 2025.

Please reference 'E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow' in your correspondence to ensure that it reaches the correct person.

Kind regards,

Anna D'Arcy
Operations Manager

for and on behalf of
Malone O'Regan Environmental
Ground Floor - Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
+353 1 567 76 55
✉: adarcy@mores.ie
Web: www.mores.ie

Is don duine amháin nó don eintiteas amháin ainmnithe ar an seoladh an fhaisnéis agus d'fhéadfadh ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh na tráchtála de a bheith mar chuid den fhaisnéis. Tá toirmeasc ar aon daoine nó aon eititis; nach dóibh siúd an fhaisnéis- aon athbhreithniú a dhéanamh, aon atarchur a dhéanamh nó aon athdháileadh a dhéanamh, nó aon úsáid eile a bhaint as an bhfaisnéis, nó aon ghníomh a bhraithfeadh ar an bhfaisnéis seo a dhéanamh agus d'fhéadfaí an dlí a shárú dá ndéanfaí sin. Séanann Uisce Éireann dliteanas as aon ghníomh agus as aon iarmhairt bunaithe ar úsáid neamhúdaraithe na faisnéise seo. Séanann Uisce Éireann dliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo agus séanann Uisce Éireann dliteanas maidir le haon mhoill a bhaineann leis an bhfaisnéis a fháil. Má tá an ríomh-phost seo faighte agat trí dhearmad, déan teagmháil leis an seoltóir más é do thoil é agus scrios an t-ábhar ó gach aon ríomhaire. D'fhéadfadh ríomhphost a bheith so-ghabhálach i leith truaillithe, idircheaptha agus i leith leasuithe neamhúdaraithe. Séanann Uisce Éireann aon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo nó as aon dochar do chórais na bhfaighteoirí déanta ag an teachtaireacht seo nó ag a ceangaltáin tar éis a sheolta. Tabhair faoi deara go bhféadfadh monatóireacht a bheith á dhéanamh ar theachtaireachtaí chuig Uisce Éireann agus ó Uisce Éireann d'fhonn ár ngnó a chosaint agus chun a chinntiú go bhfuiltear ag teacht le beartais agus le caighdeáin Uisce Éireann. Is cuideachta gníomhaíochta ainmnithe é Uisce Éireann atá faoi theorainn scaireanna, a bunaíodh de bhun fhorálacha na n-Achtanna um Sheirbhísí Uisce 2007-2022, a bhfuil a bpríomh-ionad gnó ag Teach Colvill, 24-26 Sráid na Talbóide, BÁC 1.

Go raibh maith agat as d'aird a thabhairt.

attachments. Please also note that messages to or from Uisce Éireann may be monitored to ensure compliance with Uisce Eireann's policies and standards and to protect our business. Uisce Éireann is a designated activity company limited by shares, established pursuant to the Water Services Acts 2007-2022, having its principal place of business at Colvill House, 24-26 Talbot Street, Dublin 1.

Thank you for your attention.

Is don duine amháin nó don eintiteas amháin ainmnithe ar an seoladh an fhaisnéis agus d'fhéadfadh ábhar faoi rún, faoi phribhléid nó ábhar atá íogair ó thaobh na tráchtála de a bheith mar chuid den fhaisnéis. Tá toirmeasc ar aon daoine nó aon eititis; nach dóibh siúd an fhaisnéis- aon athbhreithniú a dhéanamh, aon atarchur a dhéanamh nó aon athdháileadh a dhéanamh, nó aon úsáid eile a bhaint as an bhfaisnéis, nó aon ghníomh a bhraithfeadh ar an bhfaisnéis seo a dhéanamh agus d'fhéadfaí an dlí a shárú dá ndéanfaí sin. Séanann Uisce Éireann dliteanas as aon ghníomh agus as aon iarmhairt bunaithe ar úsáid neamhúdaraithe na faisnéise seo. Séanann Uisce Éireann dliteanas maidir le seachadadh iomlán agus ceart na faisnéise sa chumarsáid seo agus séanann Uisce Éireann dliteanas maidir le haon mhoill a bhaineann leis an bhfaisnéis a fháil. Má tá an ríomh-phost seo faighte agat trí dhearmad, déan teagmháil leis an seoltóir más é do thoil é agus scrios an t-ábhar ó gach aon ríomhaire. D'fhéadfadh ríomhphost a bheith so-ghabhálach i leith truaillithe, idircheaptha agus i leith leasuithe neamhúdaraithe. Séanann Uisce Éireann aon fhreagracht as athruithe nó as idircheapadh a rinneadh ar an ríomhphost seo nó as aon dochar do chórais na bhfaighteoirí déanta ag an teachtaireacht seo nó ag a ceangaltáin tar éis a sheolta. Tabhair faoi deara go bhféadfadh monatóireacht a bheith á dhéanamh ar theachtaireachtaí chuig Uisce Éireann agus ó Uisce Éireann d'fhonn ár ngnó a chosaint agus chun a chinntiú go bhfuiltear ag teacht le beartais agus le caighdeáin Uisce Éireann. Is cuideachta gníomhaíochta ainmnithe é Uisce Éireann atá faoi theorainn scaireanna, a bunaíodh de bhun fhorálacha na n-Achtanna um Sheirbhísí Uisce 2007-2022, a bhfuil a bpríomh-ionad gnó ag Teach Colvill, 24-26 Sráid na Talbóide, BÁC 1.

Go raibh maith agat as d'aird a thabhairt.

Thank you for your attention.

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Uisce Éireanns Ref: PN25000018449

Planning Authority: Wicklow County Council

Issue Date: 20 March 2025

Development Location:

Whitestown, Co. Wicklow

Development Description:

Proposed extension of a sand and gravel quarry

A Chara,

Uisce Éireann has received your EIAR Scoping request and has the following comments.

1. Groundwater and Dewatering

   No details have been submitted on the exact extent, methodology or depth of the excavation(s) proposed. The applicant is requested to provide full details in EIAR along with assessment of risks to groundwater. If it proposed to excavate below existing groundwater levels. the potential impacts of dewatering must be identified, modelled and addressed in the EIAR.

2. Stormwater Run Off and Hydrocarbons

   The potential impacts arising from run off and hydrocarbon during construction, operational and decommissioning phases should be addressed to include mitigations against contaminants entering groundwater and surface waters via hydrological and hydrogeological pathways.

3. Servicing

   Details of how the existing operations and extended quarry are to be serviced (water supply and wastewater) must be outlined in the planning application.

In addition to the specific items outlined above please note the following aspects of water & wastewater services which should be considered in the scope of an EIAR where relevant.

a) Where the development proposal has the potential to impact an Uisce Éireann Drinking Water Source(s), the applicant shall provide details of measures to be taken to ensure that there will be no negative impact to Uisce Éireann's Drinking Water Source(s) during the construction and operational phases of the development. Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified as part of the report.

b) Where the development proposes the backfilling of materials, the applicant is required to include a waste sampling strategy to ensure the material is inert.

c) Mitigations should be proposed for any potential negative impacts on any water source(s) which may be in proximity to your site. These mitigations should be included in the environmental management plan and incident response plan.

d) Development proposals shall not impact public drinking water sources and/or abstraction point(s). It is a requirement of the Water Framework Directive that waters used for the abstraction of drinking water are protected to avoid deterioration in quality. Protection of drinking water source(s) from potentially adverse impacts is a priority for Uisce Éireann. It is Uisce Éireanns current policy to maintain safe and secure drinking water supplies and ensure that development will not give rise to any deterioration in water quality.

e) Impacts of the development on the capacity of water services (*i.e. do existing water services have the capacity to cater for the new development*). This is confirmed by Uisce Éireann in the form of a Confirmation of Feasibility (COF). If a development requires a connection to either a public water supply or sewage collection system, the developer is advised to submit a Pre-Connection Enquiry (PCE) enquiry to Uisce Éireann to determine the feasibility of connection to the Uisce Éireann network. The PCE should be submitted to Uisce Éireann well in advance of lodging your application. Lodging a COF with your planning application helps avoids delays in the consenting process.

f) The applicant shall identify any upgrading of water & wastewater services infrastructure that would be required to accommodate the proposed development.

g) In relation to a development that would discharge trade effluent – any upstream treatment or attenuation of discharges required prior to discharging to an Uisce Éireann collection network.

h) In relation to the management of surface water; the potential impact of surface water discharges to combined sewer networks and potential measures to stop surface waters from combined sewers. Uisce Éireann does not permit surface waters into our sewer network.

i) Any physical impact on Uisce Éireann assets – reservoir, drinking water source, treatment works, pipes, pumping stations, discharges outfalls etc. including any relocation of assets.

j) When considering a development proposal, the applicant is advised to determine the location of public water services assets, possible connection points from the applicant's site / lands to the public network and any drinking water abstraction catchments to ensure these are included and fully assessed in any pre-planning proposals. Details, where known, can be obtained by emailing an Ordnance Survey map identifying the proposed location of the applicant's intended development to datarequests@water.ie

k) Other indicators or methodologies for identifying infrastructure located within the applicant's lands are the presence of registered wayleave agreements, visible manholes, vent stacks, valve chambers, marker posts etc. within the proposed site.

l) Any potential impacts on the assimilative capacity of receiving waters in relation to Uisce Éireann discharge outfalls including changes in dispersion / circulation characterises. Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified within the report.

m) Any potential impact on the contributing catchment of water sources either in terms of water abstraction for the development (*and resultant potential impact on the capacity of the source*) or the potential of the development to influence / present a risk to the quality of the water abstracted by Uisce Éireann for public supply should be identified within the report.

n) Where a development proposes to connect to an Uisce Éireann network and that network either abstracts water from or discharges wastewater to a "protected"/ sensitive area, consideration as to whether the integrity of the site / conservation

objectives of the site would be compromised should be identified within the report.

o) Uisce Éireann does not permit build over of its assets. Separation distances from public infrastructure, as per Uisce Éireann's Standards, Codes and Practices must be achieved. It is the applicant's responsibility to submit a diversion enquiry to Uisce Éireann Diversions Section (diversions@water.ie) prior to construction, where a potential build over of public assets is in question and/or where the applicants proposals cannot achieve separation distances from public infrastructure as per UÉ Standards & Codes of Practice. As an applicant you are required to;

- survey the site to determine the exact location of the public assets. Any trial investigations should be carried out with the agreement and in the presence of Uisce Éireann. All queries relating to in situ public infrastructure should be directed to diversions@water.ie
- Provide evidence of separation distances between the existing Uisce Éireann assets and proposed structures, other services, trees, etc. have to be in accordance with UÉ Standards & Codes of Practice

p) Where an existing connection is on place, the applicant or developer may be required to enter into a new or revised water and/or wastewater connection agreement(s) with Uisce Éireann prior to the commencement of this development.

q) Where new connection(s) are sought, the applicant shall enter into water and/or wastewater connection agreement(s) with Uisce Éireann prior to the commencement of this development.

Queries relating to this EIAR scoping request should be directed to planning@water.ie

Dermot Phelan,

Connections Delivery Manager

APPENDIX E

Fiachra MacLoughlin

From: Drainage Admin <drainage.admin@opw.ie>
Sent: Friday 7 February 2025 14:09
To: Anna D'arcy
Subject: FW: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Attachments: Whitestown Wicklow Sand and Gravel Quarry OPW consents.docx

Hi Anna,

I hope this email finds you well.
Please find attached response from East Regional Drainage Maintenance Section.

Kind regards,
Sarah

From: Anna D'arcy <adarcy@mores.ie>
Sent: Friday 7 February 2025 11:31
To: Admin - (Mores) <admin@mores.ie>
Cc: Kenneth Goodwin <KGoodwin@mores.ie>; Mark Day <mday@mores.ie>
Subject: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Importance: High

To Whom It May Concern,

Please find attached an Environmental Impact Assessment Report (EIAR) Consultation Document in relation to a Proposed Sand and Gravel Quarry in Whitestown, Co. Wicklow. We invite your feedback regarding the proposed development. Any comments in relation to the attached should be sent either by replying to admin@mores.ie or by post to the address in the signature below on or before the close of business on Friday, 21st March 2025.

Please reference 'E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow' in your correspondence to ensure that it reaches the correct person.

Kind regards,

Anna D'Arcy
Operations Manager

for and on behalf of
Malone O'Regan Environmental
Ground Floor - Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
+353 1 567 76 55
✉: adarcy@mores.ie
Web: www.mores.ie

OPW Oifig na nOibreacha Poiblí Office of Public Works

Malone O'Regan Environmental
Ground Floor - Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y

07/02/25

Your Ref: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169

Dear Sir/Madam,

If it is proposed to construct any new bridge (or other structure such as a culvert or pipework etc.) or alter, reconstruct, or restore any existing bridge (or other structure such as a culvert or pipework etc.) over any watercourse as part of the development then these require prior consent from the Commissioners of Public Works under Section 50 of the Arterial Drainage Act of 1945 as amended.

A grant of 'Permission' for the planning application for a development which contains bridges or culverts etc., or modifications to same, does not confer Section 50 consent on the applicant, nor does it absolve the applicant from the requirement to obtain such consent from the Commissioners.

Where there is the potential for watercourse damming with flume pipes and/or diversion channels to facilitate the construction works, note that damming of a watercourse may be subject to consent under Section 47 of the Arterial Drainage Act of 1945 as amended, and the temporary pipes, culverts, and/or bridges required to cross or divert a watercourse during the construction phase will also require Section 50 consent. Further consultation is required with the Commissioners when the construction methodologies for the proposed works are finalised.

Please note that, in the context of seeking consent under Section 50 of the Arterial Drainage Act of 1945 as amended, the current required design standard for bridges or culverts is based on the flood with an annual exceedance probability of 1% (often referred to as the 1 in 100 year flood), increased by 20% to cater for the effects of climate change. Bridges or culverts are required to be able to convey this design flood without significantly altering the hydraulic characteristics of the watercourse. Further guidance is available on the following website: *https://www.gov.ie/en/publication/957aa7-consent-requirements-constructionalteration-of-watercourse-infrastru/*

Yours sincerely,

The Office of Public Works

Ceann Oifig - Sráid Jonathan Swift, Baile Átha Troim, Co. na Mí, C15 NX36
Head Office - Jonathan Swift Street, Trim, Co Meath, C15 NX36
T +353 761 10 6000 / +353 46 942 6000 | LoCall 1890 213 414 | E info@opw.ie
www.opw.ie

RECEIVED: 23/05/2025

APPENDIX F

Fiachra MacLoughlin

From: INFO <Information@tii.ie>
Sent: Monday 17 February 2025 12:19
To: Anna D'arcy
Subject: TII25-130322 - EIAR Scoping - E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow.

Dear Ms. D'arcy,

Thank you for your email of 7 February 2025 in relation to the above. The position in relation to your enquiry is as follows.

Transport Infrastructure Ireland (TII) wishes to advise you that it is not in a position to engage directly with planning applicants regarding proposed developments. TII will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the planning acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official national road and light rail policy and guidelines including Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012) and TII Publications. TII notes with concern that these documents were not included in the scoping document forwarded.

TII records indicate a 100km/h speed limit applies along the section of N81 to which the subject site accesses. Official policy as outlined in the documents referred to above provides that no direct access or intensification of direct access to national roads should occur along national roads to which speed limits greater than 50/60km/h apply. TII therefore advises that the issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred by Wicklow County Council or An Bord Pleanála.

Concerning EIAR scoping issues, the recommendations indicated below provide only general guidance for the preparation of an EIAR, which may affect the national roads and/or light rail networks.

The project promoter should have regard, inter alia, to the following:

Having regard to the EPA guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022 it is recommended as appropriate that the national road and light rail networks be recognised as strategic transport assets under "material assets". EIAR assessment and mitigation should have regard to the following:

- National Roads: Official policy for development at or near national roads is set out in the DoECLG Spatial Planning and National Roads Guidelines for Planning Authorities (2012) available at https://www.gov.ie/en/collection/85b83-planning-guidelines-standards/,

- TII Publications: In addition, as part of TII's responsibilities for managing and improving the country's national road and light rail networks, TII sets development guidance and standards for traffic and road assessments and construction that may be necessary by reason of proposed development location, scale, or typology to be prepared to accompany applications for developments or works. Technical guidance and standards are contained in TII Publications, available at https://www.tiipublications.ie/.

In addition, the EIAR should have regard to, inter alia, the following:

- TII would be specifically concerned with the potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development,

- Consultations should be had with the relevant Local Authority/National Roads Design Office (RDO) with regard to locations of existing and future national road schemes,

- The EIAR should have regard to any prior Environmental Impact Statement or Assessment Report and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should in particular have regard for any potential cumulative impacts,

- The designers and assessors are asked to consult TII Publications to determine whether a Road Safety Audit is required,

- It would be important that, where appropriate, subject to meeting the applicable thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. TII's Traffic and Transport Assessment Guidelines (TII Publication No. PE-PDV-02045) should be referred to in relation to the proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the Guidelines which addresses requirements for sub-threshold TTA,

- Any Traffic Management Plan (TMP) shall demonstrate compliance with TII Publications requirements and include mitigation of potential impact on the national road network,

- Any Construction Environmental Management Plan (CEMP) prepared to accompany the EIAR shall demonstrate and ensure any proposed works in the vicinity of the national road comply with TII Publications requirements and mitigate the potential impact on the national road network,

- Elements of the national road network are operated and managed by a combination of Public-Private Partnerships (PPP) concessions, Motorway Maintenance and Renewal Contractors (MMaRC) and local road authorities in association with TII. In relation to haul route identification, the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed to ascertain any operational requirements, including delivery timetabling, etc. to ensure that the strategic function of the national road network is safeguarded,

- Any damage caused to the pavement on the existing national road arising from any temporary works and/or operations due to the turning movement of abnormal loads (e.g. tearing of the surface course, etc.) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the Road Authority prior to the commencement of any development on site,

- The EIAR should have regard to the provisions of Chapter 3 of the DoECLG Spatial Planning and National Roads Guidelines in the assessment,

- The EIAR should have regard to TII's Environmental Assessment and Construction Guidelines, including the Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (March 2014),

- The EIAR should consider the European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018)) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (March 2014)),

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development-specific issues should be addressed in accordance with best practice.

I trust that the above comments are of use in your EIAR preparation.

I hope this information is of assistance to you.

Yours sincerely,

Rachel Begley
Regulatory & Administration Executive
Transport Infrastructure Ireland

From: Anna D'arcy <adarcy@mores.ie>
Sent: Friday 7 February 2025 11:31
To: Admin - (Mores) <admin@mores.ie>
Cc: Kenneth Goodwin <KGoodwin@mores.ie>; Mark Day <mday@mores.ie>
Subject: EIAR Consultation for Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow - Ref E2169
Importance: High

To Whom It May Concern,

Please find attached an Environmental Impact Assessment Report (EIAR) Consultation Document in relation to a Proposed Sand and Gravel Quarry in Whitestown, Co. Wicklow. We invite your feedback regarding the proposed development. Any comments in relation to the attached should be sent either by replying to admin@mores.ie or by post to the address in the signature below on or before the close of business on Friday, 21st March 2025.

Please reference 'E2169 Proposed Sand and Gravel Quarry, Whitestown, Co. Wicklow' in your correspondence to ensure that it reaches the correct person.

Kind regards,

Anna D'Arcy
Operations Manager

for and on behalf of
Malone O'Regan Environmental
Ground Floor - Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
+353 1 567 76 55
✉: *adarcy@mores.ie*

Web: *www.mores.ie*

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RECEIVED: 23/05/2025

Appendix 2

APPENDIX 2-1

PETER BOLGER CONSULTING LTD
CONSULTING ENGINEERS
Newton House, Bachelors Walk, Bagenalstown, Co Carlow
Phone: (059) 9158005 Email: info@pbconsulting.ie

The Planning Department,
Wicklow County Council,
County Buildings,
Wicklow

08-06-2021

RESPONSE TO CLARIFICATION OF FURTHER INFORMATION

File Ref P. 20/1117

Re: Importation of inert soil and stones for use in site restoration of an extracted area of 2.73 hectares within the pit area authorised under PL27/5/58916, at a rate of 23,000 tonnes per annum and cumulative tonnage of 115,000 tonnes, restoration of part of existing pit using site won materials on 0.21 hectares, associated civil works and site infrastructure, including wheel bath and access road, for a period of five years

Location: Whitestown Lower, Co. Wicklow
Applicant: Joseph O Neill

SCHEDULE OF ENCLOSURES

6 no. copies of Response to Clarification Further Information Ref 20/1117

6 no. copies of Engineers Revised Engineers Report /Site Entrance Layout / Sightlines (J721-PL08-001)

PETER BOLGER CONSULTING LTD
CONSULTING ENGINEERS
Newton House, Bachelors Walk, Bagenalstown, Co. Carlow
Phone: (059) 9158005 Email: info@pbconsulting.ie

The Planning Department,
Wicklow County Council,
County Buildings,
Wicklow

08th June 2021

CLARIFICATION OF FURTHER INFORMATION

File Ref P. 20/1117

Re: Importation of inert soil and stones for use in site restoration of an extracted area of 2.73 hectares within the pit area authorised under PL27/5/58916, at a rate of 23,000 tonnes per annum and cumulative tonnage of 115,000 tonnes, restoration of part of existing pit using site won materials on 0.21 hectares, associated civil works and site infrastructure, including wheel bath and access road, for a period of five years

Location: Whitestown Lower, Co. Wicklow
Applicant: Joseph O Neill

To whom it may concern,
We were commissioned by Joseph O Neill to respond to the items raised in Wicklow County Council's request for further information dated 20th of May 2021.
The items are outlined below and subsequently addressed.

1. A speed survey shall be carried out at the proposed site entrance in order to establish the 85% speed for this section of the N81 . Alternative proposals shall be considered that allow for the full set back of the roadside boundary beyond the clear sight triangle. Any proposals should address the existing traffic road signs and the 2 semi-mature trees located at the 'pinch" point on the clear sight triangle. If upon review, it is found that proposed sightlines are inadequate revised proposals shall be submitted. Alternatively you may wish to reduce the scale and timeline of the development to a degree to support a relaxation in the design standards on the basis of low traffic turning movements being generated over a short temporary period.

Applicants Response:
Please refer to revised Site Layout Plan J721-PL08-002 indicating additional clarifications to achieve adequate sightlines. The roadside boundary is set fully back beyond the visibility splay, the existing road traffic signs obstructing the sightlines shall be removed and relocated to a location agreed with the Local Authority, the mature trees indicated on the site layout are proposed to be removed.
The above was agreed at a site meeting on the 28th May 2021 between Mr Patrick Byrne, Senior Executive Engineer, Baltinglass Municipal District, Wicklow County Council and Mr Peter Bolger

(Agent). it was also agreed to that the gradient of the entrance will fall away from public road towards the site to prevent any surface water entering the public road.

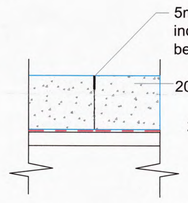
We hope that this addresses the item raised on the local authority's request for further information and look forward to a favourable decision in relation to this submission.

Yours faithfully,

Peter Bolger B.Eng

N81 TO BLESSINGTON

Photograph 01 Dated 22-02-2021 : View from Existing Entrance to the North



Concrete Surface Detail
Scale NTS

Excerpt from : TII Publications DN-GEO-03060 Table 2/1: Value of "Y" Distance

Table 5.5 'y' Visibility distances from the minor road

Design Speed of major road(km/h)	'y' Distance(m)
42	50
50	70
60	90
70	120
85	160
100	215
120	295

The enforceable speed limits at the Access location on the N81 is 80Km/hr
By interpolation this results in a "Y" distance required of 160m giving a required visibility splay of 3m x 160m x 160m.

SIGNAGE TO BE RELOCATED
TO AN AGREED LOCATION AS DISCUSSED ON SITE
28TH MAY 2021 WITH Mr. PATRICK BYRNE,
SENIOR EXECUTIVE ENGINEER, WICKLOW COUNTY COUNCIL,
BALTINGLASS MUNICIPAL DISTRICT

CFI POINT NO 1
EXISTING HEDGEROW TO BE TRIMMED / CUT TIGHT AND MAINTAINED THROUGHOUT THE YEAR TO ENSURE SIGHTLINES ARE ACHIEVABLE
SEE PREVIOUSLY SUBMITTED LETTER OF CONSENT FROM LANDOWNER Mr. PATRICK O'NEILL

2 NO SEMI MATURE ASH TREES TO BE REMOVED
TO FACILITATE PROPOSED SIGHTLINES
AS AGREED ON SITE 28TH MAY 2021 WITH PATRICK BYRNE,
SENIOR EXECUTIVE ENGINEER, WICKLOW COUNTY COUNCIL,
BALTINGLASS MUNICIPAL DISTRICT

Carrigower River

160M SIGHTLINES ACHIEVED
160M FORWARD VISIBILITY
C80m
Hard Shoulder
N81 to Dublin
Lane width 3m
Lane width 3m

Sightlines of 160m achieved to the north of existing entrance with setback (y) of 3m from existing road edge.
Sightline measured to Nearside Road Edge, (Hard Shoulder Line)

NOTE
ENTRANCE AREA TO FALL AWAY FROM PUBLIC ROAD TOWARDS THE SITE TO PREVENT ANY SURFACE WATER ENTERING THE PUBLIC ROAD
GRADIENT 2% AS AGREED ON SITE WITH Mr. PATRICK BYRNE,
SENIOR EXECUTIVE ENGINEER, WICKLOW COUNTY COUNCIL,
BALTINGLASS MUNICIPAL DISTRICT

PROPOSED CONCRETE SURFACE TO ENTRANCE AREA
FOR A DISTANCE OF 60M
MAX GRADIENT REDUCED TO 2.5%

FORWARD VISIBILITY OF 150M ACHIEVED TO VEHICLES TURNING INTO EXISTING ENTRANCE, MEASURED IN ACCORDANCE WITH *TII Publications DN-GEO-03031*

MINOR ROAD/DIRECT ACCESS
SIMPLE JUNCTIONS IN A STOP CONTROLLED SITUATION
VISIBILITY SPLAY GREATER THAN 3.0M (x) X 146m (y) X 146m (y)

STOP
direction of fall

EXTEND AREA OF CONCRETE SURFACE TO ALIGN WITH FACE OF WHEELBATH TO ENSURE CLEAN SURFACE IS PROVIDED TO THE EDGE OF PUBLIC ROAD

Proposed Recessed area to create Passing Bay. Traffic on the access lane will be visible from the passing bay

REVISED LOCATION OF WHEELBATH
CFI POINT NO 2:
PROPOSED WHEELBATH TO BE RELOCATED ONTO LANEWAY ADJACENT TO PASSING BAY

Access Retained for Agricultural Purposes on Completion Restoration

FORWARD VISIBILITY OF 160M ACHIEVED TO VEHICLES TURNING RIGHT TO EXISTING ENTRANCE

Forward Visibility Sightline
Measured along centreline of lane.

GRASS MARGIN MAINTAINED TO ROAD EDGE

NEIGHBOURING DWELLING

EXISTING HARDCORE LANEWAY
SURFACE UP GRADES
REFER TO DRAWING J721-PL07-001

ITEMS RELATING CLARIFICATION FURTHER INFORMATION NOTED IN MAGENTA TEXT

N
W E
S

LEGEND

- SPOT LEVEL
- EXISTING HEDGEROW TO BE RETAINED
- HEDGEROW TO BE REMOVED / CUT
- PROPOSED INGININEOUS HEDGEROW
- TREE TO BE REMOVED
- SIGHTLINE
- ROAD EDGE
- WALL
- SIGNAGE
- FORWARD VISIBILITY
- HARD SHOULDER LINE
- ROAD CENTERLINE

160M FORWARD VISIBILITY
215M SIGHTLINES ACHIEVED

SIGHTLINES OF 215M ACHIEVED TO THE SOUTH OF EXISTING ENTRANCE WITH SETBACK OF 3M FROM EXISTING ROAD EDGE

80 KMh

N81 TO BALTINGLASS

Photograph 02, dated 22-02-2021: View from Existing Entrance to the South

CLARIFICATION FURTHER INFORMATION:
REF:- P20/1117. Dated 20-05-2021
ITEMS NO 1

PETER BOLGER CONSULTING LTD
CONSULTING ENGINEERS
Newton House, Bachelors Walk, Bagenalstown, Co. Carlow.
Phone: (059) 9158005 Email: info@pbconsulting.ie

PROJECT: - Proposed Quarry Restoration	
DRAWING: Sightline Survey Survey date 22-02-2021	
SITE ADDRESS: Whitestown Lower, Co. Wicklow	DRAWING NO: J721-PL08-002
DATE: April 2021	DESIGNED: P. B
CLIENT: Joseph O'Neill	DRAWN BY: PB
SCALE: 1:500 - A1	CHECKED: P. B

APPENDIX 6

Appendix 6-1

May 2025

Restoration Plan

Proposed Sand & Gravel Quarry

On behalf of

Mr James Metcalfe and Mr Thomas Metcalfe

Whitestown, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

Form ES - 04

MALONE O'REGAN ENVIRONMENTAL

Ground Floor – Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
Tel: +353- 1- 567 76 55
Email: enviro@mores.ie

Title: Restoration Plan, Proposed Sand & Gravel Quarry, Mr James Metcalfe and Mr Thomas Metcalfe, Whitestown, Co. Wicklow

Job Number: E2169

Prepared By: Stephanie Lonergan **Signed:** S Lonergan

Checked By: Sarah de Courcy **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	06/05/25	Report	Final	SL	SDC	DH

Restoration Plan

Proposed Sand & Gravel Quarry

Mr James Metcalfe and Mr Thomas Metcalfe

Whitestown, Co. Wicklow

Contents

FIGURES

TABLES

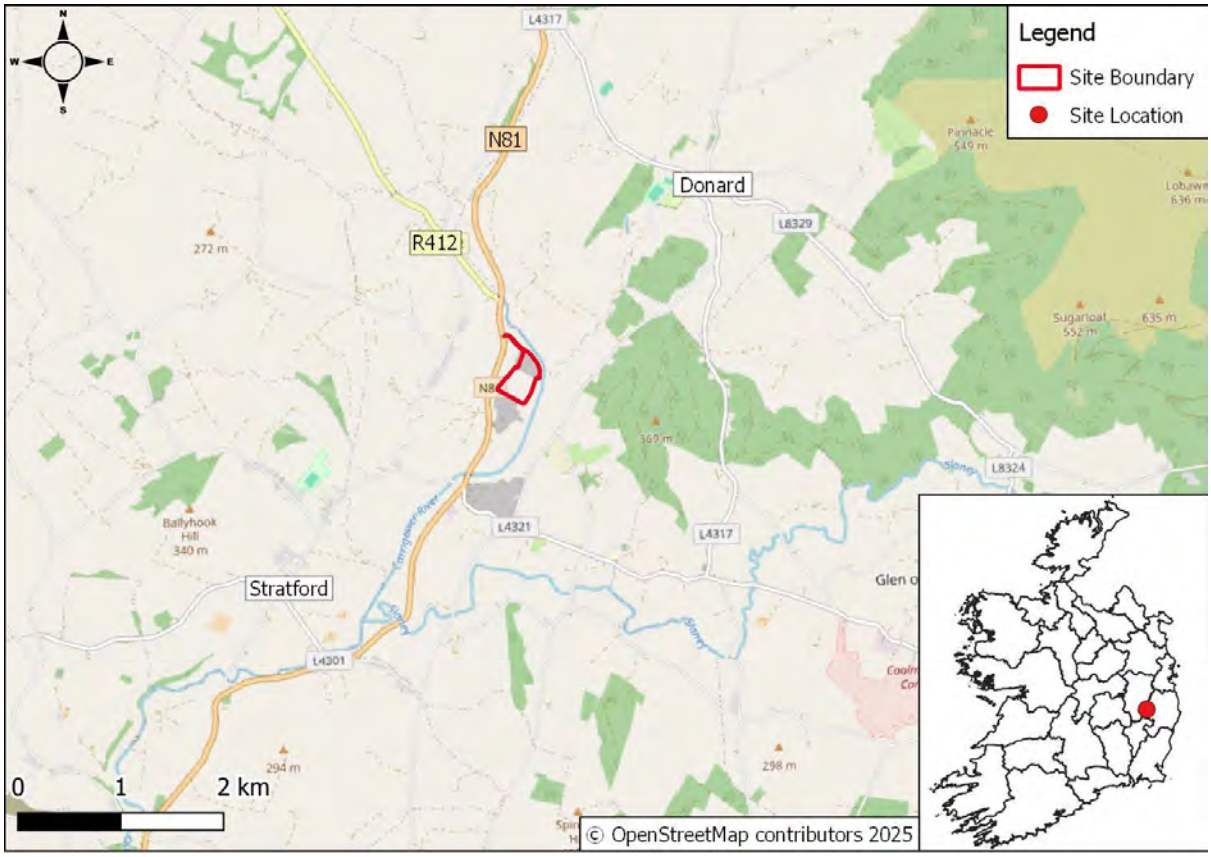
1 INTRODUCTION

Malone O'Regan Environmental ('MOR Environmental') has been commissioned by Mr James Metcalfe and Mr Thomas Metcalfe, hereafter referred to as 'the Applicant', to prepare a Restoration Plan in support of a planning application to Wicklow County Council ('WCC').

The Applicant intends to apply for a proposed extension to the former sand and gravel pit which currently operates as authorised Waste Facility Permit ('WFP') in Whitestown (Register Reference No. WFP-WW-21-0067-01). The proposed extension will involve the extraction, processing and temporary storage of aggregates, including sand and gravel, into adjoining lands. It also includes the continued use of the existing development and infrastructure associated with the WFP, such as access to the N81, site office, weighbridge, wheel wash, production well, internal access routes and security gates and the implementation of restoration works within the WFP boundary. The above works are collectively presented in this report as the 'Proposed Development'.

The Proposed Development will occur on a site covering an area of circa ('ca.') 11.2 hectares ('ha'), which includes the proposed 7.75 extension and the existing WFP area within the townland of Whitestown Lower, Co. Wicklow (Ordnance Survey Ireland Grid Reference ITM 691307 695854), refer to redline boundary presented in Figure 1-1 below for context ('the Site'). It should be noted that the WFP is located within the northern portion of the Site.

The Site is located ca. 2.76 kilometres ('km') northeast of Stratford town centre and ca. 2.28km southwest of Donard town centre.



1.1 Purpose

The management measures described in this Restoration Plan are based on the ecological baseline survey works undertaken as part of the ecological assessment of the Site as outlined

in Chapter 6 – Biodiversity in the Environmental Impact Assessment Report ('EIAR') prepared in support of this planning application.

This Restoration Plan has taken full cognisance of protected and notable species that have the potential to be present within the area after the closure of the Site.

This Restoration Plan supersedes the previous restoration plan for the WFP at Whitestown submitted under WCC planning reference: 201117.

1.2 Statement of Authority

The Restoration Plan was prepared under the direction of Dyfrig Hubble, Associate Director of Ecology, who provided peer review and support to the project.

Dyfrig Hubble has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. in Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management ('CIEEM'). Dyfrig has over 18 years' experience working in the ecological consultancy sector, including habitat appraisals and specialist species-specific surveys. Dyfrig has extensive experience in the preparation of Habitat Engagement / Restoration Plans and Habitat Management Plans for various projects within both the UK and Ireland.

1.3 Methodology

This Restoration Plan has been prepared in accordance with best practice guidelines and legislation, including:

- Wildlife Habitats & the Extractive Industry - Guidelines for the Protection of Biodiversity within the Extractive Industry [1]; and,
- Environmental Management in the Extractive Industry (Non-Scheduled Minerals) [2].

1.4 Overview of Pit Restoration

Quarries and pits can be of very high value for nature conservation and are often termed biodiversity hotspots. Mineral extraction creates a large variety of landscapes and habitats which support numerous floral and faunal species. Over the years, biologists have generated an abundance of evidence highlighting the importance of quarries for rare floral species such as red hemp nettle, insects such as bumble bees and dragonflies and bird species such as sand martin and ringed plover.

1.5 Structure of the Restoration Plan

The structure of this Restoration Plan is as follows:

- Site Analysis: provides contextual detail;
- Restoration Plan: details the rehabilitation works proposed at the Site; and,
- Monitoring and Aftercare: provides details regarding the monitoring and review of the plan as the rehabilitation strategy progresses.

2 SITE ANALYSIS

2.1 Existing Restoration Plan

The approach to restoration within the permitted plan under WCC reference: 201117 and as authorised by the Environmental Section of Wicklow County Council under WFP-WW-21-0067-01, has been considered whilst designing the proposed plan.

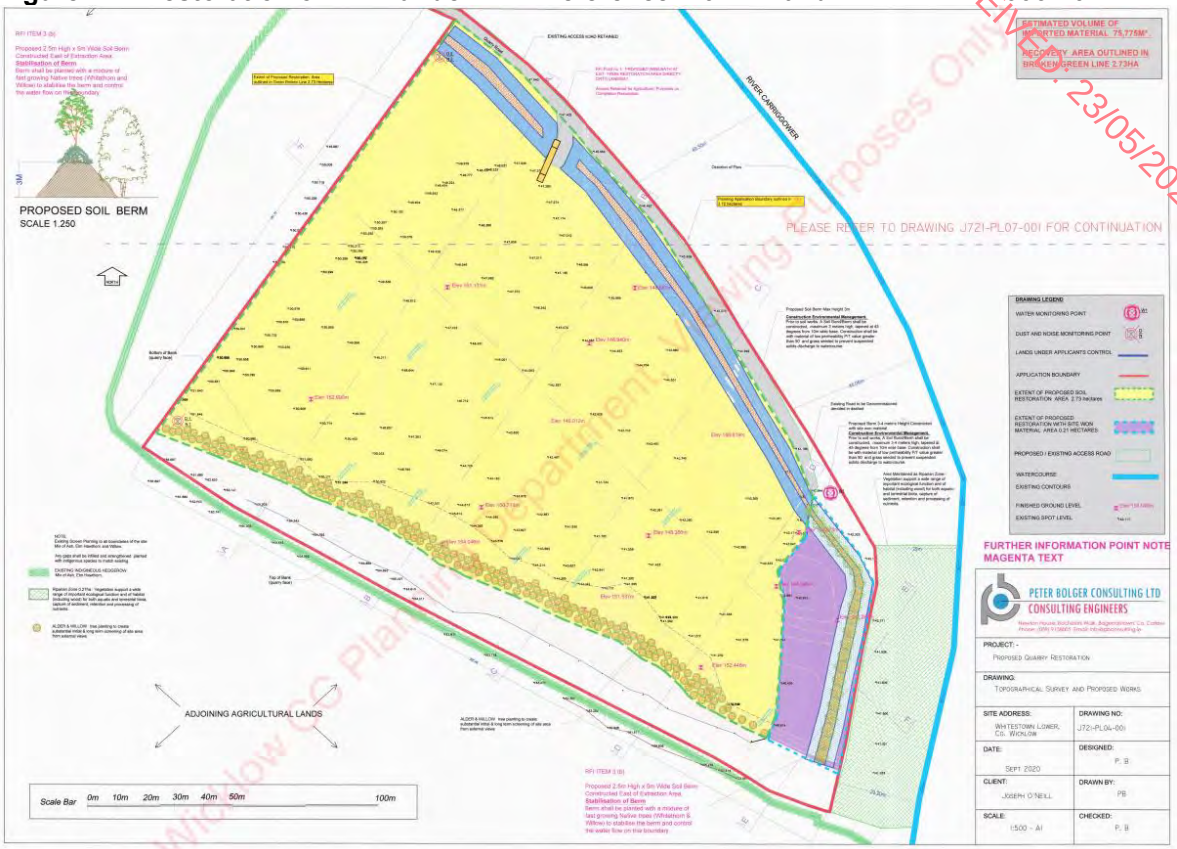
The existing restoration plan for the WFP consists of the following elements:

- Importation of inert soil and stones to restore the main pit floor and part of the southern bank. Soils with a depth of 2 metres ('m') will be applied across the pit floor with soil depth deepening at the edges of the pit. Soils with a depth of 3m will be applied along the northern boundary and increased soil levels will be placed in close proximity to the southern gravel face;
- Construction of a soil bund / berm along the northern boundary of the WFP. This berm will be grass-seeded;
- Construction of a soil bund / berm along the eastern boundary of the WFP. This berm will be planted with a mixture of fast-growing native trees (whitethorn and willow) to stabilise the berm and control the water flow in this area;
- Alder and willow tree planting along the southern boundary of the WFP to stabilise the bank and allow for long-term screening; and,
- Management of an area to the east outside of the Site boundary as a Riparian Zone.

The existing restoration plan covers the northern area of the Site. 2.73ha of the quarry pit were to be restored using imported inert soils and stone, while an additional 0.21ha was to be restored with site-won materials. Refer to Figure 2-1 for details.

It should be noted that at the time of writing this report, the restoration works within the existing WFP (within the northern portion of the Site) were ongoing.

Figure 2-1: Restoration of WFP under WCC reference: 201117 and WFP-WW-21-0067-01



2.2 Ecological Context

2.2.1 Habitats

The following habitats were identified on-site using Fossitt's, '*A Guide to Habitats in Ireland*' [3]:

- Hedgerows / Treelines (WL1 / WL2);
- Improved Agricultural Grassland (GA1);
- Scrub (WS1);
- Recolonising Bare Ground (ED4); and,
- Spoil and Bare Ground (ED2).

The following additional habitats were identified within the vicinity of the Site:

- Depositing / Lowland River (FW2).

2.2.2 Species

The following species were identified on-site (either directly through sight or sound, or indirectly through prints, scats or other field evidence) during the 2023 -2025 field surveys:

- Badger (*Meles meles*);
- Barn swallow (*Hirundo rustica*);
- Blackbird (*Turdus merula)*;
- Blue tit (*Cyanistes caeruleus*);

- Brown long-eared bat (*Plecotus auritus*);
- Bullfinch (*Pyrrhula pyrrhula*);
- Common pipistrelle (*Pipistrellus pipistrellus*);
- Chaffinch (*Fringilla coelebs*);
- Chiffchaff (*Phylloscopus collybita*);
- Coal tit (*Periparus ater*);
- Dunnock (*Prunella modularis*);
- Goldcrest (*Regulus regulus*);
- Goldfinch (*Carduelis carduelis*);
- Great tit (*Parus major*);
- Hooded crow (*Corvus cornix*);
- House sparrow (*Passer domesticus*);
- Jackdaw (*Coloeus monedula);*
- Leisler's bat (*Nyctalus leisleri*);
- Magpie (*Pica pica*);
- Myotis bat species – Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri)* and whiskered bat (*Myotis mystacinus*);
- Pied wagtail (*Motacilla alba yarrellii*);
- Reed bunting (*Emberiza schoeniclus*);
- Robin (*Erithacus rubecula*);
- Rook (*Corvus frugilegus*);
- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Spotted flycatcher (*Muscicapa striata*);
- Wheatear (*Oenanthe Oenanthe*);
- Woodpigeon (*Columba palumbus*); and,
- Wren (*Troglodytes troglodytes*).

3 RESTORATION PLAN

3.1 Overview

The Restoration of the Site will be a continuous process. As such, the proposed restoration will be undertaken in phases as works progress within the Site.

The key focus of this restoration plan is the phased extraction and restoration of the greenfield lands to the south of the Site. However, this Restoration Plan also includes the creation, retention and protection of habitats as required by previously permitted plans alongside additional enhancement measures within the wider landownership boundary. The strategy has been developed in accordance with best practice guidance and is intended to restore soil functionality and ensure long-term integration of the Site with the surrounding landscape.

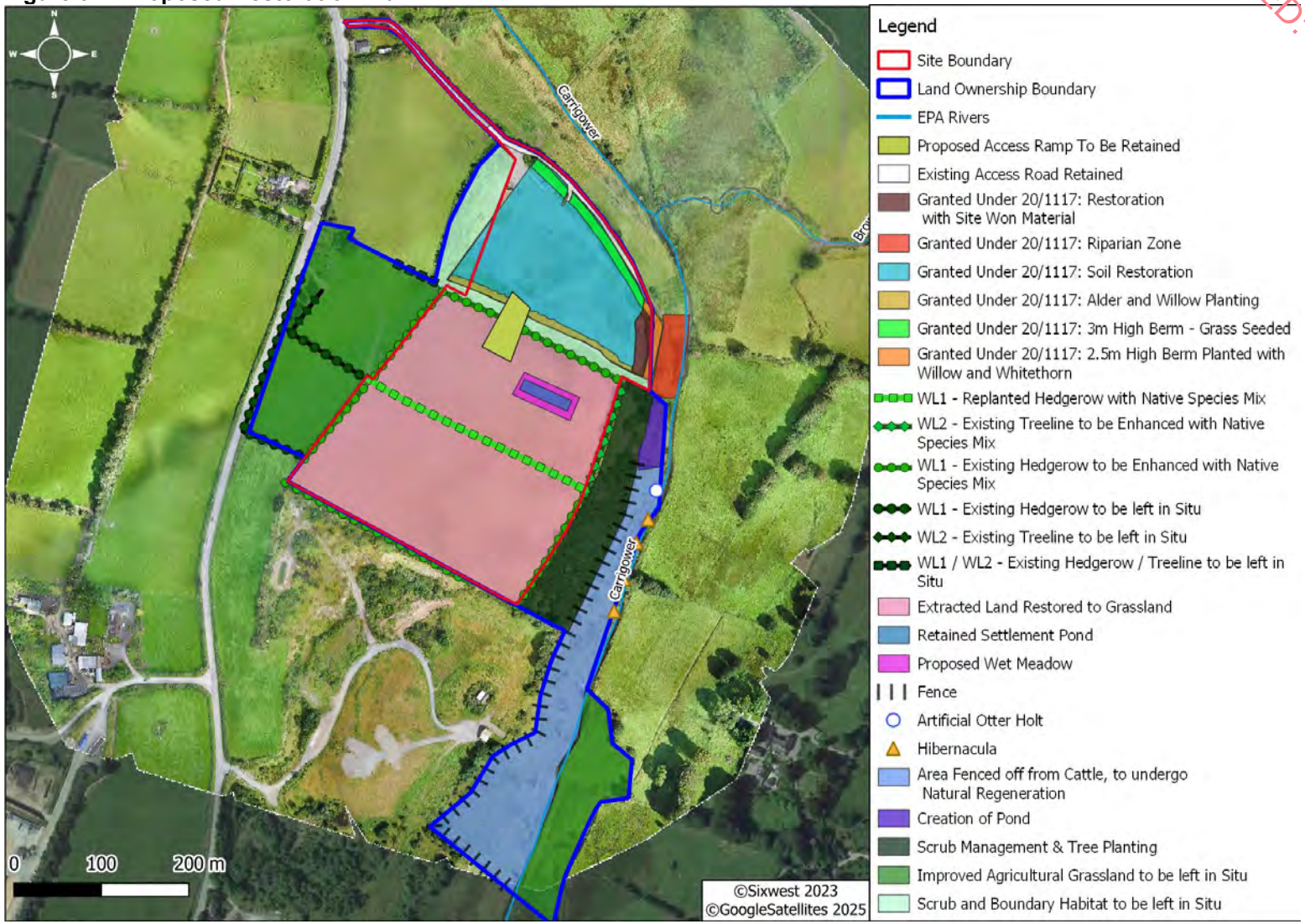
The topsoil removed during Phase 1 of the Proposed Development will be utilised in the restoration of the ca. 0.21ha area within the WFP, which requires site-won materials, refer to Section 2.1 for context. Any remaining topsoil will be used to reduce the southern slope of the WFP area with the greenfield extraction land. Additional soils removed during Phase 1 will be stored on-site for future use in the restoration of the greenfield lands.

The final landform will be carefully regraded, with quarry faces and benches reshaped to form stable and visually appropriate slopes that integrate naturally with the existing topography. These measures will help to minimise erosion risks and create a more natural landscape setting post-extraction.

Restoration of the greenfield lands will involve the importation of topsoil to facilitate agricultural land use. These materials will be used to create a field slope leading to the top of the eastern embankment. The field slope will be designed to make the restored land functionally safe for agricultural vehicles. Any remaining topsoil stripped from the Proposed Development will then be utilised to cover the imported soils before seeding. The Restoration Plan has been designed to encompass the full area of the Site.

The proposed restoration of the Site is presented in Figure 3-1.

Figure 3-1: Proposed Restoration Plan



3.2 Construction Phase Works

The Proposed Development will be undertaken in phases so that the area of exposed ground does not significantly increase over time. The Proposed Development will result in some vegetation loss, as detailed in Section 3.2.1 below. However, the Construction Phase planting has been designed to replace and establish vegetation onsite at the earliest possible point to mitigate the removal of hedgerow. Therefore, Construction Phase works have been included in this Restoration Plan.

3.2.1 Creation of Access Ramp

An access ramp will be created between the WFP area and the proposed extension lands. The creation of this access ramp will involve breaking through the boundary ridge between the WFP area and the extension lands. This will result in the removal of ca. 72m of hedgerow.

3.2.2 Storage of Topsoil for Restoration

There will be two distinct instances of soil removal as part of the Proposed Development: once during Site preparations and once during operations (refer to Section 3.2 below for context).

The topsoil removed from the Site as part of the Site preparation works will be used in the restoration of the 0.21ha of land covered under the previous restoration plan (WCC Planning Reference: 201117). Refer to Section 2.1 for context.

Additional topsoil will be used to reduce the southern slope of the WFP area with the greenfield extraction land. Any remaining soils removed during Site preparation works will be stored separately in managed stockpiles. These stockpiles will be sown with a mixed-species sward which includes grasses, legumes and herbaceous species. The seeding of these stockpiles will help maintain structure, fertility and suitability for restoration. These stockpiles will be dismantled after operations have ceased and will be used in the restoration of the Site, where possible.

It should be noted that all soil stripping and clearance works will be minimised to between 0.3ha and 0.8ha at any one time in order to maintain an organised Site and reduce the amount of exposed ground.

3.2.3 Enhancement Planting of Existing Boundary Hedgerows

The hedgerows to the east, south and west will be bolstered with additional planting. This will provide additional screening and enhance the boundary hedgerows for wildlife in the area, including breeding birds and foraging and commuting bats.

Guidance from Hedgerows Ireland [4] will be followed during this enhancement planting to protect the existing hedgerows and to ensure that the planting measures are successful. The following measures will be adhered to during the enhancement planting of existing boundary hedgerows:

- Plant native, pollinator-friendly trees of Irish provenance;
- Plant whips every 30 centimetres (‘cm’) in two staggered rows with a 40cm gap; and,
- Maintain a 1-2m hedge margin for wildlife.

It is recommended that the species mix presented in Table 3-1 is used. All species will be of local providence, native and / or those that have a known attraction or benefit to local fauna.

Table 3-1: Recommended Hedgerow / Treeline Planting Mix

Common Name	Scientific Name
High Canopy – Dominants (20%)	
Ash	*Fraxinus excelsior*
Pedunculate oak	*Quercus robur*
Scots pine	*Pinus sylvestris*
Low Canopy – Sub-dominants (20-25%)	
Alder	*Alnus glutinosa*
Downy birch	*Betula pubescens*
Rowan	*Sorbus Aucuparia*
Understory and Fringe – Higher Shrubs (20-40%)	
Bird Cherry	*Prunus padus*
Elder	*Sambucus nigra*
Hazel	*Corylus avellana*
Holly	*Ilex aquifolium*
Hawthorn	*Crataegus monogyna*
Goat willow	*Salix caprea*
Understorey and Edge – Lower Shrubs (15-25%)	
Blackthorn	*Prunus spinosa*
Dog-rose	*Rosa canina*
Spindle	*Euonymus europaeus*

Annual inspections of the trees will take place for a period of five years to ensure tree health and establishment. Trees that fail to become established within five years of planting will be replaced by trees of a similar size / species within the next planting season.

These enhanced hedgerows / treelines will be lightly managed / pruned in Year 2. All pruning and management will take place outside of the nesting and breeding bird season, typically March 1st to August 31st.

3.2.4 Habitat Creation in the Land Ownership Boundary

As the area within the Site boundary will be restored to agricultural grassland, habitats will be created and enhanced within the wider land ownership boundary to ensure that there is an overall positive impact on biodiversity as a result of the Proposed Development.

These habitats will be created during the construction phase works to allow for the newly created and enhanced habitats to become established over the lifetime of the Proposed Development.

The creation of these habitats during the construction phase works will also help to offset the habitat loss / disturbance that will occur to wildlife within the area as a result of the Proposed Development.

3.2.4.1 Scrub Management and Tree Planting Area

An area of scrub, ca. 1.9ha in size, was present along the eastern Site boundary. Badger evidence was identified in this area during the field surveys conducted on-site.

In order to enhance this area for badger and other wildlife, native tree species will be planted amongst the scrub. The scrub will be managed to avoid encroachment into planted areas and to enable the growth of tree saplings / whips. This will enable a woodland to develop which will provide enhanced foraging and commuting habitat for badger and opportunities for sett construction.

This habitat will also benefit nesting, roosting, foraging and commuting birds and bats within the area. A transition from scrub to woodland will further strengthen the riparian habitats along the Carrigower River for species such as otter. The species mix presented in Table 3-2 is recommended for tree planting in this area.

Table 3-2: Example Tree Planting Mix

Common Name	***Scientific Name***
Woodland Trees (Upper and Lower Canopy)	
Pedunculate oak	*Quercus robur*
Scots pine	*Pinus sylvestrus*
Beech	*Fagus sylvatica*
Ash	*Fraxinus excelsior*
Downy Birch	*Betula pubescens*
Holly	*Ilex aquifolium*
Hawthorn	*Crataegus monogyna*

3.2.4.2 Area Fenced off From Cattle, to undergo Natural Regeneration

It is proposed to fence off a ca. 1.9ha area in the south of the land ownership boundary from cattle. This will allow natural regeneration to occur. The fencing will be of a type / design that will allow the passage of terrestrial mammals throughout the landscape, i.e. wire and post fencing.

It is anticipated that without grazing in this area, a wet grassland habitat will develop. A wet grassland will provide sheltering, foraging and commuting habitat for a variety of wildlife.

3.2.4.3 Pond Creation

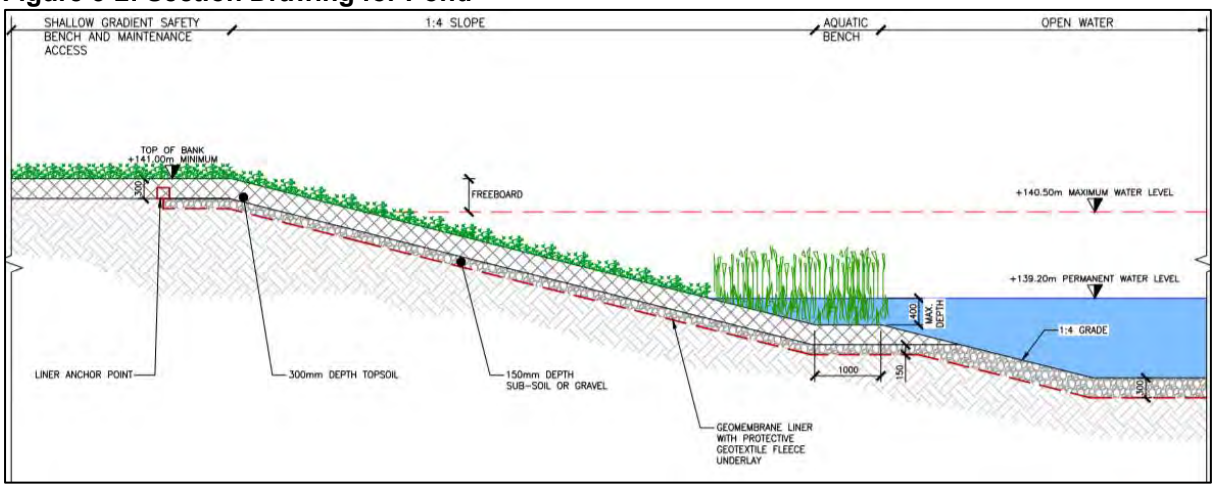
It is proposed to create a pond ca. 0.17ha in size in the eastern portion of the land ownership boundary, adjacent to the Carrigower River. This pond will be located within the Slaney River Valley SAC.

It is envisaged that this pond will create additional habitat diversity within the Site by creating habitat for amphibians and invertebrates. The presence of amphibians and invertebrates will also attract foraging birds and bats.

For frogs, newts and many species of insect (including dragonflies and damselflies), the availability of relatively warm, still water with emergent wetland vegetation is essential to allow them to breed and reproduce. Therefore, the pond will have gradually sloping shoreline banks and shallow shelves to provide varied areas for wetland plants to colonise and grow. No planting of wetland vegetation is planned as part of the creation of this pond. Given the proximity to the Carrigower River and its associated riparian habitat, natural colonisation of the pond banks is expected. As marginal and emergent wetland vegetation develops within and around the pond, breeding waterbirds such as coot and moorhen will likely colonise the pond.

The pond will also be designed to remain wet year-round so that the breeding habitat is retained during long periods of dry weather. This will be achieved through an appropriate clay lining or geotextile membrane. Refer to Figure 3-2 for context.

Figure 3-2: Section Drawing for Pond



The following measures will ensure that biodiversity and water quality within the Slaney River Valley Special Area of Conservation ('SAC') is protected during the construction of this pond:

- No discharges into the Carrigower River will occur;
- Prior to the commencement of earthworks, silt fencing will be placed down-gradient of the work areas where surface water may drain towards Carrigower River. The silt fences will be embedded into the local soils to ensure all water is captured and filtered;
- Earthworks for the Construction Phase will take place during dry weather to reduce run-off; and,
- Any excavated soil will be suitably disposed of off-site.

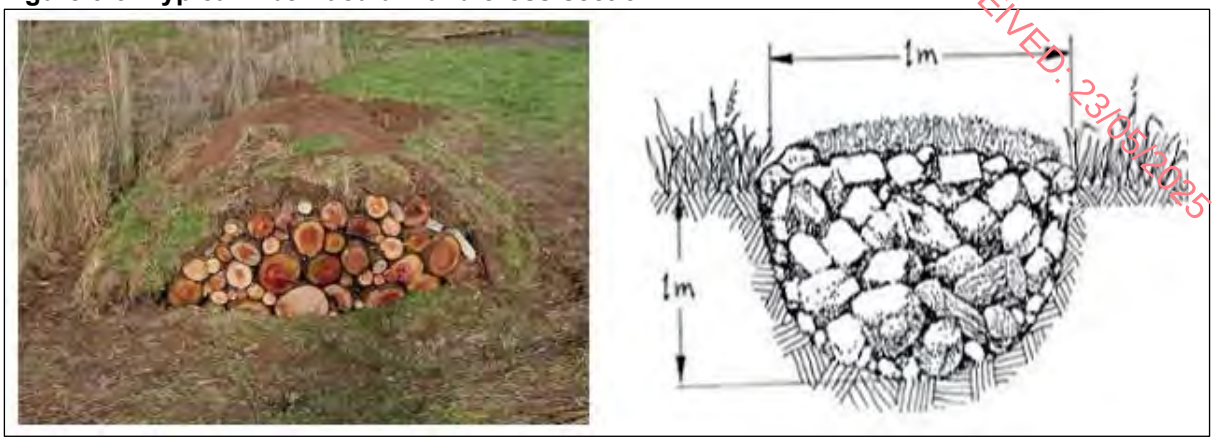
3.2.4.4 Installation of Hibernacula

Hibernacula are valuable habitats that can support a variety of species. These habitats act as refuges and hibernation sites for amphibians as well as a host of other species of invertebrates and small mammals.

Hibernacula can be created through the placement of either piles of rocks or logs around the margins of hedgerows / treelines, near wetland habitats and adjacent to drainage ditches. It is proposed to install four hibernacula within the land ownership boundary along the Carrigower River, refer to Figure 3-1 for indicative locations.

These hibernacula will be created using the material generated by the removal of the central hedgerow (to facilitate the access ramp), where possible. Refer to the examples below in Figure 3-3.

Figure 3-3: Typical hibernaculum and cross-section



3.2.4.5 Artificial Otter Holt

It is proposed to install an artificial otter holt along the Carrigower River within the vicinity of the Site in the land ownership boundary.

An artificial otter holt can be easily installed and has the potential to provide refuge for otters utilising the Carrigower River. It should be noted that the Carrigower River and its associated riparian habitat form part of the Slaney River Valley SAC, which is designated for otter.

The otter holt will have multiple entrance points and a cavity. Woody material arising from the hedgerow removal works associated with the creation of the access ramp will be utilised where possible. Refer to Figure 3-4 for examples of artificial otter holts.

Figure 3-4: Artificial Otter Holt

3.3 Operational Phase

3.3.1 Creation of Settlement Pond

Operations on-site will be undertaken in four phases. One settlement pond with a depth of ca. 13m will be developed during Phase 2. The water supply for this settlement pond will be via a local well.

3.3.2 Storage of Topsoil for Restoration

After Phase 2 of extraction, the second instance of soil removal will occur onsite. The soil will be stored in stockpiles and seeded with a mixed-species sward as per Section 3.2.2.

Once Phase 3 is complete, the restoration of Phase 1 and 2 areas will commence. The seeded stockpiles will be dismantled and utilised for restoration purposes.

3.4 Phased Restoration of Active Quarry

3.4.1 Re-establishment of Grasslands

Exhausted areas will be re-levelled into an undulating landscape, and all stockpiles and trenches will be removed from these areas. Stockpiled material and soils stripped during operations will be used to re-establish grasslands.

It is proposed that a 0.5m thick topsoil layer will be added to the areas disturbed by the Proposed Development. These areas will then be reseeded.

The grasslands should be sown with multi-species grass swards including grasses, legumes, and herbaceous species. These swards not only provide sources of minerals, protein and energy for livestock, but the inclusion of nitrogen-fixing legumes will result in a reduced requirement for fertiliser application in future.

The species mix outlined in Table 3-3 below is recommended for the re-establishment of the grasslands on-site. A programme of observation and maintenance, including wetting during periods of dry weather, will be followed to ensure the successful restoration of grassland habitats in these exhausted areas.

Table 3-3: Mixed-sward Grass Planting Mix

Common Name	Scientific Name	Percentage of Mixture (%)
Grasses		
Perennial ryegrass	*Lolium perenne*	50%
Timothy	*Phleum pratense*	8%
Meadow fescue	*Festuca pratensis*	8%
Legumes		
White clover	*Trifolium repens*	8%
Red Clover	*Trifolium pratense*	8%
Sainfoin	*Onobrychis*	8%
Herbs		
Ribwort plantain	*Plantago lanceolata*	4%
Chicory	*Cichorium intybus*	4%

3.4.2 Importation of Material

To fully reinstate the Site to agricultural grassland, by-product soils from other developments will be imported to achieve the required landform and functional profile. Once the imported material is placed and shaped, stored topsoil will be applied to the surface prior to seeding.

An estimated volume of approximately 38,750m³ of soil (equivalent to 65,875t, based on a conversion factor of 1.7m³/t) will be required to restore the Site, assuming a topsoil thickness of 0.5m across the full restoration area.

3.4.3 Re-planting of Hedgerow

As mentioned in Section 3.2.1, a 72m section of hedgerow will be removed to facilitate the Proposed Development. Following the completion of quarrying activities on-site, this

hedgerow will be replaced with a hedgerow / treeline. This hedgerow / treeline will be planted across the newly re-established grassland within the first available planting season. All species will be of local providence, native and / or those that have a known attraction or benefit to local fauna. The species mix outlined in Table 3-1 will be utilised.

It should be noted that the hedgerow to be removed was managed and had a very low species diversity at the time of the field surveys. Once established, the planted hedgerow / treeline will be an improvement for biodiversity.

3.5 Enhancement and Retention of Habitats

3.5.1 Retention and Enhancement of Settlement Pond

As mentioned in Section 3.3.1 above, one settlement pond will be constructed and retained as part of the Proposed Development. Once operations have ceased on-site, the settlement pond will be enhanced to create a permanent wetland feature.

3.5.1.1 Aquatic and Marginal Planting

Planting of marsh vegetation around the settlement pond will jump-start the plant establishment process, which will lead to earlier colonisation of wetland species such as aquatic invertebrates, amphibians and birds. New plant material will be sourced from suppliers who specialise in the provision of local seeds and plant materials. Each of the plant specimens will be checked prior to planting to avoid the transfer of fish or material from undesirable plants.

Aquatic vegetation will be planted either in containerised baskets or in the substrate, depending on the type of liner used. Plants will be planted into the soil in the baskets in groups of between 5 and 8 individuals of the same species. The container will then be sited in the water at a depth of no more than 750mm.

Marginal vegetation will be plug-planted. Planting will be in groups of the same species, with individual plants spaced about 300mm apart. The exact location of the aquatic and marginal vegetation will be determined by an experienced ecologist. This is to allow the ecologist to assess the exact conditions that have been created and thus to ensure that the planting is sited in the most appropriate location possible and additional soils are introduced as required to facilitate the successful establishment of these species.

Table 3-4 presents the mix of marginal and aquatic plants which would be suitable for use within the retained settlement pond.

Table 3-4: Planting mix for Ponds and Marginal Mix for Banks

Common Name	Scientific Name
Aquatics	
Pond water crowfoot	*Ranunculus peltatus*
Pondweeds	*Potamogeton natans, or perfoliatus*
Common hornweed	*Ceratophyllum demersum*
Frog bit	*Hydrocharis morus-rane*
Lesser water parnsip	*Berula eracta*
Water-starwort	*Callitriche platycarpa*

Common Name	Scientific Name
Marginals	
Soft rush	*Juncus effusus*
Arrow-head	*Sagittaria sagittifolia*
Water mint	*Mentha aquatica*
Reed sweet-grass	*Glyceria maxima*
Branched bur-reed	*Sparganium erectum*
Meadowsweet	*Filipendula ulmaria*
Ragged robin	*Lychnis flos-cuculi*
Water forget-me-not	*Myosotis scorpioides*
Yellow flag iris	*Iris psedudacorus*
Water plantain	*Alisma plantago-aquatica*
Marshmallow	*Althaea officinalis*

3.5.1.2 Adjacent Terrestrial Planting / Wet Meadow Mix

The outer margins of the settlement pond will be planted with a wet meadow mix (species for potential inclusion are specified in Table 3-5). The seed mix will be locally sourced. Seeding will take place in either spring or autumn and will simply comprise broadcasting the seeds in an appropriate quantity throughout the identified zone. Further soil spreading / penetration will occur as required.

The ECoW will assess the exact conditions that have been created after operations have ceased to ensure an appropriate seed mix is sown in the area surrounding the ponds. Table 3-5 contains a wet meadow mix example. This mix will be utilised should the conditions allow it.

Table 3-5: Wet Meadow Mix Example

Common Name	Scientific Name
Grasses	
Marsh Foxtail	*Alopecurus geniculatus*
Sweet vernal grass	*Anthoxanthum odoratum*
Tufted hair grass	*Deschampsia cespitosa*
Meadow fescue	*Festuca pratensis*
Red fescue	*Festuca rubra*
Rough meadow grass	*Poa trivialis*

Common Name	Scientific Name
Sedges	
Glaucous sedge	*Carex flacca*
Hairy sedge	*Carex hirta*
Herbs	
Sneezewort	*Achillea ptarmica*
Bugle	*Ajuga reptans*
Marsh marigold	*Caltha palustris*
Cuckooflower	*Cardamine pratensis*
Meadowsweet	*Flipendula ulmaria*
Square stalked St. John's wort	*Hypericum tetrapterum*
Autumn hawkbit	*Leontodon autumnalis*
Greater bird's foot trefoil	*Lotus pendunculatus*
Gypsywort	*Lycopus europaeus*
Ragged robin	*Lychnis flos-cuculi*
Common fleabane	*Pulicaria dysenterica*
Lesser spearwort	*Ranunculus flammula*
Creeping buttercup	*Ranunculus repens*
Great burnet	*Sanguisorba officinalis*
Marsh woundwort	*Stachys palustris*

3.5.2 Boundary Habitats

The boundary and scrub vegetation within the northwest portion of the landownership boundary and in between the WFP area and greenfield extension lands will be left in situ, refer to Figure 3-1 for context.

3.5.3 Agricultural Fields

The improved agricultural grassland fields to the west and southeast of the extension lands within the landownership boundary will be left in situ. Refer to Figure 3-1 for context.

4 IMPLEMENTATION AND AFTERCARE

4.1 Site Closure and Safety Preparation

This restoration plan has been carefully designed to prevent the creation of potential hazards that may pose a threat to public safety.

All plant and equipment will be removed. Boundary treatments will be inspected. Perimeter fencing / signage will be erected where necessary to prevent unauthorised access from members of the public.

Waste considered unsuitable for re-use or recycling, which includes, inter alia, domestic waste, will be disposed of off-site by an appropriately permitted waste contractor at a suitable permitted facility.

4.2 Tree Planting Aftercare

Annual inspections of the trees in the enhanced boundary hedgerows, newly planted hedgerow / treeline and in the tree planting area will take place for a period of five years to ensure tree health and establishment. Trees that fail to become established within five years of planting will be replaced by trees of a similar size and species within the next planting season.

All pruning / management should take place outside of the nesting and breeding bird season, typically March 1st to August 31st.

4.3 Pond Aftercare

The new pond will be subject to monitoring in years 1, 3 and 5. Following the alterations and enhancement to the decommissioned settlement pond, this feature will also be subject to monitoring.

The monitoring will confirm the success of the planting and habitat creation works. The survey will also confirm if amphibians, invertebrates or other wildlife are using these newly created waterbodies. This information will be used to shape recommendations / management works for the pond.

Extensive management of pond vegetation can be damaging to pond health [4]. However, where emergent plants cover more than half of the pond surface, this should be reduced to a quarter [5]. The management of emergent vegetation will be undertaken outside of the nesting bird season (March 1st to August 31st) to avoid disturbing any breeding birds or amphibians which are utilising the wetland area. The removal of emergent vegetation will be carried out across the varying water depths in each pond to ensure that species within each vegetation zone are retained [6]. Any vegetation removed will be left on the pond bank to allow any potential wildlife in its folds to navigate back to the waterbody [7]. After a few days, this vegetation will be removed to ensure nutrients do not leach into the water as the plant material decays [6].

In relation to marginal plants / trees, no more than 25% will be removed over a 3-year period and no more than 10% in any given year [4] [5].

4.4 Restoration Success Monitoring

The ECoW will conduct an annual review of the Site's restoration plan. The annual review will involve a walkover of the Site to obtain species records of flora and fauna utilising the restored areas on-site, including the potential presence of invasive species.

A report will be submitted to WCC each year detailing the progress of the restoration plan and outlining any additional works required. Following a period of five years, a review will be undertaken to assess the requirements for further works and / or monitoring.

5 REFERENCES

[1] DoAHG, "Wildlife, Habitats & the Extractive Industry," Department of Arts, Heritage and the Gaeltacht, Dublin, 2007.

[2] EPA, "Environmental Management in the Extractive Industry," Environmental Protection Agency, Wexford, 2006.

[3] J. A. Fossitt, A Guide to Habitats in Ireland, Dublin : The Heritage Council, 2000.

[4] Hedgerows Ireland , "The Hedge Code," Hedgerows IReland .

[5] Freshwater Habitats Trust, "Manage Your Pond," 2022. [Online]. Available: https://freshwaterhabitats.org.uk/projects/flagship/pond-management-info/.

[6] GOV.UK, "Guidance: Maintain and Enhance Ponds and Lakes," Department for Environment, Food and Rural Affairs, 2021. [Online]. Available: https://www.gov.uk/guidance/maintain-and-enhance-ponds-and-lakes?msclkid=bf259630b5af11ecb18fbebb54fe7d7b#how-to-maintain-and-enhance-ponds.

[7] Natural England, "Natural England Technical Information Note TIN079: Illustrated guide to ponds and scrapes," Natural England, 2010.

[8] Shire Group of IDBs, "IDB Biodiversity Action Plan Guidance Note: Pond Management," Shire Group of IDBs, Doncaster, 2022.

APPENDIX 6-2

May 2025

Bat Report

Proposed Sand and Gravel Quarry

Mr James Metcalfe and Mr Thomas Metcalfe

Whitestown, Co. Wicklow

MALONE O'REGAN ENVIRONMENTAL

Form ES - 04

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Job Number: E2169

Prepared By: Stephanie Lonergan **Signed:** S. Lonergan

Checked By: Dyfrig Hubble **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	06/05/25	Bat Report	Final	SL	DH	DH

Bat Report

Proposed Sand and Gravel Quarry

Mr James Metcalfe and Mr Thomas Metcalfe

Whitestown, Co. Wicklow

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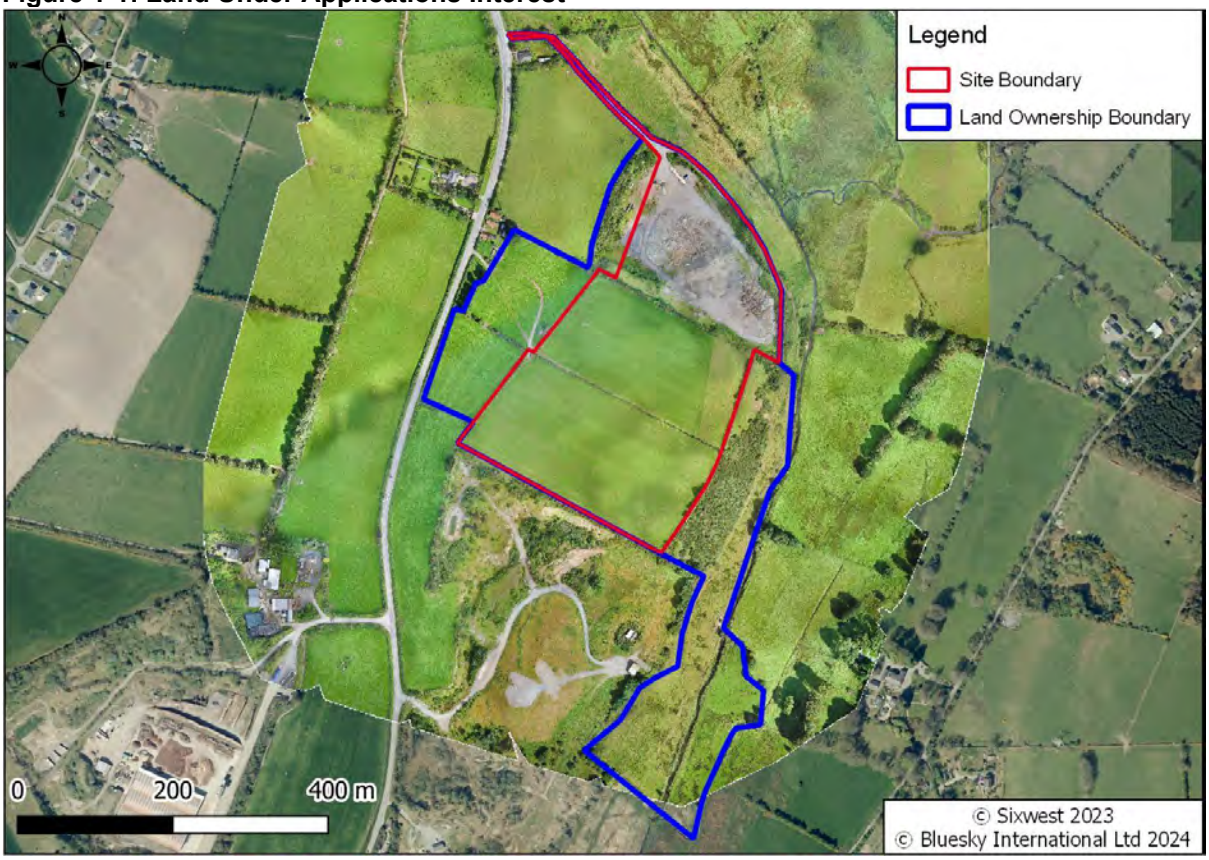
1 INTRODUCTION

This bat report has been prepared by Malone O'Regan Environmental ('MOR Environmental') on behalf of Mr James Metcalfe and Mr Thomas Metcalfe ('the Applicant') to present the findings of bat surveys undertaken in support of a planning application for a proposed extension to the existing authorised Waste Facility Permit ('WFP') at Whitestown (Register Ref. WFP-WW-21-0067-01), which was granted planning permission under application 20/1117 to Mr. Joseph O'Neill on 5th July 2021. The proposed extension involves access to an adjoining landholding for the extraction, processing, and temporary storage of aggregates, including sand and gravel. It also includes the continued use of the existing development and infrastructure associated with the WFP, such as access to the N81, the site office, weighbridge, wheel wash, production well, internal access routes, security gates and the implementation of restoration works within the WFP boundary ('the Proposed Development').

The proposed extension lands ('the Site') are located within the townland of Whitestown Lower, Co. Wicklow (Ordnance Survey Ireland Grid Reference ITM 691307 695854), see Figure 1-1.

This bat report is an Appendix to Chapter 6 – Biodiversity of the Environmental Impact Assessment Report ('EIAR') submitted as part of the overall planning application. This bat report should be read in conjunction with Chapter 6 of the EIAR.

Figure 1-1: Land Under Applications Interest



1.1 Relevant Legislation

All Irish bat species are protected by law under the Wildlife Act 1976 and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;

- Possess a bat (whether alive or dead);
- Disturb a roosting bat; and,
- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

In addition to domestic legislation, bats are also protected under the EU Habitats Directive (92/43/EEC). All Irish bats are listed in Annex IV of the Habitats Directive, and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular any disturbance which is likely;
    (a) To impair their ability:
        (i) To survive, to breed or reproduce, or to rear or nurture their young; or,
        (ii) To hibernate or migrate.
    (b) To affect significantly the local distribution or abundance of the bat species; or,
- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation license must be obtained from the National Parks and Wildlife Service ('NPWS') before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

1.2 Statement of Authority

The bat inspection survey and subsequent report were undertaken and prepared by the following MOR Environmental personnel: Ms Stephanie Lonergan and Mr. Dyfrig Hubble.

Stephanie Lonergan, Environmental Consultant, has B.A. (Mod) (Hons) in Environmental Science and is a qualifying member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') with a particular interest in bat ecology and conservation. Stephanie has completed bat ecology, identification and mitigation courses from CIEEM, and has experience undertaking bat surveys and building and tree assessments within her role at MOR Environmental. Stephanie also regularly attends local bat groups and Bat Conservation Ireland training courses and events, including a bat handling, biometrics and identification course in August 2023. Stephanie has also undertaken training run by Wildlife Acoustics for analysis of bat calls in Kaleidoscope Pro Software and regularly uses this programme within her role at MOR Environmental.

This report was reviewed and approved by Mr. Dyfrig Hubble, Associate Director – Ecologist. Dyfrig has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. in Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 18 years' experience working in the ecological consultancy sector, including habitat appraisals and specialist species-specific surveys. Dyfrig has extensive experience in undertaking a variety of bat surveys, including dawn / dusk surveys, transects, static monitoring, harp trapping, Lesser Horseshoe roost counts. Dyfrig has also worked on numerous projects that have required supervision of building demolition and tree removal works under licence. These projects have included work both in the UK and Ireland.

1.3 Species Background

There are eleven recorded bat species in Ireland, nine of which are considered resident and two of which are considered vagrants (Please see Table 1-1 below).

Table 1-1: Status of Irish Bat Species [1]

Bat Species	*Latin Name*	Irish status	European Status
Resident Bat Species			
Brown Long-eared Bat	*Plecotus auritus*	Least Concern	Least Concern
Common Pipistrelle	*Pipistrellus pipistrellus*	Least Concern	Least Concern
Daubenton's Bat	*Myotis daubentonii*	Least Concern	Least Concern
Leisler's Bat	*Nyctalus leisleri*	Least Concern	Least Concern
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Least Concern	Near Threatened
Nathusius' Pipistrelle	*Pipistrellus nathusii*	Least Concern	Least Concern
Natterer's Bat	*Myotis nattereri*	Least Concern	Least Concern
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Least Concern	Least Concern
Whiskered Bat	*Myotis mystacinus*	Least Concern	Least Concern
Vagrants			
Brandt's Bat	*Myotis brandtii*	Data Deficient	Least Concern
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	Data Deficient	Near Threatened

1.4 Types of Bat Roosts

Bats were originally cave and tree dwelling animals, but many now use buildings to roost within. Buildings are highly important as roosting sites for all Irish bat species as they use buildings for all roost types. Most significant in terms of roosts in buildings are maternity roosts, but cellars and attics can serve as hibernation sites for bats. Roosts within buildings can far exceed the numbers encountered in trees, bridges, caves or cliffs and roosts of over 1,000 bats have been recorded in buildings [2].

Bats are social animals, and most species congregate in large colonies during the later spring / summer. These colonies consist mostly of females, with some juvenile males from the previous year. Male bats normally roost individually or in small groups, meeting up with the females in the late autumn, when it is time to mate. In summer, bats seek warm dry buildings in which they can give birth and suckle their young. In winter, they seek out places with a constant low temperature and high humidity where they can become torpid and hibernate during adverse weather conditions. However, bats do not hibernate continuously during winter and will awake and hunt during mild nights when there are insects available and it is energetically advantageous to forage [3].

One purpose of daytime tree or building inspections is to determine the potential of bat roosts within the survey area. Due to the transient nature of bats and their seasonal life cycle, there are a number of different types of bat roosts. Where possible, one of the objectives of the surveys is to be able to identify the types of roosts present, if any.

Table 1-2 below shows an excerpt of the definitions of the types of bat roosts taken from the Bat Conservation Trust's '*Bat Surveys for Professional Ecologists - Good Practice Guidelines* (4th ed.) [4]. It should be noted that there is no equivalent Irish guidance, and that this guidance is applicable to the bat roost types found in Ireland. Additionally, all bat species found within Ireland are also present in the UK, so Irish bat species have been fully assessed as part of this Bat Conservation Trust guidance.

Table 1-2: Bat roost types (definitions written by the Natural England Earned Recognition Project). [4]

Roost Type	Natural England Definition
Day Roost	A place where individual bats or small groups, rest or shelter in the day during the summer.
Night Roost	A place where bats rest or shelter in the night but are not found in the day. May be used by a single individual on occasion, or it could be used regularly by the whole colony..
Feeding Roost	A place where individual bats, or few individuals, rest or feed for short periods during the night but are not present by day.
Transitional Roost	A place used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Maternity Site	A place where female bats give birth and raise their young to independence. In some species males may also be present in the maternity roost.
Hibernation Site	A place where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
Satellite Roost	An alternative roost found in close proximity to the main nursery colony used by a few individuals to small groups of breeding females throughout the breeding season.

1.5 Purpose of Survey Work

The implication of these legislative policies is that the Proposed Development needs to take account of the potential effects on bats. Survey work is necessary to establish whether the species are currently present in areas where suitable habitat exists and in areas where bats have previously been recorded. Survey work also enables appropriate mitigation measures to be incorporated into the design of the project and ensures that there are no adverse effects on the conservation status of the species.

Survey work was deemed necessary based on desktop surveys and suitable habitat for roosting, foraging and commuting bats being identified during the initial walkover of the site.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of bats are summarised below.

2.1 Desk-Based Studies

A desk-based study was undertaken to identify records of bats within the survey area. The following sources of information were reviewed:

- NPWS website was consulted to obtain the most up-to-date details on conservation objectives for the European sites relevant to this assessment [5];
- Aerial mapping was reviewed to identify any habitats and features likely to be used by bats. Maps and images of the Site and the general landscape within the vicinity of the Site were examined for suitable foraging or commuting habitats, including woodlands and forestry, hedgerows, treelines, and watercourses; and,
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to bat species distributions and bat habitat suitability index [6].

2.2 Field Based Studies

The survey design was informed by previous experience and the following publications:

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes [2];*
- *A Conservation Plan for Irish Vesper Bats Irish Wildlife Manual No. 20 [7];*
- *UK Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats [8];*
- *Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25 [9] a publication by the NPWS;*
- *Bat Surveys for Professional Ecologists - Good Practice Guidelines (3rd ed.). London: The Bat Conservation Trust [10];* and,
- *Bat Surveys for Professional Ecologists - Good Practice Guidelines (4th ed.). London: The Bat Conservation Trust [4].*

During the most recent Site visit on 28th February 2025 the Site was assessed in line with the most recent guidance document: *Bat Surveys for Professional Ecologists - Good Practice Guidelines* (4th ed.). London: The Bat Conservation Trust [4].

Table 2-1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement [4]

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevice/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or forging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flight-paths and foraging habitats
Negligible[1]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats, however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[2] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[3]).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by another habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape, that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roost, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape, which is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.2.1 Daytime Bat Walkover and Identification of Bat Habitats

The Site was assessed during the daytime bat walkover survey on 13th July 2023 in relation to potential bat roosting habitat, foraging habitat and potential commuting routes. Bat habitats

[1] Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

[2] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

[3] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments ([14] and [15]).Common pipistrelle swarming has been observed in the UK ([16] and [17]) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland ([18]). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

and commuting routes identified were considered in relation to the wider landscape to determine connectivity for local bat populations, and through the examination of aerial mapping. The Site was also assessed for bat suitability during the updated Site walkovers undertaken on 17th January 2024 and 28th February 2025.

2.2.2 Ground Level Tree Assessment

As part of the walkover, all trees within the Site and adjoining lands were assessed for the presence of features that could be utilised by roosting bats, using close-focusing binoculars and a powerful focused-beam light source. The following criteria were used:

- Presence of natural cavities, splits, cracks, loose bark and rot holes in the trunk or boughs of the tree;
- Presence of dense and woody ivy (*Hedera helix*) growth that could be used by bats for roosting;
- Evidence of bat droppings, which may also be seen as a black streak beneath holes, cracks, branches, etc;
- Presence of smooth edges with dark marks and urine stains at potential entrances to roosts;
- Adjoining habitat which are likely to be important to bats, including the river corridor, and hedge / treelines within the survey area that offer a variety of potential foraging, roosting and commuting opportunities for bats; and,
- Adjoining potential roosts / known roosts identified. This raises the likelihood of a tree being of benefit as bats may move roosts if the roost becomes too hot or cold during roosting and a nearby alternative roost is highly desirable.

2.2.3 Dusk Emergence and Activity Surveys

Two dusk emergence and activity surveys took place at the Site, the first on 22nd August 2023 and the second on 5th September 2023. The surveys commenced 15 minutes before sunset and ended 2 hours after sunset, therefore encompassing the typical emergence times of Irish bat species. The vantage points ('VPs') took place for one hour and fifteen minutes and were designed to incorporate all trees identified as having potential roost features ('PRFs') during the tree inspection. These trees were surveyed so they could be monitored for bat emergence. The transects took place for one hour after the VPs, and were designed to incorporate all treelines, linear features and other areas of the Site that the initial site visit identified as providing suitable habitats for foraging and commuting bats. The transects aimed to capture bat activity levels within the wider survey area and to determine what areas within the survey area are important habitats for bats.

Two MOR Environmental Ecologists surveyed separate locations of the Site- see Figure 2-1 below for full details of the VPs and transects walked during the surveys.

A combination of visual observation and listening to ultrasonic bat calls using an Echo Meter Touch2 Pro (Apple IOS) was used throughout the transect survey. Bat calls were recorded using the Echo Meter Touch2 Pro and stored on the EchoMeter App.

Figure 2-1: Bat Survey Area, Bat Emergence VPs and Activity Survey Transects

2.2.4 Data Analysis

The bat recordings taken during the surveys were analysed using the software KaleidoscopePro to aid the identification of bat species present. A combination of the visual observations taken during the survey and the number of bat passes[4] identified on the recordings were used to determine bat activity levels within the area.

All sound file data recorded during the bat surveys was analysed using Kaleidoscope Pro Software. The 'auto-ID' function was used to batch assign the top auto-ID species for each sound file. This approach allows identification of bats to genus level for *Myotis* species, and to species level for other bats found in Ireland. The Separation of *Myotis* species is complicated by the high degree of overlap between call characteristics. This software can also automatically sort sound files that contain only noise ('non-bat') from sound files that contain bat passes.

All non-noise recordings taken on the surveys were manually checked by a capable bat acoustic analyst.

2.3 Survey Limitations

Bat surveys are a snapshot of the bat activity within an area at the time of surveying. It is therefore important that bat surveys are comprised of a number of surveys designed to provide as much information on the bat usage of the area. Therefore, a combination of surveys was used to determine the importance of the survey area on local bat populations.

[4] It is important to acknowledge that bat calls provide a measure of bat activity rather than the number of individuals in a population. In practice, bat activity (as, for example, represented by 100 recordings) could be from 100 bats passing the detector or one bat passing 100 times [10].

All survey work was conducted in accordance with current best practice guidelines, which dictate that bat surveys should be undertaken when there is no rain or wind and the temperature is above 10°C.

During the dusk bat surveys, temperatures were between 20°C - 11°C (see Table 2-2 below).

Table 2-2: Bat Survey Metadata

Date	Survey Type	Sunset / Sunrise	Survey Times (Start-End)	Weather	Temperature (°C) Start - End
22/08/2023	Dusk	20:41	20:26-22:41	Dry, no breeze	14°C -11°C
05/09/2023	Dusk	20.08	20.08-22.08	Dry, light breeze	20°C -19°C

According to CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys, survey data that is 12-18 months old can still remain valid following an updated survey by a professional ecology and updated desk-based assessment to confirm that the Site has not experienced significant change and the local distribution of species in the wider area around the Site has not changed [11]. Following the updated surveys undertaken on the 17th January 2024 and 28th February 2025, it was concluded that onsite habitats and the habitats in the wider area had not changed since 2023 and that the results of the 2023 bat surveys remain valid.

2.4 Evaluation of the Importance of the Site for Bat Species

The value of the importance of the Site for bat species was evaluated using the ecological evaluation guidance given in the Transport Infrastructure Ireland ('TII'), formally known as National Roads Authority ('NRA'), guidance on assessment of ecological impacts of National Road Schemes [12]. This guidance provides ratings for resources based primarily on geographic context and allows for resources at the following levels:

- International Importance;
- National Importance;
- County Importance (or vice-county in the case of plant or insect species);
- Local Importance (Higher Value); and,
- Local Importance (Lower Value).

3 RESULTS

3.1 Desk-Based Results

Prior to conducting the field surveys, a desk-based review of information sources was completed.

Five of the nine resident bat species found in Ireland have been recorded within a 2km radius of the Proposed Development within the past 10 years at the time of writing this report- Leisler's bat, Daubenton's bat, brown long-eared bat, soprano pipistrelle and common pipistrelle [6]. The NBDC records were checked on 25th March 2025. The following NBDC 2km girds have been checked: S89X, S89Y, S99C, S99D, S99H and S991 [6].

Table 3-1 provides details of the habitat suitability index for the Site [6]. The habitat suitability index identifies the geographical areas that are suitable for individual species. The index ranges from 0 to 100, with 100 being the most favourable to bats. The index presented is for all species combined, in addition to the individual species indices within the study area.

From the indices, it can be established that the study area has an overall moderate habitat suitability index range of 21-28. The habitat suitability for Irish bats within the area ranges from very low to high. Excluding the lesser horseshoe bat and Nathusius' pipistrelle, which both have a 'very low' habitat suitability for the Site, all of the other listed species are likely to occur within the area.

Table 3-1: Habitat Suitability Index

Bat Species	Suitability Index Range	Suitability Index Level
All Bat Species	21-28	Moderate
Soprano Pipistrelle *(Pipistrellus pygmaeus)*	31-38	Moderate
Brown Long-eared Bat (*Plecotus auritus)*	29-38	Moderate
Common Pipistrelle (*Pipistrellus pipistrellus)*	39-47	High
Lesser Horseshoe Bat (*Rhinolophus hipposideros)*	0-4	Very Low
Whiskered Bat *(Myotis mystacinus)*	10-20	Low
Daubenton's Bat *(Myotis daubentonii)*	13-21	Low
Leisler's bat *(Nyctalus leisleri)*	30-37	Moderate
Nathusius' Pipistrelle *(Pipistrellus nathusii)*	0-5	Very Low
Natterer's Bat *(Myotis nattereri)*	14-26	Low

3.2 Field-Based Results

Two trees on-site were identified as having the potential to support roosting bats. Additionally, the hedgerow / treelines that border and traverse the Site were identified as providing suitable foraging and commuting habitats for bats.

3.2.1 Ground Level Tree Assessment

The tree assessment concluded that two trees within the survey area had moderate bat roost potential. This conclusion was based on the presence of knotholes, ivy and loose bark on the trees surveyed.

Table 3-2 provides details of the assessments of the trees with PRFs suitable for bats.

Table 3-2: Tree Survey Results

Tree No	Species	Bat Potential	Ivy	Knotholes	Loose Bark	Cracks and Crevices
1	Common oak (*Quercus robur)*	☑	☑	☑	☒	☑
2	Horse chestnut (*Aesculus hippocastanum)*	☑	☒	☑	☑	☒

3.2.2 Dusk Emergence and Activity Survey Results

The surveyors identified bats commuting along the trees bordering the east of the Site and the hedgerow that traverses through the centre of the Site. Bats were also observed foraging over the grassland on the Site (See Figure 3-1) during the dusk surveys.

No bats were identified to be roosting within the trees in the Site.

3.2.2.1 Dusk 22/08/23

Sunset was at 20:41.

Activity was low at both VP1 and VP2, and no bats were observed by the surveyors at both VPs. Analysis of the recordings taken at VP1 recorded the first bat of the survey at 21:00 - a Leisler's bat. Leisler's bat were also recorded at VP1 at 21:21 and 21:24. The only bats recorded at VP2 were also Leisler's bats at 21:24.

There was higher activity at the transect surveys. The first bats recorded at T1 were Leisler's, common pipistrelle and soprano pipistrelle from 21:37 to 21:39. There were six further common pipistrelle passes recorded from 21.43 to 21.45. The first bat observed at T1 was a soprano pipistrelle at 21:46 and was seen commuting along the hedgerow that traverses the Site. The next bat observed at T1 was a common pipistrelle at 22:22 seen commuting east along the hedgerow that traverses the Site. The last bat observed and recorded at T1 was a soprano pipistrelle at 22:30, observed foraging over the grassland in the west of the Site. Other species recorded at T1 included brown long-eared bat and whiskered bat.

The first bat recorded at T2 was a soprano pipistrelle at 21:31, but not observed by the surveyor. The first bat seen at T2 was a soprano pipistrelle observed commuting west along the hedgerow that traverses the Site. This was the only bat observed at T2. Other species recorded at T2 included *Myotis* species, Leisler's bat and common pipistrelle. The last bat recorded at this transect was at 22:31.

Overall, bat activity was low at VP1 and VP2, with circa ('ca'). four bat passes and two bat passes were recorded per hour, respectively. Leisler's bats were the only species recorded at both VPs.

Bat activity was moderate at T1 and T2, with ca. 25 and 18 bat passes recorded per hour, respectively. At T1 there were moderate levels of common pipistrelles, and low levels of Leisler's bats, soprano pipistrelles, brown long-eared bats and *Myotis* species. At T2 there were moderate levels of soprano pipistrelles and low levels of common pipistrelle, Leisler's bat and *Myotis* species. No bats were observed to be roosting in the trees surveyed.

3.2.2.2 Dusk 05/09/23

Sunset was at 20:08.

Activity was higher at both VPs during this survey compared to the first dusk VP survey. The first bat recorded during the VP survey was a Leisler's bat at VP1 at 20:31, but it was not observed by the surveyor. The first bat observed at VP1 was a soprano pipistrelle at 20:52, seen commuting towards the treeline to the west of the Site. The only other bat observed at VP1 was a common pipistrelle commuting towards the same treeline. Other species recorded at VP1 included Leisler's bats and brown long-eared bats. No bats were observed at VP2, but the recordings detected calls from soprano pipistrelles, common pipistrelles and Leisler's bats from the survey.

Activity was lower at T1. No bats were observed on this transect, but soprano pipistrelle and Leisler's bats were detected at 21:39 along the hedgerow that traverses the Site. Similar species and levels of activity were recorded at T2. Soprano pipistrelles were recorded at the edge of the trees to the east of the Site, along the hedgerow that traverses the Site and along the hedgerow to the south of the Site. Leisler's bats were also recorded along the treeline to the south of the Site.

Overall, bat activity was low at VP1 and VP2, with ca. eight and 10 bat passes recorded per hour, respectively. At VP1 there were low levels of Leisler's bats, common pipistrelle and soprano pipistrelle recorded. There was one individual recording from a brown long-eared bat. At VP2 there were low levels of Leisler's bats, common pipistrelle and soprano pipistrelle recorded.

Bat activity was low at T1 and moderate at T2. Soprano pipistrelle and Leisler's bats were the only species recorded at both transects.

Figure 3-1: Bat Activity within the Survey Area

3.3 Overall Results

The following bats were recorded as a result of the dusk emergence / transect surveys:

- Common pipistrelle, soprano pipistrelle, Leisler's bat, brown long-eared bat, and *Myotis* species were recorded from the VP and transect surveys. Of these species, soprano pipistrelle and common pipistrelle were observed commuting / foraging within or above the survey area. The most frequently encountered species of these were common pipistrelle and soprano pipistrelle. These species are relatively wide-spread and the most commonly encountered species within Ireland;
- The survey recorded the majority of the bat commuting activity along the hedgerow that traverses the centre of the Site, and the trees adjacent to the east of the Site (Figure 3-1). Bats were also recorded foraging over the grassland within the Site; and,
- No bats were identified to be roosting within the trees in the survey area.

Based on the levels of activity and movement of the bats recorded during the surveys, it is considered that the Site is of high local value to foraging / commuting bats.

4 IMPACT ASSESSMENT AND MITIGATION

The following bat species have been recorded during the dusk and dawn bat surveys: common pipistrelle, soprano pipistrelle, Leisler's bat, brown long-eared bat and *Myotis* species. Taking a precautionary approach and assuming that the *Myotis* bat calls were recorded from all three *Myotis* species in Ireland (Daubenton's bat, Natterer's bat and whiskered bat), this represents seven of the nine resident bat species known to Ireland. All bat species recorded during the bat surveys are Annex IV species under the EU Habitats Directive, and all have a favourable status in Ireland. The lesser horseshoe bat and Nathusius' pipistrelle were the only bat species not recorded.

Bat species within the Site will be affected by both the construction and operational phases of the Proposed Development. The impact assessment and mitigation will be undertaken in relation to the seven bat species recorded within the survey area and the surrounding area: common pipistrelle, soprano pipistrelle, Leisler's bat, brown long-eared bats and *Myotis* species.

4.1 Potential Impacts on Bats

The Proposed Development will result in the loss of areas of improved agricultural grassland and ca. 280m of the managed hedgerow in the centre of the Site. Additionally, 66m of hedgerow will be removed to create an access ramp between the Facility Permit and the proposed extension lands.

Principal impacts of the Proposed Development, in general, on bat fauna may be summarised as follows:

4.1.1 Loss of Habitat / Disturbance

The surveys did not identify any bat roosts within the trees surveyed on-site.

Bats were observed foraging over the areas of improved agricultural grassland onsite, and commuting along the hedgerow / treelines bordering and traversing the Site. boarding the hedgerows. The bordering hedgerow / treelines will be retained, but the hedgerow traversing the Site will be removed, in addition to the removal of a section of hedgerow in the north of the Site (ca. 346m in total).

The surveys identified between moderate and low levels of bat activity onsite. The majority of bat commuting activity was identified in the east of the Site, as bats were observed commuting north and south towards the scrub and towards other habitats outside of the Site boundary. However, bats were also observed commuting over the central hedgerow that will be removed. The Proposed Development will also involve a change in land use from agricultural grassland to active quarry, which will result in the loss of foraging habitat for bats.

The majority of habitats identified as being of importance to foraging and commuting bats will be retained. In addition, these boundary features will be bolstered with additional native tree and shrub planting at the commencement of Site operations. Additionally, as part of the Restoration Plan for the Site, the central hedgerow will be replanted with a native species mix. The Restoration Plan also includes for enhancement planting along the eastern boundary, which will provide suitable foraging and commuting habitat for bats.

However, as there will be a loss of foraging and commuting habitat for bats, mitigation measures are required.

4.1.2 Lighting of the General Area

Lighting for the Proposed Development will potentially impact on bat species in relation to commuting and foraging potential within the area. The degree of this impact is dependent on the sensitivity of the bat species, as some bats are more tolerant of lighting. *Pipistrellus*

species will tolerate low levels of lighting, and Leisler's bat have adapted to forage on insects around lit-up areas, while brown long eared bats and *Myotis* species are very sensitive to lighting and require the light levels to be below 1lux.

In the absence of an appropriate lighting scheme, it is considered that the Proposed Development could have a Negative Impact on foraging and commuting bats.

4.2 Mitigation Measures

The following mitigation measures are recommended to reduce the potential impact of the Proposed Development on local bat populations.

4.2.1 Lighting Plan

Bats are averse to excessive lighting; subsequently, impacts could occur as a result of an inappropriate lighting strategy.

Lighting will be installed on-site around the wheel wash, office, generator shed and wash plant at the Site entrance. This lighting will be directional and will be turned off at night. This will ensure that bats foraging / commuting around the boundary habitats are not impacted by lighting on-site.

4.2.2 Protection of Retained Hedgerow / Treelines

To ensure that no impacts or unnecessary damage occur to the hedgerows and treelines that border the Site (as per policies CPO17.14 and CPO17.23 of the Wicklow County Development Plan 2022-2028 [13]), care will be required to protect the retained linear features on-site from both direct and indirect disturbance during the construction and operational phases of the Proposed Development. This will ensure that bats can continue to use the boundary hedgerow / treelines for foraging and commuting. The following protection measures will be adhered to during the works:

- Existing boundary hedgerows will be bolstered with additional planting for screening at the commencement of Site operations;
- No materials, equipment or machinery will be stored within close proximity to retained hedgerows / treelines;
- In order for treeline protection measures to work effectively, all personnel associated with the operation of heavy plant machinery must be familiar with the above principles for the protection of treelines; and,
- Notice boards, wires, etc. will not be attached to any trees.

4.2.3 Restoration Plan

Restoration within the Site boundary will involve enhancing the existing boundary hedgerows to the south, east and west with native tree and shrub species, restoring the Site to agricultural grassland and re-planting the central hedgerow that will be removed. It should be noted that the removed hedgerow was heavily managed at the time of field surveys and this hedgerow will be replanted with native species to become a more established hedgerow / treeline that will benefit species such as bats. Additionally, the settlement pond created during operations will be retained and enhanced to create a biodiverse waterbody on-site. The pond will provide suitable habitat for a number of flying invertebrate species, which will provide suitable prey for foraging bats within the area.

The Restoration work involves fencing off an area to undergo natural regeneration, creation of a pond, creation of hibernacula habitats and scrub management and tree planting. It is considered that the scrub management and tree planting habitat will provide suitable roosting, foraging and commuting habitat for bats within the local area. Once established, it is

considered that the hedgerow and tree planting will compensate for the hedgerow removal required to facilitate the Proposed Development. It is considered that the implementation of the Restoration Plan will be an improvement to the current habitats within the Lands Under Applicant's Interest.

The Site will be subject to an updated ecological assessment in advance of the implementation of the Restoration Plan to ensure that the recommendations remain relevant and to ensure that the works required to implement the plan will not result in any impacts on biodiversity or breaches of relevant wildlife legislation.

4.2.4 Monitoring

In order to ensure that the works in relation to the Proposed Development do not have significant impacts on bats, the following construction procedures and mitigation measures will be implemented as part of the proposed works. These measures are in line with the NRA (now TII) Guidance for Bats [2]:

- Two trees on-site have features suitable for roosting bats, and one will be removed to facilitate the Proposed Development. Immediately prior to the removal of this tree, the ECoW will undertake an assessment of the tree to assess it for evidence of potential roosting bats, including droppings, urine splashes and fur-oil staining;
- The removal of the tree that has features suitable for roosting bats will be supervised by the ECoW; and,
- Where possible, the PRF tree which will to be removed, should be felled on mild days during the autumn months of October – November or during spring months of February-March (felling during the spring or autumn avoids the periods when bats are most active and without young).

5 CONCLUSIONS

The bat assessments undertaken for the Site included a daytime bat walkover of the lands within the Site, a ground-level tree assessment and two dusk emergence and activity surveys. The walkover and tree assessment identified two trees with features suitable for roosting bats within the Site. Additionally, the hedgerow / treelines that border and traverse the Site were identified as providing suitable foraging and commuting habitats for bats. The two trees were subject to dusk emergence surveys, and the hedgerow / treelines were subject to activity surveys. No bats were roosting within the trees surveyed, and there was low to moderate activity recorded from bats during the activity surveys. It was concluded that the Site is of high local value to bats.

All surveys have been completed in accordance with recent recommended best practice guidance and by suitably qualified and experienced ecologists with appropriate bat survey experience. According to CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys, survey data that is 12-18 months old can still remain valid following an updated survey by a professional ecology and updated desk-based assessment to confirm that the Site has not experienced significant change and the local distribution of species in the wider area around the Site has not changed [11]. Following the updated surveys undertaken on the 17th January 2024 and 28th February 2025, it was concluded that onsite habitats and the habitats in the wider area had not changed since 2023 and that the results of the 2023 bat surveys remain valid. Therefore, the survey effort is deemed appropriate for the Site.

The surveys identified bats commuting mainly in the east of the Site, towards the scrub and other more optimal habitats outside of the Site boundary. Bats were also observed commuting over the central hedgerow that traverses the Site and foraging over the grassland onsite. These habitats will be removed to facilitate the Proposed Development. However, the Restoration Plan includes for replacement planting, which will provide foraging and commuting habitats for bats in the future. In addition, the habitat enhancement measures will provide roosting, foraging and commuting opportunities for bats.

It is considered that if the mitigation measures presented within this report are followed, the potential impacts on bats will be reduced and the overall impact from the Proposed Development on bats will be Low-Negligible.

6 REFERENCES

[1] F. Marnell, D. Looney and C. Lawton, "Ireland Red List No. 12 - Terrestrial Mammals," National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland, 2019.

[2] National Roads Authority, "Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes," 2006.

[3] J. Collins, "Bat Surveys for Professional Ecologists - Good Practice Guidelines (3rd ed.)," The Bat Conservation Trust, London, 2016.

[4] J. Collins, "Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)," The Bat Conservation Trust, London, 2023.

[5] National Parks and Wildlife Service, "National Parks and Wildlife Service," 2025. [Online]. Available: https://www.npws.ie.

[6] NBDC, "National Biodiveristy Live Maps," 2025. [Online]. Available: http://maps.biodiversityireland.ie/.

[7] McAney, K. et al., "A conservation plan for Irish vesper bats, Irish Wildlife Manual No.20," National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland, 2006.

[8] P. Reason and S. Wray, "UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats," Chartered Institute of Ecology and Environmental Management , Ampfield, 2023.

[9] Kelleher, C. & Marnell, F. , "Bat Mitigation Guidlines for Ireland. Irish Wildlife Manuals, No. 25.," Department of Environment, Hertiage and Local Government, Dublin, 2006.

[10] Bat Conservation Trust, "Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)," The Bat Conservation Trust, London, 2016.

[11] CIEEM, "Advice Note on the Lifespan of Ecological Reports and Surveys," CIEEM, 2019.

[12] NRA, "Guidelines for Assessment of Ecological Impacts of National Roads Schemes," 2009.

[13] WCC, "Wicklow County Development Plan 2022-2028," Wicklow County Council, Wicklow, 2022.

[14] E. Korsten, E. Jansen, M. Boonman, M. Schillemans and H. Limpens, "Swarm and Switch: on the trail of the hibernating common pipistrelle," Bat News Issue 110, Bat Conservation Trust, 2016.

[15] E. Jansen, E. Korsten, M. Schillemans, M. Boonman and H. Limpens, "A method for actively surveying mass hibernation sites of the common pipistrelle (Pipistrellus pipistrellus) in the urban environment.," Lutra, 2022.

[16] C. Bell, "The annual occurrence of mass mortality at a Common Pipistrelle swarming site.," European Journal of Wildlife Research, 2022.

[17] N. Tomlinson, "Eight years of swarming studies in Purbeck - what does it tell us?," British Island Bats, Volume 1, 2020.

[18] Bat Conservation Trust, "Home to roost - largest hibernation of pipsitrelle bats recorded at Seaton Delavel Hall," 2018. [Online]. Available: https://www.bats.org.uk/news/2018/08/home-to-roost-largest-hibernation-of-pipistrelle-bats-recorded-at-seaton-delaval-hall.

APPENDIX 6-3

May 2025

Breeding Bird Report

Proposed Sand & Gravel Quarry at Whitestown, Co. Wicklow

On behalf of Mr James Metcalfe and Mr Thomas Metcalfe

MALONE O'REGAN ENVIRONMENTAL

Form ES - 04

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Title: Breeding Bird Report, Proposed Sand & Gravel Quarry, Mr James Metcalfe and Mr Thomas Metcalfe, Whitestown, Co. Wicklow

Job Number: E2169

Prepared By: Stephanie Lonergan **Signed:** S. Lonergan

Checked By: Amelia Keane **Signed:** Amelia Keane

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	06/05/25	Bird Report	Final	SL	AK	DH

Breeding Bird Report
Proposed Sand & Gravel Quarry
Mr James Metcalfe and Mr Thomas Metcalfe
Whitestown, Co. Wicklow

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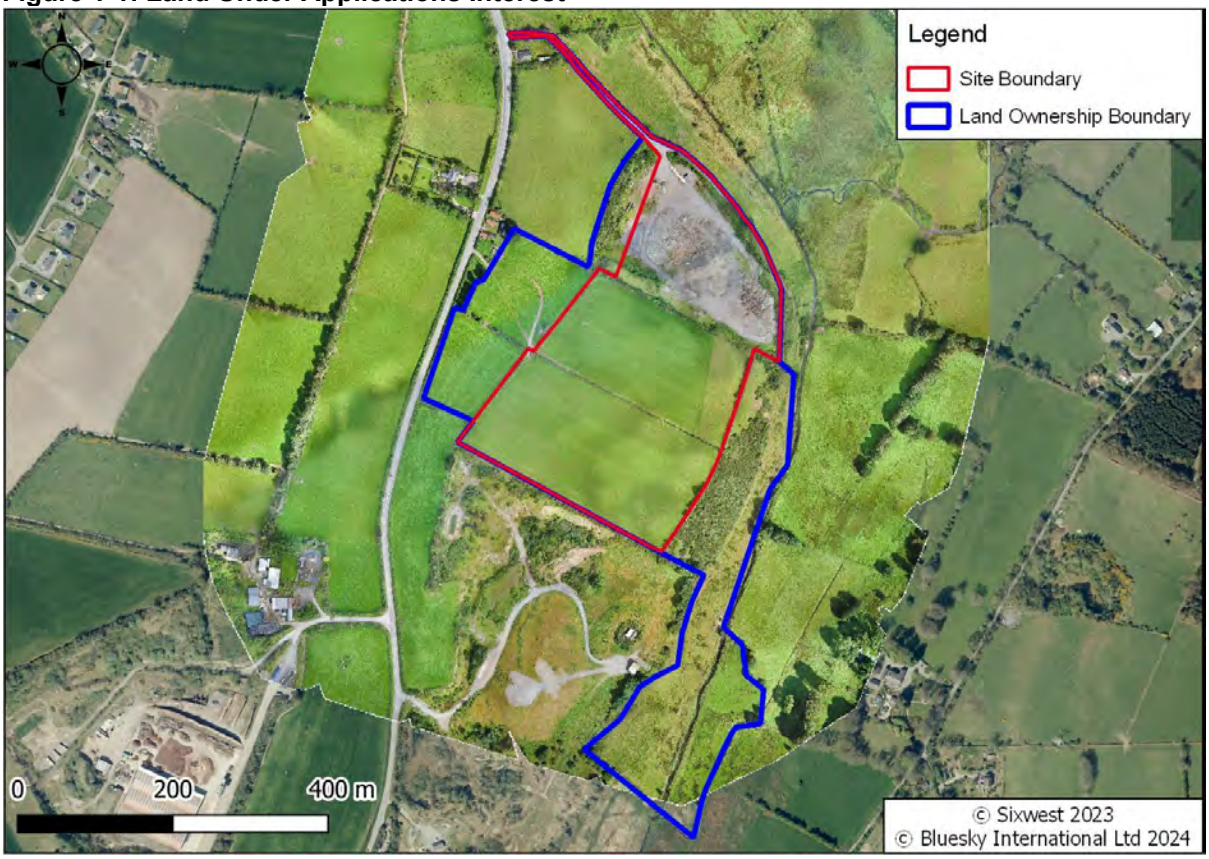
1 INTRODUCTION

This bird report has been prepared by Malone O'Regan Environmental ('MOR Environmental') on behalf of Mr James Metcalfe and Mr Thomas Metcalfe ('the Applicant') to present the findings of breeding bird surveys undertaken in support of a planning application for a proposed extension to the existing authorised Waste Facility Permit ('WFP') at Whitestown (Register Ref. WFP-WW-21-0067-01), which was granted planning permission under application 20/1117 to Mr. Joseph O'Neill on 5th July 2021. The proposed extension involves access to an adjoining landholding for the extraction, processing, and temporary storage of aggregates, including sand and gravel. It also includes the continued use of the existing development and infrastructure associated with the WFP, such as access to the N81, the site office, weighbridge, wheel wash, production well, internal access routes, security gates and the implementation of restoration works within the WFP boundary ('the Proposed Development').

The proposed extension lands ('the Site') are located within the townland of Whitestown Lower, Co. Wicklow (Ordnance Survey Ireland Grid Reference ITM 691307 695854), see Figure 1-1.

This bird report is an Appendix to Chapter 6 – Biodiversity of the Environmental Impact Assessment Report ('EIAR') submitted as part of the overall planning application. This bird report should be read in conjunction with Chapter 6 of the EIAR.

Figure 1-1: Land Under Applications Interest



1.1 Relevant Legislation

All wild birds are protected by law under the Wildlife Act 1976 and subsequent amendments. All species are afforded full protection under this Act, which makes it a criminal offence for anyone without a licence to:

- Kill or injure a wild bird;
- Disturb, damage or remove a wild bird nest or eggs; and,
- Disturb any wild bird while at the nest.

In addition to domestic legislation, birds are also protected under the EU Birds Directive (2009/147/EC). The Birds Directive provides for a network of sites to protect birds at their breeding, feeding, roosting and wintering areas.

For the purposes of this report, a species was considered to be of 'conservation concern' should it be included in one or more of the following:

- Annex 1 of the EU Birds Directive;
- Part 1 of the Fourth Schedule of the Wildlife Act, 1976 (as amended);
- Birds of Conservation Concern in Ireland ('BoCCI') Red List; and,
- BoCCI Amber List.

1.2 Objectives

The breeding bird surveys aimed to assess the following:

- To identify and assess the number of active breeding bird territories within the Site;
- To map active nests, where present, within the Site;
- To evaluate the overall bird community within the Site by recording all behavioural activity of birds;
- To utilise the information in order to identify and assess any areas of the Site that may require special consideration during the breeding bird season;
- To assess all potential impacts, if any, of the Proposed Development on breeding bird species; and,
- To provide additional mitigation measures, should they be required.

1.3 Statement of Authority

This report was checked by Ms. Amelia Keane, Senior Environmental Consultant - Ecology. Amelia is a full member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') and has over 6 years' experience working in the ecological consultancy with a specialisation in ornithology. As part of her role, Amelia regularly conducts ornithological surveys in line with Best Practice Guidelines and prepares specialist ornithological assessments and reports.

This report was reviewed and approved by Mr. Dyfrig Hubble, Associate Director – Ecologist. Dyfrig has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. in Environmental Forestry. Dyfrig is a full member of CIEEM and has over 18 years' experience working in the ecological consultancy sector, including habitat appraisals and specialist species-specific surveys in support of ecological appraisals. These projects have included work both in the UK and Ireland.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of breeding birds are summarised below.

2.1 Desk-based Studies

A desk-based review of information sources was completed, which included the following sources of information:

- Review of aerial maps of the Site and surrounding area;
- The National Parks and Wildlife Service ('NPWS') website was consulted to obtain the most up-to-date detail on conservation objectives for the European sites relevant to this assessment [1]; and,
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to species distributions within 2km of the Site [2].

2.2 Field-based Studies

2.2.1 Habitat Assessment

An initial Site walkover was undertaken on 8th September 2023 by a suitably qualified and experienced MOR Environmental Ecologist to assess the extent and the quality of habitats present on the Site and to assess the Site for its potential to support assemblages of birds of rare or notable species, as well as designated bird species.

Updated confirmation walkovers were also undertaken on 17th January 2024 and 28th February 2025 to assess any potential changes in the onsite habitats.

The surveys utilised '*Fossitt's Guide to Habitats for Ireland*' [3] and were conducted in line with the Heritage Council's '*Best Practice Guidance for Habitat Survey and Mapping'* [4].

2.2.2 Bird Surveys

2.2.2.1 Breeding Birds Surveys

The Site was initially assessed for its potential to provide suitable nesting habitat for breeding birds or to support important assemblages of birds of rare or notable species. Following this initial assessment, breeding bird surveys were undertaken at the Site in order to determine whether or not the Site is utilised by breeding bird species.

In order to establish whether any breeding bird species were utilising the Site, breeding bird transect surveys were undertaken by a suitably qualified and experienced MOR Environmental Ecologist. These surveys were undertaken on 23rd August and 8th September 2023.

Transects were walked through the Site to ensure all habitats with breeding bird potential were surveyed (Figure 2-1).

All birds within the survey areas were recorded. Birds were recorded through sight and sound. Optical equipment was used, including binoculars, in order to minimise disturbance to potentially breeding birds. The hedgerows, treelines and scrub habitats onsite were examined for the presence of nests. During the surveys, the behavioural activity of the recorded birds was noted using the British Trust for Ornithology ('BTO') breeding status codes [5]. Birds that displayed non-territorial behaviours were recorded as well (i.e., birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing, etc.).

The birds recorded during the surveys were classified as non-breeding, possibly breeding and confirmed breeding based on the behaviours exhibited. The criteria for each classification is described below:

- Non-breeding – Birds that were flying over the Site, birds that were foraging and not calling, birds that were loafing;
- Possible Breeding – Birds observed in suitable nesting habitat and displaying either territorial and / or courtship behaviours, nest building behaviours or observed visiting a possible nest; and,
- Confirmed Breeding – Birds observed either on nest or carrying faecal sac or food, sighting of a nest with eggs / chicks, used nests, eggshells or recently fledged young.

The survey dates, times and weather conditions for the breeding bird surveys are described in Table 2-1.

Table 2-1: Bird Survey Dates, Times and Weather Conditions

Visit No.	Date	Time	Weather Conditions
Visit 1	23/08/2023	07:40-10:00	Temperature of 13-14°C, no rain, overcast and no wind.
Visit 2	08/09/2023	07:30-10:30	Temperature 15-23°C, no rain, low cloud cover and no wind.

Figure 2-1: Breeding Bird Transect Locations

2.2.2.2 Survey Limitations

The breeding bird season is considered to be from the 1st March to 31st August (inclusive). However, the optimal breeding bird survey period is considered to be April – June. As the breeding bird surveys were undertaken in August and September, it is considered that these

were outside of the optimum survey season. It should, however, be noted that the onsite habitats, which comprised most of the agricultural grassland, heavily managed hedgerows, and the disturbed areas of ground within the waste licence area, would not be considered optimal habitat for rare or notable bird species.

According to CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys, survey data that is 12-18 months old can still remain valid following an updated survey by a professional ecology and updated desk-based assessment to confirm that the Site has not experienced significant change and the local distribution of species in the wider area around the Site has not changed [6]. Following the updated surveys undertaken on the 17th January 2024 and 28th February 2025, it was concluded that onsite habitats and the habitats in the wider area had not changed since 2023 and that the results of the 2023 breeding bird surveys remain valid.

No other survey limitations were experienced during the breeding bird surveys.

3 RESULTS

3.1 Desk-Based Results

3.1.1 National Biodiversity Data Centre

The NBDC was consulted for records of protected species within 2km of the Site [2]. The NBDC holds records of species within a 2km grid square of the Site boundary within the last 10 years. The NBDC records were checked on 25th March 2025 (Grid Squares: S89X, S89Y, S99C, S99D, S99H and S991). These records are collated in Table 3-1.

Only species recorded within the past 10 years were included in Table 3-1. The parameter of 10 years was chosen to allow for habitat adaptation and modification; it is considered that any records over 10 years old are not representative of the current distribution of species populations.

Table 3-1: Bird Species within 2km of Site (Grid Squares: S89X, S89Y, S99C, S99D, S99H and S991)

Species	Scientific Name	Date of Last Record	Protected Status / BoCCI Status [7]
Barn Owl	*Tyto alba*	01/07/2015	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List
Barn Swallow	*Hirundo rustica*	24/09/2018	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Black-billed Magpie	*Pica pica*	25/02/2019	Birds of Conservation Concern Green List
Blue Tit	*Cyanistes caeruleus*	10/03/2020	Birds of Conservation Concern Green List
Chaffinch	*Fringilla coelebs*	10/03/2020	Birds of Conservation Concern Green List
Coal Tit	*Periparus ater*	18/02/2019	Birds of Conservation Concern Green List
Common Blackbird	*Turdus merula*	10/03/2020	Birds of Conservation Concern Green List
Common Bullfinch	*Pyrrhula pyrrhula*	14/01/2019	Birds of Conservation Concern Green List
Common Buzzard	*Buteo buteo*	24/11/2019	Birds of Conservation Concern Green List
Common Chiffchaff	*Phylloscopus collybita*	13/04/2021	Birds of Conservation Concern Green List
Common Kingfisher	*Alcedo atthis*	25/03/2023	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Pheasant	*Phasianus colchicus*	07/01/2019	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III and Section I Bird Species Birds of Conservation Concern Green List
Common Raven	*Corvus corax*	16/04/2018	Birds of Conservation Concern Green List

Species	Scientific Name	Date of Last Record	Protected Status / BoCCI Status [7]
Common Starling	*Sturnus vulgaris*	25/02/2019	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Wood Pigeon	*Columba palumbus*	28/01/2019	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III Section I Bird Species Birds of Conservation Concern Green List
Eurasian Jackdaw	*Corvus monedula*	25/02/2019	Birds of Conservation Concern Green List
Eurasian Jay	*Garrulus glandarius*	24/11/2019	Birds of Conservation Concern Green List
Eurasian Siskin	*Carduelis spinus*	18/02/2019	Birds of Conservation Concern Green List
Eurasian Sparrowhawk	*Accipiter nisus*	24/11/2019	Birds of Conservation Concern Green List
Eurasian Woodcock	*Scolopax rusticola*	13/03/2023	Wildlife Acts 1976 / 2000 EU Habitats Directive Annex II Section I and Annex III and Section III Bird Species Birds of Conservation Concern Red List
European Goldfinch	*Carduelis carduelis*	18/02/2019	Birds of Conservation Concern Green List
European Greenfinch	*Carduelis chloris*	25/02/2019	Birds of Conservation Concern Green List
European Robin	*Erithacus rubecula*	27/03/2021	Birds of Conservation Concern Green List
Great Cormorant	*Phalacrocorax carbo*	04/04/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Great Tit	*Parus major*	25/02/2019	Birds of Conservation Concern Green List
Grey Wagtail	*Motacilla cinerea*	27/03/2021	Birds of Conservation Concern Green List
Hedge Accentor	*Prunella modularis*	25/02/2019	Birds of Conservation Concern Green List
Hooded Crow	*Corvus cornix*	31/12/2018	Birds of Conservation Concern Green List
House Martin	*Delichon urbicum*	05/06/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
House Sparrow	*Passer domesticus*	25/02/2019	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Lesser Redpoll	*Carduelis cabaret*	04/02/2019	Birds of Conservation Concern Green List

Species	Scientific Name	Date of Last Record	Protected Status / BoCCI Status [7]
Mistle Thrush	*Turdus viscivorus*	02/03/2018	Birds of Conservation Concern Green List
Pied Wagtail	*Motacilla alba subsp. yarrellii*	31/12/2018	Birds of Conservation Concern Green List
Red Kite	*Milvus milvus*	25/07/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Rook	*Corvus frugilegus*	25/02/2019	Birds of Conservation Concern Green List
Song Thrush	*Turdus philomelos*	04/02/2019	Birds of Conservation Concern Green List
Winter Wren	*Troglodytes troglodytes*	10/03/2020	Birds of Conservation Concern Green List

3.2 Field-Based Results

3.2.1 Habitat Survey

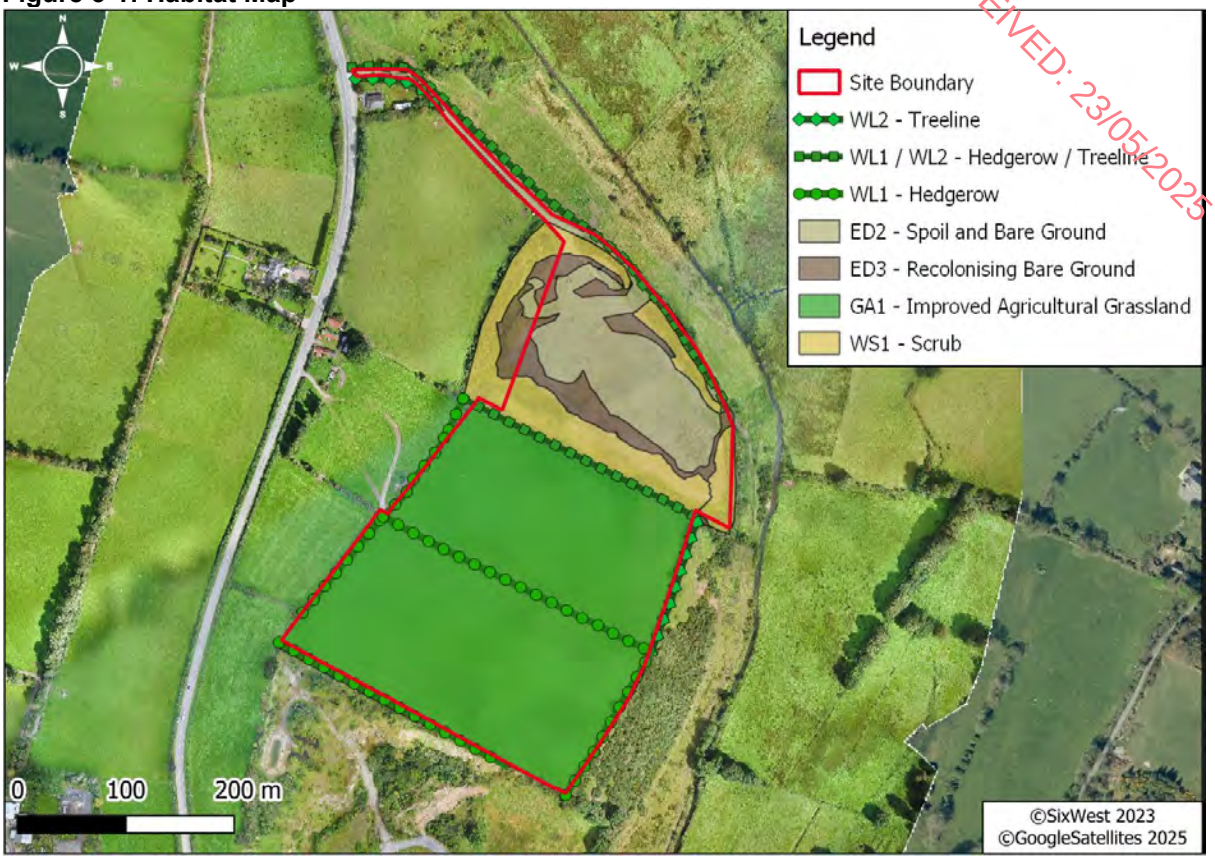
The habitat assessment identified five habitats within the Site. These habitats were described as follows:

- Hedgerow / Treelines (WL1 /WL2).
- Improved Grassland (GA1);
- Recolonising Bare Ground (ED3);
- Scrub (WS1); and,
- Spoil and Bare Ground (ED2).

It should be noted that within the wider area there are two Depositing / Lowland Rivers (FW2) that are located within 50m of the Site. These rivers form part of the Slaney River Valley SAC.

The distribution of habitats is illustrated below in Figure 3-1.

Figure 3-1: Habitat Map



3.2.2 Breeding Bird Survey

Table 3-2 contains a summary of the birds recorded in the Site during the breeding bird surveys, the behaviours exhibited during the surveys, their status according to the Birds of Conservation Concern in Ireland ('BoCCI'), which is the third assessment of the status of all regularly occurring birds on the island of Ireland [7], and the breeding status of all birds noted.

Over the period of survey efforts, a total of 23 species were recorded either within the Site or flying over the Site during the surveys.

- 18 Non-Annex I Green-listed BoCCI species were recorded – blackbird, blue tit, bullfinch, chaffinch, coal tit, dunnock, goldfinch, great tit, hooded crow, jackdaw, magpie, pied wagtail, reed bunting, robin, rook, woodpigeon and wren;
- Five non-Annex I Amber-listed BoCCI species were recorded – barn swallow, goldcrest, house sparrow, northern wheatear and spotted flycatcher;
- No non-Annex I Red-listed BoCCI species were recorded; and,
- No Annex I species were recorded onsite.

Over the entire period of survey efforts:

- No species were classified as '*Confirmed Breeding*';
- No active nests nor signs of nest buildings were recorded within the Site; and,
- All 23 species were observed displaying territorial behaviours and were classified as '*Possible Breeding'* – barn swallow, blackbird, blue tit, bullfinch, chaffinch, chiffchaff, coal tit, dunnock, goldcrest, goldfinch, great tit, hooded crow, house sparrow,

jackdaw, magpie, pied wagtail, reed bunting, robin, rook, spotted flycatcher, northern wheatear and woodpigeon and wren.

Table 3-2: Birds recorded within the Site during the Breeding Bird Season 2023

BoCCI Status	Species	Latin Name	Visit 1	Visit 2	Notes	Breeding Status
Green-Listed	Blackbird	*Turdus merula*	8	13	Visit 1 Three individuals calling from the hedgerow / treelines calling from the hedgerow / treeline bordering the Site and five individuals perched on a powerline traversing the Site. Visit 2 Individuals perched within, calling from and flushed from the hedgerow / treelines bordering the Site.	Possible Breeding
	Blue tit	*Cyanistes caeruleus*	1	3	Visit 1 One individual calling from the vegetated berm within the existing waste facility. Visit 2 One individual calling from the vegetated berm in the existing waste facility and two individuals perched within and calling from the hedgerow / treelines bordering the Site.	Possible Breeding
	Bullfinch	*Pyrrhula pyrrhula*	1	0	Visit 1 One individual calling from/perched within the vegetated berm in the existing waste facility. Visit 2 -	Possible Breeding
	Chaffinch	*Fringilla coelebs*	2	7	Visit 1 Two individuals calling from the vegetated berm within the existing waste facility. Visit 2 Individuals perched within and calling from the hedgerow / treelines bordering the Site and individuals perched within and calling from the vegetated berm in the existing waste facility.	Possible Breeding
	Chiffchaff	*Phylloscopus collybita*	1	1	Visit 1 One individual perched within and calling from a hedgerow / treeline in the southwest of the Site. Visit 2 One individual calling from the hedgerow / treeline in the east of the existing waste facility.	Possible Breeding

BoCCI Status	Species	Latin Name	Visit 1	Visit 2	Notes	Breeding Status
	Coal tit	*Periparus ater*	0	2	Visit 1 - Visit 2 Two individuals perched within and calling from the hedgerow / treeline traversing the Site.	Possible breeding
	Dunnock	*Prunella modularis*	0	1	Visit 1 - Visit 2 One individual perched within and calling from the hedgerow / treeline traversing the agricultural grassland.	Possible Breeding
	Goldfinch	*Carduelis carduelis*	2	3	Visit 1 Two individuals perched within and calling from the hedgerow / treeline bordering the south of the Site. Visit 2 Two individuals calling from the hedgerow / treeline traversing the Site and one individual calling from and perched within the vegetated berm in the existing waste facility.	Possible Breeding
	Great tit	*Parus major*	4	10	Visit 1 Two individuals calling from the vegetated berm within the quarry and two individuals perched within/calling from the hedgerow/treeline in the southwest of the Site. Visit 2 Individuals calling from and flushed from the scrub and vegetated berm within the existing waste facility, and individuals perched within and calling from the hedgerow / treelines bordering the Site.	Possible Breeding
	Hooded crow	*Corvus cornix*	4	0	Visit 1 Four individuals foraging within the agricultural grassland onsite. Visit 2: -	Possible Breeding

BoCCI Status	Species	Latin Name	Visit 1	Visit 2	Notes	Breeding Status
	Jackdaw	*Coloeus monedula*	3	1	Visit 1 Two individuals foraging within the agricultural grassland onsite and one individual flushed from a tree in the northwest of the Site. Visit 2 One individual perched within and calling from the hedgerow / treeline to the south of the access track into the existing waste facility.	Possible Breeding
	Magpie	*Pica pica*	0	2	Visit 1 - Visit 2 One individual perched within and calling from the vegetated berm in the existing waste facility and one individual perched within and calling from the treeline in the northeast of the existing waste facility.	Possible Breeding
	Pied wagtail	*Motacilla alba yarrellii*	0	2	Visit 1 - Visit 2 Two individuals perched within and calling from the scrub in the existing waste facility.	Possible breeding
	Reed bunting	*Emberiza schoeniclus*	0	1	Visit 1 - Visit 2 One individual perched within and calling from the vegetated berm within the existing waste facility.	Possible breeding
	Robin	*Erithacus rubecula*	19	20	Visit 1 Individuals singing/calling and perching on the vegetated berm within the existing waste facility, and individuals singing/calling from the hedgerow / treelines that border and traverse the Site. Visit 2 Individuals perched within / calling from the scrub in the existing waste facility and individuals perched within and calling from the vegetated berms and hedgerow / treelines onsite.	Possible breeding

BoCCI Status	Species	Latin Name	Visit 1	Visit 2	Notes	Breeding Status
	Rook	*Corvus frugilegus*	6	4	Visit 1 One individual perching within/calling from the existing waste facility and five individuals foraging within the agricultural grassland in the east of the Site. Visit 2 Three individuals flushed from a powerline traversing the Site and one individual flushed from the scrub in the existing waste facility.	Possible breeding
	Woodpigeon	*Columba palumbus*	2	3	Visit 1 One individual calling from the vegetated berm in the quarry and one individual perched within and calling from a hedgerow / treeline bordering the Site. Visit 2 One individual flushed from the scrub in the existing waste facility, one individual perched on the vegetated berm in the existing waste facility and one individual flushed from the treeline traversing the Site.	Possible Breeding
	Wren	*Troglodytes troglodytes*	8	13	Visit 1 Individuals singing, calling and perching within the vegetated berm in the existing waste facility and from the hedgerow / treelines bordering and traversing the Site. Visit 2 Individuals perched within and calling from the scrub in the quarry and from the hedgerow treelines bordering and traversing the Site.	Possible Breeding
Amber-Listed	Barn swallow	*Hirundo rustica*	6	17	Visit 1 Individuals calling from power lines traversing the Site and foraging over the vegetated berm in the existing waste facility. Visit 2 Individuals perched on powerlines traversing the Site and foraging in the agricultural grassland onsite.	Possible breeding
	Goldcrest	*Regulus regulus*	2	0	Visit 1 Two individuals perched within and calling from the hedgerow / treeline bordering the Site. Visit 2	Possible breeding

BoCCI Status	Species	Latin Name	Visit 1	Visit 2	Notes	Breeding Status
					-	
	House sparrow	*Passer domesticus*	0	9	Visit 1 - Visit 2 Eight individuals foraging in the access track into the agricultural grassland and one individual flushed from the hedgerow / treeline bordering the west of the Site.	Possible breeding
	Northern Wheatear	*Oenanthe oenanthe*	1	0	Visit 1 One individual perched within and calling from the hedgerow / treeline bordering the south of the Site. Visit 2 -	Possible breeding
	Spotted Flycatcher	*Muscicapa striata*	0	1	Visit 1 - Visit 2 One individual calling from the scrub in the existing waste facility.	Possible breeding

4 SITE ASSESSMENT

During the bird surveys undertaken at the Site, a total of 23 bird species were identified utilising the Site.

All 23 species were concluded to be '*Possibly Breeding'* in the Site; however, no species were classed as '*Confirmed* Breeding' and no active or used nests were identified within the Site boundary. These species were noted as possibly breeding due to behaviours exhibited at the time of the surveys.

The Site is primarily comprised of spoil and bare ground and agricultural grassland used for grazing livestock surrounded by hedgerow / treelines and areas of scrub. Overall, the grassland, hedgerow / treeline and scrub habitats onsite were considered to be suitable for a range of countryside bird species.

Given the fact that the Site has not experienced any significant changes since the 2023 surveys, as confirmed by the updated walkovers, it is considered that this assessment of the Site remains valid.

5 ASSESSMENT OF POTENTIAL IMPACTS

5.1 Potential Impacts on Breeding Bird Species

No active or disused nests were noted onsite, and no species were classified as '*Confirmed Breeding*' during any of the surveys. However, a number of species were classified as '*Possible Breeding*' within the Site. Overall, it is considered that potentially breeding bird species may utilise the scrub and hedgerow / treelines present on the Site to construct nests.

The Proposed Development will result in a potential loss of breeding and foraging habitat for bird species utilised the Site, given that:

- The hedgerow that traverses the Site will be removed;
- A section of a northern hedgerow will be removed to facilitate access between the WFP and the proposed extension lands; and,
- The on-site habitats will change from agricultural grassland to an active quarry.

In total, circa ('ca.') 346m of hedgerow / treeline will be removed as a result of the Proposed Development.

However, it should be noted that the Site encompasses the existing waste facility and is located within close proximity to the N81 National Road. As a result, the Site and surrounding area is currently subject to anthropogenic noise emissions.

Studies have shown that traffic noise can result in acoustic interference or masking of bird songs, which is a reduction in the distance over which bird songs can be detected by conspecifics [8]. Therefore, the masking of bird songs can make it more difficult for birds to establish and maintain their territories, attract potential mates and maintain pair bongs, all of which can result in decreased breeding success [8]. Overall, it has been shown that bird abundance, occurrence and species richness is reduced near roads and have the largest reductions when traffic levels are high [8] [9] [10]. Therefore, it is considered that birds utilising the Site and wider area will be habituated to levels of anthropogenic noise / disturbance given the present of the existing waste facility and the N81.

Furthermore, the grassland fields within the Site are currently used for grazing cattle. Therefore, given the disturbance caused by cattle through the summer months, when cattle are most likely to be in the fields, and the lack of nesting activity onsite, it is considered unlikely that the Site is considered to be a site of importance for any ground nesting bird species.

As previously mentioned, the on-site hedgerow / treelines and scrub habitats offer suitable nesting habitat for a range of common bird species. However, these habitats are common within the wider area and no active or trace nests were identified onsite during the breeding bird surveys. Therefore, it is concluded that the Site is not a site of importance for any breeding bird species.

The retained boundary hedgerow / treelines will be bolstered with additional planting at the commencement of Site operations for additional screening, ca. 802m in length. Following completion of the Proposed Development, as part of the restoration of the Site, the quarry will be restored to agricultural grassland and the hedgerow that traverses the Site that was removed will be reinstated and enhanced.

However, in order to ensure no effects occur to nesting birds during the vegetation removal works, appropriate mitigation measures will be implemented.

6 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

6.1 Breeding Birds

Construction Phase

In order to ensure no impacts occur to breeding bird species the following measures will be implemented:

- As per Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches will be restricted during the nesting and breeding season for birds and wildlife, from 1st March to 31st August;
- In the event that vegetation clearance works need to be undertaken within the breeding season, the following measures will be implemented:
    - Prior to any clearance works commencing, the Ecological Clerk of Works ('ECoW') will survey the Site appropriately;
    - The ECoW will consult with the NPWS;
    - Immediately prior to any vegetation removal the ECoW will inspect the Site; and,
    - All vegetation clearance works will be undertaken in a systematic way under the direction and supervision of the ECoW.
- In the unlikely event that birds nest within the active working area during the works, all works will stop within the immediate area and the project ECoW will be consulted.

Operational Phase

The Operational Phase will result in increased noise levels on-site. However, it is considered that birds within the area are habituated to high levels of noise due to the proximity of the Site to the busy N81 national road and the presence of the existing waste facility in the north of the Site, which previously operated as a quarry.

6.2 Enhancement Measures

6.2.1 Restoration Plan

Following cessation of the quarry activities at the Site, a Restoration Plan for the Site will be implemented. Details of the quarry Restoration Plan are attached in Appendix 6-1 of the EIAR.

The Restoration Plan has taken into account the species identified during the Site surveys and the species that will likely utilise the area following completion of the works. The Restoration Plan also aims to create and enhance habitats within the vicinity of the Site in the Lands Under Applicant's Interest.

Restoration within the Site boundary will involve:

- Enhancing the existing boundary hedgerows to the south, east and west with native tree and shrub species;
- Restoring the Site to agricultural grassland; and,
- Re-planting the central hedgerow that will be removed.

It should be noted that the hedgerow to be removed was noted as being heavily managed at the time of field surveys. This hedgerow will be re-planted during the restoration phase with native species to become a well-established hedgerow / treeline, which will benefit nesting

birds. Additionally, the settlement pond created during operations will be retained and enhanced to create a biodiverse waterbody onsite. This pond will be ca. 13m by 60m in size and will be planted with a wet meadow mix as part of the restoration plan onsite. This will provide suitable habitat for wetland and waterbirds.

Restoration within the Lands Under Applicant's Interest involves fencing off an area to undergo natural regeneration, creation of a pond, creation of hibernacula habitats and scrub management and tree planting.

It is considered that the scrub management and tree planting habitat will provide nesting, foraging and commuting habitat for birds within the local area. Once established, it is considered this scrub management and tree planting habitat will compensate for the hedgerow removal required to facilitate the Proposed Development. Additionally, the creation of the pond adjacent to the Carrigower River may provide habitat for wetland and waterbirds in the area. It is considered that the implementation of the Restoration Plan will be an improvement to the current habitats within the Lands Under Applicant's Interest.

In addition, the Site will be subject to an updated ecological assessment in advance of the implementation of the Restoration Plan to ensure that the recommendations remain relevant and to ensure that the works required to implement the plan will not result in any impacts on biodiversity or breaches of relevant wildlife legislation.

7 CONCLUSIONS

Two breeding bird surveys were undertaken onsite in August and September 2023. 23 different species were recorded across the two surveys, including:

- 18 Green-listed BoCCI, were recorded – blackbird, blue tit, bullfinch, chaffinch, chiffchaff, coal tit, dunnock, goldfinch, great tit, hooded crow, jackdaw, magpie, pied wagtail, reed bunting, robin, rook, woodpigeon and wren. Of these, two are annex I species: coal tit and chaffinch; and,
- Five Amber-listed BoCCI, non-annex I species were recorded – barn swallow, goldcrest, house sparrow, northern wheatear and spotted flycatcher.

All surveys have been completed in accordance with recent recommended best practice guidance and by suitably qualified and experienced ecologists with appropriate ornithological experience. According to CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys, survey data that is 12-18 months old can still remain valid following an updated survey by a professional ecology and updated desk-based assessment to confirm that the Site has not experienced significant change and the local distribution of species in the wider area around the Site has not changed [6]. Following the updated surveys undertaken on the 17th January 2024 and 28th February 2025, it was concluded that onsite habitats and the habitats in the wider area had not changed since 2023 and that the results of the 2023 breeding bird surveys remain valid. Therefore, the survey effort is deemed appropriate for the Site.

During the surveys, no species were classified as '*Confirmed Breeding*', and no active nests nor signs of nest buildings were recorded within the Site. In total, all 23 species were observed displaying territorial behaviours and were classified as '*Possible Breeding.'*

The onsite grassland, hedgerow / treeline and scrub habitats are considered to provide suitable nesting and foraging habitat for breeding bird species; however, given the regular anthropogenic activity onsite and in the wider area and the fact that these habitats are common within the wider area, it can be concluded that the Site is not a site of importance for any species.

Overall, given the regular anthropogenic noise emissions experienced onsite, the common species present, the absence of confirmed breeding / nests within the Site and the implementation of mitigation measures, it can be concluded that the Proposed Development will not have a significant impact on birds.

8 REFERENCES

[1] National Parks and Wildlife Service, "National Parks and Wildlife Service," 2025. [Online]. Available: https://www.npws.ie.

[2] NBDC, "National Biodiveristy Live Maps," 2025. [Online]. Available: http://maps.biodiversityireland.ie/.

[3] J. Fossitt, "A Guide to Habitats in Ireland," 2000.

[4] G. Smith, P. O'Donoghue and K. &. D. E. O'Hara, "Best Practice and Guidance for Habitat Surveying and Mapping," Heritage Council, 2011.

[5] BTO, "Common Bird Census in Bird Monitoring Methods".

[6] CIEEM, "Advice Note on the Lifespan of Ecological Reports and Surveys," CIEEM, 2019.

[7] Gilbert, G., Stanbury, A., and Lewis. L., "Birds of Conservation Concern in Ireland 2020 - 2026," *Irish Birds,* vol. 9, pp. 523-544, 2021.

[8] K. Parris and A. Schneider, "Impacts of traffic noise and traffic volume on birds of roadside habitats," *Ecology and Society,* vol. 14, no. 1, 2008.

[9] P. Summers, G. Cunnington and L. Fahrig, "Are the negative effects of roads on breeding birds caused by traffic noise?," *Journal of Applied Ecology,* 2011.

[10] R. Forman, B. Reineking and A. Hersperger, "Road Traffic and Nearby Grassland Bird Patterns in a Suburbanizing Landscape," *Environmental Management,* vol. 29, pp. 782-800, 2002.

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APPENDIX 8

APPENDIX 8-1

AN ROINN COMHSHAOIL AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT AND LOCAL GOVERNMENT

WELL RECORD

Geological Survey of Ireland

Water Supply Improvement Grant Scheme — **Groundwater Database**

Drilling Contractor: O'Rourke Well Drilling

Address: Bolwarush, Bunclody. Co. Wexford

Date of drilling: 12-11-21 **Ref. No:** N/A

Well Owner: [redacted]

Address: [redacted]

Well location:

East boundary ditch

County: Wicklow **Townland:** Whitestown lower

For GSI use only

Well No.

Alt. 141 m

E53.0075118
N-6.6376345

Accuracy

6" sheet

Well Details	Drilling method:	Rotary			
	Depth of well:	240	feet		metres
	Diameter:	6	inches		mm
	Depth of lining:	20	feet		metres
	Diameter of lining:	6	inches		mm
	Depth to Bedrock:	15	feet		metres
	Type of Subsoil:	Clay and inter shale			
	Type of Bedrock:	Ordovician Volcanic Rock			
Water entry levels:		115 and 213	feet		metres
Depth to any cavities met in drilling:		210 - 215	feet		metres
Static water level below ground:		40	feet		metres
Measured pumping rate:		500	gph		m3/d
Duration of pumping:		1	hours		
Drawdown during pumping:		20	feet		metres
N.B. (= Pumped Water Level - Static Water Level)					
Estimated maximum safe yield:		450	gph		m3/d

Indicate if there are detailed records

Pumping test:

Chemical analysis of water sample:

Bacterial analysis of water sample:

Remarks (e.g. any unusual features):

AN ROINN COMHSHAOIL AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT AND LOCAL GOVERNMENT

WELL RECORD

GSI Geological Survey of Ireland

Water Supply Improvement Grant Scheme — **Groundwater Database**

Drilling Contractor: O'Rourke Well Drilling
Address: Belmesh, Bunclody Co. Wexford
Date of drilling: 11-11-21 **Ref. No:** N/A
Well Owner: [redacted]
Address: [redacted]

For GSI use only

Well No.

Alt. 142 m

Well location: Beside wash bay

E53.0074870
N-6.6380878
Accuracy

County: Wicklow **Townland:** Whitestown lower

6" sheet

Well Details	**Drilling method:**	Rotary			
	Depth of well:	300	feet		metres
	Diameter:	6	inches		mm
	Depth of lining:	20	feet		metres
	Diameter of lining:	6	inches		mm
	Depth to Bedrock:	10	feet		metres
	Type of Subsoil:	Shale			
	Type of Bedrock:	Greywacke			
Water entry levels:		60	feet		metres
Depth to any cavities met in drilling:		None	feet		metres
Static water level below ground:		40	feet		metres
Measured pumping rate:		100	gph		m3/d
Duration of pumping:		1	hours		
Drawdown during pumping:		200	feet		metres
N.B. (= Pumped Water Level - Static Water Level)					
Estimated maximum safe yield:		80	gph		m3/d

Indicate if there are detailed records

Pumping test:
Chemical analysis of water sample:
Bacterial analysis of water sample:

Remarks (e.g. any unusual features):

APPENDIX 8-2

SECTION 3

TABLE OF CONTENTS

LIST OF TABLES

3. THE EXISTING ENVIRONMENT, EMISSIONS, MITIGATION MEASURES & LIKELY SIGNIFICANT IMPACTS

Note: Figures referred to are contained in EIS Volume II, Appendices. Drawings referred to are contained in EIS Volume III, Drawings.

This section of the EIS is broken into ten different subsections as follows:

- Air
- Climate
- Cultural Heritage
- Ecology
- Human Beings
- Traffic
- Soils, Geology, & Groundwater
- Landscape
- Noise
- Surface Water
- Material Assets
- Interrelationships

Each of these subsections are further sub divided into the following subsections:

- **Existing Environment** – In this report the author has interpreted the term 'Existing Environment' to refer to the environment as it pertains to a particular parameter (e.g. dust, odour etc.)
- **Potential Emissions** – In this report the author has interpreted the term 'Potential Emissions' as being those emissions, which have historically been associated with similar type operations at other geographic locations.
- **Description of Likely Impacts** – In this report the author has interpreted the term 'Likely Impacts' as those impacts likely to take place in the event that the necessary containment and preventative measures are not incorporated in the development design.
- **Mitigation Measures** – In this report the author has interpreted the term 'Mitigation Measures' as measures to be incorporated in the design and construction of the proposed development so as to prevent or minimise its impact on the natural environment.
- **Likely Significant Impacts** – In this report the author has interpreted the term 'Significant Impacts' to mean those impacts of significance likely to occur in the event that the design of the proposed development is implemented in its entirety including all containment measures.

3.1 Air

The site of the proposed development is located immediately east of the N81, approximately 2.5 km south west of Donard and 5km north of Baltinglass in County Wicklow. The site is an existing sand and gravel pit situated on the western side of the Carrigower River valley.

The area surrounding the site is predominantly agricultural in nature, with a small number of scattered residences, farms and businesses, which are described in Section 3.5 – Human Beings.

3.1.1 Dust

3.1.1.1 Existing Environment

To determine the air quality on the site at present, a baseline survey of dust deposition rates at selected locations around the site was undertaken. Potential sources of dust in the locality at present include roadside dust, farming activities, re-suspension of soil from fields by the wind and sand from quarry site itself.

The dust monitoring took place between 9 December 2003 and 6 January 2004 (28 days) at five locations along the site boundary. Dust monitoring was carried out in accordance with the German Standard *"VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument – German Institute)".*

The dust monitoring locations are depicted on Figure 3.1.1. A summary of the results from the dust survey is depicted in Table 3.1.1. The laboratory report on dust is included in Appendix 5.

Table 3.1.1: Baseline Dust Deposition Rates, Whitestown Lower, Co. Wicklow (December 2003/January 2004)

Monitoring Point	Location	Dust Deposition Rate ($mg/m^2/day$)
D1	Southern site boundary	27.7
D2	Eastern site boundary	33.3
D3	North eastern site boundary	22.2
D4	North western site boundary	11.1
D5	At site entrance (western boundary)	16.6

Dust deposition rates across the site ranged from 11.1 $mg/m^2/day$ to 33.3 $mg/m^2/day$.

The results of the dust deposition survey suggest that the existing environment displays low dust deposition rates for a rural agricultural environment; it is understood ranges from 0–60 mg/m^2/day, with values of up to 80–120 mg/m^2/day in urban locations. These levels are low, considering the site is an open sand and gravel pit. It is noted however, that during the dust survey, no extraction activities were being carried out. Coupled with this, the survey was undertaken during winter months.

It is understood that an emission limit value, normally specified by the EPA for waste management facilities, is typically 350 mg/m^2/day.

The spatial pattern of dust deposition may be influenced by local wind direction and strength. The prevailing wind direction is from the southwest, which would tend to blow any dust to the northeast of the site. Rainfall will also tend to reduce the rate of emission of dust. Wind direction and rainfall are discussed in greater detail in Section 3.2 - Climate.

3.1.1.2 Potential Emissions

The potential emission from the proposed development will be dust.

Dust emissions could potentially be generated from the following proposed activities:

- Further sand and gravel extraction
- Construction activities
- Excavation of previously deposited waste
- Recovery of previously deposited waste
- Traffic to and from the site
- Recovery of imported wastes
- Disposal of residual waste in a lined landfill
- Landfill capping and final site restoration activities

3.1.1.3 Description of Likely Impacts

It is expected that there will be some increase in dust generation as a result of the proposed activities; however, it is likely that dust generation will remain below the accepted EPA emission limit, with proper site management.

Dust concentrations may temporarily exceed the EPA emission limit at certain dust monitoring locations during potentially high dust generating activities (e.g. construction) and during dryer weather. The impact from these temporary exceedances will be short-term

3.1.1.4 Mitigation Measures

Mitigation measures will be put in place as required to avoid nuisance to surrounding residences and roadways. These will include the following where necessary:

- Providing macadam or similar material on access roads to the Resource Recovery Building (RRB),
- Using of dust suppression measures within the RRB,
- Retaining and enhancing existing vegetation at the site perimeter,
- Using dust suppression measures including temporary wheelwash facilities to prevent material being transferred to external roads during operations at the site,
- Using a bowser to distribute water on haul roads,
- Wetting down of dry areas during site construction,
- Limiting the use of the Mobile Recycling Unit (MRU) during extended periods of dry weather.

3.1.1.5 Likely Significant Impacts

It is predicted that there will be increased dust production upon commencement of the proposed development.

With the implementation of the mitigation measures however, the increased dust concentrations will not result in significant impacts on the surrounding environment.

Ultimately the proposed development (i.e. restoration of the pit) will have a net positive impact by replacing the existing area of bare exposed sand & gravels and soil with vegetated surfaces.

All of the likely impacts associated with dust have been addressed and mitigation measures proposed where necessary to ensure that the impacts remain at acceptable levels.

3.1.2 Odour

3.1.2.1 Existing Environment

During the December 2003 to February 2004 investigations, odours were observed during the excavation of trial pits in the vicinity of monitoring wells. These odours were associated with the previously deposited wastes.

3.1.2.2 Potential Emissions

A potential emission from the proposed development will be odour. Odorous emissions could potentially be generated from the following proposed activities:

- Excavation of previously deposited wastes
- Recovery and management of previously deposited materials,
- Recovery and management of incoming non-hazardous Commercial & Industrial, Household and Construction & Demolition wastes,

3.1.2.3 Description of Likely Impacts

It is expected that there will be some odorous emissions during the excavation, recovery and management of previously deposited materials. These processes will take place in phases over a total period of ca. 3 years; thus any adverse impact from odorous emissions will be short-term.

Odours may be generated as a result of the processing of wastes in the RRB.

3.1.2.4 Mitigation Measures

Mitigation measures will be put in place as required to avoid nuisance to surrounding residences and roadways. These will include the following operating procedures where necessary:

- Many of the waste handling procedures will be carried out indoors in the RRB.
- Extraction fans with filters will be in operation to control odour levels within the RRB.
- All putrescible wastes will be passed into the composting tunnels. These tunnels are kept aerated to avoid the generation of odours.
- The composting tunnels also have a biofilter to treat any odours coming off the process.
- As a contingency, a recognised odour suppressant product would be kept on the proposed site.
- All wastes will be covered on a daily basis following disposal in the lined landfill.
- A walkover survey of the site will be undertaken by personnel on the site on a daily basis. Any activities resulting in the generation of odours at the site boundary will be reviewed, with a view to eliminating the source of the odour.

It is noted that a baseline Odour Survey will be carried out at the facility, prior to commencement of waste management activities.

3.1.2.5 Likely Significant Impacts

Currently there are no activities on the site; however, odours were identified which are associated with the previously deposited wastes.

If the amount of putrescible materials in the waste is high, the potential for an environmental impact is greater than if there is little or no putrescible material backfilled (as is expected). Without the proposed mitigation measures, it is anticipated that that there will be an impact on the surrounding environment.

However, with the aforementioned mitigation measures in place, it is anticipated that there will be little or no impact on the surrounding environment but to the immediate area within the site.

3.1.3 Waste Biodegradation Gas

3.1.3.1 Existing Environment

As indicated in the Preliminary Risk Assessment Report (Appendix 9), landfill gas was observed from a number of borehole monitoring locations and from spike surveys undertaken in the waste zones A to C inclusive. In particular elevated levels of methane were observed at a number of locations.

3.1.3.2 Potential Emissions

There is the potential for the formation of Waste Biodegradation Gas at a number of locations at the facility as described in Section 2. The major source of gas will be from the wastes deposited in the lined landfill.

Biodegradable wastes that are not recovered during the processing of wastes at the site, which will result in the generation of gases include paper, wood, and a small percentage of putrescible wastes. The amount of gases generated from biodegradable wastes is quantified in Section 2 of this EIS.

3.1.3.3 Description of Likely Impacts

Due to the deposition of biodegradable wastes in a lined landfill, gases will be produced as a result of this development.

3.1.3.4 Mitigation Measures

Gases are likely to be generated in the landfill within ca. 2 years of initiation of disposal activities. At this stage gas will be extracted from the landfill using active systems. This system will be extended and maintained

for the duration of the project and for years following closure of the facility.

The 'Landfill Gas' will be passed through a flare system, and possibly through a gas utilisation plant, depending on the levels of gas extracted.

Where possible, biodegradable wastes will be recovered during processing at the RRB.

3.1.3.5 Likely Significant Impacts

It is predicted that there will be no significant impacts upon air quality caused by the generation of landfill gases. All of the impacts, which have been identified, have been addressed and mitigation measures proposed where necessary to ensure that the impacts remain at acceptable levels.

3.2 Climate

The Irish climate is subject to strong maritime influences, the effects decreasing with increasing distance from the Atlantic coast. Since no area of the country lies more than 120 km from the sea, the range of mean temperatures across the country is narrow.

Data from Met Éireann, the Irish meteorological service that operates monitoring stations at a number of locations around the country, indicates that December, January and February are generally the coldest months of the year. Most areas of the eastern half of the country (which includes the location of the proposed facility) experience rainfall in the region of 750-1100 mm per annum.

3.2.1 Existing Environment

There is no continuous meteorological monitoring station located uniquely close to the site of the proposed development. Comprehensive meteorological data is available for Casement Aerodrome, which is approximately 40 km northwest of the site.

An analysis of mean monthly temperatures and precipitation rates for Casement Aerodrome is presented in Table 3.2.1. Mean monthly temperatures for the area are in the range 4.6 to 15.2°C, with mean monthly precipitation rates in the range 50.7 mm in June to 73.1 mm in January. The average annual precipitation rate at Casement is 711.5 mm.

Table 3.2.1: Climate Data for Casement Aerodrome (1968 - 1996)

Month	Mean Temp °C	Mean Rainfall (mm)	Potential Evapo-transpiration (mm)	Effective Rainfall (mm)[1]
January	4.9	68.7	9.1	59.6
February	4.6	50.7	19.0	31.7
March	6.0	53.8	36.0	17.8
April	7.5	49.9	55.5	-5.6
May	10.1	56.6	77.0	-20.4
June	13.1	53.0	89.2	-36.2
July	15.2	48.9	87.9	-39.0
August	14.8	63.7	71.3	-7.6
September	12.6	58.7	47.4	11.3
October	10.1	67.2	23.6	43.6
November	6.7	67.2	8.9	58.3
December	5.6	73.1	5.2	67.9
Monthly Average	9.3	59.3	44.2	15.1
Annual Total	-	711.5	530.1	181.4

Note 1: Effective Rainfall = Mean Rainfall – Potential Evapo-transpiration

Analysis of the monitoring data from the meteorological station at Casement Aerodrome from 1968 - 1996 shows that the dominant wind direction is from the S-SW-W quadrant, with an annual incidence of about 55%. The annual average wind speed is approximately 5.6 m/s with wind speeds of < 5 m/s occurring for 33 % of the year and wind speeds in excess of 6 m/s occurring for 42 % of the year. Wind speed and direction can impact the dispersal of potential nuisances (e.g. dust, odour).

In addition, a small quantity of rainfall data was available for two locations close to the site i.e. Donard and Glen of Imall. This data is presented in Table 3.2.2. As the site is situated between approximately 140 to 165 mOD, the rainfall data recorded at these two nearby stations is considered to be more representative of the likely rainfall at the site.

3.2.2 Potential Emissions

Potential emissions are discussed in Section 3.1 (Air).

3.2.3 Description of Likely Impacts

Likely impacts from air emissions are discussed in Section 3.1 (Air).

Table 3.2.2: Rainfall Data for Donard and Glen of Imall

Location	Grid Reference	Height* (metres)	Time Period
Donard	S930977	183	1961 - 1984
Glen of Imall	S972946	213	1961 - 1990

Month	Rainfall (mm)	
	Donard	Glen of Imall
January	113	143
February	80	99
March	87	107
April	73	88
May	86	96
June	73	80
July	68	79
August	96	105
September	97	107
October	108	123
November	101	121
December	123	145
Monthly Average	92.1	107.8
Annual Total	1105	1293

*** Height above Sea Level**

3.2.4 Mitigation Measures

Mitigation measures to avoid impacts from air emissions are discussed in Section 3.1 (Air).

3.2.5 Likely Significant Impacts

Likely significant impacts from air emissions are discussed in Section 3.1 (Air).

3.3 Cultural and Archaeological Heritage

A full report on Cultural and Archaeological Heritage was prepared by Cultural Resource Development Services Ltd. (CRDS), of Dublin, and is included in Appendix 6, Volume II of the EIS.

3.3.1 Existing Environment

There are a number of archaeological sites and monuments within 1.5km of the site. They are summarised in the CRDS report.

There are no recorded archaeological monuments within the boundary of the proposed development at Whitestown Lower, Co. Wicklow and no unrecorded archaeological monuments encountered during fieldwork component of the cultural heritage assessment.

3.3.2 Potential Emissions

As there were no recorded or unrecorded archaeological monuments within the area proposed for restoration, there are no emissions associated with the proposed development.

3.3.3 Description of Likely Impacts

As there were no recorded or unrecorded archaeological monuments within the area for restoration, there are no impacts associated with the proposed development.

3.3.4 Mitigation Measures

As there were no recorded or unrecorded archaeological monuments within the area for restoration, no mitigation measures are necessary.

3.3.5 Likely Significant Impacts

There will be no impacts on Cultural and Archaeologic Heritage as a result of the proposed development.

3.4 Flora and Fauna

Natura Environmental Consultants Ltd. (Natura) was retained to undertake a detailed baseline ecological survey of the Whitestown site. This work was undertaken between December 2003 and March 2004. A copy of Natura's March 2004 Report is included in Appendix 7 of the EIS.

Roger Goodwillie & Associates was retained to review the baseline report and undertake an impact assessment of the potential impacts of the proposed development in terms of flora and fauna. A copy of the March 2004 Goodwillie Report is also included in Appendix 7 of the EIS.

A synopsis of the two reports is provided in the following sections.

3.4.1 Existing Environment

A detailed description of the receiving environment is outlined in the Natura Report entitled 'Whitestown Lower Gravel Pit Baseline Ecological Survey' March 2004 (Appendix 7).

In summary, as depicted in Figure 3.4.1, the site extends towards the southeast where it meets the Carrigower River. The Carrigower River and its adjacent floodplain are now included within the River Slaney candidate Special Area of Conservation (cSAC) (site code no.000781). It is understood that the River Slaney cSAC was extended in May 2003 to include the Carrigower River on account of its importance as a spawning tributary.

Following a detailed ecological baseline study, which was undertaken in January/February 2004, the study found that the Carrigower River and adjacent floodplain are part of the River Slaney cSAC and are thus of international importance (under EU Habitats Directive – 92/43/EEC). The presence of abundant salmonids spawning habitat in the river along with extensive signs of otter activity adds to the value and importance of this site (Reference - Natura March 2004 Report).

The EPA has undertaken river quality assessments between 1995 to 1997 and 1998 to 2000 in the River Carrigower ("Water Quality in Ireland" 1998 and 2002 references). For both EPA monitoring events, the river quality in the Carrigower was unpolluted for 5 km (Class A) and slightly polluted for 3 km (Class B). It is understood from these sampling events, that the unpolluted 5 km stretch of the Carrigower in the 1995 to 1997 and 1998 to 2000 assessments includes the river stretch adjoining the Whitestown Lower site.

A Q rating of 3-4 (slightly polluted status) in the March 2004 Natura Report, has subsequently been given to the Carrigower River, both upstream, adjacent and downstream of the site.

From the historical EPA results and the more recent Natura sampling event (10 February 2004), it is observed that the Carrigower river quality adjoining the site, which includes upstream and downstream, has deteriorated over the last ca. 10 years.

3.4.2 Potential Emissions

Potential emissions associated with the proposed development include:

- Surface water runoff during the initial construction phase. This runoff may include elevated levels of suspended solids.
- Leachate runoff during the excavation of previously deposited wastes.
- Surface water runoff during ongoing site development works.
- Dust generation during the construction phases and the processing on-site of previously deposited wastes.
- Leachate release from the fully engineered lined landfill.

3.4.3 Description of Likely Impacts

As the majority of the site will be backfilled over a ten-year period, any habitats found within the area for backfill will be removed. It is noted that the site is predominantly exposed sand and gravel (ED1) and recolonising bare ground (ED3) with some artificial surfaces (BL3). Proposed development at the site will include the removal of the following habitats:

- Small areas of scrub (WS1) (low to moderate impact of local significance).
- Nesting colony of sand martins (moderate negative impact of local significance).
- Badger sett (moderate negative impact of local significance).

As indicated in the Natura Report, the small areas of scrub are of moderate local ecological value. It is noted that ca. 50 sand martin burrows were identified and the badger sett was identified as disused.

3.4.4 Mitigation Measures

A comprehensive landscaping programme is proposed for the site during and upon completion of the proposed site development. This will include the development of additional tree lines, tree copses and well-managed hedgerows.

As indicated in the Goodwillie 2004 Report (Appendix 7), a sensible precaution would be to establish a natural willow wood on the floodplain. Movement of leachate, if any, would occur on the surface layer of the watertable and would therefore be available to tree roots. Willow beds are

currently being planted for waste-water treatment and are becoming accepted in Ireland. Without grazing they would also be a natural part of all river floodplains. In these situations they act as a filtration and nutrient extraction system, converting nutrient ions into biomass and reducing loading on surface waters. A wood using native species would be totally compatible with the cSAC status of the valley and would in fact enhance it.

All backfilling activities will be undertaken outside the sand martin breeding season. This will result in the sand martins finding suitable nesting areas in the locality as there are a number of well-established sand and gravel operations in the immediate vicinity of the Whitestown site.

If the identified badger sett is being used during the initiation of the proposed development, the sett will be relocated by an established ecologist using the best available methodology.

The proposed development will be designed in accordance with established EPA guidelines. This includes a fully engineered lining system, leachate management system, and surface water control infrastructure. All these engineering systems will be agreed with the Agency prior to acceptance of wastes at the proposed facility, and are intended to avoid any impacts on the adjoining surface water network.

During the construction of the facility, all steps will be taken to ensure that the adjoining surface water will not be impacted upon. This will include a comprehensive phasing programme to avoid the storage of soils, thus avoiding the potential for elevated suspended solids in the adjoining River Carrigower.

As described in the Air Section of the EIS, mitigation measures such as dust suppression measures using water bowsers will be used to reduce the potential of elevated dust levels during construction and operation of the proposed development.

In terms of positive impacts, the landscaping plans, as outlined in Section 3.8 of the EIS, will include the enhancement of existing hedgerows, and the planting of new hedgerows and wood stands and copses. This will provide additional habitat corridors thus enhancing existing flora and fauna. The planting of the flood plain as proposed by the Goodwillie report will further enhance existing species diversity in the environs of the site.

3.4.5 Likely Significant Impacts

The most likely scenario is for the development to operate properly and cause no significant impact on the river or the Slaney cSAC. However, as long as the waste material is breaking down there is always a risk of

leachate escape and migration into the river catchment. Engineering methods are available to recover such leachate but they are not always totally satisfactory. There is thus the possibility of a temporary negative impact on the River Carrigower and associated cSAC, which would continue for 10 years or so after the completion of the landfill (Goodwillie Report, March 2004).

The worst case is for the river to be polluted over an extended period by ammoniacal nitrate, which is harmful to fish and causes eutrophication. The material is also produced by farm wastes so that the Carrigower is likely to have had previous incidents of inflow. The egg and juvenile phase are the most sensitive stages of salmonid fish. Mature fish resist much higher concentrations, which they experience in the lower estuaries. The downstream effects of eutrophication could also affect the pearl mussel *Margaritifera* which is sensitive to increased algal growth. Dilution from the rest of the Slaney headwaters would, however, greatly decrease this impact (Goodwillie Report, March 2004).

However, if all the above mitigation measures are undertaken, there will be no significant impacts on the flora and fauna in the vicinity of the proposed development.

As the proposed development includes the excavation and processing of previously deposited wastes, and the placing of residual wastes in a fully engineering lined facility, the potential for leachate impacting on the adjoining Carrigower River is significantly reduced.

3.5 Human Beings

The human beings section addresses the following subjects:

- Population Statistics
- Land-use and housing
- Infrastructure
- County Development Planning
- Waste Management Planning
- Local Industry
- Tourism
- Traffic

An environmental assessment of the impact of the development on human beings is provided below. A separate environmental assessment of traffic has been prepared and is included in Section 3.6.

3.5.1 Existing Environment

3.5.1.1 Population Statistics

The 2002 Census report produced by the Central Statistics Office details population figures in terms of towns and their respective populations.

The site of the proposed development is located 5 km north of Baltinglass town. The townland of Whitestown Lower is located within the Donaghmore Rural Area. The Donaghmore Rural Area lies within the Baltinglass No. 1 Rural Area.

According to the Census 2002 report the Donaghmore Rural Area has experienced a population increase of 9.9% between the years 1996 and 2002. More regionally, the Baltinglass No. 1 Rural Area has experienced an increase of 15.2% between the years 1996 and 2002 see Table 3.5.1.

Table 3.5.1: Population Statistics - Census 2002

Rural Areas	1996	2002	% change
Baltinglass No. 1 Rural Area (Co. Wicklow)	12,749	14,685	15.2
Donaghmore Rural Area	324	356	9.9

3.5.1.2 Land-use and Housing

A field investigation of houses, farms and businesses surrounding the site was undertaken on the 22nd and 23rd of January 2004. The investigation was split into houses, farms and businesses within 500m of the site and

those beyond 500m, up to 750m from the site. Derelict houses were not included in the investigation. Special focus was placed on houses, farms and businesses that were adjacent to the site or those with clear views into the site.

Houses, farms and businesses are depicted on Figure 3.5.1. To facilitate the description of the various locales surrounding the site the area has been divided into quadrants. These are described in Table 3.5.2.

Table 3.5.2: Location and Number of Houses, Farms and Businesses Surrounding the Site.

Quadrant	Distance from site	Location	Townland	General description of views into site	No. houses/ Farms/ Businesses
1	<500m	North to east of site	Whitestown Lower, Road **L4320**	Site is visible from the business east of the site along road L4320	1
2	<500m	East to South of site	Whitestown Lower, Castleruddery Upper, Roads **L8320** & **L4320**	Site is visible from 4 houses southeast of site	5
3	<500m	South to West of site	Whitestown Lower, Castleruddery Upper, Road **N81**	House adjacent to site has view into site others do not.	3
4	<500m	West to North of site	Whitestown Lower, Road **N81**	Business opposite the site has view into site entrance	5
Total					**14**
1a	>500m	North to east of site	Newtown, Ballylion Lower, Deerpark, Road **L4320**	No views from houses into site	10
2a	>500m	East to South of site	Castleruddery Upper, Donaghmore, Roads **L8320** & **L4321**	No views from houses into site	16
3a	>500m	South to West of site	Randalstown, Roads **N81**, **L4321**, **L8299**, **L8321**.	No views from houses into site	16
4a	>500m	West to North of site	Whitestown Upper, Road **L8814**	No views from houses into site	13
Total					**55**

3.5.1.2.1. Houses, Farms and Businesses within 500m of site

Quadrant 1

There is one business in Quadrant 1, as denoted in Table 3.5.3 and depicted in Figure 3.5.1. This business, Chrysalis Holistic Centre, is located east of the site. The site is visible from the business.

Table 3.5.3: Houses, Farms and Businesses in Quadrant 1

Description	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Houses	0	5	2	2
Mobile Home	0	0	0	0
Homes with Farms	0	0	0	2
Home with quarry	0	0	0	0
Quarry	0	0	1	0
Home with Business	1	0	0	1
ESB power station	0	0	0	0
House under construction	0	0	0	0
Total	**1**	**5**	**3**	**5**

Quadrant 2

There are five houses in Quadrant 2, as denoted in Table 3.5.3 and depicted in Figure 3.5.1. Two houses lie to the east of the site on Road L8320. The other three houses are along the Road L4320, southwest of the site. The site is visible from four of these houses.

Quadrant 3

There are two houses and a quarry in Quadrant 3, as denoted in Table 3.5.3 and depicted in Figure 3.5.1. Two houses lie immediately southwest of the site, along the main N81, one of which shares its property boundary with the site. The site is visible from this house. The quarry is at the junction of the N81 and Road L4321.

Quadrant 4

There are two houses, one business and two farms in Quadrant 4, as denoted in Table 3.5.3 and depicted in Figure 3.5.1. These are located along the N81. The site is not visible from these premises.

There is a business (Ellen Construction) on the N81, directly across the road from the site. The gateway into the site is visible from this business.

3.5.1.2.2 Houses, Farms and Businesses > 500m from Site

Quadrant 1a

There are eight houses and two farms in Quadrant 1a, as denoted in Table 3.5.4 and depicted in figure 3.5.1. Eight houses and one farm are located along the Road L4320 northeast of the site. A farmhouse is located to the

north of the site. The site is not visible from these houses. The other farm is located north east of the site.

Table 3.5.4: Homes and Businesses in Quadrant 1

Description	Quadrant 1a	Quadrant 2a	Quadrant 3a	Quadrant 4a
Houses	8	13	13	9
Mobile Home	0	0	0	0
House with Farm	2	1	1	4
Home with quarry	0	0	0	0
Quarry	0	0	0	0
Home with Business	0	2	1	0
House under construction	0	0	0	0
ESB power station	0	0	1	0
Total	**10**	**16**	**16**	**13**

Quadrant 2a

There are 13 houses, two houses with business and one house with a farm in Quadrant 2a, as denoted in Table 3.5.4 and depicted in Figure 3.5.1. Three houses are located along Road L8320, southeast of the site. Six houses, one house with a business and one house with a farm are located at the junction of Roads L8320 and L4321 to the southeast of the site. There are three more houses and one house with a business along Road L4321 to the southeast of the site. There is also a house south of the site along the Road L4320. The site is not visible from these premises.

Quadrant 3a

There are 13 houses, one house with a farm and one house with a business (timber yard) and one ESB power station in Quadrant 3a, as denoted in Table 3.5.4 and depicted in Figure 3.5.1. There are four houses along the Road L8299 to the south of the site. The ESB power station is located on Road L4321. A house with business (timber yard) and another house are located southwest of the site at the junction of roads N81 and L4321. There is a house to the south of the site on a private access lane off the N81. The remaining seven houses and one farm are located to the southwest of the site along Road L8321. The site is not visible from these premises.

Quadrant 4a

There are nine houses and four houses with farms in Quadrant 4a, as denoted in Table 3.5.4 and depicted in Figure 3.5.1. These houses are located alongside Road L8814 and L8321, north of the site. The site is not visible from these houses.

3.5.1.2.3 Summary

There are ca. 14 houses, farms and businesses within 500m of the site. There are a further ca. 55 houses, farms and businesses between 500m and 750m from the site. Views into the site are limited to houses directly adjacent to the site and on Road L4320. There are 11 houses and businesses on the main N81 road to the north and south of the site.

3.5.1.3 Infrastructure

The Dublin to Baltinglass Road (N81) runs along the western boundary of the site. All traffic for current and future operations at the site will access the site from this road.

The proposed facility will receive a water supply from the existing group water scheme, which is located along the existing N81 national secondary road. The predominant water demands at the site during the proposed activities will be for the offices and toilets, and dust suppression.

Sewage generated on-site by employees will be managed through an appropriately designed proprietary system (e.g. Puraflo, Biocycle).

The site will have a power connection from the existing Electricity Supply Board (ESB) single phase, which currently traverses the site from west to east along the northern boundary. This power source will be upgraded to a three-phase connection by means of an ESB transformer unit. Initial discussions have already been undertaken with the ESB. The site will also have a telephone and fax connection serviced from the existing infrastructure located along the N81.

3.5.1.4 County Development Plan

The Wicklow County Development Plan 1999 currently governs County Wicklow in terms of strategic development policies. Within this development plan, a number of policies are outlined which are relevant to the proposed remediation and restoration project at the site, and are detailed in this section.

3.5.1.4.1 Landscape Zone

The County Development Plan (1999) divides County Wicklow into four landscape zones:

1. Outstanding Natural Beauty
2. Special Amenity
3. Rural Area
4. Corridor Area

The site is located in a 'corridor area' zone, with medium vulnerability. According to the Development Plan (1999):

"This landscape zone covers the main access corridor areas of County Wicklow".

The 'corridor area' zone of County Wicklow is subdivided into two i.e. the Eastern Corridor and the Western Corridor. The Western Corridor is focused on the N81 road from Dublin, through Blessington on towards Baltinglass. The site is located along this road 2.5 km southwest of Donard and 5 km north of Baltinglass.

Section 3.3.14 of the Development Plan states that:

"The council will maintain the lands within 100 metres of the national routes (N11 and N81) free of development..."

3.5.1.4.2 Settlement Strategy

The settlement strategy for County Wicklow is also outlined in the County Development Plan (1999). The plan states that:

"The Council will encourage housing, industry and other development to locate in existing towns and villages that have the basic social, community and physical infrastructure or where these can be provided or expanded most economically or where there are specific zones for specific uses within the County."

The strategy identifies Baltinglass as a primary growth centre. Donard has been identified as a village housing, industry and other development will be encouraged.

3.5.1.4.3 Waste, Effluent and Emission Control

Section 2.6.4 of the County Development Plan (1999) outlines the Councils policy objectives with regard to waste, effluent and emission Control. Of particular reference are the following objectives:

- *"To protect existing groundwater aquifers, surface waters and coastal waters from pollution."*
- *"To have regard to its duty under section 38(1) of the 1996 Waste Management Act, to provide and operate or arrange for the provision and operation of, such facilities as may arise for the recovery and disposal of household waste arising within its functional area."*
- *"To monitor the production storage and movement of hazardous and dangerous waste within the county."*

3.5.1.4.4 Extractive Industry

Section 2.8.13 of the County Development Plan (1999) states that:

"The Council will facilitate the operations of the extractive aggregates industry where they conform to the principle of sustainability and do not adversely affect residential, environmental or tourism amenities."

Section 3.13.6 of the County Development Plan (1999) states that:

"The working, landscaping, restoration and after care of the site will be carried out to the highest standards in accordance with an approved scheme. The scheme will incorporate progressive restoration where practical".

3.5.1.4.5 Towns and Villages of Streetscape Value

A number of towns and villages are set out in the County Development Plan (1999) as "Towns and Villages of Streetscape Value". This means that *"Special consideration will be given to the protection of the existing streetscapes and urban design qualities"* of a number of towns and villages.

Baltinglass and Donard have been identified in the list of towns and villages of streetscape value. The proposed development will not impact on the streetscape value.

3.5.1.4.6 Waste Management

The County Development Plan (1999) states the following with regard to waste management:

- *"The Council will provide for waste disposal sites as necessary in accordance with the needs arising within County Wicklow and Council Waste Management Plans."*
- *The Council will enforce the provisions of the Waste Management Act 1996..."* (Section 3.7.2).
- *"The Council will ensure that the highest standards of the GSI Groundwater Protection Code of Practice (review) and the Draft Landfill Directive (review) (including amendments) are met" (Section 4.6.2).*

The development of this facility, including the lining of the site encompassing this existing landfill can assist the County in meeting its obligations under Section 38(1) of the Waste Management Act, *"to provide and operate or arrange for provision and operation of such facilities as may arise for the recovery and disposal of household waste arising within it functional area"* (Section 2.6.4).

3.5.1.5 Waste Management Plan for County Wicklow

The County Wicklow Waste Management Plan (2000-2004) states the following with regard to the management of wastes in County Wicklow.

"The proposed short term disposal solution is in keeping with National Policy on waste management in that it pursues greater private sector involvement..." (Section 4.5.3).

"There is a need to provide for landfill space in the County for the domestic, commercial and industrial waste it produces" (Section 4.7.4).

The County Wicklow Waste Management Plan (2000-2004) also sets out the following policy with regard to waste disposal, recycling and recovery:

"To ensure the provision of a new landfill for municipal and similar non-hazardous waste (household, commercial, industrial) in the County..." (Section 4.7.4).

"To provide for more recycling capacity for C/D waste. This should sort and recover aggregate and stones, and any other material present such as timber, metal, plastic etc." (Section 4.7.8).

"To seek to use recovered C/D waste (mainly aggregate) in so far as possible in building and development works carried out by the Council." (Section 4.7.8).

3.5.1.6 Public Consultation

A public consultation document was delivered to 37 premises in the vicinity of the proposed development on Friday 20 February 2004. The premises to which the document was delivered are depicted in Figure 3.5.2. The document outlined details of the proposed development, measures to minimise the environmental impact and details of the environmental benefits of proposed activities.

As part of the planning and waste licensing processes, the public were invited to submit their comments regarding the proposed development by post before 5 March 2004.

A copy of the public consultation document is included (overleaf).

A total of 6 objections were submitted. Table 3.5.5 depicts a summary of the objections raised by residents in the submissions.

Table 3.5.5: Objections submitted by residents in response to Public Consultation Document

Objection No.	Timescale	Health Concern	Traffic	Noise	Dust	Natural Environment	General Concerns
1	✓						
2	✓	✓	✓			✓	
3	✓	✓	✓			✓	
4			✓	✓	✓		
5		✓	✓			✓	
6							✓

3.5.2 Potential Emissions

Potential emissions i.e. dust (Section 3.1.1), odour (Section 3.1.2), noise (Section 3.9), groundwater (Section 3.7) and surface water (Section 3.10) are dealt with individually in this section.

Traffic is dealt with in Section 3.6.

It is not thought that the proposed development will negatively affect/contravene population, land-use and housing, County/Local Plans, local industry and tourism.

3.5.3 Description of Likely Impacts

The most likely impacts in relation to dust, odour, traffic, groundwater, noise and surface water. As mentioned previously, these impacts are dealt with in detail in sections 3.1.1, 3.1.2, 3.6, 3.7, 3.9 and 3.10.

3.5.4 Mitigation Measures

Mitigation measures for dust, odour, traffic, groundwater, noise and surface water are described in their respective sections.

In short, measures will be taken to minimise the aforementioned and reduce any potential impacts on human beings.

3.5.5 Likely Significant Impacts

If the appropriate measures are taken it is not envisaged that the development will have a significant impact on human beings.

It should be noted that the overall goal of the proposed development is to restore this site to its original or close to its original contours.

Proposed Rehabilitation and Restoration of
O' Reilly's Pit,
Whitestown Lower,
Co. Wicklow.

Invitation for Public Comment

To Whom It May Concern:

Brownfield Restoration (Ire.) Ltd. are proposing to rehabilitate and restore a disused 14.6 ha site, known as O' Reilly's Pit, at Whitestown Lower, Co. Wicklow. A number of activities will be carried out during the course of the restoration programme as follows:

- *Development of site infrastructure i.e. roads, drainage systems, buildings and offices*
- *Excavation and processing of all wastes previously deposited at the site*
- *Processing and treating wastes, using appropriate technology, including household, commercial, industrial, and construction/demolition wastes*
- *Depositing the residues of the waste treatment processes in a fully engineered waste management facility on site*
- *Restoring the land to a greenfield, as it was prior to gravel extraction and waste disposal, within a 10 year period*

The extent of the proposed lands for which a Waste Licence Application and Planning Application will be lodged, is outlined on the attached drawing.

Measures to Minimise Environmental Impact

- *All elements of the development will meet the stringent requirements of the Environmental Protection Agency (EPA) in regard to design, operation and monitoring of waste management facilities.*
- *A full landscaping programme including planting and screening berms will be implemented throughout the restoration process.*

Environmental Benefits of Proposed Activities

- *The current environmental risks associated with previously deposited wastes on the site will be eliminated*
- *A disused visually unappealing site will be removed from the landscape*

As part of the planning and waste licensing processes, you are invited to submit your comments regarding the proposed development outlined above. Further details on the proposed development and an Environmental Impact Statement will be available for viewing at the offices of the EPA or Wicklow County Council in due course.

Please submit your comments by post before 5 March 2004 to the following address:

Brownfield Restoration (Ire.) Ltd.,
P.O. Box 719,
Naas, Co. Kildare.

3.6 Traffic

A full report on traffic assessment, prepared by Traffic Wise is included in Appendix 8, Volume II of the EIS. This report was prepared in March 2004.

3.6.1 Existing Environment

The existing environment is dealt with in Section 2 of the Traffic Wise March 2004 Report.

3.6.2 Potential Emissions

Potential emissions from the proposed development are considered in Sections 3 and 4 of the Traffic Wise March 2004 Report.

3.6.3 Description of Likely Impacts

Likely impacts are addressed generally in Sections 5 and 6 of the Traffic Wise March 2004 Report.

3.6.4 Mitigation Measures

There are no mitigation measures proposed as traffic volumes on the N81 as a direct result of the proposed development are likely to be less than 2.2%.

3.6.5 Likely Significant Impacts

It can be seen from Section 6 of the Traffic Wise March 2004 Report, that the forecast increases in traffic on the N81 as a direct result of the proposed development are likely to be less than 2.2%. Only during the early periods of construction (incl. import of materials) does the increase in traffic on the N81 exceed 2%. It is noted that this falls well below the threshold recommended by the IHT (Institution of Highways and Transportation) that would warrant detailed capacity assessment analyses to be carried out. Accordingly the increases in AADT on the N81 are not considered significant.

Similarly it can be seen in Section 6 of the Report that the increases in HGV content on the N81 are not likely to exceed 2.2% indeed the average increase in HGV content on the N81 over the life of the proposed scheme (including all construction periods) is shown to be marginally over 1%, which is considered insignificant.

3.7 Soils, Geology & Groundwater

This section assesses the impact of the development on the underlying and surrounding soil, geology, and groundwater.

3.7.1 Existing Environment

The existing overburden, geological and hydrogeological environments were explored by detailed desk studies and on site investigations. Desk studies were carried out into the general overburden, geology and hydrogeology of the site and surrounding lands. Site investigations were carried out between December 2003 and March 2004 by ERML staff and associated sub-contractors. Investigations included trial pitting, soil sample analysis, drilling of borehole/monitoring wells, groundwater sampling/laboratory analysis, and groundwater flow mapping. Findings from these investigations are included in the Preliminary Risk Assessment Report, Appendix 9, Volume II of the EIS and are summarised in the Sections that follow.

3.7.1.1 Overburden

The landscape in and surrounding the site derives its present morphology and its rich sand & gravel deposits from the influence of melt water channels (otherwise known as 'Eskers') from the Quaternary glaciation of Ireland.

The Geological Survey of Ireland (GSI) 'Quaternary Deposit Map' has classified the overburden of the area as "Gravel & Sand derived chiefly from Chert" (GCH), with the site in question marked as a "Sand & Gravel Pit in use". It should be noted that there is a lot of evidence of sand & gravel quarrying activity in the surrounding landscape. Figure 3.7.1 presents a Quaternary map for the area based on the information collected from the GSI.

Particle size distribution results from samples taken during the trial pit assessment and monitoring well installation confirm that the overburden across the site typically consists of sands and gravels with silts intermixed. Appendix 11, Volume II of the EIS includes the particle size distribution test results, in the form of a Factual Report on Laboratory Testing, produced by Geotesting Ltd.

The sand and gravel deposits have been worked from the site since the early 1900's, and more intensively in the last 30-40 years. Backfilling of sections of the void space with wastes is understood to have taken place between the 1970's and 2001. The Preliminary Risk Assessment Report includes details of the extent of these previously deposited wastes to the east of the 110kV power lines.

3.7.1.2 Site Geology

The site geology was researched using the Geological Survey of Ireland (GSI) Booklet – "Geology of Kildare – Wicklow" and associated Geological Map – 'GSI Sheet No. 16' (Scale map – 1:100,000). A bedrock geology map, for the area, based on the information gathered is attached on Figure 3.7.2.

The bedrock beneath the glacial sequence on the site comprises Lower Palaeozoic (Cambrian) Butter Mountain Formation. This consists of dark blue-grey slates, with thin interbedded grey quartzites in places (which may include beds, which are complexly folded and garnet rich, called "Coticules").

To the extreme southeast of the site, along the site contact with the Carrigower River, the bedrock changes to the Donard Andesite Member, as shown on Figure 3.7.2. This member of the main Butter Mountain Formation comprises fine-grained volcanic andesites.

A GSI 'Well Search', for information on wells within 2km of the site, listed twelve wells. They have varying depths to bedrock of 0.9m to 27m, which may be explained by the undulating glacial landscape of the area. The closest five of these wells to the site are shown on Figure 1.1.

Drilling on site in January 2004 confirmed that bedrock across the sand and gravel pit ranges from 0.4 to 8.2 metres below ground level. Subsequent information gathered from cores found on site indicated that bedrock is found as deep as 12.0 metres in the more elevated areas of the site. Borehole logs for the recent drilling and logs constructed using the cores from some of the boreholes from previous drilling activities are attached in Appendix 12, Volume II of the EIS.

3.7.1.3 Site Hydrogeology

3.7.1.3.1 Groundwater Classification

Based on desktop reviews, it is understood that three hydrogeological units underlie the site, namely:

- Shallow water table in overburden sand and gravels and upper fractured bedrock.
- Deeper bedrock aquifer – Butter Mountain Formation.
- Deeper bedrock aquifer – Donard Andesite Member.

The Geological Survey of Ireland has not classified the water-bearing sand and gravels at this site.

The Butter Mountain Formation, which underlies the majority of the site, is classified by the GSI as '**LI**', which is a Locally Important Aquifer, with bedrock, which is moderately productive, only in Local Zones.

The Donard Andesite Member, which underlies only the southeast boundary of the site, is also classified by the GSI as a Locally Important Aquifer, with bedrock, which is moderately productive, only in Local Zones (**LI**).

It is noted that according to the Wicklow Groundwater Protection Scheme March 2003, more than 90% of the rock units in the County are classified as either moderately productive only in local zones (LI) or generally unproductive only in local zones (Pl).

The two bedrock aquifers are shown on the Bedrock Geology & Draft Aquifer Map, on Figure 3.7.2.

3.7.1.3.2 Groundwater Vulnerability

The assessment of groundwater vulnerability for the area is based on guidelines issued by the Geological Survey of Ireland (Groundwater Protection Schemes 1999), and Map 7 (N) of the Groundwater Protection Scheme for Co. Wicklow. These guidelines and Protection Maps evaluate the natural protection of an area against contamination through the overburden characteristics of the area.

As defined by the GSI, *'vulnerability is the term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities'.*

The GSI classify both the Butter Mountain Formation & the Donard Andesite Member as having High Vulnerability. However, as bedrock has been identified on the site within 3.0 metres of the surface (where sands and gravels have been extracted), a vulnerability rating of '**Extreme**' is more appropriate.

3.7.1.3.3 Groundwater Protection Responses for Landfills

Based on the GSI Booklet entitled *Groundwater Protection Schemes*, 1999, Section *Groundwater Protection Responses for Landfills – Response Matrix for Landfills,* the aquifer classification **'LI'** and the '**Extreme**' vulnerability rating, results in a protection response of **R2**[2] for landfill. As outlined in the GSI response matrix, the following guidelines apply:

Acceptable subject to guidance outlined in EPA Landfill Design or conditions of waste licence:

- *Special attention should be given to checking for the presence of high permeability zones. If such zones are present, then the landfill*

should only be allowed if it can be proven that the risk of leachate movement to these zones is insignificant. Special attention must be given to existing wells down gradient of the site and to the projected future development of the aquifer

- *Groundwater control measures such as cut-off walls or interceptor drains may be necessary to control high water table or the head of leachate may be required to be maintained at a level lower than the water table depending on site conditions.*

3.7.1.3.4 Groundwater Usage

Two public water supplies are located within 4km of the site (Freynestown & Eadestown), both of which are supplied by springs.

Site walkover surveys and discussions with the Local Authority indicate that there is no groundwater users between the site proposed for development and the Carrigower River (i.e. a hydraulic divide) located ca. 200 metres south east of the site.

It is understood that the two residences located immediately south of the site (see Figure 3.5.1) are supplied by the Eadestown Public Water Supply. This mains water infrastructure runs from Eadestown, which lies ca. 4km south of the site, south of the Rivers Slaney and Carrigower. A small domestic pipe runs north from the Whitestown crossroads to supply these two residences. This information is based on discussions with the Local Authority.

The two surface water features described above are understood to act as groundwater divides, thus reducing the potential of impact on groundwater users south of these river features. It is noted that there are no known groundwater users immediately down-gradient of the site and north of the Carrigower River.

3.7.1.3.5 Groundwater Flow

Groundwater levels were taken at the site between December 2003 and February 2004. Table 3.7.1 enclosed (overleaf) summarises the available data pertaining the groundwater monitoring boreholes. A general groundwater flow map for the site and surrounding area was drawn up using the 3 February 2004 data set (Figure 3.7.4). The groundwater was shown to be flowing in a general northwest to southeast direction.

The average hydraulic gradient across the site is calculated to be in the range of 0.02 and 0.03.

3.7.1.3.6 Groundwater Quality

In general, the majority of parameters measured in the groundwater were below the EC (Drinking Water) 2000 Regulations for a broad range of parameters. However, some parameters were elevated above background, in particular those parameters which may be associated with leachate contamination.

Details of the groundwater quality and a description of the leachate indicator parameters are included in the Preliminary Risk Assessment Report (Appendix 9, Volume II of the EIS).

The general groundwater quality upgradient of the site is good, and typically reflects this type of agricultural setting.

The quality of groundwater located immediately downgradient of the waste zones is typically poorer than the upgradient wells, with elevated concentrations for the leachate indicator parameters including Conductivity, Ammoniacal Nitrogen, Potassium and Chromium.

3.7.2 Potential Emissions

Leachate is produced in landfills from infiltrating rainwater interacting with and extracting substances from deposited wastes. Typically the organic fraction of the waste biodegrades as a result of chemical and biological processes. Leachate from a waste landfill can have a number of dissolved chemical and organic substances at concentrations, which renders such leachate a potential threat to groundwater quality.

3.7.2.1 Present Emissions

Leachate is currently being generated from the previously deposited wastes, as indicated in the Preliminary Risk Assessment Report. A review of leachate indicator parameters in groundwater below the waste zones confirms the presence of indicator parameters elevated above background concentrations.

As these wastes were deposited in unlined areas, the potential for ongoing emissions into the groundwater / surface water environments is likely to continue.

Table 3.7.1: Well Dip Data (December 2003 – February 2004)

WELL I.D.	Well TOC (mOD)	10/12/2003		22/12/2003		03/02/2004		13/02/2004		25/02/2004	
		Dip Water Level (m BTOC)	Water Levels (mOD)	Dip Water Level (m BTOC)	Water Levels (mOD)	Dip Water Level (m BTOC)	Water Levels (mOD)	Dip Water Level (m BTOC)	Water Levels (mOD)	Dip Water Level (m BTOC)	Water Levels (mOD)
MW-1	136.32	1.18	**135.14**	1.10	**135.22**	0.64	**135.68**	0.73	**135.59**	-	-
MW-2	154.03	5.53	**148.50**	5.08	**148.95**	4.18	**149.85**	4.11	**149.92**	-	-
MW-3	156.22	6.05	**150.17**	5.49	**150.73**	4.00	**152.22**	3.94	**152.28**	-	-
MW-4	141.58	1.34	**140.24**	1.28	**140.30**	1.03	**140.55**	1.32	**140.26**	-	-
MW-5	141.34	2.53	**138.81**	2.48	**138.86**	2.07	**139.27**	2.20	**139.14**	-	-
MW-6	140.34	2.59	**137.75**	2.23	**138.11**	1.22	**139.12**	1.39	**138.95**	-	-
MW-7	140.06	2.02	**138.04**	1.88	**138.18**	1.25	**138.81**	1.40	**138.66**	-	-
MW-8	138.74	1.08	**137.66**	0.99	**137.75**	0.76	**137.98**	0.91	**137.84**	-	-
MW-9	138.76	1.81	**136.95**	1.73	**137.03**	1.39	**137.37**	-	-	-	-
MW-10	137.98	1.05	**136.93**	1.01	**136.97**	0.77	**137.21**	0.68	**137.30**	-	-
MW-11	143.58	2.08	**141.51**	1.71	**141.87**	2.75	**140.83**	1.26	**142.32**	-	-
MW-12	143.38	dry	-	dry	-	dry	-	dry	-	-	-
MW-03-1	147.17	dry	-	dry	-	8.09	**139.08**	dry	-	-	-
MW-03-2	143.98	6.75	**137.23**	6.63	**137.35**	6.30	**137.68**	6.40	**137.58**	-	-
MW-03-3	149.21	10.99	**138.22**	10.86	**138.35**	10.17	**139.04**	10.16	**139.05**	-	-
MW-03-4	144.76	3.58	**141.18**	3.23	**141.53**	1.22	**143.54**	2.77	**141.99**	-	-
MW-03-5	143.64	3.48	**140.16**	3.12	**143.60**	2.39	**141.25**	2.38	**141.26**	-	-
MW-04-1	140.11	-	-	-	-	1.11	**139.00**	1.20	**138.92**	1.51	**138.60**
MW-04-2	144.48	-	-	-	-	1.40	**143.08**	1.07	**143.42**	1.12	**143.36**
MW-04-3	143.84	-	-	-	-	1.15	**142.69**	1.15	**142.70**	1.24	**142.60**
MW-04-4	146.90	-	-	-	-	7.91	**138.99**	7.94	**138.97**	8.11	**138.79**
MW-04-5	143.71	-	-	-	-	4.76	**138.95**	4.92	**138.79**	5.09	**138.62**

3.7.2.2 Future Emissions

Future emissions to groundwater from the proposed development could include:

- Leachate released during removal of previously deposited waste;
- Leachate released from the fully engineered lined landfill facility;
- Machinery and operational vehicle fluid losses in parking areas, in refuelling areas, and in maintenance areas;
- Vehicle and machinery fuel storage;
- Hardstand area runoff.

3.7.3 Description of Likely Impacts

The likely impacts from the present situation include leachate from previously deposited wastes migrating vertically into the underlying saturated zone in the sands and gravels and weathered bedrock, and travelling in a south easterly direction.

In terms of impacts associated with the proposed development, the author has interpreted 'Likely Impacts' as those impacts likely to take place in the event that the necessary containment and preventative measures are not incorporated in the development design. In such an event the likely impacts of the development on soil, geology, and groundwater would be as follows:

- Changes are likely in the static water table elevation in the immediate vicinity of the pit. Due to the truncation of permeable sand lenses by the landfill, mounding of groundwater on the upgradient side of the pit and a depression of the local water table on the downgradient side is likely to occur. Any such changes in the static water table elevation will not be of significance.
- Mounding of groundwater may also occur in the vicinity of soakaways taking surface water and roof runoff. Such mounding will not be of significance.
- In the event that the composite clay / geomembrane liner and proposed mitigation measures are not incorporated in the development, it is likely that there will be a localised potential impact on soil quality as a result of potential emissions in certain areas of the pit. This impact is likely to be short term since the contaminant sources will gradually be attenuated by natural effects over time.
- Similarly there would be a likely but virtually undetectable reduction in groundwater quality downgradient of the site in the event that uncontrolled potential emissions were released due to a breach of the liner system.

- It is noted that a theoretical computation suggests a potential leakage of <100m³/year, if such a breach of the liner system was to occur. However, it is estimated in the Preliminary Risk Assessment Report March 2004 (Appendix 9, Volume II), that up to 12,000m³/year of potentially contaminated groundwater could result from the unlined previously deposited wastes ('worse-case' scenario).

3.7.4 Mitigation Measures

Strict mitigation measures to protect the groundwater from leachate and other potential contaminant sources will be put into place once the proposed development works begin.

These mitigation measures will include:

- Appropriate techniques, such as temporary bunds, pumps and silt fences will be employed to avoid the potential runoff of leachate during the excavation of previously deposited wastes
- Where possible, the handling, recycling and recovery of previously deposited wastes and new incoming wastes inside a recovery building to prevent leachate generation;
- The emplacement of a composite liner comprising compacted clay and a HDPE geomembrane beneath the landfill and the installation of a conventional leachate collection system and a stringent CQA/CQC programme will ensure that insignificant leachate leakage occurs from the landfill area. Handling of leachate from the collection system for offsite disposal will take place in a concrete paved area centrally drained to the leachate tank;
- To minimise the impact on the static water level such as the mounding and lowering as mentioned previously, a high permeability drainage layer will be installed outside and beneath the landfill liner. This will allow groundwater from truncated sand and gravel layers along the northern slope to flow beneath the landfill without obstruction and will prevent significant changes in the current static water level around the perimeter of the landfill area;
- An engineered leachate collection system associated with the development of all new lined landfill cells;
- Fuel and lubricant storage for site vehicles and machinery will be stored in appropriately bunded fuel tanks;
- Liquid from all hardstands will pass through a grit chamber and oil interceptor, prior to disposal to an on-site soakaway;
- Operational waste will be segregated for offsite disposal into canteen, waste oils, non-recyclable plant waste, and other miscellaneous waste;

- An integrated groundwater-monitoring programme (in accordance with EPA requirements) will monitor any changes in static groundwater levels and groundwater chemistry potentially associated with the proposed development.

3.7.5 Likely Significant Impacts

In the event that the mitigation measures identified in Section 3.7.4 are implemented, it is predicted that there will be no measurable or significant impacts to soils, geology or groundwater quality as a result of the proposed site development.

3.8 Landscape

A full report on Landscape and Visual Impact Assessment, prepared by Michael Cregan and Associates, in association with Martin Murray Architects, is included in Appendix 13, Volume II of the EIS. This report was prepared in March 2004.

3.8.1 Existing Environment

The site is located in southwest Wicklow adjoining the N81 in the townland of Whitestone Lower and ca. 8 km north of Baltinglass. The site is a disused sand /gravel pit, ca. 14.6 ha in extent. A portion of the lands was backfilled with imported wastes in the recent past. The site has never been subjected to remedial measure and in consequence has disfigured the otherwise attractive and valuable landscape with exposed faces and substantial piles of deposited debris and previously deposited wastes.

3.8.2 Potential Emissions

Potential emissions from the proposed development are considered in Section 3 of the March 2004 Murray Report.

3.8.3 Description of Likely Impacts

Likely impacts are also addressed in Section 3 of the March 2004 Murray Report.

3.8.4 Mitigation Measures

Mitigation measures are included in Section 4 of the March 2004 Murray Report.

3.8.5 Likely Significant Impacts

The temporary construction impacts will have visual and disturbance effects in a number of categories: -

- The main contractors compound and its use as a temporary storage and work area.
- The resource recovery building and other built structures on site.
- The movement of plant and vehicles in an out of the site during construction along the road system.
- The operation of plant on the site during the course of the contract.

Proper selection of location for the built elements will reduce the degree of impact, which will be temporary in duration as indicated previously.

The impacts will reduce significantly as the planting matures. The planting which will be installed around the perimeter and along the previous field boundaries will be extensive and dense and have a considerable effect in reducing the visual impact of the scheme and screen it from adjoining properties and from the identified critical receptors. The choice of plant materials will be indigenous to the region and thus harmonise generally with the landscape.

In the medium term as the proposed new landscape treatment matures, the impacts will gradually reduce and be increasingly perceived as neutral.

A 'worst case' scenario would arise only if the site was left in its present condition or if the finished grades were, in terms of size and bulk unsympathetic to the ambient landscape upon completion. Implementation of the remedial measures and the associated planting works will ensure a very significant reduction of the current impacts, and the harmonious reinstatement of the landscape.

3.9 Noise

3.9.1 Introduction

A Cirrus CK:831A sound level meter was used to take the noise measurements at the site. This instrument is a Type 1 data logging integrated sound level meter and is in accordance with the requirements of *IEC Publication 651.*

Prior to each monitoring round, the instrument is calibrated at 94 dB using a Cirrus CR:513A acoustic calibrator.

Prior to each measurement the instrument was mounted on a tripod at approximately 1.4 – 1.5 metres above ground level and 3.5m away from any sound reflecting objects as specified in *ISO 1996: Acoustics – Description and Measurement of Environmental Noise (Part 1)*. The Time Weighting used was 'fast' and the Frequency Weighting was 'A weighted'.

In addition, a wind shield was used to reduce potential wind interference during measurements. The wind speed at each location was less than 5 metres/second as required in *ISO 1996: Acoustics – Description and Measurement of Environmental Noise (Part 2).*

3.9.2 Existing Environment

This report presents the findings of a baseline Environmental Noise Survey carried out at an existing sand & gravel pit in Whitestown Lower, County Wicklow on the 22nd January 2004. It is noted that there were no activities taking place at the site during the field measurements.

The site is located approximately 2.5 km southwest of Donard and 5 km north of Baltinglass along the N81.

3.9.2.1 Monitoring Locations

Monitoring locations were chosen in accordance with *ISO 1996: Acoustics – Description and Measurement of Environmental Noise.* Six boundary locations were selected for this noise survey.

The monitoring locations are depicted in Table 3.9.1 and Figure 4.1.

Table 3.9.1: Monitoring Locations

Monitoring Location	Description of Location
N1	North-western corner of the site
N2	At entrance to site (inside gate)
N3	Southern site boundary
N4	South-eastern site boundary close to the river
N5	Eastern site boundary
N6	North-eastern site boundary

Due to the fact that there are no activities currently taking place at the site noise readings were not taken at any noise sensitive receptors. Noise sensitive receptors will be identified as required.

3.9.2.2 Parameters Measured

The following parameters were measured at each of the six locations:

- $L_{Aeq,\ 30\ min}$ - the equivalent continuous noise level in dB(A) over a specified measurement interval i.e. 30 minutes.
- $L_{A10,\ 30\ min}$ - the noise level in dB(A) equalled or exceeded for 10% of the measurement interval i.e. 30 minutes.
- $L_{A90,\ 30\ min}$ – the noise level in dB(A) equalled or exceeded for 90% of the measurement interval i.e. 30 minutes.
- Frequency Analysis i.e. $^1/_3$ octave band analysis (duration 3 minutes).

3.9.2.3 Results

The measurement results are presented in Table 3.9.2.

The results from the $^1/_3$ octave band frequency analysis are included in Table 3.9.3.

3.9.2.4 Evaluation of Results

For the purposes of this survey, the Environmental Protection Agency (EPA) *"Integrated Pollution Control Licensing – Guidance Note for Noise in Relation to Scheduled Activities"* (EPA, 1995) was consulted. The objective of this guidance note is to provide practical information and advice for those activities, which are listed in the First Schedule of the EPA Act of 1992.

Table 3.9.2: Results of the Environmental Noise Survey

Monitoring Location	Date/Time	Wind Speed m/s*	$L_{Aeq, 30\ min}$ dB(A)	$L_{A10, 30\ min}$ dB(A)	$L_{A90, 30\ min}$ dB(A)	Noise Sources
N1	22/01/04 12:00:24	0.8	47.6	51.6	34.6	• Traffic on the N81 • Birds in the trees
N2	22/01/04 12:50:46	1.5	63.6	66.4	34.3	• Traffic on the N81 • Birds in the trees • Tractor on farm across the road • Airplane flying overhead
N3	22/01/04 15:53:22	1.5	41.2	43.6	36.9	• Activities at Quarry south of the site • Traffic on the N81 • Birds in the trees • Activities at the residence south of the site • Chainsaw operating in the distance
N4	22/01/04 14:28:48	1.8	43.8	46.7	37.9	• Activities at Quarry south of the site • Traffic on the N81 • Birds in the trees • Ripple of the river • Chainsaw operating in the distance
N5	22/01/04 15:12:10	0.9	39.5	41.9	35.4	• Traffic on the N81 • Traffic along the local road on other side of river • Birds in the trees • Chainsaw operating in the distance
N6	22/01/04 13:42:22	0.8	32.2	34.0	26.6	• Traffic on the N81 • Traffic along the local road on other side of river • Birds in the trees • Chainsaw operating in the distance

***Wind Speed m/s = 60 second average measured at a height of 3 metres above ground**

The guidance note indicates that day-time noise levels for the aforementioned activities should be kept below an $L_{Ar\ T}$ value of 55 dB(A). It should be noted however, that the proposed operations at the site are not described in the list of scheduled activities and the EPA Guidance note is used for reference purposes only.

Table 3.9.3: 1/3 Octave Band Frequency Analysis Results

Frequency Band Hz	N1	N2	N3	N4	N5	N6
25	65.30	55.20	49.10	51.00	45.50	47.50
31	50.00	43.50	50.30	52.10	46.10	48.60
40	51.70	48.10	44.10	48.60	44.40	44.90
50	51.00	41.30	49.10	45.10	46.60	44.60
63	50.40	41.80	45.70	56.90	43.30	44.80
80	49.10	40.20	37.90	57.10	40.00	42.10
100	49.90	35.40	39.40	46.40	33.80	33.00
125	37.50	31.40	33.20	34.90	25.60	27.80
160	32.40	49.00	30.90	28.30	20.50	24.10
200	28.90	42.40	25.70	26.10	26.50	23.10
250	31.30	50.40	25.90	31.10	23.90	25.30
315	38.70	61.30	28.20	32.90	25.60	18.60
400	31.80	57.60	28.50	34.40	27.00	21.20
500	31.80	51.40	29.40	40.90	27.20	17.90
630	24.60	38.50	36.10	40.80	26.90	17.30
800	27.30	50.80	34.10	45.70	31.00	25.60
1000	29.80	57.90	35.90	45.30	33.50	20.30
1250	32.60	36.50	33.90	37.20	31.40	25.70
1600	40.90	30.60	31.00	30.80	28.00	25.40
2000	31.90	29.10	30.40	33.90	33.10	22.40
2500	28.90	31.10	26.10	33.90	26.70	18.70
3150	29.00	29.20	21.90	29.70	20.90	19.90
4000	25.90	21.10	20.10	23.80	14.20	23.60
5000	16.50	20.40	20.30	27.50	20.60	24.80
6300	15.30	39.30	21.60	19.70	23.70	20.00
8000	14.00	14.10	19.70	19.40	12.10	13.10
10000	17.10	14.90	14.90	17.90	15.40	12.80
12500	16.40	15.20	13.70	13.40	13.20	13.30
16000	16.80	22.10	18.70	12.70	15.80	13.00

The EPA *"Landfill Monitoring"* Manual (2nd edition), (EPA, 2003) was also consulted. This document also indicates that day-time noise levels should be kept below 55 dB(A).

The noise levels recorded at the site ranged between 32.2 dB(A) and 63.6 dB(A). The baseline ambient day-time noise level of 55 dB(A) was exceeded at one of the six locations.

The L_{A10} values, which are representative of intermittent, high energy noise levels, ranged between 34.0 dB(A) and 66.4 dB(A).

The L_{A90} values, which are representative of background noise levels, ranged between 26.6 dB(A) and 37.9 dB(A).

3.9.2.5 Existing Noise Sources at the Site

The dominant source of noise at the site is traffic flow on the N81. During the noise survey, traffic flow averaged 5 cars per minute. It is important to note however that the survey took place during the off peak hours of 12:00 and 16:30. The N81 is the main road to Dublin from Baltinglass therefore, traffic flow would likely be greater during peak hours.

The quarry, located south of the site, was not operational for the entire duration of the noise survey however, when it was operational it contributed significantly to the noise environment in the area.

Other noises at the site consisted of typical countryside noises i.e. birds chirping, tractors etc.

Note: A breakdown of the dominant noise sources at each individual noise monitoring location is depicted in Table 3.9.2.

3.9.3 Potential Emissions

The potential emission from the proposed development will be noise. The sources of the noise emissions will depend on the stage of the development i.e. excavation, construction, and operation processes.

3.9.3.1 Noise Emissions during Excavation of the Previously Deposited Wastes

Excavation of the previously deposited wastes will take place in phases over a total period of 1 to 3 years. Excavation activities will take place between the hours of 8am to 5:30pm, Monday-Friday and 8am to 4pm on Saturdays. Noise impacts associated with the excavation and processing of wastes will arise mainly from the following sources:

- Excavators and dumper trucks operating within the site (approximately 4 to 6 No.)
- Site personnel vehicles entering and leaving the site from the N81 (approximately 15 vehicles per day).
- Screening plant and intermittent use of a crusher (MRU).

It is anticipated that up to 10 items of plant machinery or vehicles, some stationary, some mobile, may be in use during the excavation phase but it would be unlikely that all would operate simultaneously at one location.

3.9.3.2 Noise Emissions during Construction

Construction of the proposed development will take place in three to six-month periods over the life of the facility. Noise impacts associated with construction will arise mainly from the following sources:

(a) Excavators, bulldozers, dumper trucks, compactors and tractors operating within the site (approximately 10 No. items).
(b) Site personnel vehicles entering and leaving the site from the N81 (approximately 15 vehicles per day).
(c) Movement of delivery vehicles associated with site buildings and materials to construct the landfill liner.

It is anticipated that up to 10 items of plant machinery or vehicles may be in use during the construction phase but it would be unlikely that all would operate simultaneously at one location.

3.9.3.3 Noise Emissions during Waste Recovery and Disposal Processes

The waste recovery and disposal processes will comprise a resource recovery building enclosing the waste recovery plant and equipment, a mobile recovery unit and a landfill facility. Waste recovery activities will generally take place between the hours of 8am to 5:30pm, Monday-Friday and 8am to 4pm on Saturdays. The recovery facility will be located in the north-western part of the site. The landfill will encompass the remaining void. It will be developed in 6 phases and filled over a period of approximately 8 years. Noise impacts associated with the operation of the recovery and disposal facilities will arise mainly from the following sources:

(a) Movement of Heavy Goods Vehicles (HGVs) entering and leaving the site from the N81;
(b) Movement of site personnel vehicles entering and leaving the site from the N81;
(c) Operation of plant and equipment within the RRB. Up to 8 items of plant machinery and vehicles may be operating on the site at any period of time.
(d) Operation of the MRU plant within the first 3 years of operation whilst previously deposited wastes are being excavated.
(e) Operation of waste compactors, excavator, bulldozer, dumper trucks and tractor within the landfill site. Up to 4 items of plant

machinery and vehicles may be operating on the site at any period of time.

Note: It is very unlikely that all of these sources of noise would operate simultaneously. In addition, their operation will be limited to the opening hours of the site.

3.9.4 Description of Likely Impacts

It is expected that there will be some increase in ambient noise as a result of the proposed activities. However, there are only 2 No. residences within 250 metres of the proposed waste management activities at the facility, located to the south.

3.9.4.1 Likely Impacts during Excavation and Construction

The noise impacts resulting from excavation and construction activities will not adversely affect any residences in the vicinity of the site. Machinery and vehicles associated with earthmoving and excavation will be located below the level of the surrounding surface and residences will therefore be shielded from any noise emissions. It should be noted that construction activities will not be continuous throughout the life of the proposed development.

3.9.4.2 Likely Impacts during Operation of the Waste Recovery and Disposal Processes

Noise impacts may arise as a result of vehicles entering and leaving the site via the access point on the N81. During the operational phases, up to approximately 50 HGV vehicles will carry waste to the site or recovered materials from the site each day. The relatively low number of vehicle movements in comparison to general traffic flow along this route indicates that no adverse impacts on the noise environment in the vicinity of the site are expected as a result of the proposed development.

In addition, there is the potential for noise nuisance to arise from incidental activities such as tonal reversing warning indicators, excessive engine revving and use of air brakes. The area where the reverse warning tones may be used most frequently includes the site of tipping in the landfill void itself and the turning area in the northwest corner of the site. The turning area at the RRB is located over 300 m away from the nearest dwelling and is not expected to impact on the noise environment in the area due to its low elevation and distance from residences. However, the site entrance is 150 m away and the closest point of the lined landfill is approximately 50 m away.

Noise impacts may also arise from the use of waste recovery equipment i.e. waste compactor, screener, crusher and excavator. These pieces of

equipment will be located within the waste recovery building in the north-western corner of the site and will not all run simultaneously.

3.9.5 Mitigation Measures

3.9.5.1 Mitigation Measures During Construction

The construction phases of the development will each span less than 3 to 6 months; thus any adverse noise impacts due to construction will be short-term.

Vehicle and machinery noise associated with the construction is the only predicted impact on the noise environment in the area. The following mitigation measures will assist in attenuating noise levels at the site boundary:

- Plant activity during construction of the initial lined area will be located up to 7 metres below the level of the surrounding land.
- Screening mounds approximately 1 to 2 m high will be constructed along boundaries where possible at an early stage in the construction phase.
- An acoustic barrier will be installed in the south-western corner of Phase 1 in the early stages of construction (See Drawings BRI/103 – BRI/108, Volume III of EIS). This barrier will mitigate against any noise generated during construction/operation activities for the duration of the project.
- Plant used on site will be of low noise emission type. And should comply with Statutory Instrument No. 320 of 1988 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988" on noise emission limits. Care will be taken to ensure that silencers and engine covers are kept in good and effective working order.
- Drivers of HGVs and other vehicles will be required to use reverse warning indicators with care with respect to the location of sensitive receptors. (Such measures will not compromise safety requirements on or off the site).
- All excavation and construction activities will be restricted to daylight hours; therefore, there will not be any night-time noise emanating from the site.

3.9.5.2 Mitigation Measures During Operation of the Waste Recovery and Disposal Processes

Vehicle and machinery noise associated with the operation of the waste recovery and disposal processes is the only predicted impact on the noise environment in the area. The following mitigation measures will assist in attenuating noise levels at the site boundary:

- Screening mounds approximately 1 to 2 m high will be constructed along boundaries where possible.
- An acoustic barrier will be installed in the south-western corner of Phase 1 in the early stages of construction (See Drawings BRI/103 – BRI/108, Volume III of EIS). This barrier will mitigate against any noise generated during construction/operation activities for the duration of the project.
- Excavation and Recovery of the previously deposited wastes will be carried out in areas in excess of 100 m from the closed residence over a short time frame.
- Waste recovery activities will occur mainly indoors at the RRB. Cladding with noise reduction (i.e. insulation) qualities will be used if required.
- Plant used on site will be of low noise emission type. And should comply with Statutory Instrument No. 320 of 1988 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988" on noise emission limits. Care will be taken to ensure that silencers and engine covers are kept in good and effective working order.
- The access road to the site will be levelled and covered with a macadam surface. This will result in reduced noise levels.
- Drivers of HGVs and other vehicles will be required to use reverse warning indicators with care with respect to the location of sensitive receptors. (Such measures will not compromise safety requirements on or off the site).
- All excavation and construction activities will be restricted to daylight hours; therefore, there will not be any night-time noise emanating from the site.

In the event that noise levels result in complaints, further mitigation measures will be considered. These measures could include additional barriers, sound insulation etc.

3.9.6 Likely Significant Impacts

It is predicted that there will be no significant impacts upon the noise environment caused by the construction and operation of the proposed development. All of the likely impacts, which have been identified have been addressed and mitigation measures proposed where necessary to ensure that the impacts remain at acceptable levels.

In the absence of the proposed development, it is predicted that noise from existing site activities would be expected to cease after the site restoration work was completed. However, road traffic noise would become increasingly dominant in the noise environment.

3.9.7 Vibration

The most likely source of vibration will be from HGV traffic movements to and from the site during construction and operation. As outlined in the Traffic Section of the EIS, Volume I, Section 3.6, current HGV increases on the N81 are not likely to exceed 2.2%, and over the lifetime of the project are shown to be marginally over 1%, which is considered insignificant. Resulting vibration from these marginal traffic increases are therefore considered insignificant.

3.10 Surface Water

3.10.1 Existing Environment

The site is situated on the western border of the Carrigower River valley (See Figure 3.10.1 & 3.10.2). Beyond the northeastern boundary of the site, the ground slopes steeply down to the flood plain of the river, which is a wet grassland area. The southeastern section of the site encompasses a section of the river's flood plain and the site boundary is the river itself, as shown on Figure 3.10.2.

The extent of the Carrigower River catchment up-gradient of the site for proposed development is depicted in Figure 3.10.1.

The site boundary encompasses part of the Carrigower River Candidate Special Area of Conservation (cSAC), which has been included in the River Slaney cSAC (May 2003). The cSAC is discussed further in Flora and Fauna Section 3.4 of the EIS. Figure 3.4.1 is an aerial photograph taken in August 2000 and includes an interpreted outline of the current cSAC boundary.

The Carrigower River flows in a southwest direction and joins the River Slaney ca. 2.1 km southwest of the site boundary.

3.10.1.1 Surface Water Flow

The total surface water catchment for the Carrigower River lying above the site is estimated to be 49 km^2 in area. An outline of the Carrigower catchment is depicted in Figure 3.10.1.

Flows in the River Carrigower at the downstream corner of the site may be estimated by reference to two gauged stations.

Table 3.10.1: Flows at Nearby Gauged Stations

Hydrometric Station No.	River	Catchment Area	Average Runoff (m^3/sec)	95% Flow (m^3/sec)	Dry Weather Flow
12013	Slaney	18,500	4.39	1.540	0.640
12028	Carrigower	5,300	0.98*	0.350	0.140

*** Based on pro-rata calculation from existing data.**

The estimated flows in the Carrigower River at the downstream corner of the site are as summarised in Table 3.10.2.

Table 3.10.2: Estimated Flows for River Carrigower

Flow	(m^3/sec)	(m^3/sec)	mm/ year *
Average Runoff	0.905	78,192	582
95 Percentile Flow	0.320	27,648	206
Dry Weather Flow	0.129	11,146	83

*** Based on 4,900 hectare catchment area.**

3.10.1.2 Arterial Drainage

Five arterial drainage channels drain from the wet grassland area between the site and the River Carrigower. These drainage channels are shown on Figure 3.10.2. The most northern channel (DC-1) is shallow (<0.3m in depth) and runs from the northeastern corner of the site, in a southerly direction, to join with the Carrigower River. During all site visits, throughout December 2003 & January 2004, this channel was dry.

Drainage channels DC-2 and DC-3 (ca. 0.3 deep, 0.5m wide) run either side of the site boundary and drain towards the Carrigower River in a southeastern direction. During the January 2004 site visits, water was observed in both channels, however flow was slight to absent.

Drainage channels DC-4 and DC-5 run along the southern boundary of the site, again draining in a south-easterly direction. During the January 2004 site visits, water was observed in both channels, however flow was slight to absent.

The five channels described are believed to be man-made, developed in order to drain the low-lying wet grassland area.

3.10.1.3 Surface Water Quality

The visual examination, which took place on 26th November 2003, involved a walkover survey of the Carrigower River and associated floodplain ca. 500m to the north and 500m to the south of the site boundaries. The river appeared moderate-flowing, clear and clean.

Surface water samples (grab samples) were taken at four monitoring locations (SW1 to SW4 inclusive) on 12 December 2003. These samples were forwarded to Alcontrol Geochem Ireland Ltd. for detailed analysis. A summary table of all analysis for each monitoring location is included in Table 8.1. of the Preliminary Risk Assessment. Results for Ammoniacal Nitrogen are also included in this Table for the 25 February 2004 sampling event, which includes an additional sampling location SW-5.

With the exception of some bacteriological parameters, the surface water quality both upstream and downstream of the site is generally of good

quality. Detected concentrations for Faecal Coliforms and Faecal Streptococci were elevated above background, and typically reflect an agricultural setting. Full details of the surface water analysis are included in the Preliminary Risk Assessment Report (Appendix 9, Volume II of the EIS).

3.10.2 Potential Emissions

The five surface water drainage channels connect the site to the Carrigower River to the east and during periods of very heavy rainfall, these may carry surface water emissions from the site directly into the Carrigower River, in particular suspended solids and potentially leachate from the previously deposited wastes.

However, it is noted that during the winter months of 2003/2004, surface water was not observed travelling from the site to the River Carrigower through these river channels.

In terms of the proposed development, there is potential for emissions as a result of these proposed activities, which may include:

- Leachate generation & release as a result of disturbing the previously deposited wastes;
- Surface water runoff due to site contouring, in particular elevated suspend solids in any discharges;
- Leachate released from the fully engineered lined landfill facility;
- Machinery and operational vehicle fluid losses in parking areas, in refuelling areas, and in maintenance areas;
- Vehicle and machinery fuel storage;
- Hardstand area runoff.

3.10.3 Description of Likely Impacts

A potential impact from the present situation includes leachate from previously deposited wastes seeping into lower lying areas of the site and subsequently into the River Carrigower. It is noted that no surface water was observed directly flowing into the River Carrigower from the adjoining site for proposed development during the December 2003/March 2004 field observations.

It is also noted that little or no liquid was observed during the Trial Pit Investigation (December 2003) of the previously deposited wastes and most of these wastes are contained by earth berms on the eastern boundary of the site.

Likely impacts on the adjoining surface water are interpreted as those impacts likely to take place in the event that the necessary containment

and preventative measures are not incorporated in the development design. These are as follows:

- Uncontrolled releases of surface water runoff from areas of potentially contaminating activity such as the excavation of previously deposited wastes, leachate handling and vehicle maintenance
- The worse-case scenario of potential surface quality deterioration as a result of the non-implementation of the proposed containment measures would cause a deterioration in the quality of water, resulting in an impact on the aquatic life of the Carrigower River

3.10.4 Mitigation Measures

The proposed development includes the development of a fully engineered lined landfill with full leachate collection systems and surface water management systems. These systems are designed to ensure no adverse impacts on the river. The following mitigation measures will be included in the proposed future development:

- Excavation, recovery and disposal in lined cells of previously deposited wastes;
- Fully engineered lining system with residual waste disposal facility;
- Leachate containment system on-site;
- Surface water management system including petrol interceptors, silt settling tanks and surface water management ponds;
- Maintenance programmes will be in place to ensure surface water runoff does not erode the capping soils and flow into the waste;
- Fuel will be stored in appropriately designed bunds;
- All surface water produced onsite will be directed to a grit chamber, followed by an oil interceptor, before being discharged into a soak away pit or surface water management ponds;
- A surface water-monitoring programme will monitor any changes in water levels and water chemistry potentially associated with the proposed development;
- The proposed development footprint does not include any part of the wetland area located to the southeast of the site, and this area will be protected as part of the River Carrigower cSAC.

3.10.5 Likely Significant Impacts

In the event that the mitigation measures identified in Section 3.10.4 are incorporated in the landfill design, it is predicted that there will be no impacts to surface water, significant or otherwise, as a result of this site development.

Nonetheless, even if the precautionary principle is adopted and all the potential impacts are considered without the implementation of the proposed mitigation measures, the impact of the proposed development on surface water will not be significant and is unlikely to be measurable as a change in surface water chemistry and the aquatic habitat.

3.11 Material Assets

3.11.1 Existing Environment

In the vicinity of the proposed development there are private residences, farms and active and inactive sand and gravel quarries.

The ultimate goal of this project is to excavate and treat the previously deposited wastes and restore this existing sand and gravel pit to conform with the contours of surrounding landforms through the deposition of residual wastes in a fully lined and engineered facility.

The local road network (N81 National Secondary Road) is currently used to access the site. No other material assets i.e. water supply, foul sewers, public buildings or telephone lines are currently used at the site.

A 110kV National Grid power line transects the site (See Figure 3.1.1). Consultations were undertaken in March with ESB International regarding the raising of the line. A proposed alteration to the power line has been agreed in principle. The proposed alterations are dealt with in Section 2.11.17.

In addition, a 10kV power line also crosses the site from west to east along the northern boundary.

3.11.2 Potential Emissions

The potential emissions from the proposed development are as follows:

- **Dust and Noise** - Construction and operation of the facility will result in dust and noise emissions. Lorries travelling to and from the site will result in increased dust and noise emissions along public roads.
- **Litter** – Litter will arise from lorries or from the landfill operations, in particular during high wind periods.
- **Sewage** – Sewage will be generated from on-site personnel (ca. 10-15 employees
- **Leachate** – Leachate will be generated from wastes being placed in lined landfill cells

3.11.3 Likely Impacts

The site is already largely disturbed therefore there are not likely to be any significant deterioration on the landscape as viewed by neighbours looking towards the site. It is noted that the landform will change as the site is restored to previous elevations prior to sand and gravel extraction.

This will result in a positive impact as the site will be returned to an agricultural landscape

During construction and operation the existing public road system will be utilised. This will result in a slight increase in traffic volumes.

During the proposed development activities, there may be some infrequent and minor inconveniences due to dust and noise. Any of these inconveniences will take place during day-time hours. These potential inconveniences are discussed in previous sections. It is not thought that they will detract from property values.

The existing 110kV National Grid power line will be raised to the height it was prior to sand and gravel extraction. It is not thought that this will have a negative impact on the environment. It is noted that during extraction activities at the site, the 110kV power line was reduced in height by ESB on two occasions.

Ultimately, the goal of the project is to restore the site and enhance the material assets of the area.

3.11.4 Mitigation Measures

Mitigation measures are discussed in a number of sections as depicted in Table 3.11.1.

Table 3.11.1: Mitigation Measures

Section	Location
Dust	Section 3.1
Traffic	Section 3.6
Landscape	Section 3.8
Noise	Section 3.9

The applicant will seek to meet with local residents and interest groups regularly to ensure issues relating to nuisances that may affect their material assets do not arise.

3.11.5 Likely Significant Impacts

The quantity of water and electricity used will be measurable but not significant. The duration of the use will be approximately 10 years.

The local road network may be slightly affected due to an increase in traffic volumes.

Leachate will be tankered away to the public treatment works for a number of years perhaps 20 years or more. The quantity and strength will diminish over time as the site will be capped and restored.

In the long-term the impact of this development will be positive because of the following:

- the previously deposited wastes will be excavated, processed, recovered where possible, and the residual wastes deposited in a fully engineered lined landfill facility.
- the disturbed sand and gravel pit will be restored to conform with the contours of surrounding landforms.

It is not expected that there will be any negative impact on material assets during the development of this site.

3.12 Interrelationships

Table 3.12.1 depicts potential interrelationships of the various factors described in this section of the EIS. This table should be read such that the item in the most left hand column interacts or affects one of the items to the right (e.g. air (dust & odour) can interact/affect human beings).

Air (dust & odour), Cultural Heritage, Traffic, Groundwater, Landscape, Noise and Material Assets may affect human beings. The impact of the proposed development as it pertains to the aforementioned is dealt with in Sections 3.1, 3.3, 3.6, 3.7, 3.8, 3.9 and 3.11 respectively.

The climate (i.e. precipitation) can potentially affect groundwater and surface water. This has been discussed in Sections 3.7 and 3.10 respectively.

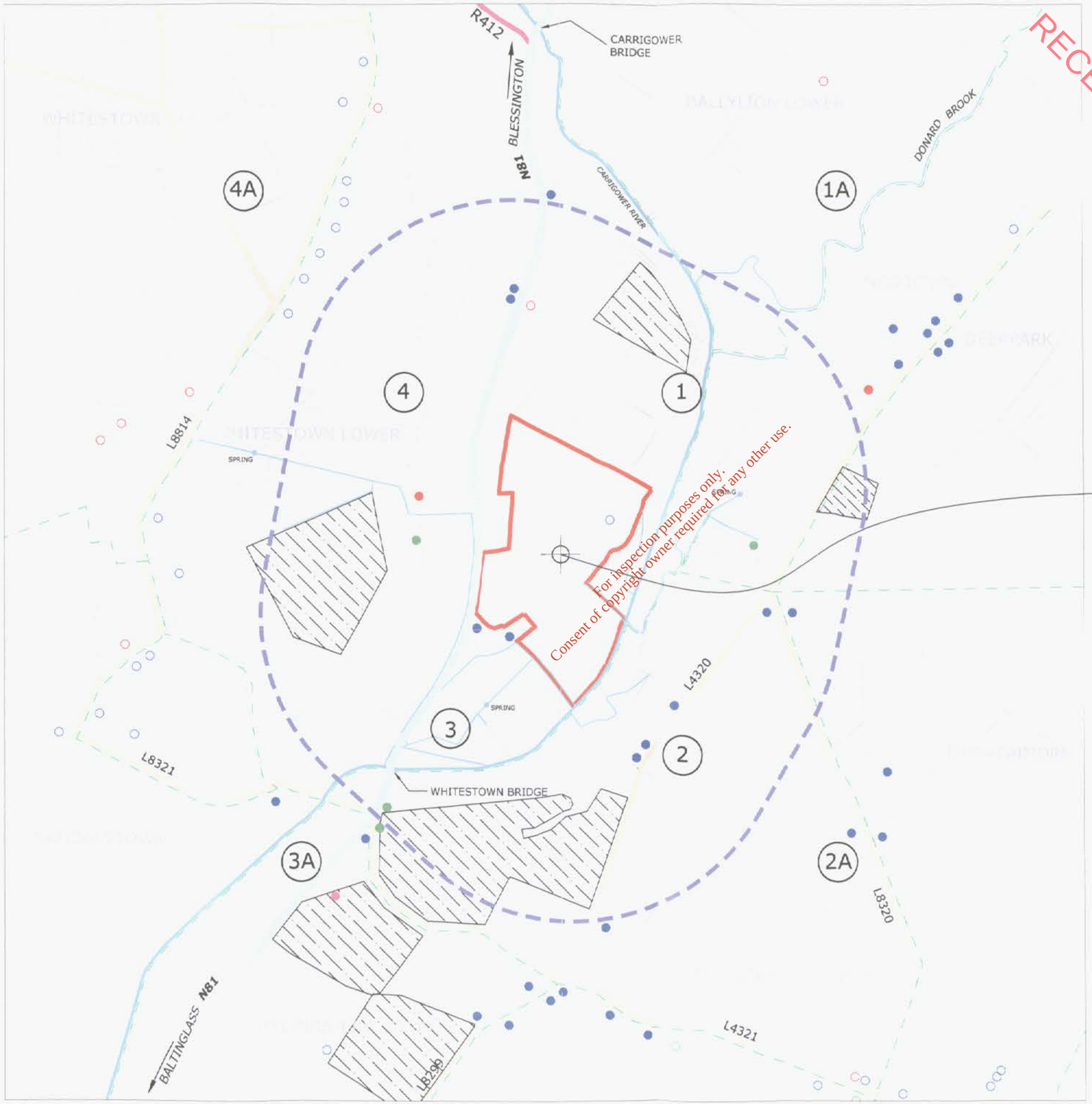
The change in landscape as a result of proposed activities could affect the flora and fauna at the site. This is addressed in Section 3.4.

It is unlikely that there will be any significant adverse environmental impacts due to interactions as a result of the proposed development.

Table 3.12.1: Interrelationship of the Factors

	AIR	CLIMATE	CULTURAL HERITAGE	FLORA AND FAUNA	HUMAN BEINGS	SOILS, GEOLOGY AND GROUNDWATER	LANDSCAPE	NOISE	SURFACE WATER	MATERIAL ASSETS
AIR (DUST)					X		X			X
AIR (ODOUR)					X					X
CLIMATE						X			X	
CULTURAL HERITAGE					X					
FLORA AND FAUNA										
HUMAN BEINGS (TRAFFIC)					X					X
SOILS, GEOLOGY AND GROUND WATER					X				X	
LANDSCAPE				X	X					X
Air (NOISE)					X					X
SURFACE WATER				X						
MATERIAL ASSETS					X					

APPENDIX 8-3



ORDNANCE SURVEY IRELAND
LICENCE NUMBER
AR0056004

Issue Date:		
No.	Date	Description
A	MAR. '04	WASTE LICENCE APPLICATION

Surveyed by:
Environment & Resource Management Ltd.

Client:
BROWNFIELD RESTORATION IRELAND LTD.
WHITESTOWN LOWER, CO. WICKLOW

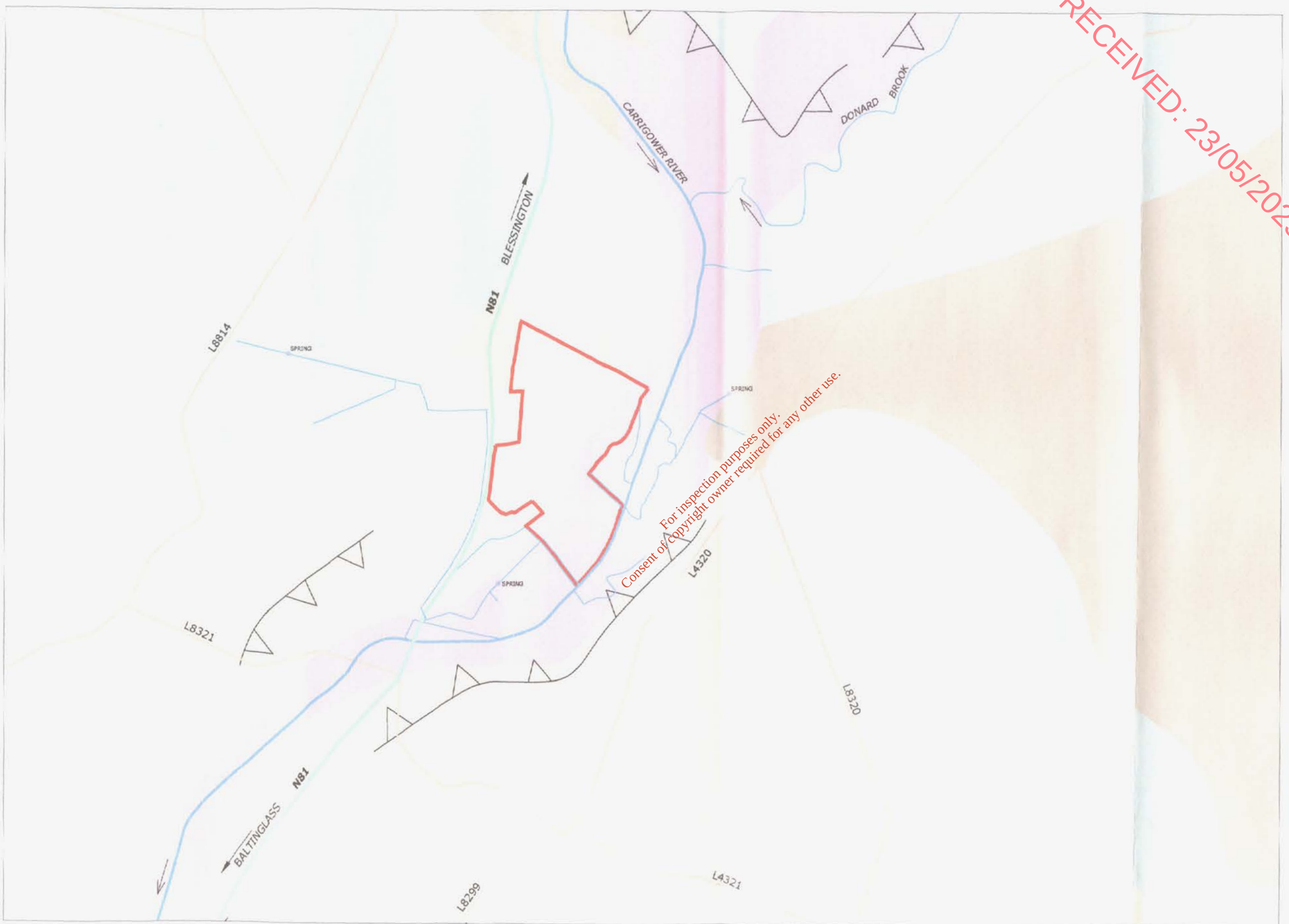
Project:
PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY

Title of Figure.
RESIDENTS NOTIFIED ON 20 FEB 2004 OF PROPOSED DEVELOPMENT.

Scale: 1:10,000 A3	Fig. No. FIG. 3.5.2	Rev. A
Drawn: AS	Job No. 03.116	
Approved: GP		

Prepared by:
Environment & Resource Management Ltd.
NO. 3 TARA COURT, DUBLIN RD., NAAS, CO. KILDARE TELEPHONE 045 874411 FAX 045 876548

CAD\ERM PROJECTS\BROWNFIELD\FIGURES EIS\FIG 3.5.2



N

LEGEND

- NATIONAL SECONDARY ROUTE
- MINOR ROAD
- MAIN WATER COURSE
- MINOR WATER COURSE
- APPLICATION SITE BOUNDARY
- ESCARPMENT IN QUATERNARY SEDIMENT
- IRISH SEA BASIN TILL - CHERT DERIVED
- TILL WITH GRAVELS - CHERT DERIVED
- BEDROCK WITHIN 1m OF SURFACE
- ALLUVIUM

BASED ON DATA SUPPLIED BY THE GEOLOGICAL SURVEY OF IRELAND

Issue Date:

No.	Date	Description
A	MAR. '04	WASTE LICENCE APPLICATION

Surveyed by:
Environment & Resource Management Ltd.

Client:
BROWNFIELD RESTORATION IRELAND LTD.
WHITESTOWN LOWER, CO. WICKLOW

Project:
PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY

Title of Figure:
QUATERNARY GEOLOGY

Scale:	1:10,000 A3	Fig. No.	Rev.
Drawn:	AS	FIG. 3.7.1	A
Approved:	GP	Job No. 03.116	

Prepared by:
Environment & Resource Management Ltd.
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CAD\ERM PROJECTS\BROWNFIELD\FIGURES EIS\FIG 3.7.1

LEGEND

- TRIAL PIT BY ERML DEC. '03
- GROUNDWATER MONITORING WELL INSTALLED PRIOR TO PRESENT OWNERSHIP. (MW-1 TO MW-12, MW03-1 TO MW03-5)
- ESB POLE
- ERML GROUNDWATER MONITORING POINTS (MW04-1 TO MW04-5)
- WASTE ZONES DELINEATED BY ERML DEC. '03
- APPLICATION SITE BOUNDARY
- HAUL ROAD
- NATIONAL SECONDARY ROUTE
- MINOR ROAD
- MAIN WATER COURSE
- MINOR WATER COURSE
- CROSS SECTIONS (SEE FIGURE 3.7.5)

MW5, MW6, MW7, MW8, MW9, MW10, MW11, MW12, MW2, MW03-1, MW03-2, MW03-3, MW03-4, MW03-5, MW04-01, MW04-02, MW04-03, MW04-04, MW04-05

ZONE A, ZONE B, ZONE C

HOUSE, SHED

CARRIGGOWER RIVER

N 81

SITE ACCESS

POSITION OF HOUSE (TYPICAL)

FIELD DITCH (DRY)

A 3.7.5, B 3.7.5, C 3.7.5

ORDNANCE SURVEY IRELAND
LICENCE NUMBER
AR0056004

Issue Date:		
No.	Date	Description
A	MAR 2004	WASTE LICENCE APPLICATION

Surveyed by:
Environment & Resource Management Ltd.

Client:
BROWNFIELD RESTORATION IRELAND LTD.
WHITESTOWN LOWER, CO. WICKLOW

Project:
PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY

Title of Fig.
TRIAL PIT LOCATIONS, WASTE ZONES AND CROSS SECTION LOCATIONS.

Scale:	1:1000A1 1:2000A3	Fig. No.	Rev.
		FIG.3.7.3	A
Drawn:	CC	Job No.	
Approved:	GP	03.116	

Prepared by:
Environment & Resource Management Ltd.
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C:\CAD\ERM PROJECTS\BROWNFIELD\FIGURES EIS\FIG3.7.3

L8814

N

SPRING

BLESSINGTON

N81

MW3
152.22

MW4
140.55

CARRIGOWER RIVER

MW2
149.85

MW5
139.27

SW2

MW12
DAMAGED

MW03-5
141.25

MW04-3

MW04-2

ZONE A

MW03-3
139.04

MW6
139.12

MW03-1
139.08

SPRING

MW04-4

ZONE C

MW7
138.81

R2

MW11
140.83

EXISTING ACCESS

MW03-4

MW04-5

MW04-1

MW8
137.98

SW3

ZONE B

MW03-2
137.68

MW10
137.21

MW9
137.37

L4320

L8320

N81

BALTINGLASS

SPRING

R1

SW5

MW1
135.68

SW4

L4321

LEGEND

- NATIONAL SECONDARY ROUTE
- MINOR ROAD
- MAIN WATER COURSE
- MINOR WATER COURSE
- APPLICATION SITE BOUNDARY
- GROUNDWATER MONITORING WELLS INSTALLED PRIOR TO PRESENT OWNERSHIP (MW1 TO MW 12 AND MW03-1 TO MW03-5) WITH WATER LEVEL mOD. ON 03/02/04
- GROUNDWATER MONITORING WELLS INSTALLED BY ERML JANUARY 2004
- RIVER LEVEL MONITORING POINT (R1)
- SURFACE WATER MONITORING POINT.
- INDICATIVE GROUNDWATER FLOW CONTOURS (mOD) 03/02/04
- INDICATIVE GROUNDWATER FLOW DIRECTION.(03.02.04)
- CROSS SECTION LOCATIONS (see figure 3.7.5)
- WASTE ZONES A,B,C DELINEATED BY ERML IN DEC 03'

ORDNANCE SURVEY IRELAND
LICENCE NUMBER
AR0056004

Issue Date:		
No.	Date	Description
A	MAR. '04	WASTE LICENCE APPLICATION

Surveyed by:
Environment & Resource Management Ltd.

Client:
BROWNFIELD RESTORATION IRELAND LTD.
WHITESTOWN LOWER, CO. WICKLOW

Project:
PROPOSED INTEGRATED WASTE MANAGEMENT FACILITY

Title of Figure.
GROUNDWATER MAP AND CROSS SECTION LOCATIONS.

Scale:	1:4,000 A3	Fig. No.	Rev.
		FIG. 3.7.4	A
Drawn:	AS	Job No.	
Approved:	GP	03.116	

Prepared by:
Environment & Resource Management Ltd.
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CAD\ERM PROJECTS\BROWNFIELD\FIGURES EIS\FIG 3.7.4

APPENDIX 9

Appendix 9-1

Environmental Impact Assessment Report ('EIAR') – Volume 3

Mineral Dust Risk Assessment

Mr. James & Mr. Thomas Metcalfe

Whitestown Lower, Co Wicklow, Ireland

Contents

FIGURES

TABLES

1 DISAMENITY DUST RISK ASSESSMENT

The IAQM Guidance aims to provide advice on robust and consistent good practice approaches that can be used to assess the operational phase dust impacts from quarry activities. [1]

1.1 Identification of Sensitive Receptors

For the sensitivity of people and their property to dust soiling, the IAQM recommends the use of professional judgement to identify where on the spectrum between high and low sensitivity a receptor lies. The following classification was used to define a receptor with High, Medium or Low sensitivity to dust soiling:

High Sensitive Receptor

- Users can reasonably expect enjoyment of a high level of amenity;
- The appearance, aesthetics or value of their property would be diminished by soiling; and,
- The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.

Indicative examples of a high-sensitivity receptor included dwellings, medium- and long-term carparks and car showrooms.

Medium Sensitive Receptor:

- Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home;
- The appearance, aesthetics or value of their property could be diminished by soiling; and,
- The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.

Indicative examples include parks, and places of work.

Low Sensitivity Receptor

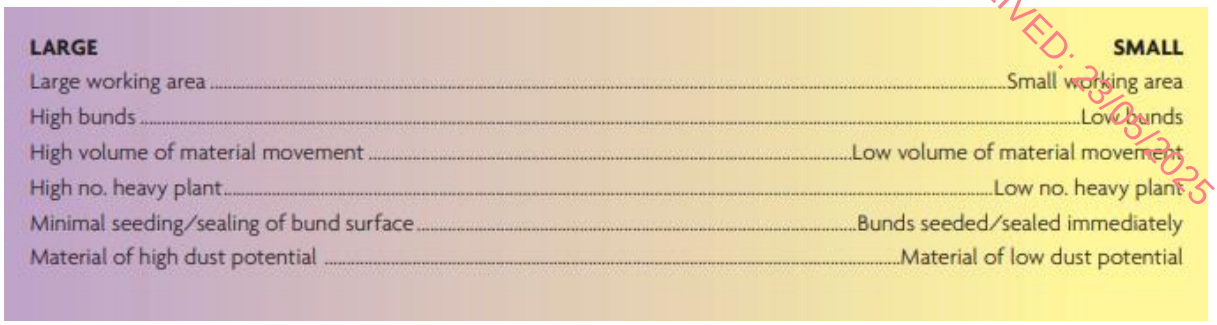
- The enjoyment of amenity would not reasonably be expected;
- There is a property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; and,
- There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.

Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks and roads.

1.2 Determining the Residual Source of Emissions

The following examples show the residual source emissions for a number of activities, illustrating the factors that may be considered when determining the potential impact.

Figure 1-1: Site Preparation / Restoration



An example of a large potential dust magnitude from site preparation/restoration may include factors such as a working area >10ha, bunds >8m in height, >100,000m^3 material movement, >10 heavy plant simultaneously active, bunds un-seeded, fine grained and friable material. Conversely, a small potential dust magnitude may include a site with a working area <2.5ha, bunds <4m in height, <20,000m^3 material movement, <5 heavy plant simultaneously active, all bunds seeded, material with a high moisture content.

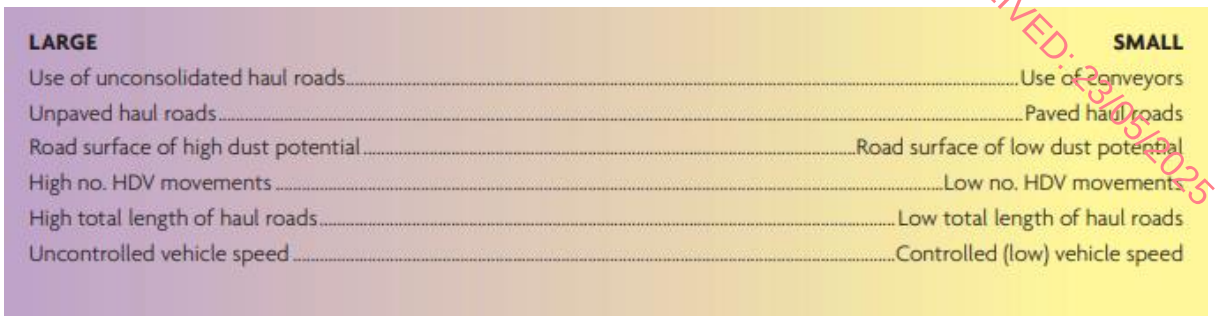
Figure 1-2: Mineral Extraction

An example of a large potential dust magnitude from mineral extraction may include a working area >100ha, drilling and blasting frequently used, dusty mineral of small particle size and/or low moisture content, 1,000,000 tonnes per annum (tpa) extraction rate. A small potential magnitude may include working area <20ha, hydraulic excavator, coarse material and/or high moisture content, <200,000tpa extraction rate.

Figure 1-3: Materials Handling

An example of a large potential dust magnitude from materials handling may include factors such as >10 loading plant within 50m of a site boundary, transferring material of a high dust potential and/or low moisture content on dry, poorly surfaced ground. Conversely, a small potential dust magnitude may include <5 plant, more than 100m of a site boundary, within the quarry void or clean hardstanding, transferring material of low dust potential and/or high moisture content.

Figure 1-4: Onsite Transportation

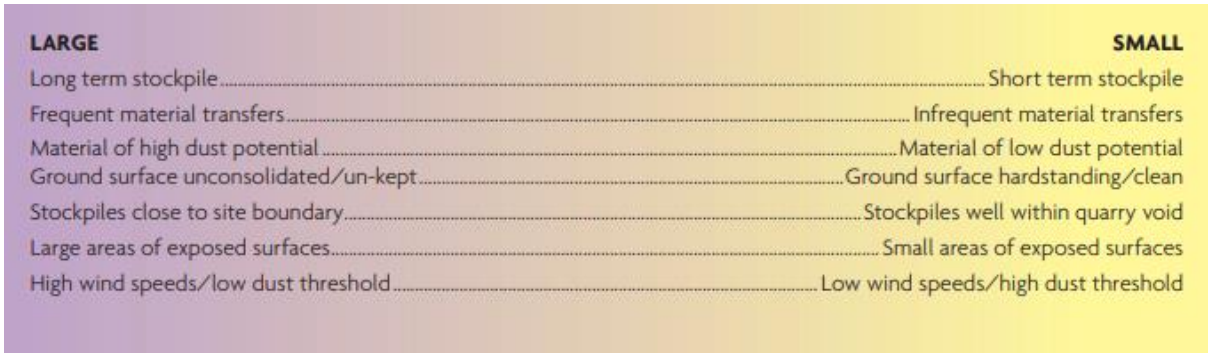


An example of a large potential dust magnitude from on-site transportation could include >250 movements in any one day on unpaved surfaces of potentially dusty material. A small potential magnitude may include the employment of covered conveyors used for the majority of the on-site transportation of material, <100 movements of vehicles per day, with surface materials of compacted aggregate, <500m in length and a maximum speed of 15mph.

Figure 1-5: Mineral Processing

An example of a large potential dust magnitude from mineral processing may include factors such as a mobile crusher and screener with a concrete batching plant on-site, processing >1,000,000tpa of material with a high dust potential and/or low moisture content e.g. hard rock. Conversely, a small potential dust magnitude may include a site with a fixed screening plant with effective design in dust control, processing <200,000tpa of material with a low dust potential and/or high moisture content e.g. wet sand and gravel.

Figure 1-6: Stockpiles / Exposed Surfaces



An example of a large potential dust magnitude from stockpiles and exposed surfaces could include a stockpile with a total exposed area >10ha in an area exposed to high wind speeds located <50m of the site boundary. Daily transfer of material with a high dust potential and/or low moisture content. Stockpile duration >12 months and quarry production >1,000,000 tpa. A small potential magnitude may include stockpile duration of <1 month with a total area <2.5ha in an area of low wind speeds, located >100m from the site boundary. Weekly transfers of material with a low dust potential and/or high moisture content. Quarry production <200,000tpa.

Figure 1-7: Offsite Transportation

An example of a large potential dust magnitude from off-site transportation could include total HDV >200 movements in any one day on an unsurfaced site access road <20 m in length with no HDV cleaning facilities. No road sweeper is available. A small potential magnitude may include <25 HDV movements per day, a paved surfaced site access road >50m in length, with effective HDV cleaning facilities and procedures, and the employment of an effective road sweeper.

1.3 Estimation of the Pathway Effectiveness

The site-specific factors considered to determine the effectiveness of the pathway for duist dispersion were the distance and orientation of receptors relative to prevailing wind directions. Receptors were identified within 250m of the dust emission source. Table 1-1 shows the categorisation of the frequency of potential dust winds based on the meteorological data from a nearby weather station.

Table 1-1: Categorisation of Frequency of Potentially Dusty Winds

Frequency Category	Criteria
Infrequent	Frequency of winds (>5 m/s) from the direction of the dust source on dry days are less than 5%
Moderately Frequent	The frequency of winds (>5 m/s) from the direction of the dust source on dry days are between 5% and 12%
Frequent	The frequency of winds (>5 m/s) from the direction of the dust source on dry days are between 12% and 20%
Very Frequent	The frequency of winds (>5 m/s) from the direction of the dust source on dry days are greater than 20%

Table 1-2 shows the categorisation of receptors, based on their distance to the dust emission source.

Table 1-2: Categorisation of Receptor Distance from Source

Distance Category	Criteria
Distant	Receptor is between 200m and 400m from the dust source
Intermediate	Receptor is between 100m and 200m from the dust source
Close	Receptor is less than 100m from the dust source

Table 1-3 shows the determination of the Pathway Effectiveness based on the frequency of potentially dusty winds and the distance of the receptor from the dust emission source.

Table 1-3: Classification of the Pathway Effectiveness

Receptor Distance Category	Frequency of Potentially Dusty Winds			
	Infrequent	**Moderately Frequent**	**Frequent**	**Very Frequent**
Close	Ineffective	Moderately Effective	Highly Effective	Highly Effective
Intermediate	Ineffective	Moderately Effective	Moderately Effective	Highly Effective
Distant	Ineffective	Ineffective	Moderately Effective	Moderately Effective

1.4 Estimation of the Dust Impact Risk and Effects

Table 1-4 shows the estimation of the Dust Impact Risk based on the Residual Source of Emission and Pathway Effectiveness classifications.

Table 1-4: Estimation of Dust Impact Risks

Pathway Effectiveness	Residual Source Emission		
	Small	**Medium**	**Large**
Highly Effective Pathway	Low Risk	Medium Risk	High Risk
Moderate Effective Pathway	Negligible Risk	Low Risk	Medium Risk
Ineffective Pathway	Negligible Risk	Negligible Risk	Low Risk

1.5 Estimation of the Effects of Dust Impact

Table 1-5 shows the estimate of the likely magnitude of Disamenity Effects based on the receptor sensitivity and the risk of dust impacts.

Table 1-5: Descriptors for magnitude of Dust Effects

Receptor Distance Category	Receptor Sensitivity		
	Low	**Medium**	**High**
High Risk	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk	Negligible effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk	Negligible effect	Negligible effect	Slight Adverse Effect
Negligible Risk	Negligible effect	Negligible effect	Negligible effect

1.6 Mitigation Measures

Proposed mitigation measures are included in the Air Quality Chapter to ensure the potential effect of the Proposed Development on the receiving environment are minimised.

2 REFERENCES

[1] IAQM, "Guidance on the Assessment of Mineral Dust Impacts for Planning," Institute of Air Quality Management, London, 2016.

APPENDIX 10

APPENDIX 10-1

1 CHARACTERISING CLIMATE HAZARDS

1.1 Frequency of Climate Hazards according to Annex B [1]

Table 1-1: Classifying the Frequency of Climate Hazards

Frequency	Frequency Occurrence in a Year	Description
Very Frequent	>100%	Occurs several times in a single year
Frequent	50 to 100%	Occurs once in a 1-to-2-year period
Common	10 to 50%	Occurs once in a 2-to-10-year period
Occasional	1 to 10%	Occurs once in a 10–100-year period
Rare	<1%	Occurs once in over 100 years

1.2 Vulnerability Types

Table 1-2: Description of Different Vulnerability Types [1]

Vulnerability Type	Frequency Occurrence in a Year
Physical Vulnerability	Properties of an asset related to the structure or facilities can exacerbate/reduce the impacts before, during, or after a hazard event e.g. poor design and the construction of the building, provision of active cooling. **or;** Ability of a population/persons to access equipment or resources that can exacerbate/reduce the impacts before, during, or after a hazard event.

1.3 Level of Impacts

Table 1-3: Description of Level of Impacts [1]

Impact	Description	Level of Impact
Catastrophic	Widespread service failure with services unable to cope with wide-scale impacts	5
Major	Services seen to be in danger of failing completely with severe/widespread decline in service provision	4
Moderate	Service provision under severe pressure. Appreciable decline in service provision at a community level	3

Impact	Description	Level of Impact
Minor	Isolated but noticeable examples of service declines	2
Negligible	Appearance or threat but no actual impact on service provision	1

1.4 Magnitude of Impact for Asset Damage Category

Table 1-4: Magnitude of Impact Relating to Asset Damage [1]

Risk Area	Negligible	Minor	Moderate	Major	Catastrophic
Asset Damage	Impact can be absorbed through normal activity	An adverse event that can be absorbed by taking business continuity action	A serious event that requires additional emergency business continuity	A critical event that requires extraordinary/emergency business continuous actions	Disaster with the potential to lead to shutdown or collapse or loss of assets network

2 IDENTIFICATION OF CLIMATE HAZARDS

2.1 Wicklow County Council Climate Change Risk Assessment

The Wicklow County Council Climate Change Risk Assessment has evaluated the risks due to climate change using the following scale (Table 2-1 below) [2]. The Risk is measured as a product of the Impact and Frequency of hazards.

Table 2-1: Wicklow County Council Risk Scale

Impact Description	Impact Score	Frequency Description	Frequency Score
Catastrophic	5	Very Frequent	5
Major	4	Frequent	4
Moderate	3	Common	3
Minor	2	Occasional	2
Negligible	1	Rare	1

2.2 Met Éireann Historical Data

A minimum of 30 years of meteorological data from the Met Éireann Historical Database [3] was analysed to assess the frequency of climate hazards. The Risk was then determined based on the frequency score and its impact on the Proposed Development, as explained in Table 2-1 above.

2.3 European Forest Fire Information System Wildfire Risk Viewer

The European Forest Fire Information System ('EFFIS') Wildfire Risk Viewer [4] was utilised to assess wildfire risk. The Wildfire Risk Viewer evaluates the level of risk based on the vegetation type, classifying land as *Low*, *Medium* or *High* Risk.

2.4 Geological Survey Ireland Landslide Susceptibility Mapping

The Geological Survey Ireland ('GSI') Landslide Susceptibility Mapping resource [5] was used to assess the potential risk of landslides in relation to the Proposed Development. The resource assesses landslide susceptibility based on geological, topographical and environmental factors and identifies areas prone to landslides by considering past landslide events.

2.5 Climate Hazards Associated with the Proposed Development

Table 2-2 below highlights the hazards identified through desk-based research.

Table 2-2: Hazards Identified as Relevant to the Proposed Development from Available Resources

Source	Hazards Identified	Impact Description / Category of Risk (if applicable)
Wicklow County Council Climate Risk Assessment [2]	Heatwave	Minor
	Drought	Minor
	Cold spell	Moderate

Source	Hazards Identified	Impact Description / Category of Risk (if applicable)
	Severe windstorm	Moderate
	River Flood	Moderate
Met Éireann Historical Data [3]	Heatwave/drought	Negligible
	Cold Snaps	Minor
	Severe Wind	Minor
	Extreme Rainfall	Minor
EFFIS Wildfire Risk Viewer [4]	Wildfire	Low Risk
GSI Landslide Susceptibility Mapping [5]	Landslides	Minor

3 REFERENCES

[1] GOI, "Technical Annex B Climate Change Risk Assessment," Government of Ireland , Dublin, 2023.

[2] Wicklow County Council, "Wicklow County Council Climate Change Risk Assessment," KPMG, 2023.

[3] Met Éireann, "Historical Data," [Online]. Available: https://www.met.ie/climate/available-data/historical-data. [Accessed March 2025].

[4] EU Copernicus, "European Forest Fire Information System (EFFIS) Wildfire Risk Viewer," [Online]. Available: https://forest-fire.emergency.copernicus.eu/apps/fire.risk.viewer/. [Accessed March 2025].

[5] Geological Survey Ireland, "Landslides Susceptibility Mapping," 2025.