

**McTigue Quarries Ltd  
Cloonascragh Sand and Gravel Pit, Tuam**



**ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

to accompany a Planning Application for quarrying operations (extraction of sand and gravel); recovery of waste via the importation, recycling and processing of construction and demolition waste; and the restoration of the site with indigenous and recovered natural materials.

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### **NON-TECHNICAL SUMMARY (Separate Document)**

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## **1.0 INTRODUCTION**

This Environmental Impact Assessment Report (EIAR) accompanies a planning application submitted to Galway County Council (Galway Co. Co.) for quarrying operations including the extraction of minerals (sand and gravel), mineral processing activities, the loading of materials, the transportation of materials from the quarry and all related ancillary works related to the same; the recovery of inert waste arising from construction and demolition (C&D) activity<sup>1</sup> via the importation of inert material and the operation of an inert waste recycling facility; and the recovery of natural materials of clay, silt, sand, gravel or stone and which comes within the meaning of inert waste (resultant from the recycling and mineral processing proposed on-site) for the purposes of achieving a beneficial restoration for the site to agriculture<sup>2</sup>.

The site is located approximately 4km to the south east of Tuam, Co Galway and consists of an existing sand and gravel pit. The site benefits from substitute consent ('SC') granted by An Bord Pleanála in December 2015 under Application Reference 07.SU.0056. A copy of the Inspector's Report, Board Direction and Board Order is held at Appendix 1.1.

The EIAR considers the environmental aspects within and around the proposed development project, which potentially could experience impacts as a result of the proposal.

The proposals will see the site worked in accordance with the submitted development plans, with progressive restoration where possible. The entire site will be fully restored to a beneficial afteruse following the completion of extraction operations and will utilise the combined soil making materials from

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<sup>1</sup> As per Class 7 of Part I of the Third Schedule of the Waste Management (Facility Permit & Registration) Regulations 2007, as amended

<sup>2</sup> As per Class 5 of Part I of the Third Schedule of the Waste Management (Facility Permit & Registration) Regulations 2007, as amended

the processing of the in-situ sand and gravel resource and the imported C&D arisings.

The development proposes to remove the sand and gravel within the despoiled footprint of the site, as approved under SC Reference 07.SU.0056 in order to maximise the available resource prior to restoration to a beneficial afteruse (agriculture). The proposed lifetime of the extraction is expected to be up to 10 years dependent upon market conditions. Production volumes are proposed to mirror the site's historical output levels. The pit will be worked in the same manner as previously practiced and approved via the SC process.

## **1.1 Legislative Context**

The legislative context for the planning application accompanied by an EIAR is derived from the European Communities Directive 85/337/EEC as amended by Directive 97/11/EC on the assessment of the effects of certain public and private projects on the environment.

The reporting system has developed as a result of the European Union adopting a new Directive (2014/52/EU) ('The Directive') in relation to Environmental Impact Assessment (EIA). The Directive was published in the Official Journal of the EU on 25th April 2014 and is now in force.

The Directive sets out a wide range of changes to the previous EIA Directive (2011/92/EU). The changes have been transposed into Irish law via Statutory Instrument No. 296 of 2018- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 that provides for amendments to the planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) ('the Regulations'). This EIAR has been prepared in accordance with the amended Act and Regulations.

Schedule 5 Part 2 of the Regulations implements Annexes I and II of the EIA Directive into Irish law and provides the following “thresholds” in respect of the extractive industry and infrastructure projects, so that an EIA is required in respect of, or against which an EIA determination is required:

## **“2. Extractive Industry**

### ***(b) Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares”***

The landholding comprises c.7.11ha and consists of the existing sand and gravel pit. The planning application boundary comprises an area of c.6.5ha. The site area is greater than 5ha and given that one of the elements of the proposed development is for the extraction of minerals (sand and gravel), it is considered that the planning application is required to be accompanied by an EIA.

## **1.2 EIAR Format and Structure**

Although certain headings within this EIAR may be altered from the standard headings outlined in the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, the overall structuring and scope of the report has regard to the informational requirements of the EC Directives and Irish Statutory Regulations.

This EIAR is produced in the Grouped Format Structure and is compiled and presented in as transparent and as open a manner as possible. The various authors involved in its compilation have attempted to present their findings and recommendations in a clear and unambiguous fashion. The EIAR comprises three separate parts:

- The Non-Technical Summary;
- Volume I- the Main EIA Report; and

- Volume II- the Appendices.

Volume I of the EIAR is presented in the following form as presented below:

### **VOLUME I – The Main Report**

- Section 1 The preamble outlines the background and terms of reference for the EIAR and outlines the format and the assumptions that underpin the report.
- Section 2 Review of the reasonable alternatives and the alternative designs considered by the applicant and the scope of the assessment with respect to the site's particular characteristics.
- Section 3 defines the planning and development context in which the planning application is assessed
- Section 4 describes the features of existing Pit and outlines the proposed development
- Sections 5-18 incorporates the main body of the EIAR and outlines the aspects of the environment likely to be significantly affected by the proposed development, as identified in the Regulations:

***population and human health, biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive, land, soil, water, air, climatic factors, material assets, cultural heritage and the landscape.***

As the EIAR is produced in the Grouped Format Structure, this approach can lead to certain topics, such as human health, being covered to varying degrees in most of the individual Sections, whereas other specific areas required under

legislation fall almost exclusively into one Section. For those aspects of the environment likely to be significantly affected by the proposed development, that fall neatly into one or two sections the sections within which they are covered are shown overleaf.

Section	Heading	Aspects Required to be covered under the Regulations
5	Geological Assessment	Soil – Material Assets
6	Water Environment	Land-Water-Population and Human Health
7	Noise and Vibration	Population and Human health – Material Assets
8	Air Quality and Climate	Air – Biodiversity- Population and Human Health-Climate
9	Landscape	Landscape
10	Waste Management	Landscape – Material Assets- Population and Human Health
11	Biodiversity	Biodiversity
12	Traffic Impacts	Noise-Air
13	Cultural Heritage	Cultural Heritage
14	Soil and Natural Resources	Soil
15	Socio-Economic Impacts	Population and Human Health
16	Climate Change, Accidents and Disasters	Climate, Major Accidents and Disasters
17	Human Health	Human Health
18	Intra and Inter Cumulative Impacts	Inter-relationship of above factors

**Table 1.1 Sections within EIAR that cover the Aspects Required to be covered under the Regulations**

It is considered that a number of the elements which are required to be covered under the Regulations are covered across sections of the EIAR. By way of example, the potential risks arising from accidents or disasters have been considered in a number of reports including the Hydrological and Hydrogeological Impact Assessment and the Ecological Impact Assessment.

Furthermore, the project to which the proposal relates provides for the removal of the remaining sand and gravel resource at the site, with wate recovery and restoration to agricultural use. It is therefore considered that of all development

types, this is of the form that is least at risk from an accident or environmental disaster.

The EIAR considers the inter relationship between the various factors and assesses accordingly. Each section confirms the scope of the assessment and the context within which it has been undertaken. Each section sets out any limitations or difficulties to survey work so that, if these exist, they are clear to the reader. The baseline conditions for each of the environmental topic areas are also confirmed and the potential effects of the development on that baseline are identified.

### **1.3 Pre-Application Consultation**

No formal pre-application discussions were held with Galway Co. Co. prior to the submission of the planning application, however, meetings were held with Galway Co. Co. Planning Officer, Valerie Loughnane regarding the project. The scope of the EIAR has been determined via a combination of the experience of the competent experts who have contributed to the EIA and review and consideration of the remedial Environmental Impact Statement (REIS) and other application documents associated with the granting of SC in 2015.

An Article 11 Declaration Request under the Waste Management (Facility Permit & Registration) Regulations 2007 ('the Waste Management Regulations') was made to the Environmental Protection Agency (EPA) by Quarryplan on behalf of the Applicant. The request has been reviewed by the Environmental Licensing Programme (Office of Environmental Sustainability) at the EPA (cc. Director of Services, Environment Section, Galway County Council).

As detailed in correspondence dated 18<sup>th</sup> January 2022 held at Appendix 1.2, the restoration element of the proposals has been deemed by the EPA to constitute a Class 5 recovery operation under Part I of the Third Schedule of the Waste Management Regulations.

In the same declaration, the inert recycling element of the proposals has been deemed by the EPA to constitute a Class 7 operation for the recovery of inert waste arising from construction and demolition activity.

The declaration has been used to inform the design and scoping of the project and to inform relevant sections of this EIAR, in particular the Water Environment Section.

#### **1.4 Competency and Expertise**

The coordination of the competent experts and the production of this EIAR has been managed by Chris Tinsley BA (Hons), DipTP, MRTPI of Quarryplan Limited, who has a proven track record of delivering planning and environmental projects, development plan representations and planning appeals. Chris has a proven record of managing EIA development projects, project managing, producing expert environmental statements and providing supporting environmental information to accompany regular planning applications, with specialist additional expertise in the area of minerals and renewable energy projects.

The EIAR has been reviewed by Andrew Scurfield BSc MRICS, Chartered Mineral Surveyor and Director at Quarryplan. Andrew has 30 years' experience in contributing to and Project Managing Environmental Impact Assessments to accompany Mineral Extractive Projects.

All external consultants have been appointed and project managed by Quarryplan. The specialist reports are either provided as a Section of this report or else summarised in the Section with the full report appended.

Provided below is the contributor to each Section in accordance with one of the main features of the EIA Regulations, that an EIA must be carried out by persons with appropriate expertise. In this regard it is confirmed that the EIAR

has been prepared by competent experts, whom all have significant experience in their chosen area of expertise. Each of the Specialist Contributor's competencies is listed at the beginning of each of the relevant sections.

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Section	Heading	Specialist Contributor
1	Introduction	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
2	Scope of the Environmental Impact Assessment	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
3	Planning Policy Framework	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
4	Project Summary and Objectives	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI  Jack Finch BSc(Hons), MSc, FGS, MIMMM  Henry Lister, BCL Hydro B.Sc. M.Sc.  Pete Mullin, Mullin Design Associates BA (Hons) CMLI
5	Geological Assessment	Jack Finch BSc(Hons), MSc, FGS, MIMMM
6	Water Environment	Henry Lister, BCL Hydrogeologists Limited B.Sc. (Hons.) M.Sc.
7	Air Quality and Dust	Mervyn Keegan, AONA B.Sc., M.Sc.
8	Noise and Vibration	Mervyn Keegan, AONA B.Sc., M.Sc.
9	Landscape	Pete Mullin, Mullin Design Associates BA (Hons) CMLI
10	Waste Management	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI  Jack Finch BSc(Hons), MSc, FGS, MIMMM
11	Biodiversity	Philip Doddy PhD BSc (Hons)
12	Traffic Impacts	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
13	Cultural Heritage	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
14	Natural Resources	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI



15	Socio-Economic Impacts	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
16	Climate Change, Accidents and Disasters	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
17	Human Health	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI
18	Intra and Inter Cumulative Impacts	Chris Tinsley, Quarryplan BA (Hons), DipTP, MRTPI

No significant difficulties were encountered while compiling the necessary information for the EIAR.

The specialist reports include assessments of baseline conditions; existing and potential impacts; the magnitude and significance of those impacts and proposed mitigation measures, where necessary. This approach is considered to be compliant with the national legislation with respect to EIA.

**Table 1.2 Specialist Contributors to EIAR**

**1.5 Trans-boundary Issues**

The Site is located a considerable distance from the national boundary between Northern Ireland and the Republic of Ireland, it has been concluded that it is unlikely that there will be areas where there is a potential for trans-boundary effects.

If any such areas should arise within the individual assessments they have been dealt with, where they occur, in the individual reports.

## 2.0 SCOPE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

The establishment of the extent of the scope of an environmental impact assessment forms an integral part of the overall process. The aim of the scoping study is to consider at the earliest opportunity all elements that the proposed development may impact upon. In addition, it is incumbent upon the assessment to consider alternative locations for the development.

Annex IV(2) of the amended EIA Directive requires an EIAR to contain:

*“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” [own emphasis added].*

The EPA Draft Guidelines 2017 describe how the objective is for the developer to present a representative range of the practicable alternatives considered.

Guidance is also taken from the ‘Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment’ Document published by the Department of Housing, Planning and Local Government in August 2018. The Guidelines, at Paragraph 4.13 states:

*“The type of alternatives will depend on the nature of the project proposed and the characteristics of the receiving environment. For example, some projects may be site specific so the consideration of alternative sites may not be relevant”.*

The development proposals seek permission for the extraction of minerals (sand and gravel); the importation of inert C&D Waste (C&DW) for recycling; and sand and gravel pit restoration. The primary element of the development proposals is considered to comprise of the winning and working of minerals,

with the processing and restoration of the site whilst incidental to the mineral extraction, essential to the beneficial site restoration. The proposals are therefore considered a continuation of operations authorised via the SC process. Such circumstances effectively eradicate the potential for alternative geological sites to be considered.

Notwithstanding, it is reasonable, in this case, to consider the option of exploitation of sand and gravel from other sites where it is found; if the mineral is appropriate to the Applicant's needs, if the scale of the operation and processes are feasible and if other mineral operators/landowners are willing to sell/lease their reserves or land holdings to the Applicant.

## **2.1 Alternative Locations**

It is recognised within local and national planning policy that minerals are unusual in development terms, in that, that they can only be worked where they naturally occur, so the usual criteria applied in site searching exercises, which is predominantly development plan-led, cannot be wholly adopted.

The location of minerals developments is not only governed by geological constraints, but as haulage comprises such a large percentage of selling price (in the region of 25-40%), geographical location is also a key component. Due to the market forces of supply and demand this constrains mineral operations to a given distance from a target market.

The effective limitation when it comes to the viability of mineral operations is the transport cost. Transport is by heavy goods vehicles (HGV) with loads typically being of the order of 20 tonnes. Transport costs are high for such vehicles and this affects profitability as prices are usually quoted inclusive of delivery of the product.

With respect to transport and haulage costs, the Inter Trade Ireland: Report on a Competitive Analysis of the Construction Materials Sector in Ireland

estimates that transport costs limit the effective range of operations 20 miles (32km) from the relevant quarry. Evidence of the market demand within this radius is provided via the number of quarry operations evident in the surrounding area, indeed the sand and gravel pit at Cloonascragh has been in operation since prior to the implementation of the Planning and Development Act in 1963. This demonstrates how the application site is located within a sufficient proximity of the marketplace in order to sustain mineral businesses in the area for 60 years.

### **2.1.1 Alternative Sites Considered**

A review of potential alternative sites has therefore been undertaken within a 32km radius of the existing sand and gravel pit (i.e. within the effective range of operations as limited by transport costs and to continue to meet existing market demand).

Given that planning policy seeks to minimise the impacts associated with quarry developments, the assessment of alternatives has focussed on existing mineral workings and their immediate surroundings (to include lands potentially suitable for a lateral extension) as opposed to undeveloped, greenfield sites which are likely to result in greater impacts upon the environment.

The process involved identification of all mineral sites within the 32km radius. This was achieved with reference to Geological Survey Ireland (GSI) Quarry Directory records. The Quarry Directory (2014) provides information on crushed rock, sand and gravel, and dimension stone operations throughout the country and has been utilised along with the knowledge and research of the Agent and Applicant.

The results are shown in Table 2.1 and Figure 2.1, appended at Appendix 2.1.

Of the fourteen quarries and pits identified via GSI records, nine were identified as limestone quarries, with the remaining five comprising sand and gravel pits.

Of the nine limestone quarries, the Applicant owns one of them - the quarry at Cartron, Belclare. In any event, the Limestone quarries were discounted from the consideration of suitable alternatives as the mineral type is not suitable.

Of the remaining five sand and gravel pits, at the time of writing, none were identified as being available for acquisition. In many cases, the alternatives were also more constrained than the Cloonascragh Pit due to the proximity of sensitive residential receptors and proximity/ potential connectivity with European designated sites.

Having considered the information above and that presented in Appendix 2.1, there are not considered to be any suitable alternative locations to that proposed within the planning application primarily due the lack of availability of a suitable mineral resource elsewhere; the opportunity for acquisition; proximity to environmental constraints and potential connectivity with environmental designations.

### **2.1.2 Best Practical Environmental Option**

A number of considerations are important when identifying sites for potential mineral extraction including:

#### **2.1.3 The availability of mineral**

Mineral development is unique in that the mineral resource can only be worked where it is found. The application site has been the subject of geological site investigation works which confirms the presence of commercially viable volumes of the sand and gravel resource at the site which lie above the water table and therefore negates any need for de-watering and allows for a beneficial afteruse for the site to be delivered.

#### **2.1.4 Mineral Sterilisation**

The mineral resource has not been sterilised by existing or previous built development which would preclude the winning and working of the same. The site is comprised of an existing sand and gravel pit.

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#### **2.1.5 Access and Highways**

The application site offers the opportunity to utilise an existing, established and approved mineral access on to a regional route (R347). The surrounding highway network is also suitable for use by HGV's as determined via the SC process. Further details on the proposed highways arrangements are provided at Section 11.

#### **2.1.6 Resource Size**

In order achieve a commercially viable business and offset the business operations against the significant initial capital investment, a site is required which is of a sufficient size (mineral volume) to deliver a quantity of mineral which will allow the business to operate viably, that is to say provide a payback upon the significant upfront capital investment associated with mineral extraction and processing. In this instance, a site which will be of a sufficient size to allow the working of the mineral resource to be commercially viable has been acquired by the applicant.

#### **2.1.7 Land Ownership**

Perhaps the most important aspect is the availability of land which is within the ownership of a party who has made the mineral available to be worked. In this instance the land is within the ownership of the applicant, which wishes to see the mineral resource at the deposit worked and beneficially restored. It is noted that the land ownership differs from that detailed in the SC application and the SC consent boundary, as the site has been acquired from the previous

landowner / applicant, whom split the site at time of an enforced sale. The planning application submitted relates to the lands in control of the applicant.

As a result of the land being within the ownership of applicant, the Planning Authority can be satisfied that if permission is granted that the development can be delivered and that the site will actively contribute towards the steady and adequate supply of mineral in the county, provide a C&D Recycling facility and will see the site beneficially restored.

### **2.1.8 Proximity to market**

As evident throughout the local area, there are numerous mineral workings. The success of mineral workings in the area is a combination of reserve quality, availability and also the proximity of the resource to potential customers, with the proximity of the town of Tuam and the Galway city conurbation proving a major factor in this. The site is well placed in order to serve the local market in terms of aggregate sales and as a facility for C&DW for the proposed recycling operation. The mineral resource is located within such a proximity to the market that the mineral operation can be viable, with material for recycling imported to the site via return loads. The costs associated with the transportation of the mineral/C&DW from the nearest urban centres are therefore not prohibitive.

### **2.1.9 Planning Policy**

The site is not located within or adjacent to any designation for the protection of natural or cultural heritage. The extractive policies of the Galway County Development Plan ('GCDP') aim to ensure adequate supplies of aggregate resources to meet future growth needs within County Galway without adversely affecting the environment or adjoining existing land uses. The proposed development is therefore considered compliant with relevant planning policies.

### 2.1.10 Surrounding land uses

There are few sensitive receptors in the area surrounding the development site with sufficient separation distances achievable between the proposed operations and the nearest residential properties, thereby minimising any potential impacts associated with nuisance or loss of amenity. This avoids the need for development elsewhere which may be in a more sensitive location in terms of proximity to residential properties.

Having considered the above, the selected site provides **the Best Practical Environmental Option (BPEO)** for the proposed development.

## 2.2 Alternative Design Elements Considered

As the application site is comprised of an existing, partially worked Sand and Gravel Pit, the potential for alternative approaches and designs have been limited. Notwithstanding, in the production of the planning application and EIAR several alternative approaches and designs have been considered regarding the proposed development. Alternative design elements included:

- **Extraction at the site below 34mAOD-** This approach was discounted as it would involve the potential for sub watertable working and as such, a requirement to de-water the site. The sub-water table working would, in turn, limit the restoration opportunities for the site.
- **Restoration of faces without any further extraction of mineral-** This approach was discounted as it would mean that the remainder of the identified mineral resource at the site would affectively be sterilised. It is considered important that best use of the mineral from this previously disturbed footprint be made, in order to avoid the potential for mineral extraction elsewhere, in locations which may be less appropriate for such development.



- **Restoration with indigenous material only-** this approach was discounted as the volume of material available within the site is not considered sufficient to allow the site to be beneficially restored. Additional, recovered inert materials will allow suitable slope angles to be achieved so as the site can be accessed by machinery and worked safely in the future. This Restoration with indigenous material only option would also neglect the opportunity for the site to provide an important construction and demolition waste facility, with the benefits associated with the HGV movements (i.e. HGV's able to make a return load of C&DW when delivering mineral to a construction project) and the use of the processing plant which will be at the site, for use in mineral processing.

Following consideration of the above alternative designs, the proposed development plans were finalised and are included as part of the planning application package.

### **2.3 Scope of the Environmental Impact Assessment Report (EIAR)**

Legislation and guidelines outline that the scope of an EIAR needs to be determined by evaluating the aspects of the environment likely to be significantly affected by the development with reference to the following categories and their inter relationship.

- **Human Health**
- **Biodiversity**
- **Population**
- **Soil**
- **Water**
- **Air**
- **Climate**

- **Material Assets**
- **Cultural Heritage**
- **Landscape**

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This EIAR considers the potential significant effects and consequences on the environment of the development and assesses whether such effects are:

- **direct or indirect;**
- **short, medium or long-term;**
- **reversible or irreversible;**
- **beneficial or adverse.**

Where significant adverse effects are identified, a description of the measures necessary to avoid, reduce or remedy these effects is provided (mitigation measures).

To determine the environmental aspects that should be addressed within this EIAR, each of the main activities within the development were examined and potential impacts arising from those activities were identified, together with receptors of any such impacts. The main site activities, impacts and receptors are all identified within Table 2.2 overleaf.

<b>Proposed Activity</b>	<b>Potential Source of Impact (Alphabetical order)</b>	<b>Potential Receptors (Alphabetical Order)</b>
Mineral extraction, internal transportation of mineral / restoration	Land use Dust Visual Noise	Agriculture Air Quality Archaeology Ecology Humans Landscape Water Environment
Material processing (indigenous and recycling)	Land use Dust Visual Noise	Air Quality Humans Landscape

Transport to and from site	Traffic	Humans
Restoration and afteruse	Land use Visual	Landscape Ecology Humans Agriculture Water Environment

**Table 2.2. Site Activities, Impacts and Receptors**

From the identification of potential impacts and receptors, a scoping matrix has been compiled which gives a clear indication of the main impacts to be assessed within this EIAR. The scoping matrix is set out overleaf in Table 2.3 and has been prepared taking cognisance of pre-application discussions with the Council.

Potential Source of Impact	Potential Receptor						
	Agriculture	Archaeology	Humans	Landscape	Water Environment	Ecology	Air Quality
Landtake	✓	✓		✓	✓	✓	
Visual			✓	✓			
Noise			✓			✓	
Dust	✓		✓	✓	✓	✓	✓
Traffic			✓				✓
After-use	✓		✓	✓	✓	✓	

**Table 2.3: EIA Scoping Matrix**

The EPA Guidelines state that:

*“Clear, concise, unambiguous information is essential throughout an EIAR. A systematic approach, standard descriptive methods and the use of replicable assessment techniques and standardised impact descriptions contribute to ensuring that all likely significant effects are adequately considered and clearly communicated”.*

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Paragraph 4.5 of the guidelines describe how:

*“Excessive length [of an EIAR] can be a considerable barrier to effective public participation”*

This approach can be achieved by avoidance of duplication of optimised assessments and by focusing upon the “likely and significant” effects of a proposed development. These elements need to be discussed in detail whereas other issues, with little or no significance, may require only brief investigation. This will indicate that an area has been given due consideration but has been rejected from requiring a full investigation, in the interests of achieving a clear, concise and unambiguous EIAR which also allows for more effective public participation.

## **2.4 EIA Scoping Opinion**

Whilst no EIA scoping opinion was sought from Galway Co. Co., the scope of the EIAR has been determined by the project team, who all have significant experience in environmental assessment within the minerals and waste sectors, as outlined at Section 1.4 above.

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### **3.0 PLANNING POLICY FRAMEWORK**

This section considers the development in the context of the following contemporary planning policy sources:

- Galway County Development Plan (2015-2021);
- The National Spatial Strategy (2002-2020);
- Sustainable Development- A Strategy for Ireland (1997);
- National Planning Framework (2018); and
- Regional Planning Guidelines for the West 2010-2022 (2010).

Galway Co. Co. commenced the preparation of the 2022-2028 County Development Plan in 2020 with the draft plan on public display and available for public consultation in Spring/Summer 2021. The plan is still at an early stage of preparation and therefore is not considered any further in this section.

#### **3.1 Galway County Development Plan (2015-2021)**

The Galway County Development Plan (GCDP) was adopted in 2015 and sets out an overall strategy for the proper planning and sustainable development of the functional area of Galway County. Section 6.21 of the GCDP relates to mineral extraction.

**Policy EQ1** relates to environmental management practice. The aim of the policy is to ensure that mineral developments have regard to best environmental practice and to undertaking activities in accordance with Natura 2000 requirements. The planning application is accompanied by a Natura Impact Statement (NIS) which concludes that with full implementation of the mitigation measures and guidance referred to in the NIS document that, in view of best scientific knowledge and in view of the conservation objectives of the aforementioned European Sites, the proposed development will not have any adverse effects on the integrity of any European Sites, either alone or in-

combination with other plans or projects. The proposed development is therefore considered to accord with Policy EQ1.

**Policy EQ2** relates to a steady supply of aggregate resource. The aim of the policy is to ensure adequate supplies of aggregate resources to meet future growth needs within County Galway without adversely affecting the environment or adjoining existing land uses.

The proposed development would release some c.264,000 tonnes of sand and gravel. This will not only contribute to the local supply of aggregate but will also sustain local economic activity within the area. As demonstrated throughout this EIAR, the proposed development is not anticipated to result in any significant effects upon the environment and as such, is considered to accord with Policy EQ2.

**Objective EQ1** relates to the protection of natural assets. The aim of this policy is to safeguard protected areas from inappropriate development. The application site is not located within or adjacent to any designated areas. Given the conclusions of this EIAR and the accompanying NIS, the proposed development is not anticipated to give rise to any significant effects upon the environment or the integrity of European sites. As such, the proposed development is considered to accord with Objective EQ1.

**Objective EQ2** relates to management of aggregate extraction. The aim of the policy is to ensure that quarry developments accord with up to date guidance, include appropriate mitigation and ensure quarry development has a minimal impact upon the landscape, highways and amenity. As demonstrated throughout this EIAR, the planning application has been prepared in accordance with relevant guidance and the proposed development is not anticipated to result in any significant effects upon the environment. As such, the proposed development is considered to accord with Objective EQ2.

**Objective EQ3** relates to sustainable reuse of quarries. The aim of the policy is to encourage the use of quarries and pits for the sustainable management of post recovery stage construction and demolition waste. It is proposed that the site is restored with inert, non-hazardous materials derived from the proposed recycling operations at the site, which will be sourced from local construction and demolition projects. As referenced in the policy, the proposed development will provide an alternative to using agricultural land. As such, the proposed development is considered to accord with Objective EQ3.

**Objective EQ4** relates to compliance with the EU habitats Directive. As referenced above, the planning application is accompanied by a NIS which concludes that that with full implementation of the mitigation measures and guidance referred to in the NIS document that, in view of best scientific knowledge and in view of the conservation objectives of the aforementioned European Sites, the proposed development will not have any adverse effects on the integrity of any European Sites, either alone or in-combination with other plans or projects. As such, the proposed development is considered to accord with Objective EQ4.

**Policies EDT1-10** relate to economic development and tourism. The aim of the policies is to promote economic development without resulting in any unacceptable impacts on the environment and resist any development which would adversely impact tourism.

The proposed development will sustain employment within the Applicant's business and generate local economic activity through a range of local spending on the likes of transport, fuel, wages, purchases and business rates. The development involves the removal of the remaining mineral within an existing, authorised quarry and the final restoration of the same. The aggregate resultant from the development would assist in local construction projects (both supplying aggregate and a waste facility) and highways projects which in turn will benefit tourism. As such, the proposed development is considered to accord with the relevant economic and tourism policies contained within the GCDP.

**Policies T11-11** relate to transport and infrastructure. The proposed development would not result in any intensification in highways movements above that considered previously acceptable via the grant of substitute consent. As such, the proposed development is considered to accord with the transportation and infrastructure policies of the GCDP, where applicable.

**Policies WS1-6** relate to water. As detailed further in Section 6, the proposed development is not considered to pose an unacceptable impact upon ground or surface water. As such, the proposed development is considered to accord with the water policies of the GCDP, where applicable.

**Policies WM1 and 2** relate to waste management. The proposed development will provide an important local waste facility, allowing waste to beneficially restore the site as opposed to going to landfill elsewhere. As such, the proposed development is considered to accord with the waste management policies of the GCDP, where applicable.

Waste Management Objectives WM1-WM7 primarily relate to household and hazardous waste and make reference to the regional Waste Management Plan. Household and hazardous waste are not relevant to the proposals and the regional plan is considered later in this section of the EIAR.

**Policies CC1-8 and FL1-5** relate to climate change and flood risk. As discussed at Section 6, the proposed development is not considered to be particularly susceptible to climate change, nor would it result in increased flood risk either at the site, in the vicinity, or further downstream. Given the development type, the development is not one which is vulnerable to flood risk. As such, the proposed development is considered to accord with the climate change and flood risk policies of the GCDP, where applicable.

**Policies GH1-4 and AH1 and 2** relate to heritage. Given the conclusions of the previous substitute consent application for the site and separation distances



between the site and the nearest heritage assets, the proposals are not considered to impact upon heritage assets. As such, the proposed development is considered to accord with the heritage policies of the GCDP, where applicable.

**Policies ARC1-6** relate to archaeology. The site is comprised of a previously worked sand and gravel pit, all topsoils and overburden have been stripped and therefore the proposed development has no potential for archaeology. As such, the proposed development is considered to accord with the archaeology policies of the GCDP, where applicable.

**Policies NHB1-8** relate to natural heritage. As detailed in the Biodiversity Section of this EIAR, the proposed development is not considered to result in any unacceptable impacts upon designated sites. The application site is considered to be of low ecological potential. As such, the proposed development is considered to accord with the natural heritage policies of the GCDP, where applicable.

**Policy LCM1** relates to landscape character. The application site is comprised of a previously worked sand and gravel pit. The application site is located within the disturbed quarry footprint. The proposed development would result in only a modest landscape impact given the extent of quarrying operations to date. Furthermore, any impacts would be temporary with the site being restored following the completion of extraction. As such, the proposed development is considered to accord with the landscape policies of the GCDP, where applicable.

**Policies RA1-5** relate to amenity. As detailed in section 5, given the separation distance between the site and the nearest sensitive receptors, the proposed development is not anticipated to result in any unacceptable impacts upon amenity by virtue of noise, dust or visual impact. As such, the proposed development is considered to accord with the amenity policies of the GCDP, where applicable.

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**Given the above, the proposed development is considered to accord with the provisions of the GCDP.**

### **3.2 The National Spatial Strategy (2002-2020)**

The National Spatial Strategy (NSS) 2002-2020 sets out the long-term planning and development framework context for the future growth and development of the state up until the year 2020. Among its key aims is to

*“achieve a better balance of social, economic, physical development and population growth between regions”*

The site is located within the West Region. Section 4.8 of the NSS states that:

*“Building on the dynamic role of Galway as a gateway and expanding its influence in promoting economic activity will be at the heart of extending balanced regional development to the West region (Counties Galway, Mayo and Roscommon). The support of the additional potential of Castlebar and Ballina in County Mayo and Tuam in County Galway as hubs will also be crucial”.*

In terms of Galway City, the NSS identifies how

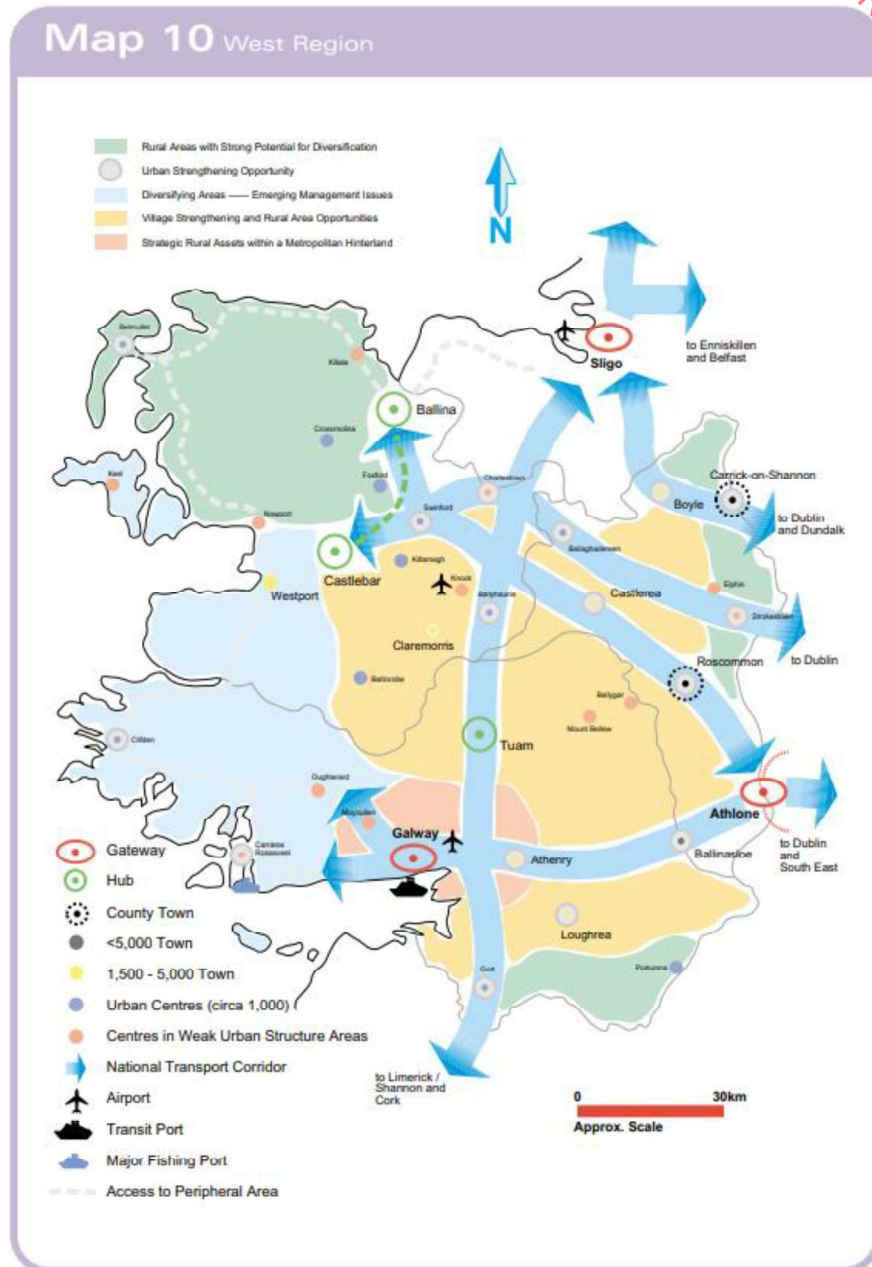
*“Galway, with its population catchment, quality of life attractions, transport connections and capacity to innovate with the support of its third level institutions, will continue to play the critical role which has been essential in activating the potential of the region. The challenge now is to sustain and broaden this role to strengthen other areas”.*

With regards to County Towns and towns with a population over 5,000, the NSS states:

*“Castlebar, Ballina and Tuam, as hubs, will perform important roles within the national structure at the regional and county level. Critical factors will include improvements in regional accessibility through advanced communications infrastructure, by road and public transport and through the regional airport at Knock”.*

The application site is located c. 7km from Tuam and c.23km from Galway City. Significant economic importance is placed upon each of the settlements with Map 10 of the NSS identifying Tuam as a Hub and Galway City as a Gateway (see Figure 3.1 overleaf).

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**Figure 3.1 NSS Map 10 Extract**

The application site benefits from excellent access to the regional and national road network. Given the site’s geographic location and the resource quality and availability, the site can be viewed as having a significant regional influence by providing the necessary raw materials required in terms of sustaining the roles of Tuam and Galway as important economic centres, as envisaged via the NSS.

The proposed development at the site will be complementary to the designations at Tuam and Galway through its role as an important generator of affordable and sustainable building materials. The proposed development will also sustain employment in the local area, with knock-on impacts in terms of local expenditure in the settlements.

The NSS recommends that planning policies should be proactive in catering for future needs including the advance provision of relevant services and infrastructure. The proposed development at Cloonascragh will assist in sustaining the roles of the identified settlements as envisaged by the NSS, thus allowing for sustainable patterns of growth and development patterns within the region.

### **3.3 Sustainable Development- A Strategy for Ireland (1997)**

The principle of sustainable development is now a fundamental tenet of land use planning policy in Ireland. The document 'Sustainable Development – A Strategy for Ireland', published by the Department of the Environment in 1997 contains a framework for applying the principles of sustainable development to different sectors of the economy.

The general principle of sustainable development has also been enshrined in the Planning and Development Act 2000 (as amended) and in County Development Plans, including the GCDP.

In this context, the proposed development has been influenced by these policies and seeks to provide an appropriate methodology to maximise the exploitation of local resources.

There are several sections and policy recommendations outlined in the Sustainable Development Plan which are reviewed in the context of the proposal, as set out below.

The 'Strategic Framework' section outlined in the plan attempts to put in context perceived incongruities whereby on the one hand, there is a fundamental requirement to meet the present day needs in a sustainable way while on the other hand equally ensuring equity in access to, and use of resources, as well as equitable opportunities to participate in decision-making processes all with an overriding goal to achieve economic and social progress.

Within the priorities for action identified within the Strategic Framework are:

- a balance between the conservation and utilisation of resources;
- concrete action on the basis of practical programmes and clear targets and;
- an ability to measure and monitor sustainable development performance.

Accordingly, the Government's priorities within the framework of the Strategy are to:

- undertake a high level of environmental protection so that renewable resources are conserved and not depleted beyond their renewable rates;
- ensure that non-renewable resources are used prudently and efficiently with a strong emphasis on the use of substitute resources, where practicable
- and the concentration of critical natural capital on the needs of the future;

The Environment and Economic Development Chapter of the strategy quotes:

*"Ireland should replace the traditional adversarial approach that presents industrial development and environmental protection as opposites. The new approach should simultaneously maintain high environmental quality and promote a competitive enterprise sector"* - Forfas, Shaping our Future.

The Extractive Industries section accepts that quarrying for stone, gravel, sand, crushed rock, etc is based on an ultimately finite resource, stating that products are used mainly in the construction industry, both as crushed rock and for the production of cement. The strategy also notes that ground limestone is also used in agriculture.

The strategy goes on to state that whilst in principle raw materials for the quarrying industry are not in short supply, the environmental impacts, require greater consideration. In certain cases, demand for aggregates for use by the construction industry could be met in some degree by recycling and reuse of construction/demolition waste. The proposed development will therefore directly assist in achieving the provisions as detailed in this plan.

Given the above, the development is considered to accord with the provisions of the Sustainable Development Strategy for Ireland.

### **3.4 National Planning Framework, 2018**

The National Planning Framework (NPF) is the Government's high-level strategic plan for shaping the future growth and development of the country to the year 2040.

The NPF describes how extractive industries are important for the supply of aggregates and construction materials and minerals to a variety of sectors, for both domestic requirements and for export. The planning process will play a key role in realising the potential of the extractive industries sector by identifying and protecting important reserves of aggregates and minerals from development that might prejudice their utilisation.

The NPF goes on to state that aggregates and minerals extraction will continue to be enabled where this is compatible with the protection of the environment in terms of air and water quality, natural and cultural heritage, the quality of life of residents in the vicinity, and provides for appropriate site rehabilitation.

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National Policy Objective 23 seeks to:

*“Facilitate the development of the rural economy through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture, energy and extractive industries, the bio-economy and diversification into alternative on-farm and off-farm activities, while at the same time noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism”.*

In terms of rural development, the NPF describes how the spatial, social and economic disparities between rural areas are a reflection of the fact that stronger rural areas tend to be located in a geographically advantageous place, and also have the human and social capital to address their needs and respond effectively to emerging opportunities and strategies.

The application site is considered to be strategically well placed in order to serve markets through Counties Galway and Mayo.

National Policy Objective 15 is to:

*“Support the sustainable development of rural areas by encouraging growth and arresting decline in areas that have experienced low population growth or decline in recent decades and by managing the growth of areas that are under strong urban influence to avoid over-development, while sustaining vibrant rural communities”.*

The proposed development will contribute towards achieving sustainable growth in a rural location and sustaining vibrant local communities within County Galway via the economic stimulus provided by local employment and expenditure on the likes of transportation, purchases, wages and business rates. Given the above, the development is considered to accord with the provisions of the Sustainable Development Strategy for Ireland.



In managing waste needs, the NPF supports circular economy principles that minimise waste going to landfill and maximise waste as a resource. National Policy Objective 56 is to:

*“Sustainably manage waste generation, invest in different types of waste treatment and support circular economy principles, prioritising prevention, reuse, recycling and recovery, to support a healthy environment, economy and society”.*

The proposed development will include a C&DW waste recycling facility and will utilise materials to beneficially restore the site, which would otherwise be going to landfill.

### **3.5 Regional Planning Guidelines for the West 2010-2022**

The aim of the Guidelines is to provide a framework for long term strategic development of the West Region for the period 2010 – 2022 which is consistent with the National Spatial Strategy (NSS) 2002 – 2020 and which ensures the successful implementation of the NSS at regional, county and local level.

A key aspect of the West Regional Authority’s Regional Planning Guidelines is integrating sustainable economic development with the protection and enhancement of the environment.

The Guidelines state that:

*“Extractive industry represents a valuable resource in the provision of raw material for the construction industry and is also an important source of employment. The products provide building materials for the provision of housing and infrastructure. The industry can however have significant impacts on the landscape, habitats and rural amenity, the road network and has the potential for water pollution or intrusion of groundwater supplies. Local*

*production of aggregate which is suitable for local use can lessen the impact on road infrastructure”.*

**Policy EP51** states:

*“Support the sustainable development of the extractive industry in the West Region as a rural enterprise. Developments of this nature must follow EIA and Habitats Directive Assessment procedures, minimise all environmental impacts and be rehabilitated to an appropriate land use which ensures positive impacts for biodiversity. Developments shall be assessed and/or carried out in accordance with relevant national legislation and DoEHLG, NPWS and EPA Guidelines”.*

As demonstrated throughout this EIAR, the proposed development will generate a number of economic benefits in the local area and on a wider county level. The proposed development will sustain rural employment and will generate a number of economic benefits via local expenditure. The proposed development is not considered to result in any significant environmental effects and as such, the proposed development is considered to accord with Policy EP51.

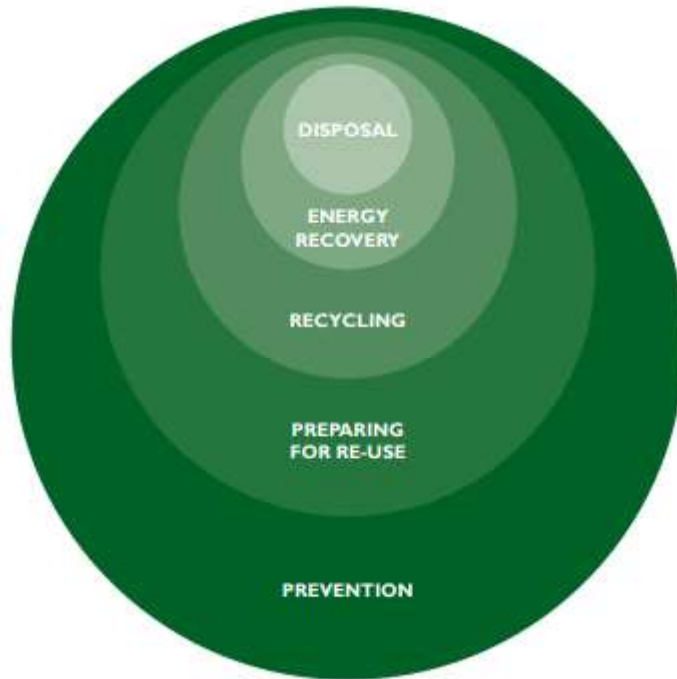
Given the above, the proposed development is considered to accord with the provisions of the Regional Planning Guidelines for the West.

### **3.6 Connacht - Ulster Region Waste Management Plan 2015 - 2021**

The Waste Management Plan for the Connacht Ulster Region is the framework for the prevention and management of wastes in a safe and sustainable manner.

Policy A1 states that measures will be taken to ensure the best overall environmental outcome is achieved by applying the waste hierarchy to the

management of waste streams. The waste management hierarchy, as detailed in the plan is reproduced at Figure 3.2 below.



**Figure 3.2 Waste Hierarchy**

The proposed development is considered to accord with the policy as it will drive construction and demolition wastes up the hierarchy, allowing for recycling and re-use of materials from construction projects either as secondary aggregates or in delivering a beneficial restoration and afteruse at the application site and therefore diverting the waste from landfill.

Section 7.23 of the Plan states that appropriate processing facilities need to be in place to facilitate increased reuse, recycling and recovery of construction and demolition wastes. Section 11.2 of the plan provides detail on the C&D Waste situation within the region, stating that recovery operations will be required to facilitate the recovery of C&D Waste arising in future years.

The Plan describes how certain specified waste shall cease to be waste when it has undergone a recovery, including recycling and complies with specific

criteria. Much of the inert fraction of C&D waste can be used in engineering applications as a replacement for virgin quarry stone. The applicant seeks to provide a facility for recycling such material, with the by-products of the process utilised in delivering a beneficial and high quality restoration of the site. All material imported will be strictly inert and will be subject to pre-acceptance criteria, in accordance with a Permit to be issued by Galway Co. Co, as confirmed via the EPA's Article 11 declaration (See Appendix 1.2).

Given the above, the proposed development is considered to accord with the provisions of the Waste Management Plan for the Connacht Ulster Region.

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#### **4.0 PROJECT SUMMARY AND OBJECTIVES**

This EIAR considers the environmental aspects within and around the proposed development site at Cloonascragh Sand and Gravel Pit, Tuam, Co Galway.

The proposed development comprises 3 main elements:

1. the extraction of sand and gravel over an area of c.6.5ha;
2. the importation, recycling and processing of inert construction and demolition waste; and
3. the progressive restoration of the site to beneficial Agricultural use.

The application seeks planning permission to extract and process the remainder of the existing sand and gravel resource within the established sand and gravel pit under the Applicant's ownership, and which resides above the water table at the existing pit. The application also seeks to allow for the importation of inert construction and demolition waste (C&DW) to be brought back to site via return loads within the delivery fleet, for storage in a dedicated, prepared area prior to processing, utilising the same processing plant, which has been specified to accept both C&DW and indigenous sand and gravel, in preparation for resale as recycled aggregate. The applicant proposes to progressively restore the pit with material resultant from the mineral washing and proposed recycling process (i.e. soil making material) in order to deliver an improved restoration scheme with a beneficial afteruse to Agriculture.

#### **4.1 The Applicant**

The Applicant is McTigue Quarries Ltd, which is the owner of part of the Cloonascragh Sand and Gravel Pit. The business is independently owned and family operated and has provided a valuable resource in terms of employment and altruistic benefits to and within the local community.

The business, upon the re-opening of the site, will provide a variety of sand, aggregates, broken stone and top soil for use in construction, road making and landscaping to customers including local authorities, garden centres, builders, and both commercial and domestic sectors. As part of its Mobile Crushing business, McTigue Quarries Ltd also provide an all-inclusive service consisting of drilling, blasting and crushing.

## **4.2 Site Location and Extent**

The application site is located at Cloonascragh Sand and Gravel Pit, in the townland of Cloonascragh, Tuam, County Galway. The existing pit has a total site area of 12ha. The planning application area covers an area of c. 6.5ha and is comprised of the northern end of the existing pit, which is in the ownership of the applicant. The site is currently dormant, with quarrying ceasing in 2014, due to the previous operator entering into liquidation and the restrictions upon development of the substitute consent, as issued.

The sand and gravel pit is located approximately 2.6km south of Tuam town. The site is accessed off the R347 regional route. The surrounding area is generally rural in character, with a number of scattered dwellings (along the R347 and local roads) in vicinity of the site, however, the site is located adjacent to a Pre-Cast Concrete operation that originally relied upon the resources won from the Site.

The lands are bounded to the northwest by the R347, while lane-way access to the railway line bounds the site to the south. The land to the north is occupied by Moylough Concrete Pre-Cast Concrete facility. To the north east, adjacent to the pit is a disused yard. To the south/east is the remainder of the pit which lies outside the control of the applicant.

The topography of the site is characterised by the extent of the existing excavations at the site and the void created via the workings to date with levels ranging from 52mAOD in the north east corner, to 36mAOD in the pit floor.

Ancillary buildings in the form of a site office and workshop are evident in the northern part of the site, as is the area previously used for processing, the crushing, washing and screening of material. A settlement lagoon system is also evident in this part of the site.

### **4.3 Planning History**

The Sand and Gravel pit at Cloonascragh, Tuam, Co. Galway has been in operation since prior to the implementation of the Planning and Development Act in 1963.

The pit was registered, under Section 261 of the Act with Galway County Council (Ref. No. QY121), and 15 no. conditions were imposed on the operation of the pit.

The pit was granted Substitute Consent under Section 177E of the Act in December 2015. The consent was granted subject to 6 conditions. The consent area covers an area of c.12ha. The Substitute Consent Application was accompanied by a remedial Environmental Impact Statement (REIS) and a Remedial Natura Impact Statement (RNIS), both of which were prepared by SLR Consultants.

With regards to EIA, the Board Direction states that:

*“The Board considered the nature, scale and location of the subject development, the remedial Environmental Impact Statement, the documentation submitted with the application as amended by the further information submitted by the applicant to An Bord Pleanála on the 29th day of August, 2013, the 18th day of October, 2013 and the 27th day of January, 2015, the historical development of the quarry, including its scale prior to 1990, the planning, registration and quarry review history of the site, the submissions on file, and the report of the Inspector. It is considered that the remedial*

*Environmental Impact Statement identifies and describes adequately the direct and indirect effects on the environment of the development that have taken place. The Board completed an Environmental Impact Assessment in relation to the subject development, by itself and cumulatively with other development in the vicinity, including the adjacent facility, and concluded that, in general, the development of the quarry was not and would not be likely to have significant effects on the environment. In doing so, the Board adopted the report of the Inspector. Furthermore, the Board did have some concerns in relation to the national monument GA043-046, located within the quarry. Cassini 6" mapping indicates that much of the fabric of this monument had been removed in the 1800s. The remaining elements of this enclosure were identified in 1990 by the Archaeological Survey of Ireland. While the remedial Environmental Impact Statement indicated that the monument had been removed by 1995, the monument was clearly identified as still being in place in 2005, in an archaeological report prepared at the time of the quarry registration. The Board also noted that aerial photographs since 2005 do not indicate a significant level of change in this location. The Board was not satisfied that this uncertainty was sufficient to merit refusal of substitute consent in these circumstances. The Board also decided to attach a condition to protect the monument".*

With regards to Appropriate Assessment, the Board Direction states that:

*"Having regard to the nature, scale and location of the subject development, the remedial Natura Impact Statement, the documentation on file generally including the further information submitted, the planning, registration and quarry review history of the site, the submissions on file, and the report of the Inspector, the Board undertook an Appropriate Assessment in relation to the effects of the subject development on Lough Corrib Special Area of Conservation (site code 000297). The Board adopted the report of the Inspector in this respect, and concluded that the quarry, by itself, or in combination with other plans or projects, including the adjacent facility, would not be likely to have adversely affected and would not be likely to adversely affect the integrity of this European Site in the light of its conservation objective".*



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The Board therefore concluded that:

*“The Board is satisfied that the subject development did not and does not seriously injure the amenities of the area or of property in the vicinity, and was and would be in accordance with the proper planning and sustainable development of the area”.*

Whilst the site benefits from Substitute Consent, this process is unable to grant development consent for any future working or development. As such, the site has been dormant since 2014 when the previous operator at the site went into liquidation.

A copy of the Board’s Direction, Order and Inspector’s Report is appended at Appendix 1.1.

No other planning history is evident for the site via the Galway County Council Public Portal.

The planning history demonstrates that sand and gravel extraction at this location has been evident for 50 years. The planning history also demonstrates that the impacts associated with the operation of the pit have been assessed and have been found to be acceptable.

#### **4.4 Proposed Development**

The planning application seeks permission for 3 main elements:

1. the extraction of sand and gravel over an area of c.6.5ha;
2. the importation, recycling and processing of inert, construction and demolition waste; and
3. the progressive restoration of the site to Agricultural use.

The development will see the remaining sand and gravel within the disturbed footprint extracted and the site progressively restored. Each of the aspects of the proposed development outlined below should be read in conjunction with the proposed development plans (Drawing Refs 210924Dwg01–210924Dwg06) which show the extent of development at the end of each phase, appended at Appendix 4.1.

Each of the three main elements of the proposed development are discussed in turn below.

#### **4.4.1 Extraction of Sand and Gravel**

The Extraction phase of the development as shown on Drawing Ref 210924Dwg02 will see sand and gravel extracted to a maximum depth of 34mAOD. This phase of extraction will release some c.165,000m<sup>3</sup> (c. 264,000 tonnes) of sand and gravel.

The Sand and gravel will be extracted with the use of a 12m-reach 360° excavator and loaded in to dump truck/ HGV. Given the mineral type, no blasting is required. Access to the pit floor will be via a small ramp adjacent to the plant site.

The mineral will then be hauled to the screening and washing plant site in the north-western part of the existing pit. The won material will then be washed, sized and screened into single sized products.

Suspended quarry fines (silts etc) resultant from the washing process will be deposited in the existing silt ponds shown on the accompanying development plans held at Appendix 4.1, where they are left to settle before being utilised in the progressive restoration of the site.

As the development site is comprised of an existing pit and given that the proposed development seeks permission for the extraction of the remaining

mineral within the existing disturbed footprint, whilst leaving an appropriate insitu mineral buffer above the established water table, very little is required in terms of site establishment. The existing site access will be utilised and the site already benefits from screening bunds along its boundaries. A system of settlement ponds are evident in the north-western part of the pit which will be made operational again. Modern processing plant will be brought back on to site and will be located in the north-western part of the site, in the position as previously granted via the Substitute Consent process and as shown on the accompanying planning application drawings.

Extraction will progress in a northerly direction from the southern extents of the application area. Given that the application area is comprised of the existing pit footprint, which has already been disturbed, all overburden has already been removed from the working area and no further soil stripping or overburden removal is required.

As detailed in Section 6, the proposed development will take place wholly above the water table, with an appropriate buffer of sand and gravel retained to deliver a dry operation that avoids the requirement for dewatering at the site and allows for a beneficial restoration use back to agriculture.

#### **4.4.2 Construction and Demolition Waste Recycling**

The planning application seeks permission for the importation of inert C&DW and provides for the recycling and processing of the same in the proposed processing plant.

Specifically, this element of the planning application seeks to provide the applicant with the capacity to import inert C&DW to the site via return loads, within the existing delivery fleet for processing utilising the proposed processing plant in preparation for resale as secondary aggregates. The Applicant is a registered waste haulier and it is intended that returning tipper lorries will have the capacity to collect C&DW from the construction sites which they are

delivering aggregates to, meaning that no additional vehicles or vehicle movements are required for this project.

The Applicant is proposing to construct a concrete pad with individual bays for the receipt and sorting of construction and demolition waste. The C&DW, once sorted and held in sufficient quantities, will be processed through the crushing and screening plant in campaigns. The finer materials will then pass through the on-site processing plant (washing and screening).

This element of the proposed development is driven by a number of different factors:

- Increased efficiency, with less raw product required through the combination of mined mineral and recycled mineral;
- Increasing demand with recycled products increasingly being specified in Governmental contract;
- Reduced landfill requirement;
- Improved Environmental Performance;
- Increased efficiency through the utilisation of full return loads; and
- Reduction in waste concrete.

The site will only accept wastes from its own hauliers and no third parties will be allowed to deliver waste to the site. The site will operate at a maximum capacity of 50,000 tonnes per annum with all C&DW arriving via the Applicant's 20 tonne capacity lorries. The actual tonnages of the individual wastes will depend on the sources of the wastes.

It is considered that the following European Waste Categories will be accepted onto the site:

## **17 01 CONCRETE, BRICKS, TILES AND CERAMICS**

17 01 01 concrete

17 01 02 bricks

17 01 03 tiles and ceramics

17 01 07 mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06

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## **17 05 SOIL (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES), STONES AND DREDGING SPOIL**

17 05 04 soil and stones other than those mentioned in 17 05 03 (i.e. soil and stones **not** containing hazardous substances)

### **4.4.3 Incoming Waste Stream Control**

The inert C&DW will be imported onto site and individually weighed in across the existing weighbridge. There will be strict management controls and a waste acceptance procedure implemented to ensure that the waste is suitable for use. Checks prior to importation will include:

- Pre-determined specifications and agreements (quotations) with the customer
- Producer visits, waste verification checks and audits
- Completion of Waste Characterisation/ Pre-acceptance Forms
- Independent analysis and reports
- Pre-determined process routes and storage areas for the wastes
- Scheduled dates for receipt
- Visual checks made by the driver prior to and during loading of materials onto the vehicle
- Records of pre-acceptance checks will be kept at the site office.
- Assessment and classification of waste types for suitability of processing and end use criteria.

Either the supplier or importer will arrange for a suitably competent third party to undertake necessary sampling of intended materials prior to their importation to the development.

#### **4.4.4 Material Deposition and Stock Control**

The weighbridge will instruct the driver, upon assessing the contents of the load to the stocking area. The load will be tipped on a dedicated hardstanding area, which has a capacity of approximately 500 tonnes, where a site operative will inspect it, with a loading shovel, to ensure that there are no erroneous materials below the surface of the load. If the material is unacceptable it will be reloaded immediately and the vehicle requested to leave the site and again will be advised to return the material to the point of loading. This is an extremely unlikely event as there will be a detailed waste acceptance protocol put in place and only internal contractors will be utilised and all contractors will be given training on the acceptability or otherwise of materials.

At the point of tipping and acceptance of the load, a primary picking operation will be undertaken to remove any potential contaminants (e.g. plastics, wood and papers). These materials are collected and placed into a skip sited adjacent to the hardstanding, prior to disposal to licensed landfill sites. Once these potential contaminants are removed from the tipped load, a loading shovel will transfer the wastes to designated storage bays, constructed on a concrete base. These storage bays will have a combined capacity of approximately 10,000 tonnes.

#### **4.4.5 Processing/ Recycling of Waste**

The processing/recycling activities taking place as part of this proposal will take place at the plant site, within the existing pit. The process will utilise the same plant and machinery as for the crushing, screening and washing of the mineral won at the site, in the same manner as referenced through the Substitute Consent process. There may be a requirement for pre-screening of materials if

the arisings contain a high percentage of fines. The main product will then be passed through a crushing and screening plant. The materials will be graded and screened prior to and after crushing.

The crushing and screening plant intended to be used for the processing of the material will be fully mobile and driven by diesel engines. The screened products from the plant will, either be loaded directly into the customer's vehicles for sale, blended with on-site materials in readiness for sale or placed to stock.

This element of the proposed development has been confirmed by the EPA as constituting at Class 7 waste recovery operation (see Appendix 1.2). The appropriate permit will be obtained from Galway Co. Co. for the haulage of material to site and the operation of the facility.

#### **4.4.6 Progressive Restoration**

The site will be progressively restored to deliver the restoration landform as shown on drawing 210924Dwg03, held at Appendix 4.1.

A detailed restoration scheme has been produced by Mullin Design Associates in consultation with the Applicant's Ecologist (Woodrow) and Geo-technical Engineers (Quarrydesign). A copy of the Final Restoration Plan is appended at Appendix 4.2.

As a result of the previous workings at the pit, there is insufficient readily available indigenous material to deliver a beneficial afteruse at the site in order to make it suitable for agricultural use. As such, the delivery of the restoration landform will be supplemented by material recovered from the recycling operation proposed for the site. Pit faces will be progressively restored to 1v:5h slopes with available indigenous stripped topsoils and stored overburden and supplemented with imported inert material, in order to allow agricultural machinery to safely manoeuvre on the slopes.

As well as delivering biodiversity improvements and achieving a beneficial afteruse, the proposed restoration proposals will provide an important facility for the deposition of inert soil-making material obtained from the proposed recycling proposals, resultant from local construction projects.

Given that the site will be restored progressively as mineral extraction extends across it, much of the restoration will be undertaken over the course of the proposed development, with restoration commencing in the southern part of the site and progressing northwards.

The final restoration concept will see the site restored to agricultural use with a woodland and species-rich grassland proposed. The restoration of the site will create an improvement in local biodiversity, allowing for habitat creation and allowing the site to assimilate back to within the local landscape.

The supplementing of indigenous material with recovered imported materials has been confirmed by the EPA as constituting at Class 5 waste recovery operation (see Appendix 1.2). The appropriate permit will be obtained from Galway Co. Co. for the same.

#### **4.5 Operating Hours**

The site's hours of operation will be in accordance with those deemed acceptable via the granting of Substitute Consent:

- 0700-1900 Monday to Friday
- 0700-1500 Saturdays

There will be no working on Sundays or public holidays.



#### **4.6 Ancillary Buildings**

No additional buildings are proposed as part of the planning application. The existing ancillary buildings (site office and workshop) in the northern part of the site will be utilised.

Washing, screening and size reduction plant will be erected in the north western part of the site, at the previous plant site. The proposed plant will mean that sand and gravel material will not be required to be exported off-site for processing, avoiding the need for additional vehicle movements, as the material can be washed and graded on-site. It also means that the waste material can be brought back to the site on the return leg when delivering the, meaning that the recycled material can be blended with indigenous site-won material to produce a secondary aggregate product without the need for this to generate additional trips elsewhere.

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## **5.0 GEOLOGICAL ASSESSMENT**

### **5.1 Author of the report**

This geological review section and the production of the quarry designed has been prepared by Jack Finch BSc(Hons), MSc, FGS, MIMMM.

As a Geotechnical Engineer with QuarryDesign, Jack has an honours degree in Applied Geology awarded from the University of Plymouth and a Master of Science in Engineering Geology awarded from the University of Portsmouth. Jack is a Fellow of the Geological Society of London and a Professional Member of the Institute of Materials, Minerals and Mining. He previously worked as a Geotechnical Engineer working for an offshore site investigations contractor. In this role he worked within the UK and overseas in North America, West Africa and Japan.

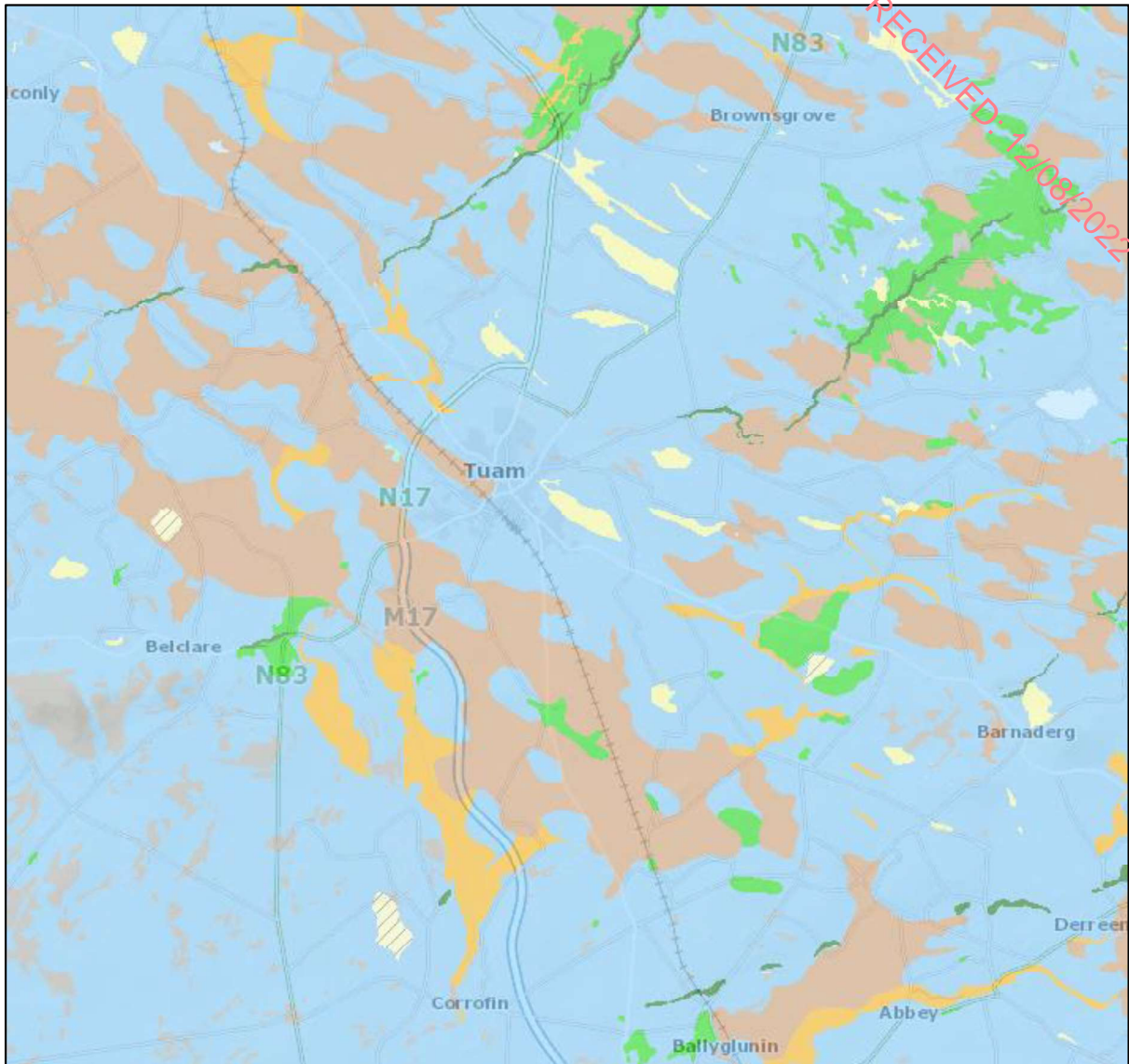
### **5.2 Assessment of Baseline Conditions**

#### **5.2.1 Geological setting**

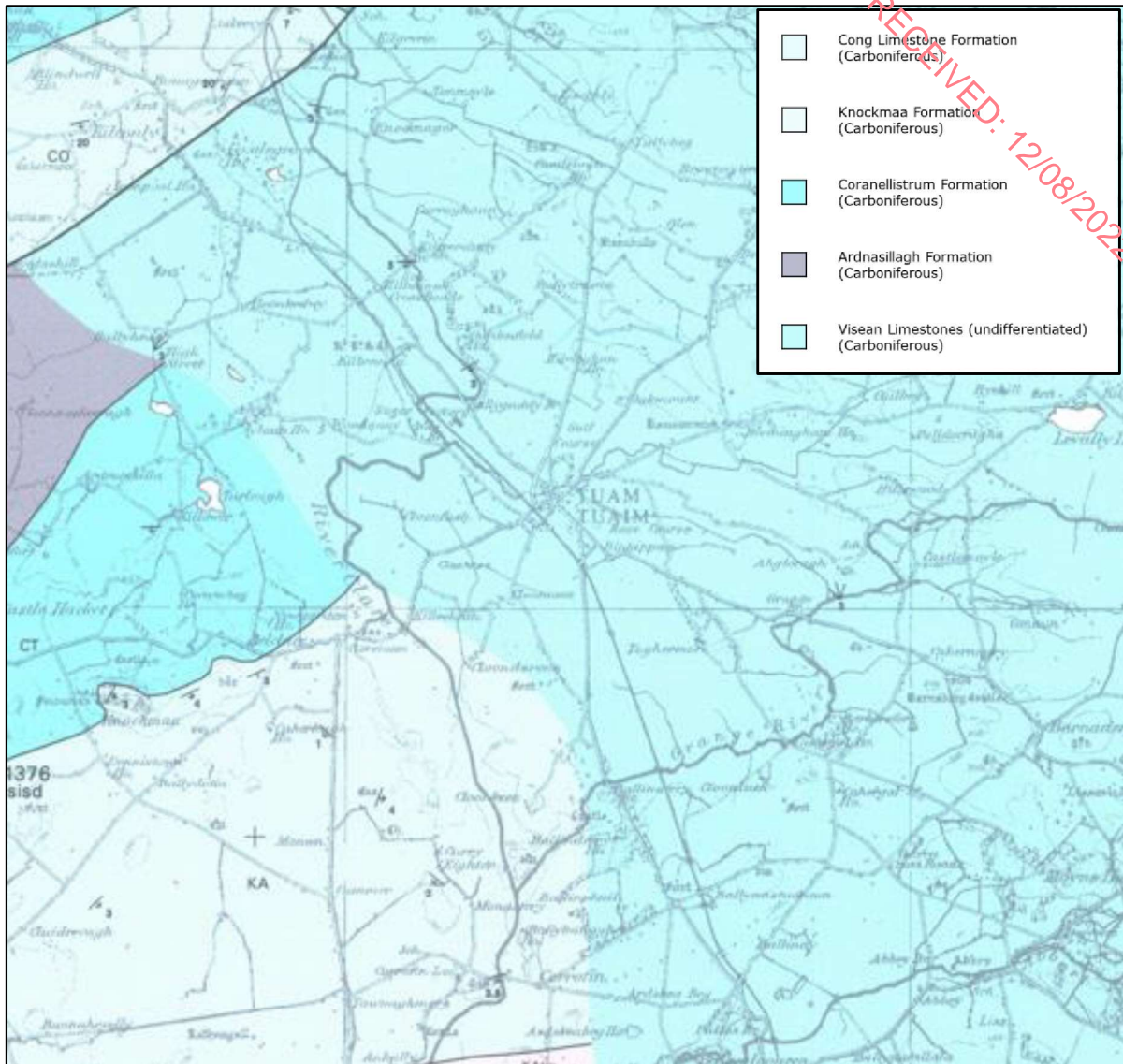
The area around Cloonascragh Sand and Gravel has been mapped by the Geological Survey of Ireland at a scale of 1:100,000 (Figure 5.1 and Figure 5.2). The mapping indicates that the site is located above the Visean Limestone Formation, a Carboniferous aged undifferentiated limestone.

The site operates only within the overlying Quaternary Sedimentary Deposits. The Quaternary Sedimentary Deposits previously extracted on site consist of Sands and Gravels, this material is derived from the weathering of limestone within the region during the Quaternary period. The sand and gravel subsoil deposits at the site have been worked across the whole of the site including areas outside of the planning application area.

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**Figure 5.1: Superficial Geology surrounding Quarry scale (not to scale).  
published by the Geological Survey of Ireland**



**Figure 5.2: Geology of South Mayo (Sheet 11) 1:100,000 scale (not to scale). Solid Geology of area around Tuam Quarry, published by the Geological Survey of Ireland.**

## 5.2.2 Geotechnical Setting

There is currently no Geotechnical Assessment for the site as it has remained unworked since its acquisition by the Applicant. Notwithstanding, in terms of geotechnics, there is little of concern at the Pit and it is considered that the practice of extracting material with slopes at 1v:2h will be sufficient to maintain stability. The maximum height of slopes within the excavation is also deemed to be sufficient.

### **5.3 Assessment of Impacts**

Quarrying, by definition, requires the excavation and removal of the mineral deposit, thereby resulting in a permanent impact on the local superficial geology /bedrock environment within the footprint of the proposed quarry development.

The likely impacts on the geology, associated with the proposed development include excavation, processing and the removal of the remaining sand and gravel which resides above the water table. The application site is comprised of an existing pit which has already been partially worked. The proposed development will allow the remainder of the superficial mineral resource within the disturbed footprint to be worked. The proposed extraction will release some c.165,000m<sup>3</sup> (c. 264,000 tonnes) of sand and gravel, which is not considered to result in a significant loss to the deposit as a whole. As there is no planned extraction of the underlying limestone there will be no direct geological impacts on the bedrock geology.

### **5.4 Proposed Mitigation Measures**

The designs for the site have been produced in order to maintain geotechnical stability during the extraction and restoration phases. In the restoration phase, material recovered from the proposed recycling facility will be used to produce a beneficial, high quality restoration scheme, with slopes suitably graded to allow them to be accessed and worked safely by farm machinery. The high quality restoration scheme will also result in an improved visual and landscape impact following the completion of restoration works.

### **5.5 Residual Impacts**

By its very nature, the proposed development has the potential to impact upon the geological and geotechnical setting of the area. Subject to the adoption of the design parameters identified and implementation of the development in accordance with the proposed development plans included within the planning

application package, the proposed development is not considered to result in any significant effects to the geological environment. The proposed development plans have been prepared by Quarrydesign, using terrain modelling software and appropriate design criteria to ensure adequate, long-term stability at the site.

## **5.6 Conclusions**

The proposed development designs have been prepared using suitable software and incorporate a number of safety and best practice measures to ensure that the proposed development will not result in any significant effects in geotechnical terms.

It is considered that the scale of the proposed development will result in the site continuing to have a limited impact at a local level on the geological environment. The release of the remaining c.165,000m<sup>3</sup> of sand and gravel which resides above the water table at the site, is not considered to result in a significant loss to the deposit as a whole. As there is no planned extraction of the underlying limestone there will be no direct geological impacts on the bedrock geology.

The proposed quarrying and associated activities will have an insignificant impact on Quaternary Sedimentary deposits in the region and will have no impact on the underlying Visean Limestone Formation.

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## **6.0 WATER ENVIRONMENT**

### **6.1 Author of the Report**

A Hydrological and Hydrogeological Impact Assessment (H&HIA) has been prepared by Henry Lister of BCL Hydro Consultant Hydrogeologists Ltd ('BCL'). BCL is an independent consultancy specialising in all aspects of hydrogeology and hydrology as they relate to minerals extraction, waste disposal, water supply and related industries.

### **6.2 Introduction**

BCL has been appointed to undertake an assessment of the potential hydrological and hydrogeological impacts from the proposed development at the site and in the surrounding area. The assessment gives an account of the potential impacts of the proposed development upon the hydrological/hydrogeological regimes and outlines the requirements for mitigation, where necessary, needed to minimise those impacts to an acceptable level.

The H&HIA includes an appraisal of the hydrology and hydrogeological information submitted in support of previous planning applications at the site and considers the current baseline conditions. An assessment of the potential impacts of the proposed development is undertaken with mitigation measures proposed where necessary.

This section should be read in conjunction with the full H&HIA, held at **Appendix 6.1**.

### **6.3 Assessment of Baseline Conditions**

The site is comprised of an existing Sand and Gravel Pit which benefits from a grant of SC, although is currently not operational. The REIS for the SC application states that the quarry operated above the watertable during

previous working. The top-up pond is fed by groundwater seepage; and currently has a water level of *circa* 31.5 maOD (January 2022). The REIS also states that surface water falling on the Site percolates to groundwater through the sand and gravel on the floor of the pit. There is no discharge of water off Site.

The Site comprises an elongated ridge of sand and gravel bounded to the north and south by areas of peat bog, which have been partially cut away in the past. Ground level at the Site entrance is 38.85 maOD; the floor of the existing sand and gravel pit is at *circa* 32-35 maOD; and the top-up pond, which is fed by groundwater seepage, has a water level of *circa* 31.5 maOD (January 2022).

Met Éireann data confirms that the average annual rainfall at Tuam (for the period 1981 to 2010) is *circa* 1,116 millimetres per year (mm/yr). Corrected for evapotranspiration, the effective rainfall rate is calculated to be 688.5 mm/yr. Total rainfall occurring on Site during the design storm (6-hour duration and 100-year return period) is 59.6 mm. This data is taken from Met Éireann's Depth Duration Frequency (DDF) Model.

### 6.3.1 Hydrology

The Site straddles the boundary between two sub-catchments of the Clare River. The main channel of the Clare River is located some 2 km to the west of the Site. The Grange River is located approximately 0.9 km to the south of the Site, with the confluence of the two, some 3.4 km to the southwest of the Site.

There is a small groundwater pond at the southern end of the Applicant's landholding, which is used to top up the washing plant process water recycling system.

Flow duration percentiles for the Clare River at Corrofin Bridge are taken from flow gauging station number 30004. The catchment area at the gauging station is 695 km<sup>2</sup> with an average annual rainfall of 1,137 mm/year. The flow duration



percentiles for the river reflect the fact that although the catchment is underlain by a predominantly karstified bedrock, the presence of poorly-drained soils and peat in the catchment means that runoff and flow in the river can be relatively flashy, despite the catchment being relatively low-lying.

The River Waterbody WFD Status (2013-2018) for the Clare River is “Q3-4, Moderate (At risk)”. The River Waterbody WFD Status (2013-2018) for the local stretch of the Grange River is “Q4, Good (Not at risk)”.

Reference has been made to the National Flood Data Archive held by the OPW. There is no risk of fluvial flooding at the Site. The closest mapped flood points (or areas of flooding) are associated with the main watercourses and their tributaries. The closest area at risk of flooding is some 425 m standoff to the southwest of the Site boundary, where ground level is below the 30 maOD contour line.

There is currently no discharge of surface water to any watercourse from the existing sand and gravel pit; and there are no plans to discharge any water from the Site in the future. Rainfall infiltrates to ground across the Site.

### **6.3.2 Hydrogeology**

Regional mapping, published on the GSI website, indicates that the sand and gravel drift deposits (economic mineral) are not classed as having aquifer status, because they do not extend any significant distance beyond the Site boundary.

Bedrock aquifer maps, published on the same website, provide a detailed classification of bedrock aquifer types; and indicate that the Visean Limestone is classed as a regionally important aquifer – karstified (conduit); the aquifer category is Rkc. The GSI karst database does not list any karst features in the immediate vicinity of the Site.

Groundwater vulnerability maps (GSI website) indicate that the natural groundwater vulnerability beneath the Site would be classified as being 'High'. Under the WFD, the Clare-Corrib Ground Water Body has been assessed by the EPA as having 'Good' quantitative status; and 'Good' chemical status.

Three piezometers (groundwater level monitoring boreholes) were installed on Site in June 2020. The boreholes have been dipped on a monthly to quarterly basis from September 2020 through to January 2022. Data gathered from the piezometers has been used to produce the groundwater level contours. This shows that groundwater level is at 32.25 maOD at the northern end of the Site and declines to 31.40 maOD at the southern end, which is close to the groundwater pond. The seasonal range during the monitoring period has been from 1.1-1.6 m.

The GSI national database does not show any private wells or springs in the vicinity of the quarry. The closest mapped supply is some 3 km to the west of the Application Site, lying on the opposite side of the Clare River. The Site is not located within any EPA/GSI-delineated Source Protection Areas for Public Water Supplies or for Group Schemes. Information has been obtained from Galway County Council Water Services which confirms the sources of water supplies within the surrounding. It has been confirmed with the owners of the properties at Ballykeaghra, c. 450 m to the southwest of the Site, that supply is sourced from domestic wells.

## **6.4 Assessment of Impacts**

### **6.4.1 Groundwater Levels**

The proposed development will take place wholly above the watertable. The peak groundwater level recorded in the piezometer network (September 2020 through to January 2022) equates to 32.82 maOD. Mineral extraction will not progress below 34 maOD. Therefore, more than 1m buffer depth of unsaturated sand and gravel will be retained to deliver a dry operation.

This demonstrates that there will be negligible risk of intercepting the watertable during the proposed mineral extraction activities *i.e.* there will be no requirement for sub-watertable mineral extraction or dewatering, so that there will be no lowering of the watertable as a result of the quarrying activities and no drawdown-related impact upon groundwater levels and flow.

#### **6.4.2 Groundwater Quality**

As in the pre-existing workings, the operation of mobile and fixed plant presents a risk of pollutants entering groundwater as a result of hydrocarbon spillage or leakage on Site. Experience has demonstrated that the risk of such a pollution incident can be minimised by adhering to best practice measures as detailed in the H&HIA. It is considered that the correct adoption of these measures will continue to provide appropriate mitigation against the potential for derogation of groundwater quality as a result of proposed operations.

There will be strict management controls and acceptance procedures implemented to ensure that the C&DW is suitable for use. Controls will include checks prior to importation; sampling; suitable storage and handling; and a quarantine/ return procedure for rogue materials.

Groundwater quality sampling will be undertaken on a quarterly basis to identify any changes in groundwater chemistry. Refuelling operations will be completed in accordance with the procedure described within the Oil Care Code.

#### **6.4.3 Storm Balancing**

Total rainfall occurring on Site during the design storm is 59.6 mm. Given the catchment area of the final extraction area (*circa* 6.5 hectares), this equates to some 3,875 m<sup>3</sup> input of rainfall. The operational solution is to allow temporary and shallow ponding across the lowest section of quarry floor. Following abatement of the storm, the ponded water will infiltrate to ground across the Site. There is no risk of runoff from the quarry void to neighbouring land.

The Applicant is proposing to construct a concrete pad with individual bays for the receipt and sorting of the construction and demolition waste. The recycling operation includes 4 No. Recycling Bays, the Designated Tipping Area and the Quarantine Area, which will drain to the Attenuation / Interceptor Tank.

The tank will be maintained empty in readiness for storm events. This will be achieved by pumping to the Silt Ponds. The key principle at the recycling plant is that water use should be minimised, and wastewater reused or recycled. Effluent and any sludges derived from rogue material/loads in the Quarantine Area will be collected and tankered to a licensed landfill site for disposal.

#### **6.4.4 Surface Water Regime**

The main channel of the Clare River is located some 2 km to the west of the Site, with an un-named tributary passing within 1 km radius of the Site. The Grange River is located approximately 0.9 km to the south of the Site, with the Barnacurragh tributary arising 0.6 km to the northeast of the Site and flowing south to join the Grange River.

The development proposal does not involve working below the watertable; therefore, there will be no lowering of groundwater level and no cone of depression in the watertable (*i.e.* no radius of influence of dewatering drawdown). This means that there will be no risk of derogation or interception of baseflow in the local watercourses.

It is considered that proper implementation of the measures advanced for the protection of groundwater quality will also serve to prevent the derogation of surface water quality by ensuring the maintenance of good quality discharge of groundwater baseflow and downstream linkage to surface water.

#### **6.4.5 Risk of Derogation at Local Water Supplies**

Most Residences and farms in the vicinity of the site are served by the Cloonascragh / Cloondarone Group Water Scheme or mains water supply. However, properties at Ballykeaghra, some 450 m to the southwest of the Site rely upon domestic wells.

It is considered that the proposed development will cause no derogation in the quantity and quality of local water supplies. This is because the proposed development will not involve sub-watertable working or dewatering, therefore there will be no drawdown-related impact upon water levels and flow; and water quality will be safeguarded by the same measures specified in the H&HIA.

#### **6.5 Proposed Mitigation Measures**

Water usage at the site will be minimised by re-circulation through the Water Management System. Losses from the system are typically expected to be around 5% (attributed to moisture content in the sold product). Monthly monitoring of groundwater level at Site piezometers will be continued for the duration of the Proposed Development to provide data for future review

There will be strict management controls and a waste acceptance procedure implemented to ensure that the waste is suitable for use, including summary protocol for Handling, Recycling and Storage of Waste. Precautionary procedures have been advanced for the protection of groundwater quality; by minimising the likelihood of occurrence in the first instance, and specification of reactive measures for the management of accidental spillage and / or long-term leakage of fuel, lubricating or hydraulic oils should this occur.

Groundwater samples will be retrieved from the Site piezometers on a quarterly basis and sent for laboratory analysis to confirm that there has been no development-related impact on water quality.

The proposed development will not involve sub-watertable working or dewatering, therefore there will be no drawdown-related impact upon water levels and flow at the domestic wells; and water quality will be safeguarded by the same measures specified above. The piezometer network provides sufficient coverage for groundwater level and quality monitoring to check that there is no risk of impact at local water supplies. Notwithstanding this, the domestic wells at Ballykeaghra should be dipped and tested on an annual basis (subject to agreeing access arrangements).

## **6.6 Residual Impacts**

The proposed development has the potential to impact upon groundwater and surface water features. Subject to the implementation of the mitigation measures summarised above and detailed in the H&HIA, the proposed development is not considered to result in a significant effect upon the water environment.

## **6.7 Conclusions**

BCL has been appointed to undertake an assessment of the potential hydrological and hydrogeological impacts from the proposed development at the site and in the surrounding area.

The H&HIA includes an appraisal of the hydrology and hydrogeological information submitted in support of previous planning applications at the site and considers the current baseline conditions.

There will be negligible risk of intercepting the watertable during the proposed mineral extraction activities *i.e.* there will be no requirement for sub-watertable mineral extraction or dewatering, so that there will be no lowering of the watertable as a result of the quarrying activities and no drawdown-related impact upon groundwater levels and flow.

There is no dewatering discharge requirement and there will be no surface water run-off exiting the working area. Any silt-laden runoff will collect at the lowest point in the working area and the suspended solids will settle out.

The groundwater flow direction at the Site is from NNW to SSE, which is towards the closest stretch of the Grange River (tributary of the Clare River), thus falling within the Lough Corrib SAC and SPA. The magnitude of impact on the hydrology of the river is 'negligible', therefore the significance of impact of activities within the Application Area on the hydrology of the Lough Corrib SAC and SPA is rated as 'imperceptible'.

Taking a precautionary approach, a number of mitigation measures are proposed in order to minimise the risk of pollutants entering groundwater as a result of hydrocarbon spillage or leakage on site. Continued groundwater monitoring is proposed in order to identify any potential signs of derogation.

Subject to the implementation of the mitigation measures detailed within the H&HIA, the proposed development is not considered to result in a significant effect upon the water environment.

## 7.0 **NOISE**

### 7.1 **Author of the Report**

This Noise Impact Assessment has been prepared by Mervyn Keegan of AONA Environmental Consulting Ltd. Mervyn Keegan is a Director of the environmental consultancy, AONA Environmental Consulting Ltd. Mervyn Keegan's areas of professional expertise are in Noise Control & Acoustics and Air Quality & Odour consultancy, including impact assessment and mitigation design. Mervyn Keegan has 23 years of environmental consultancy experience. Mervyn is a full member of the Institute of Acoustics, the Institute of Environmental Sciences and the Institute of Air Quality Management. Mervyn Keegan has a Bachelor of Science Degree (Applied Sciences), a Master of Science Degree (Environmental Science) and a Diploma in Acoustics in Noise Control. AONA Environmental Consulting Ltd. is an independent consultancy specialising in Environmental Impact Assessment and Licensing. Mervyn Keegan has prepared in excess of ten Noise & Vibration and Air Quality & Climate impact assessments annually for quarry developments in the Republic of Ireland, Northern Ireland and the UK over the last 15 years and is an expert in the awareness and understanding of the relevant legislation and guidance that pertains to best practise in such assessments. Mervyn Keegan has appeared as an Expert Witness at oral hearings, public inquiries and legal hearings. Mervyn Keegan has produced Noise, Air Quality & Odour Impact Assessment reports to assess the impacts of a range of development types including roads, residential developments, industrial developments, quarries and mines and wind energy developments among others.

### 7.2 **Introduction**

This Noise Impact Assessment considers the potential noise impact of the proposed quarry development at noise sensitive receiver locations in proximity to the proposed quarry development site at Cloonascragh, Tuam, Co. Galway.



A detailed Project Description of the proposed quarry development is provided in Section 4 of the EIAR.

The proposed winning and working of minerals and associated C&D waste recovery activities (recycling) and site restoration will take place from 0700-1900 Monday to Friday and 0700-1500 Saturdays.

The Noise & Vibration Impact Assessment has considered all the winning and working of minerals, processing and associated activities, import and processing of C&D waste and reclamation of lands to agricultural usage which that will occur within the proposed application site.

The site is located in the Townland of Cloonascragh, Tuam, Co. Galway south of Tuam. The site is bounded to the north by Moylough Concrete Products, and to the south, east and west by agricultural fields, with sporadic residential properties along the R347.

The following section should be read in conjunction with the Figures held at Appendix 7.1.

### **7.3 Methodology**

#### **7.3.1 Relevant Guidelines and Standards**

The noise and vibration impact assessment has been undertaken with regard to the following established standards and guidelines to determine the impact of proposed quarry site activities on the surrounding noise environment and assess for the potential for noise disturbance at existing noise sensitive receivers in the locality:

- Quarries and Ancillary Activities, Guidelines for Planning Authorities, April 2004, Department of the Environment, Heritage and Local Government. (DoEHLG Guidance)

- Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-Scheduled Minerals), Environmental Protection Agency (2006)

The Quarries and Ancillary Activities, Guidelines for Planning Authorities states that following with regard to the control of noise and blasting;

*'Control of noise: Noise-sensitive uses in the vicinity of a quarry, such as dwellings, schools, hospitals, places of worship or areas of high amenity, require that the amount of noise be minimised. The sensitivity to noise is usually greater at night-time (20.00 to 08.00) than during the day, by about 10 dB(A). Many quarries are situated in areas of low background noise and it is appropriate to consider this when setting noise limits. In general, it can be expected that complaints will result where the noise from quarrying and associated activities are between 5 to 10 dB above the background noise levels. In areas of higher background noise levels, the EPA recommends that ideally, if the total noise level from all sources is taken into account, the noise level at sensitive locations should not exceed a  $L_{Aeq}$  (1 hour) of 55 dB(A) by daytime and a  $L_{Aeq}$  (15 minutes) of 45 dB(A) by night-time. Audible tonal or impulsive components in noise emissions (e.g. the reversing siren on a lorry, required for safety reasons) can be particularly intrusive, and such components should be minimised at any noise-sensitive location.*

*It may be necessary to raise the noise limits to allow temporary but exceptionally noisy phases in the extraction process, or for short-term construction activity which cannot meet the limits set for routine operations, e.g. the construction of baffle mounds, which bring long-term environmental benefits.*

*The developer may be required to carry out noise surveys to measure noise levels at the site boundary near sensitive locations, as agreed in advance with the planning authority. Surveys should be carried out in accordance with the EPA's "Environmental Noise Survey – Guidance Document" (2003). Noise*

*monitoring should be carried out on a quarterly basis (or as otherwise agreed), and commenced prior to the commencement of development. The results should be reported to the planning authority within 3 weeks (or as agreed). 95% of all noise measured shall comply with the specified limit values. No individual noise measurement should exceed the limit values by more than 2 dB(A).*

*No blasting will be carried out on site. Therefore, the developer does not need to carry out blast monitoring for groundborne vibration and air overpressure and no relevant vibration limits apply to the proposed activities on site.*

As outlined in the Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-Scheduled Minerals), Environmental Protection Agency (2006), the Environmental Protection Agency (EPA) has produced a Guidance Note for Noise in Relation to Scheduled Activities (EPA, 1996). It deals in general terms with the approach to be taken in the measurement and control of noise, and provides advice in relation to the setting of noise Emission Limit Values (ELV) and compliance monitoring. In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise ELVs at the nearest noise-sensitive receptor:

- Daytime: 08:00–20:00 h  $L_{Aeq} (1 h) = 55 \text{ dB(A)}$
- Night-time: 20:00–08:00 h  $L_{Aeq} (1 h) = 45 \text{ dB(A)}$

Note:

- 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2 dB(A).
- On-site activities should be permitted during night-time hours where they comply with the noise ELVs (e.g. heating up of asphalt plants, loading of materials).
- Where existing background noise levels are very low, lower noise ELVs may be appropriate.
- Audible tones or impulsive noise should be avoided at night.

- It is also appropriate to permit higher noise ELVs for short-term temporary activities such as construction of screening bunds, etc., where these activities will result in a considerable environmental benefit.

On the basis of the above, the following noise limits are suggested as appropriate for the operation of the quarry and associated activities;

***The equivalent sound levels attributable to all on-site operations associated with the development shall not exceed 55 dB(A)  $L_{eq}$  over a continuous one hour period between 0700 hours and 1900 hours on Monday to Friday inclusive, and 0700 hours and 1500 hours on Saturday, when measured at any noise sensitive receptor. Sound levels shall not exceed 45 dB(A) at any other time.***

### 7.3.2 Impact Assessment Methodology

A CadnaA noise prediction model has been prepared to predict and assess a worst-case noise level that will occur due to the proposed quarrying and associated activities at the quarry site. This noise model is based on the proposed scale of sand and gravel quarrying operations, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements to and from the site. Thus, the noise prediction model provides an appropriate level of confidence when assessing specific noise impact from the proposed activities at the quarry site.

CadnaA has been developed to allow detailed noise predictions to be undertaken in accordance with:

- ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2 General methods of calculation.
- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites.

The CadnaA noise prediction model allows for noise from all sources entered into the model to be undertaken simultaneously. The noise model can take topographical effects, ground absorption, screening effects, reflections and focusing effects, among others, into consideration. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. The model calculates the propagation of the sound from each noise source and produces a noise level contour map and graphics in proximity to a facility with colour coded noise level contours. Model parameters, sources, and settings have been incorporated into the model as detailed in Table 7.1.

Parameter	Source	Details
Horizontal distances – Quarry and surrounding area	Quarryplan	Scaled drawings in AutoCAD format.
Quarry Dimensions	Quarryplan	Scaled drawings in AutoCAD format.
Receiver Locations	AONA Environmental	In outdoor amenity areas adjacent to nearest residential properties @ 1.5m height.
Plant types, location & Sound Power Level	Quarryplan / site operator.	Source noise measurements were undertaken in close proximity to plant and equipment and within buildings on site. This allowed for an accurate Sound Power Level $L_w$ to be assigned to active plant.
Ground Absorbtion	AONA Environmental	A Ground Absorbtion Rate $G = 0.5$ has been used in the model, which is appropriate for the surrounding land type.

**Table 7.1: Modelling Parameters, Sources and Assumptions**

AONA Environmental has previously undertaken source specific noise level readings in close proximity to the main noise sources that operate on quarry sites. This allows for the generation of accurate sound power levels for all main existing noise sources on the site. For the purposes of noise impact assessment, the Sound Power level ( $L_w$ ) was determined by measuring the Sound Pressure Level ( $L_p$ ) at a specific distance from the noise source and

assuming a Directivity Index (Q) of 2, i.e. hemispherical propagation, using the following equation;

$$L_W = L_p + |10 \cdot \log\left(\frac{Q}{4\pi \cdot r^2}\right)|$$

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AONA Environmental has been advised of the specific noise sources that will operate on the proposed quarry site. Therefore, an accurate noise prediction model has been prepared based on accurate source sound level data.

The type of plant that will be used on the proposed quarry site includes the following (not all of which will be in use concurrently or continuously);

1. The extraction of sand and gravel over an area of c. 6.5 ha;
  - Extraction of c. 165,000m<sup>3</sup> of sand and gravel.
  - Max. 50,000 tonnes per annum @ 20 tonne capacity per HGV = 2,500 HGV movements per annum = on average approximately 10 HGV movements per day. 5 HGV movements per hour on site has been assessed in the CadnaA noise model.
  - Excavator, e.g. CAT330CL in operation at quarry face to load HGVs with excavated sand and gravel for transport to crushing / screening / washing area.
  
2. The importation, recycling and processing of inert construction and demolition waste, will include the recovery of construction and demolition materials (e.g. brick / block / concrete / hardcore / stone) by means of: sorting of waste materials into recoverable fractions and residual wastes; crushing of brick / block / concrete / hardcore / stone; and diverting recovered waste to allow for the restoration of the site to beneficial agricultural use.  
C&DW Acceptance - Transport of inert waste via return loads to quarry site. HGV movements = up to 2,500 HGV movements per annum = on

average approximately 10 HGV movements per day. 5 HGV movements per hour on site has been assessed in the CadnaA noise model.

At concrete pad for sorting, crushing & screening of waste;

- Loader, e.g. CAT 973 in operation at concrete pad to unload HGVs and load to crushing / screening equipment.
- Crushing equipment, e.g. Terex Pegson mobile concrete crusher
- Screening equipment, e.g. Terex Finlay mobile equipment
- Sand & Gravel Washing Plant

3. The progressive restoration of the site to beneficial agricultural use.

Restoration of excavated sand and gravel area with C&D waste and return to agricultural use;

- Max. of 10 HGV movements per day. 5 HGV movements per hour on site has been assessed in the CadnaA noise model.
- Excavator, e.g. CAT330CL in operation to unload and spread C&D waste to allow return to agricultural use.

The sound power level ( $L_w$ ) of the noise sources included in this noise prediction model are as follows:

**Point Sources:**

Name	$L_w$ dB(A)	Notes
Crushing Plant working at concrete pad area	118.0 (~87 dB(A) @ 10m)	Worst-case assumption - to be operational 75% of time during the working day
Screening Plant working at concrete pad area	115.0 (~84 dB(A) @ 10m)	Worst-case assumption - to be operational 75% of time during the working day
Sand & Gravel Washing Plant working at concrete pad area	111.0 (~80 dB(A) @ 10m)	Will not be operational at the same time as the Crushing & Screening Plant during the working day
Excavator at working quarry faces	111.0	Assumed to be operational 75% of time during the working day

**Note:** For a worst-case noise impact assessment, it has been taken that the Crushing & Screening Plant will be louder than the Sand & Gravel Washing Plant. Therefore, an assessment of predicted noise levels from the operation of the Crushing & Screening Plant operating at the concrete pad area will result in a worst-case noise impact.

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**Moving Line Sources:**

Name	Type	Lw dB(A)	Moving Pt. Src Number per hour	Speed (km/h)
Front Loaders	PWL-Pt	106	30.0	10.0
Haul Truck Movements	PWL-Pt	105	5	10.0

Because the site extends for approximately 400m, two scenarios have been investigated in each modelled phase to represent the extraction of sand and gravel / or the restoration phase in the north and south of the quarrying application area. The proposed operating hours are from 0700 – 1900 Monday to Friday and from 0700 – 1500 on Saturday. Therefore, there are no operations proposed at night-time or on Sunday.

The following noise sensitive receiver locations have been included in the CadnaA noise prediction model.

Reference	Address	ITM Coordinates
NSR 1	THE SANDHILLS COTTAGE, CLOONASCRAUGH, TUAM, H54 KC67	544167, 748393
NSR 2	CLOONASCRAUGH, TUAM, H54 WV58	544093, 748352
NSR 3	CLOONASCRAUGH, TUAM, H54 T284	544047, 748407
NSR 4	CLOONASCRAUGH, TUAM, H54 K023	544133, 748115

**Table 7.2: Noise sensitive receiver locations included in the noise prediction model**





**Figure 7.1: Noise Monitoring Location (NML) and Noise Sensitive Receiver locations (NSR 1 - 4) included in the noise prediction model.**

## **7.4 Assessment of Baseline Conditions**

### **7.4.1 Baseline Noise Survey**

AONA Environmental has undertaken baseline noise monitoring in proximity to the nearest noise sensitive properties to the proposed quarry site on Tuesday 1<sup>st</sup> February 2022. The noise monitoring survey was conducted in accordance with *ISO 1996-1, 2016 Acoustics – Description, Measurement and Assessment of Environmental Noise*.

The proposed quarry development site was not in operation during the survey. The adjacent Moylough Concrete Products site was noted to be operational with some yard activity but was not a significant noise source at the noise monitoring location. A Cirrus Optimus Green sound level meter was used during the survey, which was calibrated before and after the noise survey period. The weather conditions during the noise survey were noted to be dry, cool and with a light south-easterly breeze.

The sound level meter was orientated towards the dominant noise source during measurements and was at a height of ~1.5m off the ground. A wind shield was used on the microphone throughout the survey and the sound level meter was calibrated before and after the survey. The Time Weighting used was Fast and the Frequency Weighting was A-weighted. The principal noise measurement parameters recorded during the survey was the equivalent continuous A-Weighted Sound Pressure Level,  $L_{Aeq, T}$  and the background noise level  $L_{A90, T}$ . A statistical analysis of the measurement results was also completed so that the percentile levels,  $L_{AN, T}$ , for  $N = 90\%$  and  $10\%$  over specific measurement intervals were also recorded. The percentile levels represent the noise level in dB(A) exceeded for  $N\%$  of the measurement time. The measurement parameters recorded during the baseline survey are defined as follows:

- $L_{Aeq}$  is the A-weighted equivalent continuous steady sound level during the sample period and effectively represents an average value.
- $L_{Amax}$  is the maximum A-weighted sound level measured during the sample period.
- $L_{Amin}$  is the minimum A-weighted sound level measured during the sample period.
- $L_{A10}$  is the A-weighted sound level that is exceeded for 10% of the sample period and is used to quantify traffic noise.
- $L_{A90}$  is the A-weighted sound level that is exceeded for 90% of the sample period and is used to quantify background noise in the absence of the main noise source.

The baseline noise monitoring location is outlined in Table 7.3 and the recorded noise levels are reported in Table 7.4.

Description	Location	ITM Coordinates
NML 1	At the entrance of the proposed quarry development site to represent properties located along R347 to the west of the quarry	544159, 748231

**Table 7.3: Baseline noise monitoring location on Tuesday 1<sup>st</sup> February 2022.**

Location	Time	L <sub>Aeq</sub> , 30 min	L <sub>AMax</sub>	L <sub>Amin</sub>	L <sub>A10</sub> , 30 min	L <sub>A90</sub> , 30 min	Notes
NML 1	14:00	58.1	72.3	32.7	63.1	42.2	Traffic on R347 dominant.
	14:30	56.5	72.9	32.5	60.5	41.5	
	15:00	56.9	70.3	32.2	61.9	41.9	Moylough Concrete Products inaudible.
	15:30	58	71.9	33.2	62.8	42.3	

**Table 7.4: Noise monitoring survey results at NML 1 on Tuesday 1<sup>st</sup> February 2022.**

The noise monitoring data presented in Table 7.4 indicates that the existing noise level, which is dominated by traffic noise sources, is above the 55 dB(A) L<sub>eq</sub> noise limit that applies to the proposed quarry development. The background noise level that prevails in the area is approximately 42 dB(A) L<sub>90</sub>.

## **7.5 Assessment of Impacts**

The proposed operational activities at the quarry site have the potential to generate a noise impact. The significance of the noise impact of the various activities depends on the duration of each activity, the particular items of plant used and the time at which the activity occurs. However, all practical measures will continue to be taken to ensure that the noise emissions associated with the proposed development do not cause a noise impact upon the local residents. The proposed direction of extraction will allow for a working quarry face to be directly in front of the extraction equipment which will naturally attenuate noise in the direction of the nearest noise sensitive receivers in the area.

### 7.5.1 Relevant Noise Limits

Based on the relevant guidelines outlined above, the noise assessment indicates that the development must comply with a daytime **noise limit of 55 dB LAeq, 1 hour from quarry extension activities only**, measured at 'sensitive locations' and/or that noise from quarrying and associated activities is limited to between 5 to 10 dB above the background noise levels in quiet areas as recommended in the DoEHLG (2004) planning guidelines and the environmental management guidelines for the sector (EPA, 2006).

As the quarrying development will operate during daytime and quarrying was previously undertaken on the site, the **noise limit of 55 dB LAeq, 1 hour from quarry extension activities only** is the fundamental criteria in the assessment of the noise impact of the proposed development.

### 7.5.2 Noise Impact from Proposed Development

In order to establish and demonstrate that the proposed development will not exceed the noise limit of 55 dB LAeq, 1 hour from quarry extension activities only at 'sensitive locations', a noise prediction model for the proposed extraction have been conducted according to *ISO 9613-2, 1996 Acoustics-Attenuation of sound propagation outdoors*. This noise impact assessment is based on actual measured sound power level data for the plant and equipment that will operate on the quarry site.

Noise levels have been predicted during periods of proposed sand and gravel extraction, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements within and to and from the site. The following scenarios have been modelled;

- **Noise Scenario 1** – Commencement of sand and gravel extraction in the north of the site from existing site contours, with C&D crushing and

- screening ongoing in the plant area, with a loader operating in the recycling area and with 5 HGV movements per hour within the site (See Figure 7.2).
- **Noise Scenario 2** – Commencement of sand and gravel extraction in the south of the site from existing site contours, with C&D crushing and screening ongoing in the plant area, with a loader operating in the recycling area and with 5 HGV movements per hour within the site (See Figure 7.3).
  - **Noise Scenario 3** – Sand and gravel extraction in the north of the site to proposed site contours, with C&D crushing and screening ongoing in the plant area, with a loader operating in the recycling area and with 5 HGV movements per hour within the site (See Figure 7.4).
  - **Noise Scenario 4** – Sand and gravel extraction in the south of the site to proposed site contours, with C&D crushing and screening ongoing in the plant area, with a loader operating in the recycling area and with 5 HGV movements per hour within the site (See Figure 7.5).
  - **Noise Scenario 5** – Restoration area in the north of the site, with C&D crushing and screening ongoing in the plant area, with a loader operating in the recycling area and with 5 HGV movements per hour within the site (See Figure 7.6).
  - **Noise Scenario 6** – Restoration area in the south of the site, with C&D crushing and screening ongoing in the plant area, with a loader operating in the recycling area and with 5 HGV movements per hour within the site (See Figure 7.7).

The predicted noise levels are indicative of the worst-case on site activity over a 1 hour period. The predicted noise levels that will occur at Noise Sensitive Receivers assume that over a 1 hour period the proposed sand and gravel extraction, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements within and to and from the site are all on-going concurrently. The CadnaA noise model outputs are shown in Figures 7.2 – 7.7, held at Appendix 7.1.

Receiver	Scenario 1 - Working Quarry face area in North of site dB(A)	Scenario 2 - Working Quarry face area in South of site dB(A)	Scenario 3 - Working Quarry face area in North of site dB(A)	Scenario 4 - Working Quarry face area in South of site dB(A)	Scenario 5 - Restoration area in North of site dB(A)	Scenario 6 - Restoration area in South of site dB(A)
NSR 1	54	54	55	54	53	52
NSR 2	54	53	53	52	53	52
NSR 3	50	50	51	50	50	50
NSR 4	54	54	54	54	54	54
Limit Value	55 dB L <sub>Aeq</sub> , 1 hour					
	Note: 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2 dB(A).					

**Table 7.5: Predicted worst-case 1-hour noise levels (dB L<sub>Aeq</sub>) at Noise Sensitive Receivers during the proposed sand and gravel extraction, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements within and to and from the site.**

As shown in Table 7.5, the predicted noise levels at the noise sensitive receiver locations due to the proposed quarrying activities are in accordance with noise limit of 55 dB(A) during the proposed sand and gravel extraction, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements within and to and from the site during each phase of the development. The predicted noise levels are not significant daytime noise levels, are in line with previously experienced noise levels and are unlikely to give rise to nuisance complaint. As the proposed sand and gravel extraction moves in a vertical direction, this will bring additional noise attenuation due to the sides of the deepened quarry area, and will result in lower noise levels at the noise sensitive receivers in proximity to the quarrying activities.

It is accepted that all operators will have some noisier short term activities that have a higher noise limit of 70 dB(A) as distinct from normal operations such

as overburden removal, bund construction, restoration works, etc. Due to the nature of the application no overburden removal will take place. However, restoration works will be ongoing as the proposed development progresses, especially in the final phase of the works.

## 7.6 Proposed Mitigation Measures

The following noise mitigation measures will be employed to minimise operational impacts;

- Working hours during site operations will be as outlined above:  
  
0700-1900 Monday to Friday  
0700-1500 Saturdays.
- An on-site speed limit will be enforced for all traffic. Drivers of vehicles will be advised of the speed limits through the erection of signs i.e. a typically recommended on site speed limit of 10 kph.
- Where practicable the use of quiet working methods will be selected and the most suitable plant will be selected for each activity, having due regard to the need for noise control.
- The quarry will employ the best practicable means to minimise noise emissions and will comply with the general recommendations of BS 5228. To this end operators will use “noise reduced” plant and/or will modify their construction methods so that noisy plant is unnecessary.
- By positioning potentially noisy plant or operations as far as possible from noise sensitive receivers the transmission of sound can be minimised. For example earth mounds and/or stacks of material on site can be used in such a way that they act as a physical barrier between the source and the receiver. Perimeter bunding around the ‘plant area’, for example will minimise noise breakout from this area of the site and

the crushing and screening noise in the 'plant area' can be attenuated by the earth mounds and/or stacks of material.

- Mechanical plant used on site will be fitted with effective exhaust silencers. Vehicle reverse alarms will be silenced appropriately in order to minimise noise breakout from the site while still maintaining their effectiveness. All plant will be maintained in good working order. Where practicable, machines will be operated at low speeds and will be shut down when not in use.
- Employees working on the site will be informed about the requirement to minimise noise and will undergo training on the following aspects:
  - The proper use and maintenance of tools and equipment
  - The positioning of machinery on-site to reduce the emission of noise to the noise sensitive receivers
  - Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment
  - The use and maintenance of sound reduction equipment fitted to power pressure tools and machines
- It is also recommended that should complaints be received from nearby residential properties, periodic noise monitoring be undertaken during operational works to determine noise levels at noise sensitive receivers. On the basis of the findings of such noise monitoring, appropriate noise mitigation measures should be implemented to reduce noise impacts. Where excessive noise exposure levels are recorded, further mitigation measures should be employed which may include temporary screening of the nearest receiver to on-site activities.
- An effective and suitable community liaison method should be established to allow for adequate warning about upcoming blasts.



## 7.7 Residual Impacts

It is considered that subject to the implementation of the mitigation measures outlined above and the implementation of good operational practices at the quarry, that there will be no significant residual impacts upon the amenity of the nearest sensitive receptors in terms of noise disturbance from the proposed development.

## 7.8 Conclusion

A noise survey was undertaken on 1<sup>st</sup> February 2022 in proximity to the nearest noise sensitive locations to establish the current ambient noise levels in the area without the existing quarry area in operation. Traffic on the adjacent R347 road dominates the noise climate in the area. Moylough Concrete Products was noted to be inaudible at the noise monitoring location.

It is recommended that a daytime noise limit of 55 dB  $L_{Aeq, 1 \text{ hour}}$  from quarry activities should be the noise limit target at all properties.

The predicted worst-case 1-hour noise levels (dB  $L_{Aeq}$ ) at Noise Sensitive Receivers during the proposed sand and gravel extraction, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements within and to and from the site are predicted to be in accordance with the daytime noise limit of 55 dB  $L_{Aeq, 1 \text{ hour}}$  from quarry activities.

No blasting will take place on site. Therefore, there will be no vibration impacts.

Given the above, the proposed development is not considered to have the potential to result in any significant effects upon the environment in terms of noise or vibration.

## **8.0 AIR QUALITY**

### **8.1 Author of the Report**

This section of the EIAR comprises a Dust Impact Assessment prepared by Mervyn Keegan, Director of the environmental consultancy, AONA Environmental Consulting Ltd. Mervyn's competency is described in detail at Section 7.1 and therefore is not repeated here.

### **8.2 Introduction**

This Dust Impact Assessment considers the potential dust impact of the proposed quarry operations at the sensitive receiver locations in proximity to the proposed development site at Cloonascragh Sand and Gravel Pit, Tuam, Co Galway. The proposed development comprises 3 main elements:

1. the extraction of sand and gravel over an area of c.6.5ha;
2. the importation, recycling and processing of inert construction and demolition waste; and
3. the progressive restoration of the site to beneficial Agricultural use.

A detailed Project Description of the proposed quarry extension development is provided in Section 4 of the EIAR.

The application seeks planning permission to extract and process the remainder of the existing sand and gravel resource within the established sand and gravel pit under the Applicant's ownership, and which resides above the water table at the existing pit. The application also seeks to allow for the importation of inert construction and demolition waste (C&DW) to be brought back to site via return loads within the delivery fleet, for storage in a dedicated, prepared area prior to processing, utilising the same processing plant, which has been specified to accept both C&DW and indigenous sand and gravel, in preparation for resale as recycled aggregate. The applicant proposes to

progressively restore the pit with material resultant from the proposed recycling process (i.e. soil making material) in order to deliver an improved restoration scheme with a beneficial after use to Agriculture.

The proposed winning and working of minerals and associated C&D waste recovery activities (recycling) and site restoration will take place from 0700-1900 Monday to Friday and 0700-1500 Saturdays.

This assessment considers the potential air quality impacts arising from the proposed development. An assessment is presented which employs the Source - Pathway-Receptor Approach to evaluate the risk of dust impacts and effects. Specifically, this assessment considers the potential air quality impacts associated with dust arising from the quarry which has the potential to reduce amenity in the local community ('disamenity dust') and smaller dust particles which can remain airborne for longer, potentially increasing local ambient concentrations of particulate matter (e.g. PM<sub>10</sub> and to a lesser extent PM<sub>2.5</sub>), which is associated with a range of health effects.

This assessment also seeks to establish a current baseline level of air quality in the area surrounding the proposed development. The current potential sources of dust in the vicinity of the proposed site that are considered as part of the assessment are attributable to:

- Existing quarry area;
- Moylough Concrete Pre-Cast Concrete facility immediately north of proposed development site;
- Agricultural practices in the area; and
- Road surfaces and traffic movements.

The amount of dust generated from a mineral working of this type is largely affected by:

- Mineral type;
- Climate/local meteorology;

- Topography;
- Type of operation (scale, activity, location, duration); and,
- Character and land use of the surrounding area.

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At the proposed application site dust has the potential to be created by:

- Mineral Extraction;
- Loading operations;
- Storage of mineral;
- Transportation of mineral via dump truck;
- Import, storage and processing of C&D waste;
- Restoration (placement of out of specification materials).

The assessment addresses potential environmental impacts of the proposed quarry development in relation to health effects and disamenity dust nuisance.

The following elements have been considered:

- The legislative context relating to dust and particle emissions;
- Establishing baseline conditions;
- Local meteorological factors;
- Local receptors;
- The principal activities which could give rise to dust emissions; and,
- Mitigation measures to minimise dust generation.

### **8.3 Methodology**

#### **8.3.1 Relevant Dust Assessment Guidelines**

Guidance on the Assessment of Mineral Dust Impacts (Institute of Air Quality Management - IAQM)

Due to the lack of up-to-date guidance on assessing air quality impacts from minerals extraction sites in Ireland, reference has been made to the Institute of Air Quality Management guidance. The Institute of Air Quality Management

(IAQM) guidance document entitled Guidance on the Assessment of Mineral Dust Impacts for Planning (2016 V1.1), outlines that “*emissions of dust to air from minerals sites can occur during the preparation of the land, extraction, processing, handling and transportation of extracted minerals. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations being undertaken, and the weather conditions. The scale of these impacts depends on the dust suppression and other mitigation measures applied*”. This guidance provides advice on robust and consistent good-practice approaches that can be used to assess the operational-phase dust impacts for use in the planning process. The IAQM guidance document outlines a methodology by which it is possible to screen out the need for a detailed assessment based on the distance from a mineral site to potentially sensitive receptors and where the potential dust impact of a mineral site cannot be ‘screened out’, a more detailed dust assessment will be required.

The IAQM Guidance provides a flow chart to assess whether a detailed dust assessment should be undertaken. If there are no relevant receptors within 1 km of the operations, then a detailed dust assessment can be screened out. In such a case, it is considered that irrespective of the nature, size and operation of the site, the risk of an impact is likely to be “negligible” and any resulting effects are likely to be ‘not significant’. In cases whereby receptors are located between 400 m, or 250 m (depending on the rock type) and 1km of operations, it would normally be assumed that a detailed disamenity dust impact assessment is not required. However, the decision on whether to assess should be made and justified on a site-specific basis by a suitably experienced air quality professional. If there are relevant human and/or ecological receptors within 250 m or 400 m (depending on the rock type) then a disamenity dust impact assessment will almost always be required, which means that assessments are required for most minerals development schemes. Therefore, in the case of the proposed Cloonascragh Quarry development, it is not possible for potential dust impact to be ‘screened out’, a more detailed dust assessment is required.

### 8.3.2 Dust Standards & Guideline Values

Statutory standards exist for concentrations of suspended particulate matter (both PM<sub>10</sub> and the PM<sub>2.5</sub>) under The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011).

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Pollutant	Air Quality Objective	
	Measured as	Concentration
Particles (PM <sub>10</sub> )	Annual mean	40 µg/m <sup>3</sup>
	24 hour mean	50 µg/m <sup>3</sup> , not to be exceeded > 35 times a year
Particles (PM <sub>2.5</sub> )	Annual mean	25 µg/m <sup>3</sup>

**Table 8.1: Relevant Air Quality Standards Regulations**

New World Health Organisation (WHO) Global Air Quality Guidelines (AQGs) were released in September 2021, and these provide clear evidence of the damage air pollution inflicts on human health, at even lower concentrations than previously understood. The guidelines recommend new air quality levels to protect the health of populations, by reducing levels of key air pollutants, some of which also contribute to climate change.

Pollutant	Air Quality Objective	
	Measured as	Concentration
Particles (PM <sub>10</sub> )	Annual mean	15 µg/m <sup>3</sup>
	24 hour mean	45 µg/m <sup>3</sup>
Particles (PM <sub>2.5</sub> )	Annual mean	5 µg/m <sup>3</sup>
	24 hour mean	15 µg/m <sup>3</sup> not to be exceeded more than 3-4 times a year

**Table 8.2: WHO Air quality guideline values (September 2021)**

No statutory air quality criterion has been set at a European, National or World Health Organisation (WHO) level, although a range of national 'yardstick' criteria from many countries is found in literature.

For the sensitivity of people to the health effects of PM<sub>10</sub>, the IAQM recommends that the air quality practitioner assumes that there are three

sensitivities based on whether or not the receptor is likely to be exposed to elevated concentrations over a 24-hour period.

*High sensitivity receptor -*

- locations where members of the public are exposed over a time period relevant to the air quality objective for PM<sub>10</sub> (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day)
- indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.

*Medium sensitivity receptor -*

- locations where people are occupationally exposed over a full working day.
- indicative examples include offices, warehouses and industrial units.

*Low sensitivity receptor -*

- locations where human exposure is transient.
- Indicative examples public footpaths, playing fields, parks and shopping streets.

In terms of the protection of the sensitive ecological habitats, the IAQM guidance states that professional judgement is required to identify where on the spectrum between high and low sensitivity a receptor lies, taking into account the likely effect and the value of the ecological asset. A habitat may be highly valuable but not sensitive, alternatively it may be less valuable but more sensitive to dust deposition. For the sensitivity of ecosystems to dust deposition the IAQM recommends that an ecologist is consulted to determine the potential effects on plant communities.

The IAQM guidance defines high, medium and low sensitivity ecological receptors as follows;

*High sensitivity receptor –*

- locations with an international designation and the designated features may be affected by dust soiling.
- locations where there is a community of a particular dust sensitive species such as vascular species.
- an indicative example is a Special Area of Conservation (SAC) designated for acid heathlands adjacent to a minerals development releasing alkaline dusts.

*Medium sensitivity receptor –*

- locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown;
- nationally designated site and the designated features may be affected by dust deposition; or indicative examples include Sites of Special Scientific Interest (SSSIs) or a local wildlife sites with very specific sensitivities.

*Low sensitivity receptor –*

- locations with a local designation where the features may be affected by dust deposition.
- an indicative example is a local Nature Reserve with dust sensitive features.

In 2005, the UK Highways Agency released an Interim Advice Note 61/05 'Guidance for Undertaking Environmental Assessment of Air Quality for Sensitive Ecosystems in Internationally Designated Nature Conservation Sites and SSSIs' as a supplement to the Design Manual for Roads and Bridges (DMRB) Guidelines. This interim guidance states that dust or particles falling onto plants can physically smother the leaves affecting photosynthesis, respiration and transpiration. The literature suggests that the most sensitive species appear to be affected by dust deposition at levels above 1,000 mg/m<sup>2</sup>/day which is higher than the level at which most dust deposition may start to cause a perceptible nuisance to humans. As such, once dust deposition



rates are maintained within the guidelines for human nuisance the impact of dust deposition on sensitive ecosystems is considered negligible.

Therefore, the following dust limits should be used in the assessment of dust levels from the proposed quarry extension;

- PM<sub>10</sub> 24 Hour Mean concentration limit = 50 µg/m<sup>3</sup> not to be exceeded more than 35 times a calendar year
- PM<sub>10</sub> Annual Mean concentration limit = 40 µg/m<sup>3</sup>
- PM<sub>2.5</sub> Annual Mean concentration limit = 25 µg/m<sup>3</sup>
- Dust Deposition Rate limit affecting human receptors = 350 mg/m<sup>2</sup>/day using a Bergerhoff gauge
- Dust Deposition Rate limit affecting sensitive ecological receptors = 1,000 mg/m<sup>2</sup>/day using a Bergerhoff gauge. (Ref. The Highways Agency, Design Manual for Roads and Bridges)

#### Dust Deposition Impact Assessment

In quarries, dust typically becomes airborne due to the action of wind on material stockpiles and other dusty surfaces, or when thrown up by mechanical action, for example the movement of tyres on a dusty road or activities such as blasting, drilling, screening, etc. There are many types of particulate matter (PM) that are included in the definition of dust, including variations in terms of size and chemical composition.

A basic classification of particles may be made into those that are easily deposited and those that remain suspended in the air for long periods. This division is useful as deposited dust is usually the coarse fraction of particulates that causes dust annoyance, whereas suspended particulate matter is implicated more in exposure impacts.

Airborne particles have a large range of diameters, from nano-particles and ultrafine particles (diameters less than 0.1µm) to the very large particles with diameters up towards 100µm. There is no clear dividing line between the sizes of suspended particulates and deposited particulates, although particles with

diameters  $>50 \mu\text{m}$  tend to be deposited quickly and particles of diameter  $<10 \mu\text{m}$  have an extremely low deposition rate in comparison. Therefore, the size of suspended and deposited dust particles affects their distribution and as such requires two very different approaches to sampling these fractions.

Large particles ( $100 \mu\text{m}$  diameter) are likely to settle within 5-10m of their source under a typical mean wind speed of 4-5 m/s, and particles between 30-100  $\mu\text{m}$  diameter are likely to settle within 100m of the source. Smaller particles, particularly those  $<10 \mu\text{m}$  in diameter, have a greater potential to have their settling rate impeded by atmospheric turbulence and to be transported further from their source. Dust emissions are exacerbated by dry weather and high wind speeds. Therefore, the dust deposition impact depends on the wind direction and the relative location of the dust source and receptor.

PM<sub>10</sub> is the fraction of airborne (suspended) PM which contains particles of diameter less than  $10\mu\text{m}$ . PM<sub>10</sub> includes all particles, of different sizes and types, which are relevant for potential health effects. PM<sub>10</sub> can penetrate deep into the respiratory system increasing the risk of respiratory and cardiovascular disorders.

Dust emissions can arise as a result of operational activities, and /or wind erosion of exposed surfaces. The amount of dust that is raised is highly dependent upon a number of interrelated factors, which include:

- The nature of the material;
- The prevailing meteorological conditions;
- The activities being undertaken;
- The influence of any on site mitigation measures.

The prevailing meteorological conditions are the most significant issue which will affect the rate of dust deposition outside of the boundary of a quarry and its associated activities. Therefore, it can be assumed that during the drier months of the year, there is the potential for dust deposition rates to be higher than the annual average dust deposition rate. In order to establish an accurate existing

baseline dust deposition level in the area, a 12-month dust deposition survey typically needs to be carried out. However, in this case, as the site has not been operational since 2014, dust deposition survey data for the vicinity of the site is not available.

The Mineral Industry Research Organisation (MIRO) *Good practice guide: control and measurement of nuisance dust and PM<sub>10</sub> from the extractive industries* (2011) has classified typical monthly dustfall rates into three categories to represent 'open country', 'residential areas and the outskirts of towns' and 'commercial town centres' as outlined in Table 8.3. Therefore, as the proposed quarry extension is located within an area that could be characterised as 'Open Country' and is also surrounded by agricultural activity, this area is likely to have a monthly background dust deposition rate of 140 mg/m<sup>2</sup>/day as a 95<sup>th</sup> percentile according to the MIRO guidance.

Location	Median (50 <sup>th</sup> percentile)	90 <sup>th</sup> percentile	95 <sup>th</sup> percentile
Open Country	38	103	140
Residential Areas and the outskirts of towns	56	146	203
Commercial centres of towns	90	199	261

**Table 8.3: 5-year means of the annual percentiles of monthly dustfall rates (mg/m<sup>2</sup>/day insoluble deposits determined using a dry Frisbee (foam) gauge).**

#### **8.4 Assessment of Baseline Conditions**

The background air quality in the area of the Sand and Gravel pit at Cloonascragh, Tuam, Co. Galway is influenced by other potentially significant air pollutant sources. These other potential sources include the adjacent Moylough Concrete Pre-Cast Concrete facility, with HGV traffic movements, a disused yard northeast of the existing pit and the remainder of the pit currently dormant.

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Baseline conditions have been established in the following manner:

- Analysis of background PM<sub>10</sub> concentrations from the EPA National Ambient Air Quality Network;
- Analysis of relevant meteorological data; and,
- Identification of sensitive receptor locations.

### 8.4.1 Existing Air Quality

In order to reduce the risk to human health and to the environment from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) establish the limit values in Ireland for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), lead (Pb), carbon monoxide (CO) and benzene. These Regulations implement Directive 2008/50/EC on ambient air quality and cleaner air for Europe. The EPA is the competent authority for the purpose of Directive 2008/50/EC and these Regulations.

Under the Clean Air for Europe Directive, EU member states must designate "Zones" for the purpose of managing air quality. For Ireland, four zones were defined in the Air Quality Standards Regulations (2011). The zones were amended on 1<sup>st</sup> January 2013 to take account of population counts from the 2011 CSO Census and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012). Zone A is Dublin, Zone B is Cork City and Zone C includes 24 large towns and Zone D is the remainder of the State. The Sand and Gravel pit at Cloonascragh, Tuam, Co. Galway is within Zone D. The air quality in Zone D is well within the limits outlined in the Air Quality Standards Regulations 2011.

The EPA manages the National Ambient Air Quality Network. The closest air quality monitoring station to the Cloonascragh site is in Tuam, Co. Galway,

which is 3.7 km north-northwest of the development site. Automated results for this local air quality monitoring station are available for PM<sub>10</sub> and PM<sub>2.5</sub>. Results are shown in Table 8.4 below for the dates between 9<sup>th</sup> November 2021 – 31<sup>st</sup> January 2022, due to this local monitoring network currently having a communications issue and longer-term results are unavailable. Table 8.4 outlines the average values for Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

As shown in Table 8.4, the annual mean PM<sub>10</sub> and PM<sub>2.5</sub> background concentrations were significantly below the AQO standards of 40 µg/m<sup>3</sup> and 25 µg/m<sup>3</sup> respectively. The fact that the Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>) concentrations are so low, relative to the annual mean limit value, indicates good air quality in the area.

Month	PM <sub>10</sub> (ug/m <sup>3</sup> )	PM <sub>2.5</sub> (ug/m <sup>3</sup> )
November 2021	9.70	7.49
December 2021	10.49	8.41
January 2022	16.0	11.80
Limit Value	40 ug/m <sup>3</sup> (Note 1)	25 ug/m <sup>3</sup> (Note 1)

Note 1: Annual Mean for Protection of Human Health

**Table 8.4: Air Quality Levels at Tuam Co. Galway (9<sup>th</sup> Nov 2021 – 31<sup>st</sup> Jan 2022)**

### 8.4.2 Prevailing Meteorological Conditions

Meteorological conditions such as rainfall, wind speed and wind direction have the greatest impact on potential dust deposition impacts in proximity to the Cloonascragh Quarry development site.

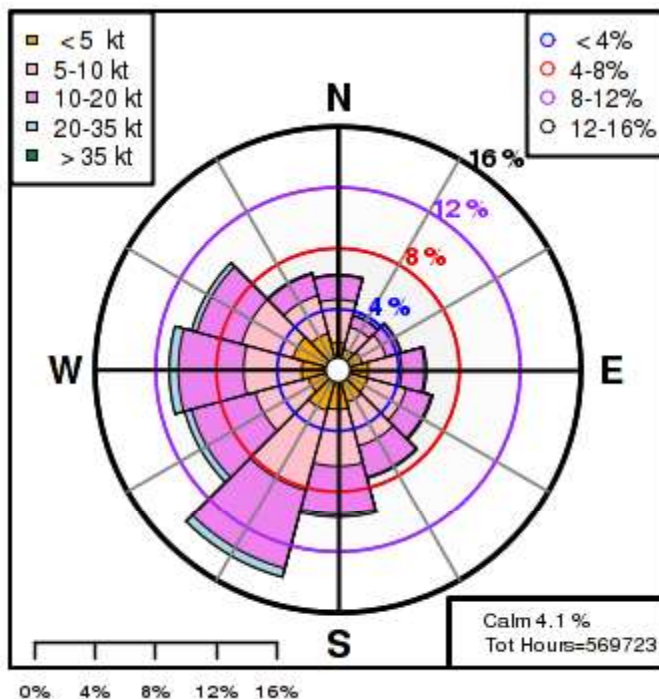
The closest Met Eireann weather station located 22km SSE of the Cloonascragh Quarry development site was installed in the grounds of Teagasc, Athenry, Co Galway in 2010. This meteorological station records temperature, rainfall, wind speed, wind direction as well as pressure and humidity. Table 8.5 summarises the monthly rainfall values from January 2019 to March 2022. This data exhibits a relatively high rainfall level throughout the

year (Long Term Average = >100 mm / month), which will allow for rainfall amounts to act as a significant natural dust suppressant on site.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2022	56.9	143.1	2.2										202.2
2021	167.3	113.4	102.1	23.9	95.7	29.8	58.5	84.8	91.1	164.0	78.9	114.7	1124.2
2020	118.7	248.5	108.2	46.8	49.6	67.9	174.3	109.8	90.3	168.0	148.1	151.6	1481.8
2019	84.1	73.5	161.4	67.7	46.1	69.7	71.0	297.3	185.3	115.0	111.4	144.3	1426.8
LTA	116.7	87.8	94.7	72.0	75.3	79.6	86.5	107.8	100.3	128.9	120.3	123.2	1192.9

**Table 8.5: Monthly rainfall values for Athenry from January 2019 to March 2022.**

A windrose shown in Figure 8.1 from a Met Eireann weather station at Claremorris, located 27km NNW of the Cloonascragh Quarry site, exhibits wind direction to be primarily from a south-westerly direction. [Note: the windrose indicates the wind 'Blowing From' direction between 1<sup>st</sup> Jan 1950 to 31<sup>st</sup> Dec 2014]. No dust sensitive properties are located within 500m to the north-east of the Cloonascragh Quarry site.



**Figure 8.1: Windrose from Claremorris Weather Station (1<sup>st</sup> Jan 1950 to 31<sup>st</sup> Dec 2014).**

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## **8.5 Assessment of Impacts**

The assessment to consider the impacts that can be expected to occur in the future as a result of the proposed operational activities at the quarry site is outlined below. This considers the potential significant effects, or impacts, that can reasonably be expected to occur as a result of mineral extraction and the processing of C&D waste.

### **8.5.1 Dust Sensitive Receptors**

The magnitude of the potential impact was assessed for all receptors. This assessment was based on the following:

- The mineral type, which is sand and gravel, will mostly be deposited within 100m of the source;
- Sensitive receptors are naturally screened by existing vegetation and surrounding topography. The topography of the site is characterised by the extent of the existing excavations at the site and the void created via the workings to date with levels ranging from 52mAOD in the northeast corner, to 36mAOD in the pit floor.
- The site already benefits from screening bunds along its boundaries which reduce the potential for wind-blown dusts off site.
- Extraction will progress in a northerly direction from the southern extents of the application area. Given that the application area is comprised of the existing pit footprint, which has already been disturbed, all overburden has already been removed from the working area and no further soil stripping or overburden removal is required.
- The Applicant is proposing to construct a concrete pad with individual bays for the receipt and sorting of construction and demolition waste. The C&DW, once sorted and held in sufficient quantities, will be processed through the crushing and screening plant in campaigns. The importation, recycling and processing of inert construction and

demolition waste, will include the recovery of construction and demolition materials (e.g. brick / block / concrete / hardcore / stone) by means of: sorting of waste materials into recoverable fractions and residual wastes; crushing of brick / block / concrete / hardcore / stone; and diverting recovered waste to allow for the restoration of the site to beneficial agricultural use.

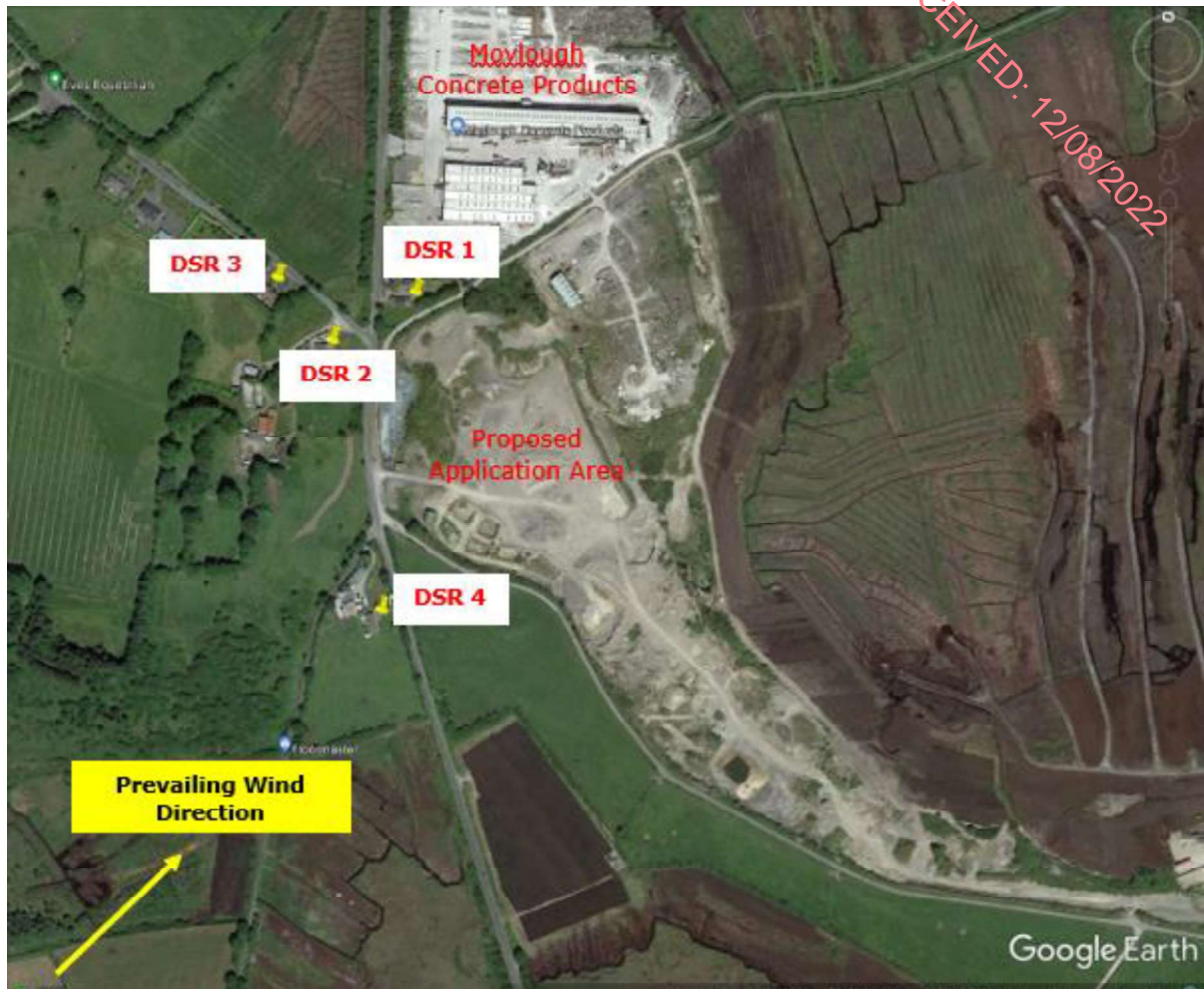
At concrete pad for sorting, crushing & screening of waste;

- Loader, e.g. CAT 973 in operation at concrete pad to unload HGVs and load to crushing / screening equipment.
  - Crushing equipment, e.g. Terex Pegson mobile concrete crusher
  - Screening equipment, e.g. Terex Finlay mobile equipment
  - Sand & Gravel Washing Plant
- 
- Construction & Demolition Waste Acceptance - Transport of inert waste via return loads to quarry site. HGV movements = up to 2,500 HGV movements per annum = on average approximately 10 HGV movements per day.

Figure 8.2 and Table 8.6 indicates that there are no properties within 250m to the north-east of the proposed quarry extension site, i.e. downwind of the prevailing wind direction. Beyond such distances it is highly unlikely that any receptors will experience a dust nuisance.



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**Figure 8.2: Dust Sensitive Receptors (DSR) in proximity to Cloonascragh Quarry development site**

Dust Sensitive Receiver	Coordinates		Distance to dust source (Mineral extraction)
	X	Y	
DSR 1 - The Sandhills Cottage, Cloonascragh, Tuam, H54 KC67	544167	748393	40 m
DSR 2 - Cloonascragh, Tuam, H54 WV58	544093	748352	70 m
DSR 3 - Cloonascragh, Tuam, H54 T284	544047	748407	125 m
DSR 4 - Cloonascragh, Tuam, H54 K023	544133	748115	125 m

**Table 8.6: Main Dust Sensitive Receivers (DSR) in proximity to Cloonascragh Quarry development site**

Table 8.6 provides a comprehensive list of the potential receptor properties surrounding the planning application area within 400m of the sand and gravel extraction area for assessment based upon their proximity to the proposed development site. Each receptor chosen is considered to illustrate the worst-case scenario given the prominent direction of the winds and proximity to proposed working. Surrounding residential receptors have been screened out from detailed consideration by virtue of their proximity to properties selected for further detailed assessment, which due to their proximity will, for the purposes of assessment, yield the same results.

### 8.5.2 Potential Dust Impact from Activities

The following aspects of the proposed development have been identified that could possibly give rise to an impact on the air quality environment of the surrounding area:

- Extraction of Sand and Gravel;
  - C&D Waste Recycling
  - Loading and despatch of vehicles;
  - Onsite transportation of material;
  - Restoration / material placement.
- 
- **Extraction of Sand and Gravel**

The Extraction phase of the development will see sand and gravel extracted over an area of c. 6.5 ha to a maximum depth of 34mAOD. This phase of extraction will release some c. 165,000m<sup>3</sup> (c. 264,000 tonnes) of sand and gravel.

Extraction will progress in a northerly direction from the southern extents of the application area. Given that the application area is comprised of the existing pit footprint, which has already been disturbed, all overburden has already been

removed from the working area and no further soil stripping or overburden removal is required.

The sand and gravel will be extracted with the use of a 12m-reach 360° excavator and loaded in to dump truck / HGV. The mineral will then be hauled to the screening and washing plant site in the north-western part of the existing pit. The won material will then be washed, sized and screened into single sized products. Suspended quarry fines (silts etc) resultant from the washing process will be deposited in the existing silt ponds in the north-western part of the pit, where they are left to settle before being utilised in the progressive restoration of the site.

- **C&D Waste Recycling**

Inert construction and demolition waste will be imported to the site for processing, utilising the proposed processing plant in preparation for resale as secondary aggregates. The load will be tipped on a dedicated hardstanding area, which has a capacity of approximately 500 tonnes. Once potential contaminants are removed from the tipped load, a loading shovel will transfer the wastes to designated storage bays, which have a combined capacity of approximately 10,000 tonnes.

The processing/recycling activities taking place as part of this proposal will take place at the plant site, within the existing pit. The process will utilise the same plant and machinery as for the crushing, screening and washing of the mineral won at the site. The screened products from the plant will, either be loaded directly into the customer's vehicles for sale, blended with on-site materials in readiness for sale or placed to stock.

- **Loading and despatch of vehicles; and onsite transportation of material**

The weight of vehicles, their speed and the number of wheels in contact with the ground can all affect the resuspension of dust deposits on road surfaces. Material will be liberated at the face, by a tracked face excavator, before being transported by dump truck to the processing area. There will be up to 2,500 HGV movements per annum = on average approximately 10 HGV movements per day. Transport of inert waste will be via return loads to quarry site. A loader will be in operation at concrete pad to unload HGVs and load crushing / screening equipment.

- **Restoration**

The site will be restored in accordance with the submitted restoration concept. The final restoration concept will see the site restored to agricultural use with a woodland and species-rich grassland proposed. The restoration of the site will create an improvement in local biodiversity, allowing for habitat creation and allowing the site to assimilate back to within the local landscape.

As a result of the previous workings at the pit, there is insufficient readily available indigenous material to deliver a beneficial afteruse at the site in order to make it suitable for agricultural use. Pit faces will be progressively restored to 1v:5h slopes with available indigenous stripped topsoils and stored overburden and supplemented with material recovered from the recycling operation proposed for the site.

### **8.5.3 Dust Impact on Lough Corrib Special Area of Conservation (SAC)**

The ecological effects resulting from the predicted dust impact must be assessed. An 'ecological receptor' refers to any sensitive habitat affected by dust deposition.

To the south and west is Lough Corrib Special Area of Conservation (SAC), which at its nearest point is approximately 930 metres to the south of the

existing quarry. At this distance it is considered that there is no potential for the proposed quarry operations to negatively impact on the Annex I habitats for which the SAC has been designated, therefore the potential effects on impacts on sensitive ecological receptors was not considered in this assessment.

#### 8.5.4 Assessment of Potential Dust Impacts

The IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning gives an illustrative example of a dust risk assessment for a minerals site based on the underlying IAQM assessment procedure set out in Section 5.1 of the guidance in Appendix 3. The example provides a series of assessment matrices which are used to estimate the Dust Impact Risk, the Pathway Effectiveness and the Likely Magnitude of Disamenity Effects at each receptor. The latter is used to determine whether overall there is likely to be a significant effect or not on the surrounding area.

- **Estimation of Dust Impact Risk**

*Estimation of Residual Source Emissions*

The Dust Impact Risk was determined for each of the main operational activities:

- a. Site preparation and restoration; (Restoration only, no site preparation)
- b. Mineral extraction;
- c. Materials handling;
- d. On-site transportation;
- e. Mineral processing;
- f. Stockpiles and other exposed surfaces;
- g. Off-site transportation (track-out).

More than one of these activities may occur at any one time, and this was taken into consideration in the assessment. Owing to the long-term nature of this minerals development, the site was divided into 'zones' for the dust risk assessment, considering the proposed phases of extraction and the mitigation measures that are applied on site. The Residual Source Emissions was based

on the scale of the anticipated operations and was classified as Small, Medium, or Large for each relevant operational activity in each phase, taking into account the designed-in mitigation. The Residual Source Emissions for each activity are presented in Table 8.7.

Activity	Residual Source Emissions	Notes
Site preparation and restoration	Large	No Site Preparation. Restoration area 6.5ha, bunds already in place, >100,000m <sup>3</sup> material movement, fine material.
Mineral extraction	Small	Working area 6.5ha, hydraulic excavator, 50,000 tpa extraction rate
Materials handling	Small	<5 plant, within 50 m from site boundary with low dust potential and high moisture content eg wet sand and gravel
On-site transportation	Medium	Max 5 haul truck movements per hour - ~10 movements per day, haul roads on unpaved surfaces of potentially dusty material <500m in length
Mineral processing	Small	Fixed washing, crushing and screening plant – processing up to 50,000 tpa of sand and gravel and processing up to 50,000 tpa of C &DW material for site restoration with low dust potential and high moisture content eg wet sand and gravel
Stockpiles and other exposed surfaces	Small	stockpile duration of <1 month with a total area <2.5ha. Quarry production <200,000 tpa
Off-site transportation	Small	<25 HDV movements a day, paved surfaced site access road >50 m in length

**Table 8.7. Residual Source Emissions Classification**

On the basis of the fact that 'on-site transportation' will be one of the main potential continuous dust sources on site, a worst case **medium** Residual Source Emission Classification for each of the phases has been selected.

#### *Estimation of Pathway Effectiveness*

The site-specific factors considered to determine the Effectiveness of the Pathway were the distance and direction of receptors relative to the prevailing wind directions. There are four receptors identified within 400m of the site (See Table 8.6) and therefore each receptor was considered separately. For each receptor within 400 m on the site boundary the wind direction from the proposed dust source was considered. The frequencies of wind in each direction were then calculated based on meteorological data for 64 years from a representative meteorological station as shown in Figure 8.1. The resulting frequency of moderate to high wind speeds (>5 m/s) with the potential of carrying airborne dust towards receptors were then assigned to the categories in Table 8.8 based on 12 x 30° wind direction sectors.

<b>Frequency Category</b>	<b>Criteria</b>
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 8.8. Categorisation of Frequency of Potentially Dusty Winds**

The categorisation shown in Table 8.9 was applied to the distance from each receptor to source.

Category	Criteria
Distant	Receptor is between 200 m and 400 m from the dust source
Intermediate	Receptor is between 100 m and 200 m from the dust source
Close	Receptor is less than 100 m from the dust source

**Table 8.9. Categorisation of Receptor Distance from Source**

The pathway effectiveness was classified using the Frequency of Potentially Dusty Winds from Table 8.8 and the Receptor Distance from Source from Table 8.9, as shown in Table 8.10.

		Frequency of potentially dusty winds			
		Infrequent	Moderately frequent	Frequent	Very frequent
Receptor Distance Category	Close	Ineffective	Moderately Effective	Highly Effective	Highly Effective
	Intermediate	Ineffective	Moderately Effective	Moderately Effective	Highly Effective
	Distant	Ineffective	Ineffective	Moderately Effective	Moderately Effective

**Table 8.10. Pathway Effectiveness**

#### *Estimation of Dust Impact Risk*

The Residual Source Emissions and the Pathway effectiveness were combined to predict the Dust Impact Risk as shown in Table 8.11.



		Residual Source Emission		
		Small	Medium	Large
<b>Pathway Effectiveness</b>	Highly Effective Pathway	Low Risk	Medium Risk	High Risk
	Moderately Effective Pathway	Negligible Risk	Low Risk	Medium Risk
	Ineffective Pathway	Negligible Risk	Negligible Risk	Low Risk

**Table 8.11. Descriptors for Magnitude of Dust Effects**

*Estimate Likely Magnitude of Disamenity Effects*

The likely disamenity effect at each receptor was determined from the Dust Impact Risk (Table 8.11) and the Receptor Sensitivity, as shown in Table 8.12.

Level of Risk	Receptor Sensitivity		
	Low	Medium	Large
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

**Table 8.12. Dust Disamenity Effects at Specific Representative Receptors**

The dust disamenity effects predicted at each receptor around the proposed minerals extraction development is summarised in Table 8.13, setting out the risks of impacts for each activity being assessed.

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Ref. (See Fig. 8.3)	Location relative to nearest dust source	Residual Source Emissions	Pathway Effectiveness	Dust Impact Risk	Receptor Sensitivity	Magnitude of Dust Effect
DSR 1 Note 1	40 m "crosswind" of prevailing wind direction from mineral extraction	Medium	Moderately Effective (Moderately Frequent & Close)	Low Risk	High	Slight Adverse Effect
DSR 2 Note 2	70 m "crosswind" of prevailing wind direction from mineral extraction	Medium	Ineffective (Infrequent & Close)	Negligible Risk	High	Negligible Effect
DSR 3 Note 2	125 m "crosswind" of prevailing wind direction from mineral extraction	Medium	Ineffective (Infrequent & Intermediate)	Negligible Risk	High	Negligible Effect
DSR 4 Note 3	125 m "upwind" of prevailing wind direction from mineral extraction	Medium	Ineffective (Infrequent & Intermediate)	Negligible Risk	High	Negligible Effect

**Table 8.13. Dust Disamenity Effects at Specific Representative Receptors**

Note 1 – DSR 1 represents the property to the north of the proposed development. The windrose in Figure 8.1 indicates that the wind blows towards this property at >5m/s for approximately 6 % of the time.

Note 2 – DSR 2 and DSR 3 represents the properties to the northwest of the proposed development. (The windrose in Figure 8.1 indicates that the wind blows towards these properties at >5m/s for <5% of the time.

Note 3 – DSR 4 represents the property to the southwest of the proposed development. The windrose in Figure 8.1 indicates that the wind blows towards this property at >5m/s for <5% of the time.

Overall, the proposed development is considered to have the potential to cause a 'Slight Adverse Effect' at the nearest residential receptor in the surrounding area. There will be a 'Negligible Effect' at other residential receptors in the surrounding area. Therefore, the overall effect is considered to be 'not significant'. This is based on a consideration of the different magnitude of effects at individual receptors, and the number of receptors that would experience these potential effects.

## **8.6 Proposed Mitigation Measures**

The planning history demonstrates that sand and gravel extraction at this location has been evident for 50 years. The planning history also demonstrates that the impacts associated with the operation of the pit have been assessed and have been found to be acceptable.

The following best practice dust mitigation measures should be employed at the Cloonascragh Quarry development site to minimise operational impacts.

### **8.6.1 Operational Activities**

- The site manager will have overall responsibility for ensuring that operations within Cloonascragh Quarry site comply with the requirements of any planning authorisation.
- Site staff to undertake regular visual inspections of dust conditions, determined on a daily basis in accordance with prevailing conditions;
- Site management will give attention to advance weather forecasts and organise dust management requirements accordingly;

### 8.6.2 Access Roads, Site Roads and Vehicles Loading Activities & Movements:

The objective of these procedures is to minimise the creation and release of dust generated by transportation activities carried out during both access to and movements within the site. This includes minimising dust from transport vehicles entering and leaving the facility.

- Regular attention is paid to cleaning dust material from all roadways, hard surfaced areas and working areas of the facility. Dust from clean-up is re-incorporated into stockpiles / processing plant. This is done during every lull in operations and at the end of each working period.
- Roadways and other areas where vehicles are regularly moving are kept clean, by sweeping or by wetting;
- Designate stockpiles and associated loading areas within the quarry void away from prevailing winds;
- Stockpiles to be dampened during prolonged dry periods
- When loading vehicles, the following procedures are adhered to:
  - No overloading of vehicles or containers resulting in either peaks of cargo or overspill onto the working areas or roadways.
  - Keep fall heights of the material into the transport vehicles to a minimum.
- Strictly applied, suitable on-site speed limits are set, displayed and observed for the movement of all vehicles (10 kph).
- A suitable underbody and wheel wash is provided. This is surrounded by a smooth hard surface extending to the site exit. All vehicles pass through and spend sufficient time for effective cleaning in the washing facility before leaving the site. Supervision is provided to ensure that this is carried out effectively.
- All vehicles used for the movement of material on site shall be fitted with exhausts pointing away from the ground.

### 8.6.3 Material Storage

The following points are considered essential to ensure effective control of dust during material storage at this site:

- Minimise the duration of activity
- Avoid soils handling during adverse weather conditions, i.e. dry and windy weather
- Material storage mounds graded to minimise wind-blown dust and seeded on completion of construction
- Siting of storage mounds to take advantage of shelter from wind
- Double handling of materials will be minimised wherever possible.
- Stockpiles to be located at the furthest distance from sensitive receptors.

### 8.6.4 Mineral Extraction

The following points are considered essential to ensure effective control of dust from the extraction of mineral at this site:

- Controlled use of fixed short haul roads.
- Water to be sprayed using a bowser during prolonged dry periods or as required.
- Speed controls to be implemented and monitored on all internal haul roads.
- All vehicles checked for overloading to reduce spillage.

### 8.6.5 Layout of Site

Recommendations for changes in operational layout of the site are as follows:

- Maintain working operations utilising active face to provide shelter from prevailing winds;
- All new landforms will be seeded at the earliest opportunity with robust grass species. This will ensure the new bunds are not a dust source and will minimise fugitive dust during extreme events.

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### 8.6.6 Monitoring & Reporting

The following administration points are considered essential to ensure effective control of dust at the site:

- A high standard of housekeeping to be maintained on site.
- Appropriate systems for monitoring processes and responding to and reporting pollution incidents put in place. This information should be kept in a logbook, together with information regarding equipment failure, periods of significant dust emissions off-site and the inspection of roadways, together with any remedial action taken.
- Any complaints received from neighbouring properties to be logged and appropriate actions taken to reduce the potential for further complaint.

### 8.7 Residual Impacts

No exceedance in the guideline limit of 350 mg/m<sup>2</sup>/day or Air Quality Objective Limits is expected as a result of the proposed development. Subject to the implementation of the proposed mitigation measures, the proposed development is not considered to result in a significant effect upon the environment.

### 8.8 Conclusions

The potential for any dust arising from the proposed development including

1. the extraction of sand and gravel over an area of c.6.5ha;
2. the importation, recycling and processing of inert, construction and demolition waste; and
3. the progressive restoration of the site to Agricultural use.

Implementation of the above using excavators with associated HGV traffic movements at the Cloonascragh Quarry site has been assessed.

Overall, the proposed development is considered to have the potential to cause a 'Slight Adverse Effect' at the nearest residential receptor in the surrounding area. There will be a 'Negligible Effect' at other residential receptors in the surrounding area. Therefore, the overall effect is considered to be 'not significant'. This is based on a consideration of the different magnitude of effects at individual receptors, and the number of receptors that would experience these potential effects.

Any residual dust deposition impacts resulting from the future de-commissioning and restoration of the quarry will be of a short duration and all potential dust impacts from the Cloonascragh Quarry site are considered to be reversible i.e. the risk of impact will cease on completion of quarrying and restoration of the site.

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## 9.0 LANDSCAPE AND VISUAL

### 9.1 Author of the Report

A Landscape and Visual Impact Assessment (LVIA) has been prepared by Pete Mullin of Mullin Design Associates, Chartered Landscape Architects, who has produced over 100 Landscape and Visual Impact Assessments during 25 years in the sector.

### 9.2 Introduction

The purpose of the LVIA is to establish the potential landscape and visual impacts/effects arising from proposed development operations at the application site. The assessment has been structured in the following subsections:

- **Methodology** – explanation of how the assessment has been undertaken, with reference to methodology, terminology, assessment criteria, and planning policy.
- **Receiving Environment** - or Landscape and Visual Context – baseline description, classification and evaluation of the existing landscape character containing the application site and an assessment of visual amenity, with identification of visual receptors.
- **Project Description** – description of aspects of the proposed development which have the potential to cause a landscape and/or visual effect and measures which will be incorporated to mitigate or avoid greater potential effects.
- **Assessment of Impacts** – an outline of potential landscape and visual impacts with proposed mitigation measures and cumulative impacts.
- **Residual Impacts** and impact summary.



The figures and tables referenced throughout this section constitute an important element of the assessment and as such are held in Appendices 9.1 and 9.2 respectively, separate to the section to allow for ease of access to the reader, that the text and the visual analysis can be viewed side by side.

### **9.3 Methodology**

#### **9.3.1 Method of Assessment & Guidelines**

The assessment of the landscape and visual impacts for this development are based on the most up to date guidelines provided by The Landscape Institute, 'Guidelines for Landscape and Visual Impact Assessment', (3rd Edition) 2013; and 'The Countryside Agency and Scottish Natural Heritage – Landscape Character Assessment Guidance for England and Scotland' 2002.

This assessment has been prepared in accordance with EPA "Guidelines on the Information to be contained in Environmental Impact Assessments" May 2002, "Advice Notes on Current Practice (in the preparation of Environmental Impact Assessments)" June 2002.

The EPA is currently revising the Guidelines and Advice Notes, therefore the assessment also follows the Draft Revised Guidelines on Information to be contained in Environmental Impact Assessments August 2017.

Reference has been made to County Galway Landscape Character Assessment within the County Galway Development Plan which provide a baseline landscape description.

In addition the landscape and Visual Chapter of the REIS prepared by SLR Consulting Ltd in 2013 to accompany the Substitute Consent application has also been reviewed.

Finally, as recommended, the LVIA incorporates both desk and field-based studies and has been compiled and interpreted by an experienced landscape professional.

### 9.3.2 Assessment Sequence

The LVIA was undertaken in the following stages:

- Desk Study (Stage 1)
  - 1 Analysis of Baseline data, maps, plans
  - 2 Consultation of Policy Documentation;
  - 3 Zone of Visual Influence (Theoretical);
  - 4 Identification of Potential Visual Receptors;
  
- Field Study
  - 5 Confirmation of Visual Receptors;
  - 6 Photo Survey from Visual Receptors;
  - 7 Zone of Visual Influence (Actual/Field);
  - 8 Confirmation of Landscape Character;
  - 9 Establish Landscape Sensitivity;
  
- Desk Study (Stage 2)
  - 10 Analysis of Field Survey data;
  - 11 Viewpoint Analysis;
  - 12 Consider Mitigation and,
  
- Desk Study (Stage 3)
  - 13 Report Preparation.

### 9.3.3 Assessment Criteria

The aim of the LVIA is to identify, evaluate and predict potential key effects arising from the proposed development. The assessment combines sensitivity with predicted magnitude of change, to establish the significance of residual landscape and visual effects. These are based on pre-defined criteria as set out in the Tables 9.1- 9.5 appended at Appendix 9.2.

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## 9.4 Receiving Environment

The Landscape is about the relationship between people and place. Understanding the character of a landscape allows us to identify its 'sense of place', and what distinguishes it from other places. All landscape has economic, social and environmental value; landscape characterisation provides a mechanism and baseline from which landscapes can be valued and their sensitivity and capacity to accommodate various development typologies gauged. Collectively this information assists with positive decision making when considering future appearance and function. This section establishes the landscape and visual context (or baseline) of the proposed development.

### 9.4.1 Desk Study

Desk studies generally involve analysis and interpretation of available print material relating to a site's context and the proposed development within that context. It is a way of focusing the study prior to detailed field work and landscape investigation. In this instance, variable scale Ordnance Survey maps and satellite imagery were studied along with 3D Data Terrain Models. SLR Consulting's Landscape and Visual Section within the 2013 REIS has also been considered as part of the desk study.

Although general in nature the desk study stage of the project assists in the clarification of the following considerations;

- **The general topography, vegetative cover, visible ground water, and sites of potential historic or cultural interest.**

Study of the available map information indicates that the site is located on low lying farmland surrounding by peat bog, regenerative woodland and coniferous plantations. Other notable structure planting is associated with Ballinderry Castle 2km to the South and Tuam Golf Course (800m) to the Northeast.

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- **Identification of primary investigation area or Zone of Theoretical Visual Influence (ZTVI).**

The ZTVI is calculated and generated using topographical data only, and it is generally accepted that such models do not necessarily reflect the actual visual catchment perceived on the ground, for example woodland and hedgerows in the immediate area will have a screening effect which will not be interpreted by the ZTVI model. It is therefore crucial that the topographically generated ZTVI is used as a basic starting point and that it is refined and considered through detailed site survey and analysis.

The ZTVI suggests that potential visibility is equally spread in all directions. However due to the flat nature of the area's topography, the screening effect of even relatively minor vertical features such as hedgerows can be pronounced. It is therefore considered that the extent of potential visibility will be considerably less than that illustrated by the ZTVI.

- **The potential relationship between the development and any residential settlements, dwellings and the surrounding transportation network.**

Although not all dwellings are individually identifiable on the OS 1:50000 mapping, it is sufficiently detailed for the desk study to reveal that the site is located in an area which has a reasonably low residency, with the main populations are located in Tuam. Elsewhere, the settlement pattern is noted as consisting of sporadic clusters and one off residential properties located along the surrounding minor roads network.

- **Landscape & Visual Designations, Protected areas and significant viewpoints.**

The site does not lie within a landscape designation.

- **Other Considerations.**

The site was subject to a REIS in 2013. Of particular relevance was the submitted Landscape and Visual section which concluded the development had generated a '**Minor**' Landscape impact – therefore not significant. In relation to Visual effects, of the 4No. Visual receptors identified none of the impacts occurring were considered to be of major significance.

These findings were supported by An Bord Pleanála Inspectors report dated 25th February 2014 (held at Appendix 1.1) which stated under Paragraph 9.28 'Landscape', that:

*“The quarry at Cloonascragh has resulted in the removal of a narrow ridge of sand and gravel, between lower lying areas of bog. This has no doubt altered the local landscape. However, the quarry is generally well screened and only visible from the public road immediately passing the site and occurs within a wider landscape which is designated as having a low landscape value and low landscape sensitivity. Within this context I do not consider that any significant adverse landscape or visual impacts have arisen or will arise as a result of the past operation of the quarry.”*

#### **9.4.2 Field Study**

Desk studies are important to establish the basic approach to landscape and visual assessment and for setting out principal issues/ areas to be investigated. However, it is only through field work that an accurate understanding of potential influence of a proposed development can be fully determined.

Most importantly field study helps to clarify the eye level visual envelope of the development. This exercise refines the computer generated ZTVI models to more accurately reflect the actual visual envelope of the development.

The area was visited and surveyed during late summer season (Aug 2021) with foliage cover at its heaviest. It should be noted that as foliage cover decreases into winter, potential visibility of the site could increase. The influence of foliage and its seasonal variability has been factored into the findings, with a worst case scenario considered – i.e. vegetation cover at its lightest.

In addition to the information revealed during the desktop analysis, the field study work investigated and considered a number of critical issues, which have been factored into the assessment conclusions:

- Confirmation of the landscape character associated with the study area, the sense of place, quality and value of the landscape within the visual envelope;
- Localised topography variation and woodland / hedgerow cover;
- Effects of localised planting, walls, earthworks;
- Relationship of the existing / former works and other operations / development within the area;
- Consideration of operations in low light conditions;
- Potential eye level perceptions (Local residents – Frequent, Passive Tourism – Occasional); and
- General landscape dynamic (assessing the potential pressures and evolution of surrounding landscape).

### **9.4.3 Baseline Study- Site Description**

The overall application site is circa 6.47ha in size and is comprised exclusively of lands which have previously been extracted or associated with extractive operations. As illustrated in Figure 9.3 'Intervisibility images', the site is currently occupied by stockpiles, overburden tips, settlement lagoons. Some natural regeneration is evident along peripheral boundaries

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#### 9.4.4 Baseline Study- Landscape Character

A broad landscape characterisation study for County Galway has been prepared and is contained within the County Development Plan. The site is within the Northeast Galway (Tuam environs) No.5 Landscape Character Area (LCA).

The key characteristics of this LCA are as follows:

- The landscape is flat, fertile pastoral land bound with field hedgerows.
- There is little or no coniferous forestry or deciduous woodland.
- There are no areas of particular scenic value.“

The Northeast Galway Tuam LCA has been classed as having an overall landscape value rating of **Low**. The key Cultural, Socio-Economic and Environmental values are summarized in the table below.

This LCA also generally has a low Landscape Sensitivity of Class 1 - Low with a few small pockets of Class 2 - Moderate Landscape Sensitivity. Table 6-5 from the County Development Plan (as re-produced overleaf) sets out the overall landscape value of LCA 5.

The Landscape Character Assessment for Galway has suggested a number of recommendations for potential future development within the Northeast Galway (Tuam Environs) LCA No.5, including:

*“3.13 Development is prohibited in the areas (primarily bogs) that carry a nature designation*

*3.14 In the class 1 area, the landscape is generally flat therefore height restrictions should apply to built development in to avoid long distant visual intrusion. This area has very little woodland or forestry present, and owing to*

*the low scenic value of the area may be suitable for commercial forestry development. Large scale development should be screened by either new commercial forestry or mixed deciduous woodland. 3.15 Due to the rural nature of this class 1 area, scattered development which cannot be screened by forestry should be of natural stone or render with colour finish to be sympathetic to the colours of the existing landscape.*

*3.16 New development should be surrounded by hedgerow to reinstate sections; lost during construction and to continue the ecological corridor effect”.*



TABLE 6-5: Landscape and Landscape Character Assessment for Galway: Landscape Value Table for Northeast Galway Tuam LCA (No. 5)

Cultural Values (Overall Low)	Socio economic Values (Overall Low)	Environmental (Overall Low)
<ul style="list-style-type: none"> <li>Landscape Aesthetics/Sense of place</li> <li>Historical Features</li> <li>Protected/Designated Landscape</li> </ul>	<ul style="list-style-type: none"> <li>Value to local economy</li> <li>Sense of community</li> <li>Education</li> <li>Public Recreation</li> </ul>	<ul style="list-style-type: none"> <li>Water Quality</li> <li>Soil Type</li> <li>Air Quality</li> <li>Biodiversity</li> </ul>
<ul style="list-style-type: none"> <li>Flat open agricultural landscape of fields bounded by hedgerows.</li> <li>Random clusters of mature trees.</li> <li>Overall not a highly scenic area.</li> <li>Loughs are distinctive landscape elements but are generally visible only at short range. Summerville Lough is particularly scenic.</li> <li>Views of Knockmaa mountain for up to 8 km radius.</li> <li>Views generally to the hills south of the N63.</li> <li>Views of the Cathedral of the Assumption in Tuam for up to a 3 km radius.</li> <li>10 National monuments to be found in this area.</li> <li>Designated landscapes as follows;  Esker (0.25 sq km) - NR Lakes (approx 4 sq km) – NHA Bogs (approx 35 sq km) – NHA Turloughs (approx 8 sq km) – NHA</li> </ul>	<ul style="list-style-type: none"> <li>Agriculture as main form of rural employment in this area.</li> <li>A number of small urban settlements may also provide limited employment opportunities.</li> <li>There is a large amount of linear residential development along the National Primary and Third Class Roads in this extended area. This equates to high property ownership in this area.</li> <li>This area does not have much potential for large scale tourism development. A number of smaller loughs could be designated for passive recreation.</li> <li>Good road network in this area, Tuam and Headford would be the principal centres of employment</li> </ul>	<ul style="list-style-type: none"> <li>Rivers include Abbert, Grange, Clare, Black and Sinking</li> <li>Tuam is the largest settlement in area</li> <li>Traffic is heavy on N17, N83, N84</li> <li>Air emissions dispersed from vehicles, industry, domestic fuel burning and agriculture, reduces air quality.</li> <li>Flat to undulating Lowland. Degraded grey Brown Podzolic. Shallow Brown Earth's and Rendzinas and Basin Peat</li> <li>Biodiversity is medium in certain areas for example 47.25sq km are of national importance.</li> </ul>

*Development Recommendations for the Northeast Galway (Tuam Environs) LCA:*

The landscape of the localised study area (i.e Within the visual envelope) largely supports the characteristics identified within the wider LCA 5, such as relatively flat landform, random clusters of mature trees and overall not a highly scenic area. In addition, the site itself has experienced landscape and visual disruption from past mineral operations, along with adjoining lands being of low scenic value.

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### 9.4.5 Baseline Study- Visual

When establishing the extent of a development proposal's visibility there are a number of recognised stages:

- The first is generally conducted through desk study via utilisation of digital terrain models or printed mapping to generate a ZTVI. This provides the assessor with a worst-case scenario of potential visibility, recognising that the exercise does not account for potential screening influence of vegetation, manmade structures or indeed low level localised topographical variation.
- With ZTVI prepared, the next stage is to consider potential visual receptors. Again, this can initially be carried out as a desk study to identify potential properties, road intersections, historic sites or OS marked viewpoints etc which may be important to the assessment.
- The next stage generally is to test and refine desk study analysis in the field. Consideration of the surrounding landscape from a high point within the proposed development site is often a logical starting point for field work. From an elevated location, the assessor (comparing with ZTVI mapping) can identify points in the wider landscape from which the site is most likely to be visible. This exercise is known as intervisibility and forms the basis of defining the actual visual envelope. The intervisibility for the site is shown on Figure 9.4.
- The final stage is to consider visibility of the subject site from the surrounding landscape. This generally involves assessment and photography from fixed key locations as identified, along with sequential views experienced along pedestrian and vehicle routes.

It would be impractical (indeed unnecessary) to assess potential visibility from every possible angle or potential viewpoint. Therefore, the recognised practice is to identify a selection of viewpoints considered representative of a range of views and viewer types, including residences, transport routes, recreational

routes, visitor attractions (including historic monuments), main landscape character types and a variety of distances, aspects, elevations, extents, and sequential routes. These are known as 'key visual receptors' and provide a reliable sample of potential impressions across the study area. Based on field survey and analysis, Figure 9.3 illustrates the identified ZTVI created by the proposed development with Table 9.7 below listing and Figure 9.5 illustrating, the location of key visual receptors identified for the study.

Viewpoint	Grid Reference	X	Y	Latitude	Longitude	Type
Intervis 1a &1b	M44216 48251	144216	248251	53.48153	-8.84111	Intervisibility Images
VP 2	M44096 48403	144096	248403	53.48288	-8.84293	Oblique Sequential / Minor Road/ Oblique Residence
VP 3	M43903 48554	143903	248554	53.48422	-8.84588	Oblique Sequential / Main Minor Road/ Oblique Residence
VP 4	M44517 49596	144517	249596	53.49365	-8.83681	Oblique Direct / Golf Course Access, Tourism Destination
VP 5	M44176 48180	144176	248180	53.48089	-8.84169	Oblique Sequential / Main Road/ Bridge
VP 6	M44514 46970	144514	246970	53.47006	-8.83638	Oblique Sequential / Minor Road

**Table 9.7 – Key Visual Receptors**

It should be noted as a basic visual principle, any type of development in the landscape will become less perceptible with distance. This simply equates to a reduction of the significance of potential visual impacts as one moves further away. The following distance categories have been considered appropriate:

### **Viewpoint Distance 0-2km**

It is generally accepted that a development located approximately 2km or less from a viewer would be close enough to allow identification of significant detail. Any positions within this range with open uninterrupted views of a development would generally receive the greatest visual impacts.

### **Viewpoint Distance 2-5km**

At this distance, visibility of a development site becomes more general, with viewers in open uninterrupted positions able to identify general form, colour/tone and textural contrast, but losing the more focused detail achievable from closer positions. Effects at this distance are generally less than those found between 0-2km.

### **Viewpoint Distance 5-15km+**

Beyond 5km visual prominence quickly diminishes. Certain circumstances/light conditions etc. have potential to allow certain types of development and material finishes to be perceived. The development increasingly becomes part of the general background/distance views. Upwards of 15km distance and developments quickly become minor features within the landscape and considered imperceptible to the average human eye. The development in effect becomes part of the general background/distance views.

This visibility assessment for this development concentrates primarily on the first distance category (up to 2km), focusing on publicly accessible locations such as roads, access lanes and public rights of way, along with residential properties; and sites of public interest.

Figures 9.5 to 9.9 illustrate the key visual receptors identified, with visual assessment from each included.

## 9.5 Characteristics of the Proposed Development

A full description of the development is provided at Section 4 and therefore is not repeated here. The sequence, position and extent of the proposal has been designed with direct input from the project landscape architect to ensure that the operation incorporates primary mitigation measures to minimise potential landscape and visual effects.

This application therefore includes direct design input which has included:

- Design and positioning of advance screening, including grading and profiling of existing overburden tips and stockpiles along the site boundaries.;
- Identification and agreement of extraction limit;
- Agreement of final pit shape and form;
- Identification and agreement of stand offs and buffers;
- Positioning of proposed recycling plant and associated structures
- Importantly agreement of phasing proposals including direction of extraction;
- Agreement for progressive restoration solution.

Implementation of the works would be as follows:

### ***Phase 1- Establishment***

Site establishment works will involve the following:

- Review site access and secure boundaries.
- Relocate and profile existing overburden tips to create more appropriate gradients for screen planting along boundaries.
- Introduction of mineral extraction and C&DW recovery apparatus and infrastructure including washing plant, plant and machinery, storage bays etc.

## ***Phase 2- Phased Extraction, Recovery of C&DW via recycling and Progressive Restoration***

With the establishment works complete Phase 2 can commence involving:

- Extraction of remaining indigenous mineral as per submitted plans.
- Recovery of C&DW via importation and recycling (screening, resizing, washing) of material (Class 7 Recovery operation).
- Progressive restoration with available indigenous and recovered natural material (Class 5 Recovery Operation).

## ***Phase 3 Final Restoration***

All structures and hardstanding removed, with site prepared, seeded and restored to agriculture, with creation of habitat on peripheral areas as illustrated.

## **9.6 Assessment of Impacts**

### **9.6.1 Landscape Impacts**

Landscape assessments attempt to measure the sensitivity of specific landscape resources and describe the significance of changes to that landscape occurring as a result of a proposed development. More importantly, they should also identify opportunities during the design process focused on minimising potential landscape and visual impacts (mitigation) through positive iterative design intervention. This can include exerting influence on the development layout and arrangement, determining sympathetic approaches to realising the development proposal, i.e. Suggested operational sequence /phasing, advance screening, planting etc.

Landscape and visual impacts are intrinsically linked; therefore, measures to reduce landscape impacts such as the introduction of green infrastructure will generally assist with reduction of visual impacts and vice versa.

It is understood that development of this type results in permanent change and may fundamentally alter the appearance of a landscape. However, it should be

clarified that, altered appearance does not necessarily equate to permanent negative impacts to landscape character. It is therefore essential that a holistic view is taken with proposals of this nature, not only assessing the potential quarry impact during extractive operations but critically how it will also appear when extraction has ceased and restoration proposals are fully implemented and established.

The criteria tables appended at Appendix 9.2 provide definitions of sensitivity and magnitude of change which in turn establish a mechanism to determine potential significance of landscape and visual effects/ impact.

With reference to the County Landscape Character Assessment and Table 9.1 'Landscape Sensitivity Criteria' it is considered that the definition of **Low** is most suited to the landscape associated with the subject site. The assessment will therefore be based on this landscape definition.

*Low- Landscape characteristics or features which are tolerant of change without detriment to their present character. No designation present or of low local value. An example of monotonous unattractive visually conflicting or degraded landscape or set of features.*

## **9.6.2 Construction/ Establishment Phase**

Landscape sensitivity is combined with the magnitude of change generated by a development to establish the overall impact / effect.

### Landscape Magnitude Criteria – Construction / Establishment Phase

The Establishment stage of development (in advance of extraction) will include reworking existing overburden materials along the Western boundary seeded and planted. Whilst these operations are proposed to reduce visibility and protect views, it is expected that their construction will themselves generate short term adverse effects. In the context of the site landscape character setting and reference to Table 9.3 'Landscape Magnitude Criteria' , during the

establishment phase the magnitude of change is predicted to be in the '**Low**' category as defined in Table 9.3 (extract of definition below) :-

***Low**- Minor change, affecting some characteristics and the experience of the landscape to an extent; and, Introduction of elements that are not uncharacteristic.*

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		Sensitivity				
		High	High - Medium	Medium	Medium - Low	Low
Magnitude	Very High	Major	← →	Major	← →	Mod-major
	High	Major	← →	Mod-major	← →	Moderate
	Medium	Mod-major	← →	Moderate	← →	Minor
	Low	Moderate	← →	Minor	← →	<b>Negligible</b>
	Very Low	Minor	← →	Negligible	← →	Negligible

**Table 9.8 - Assessment of landscape impacts (Construction-/Establishment Phase)**

Therefore with **Low** landscape sensitivity combined with **Low** magnitude of change it is considered that the proposed development would generate a **Negligible** impact on the landscape character conditions during the Construction/ Establishment Phase.



### 9.6.3 Operational/ Extraction Phase

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#### Landscape Sensitivity Criteria – Operational / Extraction Phases

As above the Landscape sensitivity remains the same whether considering the construction, operational or restoration phases of the development. Table 9.1 'Landscape Sensitivity Criteria' it is considered that the definition of **Low** is most suited to the landscape associated with the subject site.

Low- *Landscape characteristics or features which are tolerant of change without detriment to their present character. No designation present or of low local value. An example of monotonous unattractive visually conflicting or degraded landscape or set of features.*

#### Landscape Magnitude Criteria – Operational / Extraction Phases

The operational phases of this development involve the extraction of the remaining mineral resource and processing of the same, along with the recovery of inert C&DW. Whilst screening measures would be successfully implemented as part of the establishment phase, it will take a period of time ( c.3 - 5 years) for planting to thicken and become effective in terms of screening, it is therefore considered that the category of **Low** as defined in Table 9.3 'Landscape Magnitude Criteria' is most appropriate:-

Low- *Minor change, affecting some characteristics and the experience of the landscape to an extent; and, Introduction of elements that are not uncharacteristic.*

Therefore with **Low** landscape sensitivity combined with **Low** magnitude of change it is considered that the proposed development would generate a **Negligible** impact on the landscape character area during the operational phase.

		Sensitivity				
		High	High - Medium	Medium	Medium – Low	Low
Magnitude	Very High	Major	← →	Major	← →	Mod-major
	High	Major	← →	Mod- major	← →	Moderate
	Medium	Mod- major	← →	Moderate	← →	Minor
	Low	Moderate	← →	Minor	← →	Negligible
	Very Low	Minor	← →	Negligible	← →	Negligible

**Table 9.9 - Assessment of landscape impacts (Operations / Extraction Phases)**

#### 9.6.4 Restoration Phase

##### Landscape Sensitivity Criteria – Restoration Phase

Landscape sensitivity remains the same whether considering the construction, operational or restoration phases. As above with reference to Table 9.1 'Landscape Sensitivity Criteria' it is considered that the definition of **Low** is most suited to the landscape associated with the subject site.

Low- Landscape characteristics or features which are tolerant of change without detriment to their present character. No designation present or of low local value. An example of monotonous unattractive visually conflicting or degraded landscape or set of features.

Landscape Magnitude Criteria – Restoration Phase

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With extractive operations complete the final stages of restoration can also be finalised. Final restoration will offer a species rich low intensity agricultural pasture across the proposed floor and landscape typology focused on biodiversity on the steeper slopes.

With final restoration implemented the ‘Landscape Magnitude of Change’ from the sites operational stage would be **Medium**. Whilst this is an increase in the magnitude of change from the previous stage, it is a response to the potential ‘noticeable change’ in landscape terms from extractive / recycling operation to restored agricultural land.

Medium- Noticeable change to a significant proportion of the landscape, affecting some key characteristics and the experience of the landscape; and Introduction of some uncharacteristic elements.

		Sensitivity				
		High	High - Medium	Medium	Medium - Low	Low
Magnitude	Very High	Major	← →	Major	← →	Mod-major
	High	Major	← →	Mod-major	← →	Moderate
	Medium	Mod-major	← →	Moderate	← →	Minor
	Low	Moderate	← →	Minor	← →	Negligible
	Very Low	Minor	← →	Negligible	← →	Negligible

**Table 9.10 - Assessment of landscape impacts (Restoration Phase)**

Post restoration as illustrated in Table 9.10 above, the predicted magnitude of change to this landscape character area is expected to be **Medium**. The

resultant landscape impact following the full cessation of operations and the establishment of the proposed restored landscape is predicted to be beneficial with **Minor** impact. None of the potential landscape effects are predicted to fall within the **Significant** range.

### 9.6.5 Visual Impacts

Assessment of potential visual impacts have been considered from several visual receptors within the ZTVI as detailed at Appendix 9.1.

### 9.6.6 Construction/ Establishment Phase

Aspects of the establishment phase of a mineral development are generally most visually disruptive as a site moves from its current undeveloped condition into an active mineral extraction operation. However the receiving site is already a former quarry operation.

Much of the disturbance caused during this phase would occur as a result of re-profiling of existing stockpiles and overburden tips, followed by seeding and planting. These measures are considered necessary and designed to greatly reduce and mitigate negative visual effects through the subsequent operational / extractive phases.

Potential visual effects have been determined through assessment from specific viewpoints (Figures 9.5 to 9.9 held at Appendix 9.1). These figures illustrate key identified visual receptors, with potential visual impacts assessed from each position. Note: Further detail is contained within individual figures. Table 9.11 below provides a summary of predicted visual impacts from each of the selected viewpoints during Construction / Establishment Phase.

These viewpoints are representative of worst-case scenario views of the proposed development, therefore, it is important to emphasise that as viewers

move away from these receptors, the magnitude of change and potential visual effects will generally diminish.

Viewpoint No.	Receptor Type	Visual Sensitivity	Magnitude of Change	Effect /Impact
<b>Viewpoint 1a &amp; 1b</b>	Intervisibility Images	N/A	N/A	N/A
<b>Viewpoint 2</b>	Oblique Sequential / Minor Road/ Oblique Residence	Medium	Medium	Moderate
<b>Viewpoint 3</b>	Oblique Sequential / Main Minor Road/ Oblique Residence	Medium	Low	Minor
<b>Viewpoint 4</b>	Oblique Direct / Golf Course Access, Tourism Destination	Medium	Low	Minor
<b>Viewpoint 5</b>	Oblique Sequential / Main Road/ Bridge	Medium	Very Low	Negligible
<b>Viewpoint 6</b>	Oblique Sequential / Minor Road	Medium	Very Low	Negligible

**Table 9.11 - Summary of Visual impacts (Construction/ Establishment Phase)**

Predicted visual effects arising from the proposals at the selected key visual receptors during the construction / establishment phase would range from **Moderate to Negligible**.

Whilst reworking existing stockpiles to the western boundary will be somewhat disruptive in visual terms, this will take place over a relatively short duration, and when seeded and planted will have a net positive outcome in visual terms and maintain screening of the proposed development beyond. None of the

potential visual impacts during this phase are predicted to fall within the **Significant** effect range.

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### 9.6.7 Operational / Extraction Phases

Visual impacts have been illustrated by assessment from specific viewpoints at Figures 9.5 to 9.9 held at Appendix 9.1. The figures illustrate key identified visual receptors, with potential visual impacts assessed from each position. Further detail on the visual impacts from each position is provided in each of the figures. Table 9.12 below provides a summary of predicted visual impacts from each of the selected viewpoints during operational/ extraction phases.

These viewpoints are representative of worst-case scenario views of the proposed development, therefore, as viewers move away from these receptors, the magnitude of change and potential visual effects will generally diminish.

Viewpoint No.	Receptor Type	Visual Sensitivity	Magnitude of Change	Effect /Impact
<b>Viewpoint 1a &amp; 1b</b>	Intervisibility Images	N/A	N/A	N/A
<b>Viewpoint 2</b>	Oblique Sequential / Minor Road/ Oblique Residence	Medium	Low	Minor
<b>Viewpoint 3</b>	Oblique Sequential / Main Minor Road/ Oblique Residence	Medium	Low	Minor
<b>Viewpoint 4</b>	Oblique Direct / Golf Course Access, Tourism Destination	Medium	Low	Minor
<b>Viewpoint 5</b>	Oblique Sequential / Main Road/ Bridge	Medium	Very Low	Negligible
<b>Viewpoint 6</b>	Oblique Sequential / Minor Road	Medium	Very Low	Negligible

**Table 9.12 - Summary of Visual impacts (Operational / Extraction Phases)**

Following the establishment phase with screening measures in place, the project moves fully into the extractive phases. Extraction is phased to remove material sequentially in a southward direction, which would effectively protect views located to the south ( where the majority of the ZTVI is focused).

Restoration would also be progressive meaning that following the completion of extraction in the northern/ western parts of the site, these areas would be restored as extraction continues southward/ eastward. With the establishment stage screening fully implemented, it is predicted that visual effects arising from the proposals at the selected key visual receptors during the operational / extraction phases would range from **Minor to Negligible**

None of the potential visual effects during these extraction/operations phases are predicted to fall within the **Significant** range.

#### **9.6.8 Restoration Phase**

With extractive operations complete the final stages of restoration would be finalised as illustrated in the submitted restoration concept.

Predicted visual effects arising from the proposals at the selected visual receptors following the operational phases and full restoration of the site would range from **Minor to Negligible/None.**

None of the potential visual effects during this phase are predicted to fall within the **Significant** range.

Viewpoint No.	Receptor Type	Visual Sensitivity	Magnitude of Change	Effect /Impact
<b>Viewpoint 1a &amp; 1b</b>	Intervisibility Images	N/A	N/A	N/A
<b>Viewpoint 2</b>	Oblique Sequential / Minor Road/ Oblique Residence	Medium	Low	Minor
<b>Viewpoint 3</b>	Oblique Sequential / Main Minor Road/ Oblique Residence	Medium	Low	Minor
<b>Viewpoint 4</b>	Oblique Direct / Golf Course Access, Tourism Destination	Medium	Low	Minor
<b>Viewpoint 5</b>	Oblique Sequential / Main Road/ Bridge	Medium	Very Low	Negligible
<b>Viewpoint 6</b>	Oblique Sequential / Minor Road	Medium	Very Low	Negligible

**Table 9.13 - Summary of Visual impacts (Restoration Phase)**

## **9.7 Mitigation Measures**

The purpose of mitigation is where possible, to avoid, reduce and offset any significant negative (adverse) effects on the environment arising from a proposed development. If good environmental planning and design principles are applied, together with a flexible approach to design, a high degree of mitigation can be built into a development proposal from the outset.

Mitigation measures may be considered under two categories:

1. Primary mitigation measures - These are an intrinsic part of a proposal, achieved through iterative design development (i.e Designing out potential issues);



2. Secondary mitigation measures - Designed to specifically targeted to address remaining negative (adverse) effects of the final development proposal<sup>3</sup>

The focus of this assessment is to identify potential landscape and visual effects generated by the proposed operations at this site and recommend mitigation to minimise those effects .

Primary mitigation measures include:

- Collaboration with project planners & design consultants regarding recommended operational sequence and phasing to minimise visual impacts;
- Consideration of location of processing plant;
- Collaboration with project ecologist to agree appropriate restoration solutions;
- Retention, protection and strengthening as required of existing boundaries; and
- Progressive restoration.

Secondary mitigation measures include:

- Targeted screening earthworks and screen planting to further mitigate potential views from surrounding areas to the West. Note this relates to the re-profiling of existing stockpiles.

## 9.8 Cumulative Effects

These effects are typically interactive, i.e. arising from the combined action of a number of different environmental topic areas. For example, the removal of trees not only has potential to generate landscape and visual impact, but can

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<sup>3</sup> Guidelines for Landscape and Visual Impact Assessment 2013. Author:- Landscape Institute; I.E.M.A.

also have an ecological impact. There are a number of topic areas where interaction impacts can occur along with Landscape and Visual, with key interactive effects in this case being Noise/ Air Quality and Natural Heritage.

### **9.8.1 Noise/Air Quality**

Potential noise & air quality impacts are generally most prevalent during operational phases. Whilst these would have no visual impacts, they can alter people's perception of the areas landscape character. Measures to minimise noise and air quality impacts will reduce perceived landscape character impacts. Through a combination of directional extraction and earthwork screening berms, potential impacts from Noise / Air have been reduced.

During the operational phases of development potential interactive impacts would be Negative, with likely significance considered Minor. Post operations, noise & air quality impacts would diminish and would be limited to typical traffic and day to day usage typical of this agricultural context. Post operations, potential interactive impacts would be Neutral, with likely significance considered Negligible.

### **9.8.2 Natural Heritage**

The Biodiversity section of this EIAR provides detail and recommendations, notably identifying the importance and value of hedgerows, grasslands and woodland areas.

The proposed landscape restoration scheme offers a positive opportunity to improve the ecological diversity of this site through habitat creation on final slopes around the periphery of the proposed site. The Restoration Scheme will provide opportunities for the development of species rich grasses, native woodland and marginal wetland.

### 9.8.3 Cumulative Impacts Arising from Other Developments

Cumulative effects may also arise from the impacts arising from the subject development combining with those arising from other developments in the vicinity. There are no similar works / development types within the landscape and visual catchment of this site. The cumulative impact of the proposed development in combination with other mineral developments is therefore expected to be **Negligible / None**.

### 9.9 Residual Impacts

In addition to the consideration of the operational layout and sequence, the implementation of landscape proposals as illustrated in the submitted landscape planning drawings will support the appropriate integration and final restoration of the site.

It is expected that a relatively small number of locations surrounding the subject site would experience residual glimpsed and partial views of the development, although with the maturing of proposed screen planting these views will be minimised.

Overall Landscape sensitivity associated with this site is considered **Low**. In terms of the magnitude of change this is also expected to be **Low** during the establishment and operational phases, resulting in **Negligible** landscape impact during operations. Restoration will result in an improvement from the current quarried condition – in landscape terms the LCA would experience a **Minor** (beneficial) impact from restoration.

Selected visual receptors are considered representative of views of the proposed development site. As illustrated and described in Figures 9.5 – 9.9, visual sensitivity at selected receptors in this study have been **Medium**. Visual effects generated by the development are set out in Tables 9.11-9.13. with effects ranging from **Moderate** to **Negligible/None**.

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It should be noted as viewers move away from these key receptors, visual sensitivity and magnitude of change diminish, resulting in visual impacts over the majority of the ZTVI being in the **Minor to Negligible** range.

## 9.10 Conclusion

Landscape sensitivity is combined with the magnitude of change generated by a development to establish the overall impact / effect. Visual impacts have been illustrated by assessment from specific viewpoints at Figures 9.5 to 9.9 held at Appendix 9.1.

Visual Impacts at the selected key visual receptors during the operational / extraction phases would range from **Minor to Negligible**. With **Low** landscape sensitivity combined with **Low** magnitude of change it is considered that the proposed development would generate a **Negligible** impact on the landscape character area during the operational phase.

Typically impacts will be greatest during the initial establishment phase, relating predominately to machine mobilisation and reworking existing overburden areas or the visual improvement along the most visible boundary. These screening works will be short in duration and are designed to mitigate subsequent extraction and erection of processing plant.

The LVIA which forms this section of the EIAR concludes that the proposed development would **not result in any Significant** Landscape and Visual effects.

## **10.0 WASTE MANAGEMENT**

### **10.1 Introduction**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. This section of the EIAR addresses the potential effects of the proposed development in terms of waste management. The proposed development provides for the removal of the remaining sand and gravel resource above the water table and the previously worked pit; the operation of a construction and demolition waste recovery facility and the restoration of the site via materials recovered from the recycling operation.

The evaluation of effects of the proposed development in terms of waste management comprises a qualitative assessment based on an analysis of potential effects on the environment undertaken in other sections of this EIAR. The assessment presented within this section also takes into account a review of relevant literature and professional judgement in relation to impacts upon the environment in terms of the waste element of the proposed development.

### **10.2 Proposed Development**

The proposed development comprises 3 main elements:

1. the extraction of sand and gravel over an area of c.6.5ha;
2. the importation, recycling and processing of inert construction and demolition waste; and
3. the progressive restoration of the site to beneficial Agricultural use.

Given the nature of the proposal, it is anticipated that during the extraction element of the proposed development the main waste management concerns will principally revolve around vehicular wastes associated with routine maintenance and repairs and accidental fuel and oil spillages and the potential for entry into surface and groundwater.

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These issues are discussed at Section 6 and within the H&MIA held as Appendix 6.1.

In terms of the recycling and restoration activities, these have the potential to result in adverse impacts upon the environment in terms of highways; water; amenity; ecology and unplanned pollution events.

The application seeks to allow for the importation of inert construction and demolition waste (C&DW) to be brought back to site via return loads within the delivery fleet, for storage in a dedicated, prepared area prior to processing, utilising the same processing plant as is proposed for the mineral processing operation, which has been specified to accept both C&DW and indigenous sand and gravel, in preparation for resale as recycled aggregate.

As detailed at Section 4 of this EIAR, the Applicant is proposing to construct a concrete pad with individual bays for the receipt and sorting of construction and demolition waste. The C&DW, once sorted and held in sufficient quantities, will be processed through the crushing and screening plant in campaigns. The finer materials will then pass through the on-site processing plant (washing and screening).

The Applicant is a registered waste haulier and it is intended that returning tipper lorries will have the capacity to collect C&DW from the construction sites which they are delivering aggregates to. The site will only accept wastes from its own hauliers and no third parties will be allowed to deliver waste to the site. The site will operate at a maximum capacity of 50,000 tonnes per annum with all C&DW arriving via the Applicant's 20 tonne capacity lorries. The actual tonnages of the individual wastes will depend on the sources of the wastes.

The European Waste Categories that will be accepted at the site are specified in Section 4. The inert C&DW will be imported onto site and individually weighed in across the existing weighbridge. There will be strict management controls

and a waste acceptance procedure implemented to ensure that the waste is suitable for use.

The load will be tipped on a dedicated hardstanding area, where it will be inspected. If the material is unacceptable it will be reloaded immediately and the vehicle requested to leave the site and again will be advised to return the material to the point of loading. At the point of tipping and acceptance of the load, a primary picking operation will be undertaken. Once any potential contaminants are removed from the tipped load, a loading shovel will transfer the wastes to designated storage bays, constructed on a concrete base.

The processing/recycling activities taking place as part of this proposal will take place at the plant site, within the existing pit. The screened products from the plant will, either be loaded directly into the customer's vehicles for sale, blended with on-site materials in readiness for sale or placed to stock.

The delivery of the restoration landform will be supplemented by material recovered from the recycling operation. The material will be deposited on the worked slopes progressively restoring them to 1v:5h slopes with available indigenous stripped topsoils and stored overburden and supplemented with imported inert material, in order to allow agricultural machinery to safely manoeuvre and to achieve a high quality restoration scheme.

An Article 11 Declaration Request was made by QPL on behalf of the Applicant. The request has been reviewed by the Environmental Licensing Programme (Office of Environmental Sustainability) at the EPA (cc. Director of Services, Environment Section, Galway County Council).

As detailed in correspondence dated 18<sup>th</sup> January 2022 held at Appendix 1.2, the restoration element of the proposals has been deemed by the EPA to constitute a Class 5 recovery operation under the Waste Management Regulations.

In the same declaration, the inert recycling element of the proposals has been deemed by the EPA to constitute a Class 7 operation for the recovery of inert waste arising from construction and demolition activity. The EPA has advised that based upon the above, a Waste Facility Permit will be required to be obtained from Galway Co. Co. prior to operation of the facility.

### **10.3 Assessment of Impacts**

#### **10.3.1 Highways**

The Applicant is a registered waste haulier and it is intended that returning tipper lorries will have the capacity to collect C&DW from the construction sites which they are delivering aggregates to, meaning that no additional vehicles or vehicle movements are required for this aspect of the project. As such the proposed waste facility will not result in any significant effects on either traffic safety or the existing capacity of local roads and junctions.

On completion of the proposed waste recovery operation and following the final restoration of the site, there will be a permanent reduction in HGV traffic movements on the local road network resulting in a beneficial impact upon the road network.

#### **10.3.2 Water**

A number of precautions, mitigation and best practice measures are detailed at the H&HIA appended at Appendix 6.1 and outlined at Section 6 of this EIAR. These measures will be implemented to ensure that any potential impact associated with the proposed development on local surface and groundwater features will be minimised. These measures will safeguard and protect from potential pollution events and contaminants entering and impacting upon surface water and groundwater resources.



By implementing the measures as outlined in Section 6, there are not considered to be any direct or indirect impacts resultant from the proposed development upon the local water environment. On completion of the proposed development, there will be a permanent reduction in direct risks to surface water features and groundwater.

### **10.3.3 Residential Amenity**

The proposed development has the potential to give rise to impacts at the nearest sensitive receptors in terms of noise, dust and traffic and visual impact. As outlined in Sections 7, 8, 9 and 12 of this EIAR, a number of mitigation measures are proposed to control and minimise these effects at the properties closest to the application site.

Subject to the implementation of the mitigation measures proposed, there are not considered to be any significant effects upon the environment as a result of the proposed development. The proposed development is therefore not considered to result in any adverse impacts upon the amenity of those residing at the nearest properties.

Upon the completion of works, when the site is fully restored to agricultural use, it will blend into the surrounding landscape. As detailed in Section 9, on completion, the proposed development will have an overall negligible impact on the local landscape character and on local views into the application site.

### **10.3.4 Ecology**

The impact of the proposed development upon ecological receptors is outlined at Section 11 of this EIAR. The application site is formed of an existing sand and gravel pit and such, it is deemed to have low potential for ecology. The EclA concludes that the embedded mitigation, in combination with the additional mitigation and compensation measures described in this EIAR, will ensure that there are no adverse residual effects on ecological receptors.

Additional compensation measures, as described in the site restoration plan will provide long-term positive impacts at a local level.

### 10.3.5 Unplanned Events

According to the EPA guidelines, unplanned events, such as accidents, can include “spill from traffic accidents, floods or landslides affecting the site, fire, collapse or equipment failure on the site”.

The vulnerability of the proposed development to unplanned events is considered to be limited due to:

- the proposed works being planned and designed by suitably qualified professionals;
- the inert nature of the materials to be recycled and recovered on site and protocols and checks proposed to ensure the same;
- the rural location of the Application Site; and
- the experience of the Applicant in handling and carrying waste.

Unplanned events in relation to the proposed development could potentially relate to:

- instability arising from incorrect placement of imported inert waste (principally soil and stones) at the application site;
- incorrect handling and storage of materials;
- spillages and leaks from HGVs and other plant or vehicles moving within the site; and flooding.

All of the above are considered to have been sufficiently mitigated against within the proposed development, either as an integral part of the design or as part of the procedures and mitigations proposed for the operation of the site.

## **10.4 Mitigation Measures**

A number of mitigation measures are detailed at various sections of this EIAR which detail how specific actions and measures can be implemented as part of the proposed project to ensure that the proposed development does not result in any significant effects upon the environment. Measures include:

- Works undertaken in accordance with proposed plans, taking account of slopes angles, stockpiling etc;
- Fuel Handling and Storage Measures as detailed at Section 6;
- Good site management practices;
- Contingency plans / procedures;
- Comprehensive verification of materials being imported to site;
- Noise and dust controls;
- Measures for the regular inspection and maintenance of plant and machinery;
- Systems for recording and monitoring impacts associated with the development upon the environment e.g. water quality ; and
- Management of restored areas.

The above list is not comprehensive but provides the main mitigation measures advanced as part of the proposed development, to ensure that the proposed development would not result in any significant effects upon the environment.

The waste recycling and recovery via restoration aspects of the project will be controlled via a relevant Waste Facility Permit to be issued by Galway Co. Co.

## **10.5 Residual Impacts**

Subject to the implementation of the mitigation measures as detailed within this EIAR and given the requirement for the site to be operated in accordance with

a Waste Facility Permit, the proposed development is not considered to result in any significant effects upon the environment.

## **10.6 Conclusions**

The proposed development has the potential to result in significant effects associated with waste management, however, subject to the implementation of the measures outlined above and other measures recommended within this EIAR, it is not anticipated that there will be any significant Waste Management Related impacts.

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## 11.0 **BIODIVERSITY**

### 11.1 **Author of the Report**

An Ecological Impact Assessment (EclA) has been conducted by Philip Doddy, of Woodrow Sustainable Solutions ('Woodrow'). The assessment has been checked and approved by Róisín NigFhloinn of Woodrow.

Philip is a Senior Ecologist at Woodrow. He has completed a PhD in Aquatic Sciences, a BSc (Hons) in Freshwater & Marine Biology, and a Diploma in Amenity Horticulture. He is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Philip carries out botanical monitoring, site surveys and habitat mapping, and compiles Ecological Impact Assessments (EclAs), Appropriate Assessment (AA) screening reports, subsequent Natura Impact Reports (NISs), and vegetation monitoring reports. He has also carried out research on calcareous lakes and pools, microbial communities, and ecological succession. Philip regularly supports local community groups in their biodiversity conservation and enhancement projects. More recently he has been instrumental in the successful application for EU conservation and environmental funding for local community groups, such as the EU Carra LIFE Project.

Róisín is a Principal Ecologist with Woodrow. She has completed an honours B.Sc. specialising in Botany and M.Sc. in Ecology and Management of the Natural Environment. She is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She regularly carries out reporting on Ecological Impact Assessment and to inform the Appropriate Assessment process which is carried out by statutory authorities. Furthermore, she has more than 12 years' experience in habitat surveys, mammal surveys, bird and bat surveys for a number of large infrastructure schemes, commercial and residential projects. She is an experienced Project Manager, overseeing several large schemes in unison as well as supporting the development of staff within the organisation.

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## **11.2 Introduction**

Woodrow has been appointed to undertake an EclA to assess the potential impacts of the proposed development. The aim of the assessment is to:

- Establish the ecological baseline for the Proposed EIA Development Footprint;
- Determine the ecological value of the identified ecological features;
- Assess the impact of the Proposed EIA Development on ecological features of value;
- Outline mitigation measures to mitigate effects on any identified ecological impacts; and
- Identify the residual impacts of the Proposed EIA Development post-mitigation.

This section should be read in conjunction with the full EclA, held at Appendix 11.1.

The layout and structure of this EclA follows the most recent guidance provided by the Chartered Institute of Ecology and Environmental Management “CIEEM” outlined in the document *Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine* (2018, updated in 2019).

The EclA has been undertaken with full account of legislation, policy and guidance relating to species and habitat protection, conservation importance and survey protocol.

## **11.3 Survey and Assessment Methodology**

A desk survey was undertaken to gather information on nearby protected areas and the likely distribution of species in the general area prior to the survey visits,

so that a targeted approach to surveying could be undertaken. Information on areas designated for their ecological features within 15 km of the site, as well as any designated sites with a hydrological connection to the site were obtained. Field surveys were conducted within the Application Site in July/August 2019 and April 2021. This includes an Extended Phase 1 habitat survey; a thorough mammal survey; bat surveys; Amphibian Habitat Suitability Survey; a torchlight newt survey and egg searches; and a breeding birds survey.

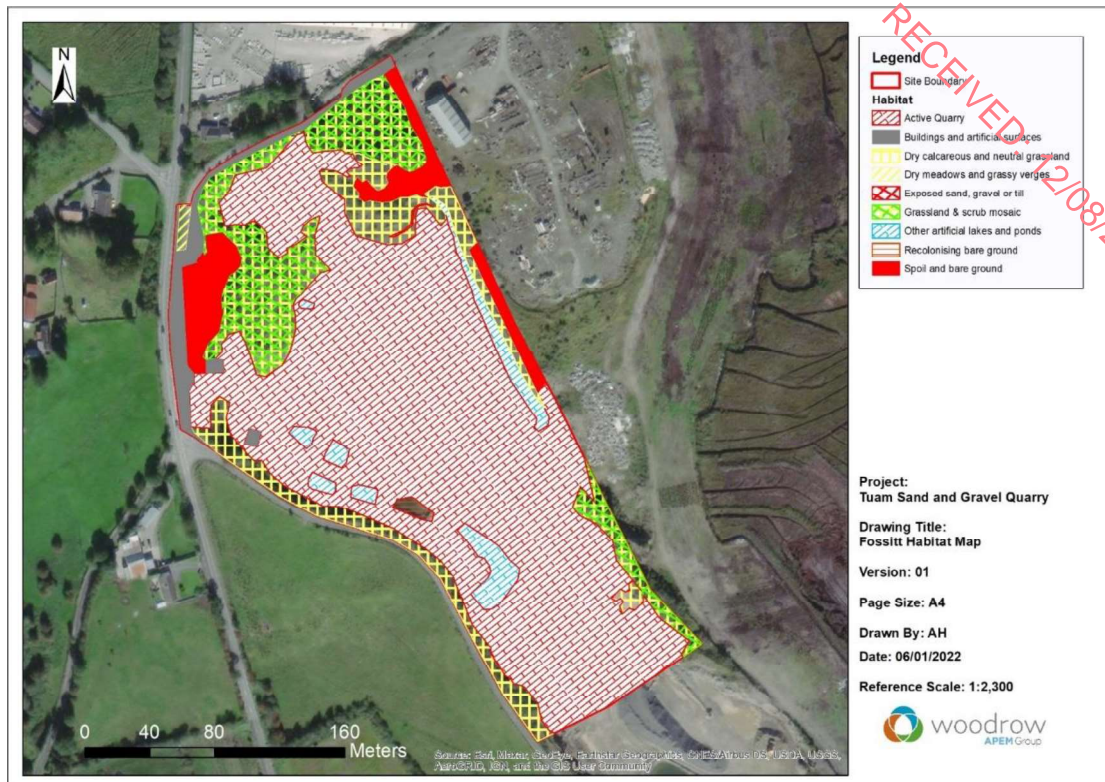
## **11.4 Assessment of Baseline Conditions**

### **11.4.1 Habitats on site**

The majority of the Application Site is made up of Active Quarry. This is virtually unvegetated due to previous disturbance and works. The substrate is mostly sand, with some gravel and stones also present. Dry Calcareous & Neutral Grassland is present on a long ridge of raised land along the west of the site. Small areas of other habitats including grassland, ponds and recolonised bar ground are evident throughout the remainder of the site as detailed within the EclA. The habitats are mapped at Figure 11.1 overleaf.

Existing data from the National Biodiversity Data Centre contained no records of badgers in the 2 km National Grid Squares in which the Application Site is located. Few signs of badgers were noted at the Application Site. A trail camera was deployed at the site for nine days and nights. During this time, no badgers were recorded.

The existing ecological records from the area show that six species of bat have been recorded within 10 km of the Application Site. No bat roosts were recorded on the site. Common pipistrelle bat and soprano pipistrelle bat were the most common species detected. The other species detected were Leisler's bat brown long-eared bat and Nathusius's pipistrelle bat.



**Figure 11.1 Phase 1 Habitat Mapping**

Surveys of the ponds on the site showed that newts were present in some of these. In total, 102 adult newts and 87 juveniles were recorded. Egg searches did not result in any records, although it was noted that the ponds were steep-sided and aquatic vegetation was difficult to access. The large majority of newts were recorded in the long shallow trench to the east of the site. Two individuals were recorded in the ponds to the west.

Bird species recorded at the Application Site during surveys are listed in the EclA. During sand martin surveys, some areas of the site were found to have active nesting sites for this species, while other areas contained old sand martin nests that were no longer in use. A total of approximately 46 sand martins were observed entering nesting holes in two almost vertical sandy faces at the Application Site. Over 100 were observed in flight overhead.

Evidence of three species that are considered invasive was found during surveys:



- Rabbit- Small mammal holes, likely to be those of rabbits, were noted at the Application Site.
- Butterfly bush- This plant was noted in three places along the long, narrow trench to the east of the site.
- Winter heliotrope- this plant is now widespread across the country and can easily be spread vegetatively if soil containing pieces of the plant are moved from one location to another. This plant was also recorded at the site.

#### **11.4.2 Designated Sites**

Lough Corrib SAC/SPA; Levally Lough SAC; and Derrinlough (Cloonkeenleananode) Bog SAC all lie within 15km of the site. Only Lough Corrib SAC/SPA has hydrological connectivity with the Application Site.

There are 13 nationally-designated areas within 15 km of the Application Site. None have hydrological connectivity with the site.

In terms of addressing whether the proposal could have an impact on European designated Sites and their Qualifying Interests, a separate NIS has been prepared by Woodrow and is included as part of the Planning Application package.

#### **11.5 Assessment of Impacts**

The potential impacts that the proposal may have on the receiving environment are:

1. Hydrological impacts, e.g., deterioration of water quality through siltation or pollutants like hydrocarbons from fuels, oils and lubricants, or through leaching of any hazardous elements contained in imported C&DW which is being stored/handled/processed on the site
2. Dust deposition
3. Disturbance e.g., through movement, noise, lighting

4. Permanent habitat removal or alteration of habitats
5. Direct and indirect impacts on species through loss of nesting or resting places or supporting foraging habitats

The site restoration plan, which is designed to provide a beneficial afteruse (agriculture) will also deliver positive impacts for local biodiversity, is also considered.

### **11.5.1 Potential Hydrological and Hydrogeological Impacts**

It is considered that potential hydrological impacts are limited to very unlikely events such as major contamination of the groundwater through large-scale spillages of hydrocarbons or other chemicals; or in the event that the imported C&DW which is being stored/ handled/ processed on site contains elements which are hazardous, thereby generating contaminated run-off/ leachate from the same; or in the event that toxic or hazardous waste is permanently deposited at the site (for example, as part of the restoration). While such events are unlikely, mitigation is prescribed in the EclA to rule out any potential impacts.

### **11.5.2 Potential Impacts on Designated Sites**

There are several designated sites which are in the general vicinity of the Application Site or which have the potential to be within the Zone of Influence. Of the European designated sites considered, the Lough Corrib SAC and Lough Corrib SPA are considered to be within the Zone of Influence. While there is no surface water connection from the Application Site to either of these, groundwater from the site is expected to move towards the Grange River, thereby constituting a link.

As outlined at Section 6 of this EIAR, any suspended solids from quarry activities would settle out on the quarry floor or be filtered out in the underlying sand and gravel, and that the impact of the proposal on the hydrology of the

river would be 'negligible', so that the significance of impact on the hydrology of the Lough Corrib SAC and SPA would be 'imperceptible'.

There is potential for leakage/spillage of hydrocarbons or other chemicals into the groundwater on the site, either due to a containment failure in the fuel storage area, or while vehicles or machinery are being re-fuelled, maintained or repaired. There is also potential for leaching of any hazardous substances that may be contained in imported C&DW which is being stored/handled/processed on the site. While the possibility of such an event having an impact on the Lough Corrib SAC or Lough Corrib SPA appears unlikely, it needs to be considered due to the sensitivity of some of the Qualifying Interests of these sites to even low levels of contamination.

The Lough Corrib SAC is designated for freshwater pearl mussels, white-clawed crayfish, sea brook lamprey, and Atlantic salmon, all of which could potentially be adversely affected by hydrocarbons or other contaminants in the groundwater that reaches the SAC from the Application Site.

Similarly, the Lough Corrib SPA is designated for thirteen species of water birds, all of which could be adversely affected by contaminants such as hydrocarbons in the groundwater that reaches the SPA from the Application Site, or leaching of contaminants from imported C&DW being stored/handled/processed on the site.

Therefore, without mitigation for possible chemical spillages, leakages or leaching of hazardous substances, the proposal has the potential to have long-term, significant, negative effects on these designated areas and their Qualifying Interests.

Due to the distances involved, there is no potential for disturbances at European Sites due to factors such as noise or dust. Please refer also to the NIS included within the planning application submission.

Several nationally-designated sites were considered as being potentially within the Zone of Influence, including two Natural Heritage Areas (NHAs) and eleven proposed Natural Heritage Areas (pNHAs). The closest of these is 6 km from the Application Site, and none of the nationally-designated sites considered have a hydrological connection to the Application Site, or any ecological receptors that would be impacted by the proposed development. Therefore, they are all considered to be outside the Zone of Influence.

### **11.5.3 Potential Impacts on Habitats**

Most of the habitat that will be affected by the proposal is already unvegetated. There are two areas of exposed sand face habitat which were used as breeding sites by sand martins in 2021. A small area of dry calcareous & neutral grassland (habitat GS1) and grassland–scrub mosaic (GS1/WS1) will be lost at the north-east corner of the site. However, the long species-rich area of dry calcareous & neutral grassland (habitat GS1) along the south-west of the site will not be disturbed, and much of the existing areas of scrub north of the site entrance will be retained. The existing pools on the site will be retained.

Consequently, a low level of adverse, direct impact is expected in the short term. Long-term effects on habitats are discussed further in the restoration plan.

### **11.5.4 Badgers**

There is no evidence of badgers on the site except for a possible badger footprint seen close to the southern boundary. It is possible that badgers may use the site for foraging, but no setts were recorded inside or outside the application boundary. It is unlikely that the proposed quarrying activities at the site would deter badgers from foraging at night, and therefore they are not expected to be impacted, either directly or indirectly, by the proposal.

### **11.5.5 Bats**

Several bat species have been recorded on the site. These species are likely to use the areas of scrub for foraging and may also feed over and around the ponds on the site. While the area of grassland/scrub mosaic to the north of the site will be removed, the main areas of scrub to the west and south-east of the site will be retained, and the restoration plan includes the retention of natural scrub as well as new areas of native hedgerows and regenerative woodland, which will be of benefit to foraging bats.

The ponds will continue to be present and in use during the working phase of the proposed development, and additional pond habitats will be constructed as compensation measures, as described later in this section.

There are no proposals to increase lighting at the site. Bat species are likely to make use of the substantial foraging and commuting habitats in the surrounding area, as well as continuing to use the area within the active quarry.

The only potential impacts, therefore, are the indirect impacts from the loss of patches of scrub at the northern end of the site. These losses will be temporary, as additional foraging areas are included in the compensation plan.

Consequently, a low level of temporary, adverse, indirect impact is expected in the short term, followed by a long-term positive impact.

### **11.5.6 Breeding Birds**

Two red-listed bird species were recorded during surveys, but only flying over the site. No evidence of their breeding on the site was found.

Six amber-listed species were recorded on the site, some of which may use the site for breeding. Sand martin holes were present on the site. Some of these were confirmed as being in use by sand martins during surveys, while others

were disused. Two active sand martin nesting sites were present just within the southern boundary, and one was present in the north-east of the site. Disused nesting sites were present both within and outside of the application boundary. If sand martin breeding areas were to be disturbed during the breeding season (March-September), there would be direct impacts on the species. However, sand martins quite readily move to other nesting sites in the same area. There are several suitable sites both within the application area (along the west side) and in the remainder of the disused quarry pit, including some which were previously used by this species. Therefore, if breeding areas were to be disturbed outside of the breeding season, when the birds have migrated to Africa (e.g. October to February), no impacts would be expected, as other suitable sites would still be available. Sand martin breeding areas will also be retained as part of the restoration plan for the site.

Other species, such as starlings and swallows, could potentially nest in and around the buildings on the site, although no nesting sites were found. These buildings will remain in place. The areas of scrub and grassland mosaic may be used by foraging birds. While some scrub in the north-eastern corner of the site will be lost, the majority will be retained, and the restoration plan includes the retention of the natural scrub as well as new areas of native hedgerows and regenerative woodland, which will be of benefit to nesting and foraging birds. For these species, therefore, there will be a short-term adverse indirect impact on a low level, followed by a long-term positive impact.

### **11.5.7 Amphibians**

Smooth newts were recorded in some of the pools on the site as described in the EclA. Both adults and juveniles were recorded, showing that the newts were breeding on the site. This species breeds in shallow, vegetated water bodies during spring and early summer. The long trench to the east of the site, where the majority of the newts were recorded, is well above the water table, and so is likely to seasonally dry up. While this trench was created as part of previous quarry operations on the site, and the newt habitat would not otherwise exist

there, it is still important to protect breeding opportunities for this species in the area.

Unmitigated, therefore, the proposal would have direct impacts on newts. There are other ponds on the site; however, while a small number of newts were recorded in these ponds, they are very steep-sided and not particularly suitable. Other pools are also present in the existing quarry pit to the south and east of the application area, but these are outside the applicant's control.

Without compensation, therefore, there would be a direct, perhaps permanent, impact on this species. Compensation measures will therefore be required.

### **11.5.8 Invasive Species**

Three invasive species were recorded at the site – butterfly bush, winter heliotrope, and rabbits (which are considered likely to be present due to the presence of burrows).

Butterfly bush and winter heliotrope are easily spread, and could be transported to other sites on vehicles such as HGVs that leave the site. Butterfly bush is easily spread by seeds, which can stick to the wheels of vehicles. Winter heliotrope can be spread if pieces of the plant are present in sand, gravel or soil that is removed from the site and taken elsewhere.

Without mitigation, therefore, there is a potential for butterfly bush and winter heliotrope to be spread to other sites, where they could have negative impacts, for example by outcompeting native species.

### **11.5.9 Potential Cumulative Impacts**

The EclA gives details of proposed developments in the vicinity of the Application Site. The proposed quarry development, unmitigated, may have the potential to act in conjunction with other proposals to result in cumulative

impacts from hydrocarbon/chemical spillage. Such combined impacts are considered very unlikely. However, to negate any potential cumulative impacts, the proposed development will implement suitable mitigation to eliminate at this site any potential for contributing to possible cumulative impacts.

Following a desktop interrogation of the 2 km radius surrounding the Application Site, it was determined that there are no active or inactive quarries within the vicinity of the Application Site, apart from the remainder of the existing quarry pit at Cloonascragh, which is outside of the applicant's ownership and which does not benefit from planning permission for future sand or gravel extraction. No proposals for further developments associated or connected with the Application Site are evident.

## **11.6 Proposed Mitigation Measures**

The following mitigation measures have been identified which aim to avoid, reduce and compensate for effects on ecological features.

### **11.6.1 Embedded (Design Stage) Mitigation**

The proposed layout for the works at Cloonascragh focuses mainly on areas which have already been used as active quarry, much of which is currently unvegetated. The area of species-rich calcareous grassland and grassland/scrub mosaic along the south-western edge of the site will be retained, as will the existing scrub along the north and north-east sides of the site.

### **11.6.2 Mitigation to prevent pollution by hydrocarbons or other chemicals**

Full details in terms of fuel storage, emergency and fuel handling procedures and the use and operation of plant and machinery are outlined at Section 6 of



the EIAR. Similarly, details on the types of waste that will be accepted at the site and the checks prior to importation are detailed in Section 4.

The only potential impacts of the proposal on designated areas are from possible chemical spillages, leakages or leaching. While impacts from such a source are considered unlikely, the mitigation measures described in the preceding section and elsewhere within this EIAR are intended to negate any such impacts.

### **11.6.3 Mitigation and Compensation Measures for Loss of Habitats**

The species-rich area of dry calcareous & neutral grassland (habitat GS1) along the south-west of the site will not be disturbed. This area has a high diversity of plant species, including the relatively rare blue fleabane, and it is considered important that it be left undisturbed. Much of the existing areas of scrub north of the site entrance will also be retained.

The site restoration plan includes the retention of existing scrub along the north and north-east sides of the site, and some areas of natural regenerative woodland. Also included is a native hedgerow along the eastern boundary of the site, and an existing area of exposed sand face will be retained in order to provide a nesting area for sand martins into the future. The quarried area, which currently makes up the majority of the site, will become a species-rich grazing pasture, and the ponds will be left in place and regraded, as habitat for aquatic species such as newts.

Further mitigation concerning breeding habitats for sand martins and newts are discussed in the following sections.

### **11.6.4 Mitigation to Prevent Impacts on Bats**

The only potential impact on bats is the loss of a potential foraging area resulting from the removal of patches of scrub at the northern end of the site.

These losses will be temporary, as additional foraging areas, including native woodland and hedgerows, are included in the compensation plan. The plan also includes retention of existing scrub elsewhere on the site. The restoration plan, is expected to have a positive impact on bat species in the long term.

### **11.6.5 Mitigation to Prevent Impacts on Birds**

Potential impacts on birds could result from disturbance of sand martin nesting sites, or more generally from loss of areas of scrub on the site where other bird species could be nesting.

Sand faces containing sand martin nest holes will not be disturbed during the nesting season (1 March to 31 August). Existing sand faces along the north-western boundary of the site will be left intact during the operational life of the quarry so that nesting sites continue to be available for sand martins in the future. Furthermore, the restoration plan for the site includes the retention of sand faces into the future, after the operational life of the quarry, to ensure the long-term suitability of the site for sand martins.

While some scrub in the north-eastern corner of the site will be lost, the majority will be retained, and the restoration plan includes the long-term retention of scrub as well as new areas of native hedgerows and regenerative woodland, which will be of benefit to nesting and foraging birds at the site.

The existing buildings on the site will be retained, as potential nesting sites for bird species such as swallows.

### **11.6.6 Mitigation and Compensation Measures for Newts**

The shallow trench to the east of the site, where newts were recorded, is well above the water table and susceptible to drying out, mitigation and compensation measures will be applied to ensure the continued suitability of the larger site for this species.

A suitable new pond will be created in a designated area of the site at the outset of development. This will be designed to be of optimal value for breeding newts. Existing ponds in which newts have been recorded will be fenced off in August to January pre-works, with newt-proof fencing prior to the commencement of the breeding season for this species (which generally runs from March to July) in the year of any proposed works that may affect such ponds, in order to reduce their potential use as breeding locations for these species.

A survey will be undertaken by a suitably experienced ecologist once the ponds have been fenced off, to identify the presence or absence of newts prior to the commencement of any works which will lead to destruction of suitable habitat for these species within the site. A derogation license must be obtained from NPWS to translocate the newts to the new pond as these species are protected under the wildlife act.

#### **11.6.7 Mitigation to avoid the spread of invasive species**

If active rabbit burrows are found during operations at the site, and if these are to be dug out, a licensed pest controller should be appointed to humanely remove any rabbits that are present. An invasive species management plan will be put in place to avoid butterfly bush or winter heliotrope being spread to other sites. This could include, for example, cutting back butterfly bushes before they produce seeds.

#### **11.6.8 Site Restoration**

The restoration proposals provide compensation for habitats lost at the site. The working area of the quarry will be replaced by a traditional grazing pasture with a species-rich sward. This will include a combination of grasses, along with red clover and white clover. Native hedgerows will be planted and established along the north-east side and west sides of the site. Sand faces will be retained for use by sand martin colonies, to ensure that the site continues to provide a

summer breeding area for this species. Existing scrub to the west, south and east of the site will be retained, providing foraging areas for mammals such as bats, foxes and badgers, and nesting sites for a range of native birds. The restoration plan also includes wet meadows with ponds, to benefit amphibians such as smooth newts and frogs. The aftercare management plan stipulates that no herbicides or pesticides will be used.

### **11.7 Residual Impacts**

The embedded mitigation, in combination with the additional mitigation and compensation measures described above, will ensure that there are no adverse residual effects on ecological receptors. Additional compensation measures, as described in the site restoration plan will provide long-term positive impacts at a local level.

### **11.8 Conclusions**

The EclA has established the ecological baseline at the Application Site at Cloonascragh, and has examined whether, in view of best scientific knowledge and applying the precautionary principle, the proposal either individually, or in combination with other plans or projects, may have impacts on ecological receptors, including designated sites, habitats and species

Without mitigation, the proposal has the potential for significant adverse impacts on ecological features ranging from those of local to international importance.

Therefore, consideration has been given to appropriate avoidance, mitigation and compensation measures, and any residual impacts that may apply.

It is considered that full implementation of the mitigation and compensation measures and guidance referred to in this EclA, and in other sections of the

EIAR, will mean that, in view of best scientific knowledge, the proposed development will not result in significant effects on ecological receptors.

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## **12.0 TRAFFIC IMPACTS**

### **12.1 Introduction**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. The objective of this section of the EIAR is to examine the traffic implications associated with the proposed development in terms of its integration with existing traffic in the area. This section determines and quantifies the extent of trips previously generated and deemed acceptable at the site, and the likely impact that the proposed development may generate upon the local road network.

### **12.2 Assessment of Baseline Conditions**

The quarry is currently closed and therefore there are no impacts in terms of traffic currently being experienced.

#### **12.2.1 Site Entrance**

The site takes access via a gated entrance directly off the R347. The access junction forms a priority arrangement. The access road has a large flair and very wide entry width which has been designed to accommodate the swept-path requirements of HGV's. The gated entrance is set back into the site in order to enable a HGV to wait at the gate off the highway, in the event that the gate is shut. The gate measures 5.5m in width which would allow two cars to pass side by side.

Although HGV movement through the gate is restricted to a single vehicle at a time, there is sufficient space and forward visibility either side of the gate for a HGV to become aware of the opposing vehicle and wait momentarily. A photograph of the gated access is provided at Figure 12.1 below.



**Figure 12.1 Site Entrance**

### **12.2.2 Existing Road Network**

The site is accessed directly off the R347. The R347 links Tuam, situated to the north of the application site, with Athenry and Craughwell, which are situated to the south. This stretch of road between Tuam and Athenry measures approximately 25km in length. Approximately 8km to the south of the application site the R347 is intersected by the N63.

The previous REIS for the site describes how the R347 in proximity of the application site has a carriageway width of approximately 5.7m. The road is unlit and is subject to the national speed restriction of 80kph. There are no pedestrian footways.

### **12.2.3 Traffic Movements**

The site is not currently operational and therefore traffic associated with the same is negligible. The REIS describes how a manual traffic survey was undertaken in May 2013 to ascertain traffic flows on the R394. The survey

results confirmed that the R347 had low background traffic flows, with a two-way flow of 178 vehicles between 0930-1030. The results also suggested that HGV flows are very low with only 3 HGV movements recorded during the hour study period.

The REIS describes how the level of traffic associated with the previous working of the site fluctuated with market demand. The REIS references how the site generated a minimum of 10 HGV loads (20 movements) per day and during busy periods, generated up to 50 HGV loads (100 movements) per day.

In order to determine the typical HGV traffic profiles of the application site, based on the worst case scenario, where 50 loads are generated daily, the TRICS database was interrogated. TRICS is the standard industry methodology for trip generation forecasting, comprising a database of transport surveys for a wide variety of developments in the UK and Ireland.

As detailed in the REIS, the TRICS data indicated that during the determined road network's AM peak (0800-0900) 9.8% of daily HGV movements were likely to occur. During the site operational peak (1400-1500) 15% of daily HGV movements were likely to occur. During the PM peak (17:00-18:00) 2.6% of daily HGV movements were likely to occur.

The REIS concluded that the application site would have generated a maximum of 15 movements during the AM peak comprising 5 Light Vehicles (LV's) and 10 HGVs, a maximum of 15 movements during the peak of the site's daily operation all of which would be HGVs, a maximum of 8 movements during the PM peak comprising 5 LVs and 3 HGV, and 110 daily movements comprising 10 LVs and 100 HGVs.

The REIS also reported that no accidents have been recorded within close proximity to the site and that there was no accident which the development could be perceived as contributing towards.



The REIS proposed the following mitigation measures:

- The quarry operator adheres to a routing policy to ensure all movements are made via the strategic road network to avoid HGV's passing through residential areas as far as is practical; and
- The quarry operator employs a policy of safety and environmental awareness for all HGV drivers accessing the site.

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#### **12.2.4 Board Assessment of Highway Matters**

The REIS concluded that the development would have an insignificant impact in respect of traffic and transportation.

In its assessment of highways matters the Inspector concluded that:

*“Based on the above and my inspection of the site, I consider that the traffic arising from the development could have been accommodated within the public road network. However, I am concerned that there is no signage in place warning drivers of the presence of the quarry (in particular in view of the limited sightline to the south). However, this matter could be dealt with by condition”.*

It is noted that no conditions with regards to highways are attached to the SC.

### **12.3 Assessment of Impacts**

Planning permission is sought for the extraction of sand and gravel; the importation, recycling and processing of inert construction and demolition waste; and the recovery of natural materials via progressive restoration of the site to beneficial Agricultural use. The permission is sought for a period of 10 years. This extraction phase of the development will release some c.165,000m<sup>3</sup> (c. 264,000 tonnes) of sand and gravel.

Processed mineral will be transported off-site in 20 tonne HGV's. Output at the site will be based upon market demand however it is anticipated that the site will be worked at a rate of up to 50,000 tonnes per annum. Inert C&DW will be imported to the site via return loads, within the existing delivery fleet. The Applicant is a registered waste haulier and it is intended that returning tipper lorries will have the capacity to collect construction and demolition wastes from the construction sites which they are delivering aggregates to, meaning that no additional vehicles or vehicle movements are required for this aspect of the project.

Given the above, the volumes of traffic and transport movements are not proposed to exceed that which were previously assessed and permitted at the site.

Accordingly, it is considered reasonable to assume that if the highway network was able to accommodate traffic movements with no recorded accidents or incidents for levels up to 100,000 tonnes per annum and these levels of traffic were authorised by the Board via the grant of SC, in doing so, the board, having considered and assessed the impacts of traffic levels associated with a production rate of 100,000 tonnes per annum, concluded that the development did not have, or did not give rise to, any unacceptable level of environmental impact.

Given the above, it is considered that if no unacceptable levels of environmental impact are experienced at a levels of 100,000 tonnes per annum output and if the development was authorised via the granting of SC, then this can be achieved during the future working of the Quarry, which proposes a figure of half the maximum level previously recorded and considered.

#### **12.4 Proposed Mitigation Measures**

It is noted from the SC decision that no conditions are attached to the decision with respect to highways. The REIS proposed the following mitigation measures:

- The quarry operator adheres to a routing policy to ensure all movements are made via the strategic road network to avoid HGV's passing through residential areas as far as is practical; and
- The quarry operator employs a policy of safety and environmental awareness for all HGV drivers accessing the site.

It is proposed that these will be implemented throughout the duration of the development.

## **12.5 Residual Impacts**

The proposed development will have a minimal impact upon the local road network with no intensification proposed to the traffic levels previously authorised by the Board via the grant of SC. Whilst the development will not result in any significant effects, a number of measures have been proposed to ensure that the development will have a minimal impact upon the highway. Subject to the implementation of the measures, the proposed development is not considered to result in any significant effects upon the environment.

## **12.6 Conclusions**

An assessment of highways matters was also undertaken during the SC process. The REIS detailed how output peaked at c.100,000 tonnes per annum and reported that no accidents have been recorded within close proximity to the site and that there was no accident which the development could be perceived as contributing towards.

Output at the site will be based upon market demand however it is anticipated that the site will be worked at a rate of up to 50,000 tonnes per annum. Inert

C&DW will be imported to the site via return loads, within the existing delivery fleet, meaning that no additional vehicles or vehicle movements are required for this aspect of the project.

The Inspector's Report for the SC application states that the traffic arising from the development could have been accommodated within the public road network. The granting of SC confirms that the development that has been undertaken (100,000 tonnes per annum) has not had, and is not giving rise to, an unacceptable level of environmental impact.

If the site did not have an unacceptable impact upon the environment for an output of over 100,000 tonnes per annum and this level of traffic associated with the quarry was authorised via the SC process, it is reasonable to conclude that the proposed development would have a lesser impact for a figure half the maximum level previously recorded, as is proposed within this application.

Therefore, it is considered that the lower levels of traffic movements, than those previously experienced at the site and authorised by the granting of Substitute Consent, can be safely accommodated within the local highway network.

The board has considered the impact of operations at the site upon the highway network previously and did not see fit to attach any conditions to the permission.

Given the above, the development would not result in a significant effect in terms of vehicle movements and highways.

## **13.0 CULTURAL HERITAGE**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. The following sections considers the impacts of the proposed development upon cultural heritage assets.

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### **13.1 Assessment of Baseline Conditions**

The quarry is not currently operational and there are no impacts in relation to archaeology occurring. The application site comprises of an existing sand and gravel pit. All soils and overburden have been stripped across the site.

Following desk study and field inspection the REIS concluded that there were no designated or non-designated structures of heritage interest situated within the substitute consent site or vicinity that are directly or indirectly impacted by the development. The REIS described how quarrying at the site has led to the complete removal of the remains of a rectangular enclosure, Recorded Monument GA043-046, prior to 1995 before the area was placed into the Record of Monuments in 1997 and before the Section 261 conditions imposed by the planning authority. No remaining trace of the Monument was visible when the field survey was carried out in May 2013.

The REIS concluded that the development at the site has resulted in no indirect impacts on any known items of cultural heritage, archaeology or buildings of heritage interest at the application site or in the surrounding area. As such, no remedial measures are proposed or considered necessary.

#### **13.1.1 Board Assessment of Cultural Heritage Matters**

The Inspector's Report references the loss of the Recorded Monument GA043-046, stating that:

*"In 1991, the site had been quarried and all that survived was a 15m stretch on the eastern side and a small portion of the interior. By 1995 it appears that the monument had been entirely removed. It would appear therefore that quarrying has resulted in the permanent loss of this monument. The rEIS does not quantify the significance of the loss of the monument, however as the monument was placed on the national record, I would assume it was at least of local importance".*

The Report however concludes that:

*"Having regard to the nature and scale of the quarry development at Cloonascragh, potential significant impacts arising relate to human beings, flora and fauna, water, noise, air, landscape and **cultural heritage**. Having regard to the matters raised above, the mitigation and remedial measures proposed, and subject to conditions in respect of groundwater monitoring and signage, I consider that the impacts which have taken place, and which continue to take place as a consequence of the past development, are not likely to be significant".*

### **13.2 Assessment of Impacts**

An archaeological evaluation was undertaken as part of the REIS. The REIS concluded that quarrying had led to the complete removal of the remains of a Recorded Monument GA043-046. No other direct or indirect impacts were noted.

Archaeology, like geology in this instance has not altered in the intervening timeframe, as provided for within a REIS and accordingly it is considered unnecessary to revisit and update the previously accepted conclusions.

The potential to identify any previously unrecorded archaeological or historical remains only exists within the undisturbed natural subsoil / glacial till. The site

has been completely stripped of overburden and top soils and therefore no potential exists for the discovery of archaeological remains at the site.

There is no further topsoil/ overburden stripping required at the site and therefore no potential impacts in relation to archaeology can occur at the site.

### **13.3 Residual Impacts/ Mitigation Measures**

No impacts on cultural heritage, archaeology or buildings of heritage interest have been identified and therefore no mitigation measures are required.

### **13.4 Conclusions**

All impacts relating to impacts on the cultural heritage of the site have concluded. There is no further topsoil/ overburden stripping required at the site and therefore no potential impacts in relation to archaeology can occur at the site. As a result, no mitigation is necessary with regards to archaeological impacts and the proposed development is not considered to pose a significant effect upon cultural heritage.

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## **14.0 NATURAL RESOURCES**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. It is a requirement that consideration be given to the likely significant direct and indirect consequences that a development proposal would have on the environment which might result from the use of natural resources.

Legislation and guidelines outline that the scope of an EIAR needs to be determined by evaluating the aspects of the environment likely to be significantly affected by the development with reference to a number of categories and their inter relationship. One such category is 'Soils'.

### **14.1 Assessment of Baseline Conditions**

The quarry is not currently operational and therefore there are no impacts upon natural resources occurring.

The previous REIS described how quarrying has had a direct impact on soils and subsoil material. Soils have been removed and will be reused in restoration. Quarrying has therefore had a permanent and irreversible impact on the sand and gravel sub-soils on site which have been extracted. No indirect impacts on geological aspects of the environment outside the existing sand and gravel pit have occurred as a result of the development at the site to date.

Mitigation measures were forwarded within the REIS to include use of soil material for restoration works; restoration to a natural habitat; and good housekeeping practices for the storage and handling of soil. Based on the impact assessment and existing mitigation measures, no remedial measures were considered to be required.



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## **14.2 Impact Assessment**

### **14.2.1 Mineral to be won**

Quaternary Sedimentary sand and gravel deposits have been previously extracted from the site for a range of purposes. The proposed development seeks a continuation of the same, removing the remaining deposits which remain on-site and which reside above the water table. The excavated material will be used for a range of purposes including as construction aggregates. It is noted that material previously extracted at the site was used as asphalt sand, which is supplied nationwide.

As outlined in Section 5 it is considered that the proposed project will not give rise to any significant effects upon the existing mineral deposit.

The excavated material will be utilised for a range of purposes. Global environmental issues like fossil fuel use and alternative energy sources are matters subject to national/international treaties and agreements and are considered to be outside the scope of this statement, as the cumulative contributions of this particular development to such matters are insignificant in a national context.

The Applicant intends on conserving natural resources by maximising the resource potential by way of extracting the remaining material within the site from an existing, established site and by ensuring that non-renewable resources which remain at the site are used prudently and efficiently.

### **14.2.2 Soils**

The application site consists of an existing sand and gravel pit. All top soil and overburden stripping at the site has already been completed. Soils removed will

utilised as part of the restoration of the site, being supplemented by materials recovered from the proposed recycling process.

To minimise any impact on the underlying soils from spillages, no oils or fuel will be stored on the quarry site. Re-fuelling of equipment will take place in designated areas, wherever possible. The fuel and fluids handling protocol as discussed at Section 6 will be utilised in order to minimise the risk and impact of any potential pollution event.

The land at the application site comprises a sand and gravel pit. The soils across the application site have previously been stripped to facilitate mineral extraction and associated production activities.

The restoration of the excavated / disturbed land and the reinstatement of soil cover over the disturbed footprint will generate positive impacts over the medium to long term due to the progressive reestablishment of soil as a growth medium and carbon sink and the restoration of its environmental functions on site.

Without mitigation, the handling of imported wastes could increase the risk of a leak or spillage of fuels and/or oils at the application site. Without mitigation there is also a risk that contaminated, non-inert waste materials could be imported to the facility, thereby introducing potential risk to existing mineral subsoils and bedrock at the application site. The potential impact of imported contaminated (i.e. non-inert) waste soils or hydrocarbon spills, were they to occur, would be localised and long-term.

Assuming the inert C&DW recovery activities are undertaken and managed in accordance with established waste management practices, the scale of associated risk is considered to be reduced.

### **14.3 Residual Impacts/ Mitigation Measures**

Mitigation measures outlined below will be implemented during the proposed mineral extraction and inert waste recovery activities at the quarry to mitigate against any potential adverse impacts on natural resources. The measures are a re-iteration of those identified elsewhere within this EIAR and include:

- Works undertaken in accordance with proposed development plans, taking account of slopes angles, stockpiling etc;
- Fuel Handling and Storage Measures as detailed at Section 6;
- Good site management practices;
- Contingency plans / procedures;
- Comprehensive verification of materials being imported to site;
- Monitoring of Ground Water quality; and
- Management of restored areas.

The above list is not comprehensive but provides the main mitigation measures advanced as part of the proposed development, to ensure that the proposed development would not result in any significant effects upon the environment.

#### **14.4 Conclusion**

The Applicant intends to conserve the natural resources by maximising the resource potential at the site, recycling C&DW to bring it back in to use as a secondary aggregate and to utilise recovered natural materials from this process (e.g. stone and soils) to deliver a beneficial and high quality afteruse for the site.

All topsoil and overburden stripping at the site has already been completed. Soils removed will be utilised as part of the restoration of the site.

The handling of imported material could increase the risk of environmental impacts at the site, however a number of mitigation measures are proposed to minimise any risk.

Given the above, the proposed development is not considered to result in any significant effects upon the environment.

## **15.0 SOCIO-ECONOMIC IMPACTS**

### **15.1 Introduction**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. This section considers the impact of the proposed development in the context of population/settlement, employment and other socio-economic effects.

### **15.2 Assessment of Baseline Conditions**

The sand and gravel pit is not currently operational and therefore there are no impacts in terms of socio-economic impacts currently being experienced.

#### **15.2.1 Employment**

Th REIS describes how the site was previously provided direct employment for 5 full time staff with additional indirect employment for 15 people such as sub-contractors, contract hauliers, maintenance contractors, material suppliers, etc.

As the pit has been purchased by the applicant subsequent to the suspension of operations, turnover and expenditure details are not available. Notwithstanding, the pit is estimated to have had an expenditure of approximately €1 million per year, with much of this expenditure being made locally on the likes of purchases, transport, fuel, wages and business rates.

The pit is understood to have previously produced a range of aggregates for the construction industry and road construction with the REIS describing how the sand at the site is unique asphalt sand which was supplied nationwide.

Census Data<sup>4</sup> shows that employment in the West Region increased from 59.7% in the 2012 census to 64.1% in 2017 census.

### 15.2.2 Population

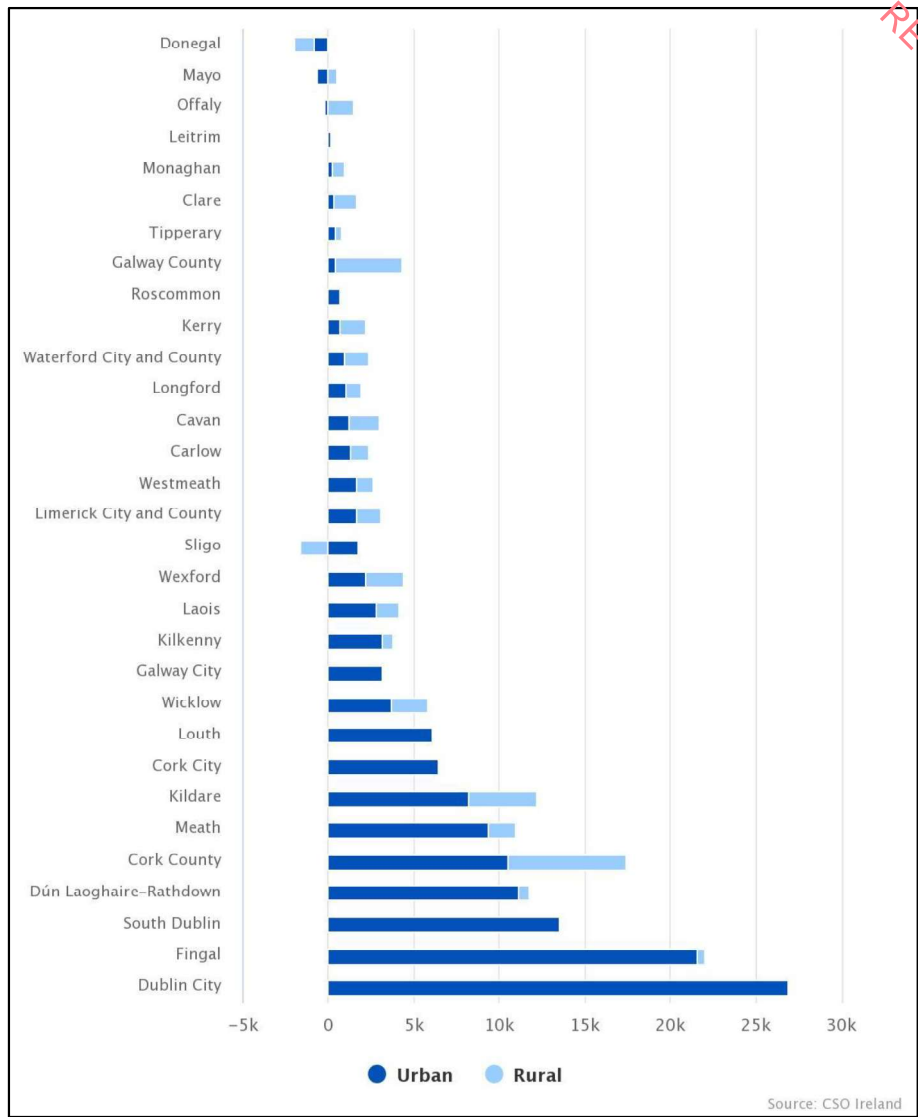
Galway County is a rural county with census data revealing that the rural population has grown by 3,899 people between 2011 and 2016, significantly outweighing the urban increase of just 367<sup>5</sup> as shown at Figure 15.1 below. Between 2011 and 2016 (the most recent census data available), the population grew by 2.6% from 175,124 to 179,390. This data shows that there has been growth within the county.

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<sup>4</sup> Available at: [https://www.cso.ie/en/releasesandpublications/ep/p-rsdgi/regionalsdgsireland2017/ee/#indicatorTitle\\_178328](https://www.cso.ie/en/releasesandpublications/ep/p-rsdgi/regionalsdgsireland2017/ee/#indicatorTitle_178328)

<sup>5</sup> CSO, Available at <https://www.cso.ie/en/releasesandpublications/ep/p-cp2tc/cp2pdm/pd/>

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**Figure 15.1 Change of Urban and Rural Population 2011-2016**

### 15.2.3 Construction Aggregate Supply

The quarrying sector is intrinsically linked with the construction sector. By association, the continued and steady supply of mineral and mineral products is of significant importance in delivering housing growth.

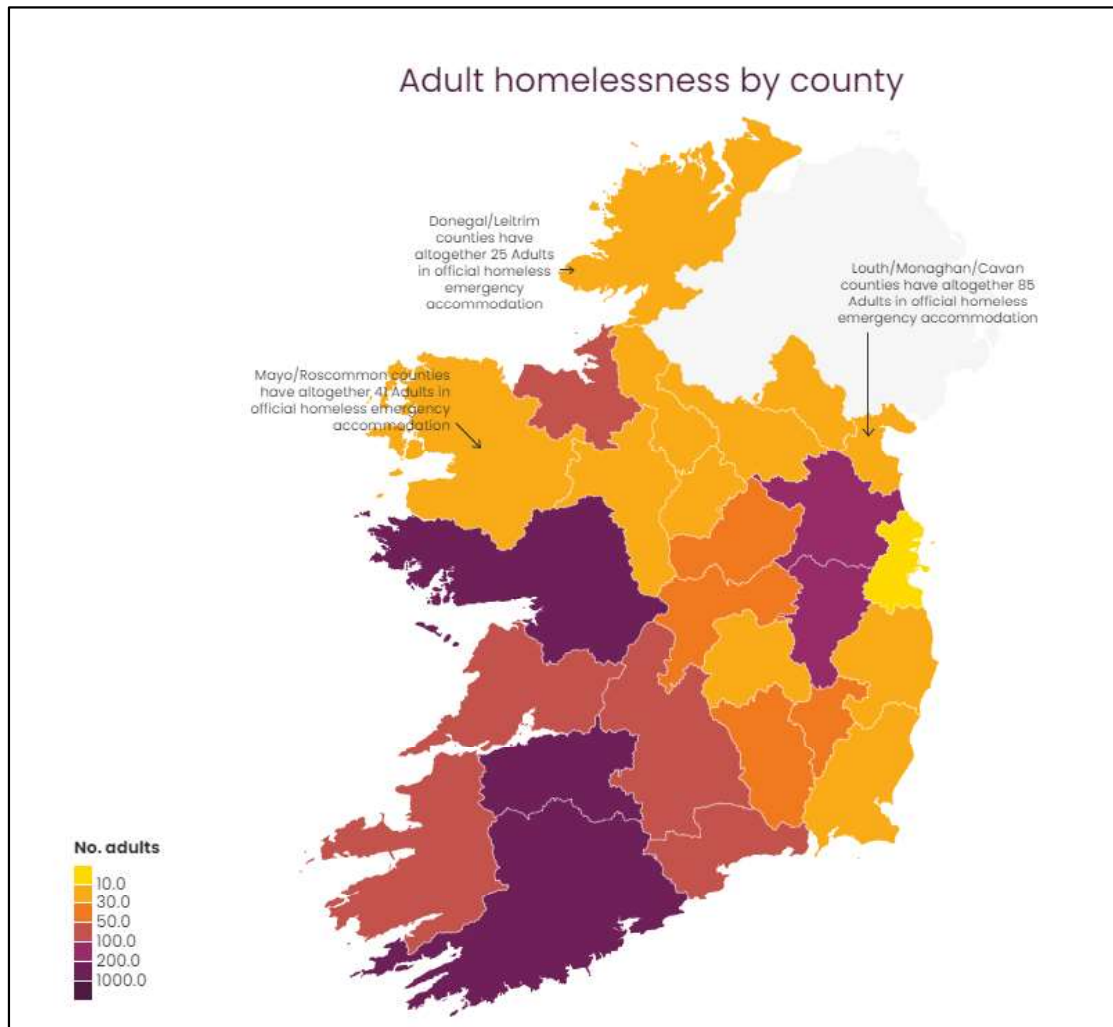
It is well documented that there is a housing crisis being experienced in Ireland. Homelessness in Ireland has nearly quadrupled in the last five years, according to government statistics. Official figures<sup>6</sup> for December 2021 showed 8,914 homeless people, including 1,077 families, 63 of which are located within the

<sup>6</sup> Available at <https://www.housing.gov.ie/housing/homelessness/other/homelessness-data>

West Region. Many more, who emigrate or move in with parents or friends, go uncounted.

Mapping produced by Homelessness charity, Focus Ireland<sup>7</sup>, shows that County Galway is one of the counties most affected by homelessness. The County has 274 Adults in official homeless emergency accommodation and 3146 households on the social housing waiting list.

The nationwide crisis has therefore manifested itself locally, with Galway County Council calling for a state of emergency over the local housing crisis<sup>8</sup>, with local demand far outstripping supply



<sup>7</sup> Available at <https://www.focusireland.ie/resource-hub/latest-figures-homelessness-ireland/>

<sup>8</sup> <https://www.rte.ie/news/2019/0410/1041939-galway-housing-crisis/>

**Figure 15.2 Homelessness in Ireland, by County, February 2022**

**15.2.4 Waste Facilities**

EPA C&DW Statistics<sup>9</sup> outlines how the quantity of C&D waste generated and collected in Ireland increased to 8.8 million tonnes in 2019. This represents a significant increase of 2.6 million tonnes on the quantity of C&D waste generated in 2018 (6.2 million tonnes) and corresponds with a significant increase in construction activity nationally in 2019. The increase was driven mainly by an extra 2.7 million tonnes of soil and stones, which totalled 7.5 million tonnes in 2019.

Soil and stones accounted for 85 per cent of C&D waste generated and collected in 2019 (up from 77 per cent in 2017), as detailed in Table 15.1 below.

<b>C&amp;D Waste Type</b>	<b>Tonnage</b>	<b>% of total</b>
Soils, stones & dredging spoil	7,488,357	84.8%
Concrete, brick, tile & gypsum	608,746	6.9%
Mixed C&D waste	393,247	4.5%
Metal	190,904	2.2%
Bituminous mixtures	113,454	1.3%
Segregated wood, glass & plastic	30,423	0.3%
<b>Total</b>	<b>8,825,130</b>	<b>100%</b>

**Table 15.1 C&D waste composition, 2019**

As detailed at Figure 15.3 overleaf, most of the C&D waste collected in Ireland was recovered by backfilling (82%), while 10% went for disposal and only 7% was recycled. The prominence of backfilling as a final treatment operation

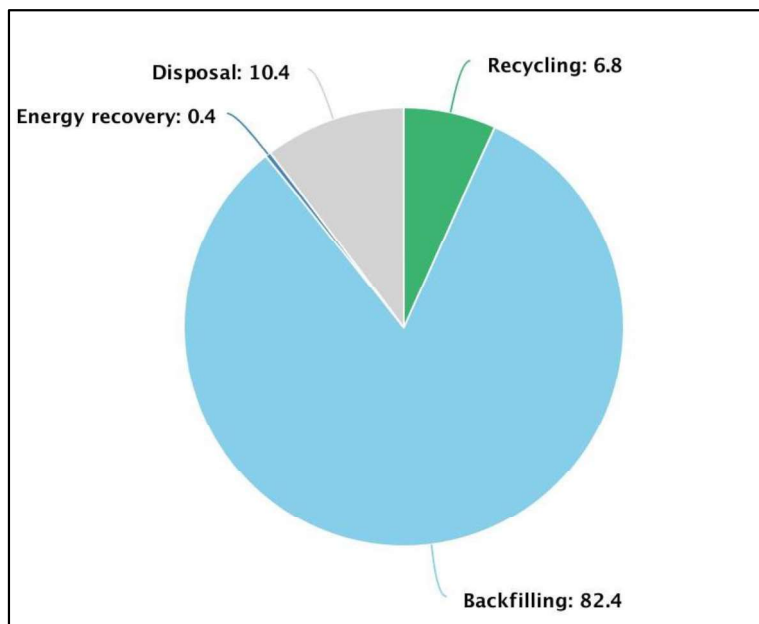
<sup>9</sup> EPA waste data release 17 Nov. 2021 available at <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/construction--demolition/>



reflects the high tonnages of waste soil and stones, concrete bricks and tiles, and mixed C&D waste managed (See Table 15.1 above).

The backfilling as referenced in the EPA statistics refers to a recovery operation, carried out at authorised facilities, where suitable waste is used for land improvement, for reclamation purposes in excavated areas or for engineering purposes in landscaping; and where waste is a substitute for non-waste materials. This includes operations, the same as those which are sought via this EIA project- i.e. the restoration of a worked out quarry where soil and stone is imported as a substitute for non-waste materials.

Given the increase in C&DW evident in Ireland, a good balance of waste infrastructure is required in order to optimise the value of the material and future market opportunities.



**Figure 15.3 Treatment of C&D Waste material in Ireland, 2019**

The Connaught and Ulster Region Regional Waste Management Plan states that the target for reduction of C&DW in the region will be 70%. The plan describes how C&D waste generated ranged between 205,000 and 383,000 tonnes in 2010 and 2011. It is appreciated that this data is outdated, however

given the lack of any other more up to date local data for the region, it is noteworthy that the plan states that *“appropriate processing facilities need to be in place to facilitate increased reuse, recycling and recovery of this waste stream”*.

### **15.3 Impact Assessment**

The proposed development would result in the re-establishment of the local economic benefits previously experienced as a result of the previous working the mineral deposit in terms of generating direct and indirect employment, local expenditure and investment.

#### **15.3.1 Employment and Expenditure**

The proposed development would provide employment for 5 full time staff with additional indirect employment for 15 people such as sub-contractors, contract hauliers, maintenance contractors, material suppliers, etc.

Direct benefits associated with the proposed development will include direct employment of local people across semi-skilled, skilled and professional sectors. It is anticipated that ongoing employment opportunities will remain available to the local population for years to come, along with providing job security for those currently employed by the business.

The socio-economic impacts associated with the operation of the proposed development will be positive. This employment and expenditure generated by the proposed development will result in a tangible positive impact in this rural location in Co Galway, providing local direct employment and the resultant indirect and induced economic benefits as outlined above.

The proposed development is estimated to generate an expenditure of over €1 million per year, with much of this expenditure being made locally on the likes

of purchases, transport, fuel, wages and business rates. This is considered to result in a direct economic impact on the local economy.

### 15.3.2 Construction Aggregate Supply

The Government launched its new national housing policy document, Housing for All, in early September 2021. The document states that “boosting supply is key to resolving so many of our housing challenges”. The policy envisages “a significant scale up” in housing supply to an average of 33,000 new units annually to 2030. This total will include over 10,000 social and 6,000 affordable units.

This drive to provide more housing will put a huge strain on planned mineral deposits and given the paucity of operational quarries in Galway County the steady supply of locally available resources is essential to maintaining competition and supplying the market.

Geological Survey Ireland (GSI) estimates that 60 tonnes of aggregate is required for the construction of a typical house. This increases to some 400 tonnes when roads and utilities are included.

In terms of infrastructure, in February 2018, the Irish Government launched Project Ireland 2040, a national commitment over a multi-annual period, of significant investment in Ireland’s infrastructure. The plan seeks to deliver some 550,000 homes for an extra one million people required over the next 20 years in Ireland<sup>10</sup>. At present there is less than 20,000 homes constructed per year<sup>11</sup> and current demand for aggregates in Ireland at 12 tonnes per capita is twice the average demand in the EU 28 member states<sup>12</sup>. In response to the Project Ireland 2040 plan, the Irish Concrete Federation (ICF) have advised that the

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<sup>10</sup> Ireland 2040 Our Plan

<sup>11</sup> CSO statistical release, 11 February 2020 Available at

<https://www.cso.ie/en/releasesandpublications/er/ndc/newdwellingcompletionsq42019/>

<sup>12</sup> Irish Concrete Federation, Essential Aggregates providing for Ireland’s needs to 2040

State will need to produce an estimated 1.5 billion tonnes of aggregates to meet housing and infrastructure demand arising from the Government's plan.

With the widely recognised unprecedented demand for housing, naturally the demand for aggregate to construct the housing units reflects this demand. The proposed extraction of the remaining sand and gravel resource at Cloonascragh Sand and Gravel Pit would therefore have a number of positive impacts in terms of a local supply of the raw aggregates to facilitate the necessary housing growth in the County.

### **15.3.3 Waste Facilities**

National trends show an increase in C&DW in Ireland. It is anticipated that this trend is replicated in County Galway and is directly applicable to the application given its proximity to Tuam and Galway urban centres. The proposed development will contribute indirectly to supporting and sustaining both the local and regional economy through the provision of required additional waste disposal and recovery capacity for inert soil and stone / C&DW generated by construction activities.

## **15.4 Conclusion**

The application site is located within a rural setting, with the county experiencing a low level of population growth. The proposed development will allow for economic benefits generated by the extraction of mineral to produce aggregates for the construction industry in terms of direct and indirect employment and local investment and expenditure. This will help to facilitate the delivery of new housing, as envisaged by the Government, to tackle the current housing crisis

The proposed development will also provide a recovery and recycling facility for local construction and demolition projects, thereby reducing the need for materials to go to landfill.

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## **16.0 CLIMATE CHANGE, ACCIDENTS AND DISASTERS**

### **16.1 Introduction**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. The EIA Regulations require applicants to include within an EIAR, a description of the likely significant effects on the environment of the proposed development resulting from, among other things—

*“the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change”.*

### **16.2 Baseline Setting**

The site is not currently operational and therefore no impacts upon climate change are currently being experienced.

Climate change not only means changes in the average climate such as temperature but also changes in the frequency and intensity of extreme weather and climate events. Though climate change projections, like all projections of the future, are subject to uncertainty, the latest climate modelling projections by Met Eireann for Ireland are in broad agreement with previous research<sup>13</sup> on the subject.

In terms of temperature trends, the EPA describes<sup>14</sup> how Ireland's climate is changing in line with global trends, with a temperature increase of, on average, 0.8°C compared with 1900. By the middle of this century (2041 – 2060) the average annual temperatures are projected to increase by between 1–1.2°C

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<sup>13</sup> Available at: <https://www.met.ie/epa-climate-projections-2020>

<sup>14</sup> Available at: <https://www.epa.ie/environment-and-you/climate-change/what-impact-will-climate-change-have-for-ireland/#:~:text=Ireland's%20climate%20is%20changing%20in,depending%20on%20the%20emissions%20trajectory.>

and 1.3–1.6°C depending on the emissions trajectory. The number of warm days is expected to increase and heat waves are expected to occur more frequently.

In terms of precipitation, the EPA also describes how Ireland has seen an increase in average annual national rainfall of approximately 60mm or 5% in the period 1981-2010, compared to the 30- year period 1961-1990. Significant reductions are expected in average levels of annual, spring and summer rainfall. Projections indicate a substantial increase in the frequency of heavy precipitation events in Winter and Autumn (approx. 20%).

### **16.3 Impact Assessment**

The only potential for direct and indirect climate change impacts from the proposed development is considered to be through the emissions resultant from the burning of hydrocarbons as fuel both on site and in the transportation of materials to and from market.

To date there have been limited technological advances with respect to emissions in the delivery method of aggregates to market, with improvements focusing on enhanced performance and rating of the diesel engines in the HGVs. As outlined earlier in this EIAR, the granting of SC confirms that the previous development that has been undertaken (100,000 tonnes per annum) has not had, and is not giving rise to, an unacceptable level of environmental impact.

If the site did not have an unacceptable impact upon the environment for an output of over 100,000 tonnes per annum and this level of traffic associated with the quarry was authorised via the SC process, it is reasonable to conclude that the proposed development would have a lesser impact for a figure half the maximum level previously recorded, as is proposed within this application.

Therefore, it is reasonable to conclude that the proposed development, given its proposed scale of operations, will not result in an increase in greenhouse gas emissions above that which would have been previously associated with the operation of the site.

#### **16.4 Accidents and Disasters**

Given the nature of the proposed processes on-site and the experience of the applicant in transporting and handling materials, in processing material and in operating quarry plant and machinery, the potential for accidents and disasters relating to the processes are limited. In any event, operations at the site will be controlled by a multitude of legislation.

The proposed mineral extraction, recycling and proposed restoration works will be covered by a host of health and safety legislation and the site will be subject to regular monitoring and inspection by the relevant regulatory authorities.

The proposed development plans have been prepared by chartered geotechnical engineers at Quarrydesign Ltd, using digital terrain modelling software. The designs have been prepared in order to accord with health and safety legislation and mineral extraction best practice standards in order to minimise the potential for accidents to occur.

Extreme weather events such as 1 in 100 year storm event has been modelled within the H&HIA (held at Appendix 6.1). The assessment demonstrates that during such an event, surface waters can be wholly managed within the site, primarily through shallow ponding, with no risk to neighbouring land.

Given the temperate climate of the island of Ireland, it is considered that even with the increasing volatility of the weather events that are predicted in the future, it is not anticipated that these events would have the potential to give rise to a natural disaster at the site.



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## **16.5 Conclusion**

The potential for likely significant impacts on climate change due to greenhouse gas emissions are considered unlikely given the scale and nature of the proposals. The only potential for direct and indirect climate change impacts from the proposed development is considered to be through the emissions resultant from vehicle movements associated with the development.

Given the worldwide geographic location of the site (in the West of Ireland, in the mid-latitudes), it is predicted that the development will not be adversely affected by climate change, having the capacity to deal with the most likely variations in climate and storm events.

Given the nature of the proposed processes on-site and the experience of the applicant, the potential for accidents and disasters relating to the processes are limited and, in any event, are controlled by a multitude of legislation.

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## **17.0 HUMAN HEALTH**

### **17.1 Introduction**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. The EIA Regulations require the Applicant to consider the impacts of the proposed development upon human health. As detailed in Section 1 of this EIAR, this topic is covered across a number of the sections of this EIAR (see Table 1.1 for convergence).

In this regard, the consideration of human health is a prerequisite of the relevant guidance and legislation governing target levels with respect to:

- Water Quality Standards (Section 6);
- Noise Emissions (Section 7); and
- Air Quality (Section 8).

Each of the above sections of the EIAR explicitly references the appropriate guidance when establishing whether the proposed development is acceptable in human health terms and indeed in the case of noise considers wider guidance from the World Health Organisation.

### **17.2 Baseline Setting**

The site is not currently operational and therefore no impacts upon human health are currently being experienced. As detailed at various section of this EIAR, the Inspector's Report for the SC Application at the site concluded the previous workings at the sand and gravel pit had not resulted in any significant effects upon the Water Environment or in terms of Noise or Dust, and therefore, by association, upon human health during its operation.

## **17.3 Impact Assessment**

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### **17.3.1 Water Environment**

Consideration of the potential for impacts upon the water environment and thereby on human health is explicitly undertaken by measurement against the relevant standards provided in guidance and legislation as referenced in Section 6 of this EIAR and the accompanying H&HIA held at Appendix 6.1.

Section 2.8.3 of the H&HIA considers Groundwater abstractions, reviewing the GSI national database; EPA/GSI-delineated Source Protection Areas for Public Water Supplies or for Group Scheme; and contacting Galway County Council Water Services to confirm the status of the Group Water Scheme and obtain a map showing the extent of the Scheme.

Section 4.6 of the H&HIA assess the risk of derogation at local water supplies, stating that the piezometer network provides sufficient coverage for groundwater level and quality monitoring to check that there is no risk of impact at local water supplies. As an additional protection measure, the Assessment recommends the domestic wells at Ballykeaghra are dipped and tested on an annual basis in order to ensure no site-related derogation in private water supply is experienced over the lifetime of the proposed operation.

### **17.3.2 Noise**

Consideration of the potential for impacts from noise on human health is explicitly undertaken by measurement against the standards provided in guidance and legislation, as referenced in Section 7 of this EIAR.

The following policy documents, standards and guidelines relevant to the baseline noise monitoring survey are relevant to the specific monitoring procedures adopted as part of the baseline noise survey:

- Quarries and Ancillary Activities, Guidelines for Planning Authorities, April 2004, Department of the Environment, Heritage and Local Government. (DoEHLG Guidance); and
- Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-Scheduled Minerals), Environmental Protection Agency (2006).

The CadnaA noise modelling (as detailed at Section 7) has been developed to allow detailed noise predictions to be undertaken in accordance with:

- ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2 General methods of calculation; and
- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites.

A background noise survey was undertaken on 1<sup>st</sup> February 2022 in proximity to the nearest noise sensitive locations to establish the current ambient noise levels in the area without the existing quarry area in operation. The predicted worst-case 1-hour noise levels (dB L<sub>Aeq</sub>) at Noise Sensitive Receivers during the proposed development are predicted to be in accordance with the daytime noise limit of 55 dB L<sub>Aeq, 1 hour</sub> from quarry activities.

No blasting will take place on site. Therefore, there will be no vibration impacts.

Given the above, the proposed development is not considered to have the potential to result in any significant effects upon human health in terms of noise or vibration. Notwithstanding, A number of mitigation measures are proposed to minimise operational impacts.

### 17.3.3 Air Quality

Consideration of the potential for impacts upon human health from air emissions is explicitly undertaken by measurement against the standards provided in guidance and legislation, as referenced in Section 8 of this EIAR.

The assessment with regards to air quality has primarily been undertaken with cognisance to the Institute of Air Quality Management (IAQM) guidance document entitled Guidance on the Assessment of Mineral Dust Impacts for Planning (2016 V1.1).

Statutory standards exist for concentrations of suspended particulate matter (both PM<sub>10</sub> and the PM<sub>2.5</sub>) under The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). These are set out at Table 8.1, held at Section 8 of this EIAR.

New World Health Organisation (WHO) Global Air Quality Guidelines (AQGs) were released in September 2021 and are held at Table 8.2 of Section 8 of this EIAR. These provide clear evidence of the damage air pollution inflicts on human health, at even lower concentrations than previously understood. The guidelines recommend new air quality levels to protect the health of populations, by reducing levels of key air pollutants, some of which also contribute to climate change.

No statutory air quality criterion has been set at a European, National or World Health Organisation (WHO) level, although a range of national 'yardstick' criteria from many countries is found in literature.

Overall, the proposed development is considered to have the potential to cause a 'Slight Adverse Effect' at the nearest residential receptor in the surrounding area. There will be a 'Negligible Effect' at other residential receptors in the surrounding area. Therefore, the overall effect is considered to be 'not significant'. This is based on a consideration of the different magnitude of

effects at individual receptors, and the number of receptors that would experience these potential effects.

Any residual dust deposition impacts resulting from the future de-commissioning and restoration of the quarry will be of a short duration and all potential dust impacts from the site are considered to be reversible i.e. the risk of impact will cease on completion of quarrying and restoration of the site.

Given the above, the proposed development is not considered to have the potential to result in any significant effects upon human health in terms of air quality. Notwithstanding, A number of mitigation measures are proposed to minimise operational impacts.

#### **17.4 Residual Impacts**

Subject to the implementation of the various mitigation measures detailed at Sections 6, 7 and 8 of this EIAR, the proposed development is not considered to result in any significant effect upon human health.

#### **17.5 Conclusions**

The impacts of the proposed development are considered to have been fully covered within the relevant section of the EIAR; namely the Water Environment; Noise and Air Quality Sections (Section 6,7 and 8). All of these sections identify relevant guidance and legislation which has been implemented to protect human health and demonstrates how the proposed development will accord with the relevant standards listed within the same. Notwithstanding, a number of mitigation measures are proposed in order to further minimise impacts associated with the proposed development. Given the same, the proposed development would not result in any significant effect upon the environment by virtue of human health impacts.

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## **18.0 INTRA AND INTER CUMULATIVE IMPACTS**

This section of the EIAR is prepared by Chris Tinsley MRTPI, whose competency is set out at Section 1. The EIAR has considered the environmental aspects within and around the site, which potentially could experience impact as a result of the proposed development. The proposed development involves the extraction of the remaining mineral at the site; the recycling and recovery of C&DW and inert soils/ stones and the restoration of the site to agricultural use.

Regulation 2 (e) (v) requires the applicant to provide a description of the likely significant effects on the environment of the proposed development resulting from, among other things- the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.

The cumulative effects assessment, considered in this section, for the project follows the guidelines as set by the Institute of Environmental Management and Assessment (IEMA).

IEMA's guidelines recognise two major sources of cumulative effects:

- Intra-project effects – These occur where a single receptor is affected by more than one source of effect arising from different aspects of the project. An example of an intra-project effect would be where a local resident is affected by dust, noise and traffic disruption during the construction of a scheme, with the result being a greater nuisance than each individual effect alone; and
- Inter-project effects – These effects occur as a result of a number of past, present or reasonably foreseeable proposed developments, which individually might not be significant but when considered together could

create a significant cumulative effect on a shared receptor and could include developments separate from and related to the project.

Cumulative impacts may arise from the combined effects of a number of existing or proposed developments, in combination with the proposed development being evaluated, on a single receptor/ source. Where appropriate, potential cumulative effects have been identified in the individual environmental assessments contained within this EIAR, in the reports on air quality, noise, biodiversity, water environment and landscape and visual impact, for example.

Consideration has been given to how the different environmental effects of the development will interact and how the development will interact with other developments in the area with each specialist report/section of the EIAR.

### **18.1 Intra Cumulative Effects**

Intra cumulative impacts can occur where a single receptor is affected by more than one source of effect arising from different aspects of the project. This has been assessed at relevant sections of the EIAR. For example at Section 7, the Noise Impact Assessment considers the worst case scenario assuming that over a 1 hour period the proposed sand and gravel extraction, import and processing of C&D waste, reclamation of lands to agricultural usage and associated plant and equipment and HGV movements within and to and from the site are all on-going concurrently.

The potential cumulative effects have been identified in the individual environmental assessments contained within this EIAR, where applicable and, given that the predicted levels of impact accord with the limits as prescribed in the various guidance and that no one of the potential receptors are subjected to all of the potential effects of the development at once, then the proposed development is considered to have no unacceptable intra cumulative impacts.



## 18.2 Inter Cumulative Impacts

The baseline for the site is an existing sand and gravel pit, which has been regularised via the granting of SC. This EIAR has demonstrated that not significant effects upon the environment are anticipated as a result of the proposed development.

In order for there to be inter cumulative impacts, it is a practical necessity for there to be an overlap (accumulation) of impacts with other developments / projects creating similar effects.

Following consideration of the various technical sections of this EIAR and accompanying reports, the vast proportion of the impacts arising from the existing permitted development are sufficiently remote that the potential for them to overlap with the proposed development is limited. Where appropriate, the potential for inter cumulative impacts have been considered in more detail in the individual sections.

In the Noise Section of this EIAR for example, the background noise survey includes noise emanating from surrounding uses, including the Moylough Concrete Pre-Cast Concrete Factory to the north of the Application Site. These background noise levels have been used to identify the background noise environment upon which the CadnaA noise models are based. As such, the assessment therefore accounts for the cumulative impacts of the Pre-Cast Concrete Factory and the proposed operations at the Application Site operating concurrently.

There are no other operational mineral development sites in close proximity to application site. It is considered that by virtue of the differing development types and degree of separation distance between the site and other contributing development types, that no potential for likely significant cumulative effects is predicted.