

## ENVIRONMENTAL IMPACT ASSESSMENT REPORT NON-TECHNICAL SUMMARY (NTS)

IN RESPECT OF

**PROPOSED QUARRY DEEPENING WITHIN AN AREA OF C. 4.13 HECTARES  
WITHIN EXISTING LIMESTONE QUARRY**

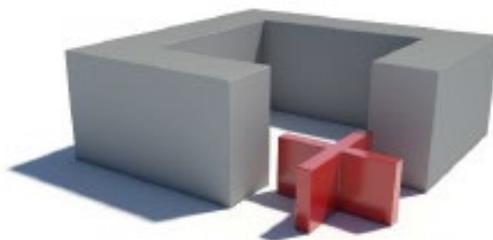
AT

**KILLASKILLEN, KINNEGAD, CO. MEATH**

PREPARED FOR

**BREEDON CEMENT IRELAND LIMITED**

**SEPTEMBER 2022**



TOWN PLANNING CONSULTANTS



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### ***Non-Technical Summary of Environmental Impact Statement Update Report***

This Non-Technical Summary of the Environmental Impact Assessment Report (EIAR) is provided as part of the application documentation as required by article 94 of the *Planning and Development Regulations, 2001 (as amended)*.

#### ***Contact***

The preparation of this EIAR has been co-ordinated by Tom Phillips + Associates, Town Planning Consultants, in association with the proposed development's project team as identified in Chapter 1 below:

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#### ***Environmental Impact Assessment Report***

A copy of the full EIAR is available for reference/purchase at the offices of the Planning Authority, Meath County Council, Buvinda House, Dublin Road, Navan, County Meath, C15 Y291.



## 1.0 INTRODUCTION

### 1.1 Preamble

This *Environmental Impact Assessment Report (EIAR)* relates to a proposed development by Breedon Cement Ireland Limited (hereafter referred to as Breedon or the Applicant throughout) comprising, *inter alia*, the deepening of the north-western portion of the current permitted limestone quarry<sup>1</sup> at Killaskillen, Kinnegad Co. Meath by four extractive benches to 10m OD, over an area of c. 4.13 hectares. The proposed development will not result in any increase to the annual output of the existing limestone quarry or to the production capacity of the existing cement plant.



**Figure 1.1: Aerial view of the site and its surrounding context, with indicative red line boundary. (Source: Quarry Consulting.)**

The applicant's wider landholding comprises an existing limestone quarry, an existing cement plant and asphalt plant. The proposed extraction area, which is the subject of this application, is permitted as part of the extant quarry permissions referenced. The site is generally surrounded by lands which can be described as rural in character. Residential properties in the vicinity of the site primarily comprise of one-off dwellings fronting onto Local Roads to the east and west of the site.

<sup>1</sup> Permission to extract limestone and shale was originally granted in April 2000 (Meath County Council (MCC) Reg. Ref. 982026; An Bord Pleanála Ref. PL17.111198. Further permission granted in Nov 2009 for an extension to the limestone quarry under Reg. Ref. TA/900603.



## 1.2 Need for Environmental Impact Assessment Report - Screening

The EIA Directives have been transposed into Irish law for the purposes of this planning application by the provisions of Part X of the *Planning and Development Acts, 2000 (as amended)* and Part 10 of the *Planning and Development Regulations, 2001 (as amended)*.

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II).

Annex I projects are listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001 (as amended)* ("the Regulations").

The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required in this instance.

With respect to Part 2 of Schedule 5 (Annex II) projects, the relevant thresholds relating to the subject proposal are outlined below:

### **Class 2 (b)**

*Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares.*

The proposed development provides for the deepening of an existing extraction area of c. 4.13 hectares. Notwithstanding the fact that this is below the threshold for an EIAR to be required, the proposed development forms part of a wider quarry development which is far in excess of 5 hectares, within a wider landholding which extends to c. 286 hectares. It is therefore considered that an EIAR be undertaken to take account of the wider landholding which is in excess of the threshold for mandatory requirement of EIA. The subject site and wider landholding can be seen in Fig. 1.4

A core objective of this EIAR is to provide the appropriate information and evaluation of the proposed development, having regard to the specific characteristics of the project, the proposed scale of the development and the potential for significant effects arising from the proposed development.

## 1.3 Environmental Baseline and Assessment Chapters

Each of the chapters of this EIAR broadly follow the same structure. This structure is as follows:

- Introduction
- Methodology
- Receiving Environment
- Characteristics of the Proposed Development
- Potential Impact of the Proposed Development
- Ameliorative, Remedial or Reductive Measures
- Predicted Impact of the Proposed Development
- Monitoring



- Reinstatement (if required);
- Interactions and Potential Cumulative Impacts.

#### 1.4 Consultation

As part of the pre-application process TPA has provided preliminary details of the proposed development to a range of statutory consultees via written correspondence dated April 20, 2022. A list of the consultees is provided below:

- Department of Culture, Heritage & the Gaeltacht and NPWS
- Department of the Environment Climate and Communications
- An Taisce
- National Parks and Wildlife Service
- Environmental Protection Agency
- The Health Service Executive
- Geological Survey Ireland
- Inland Fisheries Ireland (IFI)
- Irish Water

At time of submitting the application, TPA had received one written response in relation to the proposed development. This response was from the Geological Survey Ireland (GSI) dated May 30, 2022 (Appendix 1.2). In their letter the GSI suggested the use of their publicly available datasets and also noted that should the development go ahead, they would much appreciate a copy of reports detailing any site investigations carried out. Should any significant new quarry faces be identified, GSI requested that potential visits to personally document exposures be arranged, if possible through consultation with Geological Survey Ireland Heritage Programme. Alternatively, GSI asked that a digital photographic record of significant new excavations could be provided .

#### 1.5 EIAR Study Team and Guarantee of Competency and Independence

The *Environmental Impact Assessment Report* was completed by a project team led by Tom Phillips + Associates, who also prepared a number of the chapters.

The members of the team, their qualifications and their respective inputs are outlined below in Table 1.1. The EIAR Chapters as set out in Table 1.1 are provided with Appendices for each section provided immediately thereafter, where applicable. A separate Non-Technical Summary of the EIAR is also enclosed within the inside cover.

In accordance with EIA Directive 2014/52/EU, we confirm that experts involved in the preparation of the EIAR are fully qualified and competent in their respective field. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality.



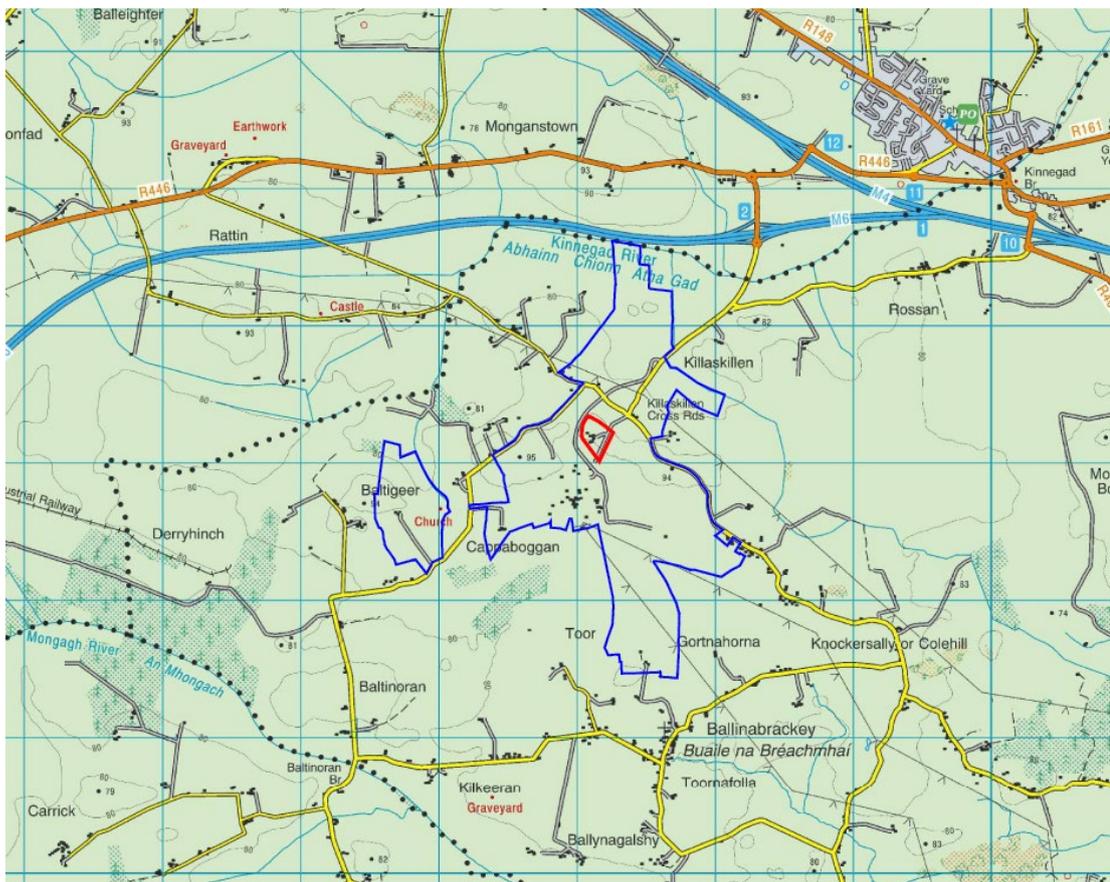
<b>chapter</b>	<b>Aspects of the Environment Considered</b>	<b>Contributor</b>	<b>Person Responsible</b>
<b>Chapter 1</b>	Introduction and Methodology	Tom Phillips + Associates (TPA)	Gavin Lawlor
<b>Chapter 2</b>	Site Location and Context	TPA	Gavin Lawlor
<b>Chapter 3</b>	Description of the Proposed Development	TPA	Gavin Lawlor
<b>Chapter 4</b>	Key Alternatives Considered	TPA	Gavin Lawlor
<b>Chapter 5</b>	Population and Human Health	TPA	Gavin Lawlor
<b>Chapter 6</b>	Biodiversity	Ecology Ireland	Gavin Fennessy
<b>Chapter 7</b>	Land, Soils and Geology	Hydro G	Dr. Pamela Bartley Dr. Colin O'Reilly P.Geol. Pat Breheny
<b>Chapter 8</b>	Water (Hydrology and Hydrogeology)	Hydro G	Dr. Pamela Bartley Dr. Colin O'Reilly P.Geol. Pat Breheny
<b>Chapter 9</b>	Air and Climate	TMS	Imelda Shanahan
<b>Chapter 10</b>	Noise and Vibration	TMS	Imelda Shanahan
<b>Chapter 11</b>	Material Assets – Waste	TMS	Imelda Shanahan
<b>Chapter 12</b>	Material Assets –Traffic and Transportation	PMCE	Alan O'Reilly
<b>Chapter 13</b>	Cultural Heritage incl. Archaeology	IAC Archaeology	Faith Bailey
<b>Chapter 14</b>	Landscape Visual Impact Assessment	Macroworks	Rory Curtis
<b>Chapter 15</b>	Interactions and Cumulative Impacts	TPA	Gavin Lawlor
<b>Chapter 16</b>	Mitigation	TPA	Gavin Lawlor
<b>Chapter 17</b>	Difficulties Encountered	TPA	Gavin Lawlor
	Non – Technical Summary	All Contributors outlined above - compiled by TPA	

## 2.0 SITE LOCATION AND CONTEXT

### 2.1 Location of the Subject Site

The subject site of c. 4.13 *hectares* which forms part of the wider ‘Kinnegad Quarry’ is located in County Meath, in the townland of Killaskillen. The applicant’s wider landholding (c. 286 hectares) also comprises parts of the townlands of Cappaboggan and Toor and borders the Kinnegad River and M6 motorway to the north. The quarry straddles and is accessed by a local road (L8021) under which a connecting underpass has been constructed. The limestone quarry lies to the south of this local road, with a shale quarry located to the north. The L8021 also forms the eastern boundary of the site and provides access to the village of Ballinabrackey, positioned 400m beyond the southern site boundary.

The applicant’s existing cement and asphalt plants are located within the wider landholding.



**Figure 2.1: Location of Subject Site (indicative site outlined red with Breedon Cement Limited landholding outlined in blue). (Source: OS Discovery Series, annotated by Quarry Consulting 2022.)**

### 2.2 Description of the Subject Site and context

The applicant’s landholding borders the Kinnegad River and M6 motorway to the north and straddles a local road (L8021) under which a connecting underpass has been constructed.

The cement works are located on the western side of the landholding, which are well screened by higher land to the north.

There are 110kv ESB lines traversing the southern portion of the landholding and connecting with the sub-station, which is located within the area of the cement plant.

Lands surrounding the subject site can be described as rural in character. Residential properties in the vicinity of the site primarily comprise of one-off dwellings fronting onto the county roads to the east and west of the site. In addition, there are a number of residential properties within the village of Ballinabrackey, which is located between approximately 4km south of the application site.

The nearest surface watercourse to the application site is the Kinnegad River which forms the northern boundary of the landholding. The general character of the landscape immediately north of the site is an open river valley with few trees and only low intermittent hedges. A number of field boundaries near the Kinnegad River are simple post and wire fences. The course of the Kinnegad River has been straightened in sections, including that forming the northern boundary of the overall cement plant site. To the east is slightly higher ground with dense tree and hedge cover, while to the west is an area of open fields and hedges lying along the valley of the Kinnegad River.



**Figure 2.2: Location of Subject Site (indicative site outlined red). (Source: Quarry Consulting, cropped by TPA 2022.)**

### 2.3 The Existing Quarry

The existing limestone quarry and cement works were granted planning permission by Meath County Council in April 1999 (Meath County Council Planning Reg. Ref. No. 98/2026). This permission was the subject of an appeal to An Bord Pleanála, who subsequently upheld the decision of the Planning Authority and granted permission for the development in 2000 (An



Bord Pleanála Ref. No. PL17.111198). A further application to extend the limestone Quarry was approved by Meath County Council in November 2009 (TA/900603). There have been various other planning applications within the wider landholding, and these are detailed in section 2.5 below.

## **2.4 Planning Context**

Section 2.4 of Chapter 2 provides a brief overview of the planning context including the planning policies that are applicable to the subject site as outlined in National and Local Planning Policy including Project Ireland 2040: National Planning Framework & Meath County Development Plan 2021 – 2027

## **2.5 Planning History**

Chapter 2 includes a tabular summary of the planning history relating to the subject site and the wider Breedon Cement Ltd. landholding (outlined in blue in Figure 2.1). The existing cement plant and other structures are not incorporated in the current proposed application.



### **3.0 DESCRIPTION OF PROPOSED DEVELOPMENT**

#### **3.1 Introduction**

This chapter has been prepared by Tom Phillips + Associates in conjunction with Breedon Cement Ireland Limited and provides a detailed description of the proposed development together with details of the existing environment.

As set out in Chapter 2 of this EIAR, the application site is located in County Meath in the townland of Killaskillen. The townland of Killaskillen also crosses the county boundary into Westmeath, where it borders the townland of Kinnegad. The applicant's wider landholding comprises an existing limestone quarry, cement plant and asphalt plant. The proposed extraction area, subject of this application, of approximately c. 4.13 hectares is permitted as part of the existing quarry permission<sup>1</sup>. The overall quarry area extends to approximately c. 286 hectares.

#### **3.2 Summary of Proposed Development and Rationale**

The proposed development is intended to facilitate the continued operation of Breedon Cement Ireland Ltd. quarry at Kinnegad and will take place within an area already permitted for quarrying activities. The proposal will involve deepening of an area of c. 4.13 hectares by 4 extractive benches to a level of 10m OD.

Access to the quarry is currently provided from the local road (L8021) that runs in a north-south direction and bounds the eastern portion of the quarry site. The proposed development will not result in any increase to the annual output of the existing limestone quarry or to the production capacity to the existing cement plant. The proposed development will be served by the existing on-site haul road from the existing vehicular access point on the L8021 to the northeast of the site.

The proposed deepening of this section of the existing quarry will be consistent with the permitted depth of the adjacent permitted quarry area and is intended to facilitate the efficient extraction of material from the overall quarry site. The proposed development is intended to be carried out in phases as outlined in Figures 3.1 – 3.4 whereby the adjacent permitted quarry area and the proposed development area will be quarried in tandem.

#### **3.3 Overview of Existing Quarry operations**

The Lagan Group opened its first quarry at Whitemountain on the outskirts of Belfast in 1960 and Lagan has been a name synonymous in the quarrying and construction industries ever since. To meet future demands of the group, an ultra-modern cement manufacturing facility was constructed in Kinnegad, Co. Meath, which began production in 2002. The cement plant has the capacity to produce up to 700,000 tonnes of cement per annum. In April 2018, Lagan Cement was acquired by the Breedon Group plc. Breedon is a public company with ordinary shares traded on the Alternative Investment Market (AIM). Throughout the UK and Ireland, the company employs approximately 3,600 people and operates 2 cement plants, 70 quarries, 40 asphalt plants, 200 ready-mixed concrete plants, 9 concrete and clay products plants, 4 contract surfacing businesses, 6 import/export terminals and 2 slate production facilities.



The development of the quarry and planning history of the wider landholding are outlined in Section 2.5, Chapter 2 of this EIAR.

The manufacture of cement combines both the cement works and the quarries on site. The main raw materials used are limestone and shale. Cement is produced in a specially designed kiln and is heated to very high temperatures with the required mix of raw materials. These materials need to be finely ground and mixed in precise proportions to form a raw meal of required chemistry. The raw meal is heated in the kiln process to form what is known as clinker. The clinker is milled down to produce the final cement powder. Gypsum is also added at the final grinding stage to control the setting time of the cement.

### **3.4 The Quarrying Process**

There are five broad stages in the quarrying process:

1. Blasting of rock faces
2. Transport to crusher
3. Crushing
4. Stockpiling, and
5. Conveying to cement plant

Each of these steps is summarised in chapter 3.

### **3.5 Phasing of Works**

It is the intention of Breedon Cement Ireland Ltd. to continue to extract from the application site until its end of life and provide for the subsequent restoration of the entire site. The restoration of the quarry including the current subject site is illustrated in the Restoration Plan produced as part of the previous 2009 permitted development (Meath County Council Planning Register Ref: TA/900603) and referenced in Chapter 6 of the EIAR.

The proposed deepening of this section of the existing quarry will be consistent with the permitted depths of the adjacent permitted quarry area and is intended to facilitate the efficient extraction of material from the overall quarry site.

Figures 3.1 to 3.4 (Chapter 3) illustrate the proposed phasing of the development. The completion of all phases will involve the extraction of limestone rock to a final depth of 10 metres above Ordnance Datum (AOD).

### **3.6 Potential for Environmental Impacts**

The application site is already part of an overall site whose operations are overseen by the EPA and activities controlled in an Industrial Emissions (IE) License Ref. P0487-07 for Breedon Cement Ireland Ltd. The proposed development will involve the deepening of an existing extraction area and will not result in any intensification of existing activities at the wider quarry. The various chapters in this EIAR include detailed assessment of the potential of the proposed development to produce effects in terms of population and human health, biodiversity, water, land, air, noise, landscape and visual etc. The following represents a brief summary of some of the key considerations in relation to the proposed quarrying activity.



### 3.7 Biodiversity and Appropriate Assessment

Chapter 6 of the EIAR (Biodiversity) has been prepared by Ecology Ireland Wildlife Consultants Ltd. and describes the habitats, flora and fauna present at the application site of the proposed development at the existing quarry and includes:

- A detailed desktop review of available ecological data of the study area, including a review of designated nature conservation sites in the adjacent hinterland.
- Results of ecological field surveys carried out in order to obtain information on the baseline ecology of the study area.
- Evaluation of the ecological importance of the ecological resources of the study area.
- Assessment of the potential impacts on the existing ecology that could arise from the proposed continuation of quarry works within the application site.
- Details of avoidance and mitigation measures, to eliminate or reduce potential negative impact(s) on the existing local ecology arising from the continuation of quarry operation.

There are no Natura 2000 sites located within 5km of the application site boundary. A screening report was also prepared in support of the Appropriate Assessment (AA) process. The main purpose of this report was to identify whether likely significant effects on any Natura 2000 site are likely to arise from the proposed development.

The outcome of the screening stage assessment is provided in Section 6.4 of the EIAR with the Screening Assessment report submitted to accompany the planning application. There are four Natura 2000 sites, five NHA sites and five pNHA sites located within 15km of the applications boundary (See Table 6.3; Figure 6.4 and Figure 6.5).

The most proximate Natura 2000 site is Mount Hevey Bog SAC (002342), located 5.3km to northwest of the application site. There is no potential impact-receptor pathway connecting the proposed deepening of the limestone quarry to this designated site.

The screening report concludes that no significant adverse impacts arising from the proposed development are likely to occur in relation to the relevant Natura 2000 sites *i.e.* River Boyne and River Blackwater SAC (002299) and the River Boyne and River Blackwater SPA (004232), or indeed any other Natura 2000 site in the wider area.



## 4.0 EXAMINATION OF ALTERNATIVES

### 4.1 Introduction

This chapter of the *Environmental Impact Assessment Report* has been prepared by Tom Phillips + Associates and details the rationale underpinning the proposed development and an examination of alternatives.

Schedule No. 6 of the Planning and Development Regulation 2001, as amended (reflecting Annex IV of Directive 97/11/EC) specifies the information to be contained in an EIAR, and requires "a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects" (DoHGLH 2021).

One of the key changes between the EIA Directive 2011/92/EU and the revised Directive 2014/52/EU pertains to the "mandatory assessment of alternatives." The EIA Directive 2014/52/EU 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."

The new EIA Directive 2014/52/EU came into effect in 2014 and was finally transposed and adopted into Irish law on September 1<sup>st</sup>, 2018. The new European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) are now in effect and should remain in force during the expected life of the proposed development. The EPA has prepared several guidance documents in the interim before transposition that incorporated the expected provisions of the new law (EPA 2015; 2017). The Guidelines have been drafted with the primary objective of improving the quality of EIARs with a view to facilitating compliance (with the Directive). Practitioners are expected to adhere to the guidance while preparing EIARs, for applications made on or after May 16<sup>th</sup>, 2017. Due consideration of the draft guidelines was taken with respect to the preparation of the EIAR.

On the basis of the Draft Advice Notes on Current Practice for preparing Environmental Impact Statements (EPA 2015), and Guidelines on the Information to be contained in an Environmental Impact Assessment Report (EPA 2022), which take account of the revised EIA Directive (2014/52/EU), alternatives to the current proposals have been considered as follows.

Chapter 4 includes a review of the alternatives explored for the proposed development under various headings including

- Alternative Locations
- Alternative Designs/Layout
- Alternative Processes
- Alternative Mitigation Measures



## 4.2 “Do Nothing” Alternative

The “do nothing” alternative would involve the continued operation of the existing quarry to its permitted footprint and depth until such time as all reserves have been exhausted. This would be detrimental to the operation of the existing cement plant at the site, as well as the efficient and effective extraction of rock from the site, would limit the full potential of the quarry and may have an adverse impact on the local economy given the level of direct and indirect employment provided.

If no further works within the planning application area were carried out, the existing site would be restored to natural habitat after-uses as per the previously permitted restoration proposals.

## 4.3 Conclusion

The selection of an alternative location for the proposed development is not applicable, given that the quarry is already in operation and the application area is considered to have significant reserves to continue this operation. The quality of the remaining rock reserves, as well as the capital investment on site means that the proposed development is not footloose and cannot be accommodated in an alternative location. By continuing extraction from the existing and permitted site, cumulative impacts are minimised.



## 5.0 POPULATION AND HUMAN HEALTH

This chapter has been prepared by Tom Phillips + Associates and details the impacts on Population and Human Health arising from the proposed development.

Lands surrounding the subject site can be described as rural in character. Residential properties in the vicinity of the site comprise of one-off dwellings fronting onto the county roads primarily to the north-west of the site. In addition, there are a number of residential properties within the village of Ballinabrackey, which is located between approximately 2km south of the application site.

The site is set back from the public road and is largely screened from view by the trees and hedgerows vegetation along the boundary of the site. Further details of the receiving environment are provided in Chapter 2 of this EIAR.

The subject site at Killaskillen is located within the northern half of the Electoral Division of Ballyboggan (ED No. 071). In the 2022 Census (Preliminary Results), this ED had a population of 572 No. persons representing a population percentage increase of 8.3% from the 2016 total population of 528 No. persons. This percentage change in population is significantly higher than the neighbouring EDs.

Employers in the area include Commerce and Trade and Agriculture Forestry and Fishing services in Ballyboggan. The Census 2016 data illustrates that that 17.7% of the population in Ballyboggan are involved in agriculture, forestry and fishing, while only 9.3% are involved in the building and construction sector and 0.45% in transport and communications. The next most significant industry is of professional services, employing 19.1% of working population while the remaining industries employ c. 10 to 12%.

At the time of the 2016 census, some 5.9% of the labour force in Ballyboggan ED are classed as 'Unemployed'. This figure is lower than Trim Municipal District and County Meath which had unemployment rates at this time of 6.6% and 4.5%, respectively.

The proposed development will aim to maintain existing employment levels at the Kinnegad quarry and will support direct and indirect employment for the duration of the lifespan of the quarry.

With respect to national employment figures, (ESRI) *Quarterly Economic Commentary (ESRI QEC) – Summer 2022* anticipates that the national unemployment rate as a percentage of the total labour force is expected to fall to 4% in 2023 from 5% recorded in 2022<sup>2</sup>. The report further states that:

*“The strong labour market performance, along with the continued increases in Exchequer receipts, means that the Irish public finances are in a relatively robust state, notwithstanding the recent challenges posed by the pandemic and the Ukrainian crisis.”*

(Our emphasis) (Source: *ESRI Quarterly Economic Commentary, Summer 2022.*)

The consumption forecast improvement predicted previously has been affected by two major economic forces since early 2022, ‘the improving COVID-19 epidemiological situation’ and the

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<sup>2</sup> ESRI (Summer 2022) *Quarterly Economic Commentary*.



*'deteriorating geopolitical conflict in Ukraine'*. As a result, although a robust recovery in Irish consumption was evident throughout 2021, the geopolitical situation in Ukraine is expected to negatively impact consumption decisions at greater levels and further increase inflation. Inflation in 2022 is expected to reach 7.1% while falling to 4.0 % in 2023. However, consumption is still expected to grow by 4.6 % in 2022 and 3.8 % in 2023 owing to the rebound from the pandemic coupled with increased household savings over the last two years.

The potential impacts between human beings and Air & Climate, Noise & Vibration, Landscape & Visual, Water, Traffic and Waste are further detailed in Chapter 5 of the EIAR. In summary, it is considered that there will be no further impact experienced on the environmental sensitivities in the area over and above that experienced at the existing quarry in relation to Air & Climate, Landscape & Visual, Water, Traffic and Waste.



## 6.0 BIODIVERSITY

The Biodiversity Chapter has been prepared by Ecology Ireland Wildlife Consultants Ltd. (Ecology Ireland) and describes the habitats, flora and fauna present at the application site. It is proposed to deepen the north-western portion of the existing limestone quarry to 10m OD over an area of c. 4.13 hectares, which is consistent with the level approved for the adjoining quarry extraction area. The proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity of the existing cement plant.

Detailed desktop and field surveys were carried out to inform the ecological impact assessment of the proposed development. Field surveys included surveys of the flora, habitats and species present within and adjoining the application site.

The application site is not located within any designated Natura 2000 sites or nationally designated conservation sites. The most proximate Natura 2000 site is Mount Hevey Bog SAC (002342), located 5.3km to northwest of the application site. There is no potential impact-receptor pathway connecting the proposed extension to the limestone quarry to this designated site. The Kinnegad River flows into the Boyne River c. 12.8km downstream of the landholding. The Boyne River forms part of the River Boyne and River Blackwater SAC and River Boyne and River Blackwater SPA. Therefore, a distant hydrological pathway connecting the quarry site and these Natura 2000 sites (via surface water discharge to the Kinnegad River) exists. There are no direct hydrological links between the proposed site and any of the other designated sites in the wider hinterland of the proposed development. The screening for Appropriate Assessment (AA) considers the potential for likely significant effects on Natura 2000 sites in the wider receiving environment. This includes consideration of the potential for ex-situ likely significant effects on mobile qualifying interests of designated Natura 2000 sites in the receiving environment. It is objectively concluded that there is no likelihood of significant effects on any of the Natura 2000 located in the wider area.

No habitats listed on Annex I of the EU Habitats Directive were recorded within the proposed development site boundary. Botanical species protected under the Flora (Protection) Order 2022, listed in Annex II or IV of the EU Habitats Directive (92/43/EEC), or Red listed in Ireland) were not recorded during the site visits.

Other than two sightings of Irish hare, there were no direct sightings made of any other mammal species during the walkover of the study area. Trail camera and walkover surveys identified the presence of a number of additional non-volant mammals in the wider area, including Badger and Otter.

No features likely to support roosting bats were located within the application site or surrounding lands. The ponds, fringing scrub and trackways within the greater quarry area all have potential for foraging and commuting bats. Passive bat detectors deployed at the quarry confirmed the presence of five bat species, with Common Pipistrelle and Soprano Pipistrelle the most commonly recorded species. The overall level of activity was regarded as relatively low.

There is a lack of vegetative cover attractive for birds throughout the application site. The lack of cover and feeding opportunities for birds within the study area is reflected in the fact that only two species were observed on the ground within the boundary of the application site during all four site visits. These species were Hooded crow Pied wagtail. A considerably more



diverse bird community was recorded within the overall landholding with a pair of nesting Peregrine Falcon observed within the quarry site.

The field survey recorded the presence of Common Frog within the landholding, outside of the application site. Common Lizard and Smooth Newt have been observed within the landholding in the past. There is no suitable habitat for these species within the application site. No near threatened or endangered invertebrate fauna have been recorded historically in the 2km Grid Square in which the application site is located.

The potential impacts of the proposed development on the receiving environment are discussed, as are the potential for cumulative and in-combination effects and the 'do nothing' scenario. Detailed mitigation commitments are provided to ensure that potential negative impacts on the local biodiversity are minimised.

None of the habitats identified within or directly adjacent to the application site were assessed as being of high value and the biodiversity-related impact of the permanent loss of Spoil and bare ground, recolonising bare ground and the scrub/grassland mosaic occupying the safety banks is considered to be *neutral imperceptible*. The active quarry habitat will increase in extent as a result of the deepening of the quarry floor. The impact to this habitat is considered to be neutral in the medium-term.

There will be no significant loss of breeding or resting places for protected non-volant mammal species. Any non-volant mammals utilising the application site are likely accustomed to the existing level of quarry-related disturbance and this will not change as a result of the proposed deepening works. There will likely be a moderate increase in disturbance during the permitted restoration works which will likely result in potential *negative imperceptible* impacts in the *short-term*.

There will be no loss of roosting habitat for bats associated with the deepening of the application site. There will be a minor and highly-localised potential loss of marginal foraging/commuting habitats within the application site, however, these features are considered to be sub-optimal for bat species in general and there is more attractive foraging and commuting habitat available for bats in the wider environment. Potential impacts on bats at the site are regarded as *neutral to slight negative* in the *short-term*.

The awareness training and protocols that will be applied to protect nesting/roosting Peregrine Falcons effectively addresses the potential for disturbance and displacement impacts on birds that are occurring within the quarry site. Due to the generally low value of the application area for birds in general, potential impacts on birds arising from the proposed extension works are considered as *neutral slight to imperceptible in the medium/long term*.

With the implementation of the environmental controls and the mitigation measures outlined above, it is concluded that the residual impacts on habitats and botanical species, birds, mammals (including bats) and other fauna will be *slight neutral* in the *medium to longer term*. In the longer term, the previously permitted Restoration Plan, which encompasses the application site, will likely see a moderate to significant positive effect on local biodiversity.



## 7.0 LANDS, SOILS & GEOLOGY

The proposed development lies within an existing, operational, limestone quarry at Killaskillen, Kinnegad, Co. Meath. The proposal is to deepen an area of c. 4.13ha from its current elevation of 70m OD to 10m OD. Regional topography is relatively flat, and the land's surface has a general elevation in the range 70-80m OD. The application area sits within an overall landholding of c. 286ha, in the townlands of Killaskillen, Cappaboggan and Toor.

The land proposed for development is immediately adjacent to, and shares boundary with, the northwestern boundary of the main working floor of the existing limestone quarry. The application site is already included in the EPA Industrial Emissions (IE) Licence for the overall operations at the applicant's site (IE Licence Reference P0487-07). This means that operations, emissions and discharges for the existing site are already regulated by the EPA.

The appraisal methodology has been completed in accordance with "Guidelines on the Information to be contained in Environmental Impact Statement Reports" (EPA, 2022) and other relevant Guidance as issued by the Institute of Geologists of Ireland (IGI) and the National Roads Authority (NRA, 2009), where the methodology for assessment of impact is appropriate.

The procedure for determination of potential impacts on the receiving land, soil and geological environment is to **identify potential receptors** within the site boundary and surrounding environment and use the information gathered during the desk study and field work to assess the degree to which these receptors will be impacted upon. Consideration is given to both the importance of an attribute and the magnitude of the potential environmental impacts of the proposed activities on that cited attribute. With respect to identifying the **potential receptors** for Land, Soil & Geology, Chapter 7 of this EIAR firstly used desk top available information to present baseline information for land use, topography and geological characteristics. Once the baseline was presented, site specific information obtained by drilling and geophysical surveying was then used to assess potential impacts and necessary mitigation measures.

With respect to the baseline environment:

- EPA mapping for land use at the site (Corine 2018) maps the site as "Artificial Surfaces" with the sub category Level 3 Description as "Mineral extraction sites". The site is therefore nationally acknowledged as already being a quarry.
- Land use in the surrounding area is generally farmed as moderate intensity agricultural grassland supporting livestock production. This description applies to field plots adjoining the western, northern and eastern boundaries of ownership.
- Peat extraction occurs in the wider region.
- There is a relatively low-moderate density of one-off single residences in the area, mostly aligned along local roads, with some of these having farmsteads attached.
- Historical land uses were reviewed using Ordnance Survey (OS) maps and aerial photography. The transition of the landscape, over time, was evaluated and documented by the authors and is detailed in Table 7.4 of the Lands, Soils & Geology Chapter.



- There is no soil cover at the site proposed for development because it is already a quarry floor.
- Quaternary and bedrock geology was evaluated. This limestone quarry lies within Waulsortian (Reef) Limestone (GSI 1:100,000 Sheet 13 Geology of Meath). The characteristics of this 'reef' and 'mound' type depositional environment is discussed in the chapter. Overall, the take home point is that this type of limestone is understood to be 'massive' in nature, with few impurities and no surprises. Detail in the Lands, Soils and Geology chapter documents the other types of limestone in the area and their own characteristics.
- The regional bedrock aquifer classification is almost entirely a locally important aquifer which is moderately productive only in local zones (LI). Information relating to the aquifer classification, vulnerability, groundwater usage, wells and springs and other water related characteristics are discussed more fully in the Water Chapter. The same team completed the Lands, Soils and Geology and Water Assessments.
- No evidence of slope instability or potential for landslides are present on the site. As previously mentioned, the site under consideration has already been excavated by one bench and the walls present competent slopes for most of the perimeter. There is a small portion of sloped infill on the western face of the application area, but it is stable. The quarry at Killaskillen is not mapped by the Geological Survey of Ireland as a Geological Heritage site.
- There are no active mines on or near the site. There are no other quarries within 5km. Given the distance and different geological resource being extracted at other permitted extraction sites in the region, it was concluded that this assessment of the proposal for bedrock extraction need not consider sand and gravel pit sites.
- The harvesting of solar energy is becoming popular in the area. An application for planning permission for a solar farm has been lodged by the applicant to the east (PL 22/958). Given the nature of solar farm developments being positioned on the land surface, there is no potential for in combination effects with the hard rock application area that is already c. 15m underground.

Following on from the evaluation of readily available, published, desktop information, the assessment of potential impact on the lands, soils and geology at and surrounding the site continued by review of the information contained in previous environmental impact assessments carried out in connection with various planning applications at the site over the past 20 years. Substantive historical site investigation works were carried out to support previous applications. The results of historical investigations in the northern part of the limestone quarry were used to assist with the assessment of the development works currently proposed. Historical, site specific, site investigations and mapping suggest that there are three types of primary bedrock formations across the site, as follows:

- Very high-quality Reef Limestone (Waulsortian Limestones) [south of internal access road]
- Silty Shale (Tober Colleen Formation) to the north of the internal access road
- Shaley Limestones (Lucan Formation) to the north of the internal access road.

Records for boreholes drilled in 1998 and 2008 were reviewed, plotted, tabulated, evaluated and integrated with the Water Chapter to update and further develop the conceptual



understanding of the site as it is now and how it would be when the proposed development was completed.

Having performed a desktop study and analysis of all the relevant historical site investigation data, a programme of field works was enacted, which included as follows:

- **Evaluation of Quarry Walls, floor and Exposures around and underneath the area proposed for development:** The exposed faces revealed relatively clean, competent limestone, generally massive in structure. Bedrock just below undisturbed ground level displays slightly more weathering but no epikarst was observed. No regular bedding or jointing is present. Apex geologists (2022) refer to possible evidence of faulting in this area. The floor of the application area was always dry, which is expected because it sits elevated and adjacent to the main working area of the limestone quarry. Direct observation shows that the floor of the application area is loose and broken rock to a depth of approximately 3 metres, which understood to be a result of traffic and material's stockpiling at the site. The area to the southeast of the application area is the main operational working quarry and therefore, it is possible to observe the bedrock in an additional bench below the application area. That wall of rock, which underlies the application area and separates the application area from the main quarry, is completely dry, massive limestone with no clay bands and no evidence of water bearing zones.
- **Monitoring Well Drilling:** Seven small diameter monitoring wells were drilled across the entire landholding between 21st October – 8th November 2021 for the purposes of geological confirmation and hydrogeological testing and monitoring. Monitoring Wells were drilled for multiple reasons, which included closer evaluation of groundwater quality close to the sump of the main limestone quarry floor, long-term groundwater level monitoring points outside the application area, and to chase the contact between the Waulsortian Limestones and Tober Colleen Formation. The results of the Monitoring Well drilling demonstrated that the desk study's GSI bedrock geology map not entirely accurate. The bedrock geology map generated in the 1998 application is now proven to be more accurate than the GSI bedrock map. This information was integrated into the final assessment.
- **Geophysical Surveying:** Apex Geophysics were commissioned to carry out a preliminary geophysical survey in October 2021, which was followed up with supplementary fieldwork in February 2022. The final interpretive report was issued on 7th February and is included as Appendix 7C. Detail for the rationale stimulating the geophysical survey and the methodologies adopted are presented in detail in Chapter 7. In conclusion, the geophysical surveys suggested no evidence of structural faulting in the application area. The Apex (2022) geophysics report recommended drilling confirmatory boreholes at locations within the application area, which they label 'PBH8' and 'PBH9'.
- **Production Well Drilling:** Dr. Pamela Bartley supervised the drilling of Production Wells. The purpose of this work overlapped with the objectives of the Water Chapter in that it was the findings of the Site Investigations for the Lands, Soils & Geology assessment that led to the drilling of Production Wells. Detail is therefore presented in the Water Chapter of this EIAR.

Overall, it was concluded that the results from drilling in 2021 and 2022 are consistent with the drilling conducted in 1998 and 2008. The application area is underlain entirely by Waulsortian Limestones which appear to be homogenous to the target floor elevation of 10m OD. Any small bands of Clay encountered in the limestone were so small, relative to the mass



of limestone, that they are considered insignificant. They Clay layers yielded negligible water and similar features were not detected in two of three Production Wells nor the geophysical survey.

Upon conclusion of the Site Investigation phase of the assessment, likely or significant DIRECT impacts were analysed under three primary project phases. In addition to an assessment of DIRECT Impacts, Residual, Indirect, Cumulative and Transboundary Impacts were considered. Mitigation measures and Residual Impacts were presented in Tables of Chapter 7.

With respect to potential DIRECT IMPACTS arising from the **Construction Phase**: All necessary infrastructure is in place. Road access is established. There will be no intensification of rock extraction in the application area. The area has already been extracted to its permitted elevation. Therefore, no direct impacts are identified as likely to occur during the construction (enabling) Phase. This is because overburden has already been stripped from the application area in accordance with existing planning permission.

With respect to potential DIRECT IMPACTS arising from the **Operational Phase**: The primary direct impact identified as likely to occur during the operational stage is the removal of limestone bedrock. This impact is permanent by its nature. The limestone quarry currently operates on a footprint of 77.25 ha. The central portion occupies an area of 24.8 ha and has permission to excavate down to 10 mOD under Planning Ref. 98/2026. The proposed development area of c. 4.13ha is therefore considered small relative to what is already permitted. The potential impact of removing the lands from agricultural potential was considered and deemed moot because the land proposed for development is a quarry and will never have agricultural potential. Neither is there potential for impact on European Sites. A positive impact was identified as the enabling of construction of homes, maintenance of roads and continuation of business activity such as development of Industrial Estates using the material quarried at the site.

With respect to potential DIRECT IMPACTS arising from the **Restoration Phase**: It is concluded that the restoration plan will have a positive impact in the long-term when the land use will have changed from quarrying to biodiversity/amenity.

Each and every element of the Lands, Soils and Geological environment were presented in Impact Tables of Chapter 7. The identification of a potential impact then allowed mitigation measures and residual impacts to be presented.

Residual impacts refer to the degree of environmental change that will occur after the proposed mitigation measures have taken effect. At the onset of the operational stage the development will involve excavation of bedrock by blasting and mechanical means. The direct and negative impact associated with the permanent loss of bedrock material cannot be resolved by mitigation. The mitigating factor is that the overall resource area is large and homogenous. The impact of the extraction of the proposed 4.13ha footprint of limestone is small relative to the magnitude of limestone reserves in the area, region and nation. The most common rock underlying Ireland is limestone and it underlies the majority of the island. Coastal regions in Donegal, Mayo, Clare, Cork, Waterford and Wicklow are underlain by different rock types but the majority of Ireland is underlain by limestone.

Indirect impacts (or secondary impacts) are those which are not a direct result of the proposed activity, often produced away from the project site or because of a complex pathway. Throughout the considerable duration of quarrying activities at the site there has no



identifiable indirect impact on the soils and geology in the area. No indirect impacts are foreseen as part of proposed activities on the application site.

The EIA Directive 2014-52-EU invokes the Espoo Convention on Environmental Impact Assessment in a Transboundary Context, 1991, and applies its definition of transboundary impacts. Given the location (>70km from the border with N. Ireland), the nature, size and scale of the proposed development, it is expected that the impacts of the development would not have any significant transboundary effects with respect to water bodies.

A conclusion of no potential for cumulative impact was concluded. Potential cumulative impacts on other environmental elements such as surface water quality, ecology, noise and dust are examined in other chapters of this EIAR.

Likely interactions were identified as increased dust emissions, increased traffic movements, increased noise emissions, impact upon surface and groundwater quality and flow patterns and potential to impact biodiversity and cause disturbance to habitats in the area. Each of these issues and the mitigation measures proposed are addressed in detail in the relevant sections of this EIAR. The significance of any likely interactions can be mitigated in all cases but one: the extraction of limestone bedrock, the removal of which is permanent, cannot be mitigated against.

The proposed development works do not involve any new land take or any land use change. The proposed development has been designed so as to propose continuation of quarrying on lands and in bedrock that is already excavated. The proposed development is designed so as to avoid any new proposals for breaking ground in greenfield lands. In this way, one avoids proposals for expanding quarrying laterally into farmlands or areas that could have residential or business development potential.

In the case of the proposed development not taking place, the application site would remain at its current elevation on the margin of the central area of the limestone quarry, vehicular access to the floor of the quarry would be more difficult and the limestone bedrock resource available to the nation, in support of development, would be limited because of the need to use some of the planning approved area of the main quarry site, which has permission to 10m OD under Planning Ref: 98/2026), for haul roads.

In the case of the proposed development not taking place, the on-site cement manufacturing plant could require a new source of crushed limestone to be hauled from a further distance, requiring haulage by road, increased traffic and the associated increased emissions. In the absence of new materials being sourced at an alternative location, the manufacturing site would close with a resultant increase in pressure on the construction supply chain, loss of economic activity, loss of employment and reduction in the potential for building homes and industrial units.

It is considered more appropriate to supply the applicant with raw material from the land, soils and geology of the site in close proximity to the cement manufacturing site and areas previously worked. Sourcing of material at a greenfield site at a further remove from the manufacturing plant would significantly increase impacts linked to traffic such as increased combustion of fossil fuels.

Quarrying in the local area is established and the manufacturing plant has been integrated into the local environment. There will be no increase in cumulative haulage rates associated



with extraction and processing of limestone bedrock in the locality because material has been hauled from this location previously under Planning Reference TA/900603.



## 8.0 WATER (HYDROLOGY AND HYDROGEOLOGY)

The 'Water' chapter of the Environmental Impact Assessment Report (EIAR) has been prepared for the proposed development area within an existing, operational, limestone quarry at Killaskillen, Kinnegad, Co. Meath. The purpose of this chapter is to present the baseline hydrological and hydrogeological environment and to then assess the potential impacts, assign mitigation measures and then reassess the potential resultant residual impacts. Potential cumulative impacts are also addressed.

The application site is already a worked limestone zone within the existing quarry, which has been extracted from ground level to an elevation of c. 70m OD. The application site is already part of an overall site whose operations are overseen by the EPA and whose activities are controlled in an Industrial Emissions Licence [EPA Ref. P0487-07 for Breedon Cement Ireland Ltd. (referred to in the chapter as Breedon)], which replaces the former IPPC Licence. All waters arising at the application site are already integrated into the Water Management Systems for the overall landholding and are regulated by the EPA in the Industrial Emissions Licence. Therefore, all site operations, emissions and discharges are regulated.

The Water Chapter and the Lands, Soils & Geology Chapter were created by the same team of geologists, hydrologists and hydrogeologists: Dr. Pamela Bartley, Dr. Colin O'Reilly and Pat Breheny PGeol.

Hydrologically and hydrogeologically, the site is mapped as sitting within the Boyne Catchment (Hydrometric Area 07) and the Kinnegad River catchment. The Kinnegad River flows in an easterly direction along the northern boundary of the applicant's overall landholding. Characterisations, Pressures and other significant information relating to the rivers, lakes and groundwater connected to the site were considered in the assessment completed (i.e., EPA, 2018; 2021). All published data have been employed for the characterisation of the Baseline and the Assessment of Impacts, Required Mitigations and Residual Impacts.

With respect to designations, none of the watercourses in the vicinity of the site are designated areas. However, the Kinnegad and Castlejordan Rivers flow to the north and south of the site, respectively, and both contribute to the River Boyne river system, which is mapped as the 'River Boyne and River Blackwater' Special Area of Conservation (SAC Site Code: 002299) and Special Protection Area (SPA Site Code: 004232). Those SAC and SPA sites are also connected to other SAC and SPA sites. The information presented in the Water chapter has been used by the ecologists in their evaluations as presented in Chapter 6 Biodiversity.

The application site and the project description are detailed in the opening chapters of the EIAR. The information was used by the hydrogeologists in their evaluation. In addition, feedback returned by the Geological Survey of Ireland, pre-planning discussions with Meath County Council and historical consultation output from the DAFM (2016) has been incorporated into the applied methodology.

Overall, the study components comprised as follows:

- Desktop study review of all published national data from the DHLG&H, OPW, EPA, GSI and NPWS. Mapped information and databases for the site and wider region.
- Review of historical planning documentation and assessments for the site and wider area



- Site walkovers, local area visual surveys and discussions with site personnel.
- A field programme that involved surveying and description of groundwater and surface water systems at and in the vicinity of the site. Field gathered information was combined with available hydrometric and hydrochemical data. Intrusive site investigations were undertaken between August 2021 and April 2022. The study period forms part of a longer and continuing record of investigation and monitoring at the site. The 2021 to 2022 investigation involved surveying of on site and off site well heads, Site Investigation monitoring wells (MW's), installation of continuously recording water level sensors (dataloggers), hydraulic response slug testing to estimate bedrock permeability, Geophysical surveying by Apex Geophysics Ltd., Production Well drilling, pumping tests and sequential water quality sampling and laboratory analysis.
- A quantitative review of the established and IE Licenced Surface Water Management Plan. This included review and analysis of dewatering rates, settlement lagoons, treatment of discharge waters and process water management. In addition to the established flow meters, Capital Water Systems Ltd. were commissioned to install another rainfall gauge and flow gauges on selected points in the water management system's infrastructure.
- The hydrological regime and flow capacity of the Kinnegad River was established by Envirolitic's surveying of channel cross sections and streamflow gauging. Field work enabled the development of a hydrological model. Simulations were then performed to quantify the hydraulic capacity of the receiving waters and ability to safely transmit discharge from the application site without increasing flood risk to downstream receptors.

Integration of investigation and monitoring findings informed the update to the site's established CSM (Conceptual Site Model) for the hydrogeological system at the site and the local surrounding area's hydrology and hydrogeology. All works were employed in the population of a Hydrogeological Risk Assessment Framework (UK EA).

The EPA's method (2022) of determining the significance of impacts has been applied, in association with IGI and NRA Guidance. The EIA procedure was followed through the assessment, identification of impacts, mitigation proposals and evaluation of residuals' process. The assessments considered the Direct Impacts associated with three distinct phases: The Construction Phase; The Operational Phase & The Landscaping, Restoration, Decommissioning & Aftercare. Detail for all phases was presented in Chapter 3.0 of this EIAR.

The baseline condition of the receiving environment was evaluated and documented using desktop mapping and published information describing the land, soils, surface water systems, underlying quaternary and bedrock geology, mapped aquifer and groundwater vulnerability classifications and other information relevant to the Water environment. Information sources are listed in the Water Chapter. In addition to national datasets and desktop available published information, an overview of the significant body of historic site investigations at the site and the results of the current site investigation works, completed in 2021 and 2022, were used to supplement the presentation of information describing the baseline environment. Desk study, historic and current site investigation results were then used to complete an Impact Assessment, identification of required mitigation measures and presentation of residual effects, if found.



With respect to available Desktop information used in the assessment, the following is most pertinent to the assessment of the Water Environment:

- The Meath Groundwater Protection Scheme report (GSI, 1996) suggests that *“The topography is generally flat to undulating with elevation generally around 60 to 100 metres above sea level, but ranging from 15 metres along the Boyne valley to around 200-300 metres along the tops of ridges (Slieve na Calliagh, north of Slane and north of Moynalty). The surface water drainage of County Meath is dominated by the River Boyne, which drains more than half the county. The Boyne’s most important tributaries are (downstream of Navan) the Kells Blackwater, Moynalty, Mattock and Devlin rivers, and (upstream of Navan) the Enfield Blackwater, Athboy, Boycetown, Castlejordan, Clady, Deel, Kinnegad, Knightsbrook, Riverstown, Skane, Stonyford, and Yellow rivers. Other significant rivers in Meath are the Dee, Nanny, Inny, Glyde, Liffey, Tolka, Broad Meadow, and Delvin. ....Several of the rivers also drain adjoining counties. **Agriculture is the dominant land use activity in Meath, particularly livestock farming and tillage”.***
- None of the watercourses in the **immediate** vicinity of the site are designated sites with Conservation Objectives. The application area, and the overall working quarries and factories adjacent to the application area, sit in catchments of sites that are designated and have Conservation Objectives. Designated sites in the region, distances from the application area and means of hydraulic connectivity are presented in Table 8.6. Rainfall runoff from the application site has always flowed naturally towards the sump of the main limestone quarry at the site.
- The Water Management Plan (System) incorporates the sump on the floor of the limestone quarry, which pumps water forward to multiple parts of the site including another sump (Terrace), a balancing pond and 2 large settlement lagoons from which there is a licensed discharge to the Kinnegad River, under IE Licence. The point of licensed discharge from the Breedon site is >13km stream flow length from the point at which the Boyne\_030 is mapped as a designated site, which is at Longwood, Co. Meath. Review of EPA HydroTOOL catchments reveals that the overall catchment area is 436km<sup>2</sup> to that point of the commencement of Conservation Objective designation on the Boyne river system. Review of the site’s licensed maximum discharge amount, catchments and EPA HydroTOOL information suggests that at times of approximate equivalent mean flow at the point of confluence between the site’s discharges’ receiving water (that is the Kinnegad River) and the point of commencement of the Designated Boyne, the maximum permitted discharge of 6,150 m<sup>3</sup>/d from the Breedon site combined, including all quarries and lands associated with the Breedon operation, represents <2% of the flow in the Designated River at that start point of its Designation. That <2% of hydraulic relativity would place the contributions from the Breedon site in the ‘little potential for impact’ using WFD GW5 (WFD Ireland, 2004). Moving along the river the proportion of the River Boyne’s flow that could be influenced by the site, will diminish further as the larger catchment area brings more water to the river system.
- The assessment of potential receptors and impacts employed information presented in the Water Chapter detailing local and regional hydrology and the meteorological drivers influencing hydromorphological responses in the river systems.



- Review of the published EPA WFD Reports (EPA, 2018 & 2021) for the catchment in which the site sits, the river to which the discharge occurs and the overall Hydrometric Area (07), lead to a conclusion that the WFD Risk Classification of ‘Under Review’ & the mapped “Moderate Status” (2013 to 2018) were for other reasons than the Breedon site. More details are provided in the Water Chapter. However, it can be concluded that peat harvesting is a main pressure and whilst the ‘Extractive Industry’ is mentioned as a significant Pressure on the Kinnegad\_020 in EPA (2018), the sub category published is the ‘Extractive Industry’ of ‘Peat Harvesting’ rather than hard rock quarrying. Also mentioned, in EPA (2021) for the Boyne catchment’s pressures, are those Pressures caused by ‘Mines & Quarries’, ‘Industry’ (2 IPPC Licences for other industrial sites are listed as Pressures) and ‘Other Significant Pressures’. At no point is the Breedon site mentioned. It is concluded that the extraction of rock at the application site, or operations in the adjacent quarries and factories, has not impacted the Status or Risk categories of the associated rivers.
- Soils, geology, hydrometrics, aquifer classification and other desktop mapping source data are presented and evaluated. CFRAM maps show the application site is **not at risk of flooding**.
- The entire water management system and all its components were presented in detail in the Water Chapter and used in the evaluation. Historic and ongoing surface and groundwater quality were presented and evaluated. No evidence of contamination arising from site activities has been detected in groundwater during operations at the site to date. This would infer that there is no adverse impact on groundwater as a result of the existing site activities. The existing mitigation measures are clearly effective in preventing any contaminants from entering the groundwater at or near the site. Similarly, surface water monitoring data suggests full compliance with the Conditions of the IE Licence (P048-07).
- As part of this assessment, the long-term dataset for local area well’s groundwater monitoring, as supplied by the applicant were analysed and graphed. Trends and commentary are provided in Appendix 8.D. These data are of relevance to the quarry area permitted and currently being worked. These data are included here for the purposes of the development of a conceptual understanding of the site’s overall landscape setting. In overall conclusion, long term monitoring of local wells suggests no potential for interaction with the bedrock in the application area.

Intrusive site investigations completed specifically for the purposes of this assessment of the c. 4.13ha proposed development area included as follows:

- Observation of quarry rock face exposures on the perimeter of the application area and beneath it.
- Bedrock drilling comprising Monitoring Wells and Production Wells. The difference being the diameter of the borehole and the scale of hydraulic testing that can be conducted. Both scales of hydraulic response testing were completed at the application area: both the Site Investigation piezometer response scale and longer duration yield testing similar to the methods adopted in Public Water Supply BH’s yield testing.
- Geophysical Survey.
- Hydraulic response tests in the floor of the application area and bedrock around the site and Pump Tests on Production Wells in the application area.



- Water level recording using dataloggers.
- Sampling and laboratory analysis of groundwater, quarry floor sump and discharge water samples.
- Discharge Flow Monitoring and Rain Gauge Recording.

Site Investigation details for the Water Chapter were considered with the Site Investigations detail presented in Chapter 7 (Land, Soils & Geology). The Non-Technical Summary for the Lands, Soils & Geology Chapter presented the summary for the evaluation of observations of the quarry faces and exposures and the geophysical results (Apex Geophysics, 2022). Of particular relevance to the evaluation of potential impact on the Water Environment, Apex (2022) cite the NE-SW trending fault through the application area. However, there was no geophysical evidence in the returns of geophysical signals from beneath the floor of the application area. In other words, there was no evidence in the rock proposed for excavation. Instead, the orientation of the fault was suggested by Apex (2022) following on from their observations of the exposures in the walls of the application area. Karst infill zones were also mentioned in the geophysics results, but these features are all outside the application area. The clay infill feature closest to the area where deepening is proposed has subsequently been worked and partially excavated in mid-2022 and there was no water in the feature. It is a sticky CLAY infill.

Even though there was no subsurface evidence of structural faulting in the mass of limestone in the application area, the Apex (2022) geophysics report recommended drilling confirmatory boreholes at locations within the application area. The Apex (2022) report references Proposed BHs referenced as PBH8 and PBH9. This Production Well (PW) drilling was subsequently completed, and the system was then tested using conventional PW Testing methods. That PW drilling was completed, with Dr. Pamela Bartley in attendance each day on site. The PWs were drilled and constructed in a way to enable distinct testing and comparison of 'floor water' and deep bedrock water if present. Drilling and the significance of the experiences are expanded upon in full in the Water Chapter. However, in summary, results from drilling in 2021 and 2022 are consistent with the drilling conducted in 1998 and 2008. The application area is underlain entirely by Waulsortian Limestones which appear to be homogenous to the target floor elevation of 10m OD. The competent bedrock is covered in a layer of infill material composed of quarry screenings and stone. The quarry manager confirmed this material was left over from when this area was used for crushing and screening activities.

Following review of historical site investigation, monitoring well drilling, intensive geophysical surveying and production well drilling there is no evidence that the NE-SW structural fault visible in the exposed perimeter walls and faces of the application area acts as a preferential flowpath transmitting groundwater.

Conventional hydrogeological testing for Monitoring Well installations, commonly referred to as 'Slug Tests', determined that the limestone has a relatively low hydraulic conductivity. This is to be expected because the rock is competent and there is no evidence of the secondary permeability that would be required to transmit groundwater.

Conventional hydrogeological testing for Production Wells, commonly referred to as pumping tests, confirmed that the shallow 'floor water' was not connected to a bedrock aquifer. Rather, the layer of broken stone below the quarry floor in the application area acts as a storage reservoir. The perched groundwater above competent bedrock appears to be finite and before each pumping test this reservoir needed to be dewatered before any reliable



aquifer data could be gathered. The water found directly under the floor of the application area could not be sustained. The response to pumping was linear drawdown no matter what the abstraction rate was. This is because it was only an accumulation of water in the broken rock of the floor i.e. the floor was a reservoir and hence a linear drawdown response is returned.

Overall, it was concluded by aquifer testing that the application site is underlain by massive structured Waulsortian limestones with low permeability, in the range  $10^{-10}$  to  $10^{-8}$  m/s. This means that little future groundwater will be encountered in the long term. The results on the competent limestone Production Well (ONGW19) in the eastern area of the application area concurs with the mathematical values applied by the GSI's for their category for a 'Poorly Productive Aquifer', which is what is mapped by the GSI to underlie the application area.

In January 2022 groundwater level dataloggers were installed throughout the site. A Rain Gauge was also installed. Evaluation of groundwater level responses supported the ongoing development of the Conceptual Model for the site, which is that there is little groundwater in the competent Waulsortian Limestone.

Interrogation and comparison of the groundwater contour maps for different seasons suggest that the pre-development groundwater gradient (south to north) is maintained between the limestone quarry sump and the shale quarry sump. There is a divide that corresponds with the contact between the Waulsortian limestones and the Tober Colleen shales. There is local drawdown towards the shale quarry sump. Groundwater levels in the limestone quarry sump (53 mOD) are approximately 20 to 30m lower than groundwater levels outside the site boundary. As such groundwater flow direction within the central part of the ownership boundary tends to be drawn towards the sump. There is no significant difference between the winter and summer groundwater flow regimes at the site. Data for both the winter and summer confirm that the general groundwater flow direction through the site is from south to north. This suggests that the application site is within the Kinnegad River catchment. Both contour maps infer that the peat bog to the south acts as the catchment divide between the Kinnegad River to the north and the Castlejordan River to the south. The groundwater contours suggest that the IE licensed management and dewatering has resulted in the envisaged local impact that is required for the extraction of rock.

Groundwater quality sampling results, upgradient and downgradient of the application area, can be summarised as follows:

- No hydrocarbons were detected in any of the samples.
- MTBE concentrations were below the detection limits of the laboratory.
- The groundwater contains no traces of either Aliphatic or Aromatic compounds.
- Overall, nutrient concentrations in the groundwater were low. Nitrate, Nitrite and ortho-phosphate were below the limit of concentration for most groundwater samples. With respect to those sampling points that returned elevated ammonia concentrations, elevated suspended solids and often presented elevated Total Organic Carbon concentration. It is therefore concluded that the groundwater itself, when not compromised by the monitoring point's construction or the sampling methodology, is low in nutrient concentration.

Similarly, surface water analysis suggests no hydrocarbons present, very low suspended solids and general compliance with most of the parameters of the Surface Water Regulations (2009, as amended).



Similarly for the Discharge itself, laboratory analysis suggest compliance with the requirements of the Groundwater Regulations (2010, as amended 2016) and the Surface Water Regulations (2009, as amended 2019). Nitrate, nitrite and orthophosphate concentrations were all low indicating low nutrient status. Ammonia values on both occasions were 0.10 mg/l. No hydrocarbons were detected in the discharge samples and suspended solids were below the laboratory limit of detection.

The team assessing the site, proposed development and the site's existing and licensed water management components present a thorough and robust description and quantification of flows. The maximum recorded daily discharge flow at the point of discharge was 5,644m<sup>3</sup>/d. Given that the maximum permitted discharge volume of the IE Licence (P0487-07) is 6,150m<sup>3</sup>/d, flow data suggests the minimum amount available to any new groundwater that could be encountered in the application area is (6,150 – 5,644 = 506m<sup>3</sup>/d) under the worst storm rainfall events i.e., 2 notified extreme weather events in 1 week in February 2022. The TOTAL inflow to the balancing pond, recorded by the CWSL flow meter during the selected 'worst case' month of February 2022, was 103,641 m<sup>3</sup>, giving a daily average of 3,701 m<sup>3</sup>/d. Therefore, on an average basis in a winter/early spring storm month, considering the available attenuation on the floor of the main quarry and its associated balancing pond and settlement lagoons, the amount of freeboard in the volume of the IE Licence (P0487-07) can be calculated to be (6,150 – 3,701) = ~2,450m<sup>3</sup>/d. Given that the flow volumes measured already take rainfall runoff from the application area and that little additional groundwater is envisaged for the proposed deepening in the 4.13ha, the available minimum freeboard of ~506m<sup>3</sup>/d and average freeboard of ~2,450m<sup>3</sup>/d available in the current licence, a review of the licence is deemed unnecessary. A Schematic of Water Flow Pathways and the associated daily flows is presented in Plate 8.3 of the Water Chapter. The information is presented for the worst possible case of meteorology, *i.e.*, during February 2022. The detail in the text beneath Plate 8.3 supports the conclusion that a review of the licence is not required, and the current IE Licence is fit for purpose for the proposed development.

A site-specific flood risk assessment was completed for the Kinnegad River. The Flood Risk Assessment is included as Appendix 8.I. In conclusion, the river can accept the maximum permitted and proposed discharge from the entire landholding, including the application site, and will not cause a perceptible increase in flood risk to identified downstream receptors when the river is under flood flow conditions.

Baseline and Site Investigation information were applied to develop a conceptual model for surface water and groundwater flow in and around the application area and the overall site, with reference to downstream receptors. Given that the Conceptual Site Model suggests retention of the pre-development and current water flow regimes, no potential exists for impact to designated sites with water species or water habitat related Conservation Objectives. A schematic of the updated Conceptual Site Model is presented in Plate 8.4 as a cross section through the site. The cross section is presented showing Site Investigation locations and likely groundwater flow. The location, in plan view, of that A-A' Section Line is presented on Figure 8.10. Given that the proposed development is an extension to an area that is already worked, these exposed faces already exist in the permitted area and beneath it (*i.e.*, the boundary of the application area and the current working floor of the main limestone quarry). Regardless of whether the proposed application is approved or not, the same groundwater flow regime will occur. Therefore, the Conceptual Site Model remains as it was in the previous applications. The proposed application is unlikely to introduce significant additional groundwater above that which will enter when the permitted development is approaching its target depth of 10m OD. Rainfall runoff and groundwaters arising at the application area will continue to flow to the sump on the floor of the main



limestone quarry and continue to be discharged to the Kinnegad River. Regionally, groundwater will continue to flow south to north and the peatlands in the southern part of the overall landholding will remain the marker for the surface water catchment divide

An Impact Assessment was completed in accordance with EPA (2022). Direct, Indirect, Cumulative, Transboundary, Do Nothing and Worst-Case Impacts have been outlined, discussed and some presented in detail in Tabular format. Required Mitigation Measures were identified and stated. Potential Residual effects were itemised. It is noted that the application site itself is not self-contained but rather a minor addition to the existing limestone quarry. The purpose of the proposal is to enable better perimeter road access to the permitted main limestone quarry area and to enable efficient extraction of the bedrock resource. Alterations to the IE Licence are not required because both flow measurements in the storm scenario and water balance calculations demonstrate that there is adequate capacity in the current IE Licence. The monitoring programme currently in place will be retained and is deemed fit for purpose. The site monitors their discharge waters in compliance with the Conditions of the IE Licence and this is to continue. The waters discharged represent an integrated picture of groundwater and surface waters at the site and therefore discharge monitoring is enough.

In the absence of Irish Guidance specific to the evaluation of dewatering associated with quarry developments, in addition to the usual evaluation of likely impacts and mitigation measures suggested in EPA (2022), the water team for the site have applied a 'best practice' approach to hydrogeologically focussed assessment of quarrying and dewatering. The stepwise thought-process presented in Boak et. al. (2007) enables a concise presentation of all pertinent works completed at the site. The main risk associated with the proposed depth extension to this quarry is the initially perceived potential adverse impact it could have on the River Boyne and Blackwater SAC. However, the proposed future water discharge volume is possible within the existing permitted 6,150 m<sup>3</sup>/d because the area proposed for development is already within the land mass that collects rainfall and groundwater at the site. The activities are governed and regulated by the EPA under IE Licence. No additional SAC protection measures are required.

Conclusion on the Impact Assessment is that with the application of the Specified Mitigation Measures there will be no residual impact on the water environment. Similarly, it has been determined that there is no potential for Cumulative Impact.

Given that Guidance on Impact Assessment has been applied as per EPA (2022), it is respectfully proposed that the assessment presented also complies with the EIA Directive.



## 9.0 AIR AND CLIMATE

Air quality impacts of the proposed project on receptors which could potentially be affected by the proposed development are considered in this Chapter of the EIAR. The study area includes all areas that could potentially be affected by the emissions from the proposed project. The potential air quality and climate impacts on the surrounding environment that requires consideration for a proposed development of this type includes two distinct stages, the short-term construction phase and the long-term operational phase.

### Construction Phase Impacts

The proposed development involves the deepening of the north-western portion of the quarry extraction area by four extractive benches to 10m OD, over an area of c. 4.13 hectares. This proposal is designed to improve both the viability and sustainability of Breedon Cement's operation through the continued use of locally available raw materials.

There is no significant construction associated with the implementation of the proposed development as the site is currently operational, and the area has already been subjected to quarrying activity with removal of overburden. This application is in relation to the deepening of the existing quarry, and the development will not involve a construction phase and therefore impacts associated with construction will be negligible.

There are no European or Designated Sites within 50m of the site boundary, which is the threshold distance for ecological sensitivity to dust. Therefore, there are no significant Construction Phase air quality impacts predicted for ecological sites from construction works, and this element is not assessed further.

### Operation Phase Impacts

The proposed quarry extension is to ensure an economic source of limestone which will have no transportation emissions associated with its delivery to the manufacturing site. However, it should be noted that there will be no change to the rates of extraction or to the cement manufacturing process as a result of this proposal. Raw material extraction rates will remain at current levels as will the output of cement product.

The impacts associated with the quarry extension will remain the same as the current impacts associated with the operation of the quarry. There will be no change in the substances which may be present in the emissions from the quarry operation and the main emissions to atmosphere will be dust. There will be no increase in plant or machinery associated with the quarry extension and consequently the current overall level of emissions from the quarry will not change.

There will be no change in either the quantity or nature of the substances which will be present in the emissions from the cement manufacturing facility as a result of the proposed development. Cement manufacturing will continue as currently permitted with no change as a result of the proposed development.

### Climate Impact

The principal greenhouse gas (GHG) emissions associated with construction are carbon dioxide, nitrogen oxides, and trace amounts of VOCs from transport and machinery utilised in



construction as well as the continued production of the quarry. For the Do Nothing Scenario, if the proposed development does not proceed then the emissions of GHGs in the area are projected to remain the same. The existing permitted quarry will continue to operate and the GHG emissions associated with existing permitted activities would continue. Therefore, the overall impact of each of the potential scenarios assessed would be the same.

### **Cumulative impact assessment**

The cumulative impacts of this proposed development have been considered in conjunction with known other developments in the immediate area. A review of other existing and / or approved projects in the vicinity of the site was carried out and these projects were considered to determine whether any of these existing / approved projects will likely have significant cumulative effects in combination with the proposed project.

Permission has been sought (Ref 22/958) to build a Solar PV Energy Development on lands to the north east of the proposed quarry deepening area on lands owned by Breedon Cement. The proposed solar development extends over an area of approximately 21.8 hectares in two land parcels (eastern parcel c.18.5 hectares, western parcel c. 3.3 hectares). The development will consist of the installation of Solar Photovoltaic (PV) panels on ground mounted frames / support structures within existing field boundaries; 2 No. 6kVA transformer stations; inverters/transfer units; 1 No. customer ring main unit; underground cabling and ducting; internal site access tracks; site perimeter (stock-proof) security fencing; with new vehicular access from L8021 serving the eastern parcel; and from unnamed access road off L8021, serving the western parcel; and all associated landscaping including screen planting; and site development works.

There is potential for cumulative impacts on air quality to arise during the construction phase of the proposed solar development. The potential cumulative impact relates to dust deposition associated with site activities. As shown in Section 9.4.3, the existing air quality is extremely good with ongoing monitoring demonstrating compliance with all Licence Emission Limit Values and Air Quality Standards and the existing baseline is less than 5% of the permissible levels of dust deposition. The proposed solar development construction phase would involve transport of materials to the site, some ground preparation activity including preparation of site roads and some construction works for infrastructure associated with the proposed solar development. These activities have some limited potential for release of dust and particulate matter. The proposed solar development is located predominantly downwind of and at a distance from the proposed quarry deepening area which minimises the potential for cumulative impacts from air emissions to arise. The existing monitoring programme demonstrates that dust and air quality impacts are well within permissible levels and whatever minor emissions may be released during the construction phase of the proposed solar development will not exert a significant adverse impact on air quality in the area even in combination with the existing emissions from the cement plant and quarry, which will be unchanged if the proposed quarry deepening proceeds.

### **Residual Impacts**

There will be no residual impacts arising from construction. Potential operation phase impacts are predicted to be imperceptible and long-term.



## 10.0 NOISE AND VIBRATION

The potential noise and vibration impacts on the surrounding environment that requires consideration for a proposed development of this type includes two distinct stages, the short-term construction phase and the long-term operational phase.

### Construction Impacts

The proposed development involves the deepening of the north-western portion of the quarry extraction area by four extractive benches to 10m OD, over an area of c. 4.13 hectares. This proposal is designed to improve both the viability and sustainability of Breedon Cement's operation through the continued use of locally available raw materials.

There is no significant construction associated with the implementation of the proposed development as the site is currently operational, and the area has already been subjected to quarrying activity with removal of overburden. This application is in relation to the deepening of the existing quarry, and the development will not involve a construction phase and therefore impacts associated with construction will be negligible.

There are no European or Designated Sites within 50m of the site boundary. There are no significant Construction Phase impacts predicted for ecological sites from construction works, and this element is not assessed further.

### Operational Phase Impacts

The proposed quarry extension is to ensure an economic source of limestone. However, it should be noted that there will be no change to the rates of extraction or to the cement manufacturing process as a result of this proposal. Raw material extraction rates will remain at current levels as will the output of cement product. In particular there will be no change in the frequency or magnitude of blast events.

The impacts associated with the quarry extension will remain the same as the current impacts associated with the operation of the quarry. There will be no change in the noise and vibration impacts associated with the quarry operation. There will be no increase in plant or machinery associated with the quarry extension and consequently the current overall level of noise and vibration impact from the quarry will not change.

### Cumulative impacts

The cumulative impacts of the proposed development in conjunction with current and future developments in the vicinity of the subject site are considered in this section. Guidance published by the European Commission (1999, Guidelines for the Assessment of Indirect and Cumulative Effects as well as Impact Interactions) was considered in carrying out this element of the assessment. A review of other existing and / or approved projects in the vicinity of the site was carried out and these projects were considered to determine whether any of these existing / approved projects will likely have significant cumulative effects in combination with the proposed project.

Permission has been sought (Ref 22/958) to build a Solar PV Energy Development on lands to the north east of the proposed quarry deepening area on lands owned by Breedon Cement. The proposed solar development extends over an area of approximately 21.8 hectares in two



land parcels (eastern parcel c.18.5 hectares, western parcel c. 3.3 hectares). The development will consist of the installation of Solar Photovoltaic (PV) panels on ground mounted frames / support structures within existing field boundaries; 2 No. 6kVA transformer stations; inverters/transfer units; 1 No. customer ring main unit; underground cabling and ducting; internal site access tracks; site perimeter (stock-proof) security fencing; with new vehicular access from L8021 serving the eastern parcel; and from unnamed access road off L8021, serving the western parcel; and all associated landscaping including screen planting; and site development works.

There is potential for cumulative noise impacts to arise during the construction phase of the proposed solar development. The potential cumulative impact relates to noise impacts associated with site activities. Ongoing monitoring demonstrates compliance with all Licence Emission Limit Values for the existing permitted activities. The proposed solar development construction phase would involve transport of materials to the site, some ground preparation activity including preparation of site roads and some construction works for infrastructure associated with the proposed solar development. These activities have some potential for generation of noise. The proposed solar development is located at a distance from the proposed quarry deepening area which minimises the potential for cumulative impacts from noise emissions to arise. The existing monitoring programme demonstrates that operational impacts are well within permissible levels and whatever noise impacts may arise during construction of the solar development will not exert a significant adverse impact in the area even in combination with the existing noise emissions from the cement plant and quarry, which will be unchanged if the proposed quarry deepening proceeds.

### **Residual Impacts**

There will be no residual impacts arising from construction. Potential operation phase impacts are predicted to be imperceptible and long-term.



## 11.0 WASTE MANAGEMENT

The subject site is situated within the Meath local authority area and consequently the proposed development must comply with the waste management requirements of Meath County Council as well as the relevant National and Regional waste management requirements and the requirements of the IE Licence.

### Construction Phase Impacts

There is no significant construction associated with the proposed development. The proposed extension is within the existing quarry footprint and is located within an area where quarrying activity has already been permitted and undertaken. The area has already been quarried so that the overburden materials have already been removed and are being managed within the existing permission. Since the proposed activity simply involves deepening the permitted quarry in this area, and preparations are already permitted and complete, there will be no waste generated during the construction phase. The predicted impacts on the receiving environment are therefore considered to be imperceptible.

### Operational Phase Impacts

The deepening of the limestone quarry will not result in any increase in output from the facility. There will therefore be no change in the rate of waste generation at the facility relative to the permitted situation. Raw material extraction rates will remain the same as currently permitted and there will be no change to the cement manufacturing rate or output as a result of the proposal.

The waste arisings from the proposed development when fully operational will not impact on the waste environment at the facility. The Environmental Management System currently in place at the facility ensures that all waste at the facility is correctly and efficiently managed as it arises.

The predicted impacts on the receiving environment of the wastes generated during the operational phase are considered to be imperceptible.

### Mitigation Measures

There will be no new or additional waste generated as a result of the current proposal. Since there is no construction waste and no construction phase, there is no requirement for remedial or mitigation measures and none are proposed.

There will be no new or additional waste generated as a result of the proposal. There is therefore no requirement for remedial or mitigation measures. All waste will continue to be handled in accordance with existing waste management procedures and in accordance with the conditions of the company's IE Licence.

### Cumulative Impacts

The cumulative impacts of the proposed development in conjunction with current and future developments in the vicinity of the subject site are considered in this section. Guidance published by the European Commission (1999, Guidelines for the Assessment of Indirect and Cumulative Effects as well as Impact Interactions) was considered in carrying out this element



of the assessment. A review of other existing and / or approved projects in the vicinity of the site was carried out and these projects were considered to determine whether any of these existing / approved projects will likely have significant cumulative effects in combination with the proposed project.

Permission has been sought (Ref 22/958) to build a Solar PV Energy Development on lands to the north east of the proposed quarry deepening area on lands owned by Breedon Cement. The proposed solar development extends over an area of approximately 21.8 hectares in two land parcels (eastern parcel c.18.5 hectares, western parcel c. 3.3 hectares).

There is no potential for cumulative impacts to arise during the construction phase of the proposed solar development. The proposed solar development construction phase would involve transport of materials to the site, some ground preparation activity including preparation of site roads and some construction works for infrastructure associated with the proposed solar development. These activities have some limited potential for generation of waste. The proposed development will not lead to the generation of waste as all materials recovered from the quarry will be utilised in the cement manufacturing process on the site.

### **Residual Impacts**

There will be no residual impacts arising from construction. Potential operation phase impacts are predicted to be imperceptible and long-term.



## 12.0 TRAFFIC

The proposed development includes the deepening of the north-western portion of the existing quarry extraction area by four extractive benches to 10m OD, over an area of c. 4.13 hectares at Killaskillen, Kinnegad, Co. Meath. The proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity of the existing cement plant located on the site.

The existing quarry is permitted to extract limestone and shale for which planning was originally granted in April 2000 (Meath County Council (MCC) Reg. Ref. 982026; An Bord Pleanála Ref. PL17.111198). Planning permission was also granted for the development of an asphalt plant north of the quarry in 2001. Both facilities commenced production in 2002. Since this time, several planning permissions have been granted at the site, predominantly relating to increases to capacity and fuel types.

The subject site is located in Co. Meath, approximately 1km south of its border with Co. Westmeath. Lands surrounding the subject site can be described as rural in character. Residential properties in the vicinity of the site primarily comprise of one-off dwellings fronting onto the L8021 Local Road to the east and west of the site.

The application site occupies a total area of approximately 4.13 hectares, whilst the area of Breedon Cement's overall landholding extends to approximately 286.02 hectares.

The application site is accessed via a priority-controlled junction with the L8021 to the northeast. The site access road is approximately 1.1km in length and connects the L8021 with the site office and car park.

Manual 12-hour classified traffic counts were carried out on Wednesday 2<sup>nd</sup> February 2022 at seven junctions between 7:00am and 7:00pm, this time period encompassing the main operating hours of the quarry.

The traffic associated with the proposed development was estimated to be a total of 310 vehicles entering the site access and 310 vehicles exiting the site per day (i.e. a total of 620 trips).

It is proposed to construct a solar photovoltaic (PV) energy development (Meath County Council Planning Application Ref. 22/958) on a site of circa 21.8 hectares on existing greenfield sites to the east and southwest of the access to the existing quarry. The proposed solar development shall include installation of PV panels, associated electrical infrastructure (invertors, control buildings etc.), and ancillary security and site development works. This proposed adjacent development shall utilise a new access on the L8021 Local Road opposite the existing access to the quarry.

The construction of this solar photovoltaic (PV) is expected to commence in 2022 with the development opening in 2023. It is unclear if the construction stage will overlap with the opening of the proposed development, the subject of this Application. However, to ensure a conservative assessment, traffic related to the construction stage of the PV energy development has been added to the background traffic for this traffic assessment for the 2023 (Opening Year) analysis. Traffic related to the PV energy development during its operational stage is considered negligible in relation to operations at the quarry and so these trips have not been added to the network for the future assessment years following 2023.



Following a link capacity analysis of roads within the surrounding road network, it was determined that traffic generated by operations at the site will not result in capacity issues on any of the roads assessed within the surrounding road network during the assessment years 2023, 2028, 2038, so the proposed development will have a negligible impact on the local road network.

Following a junction capacity analysis of the junctions within the surrounding road network, it was determined that traffic generated by operations at the Site shall not result in capacity issues at any of the junctions assessed during the assessment years 2023, 2028, or 2038, so the proposed development will have a negligible impact on the local road network.

As the site is currently operational, and this application is in relation to the deepening of the existing quarry, construction works will not be necessary. The development will not involve a construction phase and therefore impacts associated with construction will be negligible. If the proposed development does not proceed, operations will continue at the current level until the operations permitted under the current permission are exhausted.

An assessment of the sightlines at the quarry access, which included a visual assessment on site, determined that the site access achieves the necessary visibility requirements to the south however, to the north, the adjacent boundary hedge partially restricts visibility in this direction. However, closer to the edge of the carriageway, full visibility is achievable to the north. All HGV traffic turns left when exiting the development which requires exiting drivers to wait for a gap in northbound traffic only, approaching from their right. As the full required visibility is achievable in this direction it is considered that the available visibility from the site access is adequate. The AADT on the L8021 is also low which indicates that frequent gaps in main road traffic will be available for exiting vehicles. Nevertheless, the boundary hedge to the north of the site access, within the applicant's landholdings, will be cutback to maximise visibility in this direction.

There are a sufficient number of car parking spaces provided at the site to accommodate the 210 staff members (direct employees and subcontractors). It is not expected that all employees will be on site at the same time due to shift work at the site. The parking provision will also cater for any miscellaneous trips which may occur in relation to the operations at the site.

There will be no intensification of operations at the existing site due to the proposed development. Therefore, an increase in noise levels, above those associated with the existing operations, will be negligible.

The development will not result in an increase in traffic volumes or operations at the existing quarry site. Therefore, the impact on existing air quality in the vicinity of the site will be negligible.

In conclusion, the results of an assessment of the traffic associated with the proposed development determined that the proposed development will have a negligible impact on the operation of the roads and junctions within the surrounding road network.



### **13.0 ARCHAEOLOGY AND CULTURAL HERITAGE**

This chapter has been prepared in order to assessment the impact, if any, on the archaeological and cultural heritage resource of proposed quarry deepening at Kinnegad Quarry, Killaskillen, County Meath. The assessment was carried out by Faith Bailey (MA, BA Hons, MIAI, MCIfA) of IAC Archaeology.

The proposed development is located at the existing Kinnegad Quarry within the townland of Killaskillen, Parish of Ballyboggan, and Barony of Upper Moyfenrath, County Meath. The site has already been subject to quarrying associated with the Breedon Cement works. There are no archaeological sites within the proposed development area or within 500m. The closest recorded monument consists of the record of an excavated hearth located c. 589m southeast of the proposed development area (ME046-098).

Analysis of aerial photographic record available for the area failed to identify any previously unknown archaeological features. From 1995 to 2005 the site contained structures associated with Lansdown Lodge. In the subsequent years leading to the present, the site has experienced extensive disturbance in the form of permitted quarrying associated with the Breedon Cement works. The disturbed nature of the site and surrounding environs was confirmed during the field inspection.

As the proposed development area has been subject to permitted quarrying that would have removed any archaeological remains that may have existed within the site, there will be no predicted direct or indirect impact on the archaeological resource as a result of the proposed quarry deepening.

There are no cultural heritage sites located in or within the immediate vicinity of the proposed development area. Therefore, there will be no predicted direct or indirect impact on the cultural heritage resource as a result of the proposed quarry deepening.

No archaeological or cultural heritage mitigation is required as part of the proposed development.



## 14.0 LANDSCAPE AND VISUAL

The Landscape and Visual Assessment described the landscape context of the proposed development and assessed the likely landscape and visual impacts of the proposed development on the receiving environment.

Production of the Landscape and Visual Impact Assessment involved a desktop study to establish an appropriate study area, relevant landscape and visual designations in the Meath County Development Plan as well as other sensitive visual receptors. A 5km radius study area was deemed appropriate for type of development in the area in which it is being proposed. This stage culminated in the selection of a set of potential viewpoints from which to study the effects of the proposed development. subsequently fieldwork was undertaken to establish the landscape character of the receiving environment and it helped to confirm and refine the set of viewpoints to be used for the visual assessment stage.

### Landscape Impact Assessment Criteria

When assessing the potential impacts on the landscape resulting from the proposed development, the following criteria were considered:

- Landscape character, value and sensitivity;
- Magnitude of likely impacts; and
- Significance of landscape effects.

Where the sensitivity of the landscape to change is the degree to which a particular landscape receptor can accommodate changes or new elements without unacceptable detrimental effects to its essential characteristics. And where the magnitude of a predicted landscape impact is a product of the scale, extent or degree of change that is likely to be experienced as a result of the proposed development. And where the significance of a landscape impact is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact.

### Visual Impact Assessment Criteria

The visual impact of the proposed development was also assessed as a function of the sensitivity of a visual receptor weighed against the magnitude of the visual effect. The assessment of the sensitivity of visual receptors considered factors such as the perceived quality and values associated with the view, the landscape context of the viewer, the likely activity they are engaged in and whether this heightens their awareness of the surrounding landscape. The magnitude of visual effects was determined on the basis of two factors; the visual presence (relative visual dominance) of the proposed development and its effect on visual amenity. The significance of visual impacts were determined as a function of visual receptor sensitivity and visual impact magnitude.

### Quality and Timescale of Effects

In addition to assessing the significance of landscape effects and visual effects, the quality of the effects were also determined with respect to the following potential categories:

- Temporary – Lasting for one year or less;
- Short Term – Lasting one to seven years;



- Medium Term – Lasting seven to fifteen years;
- Long Term – Lasting fifteen years to sixty years; and
- Permanent – Lasting over sixty years.

### **Landscape And Visual Policy Context And Designations**

The Meath County Development Plan 2021-2027 was reviewed to identify any landscape or visual designations, objectives and policies.

It was established that the site is situated within LCA 15 - 'South West Lowlands'. LCA 15 - 'South West Lowlands', and it was noted that this CA is identified as having; 'High' Landscape Value; 'Moderate / Medium' Landscape Sensitivity, and; 'Regional' Landscape Importance.

### **Landscape Impact**

#### Landscape Value and Sensitivity

Landscape value and sensitivity were considered in relation to a number of factors highlighted in the Guidelines for Landscape and Visual Impact Assessment 2013, which were set out and discussed relative to the application site and wider study area.

Despite the landscape designations in the County Development Plan, the bog areas adjacent to the application site were deemed to identify more readily as post-industrial remnants rather than as a typical rural typology. Another key consideration was that the central study area is already strongly influenced by the existing Breedon Cement Works and adjoining quarry.

The study area was considered to be a complex and productive landscape with typical rural land uses contrasted with extractive industries in the hinterland of Kinnegad. The study area was deemed to not to be a rare or distinctive landscape and instead is a typical rural setting with robust and productive landscape values rather than susceptible scenic or naturalistic values. On balance, the landscape sensitivity to the proposed development was deemed to be Low.

#### Magnitude of Landscape Effects

In terms of physical landscape effects, it was considered that the magnitude of landscape impact is in the order of Low.

#### Significance of Landscape Effects

The Low landscape sensitivity judgement attributed to the study area coupled with a Low magnitude of landscape impact was considered to result in an overall significance of no greater than Slight-imperceptible. The quality and timescale of effects were deemed to be Negative / Permanent.

### **Visual Impact**

Four Viewshed Reference Points (VRP's) were selected and used as a basis to study the visual impacts of a proposal in detail which reflect a range of different visual receptor types, distances and angles.



### **Sensitivity of Visual Receptors**

Verified photomontages showing the extents of the proposed development were prepared for all four of the selected Viewshed Reference Points. All of these viewpoints were deemed to have a sensitivity rating of Medium-low.

### Magnitude of Visual Effects

The proposed quarry deepening was judged to be fully screened by existing vegetation and landform from all Viewshed Reference Points, consequently the magnitude of impact at in all instances were deemed Negligible.

### Significance of Visual Effects

As the magnitude of visual impact was deemed to be Negligible at all Viewshed Reference Points both pre and post mitigation, therefore, by default, the Significance/ Quality of Visual Impact in all instances were deemed to be Imperceptible / Neutral.

No cumulative or in-combination impacts were identified. No interactions with other environmental attributes identified. Proposed mitigation in relation to landscape and visual impacts were considered to be embedded within the design of the proposed development, thus, residual impacts were deemed to be that same as those predicted the prior to the establishment of the proposed mitigation planting.



## **15.0 INTERACTIONS AND CUMULATIVE IMPACTS**

### **15.1 Introduction**

This section of the EIAR has been prepared by Tom Phillips + Associates and deals with likely interactions between effects predicted as a result of the proposed development.

In addition to the requirement under the *Planning and Development Regulations 2001 (as amended)* to describe the likely significant effects of the proposed development on particular aspects of the environment, it is also required to consider the interaction of those effects. As such, these are assessed below.

This section addresses the intra-project significant effects (i.e. those occurring between environmental topics within the project). Inter-project effects (i.e. those which are likely to occur as result of the likely impacts of the proposed development interacting with the impacts of other projects in the locality) have also been considered and it has been established that there are no other known planned / permitted projects that are likely to interact to a significant degree with either the construction or operational phases of the development.

### **15.2 Interactions**

It is noted that all aspects of the environment are likely to interact to some extent and to various degrees of complexity. The likely significant interactions between factors arising from the proposed development are set out in the matrix provided as Table 15.1 below and discussed in further detail in Chapter 15.



**Table 15.1: Matrix of Interactions Between Environmental Factors**

	Archaeology, & Cultural Heritage	Population & Human Health	Biodiversity	Land, Soils & Geology	Hydrology / Hydrogeology	Air Quality/ Climate	Noise & Vibration	Landscape & Visual	Traffic	Waste Mgmt
Archaeology & Cultural Heritage				✓						
Population & Human Health					✓	✓	✓	✓	✓	✓
Biodiversity					✓	✓				
Land, Soils & Geology					✓	✓	✓			✓
Hydrology / Hydrogeology										✓
Air Quality/ Climate									✓	
Noise & Vibration									✓	
Landscape & Visual										
Traffic										
Waste Mgmt										



## **16.0 MITIGATION AND MONITORING**

Mitigation and monitoring measures are detailed in the various chapters of the EIAR. A complete list of all mitigation and monitoring measures is also contained within Chapter 16 of the EIAR. These measures will ensure that any identified potential significant impact is avoided / reduced to an acceptable level.



## **17.0 DIFFICULTIES ENCOUNTERED IN COMPILING ANY SPECIFIED INFORMATION**

In general, no significant difficulties, in terms of technical deficiencies or lack of sources of information, were encountered in compiling the specified information contained in the EIAR.

The proposed deepening of this section of the existing quarry will be consistent with the permitted depths of the adjacent permitted quarry area and is intended to facilitate the efficient extraction of material from the overall quarry. The proposed development is intended to be carried out in phases as outlined in chapter 3 whereby the adjacent permitted quarry area and the proposed development area will be quarried of material in tandem. The proposed development will not result in any increase to the output of the existing limestone quarry or to the production capacity to the existing cement plant.

The assessment provided for the proposed development has had regard to the documentation compiled and submitted as part of previous applications at the site and the Planning Authority Reports which formed part of the analysis for those applications. IT has also had regard to recent and planned developments in the area.

References to published sources of information are acknowledged in the text. A list of all consultants involved in the compilation of information for this Assessment Report is provided in Chapter 1.

The full impact analysis was carried out by experienced consultants and the best available methods were employed to forecast environmental effects.