1. INTRODUCTION

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of Roadstone Ltd. who intends to apply to Clare County Council (CCC) for planning permission to further develop the existing quarry at Ballyquin, Co. Clare. The planning application also includes for the infilling and restoration of the existing and future quarry void.

Roadstone Ltd. (Roadstone) intends to apply to CCC for planning permission to further develop the existing quarry and all associated site works at the Roadstone Ballyquin Quarry, Ballyquin, Co. Clare. The proposed development being applied for under this planning application includes for the construction of a soil inspection shed, refuelling area, settlement ponds, road improvements, drainage network and berms. The proposed development also includes for the extraction, processing and washing of sand and gravel and the infilling and restoration of the existing and future quarry void and all related ancillary works within the planning application site.

It is proposed to fill the void with either inert soil and stone waste (imported inert greenfield and non-greenfield soils and stone, and river dredge spoil) which will be a soil recovery facility and require a waste management licence or soil and stone by-product (i.e. essentially virgin soil or equivalent to virgin soil and stone) which will be notified to the Environmental Protection Agency (EPA) as an Article 27 by-product. The area of the proposed development comprises lands used for sand and gravel extraction and will provide additional void space for soils and stones in the Clare area with the benefit of restoring an existing sand pit to beneficial after-use.

The proposed development site is located approximately 8 kilometres southwest of the town of Killaloe and 1.5 kilometres to the northwest of the village of Bridgetown and is accessed from an existing entrance on the R466 Regional Road. The Grid Reference co-ordinates for the approximate centre of the site are 562676, 669333 in Irish Transverse Mercator (ITM). Current land-use on the subject site comprises quarrying and ancillary activities. Land-use in the wider landscape comprises agriculture, forestry, quarrying and one-off housing.

MKO is the Environmental Consultant on this project and has been commissioned to prepare this EIAR, which will accompany the planning application for the proposed development to be submitted to CCC.

This EIAR which is prepared to accompany the planning application will assess all project components of the proposed works that will be submitted within the planning application to CCC. All elements of the proposed works included as part of the planning application will henceforth be referred to as the 'Proposed Development' throughout the EIAR.

1.2 Brief Description of the Proposed Development

This section of the EIAR describes the development and its component parts (the 'Proposed Development') including the works subject of a proposed application for planning permission to CCC.

The Proposed Development site EIAR study area and application boundary measures approximately 97.5 hectares.

The Proposed Development being applied for under this current planning application includes the following:

- Stripping of overburden and removal of hedgerows.

- Construction of berms, soil inspection shed, refuelling area, drainage network, settlement ponds, road paving and new chain link permitter fence.
- Construction of a fixed processing plant including water management system and ponds for the washing of aggregates.
- Extraction, processing and washing of sand and gravel from an area measuring approximately 16.3 hectares and will allow for the extraction of approximately 1,428,571 tonnes of material.
- Infilling and restoration of an existing and future quarry void with inert soil and stone over an area of approximately 38 hectares. There will be a phased restoration of the quarry void working from the base of the void vertically building up soil and stone. The soil and stone will be spread in layers, approximately 1 to 2 metres each, up to ground level. Following completion of the infilling works, the topsoil removed during quarrying will be placed and the soils rolled. Natural colonisation of plant species will occur from the seedbank within the redistributed soil.

It is proposed to import approximately 4,471,200 tonnes of inert soil and stone material for the infilling of the quarry void. It is considered that the rate of infilling and restoration will be subject to market conditions and therefore planning permission is being sought for a 20-year operation.

The Proposed Development will continue to use the existing quarry infrastructure including internal roads, site office, weighbridge, wheelwash, welfare facilities and other ancillaries to complete the works. The weighbridge will be upgraded as part of the development proposals. A portable toilet will be provided for staff.

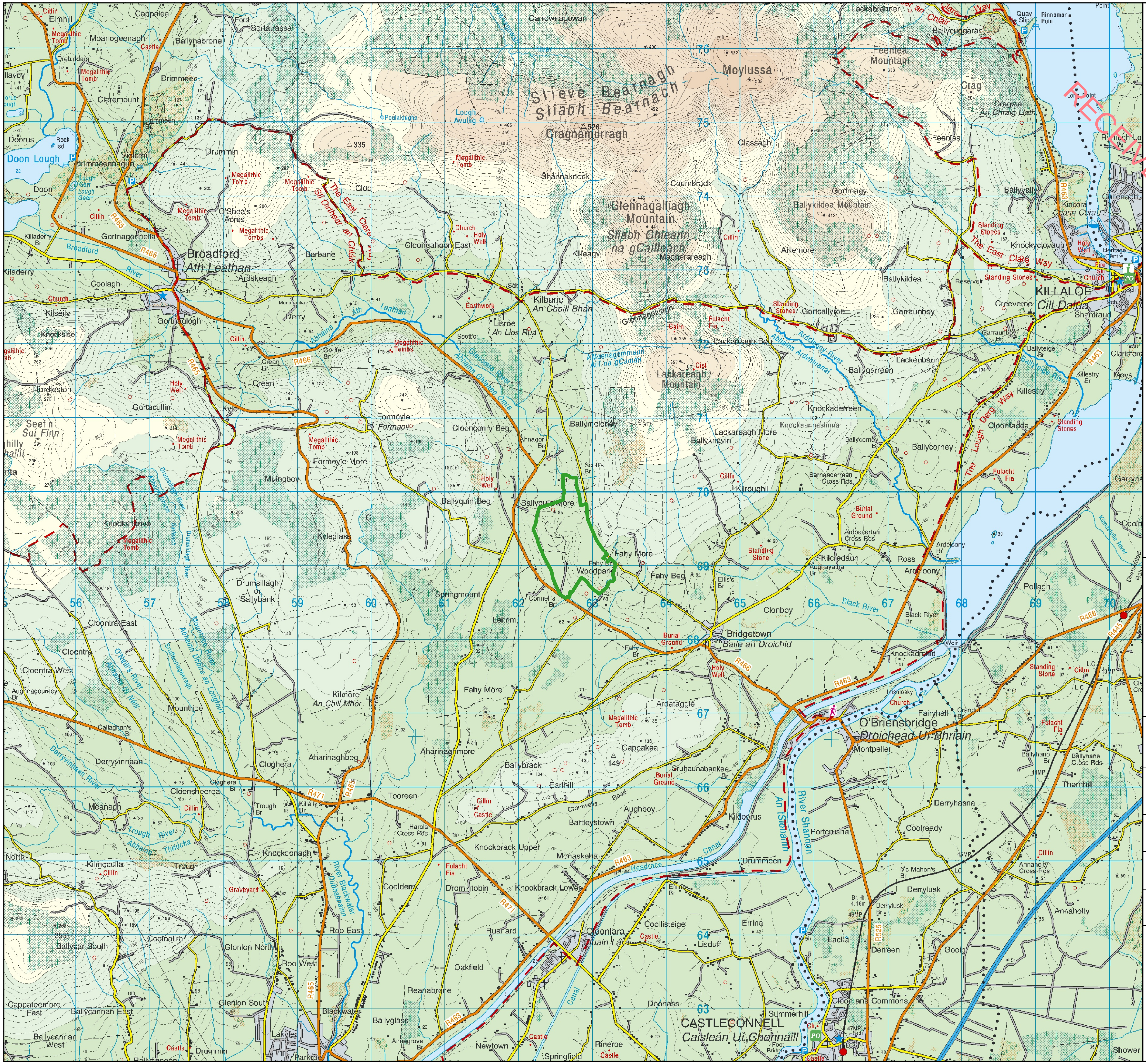
A quarantine area and refuelling area will also be provided as part of the development of the site. The quarantine area will comprise of a concrete foundation slab and inspection shed. Drainage from the refuelling areas will be routed through a full hydrocarbon interceptor, a wetland, and then a soakaway for final discharge to ground.

It is proposed to fill the void with either inert soil and stone waste (imported inert greenfield and non-greenfield soils and stone, and river dredge spoil) which will be a soil recovery facility and require a waste management licence or soil and stone by-product (i.e. essentially virgin soil or equivalent to virgin soil and stone) which will be notified to the EPA as an Article 27 by-product.

1.2.1 References to the Proposed Development Site

For the purposes of this EIAR, where the 'site' is referred to in this EIAR, this means the primary EIAR Study Area. The site boundary for the purposes of the planning permission application replicates the primary EIAR Study Area which are the subject of the Proposed Development. Generally, the study area extends beyond the planning application site boundary depending on the requirements of individual assessments. Individual topics for assessment purposes, i.e., each chapter, will indicate the study area used for that topic which may extend beyond the defined EIAR Study Area. The EIAR Study Area represents the primary area of study and not necessarily areas where proposed works will occur as part of the Proposed Development.

The primary EIAR Study Area for the development, is delineated in green on Figure 1-1. The Proposed Development is described in detail in Chapter 3 of this EIAR.



Map Legend

Site Location

Ordnance Survey Ireland Licence No. AR 0021821© Ordnance Survey Ireland/Government of Ireland

Drawing Title	Site Location
Project Title	Proposed Ballyquin Quarry
Drawn By: CJ	Checked By: EOS
Project No.: 211137	Drawing No.: Figure 1-1
Scale: 1:50,000	Date: 2024-11-14

MKO
Planning and Environmental Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email:info@mkoireland.ie
Website: ww.mkoireland.ie

1.3 The Applicant

Roadstone Ltd. was originally founded by the Roche Brothers in the 1930's and became part of Cement Roadstone Holdings (CRH) plc in 1970, following the merger of Roadstone and Cement Ltd. The present-day company was formed in 2009 by the amalgamation of CRH's three construction materials businesses in Ireland, Roadstone Dublin Ltd., Roadstone Provinces Ltd. and John A. Wood Ltd. The company is Ireland's leading supplier of aggregates, construction and road building materials and employs several hundred people at 65 locations throughout the country. CRH is the leading global diversified building materials business in the world, employing 75,800 in 29 countries.

Although Roadstone's principal business interest is in rock extraction and manufacture of building materials and products, it is currently backfilling and restoring former quarries using imported soil and stone at several of its locations across Ireland.

1.4 Legislative Context

European Union Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the 'EIA Directive'), was transposed into Irish planning legislation by the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended). The EIA Directive was amended by Directive 2014/52/EU which has been transposed into Irish law with the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

The European Union Directive 2011/92/EU, amended by EU Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment (the 'EIA Directive'), requires Member States to ensure that a competent authority carries out an assessment of the likely significant effects of certain types of project, as listed in the Directive's, prior to development consent being given for the project. The EIA of the Proposed Development will be undertaken by Clare County Council as the competent authority.

This EIAR complies with the EIA Directive in terms of the structure and content of the information required.

Article 5 of the EIA Directive provides where an EIA is required, the developer shall prepare and submit an EIAR previously referred to as an Environmental Impact Statement ('EIS'). The information to be provided by the developer shall include at least:

a) *A description of the project comprising information on the site, design, size and other relevant features of the project;*
b) *A description of the likely significant effects of the project on the environment;*
c) *A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;*
d) *A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;*
e) *A non-technical summary of the information referred to in points (a) to (d); and*
f) *Any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.*

In addition, Article 94 of the Planning and Development Regulations 2001 (as amended) sets out the information to be contained in an EIAR, with which this EIAR complies.

MKO was appointed as environmental consultant on the Proposed Development and commissioned to prepare this EIAR in accordance with the requirements of the EIA Directive.

The EIAR provides information on the receiving environment and assesses the likely significant effects of the Proposed Development on it and proposes mitigation measures to avoid or reduce these effects. The function of the EIAR is to provide information to allow the competent authority to conduct the EIA of the Proposed Development.

All elements of the Proposed Development, including the associated infrastructure, have been assessed as part of this EIAR.

1.4.1 EIA Screening

The relevant classes/scales of development that normally require an EIA are set out in Schedule 5 (Part 2) of the Planning and Development Regulations 2001, as amended. The relevant class of development in this case relates to:

"Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares", as per Class 2 (b) of the Schedule.

The EIAR Study Area measures approximately 97.5 hectares whilst the proposed extraction area measures approximately 16.3 hectares, and therefore is subject to EIA.

In addition, the infilling which will also take place at the Proposed Development in this case relates to:

"Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule", as per Class 11(b) of the Schedule.

The Proposed Development will accept greater than 25,000 tonnes of inert soil and stone per annum, and therefore is subject to EIA.

In addition, Class 13(a) of Part 2 requires Environmental Impact Assessment where there is:

> *"Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension refer to in Part 1) which would:-*
>
> *i. result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule and*
>
> *ii. result in an increase in size greater than –*
>
> > *25 per cent, or*
> >
> > *an amount equal to 50 per cent of the appropriate threshold,*
>
> *whichever is the greater."*

The Proposed Development will be the subject of EIA as it meets the mandatory EIA requirement as set out in Class 2 (b), Class 11 (b) and of Class 13(a) of Schedule 5 of the Planning & Development Regulations 2001, as amended.

1.4.2 EIAR Guidance

The Environmental Protection Agency (EPA) published its *'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* in May 2022, which is intended to guide

practitioners preparing an EIAR in line with the requirements set out in the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

In preparing this EIAR regard has also been taken of the provisions of the '*Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment*', published by the Department of Housing, Planning and Local Government (DHPLG) in August 2018 to the extent these guidelines are relevant having regard to the enactment of the revised EIA Directive.

The European Commission also published a number of guidance documents in December 2017 in relation to Environmental Impact Assessment of Projects (Directive 2011/92/EU as amended by 2014/52/EU) including '*Guidance on Screening*', '*Guidance on Scoping*' and '*Guidance on the preparation of the Environmental Impact Assessment Report*'. MKO has prepared the EIAR in accordance with these guidelines also.

1.5 Need for the Proposed Development

1.5.1 Quarry Extraction

The extractive industries and quarrying operations such as the subject operation, make a significant contribution to economic development in Ireland. The products and by-products of the industry are vital to the construction, transport and infrastructural sectors, in providing basic materials essential for construction and day-to-day life.

As the intrinsic value of this natural resource is often low, it is essential that quarries can be located where the resource, and reserves are found, as well as been close to the markets they serve. Ballyquin Quarry supplies sand and gravel to the local and regional markets, keeping the cost of those materials competitive for the end users given the location of the quarry and proximity to the markets and outlets for the product.

1.5.2 Quarry Restoration

The need to drive waste up the waste hierarchy and away from landfill is clearly established in the Waste Framework Directive, national waste policy and regional waste policy. The strong construction industry sector has led to a significant increase in the generation of soils and stone in the West Region including Clare.

As a result, there is an urgent need for Local Authorities in the region to provide for soil recovery facilities to meet demand for recovery and re-use of inert materials.

For this facility, and in terms of providing future capacity, the regional waste plans provide guidance on the type of soil recovery sites required and other considerations. In summary these are:

- The authorisation of future backfilling or soil recovery capacity in the regions should be co-ordinated by regulatory bodies so the right scale and balanced capacity is developed. Imbalances in a region are to be avoided where possible as well as inadequate supply;
- The plans favour the development of large, long-life restoration sites, such as old quarries, ahead of shorter span sites (e.g. permitted or registered sites) for soil recovery activities; and,
- The environmental protection criteria as set out in the plan which guide the siting of new facilities must be met. The regulatory threshold for environmental protection has been increased and applicants must demonstrate the protection of environmental receptors from future site activities.

Given that there is a large void space available for infilling at the Proposed Development site, and that the quarry site is readily accessible from the national road network, it is considered that the application area is suitable for the development of a soil waste recovery facility at this location. In addition, the application site can avail of the existing site infrastructure, site management procedures and the experienced staff, all of which contributes to this being a sustainable option for the development of such a facility.

The need for the Proposed Development is also driven by its beneficial after-use which is integral to the sustainable extraction of aggregates. The restoration of the quarry void will return the site area to a land use which is in keeping with its surrounds i.e. grassed field agricultural systems.

The Proposed Development can avail of the existing site infrastructure, site management procedures and the experienced staff all of which contributes to this being the most sustainable option for the delivery of products to industry.

1.6 Purpose and Scope of the EIAR

The purpose of this EIAR is to document the current state of the environment in the vicinity of the Proposed Development site and to quantify the likely significant effects of the Proposed Development on the environment. The compilation of this document served to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative effects arising from the Proposed Development.

It is important to distinguish the EIA to be carried out by CCC from the EIAR accompanying the planning application. The EIA is the assessment carried out by the competent authority, which includes an examination that identifies, describes and assesses in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11 of the Environmental Impact Assessment Directive, the direct and indirect effects of the project on the following:

a) *population and human health;*
b) *biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
c) *land, soil, water, air and climate;*
d) *material assets, cultural heritage and the landscape; and,*
e) *the interaction between the factors referred to in points (a) to (d).*

The EIAR submitted by the applicant provides the relevant environmental information to enable the EIA to be carried out by the competent authority. The information to be contained in the EIAR is prescribed in Article 5 of the revised EIA Directive described in Section 1.4 above.

1.7 Structure and Content of the EIAR

1.7.1 General Structure

This EIAR uses the grouped structure method to describe the existing environment, the potential effects of the Proposed Development thereon and the proposed mitigation measures. Background information relating to the Proposed Development, scoping and consultation undertaken and a description of the Proposed Development are presented in separate chapters. The grouped format sections describe the effects of the Proposed Development in terms of population and human health, biodiversity, with specific attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EEC; land, soils and geology, hydrology and hydrogeology, air, climate, noise and vibration, landscape and visual, cultural heritage and material assets such as traffic and transportation, together with the interaction of the foregoing and schedule of mitigation and monitoring.

The chapters of this EIAR are as follows:

1. Introduction
2. Background to the Proposed Development
3. Description of the Proposed Development
4. Population and Human Health
5. Biodiversity
6. Land, Soils and Geology
7. Hydrology and Hydrogeology
8. Air
9. Climate
10. Noise and Vibration
11. Cultural Heritage
12. Landscape and Visual
13. Material Assets – including Traffic
14. Interaction of the Foregoing
15. Schedule of Commitments

The EIAR also includes a non-technical summary, which is a condensed and easily comprehensible version of the EIAR document. The non-technical summary is laid out in a similar format to the main EIAR document and comprises a description of the Proposed Development followed by the existing environment, impacts and mitigation measures presented in the grouped format.

1.7.2 Description of Likely Significant Effects and Effects

As stated in the *'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, May 2022), an assessment of the likely effects of a development is a statutory requirement of the EIA process. The statutory criteria for the presentation of the characteristics of potential effects requires that potential significant effects are described with reference to the extent, magnitude, complexity, probability, duration, frequency, reversibility and trans–boundary nature (if applicable) of the effect.

The classification of effects in this EIAR follows the definitions provided in the Glossary of Impacts contained in the following guidance documents produced by the European Commission (EC) and the Environmental Protection Agency (EPA):

- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, May 2022)
- *'Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report'* (EC, 2017).

The European Commission published a number of guidance documents in December 2017 in relation to Environmental Impact Assessment of Projects (Directive 2011/92/EU as amended by 2014/52/EU) including '*Guidance on Screening*', '*Guidance on Scoping'* and '*Guidance on the preparation of the Environmental Impact Assessment Report*', which have also been consulted.

Table 1-1 presents the glossary of effects as published in the EPA guidance documents. Standard definitions are provided in this glossary, which permit the evaluation and classification of the quality, significance, duration and type of effects associated with a proposed development on the receiving environment. The use of pre-existing standardised terms for the classification of effects ensures that the EIA employs a systematic approach, which can be replicated across all disciplines covered in the EIAR. The consistent application of terminology throughout the EIAR facilitates the assessment of the proposed development on the receiving environment.

Table 1-1 Impact Classification Terminology (EPA, 2022)

Impact Characteristic	Term	Description
Quality	Positive	A change which improves the quality of the environment.
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative	A change which reduces the quality of the environment.
Significance	Imperceptible	An effect capable of measurement but without significant consequences.
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends.
	Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics.
Extent and Context	Extent	Describe the size of the area, number of sites and the

Impact Characteristic	Term	Description
		proportion of a population affected by an effect
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions.
Probability	Likely	Effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely	Effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency	Momentary	Effects lasting from seconds to minutes
	Brief	Effects lasting less than a day
	Temporary	Effects lasting less than a year
	Short-term	Effects lasting one to seven years
	Medium-term	Effects lasting seven to fifteen years
	Long-term	Effects lasting fifteen to sixty years
	Permanent	Effect lasting over sixty years
	Reversible	Effects that can be undone, for example through remediation or restoration
	Frequency	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)

Impact Characteristic	Term	Description
Type	Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
	'Do-Nothing'	The environment as it would be in the future should the subject project not be carried out.
	'Worst-Case'	The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable	When the full consequences of a change in the environment cannot be described.
	Irreversible	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost.
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents.

Each effect is described in terms of its quality, significance, extent & context, probability, duration & frequency, and type, where possible. A 'Do-Nothing' effect is also predicted in respect of each environmental theme in the EIAR. Residual effects are also presented following any effect for which mitigation measures are prescribed. The remaining effect types are presented as required or applicable throughout the EIAR. Any potential interactions between the various aspects of the environment assessed throughout this EIAR are presented in Chapter 14: Interaction of the Foregoing.

1.8 Project Team

The companies and staff listed in Table 1-2 were responsible for completion of this EIAR for the Proposed Development. Further details regarding project team members are provided below.

The EIAR project team comprises a multidisciplinary team of experts with extensive experience in their relevant area of expertise. The qualifications and experience of the principal staff from each company involved in the preparation of this EIAR are summarised in Section 1.8.1 below. Each chapter of this EIAR has been prepared by a competent expert in the subject matter.

Table 1-2 Companies and Staff Responsible for EIAR Completion

Consultants	Principal Staff Involved in Project	EIAR Input
MKO Tuam Road Galway H91 VW84	Michael Watson Eoin O'Sullivan Meabhann Crowe Mary Kelleher Pat Roberts John Hynes Patrick Ellison Rachel Walsh Aran Von Der Geest Moroney Brónagh Boylan Cora Twomey Sara Fissola Susan Doyle Jack Workman Catherine Johnson Feargal Lennon Joseph O'Brien	Project Managers, Scoping and Consultation, Preparation of Natura Impact Statement, EIAR Report Sections: 1. Introduction 2. Background to the Proposed Development 3. Description of the Proposed Development 4. Population & Human Health 5. Biodiversity, Flora & Fauna. 8. Air 9. Climate 11. Landscape & Visual 14. Interaction of the Foregoing
Hydro Environmental Services 22 Lower Main Street Dungarvan Co. Waterford	Michael Gill David Broderick	Drainage Design, Preparation of EIAR Sections: 6. Land, Soils & Geology 7. Hydrology & Hydrogeology
AWN Consulting Ltd. The Tecpro Building Clonshaugh Business & Technology Park, Dublin 17	Dermot Blunnie Mike Simms	Baseline Noise Survey and preparation of Report Section 10. Noise and Vibration
Tobar Archaeological Services Saleen Midleton Co. Cork	Miriam Carroll	Preparation of Report Section 12. Cultural Heritage
Alan Lipscombe Traffic and Transport Consultants Claran Headford Co. Galway	Alan Lipscombe	Traffic counts and preparation of EIAR Section 13. Material Assets - Traffic and Transport

* (A Statement of Authority is included in each chapter of this EIAR detailing the experts who contributed to the preparation of this report, identifying for each such expert the part or parts of the report which he or she is responsible for or to which he or she contributed, his or her competence and experience, including relevant qualifications in relation to such parts, and such additional information in relation to his or her expertise that demonstrates the expert's competence in the preparation of the report and ensures its completeness and quality.

1.8.1 Project Team Members

1.8.1.1 MKO

Michael Watson MA MIEMA CEnv PGeo

Michael Watson is a Director and head of the Environment Team in MKO. Michael has over 20 years' experience in the environmental sector. Following the completion of his Master's Degree in Environmental Resource Management, Geography, from National University of Ireland, Maynooth he worked for the Geological Survey of Ireland and then a prominent private environmental & hydrogeological consultancy prior to joining MKO in 2014. Michael's professional experience includes managing Environmental Impact Assessments, EPA Licence applications, hydrogeological assessments, environmental due diligence and general environmental assessment on behalf of clients in the wind farm, waste management, public sector, commercial and industrial sectors nationally. Michaels key strengths include project strategy advice for a wide range and scale of projects, project management and liaising with the relevant local authorities, Environmental Protection Agency (EPA) and statutory consultees as well as coordinating the project teams and sub-contractors. Michael is a key member of the MKO senior management team and as head of the Environment Team has responsibilities to mentor various grades of team members, foster a positive and promote continuous professional development for employees. Michael also has a Bachelor of Arts Degree in Geography and Economics from NUI Maynooth, is a Member of IEMA, a Chartered Environmentalist (CEnv) and Professional Geologist (PGeo).

Eoin O'Sullivan M.Sc. B.Sc. CWEM CEnv

Eoin O'Sullivan is a Senior Environmental Consultant and Project Director at MKO with over 15 years of experience in the assessment of a wide range of energy and infrastructure related projects and working in the fields of environmental and human health risk assessment, waste management, waste policy and permitting. Eoin has wide experience in the project management of large scale infrastructural projects and brownfield developments which includes all aspects of geo-environmental and geotechnical investigation. Eoin holds a BSc (Hons) in Environmental Science & Technology and a MSc in Environmental Engineering. Prior to taking up his position with MKO in July 2017, Eoin worked as a Chartered Senior Engineer with CGL in Surrey, UK. Prior to this Eoin worked as a Project Engineer with RPS Consulting Engineers in Belfast. Eoin has wide experience in the project management of large scale brownfield developments and has routinely undertaken detailed quantitative risk assessment for the protection of controlled waters and ground gas risk assessments. Eoin has also experience in completing PPC Permit Applications and in the preparation of Environmental Impact Assessment Reports for renewable energy projects, quarries and a number of non-hazardous landfill sites and anaerobic digesters for both public and private clients. Eoin's key strengths include project strategy advice for a wide range and scale of projects, project management and liaising with the relevant local authorities, Environmental Protection Agency (EPA) and statutory consultees as well as coordinating the project teams and sub-contractors. Eoin is a Chartered Member of the Chartered Institute of Water and Environmental Management and Chartered Environmentalist with the Society of Environment.

Meabhann Crowe BA (Hons), M.Sc.

Meabhann Crowe is a Project Director - Planning with MKO with over 10 years private sector experience. She is a fully chartered member of the Royal Town Planning Institute (MRTPI). Meabhann holds a BA (Hons) in Geography, Sociological and Political Science and a Masters in Urban and Regional Planning. Prior to taking up her position with MKO in October 2018, Meabhann was employed as an Associate Director with Colliers International in their Edinburgh office, prior to which she was employed for several years with Halliday Fraser Munro. In her time in the industry Meabhann has been active on a number of instructions across a broad spectrum of mixed-use, residential, commercial, renewable energy and retail projects.

Meabhann brings particular expertise in initial development feasibility appraisals and development strategies. Her experience in managing large multi-disciplinary teams in the preparation of local and major planning applications across residential and mixed-use and retail developments means she has a wealth of knowledge to draw on in the early stages of development. She has particular experience in preparing and managing site strategies which include both responding to emerging planning policy whilst also preparing and progressing planning applications and appeals.

Mary Kelleher BSc.; MPlan

Mary Kelleher is a Project Planner with MKO with 1.5 years of experience as a planner in private practice. Mary holds BSc. (Major) in Environmental Earth Systems Science (Ecology) and Masters in Planning and Sustainable Development (MPlan). Prior to taking up her position with MKO in February 2022, Mary worked in Education Outreach with Blackrock Castle Observatory (under Cork Institute of Technology). Mary has worked on a number of outreach reach projects in the Arts and Culture sectors, notably Test Site Project in Cork City an Arts Council funded project under the Architecture in Place Award. In her work with MKO Mary has experience across a range of sectors including commercial, residential, renewable energy and industrial, as well as having experience with providing development advice and appraisals to clients, conducting strategic land searches, submitting planning applications for residential, commercial, and renewable energy sector clients, along with providing strategic planning advice, preparing planning appeals, attending client meetings and conducting site visits. May has also worked on applications to An Board Pleanála for Strategic Infrastructure Projects related to electricity transmission infrastructure and has experience working alongside MKO Environment Team on Environmental Impact Assessment Projects. Marys key strengths and areas of expertise are in development management, provision of planning advice and project management of small and medium sized projects.

Pat Roberts B.Sc. (Env.)

Pat Roberts is Principal Ecologist with MKO with over 17 years post graduate experience of providing ecological services in relation to a wide range of developments at the planning, construction and monitoring stages. Pat holds B.Sc.(Hons) in Environmental Science. Pat has extensive experience of providing ecological consultancy on large scale industrial and civil engineering projects. He is highly experienced in the completion of ecological baseline surveys and impact assessment at the planning stage. He has worked closely with construction personnel at the set-up stage of numerous construction sites to implement and monitor any prescribed best practice measures. He has designed numerous Environmental Operating Plans and prepared many environmental method statements in close conjunction with project teams and contractors. He has worked extensively on the identification, control and management of invasive species on numerous construction sites. Prior to taking up his position with MKO in June 2005, Pat worked in Ireland, USA and UK as a Tree Surgeon and as a nature conservation warden with the National Trust (UK) and the US National Park Service. Pats key strengths include his depth of knowledge and experience of a wide range of ecological and biodiversity topics and also in his ability to understand the requirements of the client in a wide range of situations. He is currently responsible for staff development, training and ensuring that the outputs from the ecology team are of a very high standard and meet the requirements of the clients and relevant legislation and guidelines. He is a full member of the Chartered Institute of Ecologists and Environmental Managers (CIEEM).

John Hynes M.Sc. (Ecology) B.Sc.

John Hynes is a Senior Ecologist and Project Director with MKO with over ten years of experience in both private practice and local authorities. John holds a B.SC in Environmental Science and a M.Sc. in Applied Ecology. Prior to taking up his position with MKO in March 2014, John worked as an Ecologist with Ryan Hanley Consulting Ltd. and Galway County Council. John has specialist knowledge in Flora and Fauna field surveys. Geographic Information Systems, data analysis, Appropriate Assessment, Ecological Impact Assessment and Environmental Impact Assessment. John's key strengths and areas of expertise are in project management. GIS and impact assessment. Since

joining MKO John has been involved as a Senior Ecologist on a significant range of energy infrastructure, commercial, national roads and private/public development projects. Within MKO John plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIAR Reports. John has project managed a range of strategy and development projects across Ireland and holds CIEEM membership.

Patrick Ellison B.Sc., M.Sc.

Patrick was a Project Ecologist with MKO from January 2021 to April 2023. Patrick holds a B.Sc. (Hons) in Applied Marine Biology and an M.Sc. in Wildlife Biology and Conservation. Patrick has over 6 years' experience as a professional ecological consultant, and prior to joining MKO worked as an Ecologist for a dedicated Ecological Consultancy based in the UK, where he undertook a wide range of habitat and protected species survey work and delivered a large variety of ecological projects. Prior to that he worked as a wildlife consultant for a small consultancy based in Greater London. He has also worked for and with a number of other wildlife conservation organisations and charities including the Wildwood Trust, The Fox Project, American Conservation Experience, Hessilhead Wildlife Rescue and the Scottish Wildlife Trust. Patrick's key strengths and areas of expertise are in terrestrial flora and fauna ecology, including habitat mapping, protected species sign surveys, with a particular focus on terrestrial mammals, and bat surveys, including specialist licensed tree climbing inspections and assessment for bats. Since joining MKO Patrick has been overseeing project management of a suite of our renewable energy projects, as well as carrying out a variety of habitat and protected species survey work. Within MKO Patrick plays a large role in carrying out Stage 1 and Stage 2 Appropriate Assessment Reports and contributing to Environmental Impact Statements. Patrick is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Rachel Walsh B.Sc.

Rachel is a Senior Ecologist with MKO since June 2020. Rachel holds a BSc (Hons) in Environmental Science from National University of Ireland, Galway. Rachel's key strengths are in terrestrial flora and fauna ecology, including vegetation surveys, habitat mapping, invasive species surveys, mammal surveys, bat surveys and roost site potential assessment, Appropriate Assessment Screening reporting and Ecological Impact Assessment. Since joining MKO, Rachel has worked widely on energy infrastructure, commercial, recreational and residential projects, and plays a role in preparing Ecological Impact Assessment reports and Appropriate Assessment reports. Rachel is trained in carrying out bat surveys, non-volant mammal surveys and in recording vegetation relevées. She also has experience in habitat identification and habitat mapping. Within MKO, Rachel is responsible for independently carrying out and planning ecological field surveys in accordance with NRA Guidelines, carrying out bat surveys in accordance with Scottish Natural Heritage 2019 Guideline standards, habitat surveys, and Appropriate Assessment screenings as part of the ecology team. Rachel is a member of CIEEM and holds a current Bat Roost Disturbance licence.

Aran Von Der Geest Moroney BSc (Hons)

Aran von der Geest Moroney is an Project Ecologist with MKO having joined the company in February 2021 and having over 2 years' experience in professional ecological consultancy. Aran holds a first-class honours BSc (Hons) in Ecology and Environmental Biology from University College Cork. Aran's key strengths and areas of expertise are wintering bird surveying and identification, freshwater macroinvertebrate identification and sampling, freshwater pearl mussel surveying, bat surveys, GIS, habitat mapping, preparation of Stage 1 and Stage 2 Appropriate Assessment reports and Ecological Impact Assessment. Since joining MKO, Aran has been involved in a range of mixed use, residential, industrial, restoration, public services, wind energy and forestry projects. Aran has carried out a wide range ecological field surveys in accordance with NRA Guidelines, bat surveys, bird surveys, recording vegetation relevés and freshwater quality analysis using bioindicators. Aran has provided supervision as an ecological clerk of works in residential and wastewater infrastructure projects. Aran is trained in carrying out bat surveys, non-volant mammal surveys, bird surveys, freshwater pearl mussel surveys, white-clawed crayfish surveys, electric fishing surveys, river condition assessment surveys and in taking

vegetation relevés of vascular plants and has experience in habitat identification and habitat mapping. Within MKO, Aran is responsible for independently carrying out and planning a range of ecological field surveys in accordance with NRA Guidelines and carrying out Appropriate Assessment screenings, Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters for EIARs, Invasive Species Management Plans and Aquatic reports as part of the ecology team. Aran is a member of CIEEM, holds a current Bat Roost Disturbance licence and holds an IFM Certificate in Electric Fishing.

Brónagh Boylan

Brónagh was an Ecologist with MKO, from July 2022 to May 2024. Brónagh holds a BSc (Hons) in Environmental Science from National University of Ireland, Galway. Brónagh's key strengths and areas of expertise are in terrestrial flora and fauna ecology, including vegetation surveys, habitat mapping, mammal surveys, bat surveys and roost site potential assessment, Appropriate Assessment Screening reporting and Ecological Impact Assessment. Since joining MKO Brónagh has worked widely on energy infrastructure, commercial, recreational and residential projects and plays a role preparing Ecological Impact Assessment reports and Appropriate Assessment reports, along with a role as an Ecological Clerk of Works for some site supervision. Brónagh is trained in carrying out bat surveys, terrestrial invertebrate surveys and in taking vegetation relevés of vascular plants. She also has experience in habitat identification and habitat mapping. Within MKO Brónagh is responsible for independently carrying out and planning ecological field surveys in accordance with NRA Guidelines, and for carrying out bat surveys in accordance with Scottish Natural Heritage 2019 Guideline standards, habitat surveys, and Appropriate Assessment screenings as part of the ecology team. Brónagh is a member of CIEEM (QCIEEM membership), Irish Whale and Dolphin Group (IWDG) and holds a current Bat Roost Disturbance licence.

Cora Twomey BSc

Cora is an Ecologist with MKO, since July 2022 with over 2 years of experience in professional ecological consultancy. Cora holds a First-Class Honours BSc degree in Ecology and Environmental Biology from University College Cork. Cora's key strengths and areas of expertise are in fauna ecology, including breeding raptor and waterbirds, mammal surveys including bat emergences, transect surveys, habitat appraisals and roost assessments for Appropriate Assessment Screening reporting, Ecological Impact Assessments, Biodiversity Chapters and Condition Compliance monitoring. Cora has expertise in calcareous habitats and flora for Planning Applications and in Ecological Clerks of Works for site supervision in both construction phase and operational monitoring of small to large scale projects and in completing Final Audit Reports and Annual Monitoring Reports. Since joining MKO Cora has worked widely on energy infrastructure, commercial, recreational and residential projects and plays a role preparing Ecological Impact Assessment reports and Appropriate Assessment reports. She also has experience in taking vegetation relevés of vascular plants, habitat identification and habitat mapping in addition to establishing Invasive Species Management Plans. Cora has continued to hone in on her skillset and upskill since joining MKO by taking part and organising internal trainings on drone surveying, winter tree and breeding bird identification, and bryophyte identification trainings. Cora has also taken part in external trainings such as Stage 1 and Stage 2 Freshwater Peral Mussel training, White Clawed Crayfish training, I-WeBS counts for the Inner Galway Bay region, BSBI recording events, and Birdwatch Ireland and Irish Wildlife Trust events, in addition to attending conferences such as Salmon Watch Ireland and the All-Ireland Mammal Symposium. Cora is a member of Botanical Society of Britain and Ireland. Cora holds a current NPWS Bat Roost Disturbance Licence, Certificate for Certificate for Freshwater Pearl Mussel Surveying (Stage 1 and 2), Certificate for Surveying White Clawed Crayfish, Irish Aviation Authority Drone A1 & A3 A1 & A3 licences, a NPWS licence to film and photograph wild animals and a full clean driver's licence.

Sara Fissola B.Sc

Sara Fissolo is a Project Ecologist with MKO Planning and Environmental Consultants. She holds a BSc. (Hons) in Ecology and Environmental Biology from University College Cork. Sara is a member of MKO's dedicated bat unit, where she scopes and manages bat survey requirements for a variety of

projects, including wind-farms planning applications. She has four years' experience carrying out bat survey requirements including roost assessments, manual/static activity surveys, data analysis, impact assessment and report writing. She is experienced in the use of endoscopes and thermal equipment to carry out bat surveys, as well as site-supervision. She attended Wildlife Acoustics, Bat Conservation Ireland (BCI), Bat Conservation Trust (BCT) and CIEEM courses on surveying heritage buildings for bats, on bats and lighting, on performing bat care, on assessing the impact of developments on bats and on the use of Kaleidoscope Pro Software. Sara is a member of BCI, for which she carries out volunteer surveys, and holds a current Bat Roost Licence from NPWS.

Susan Doyle PhD, MSc, BA

Susan Doyle is a senior ornithologist at MKO. She completed her primary degree in Zoology (moderatorship in Natural Science) at Trinity College Dublin in 2013 and her master's degree in Ecological Assessment in University College Cork in 2014. Susan has seven years' experience in ecological consultancy and has worked on wind farm projects, solar farm projects, residential developments, data centres, county council projects and National Parks and Wildlife Service projects. She specialises in ornithological consulting, including Environmental Impact Assessments and operational monitoring. Prior to joining MKO in October 2020, Susan gained experience through her involvement in several bird conservation projects, including protected curlew, seabirds, waders and waterfowl, as well as research into breeding hen harrier, satellite telemetry in migrant birds and avian diseases in Ireland, providing her with extensive experience in a wide variety of bird survey methods, data management and reporting.

Jack Workman MSc

Jack is the Landscape & Visual Team manager at MKO and is a Technician Member with the British Landscape Institute. He is a Landscape and Visual Impact Assessment Specialist with an academic background in the field of Environmental Science and Geography. Jack's primary role at MKO is conducting Landscape and Visual Impact Assessment (LVIA) for Environmental Impact Assessment reports. Jack holds a BSc. in Psychology, and an MSc. in Coastal and Marine Environments (Physical Processes, Policy & Practice) where he was awarded the Prof. Máirín De Valéra distinction in science research award. Prior to taking up his position with MKO, Jack worked as a Geospatial Analyst and Research Assistant with NUIG and also held previous posts in the coastal engineering sector with Royal Haskoning DHV and Saltwater Technologies. Since joining MKO in February 2020, Jack has conducted and project managed all aspects of LVIA for a broad range of commercial infrastructure developments including wind and solar energy projects, grid infrastructure, extraction industry and Strategic Housing Developments. Jack holds a membership with the Chartered Institute of Water and Environmental Management and is also a member of the Landscape Research Group.

Catherine Johnson

Catherine is an Environmental Scientist at MKO with over two year's of consultancy experience in climate and sustainability. Prior to joining MKO in 2022, Catherine worked as an Environmental Social Governance (ESG) analyst for Acasta in Edinburgh. Catherine has expertise in internal climate law and policy, earth science, and sustainability/ESG processes. Catherine has a BSc in Earth and Ocean Science and an LLM in Global Environment and Climate Change Law.

Feargal Lennon M.Sc.

Feargal was an Environmental Scientist at MKO from April 2023 to May 2024. Feargal holds an MSc in Environmental Resource Management from University College Dublin. His key strengths are in the preparation of Environmental Impact Assessments. This work involves extensive research, fieldwork, report writing and project management. Feargal also has a strong background in agriculture. Balancing biodiversity and agriculture and peatland rehabilitation are among his keen interests. Since joining MKO, Feargal has been involved in a range of projects from wind farms, quarries, industrial and residential developments.

Joseph O'Brien

Joseph O'Brien holds the position of CAD Technician. Joseph holds a BA Honours Level 8 Modelmaking, Design and Digital Effect, Institute of Art Design and Technology (IADT), Dun Laoghaire & City & Guilds Level 3 2D &3D AutoCAD certificates. Joseph's role entails various wind and solar farm projects which require various skills such as mapping, aerial registration and detailed design drawings for projects. Prior to joining us, Joseph worked as a free-lance Modelmaker and CAD Technician. His previous experience included designing various models and props through CAD and then making them for various conventions such as Dublin Comic Con and Arcade Con.

1.8.1.2 Hydro Environmental Services Ltd.

Hydro-Environmental Services (HES) is a specialist hydrological, hydrogeological and environmental practice which delivers a range of water and environmental management consultancy services to the private and public sectors across Ireland and Northern Ireland. HES was established in 2005, and our office is located in Dungarvan, County Waterford. HES have substantial experience in a broad range of environmental consultancy areas, including: site investigations and environmental monitoring; contaminated land investigations and site remediation; environmental risk assessments; environmental impact statements; karst hydrology and hydrogeology; peatland/wetland and river hydrology; wastewater engineering, surface water drainage and SUDS (sustainable urban drainage systems) design; flood risk assessments; hydrogeological investigations; and surface water/groundwater interactions.

Michael Gill

Michael Gill is the director of Hydro Environmental Services (HES) Ltd., and an Environmental Engineer with over eighteen years' environmental consultancy experience in Ireland. Michael has completed numerous hydrological and hydrogeological impact assessments for a wide range of projects including quarries, wind/solar farms, roads schemes and water supply schemes in Ireland. He has also managed EIA/EIS assessments for infrastructure projects and private residential and commercial developments. In addition, he has substantial experience in wastewater engineering and site suitability assessments, contaminated land investigation and assessment, wetland hydrology/hydrogeology, water resource assessments, surface water drainage design and SUDs design, and surface water/groundwater interactions.

David Broderick

David Broderick is a hydrogeologist with over thirteen years' experience in both the public and private sectors. Having spent two years working in the Geological Survey of Ireland working mainly on groundwater and source protection studies. David moved into the private sector. David has a strong background in groundwater resource assessment and hydrogeological/hydrological investigations in relation to developments such as quarries and wind farms. David has completed numerous geology and water sections for input into EIAs for a range of commercial developments.

1.8.1.3 AWN Consulting Ltd

AWN Consulting is a multidisciplinary engineering consultancy offering specialist design advice in respect of all aspects of environmental acoustics. It is an Irish owned company with its Head Office in Dublin. AWN Consulting's acoustics team comprises nine suitably qualified engineers with a total of some 100 man years spent working in the area, making it the largest and most experienced group of its type in Ireland, uniquely positioned to undertake a wide variety of projects.

Dermot Blunnie - Senior Acoustic Consultant

Dermot Blunnie (Principal Acoustic Consultant) holds a BEng in Sound Engineering, MSc in Applied Acoustics and has completed the Institute of Acoustics (IOA) Diploma in Acoustics and Noise Control. He has been working in the field of acoustics since 2008 and is a member of the Institute of Engineers Ireland (MIEI) and the Institute of Acoustics (MIOA). He has extensive knowledge of all aspects of

environmental surveying, noise modelling and impact assessment for various sectors including, energy, industrial, commercial and residential. Dermot specialises in wind farm noise modelling, compliance and complaint investigations.

Mike Simms

Mike Simms (Principal Acoustic Consultant) holds a Bachelor of Mechanical Engineering and Master of Engineering Science from University College Dublin he also holds a Diploma in Acoustics and Noise Control from the University of Ulster at Jordanstown. He has 16 years' experience in the field of environmental acoustics, in particular using computer-based noise modelling for environmental noise assessments.

1.8.1.4 Tobar Archaeological Services

Tobar Archaeological Services (Tobar) have been in operation since 2003 and offer professional nationwide archaeological services ranging from pre-planning assessments to archaeological excavation and cater for clients in both the public and private sector.

Tobar's Directors, Annette Quinn and Miriam Carroll, are licensed by the Department of Arts, Heritage and the Gaeltacht (DoAHG) to carry out archaeological investigations in Ireland and have carried out work directly for the National Monuments Services of the Department of the Environment, Heritage and Local Government (now DoAHG). Tobar has a proven track record in the renewable energy industry from EIS stage through to construction stage when archaeological monitoring and/or testing are frequently required.

1.8.1.5 Alan Lipscombe Traffic and Transport Consultants

Alan Lipscombe

In January 2007 Alan Lipscombe set up an independent traffic and transportation consultancy providing advice for a range of clients in the private and public sectors. Prior to this Alan was a founding member of Colin Buchanan's Galway office having moved there as the senior transportation engineer for the Galway Land Use and Transportation Study. Since the completion of that study in 1999, Alan has worked throughout the West of Ireland on a range of projects including: major development schemes, the Galway City Outer Bypass, Limerick Planning Land-Use and Transportation Study, Limerick Southern Ring Road Phase II, cost benefit analyses (COBA) and various studies for the NUI Galway. Before moving to Galway in 1997, Alan was involved in a wide variety of traffic and transport studies for CBP throughout the UK, Malta and Indonesia. He has particular expertise in the assessment of development related traffic and transport modelling, including for numerous wind energy developments, and is an accomplished analyst who has experience of a wide variety of modelling packages and methods.

1.9 Difficulties Encountered

There were no technical difficulties encountered during the preparation of this EIAR.

1.10 Viewing and Purchasing of the EIAR

Copies of this EIAR will be available online, including the Non-Technical Summary (NTS), on the Planning Section of the Clare County Council website.

https://www.eplanning.ie/ClareCC/searchtypes

under the relevant Planning Reference Number (to be assigned on lodgement of the application).

This EIAR and all associated documentation will also be available for viewing at the offices of CCC. The EIAR may be inspected free of charge or purchased by any member of the public during normal office hours at the following address:

Planning Department
Clare County Council
Áras Contae an Chláir
New Road
Ennis
Co. Clare
V95 DXP2

This EIAR will also be available to view online via the Department of Housing, Local Government and Heritage EIA Portal, which will provide a link to the planning authority's website on which the application details are contained. This EIA Portal was set up by the Department as an electronic notification to the public of requests for development consent which are accompanied by an EIAR.

(https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal).