Lobinstown Quarry

Environmental Impact Assessment Report

Section 2

Reasonable Alternatives

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2 REASONABLE ALTERNATIVES

This section of the Environmental Impact Assessment Report (EIAR) describes the reasonable alternatives considered with respect to the proposed development at the quarry at Heronstown, Lobinstown, Navan, Co. Meath, during preparation of the EIAR. The development will consist of the continuance of operation of the existing permitted quarry and associated infrastructure (ABP Ref. 17.QD.0017; P.A. Ref. LB200106 & ABP Ref. 309109-21), deepening of the quarry extraction area by 1 no. 15 metre bench from 50 m OD to 35 m OD, a lateral extension to the quarry over an area of c. 4.8 ha to a depth of 35 m OD, provision for aggregates and overburden storage, and restoration of the site to natural habitat after uses following completion of extraction, within an overall application area of c. 18.5 hectares. An extraction capacity of up to 300,000 tonnes per annum is sought to provide the applicant with the ability to respond to demand for aggregates in the region. Permission is sought for a period of 20 years in order to extract a known resource with a further 2 years to fully restore the site.

Blasting will continue to be used as the method of extraction, to fragment the rock prior to crushing, screening and aggregate washing using mobile plant on the quarry floor. The existing site infrastructure includes site entrance with c.350 m long paved internal roadway, internal access roads, weighbridge, wheelwash, portacabin office, car park, mobile crushing, screening and washing plant, settlement lagoon system, and other ancillaries, which will be maintained onsite for the duration of the works. An effluent treatment system also exists on-site (Refer to EIAR Figure 3.1).

Discharge of water from the settlement lagoon at the northern boundary of the existing quarry into the adjacent Killary Stream, Keeran River and ultimately the Dee River is undertaken in compliance with existing trade effluent discharge licence consent (Ref. 20/01).

2.1 ALTERNATIVES EXAMINED

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" (DoHLGH 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 1st September 2018 as the new European Union (Planning and Development)(Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). These regulations are now in effect and should remain in force during the expected life of the proposed development. In the interim, the EPA had prepared several draft guidance documents that incorporated the expected provisions of the new law (EPA 2015 and 2017). These Guidelines had been drafted with the primary objective of improving the quality of EIARs with a view to facilitating compliance (with the Directive). On May 17th 2022, the EPA published a final version of its 2017 Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022). This more current guidance contained minor revisions with respect to the 2017 draft guidance and was used during the development of the EIAR. We have reproduced some of the key content from the new 2022 EPA guidance in Appendix 3 General Guidance on Baseline Environment & Impacts of the EIAR.

On the basis of the 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 at eight principal levels.

2.1.1 'DO-NOTHING' ALTERNATIVE

The existing site comprises a medium-sized Greywacke (High polished stone value (PSV)) quarry, which is being worked using conventional blasting techniques following by processing using mobile crushing, screening and washing plant / machinery.

If the development did not proceed, the aggregate resource would continue to be worked within the confines of what is permitted under the current planning permission (P.A. Ref. 200106) whilst the remainder of the proven greywacke resource would remain unused in situ, and the local supply of quality aggregates would be more restricted. Under the 'Do Nothing'

scenario, all quarrying and ancillary activities would be completed under P.A. Ref. 200106 and operations would cease thereafter. The site would then be restored as per the requirements of the existing planning permission (P.A. Ref. 200106).

As the quarry area is currently active, the absence of the proposed development would have significant impact on the material assets within the site, resulting in an identified and workable aggregate resource being left unworked.

The absence of the proposed quarry would have a likely, direct, neutral effect on the material assets in the area beyond the site.

However, the proven mineral resources of the quarry and adjoining lands would remain in situ and thus unutilised at a time when the economy and construction industry are growing and demand for aggregates is increasing.

2.1.2 ALTERNATIVE SOURCES OF AGGREGATES

In general, aggregates used in construction are won from quarries and sand & gravel pits. There are no reasonable alternatives in the near term to the current terrestrial sources of aggregates.

Secondary aggregates cannot be relied upon as a real alternative to primary aggregates. In general, secondary aggregates derived from Construction and Demolition (C&D) are required to meet End of Waste (EoW) criteria in respect of waste materials.

At EU level, the Waste Framework Directive (2008/98/EC) ('the WFD') has previously set the legal framework for waste management in the European Union. The WFD sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, and recovery. It explains when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste EoW criteria), and how to distinguish between waste and by-products. The WFD lays down some basic waste management principles—it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

Article 28 of the European Communities (Waste Directive) Regulations, 2011, transposes article 6 of the 2008 Waste Framework Directive (2008/98/EC). Article 28 sets out the grounds by which a material which is recovered or recycled from waste can be deemed to be no longer a waste (i.e., EoW).

In the absence of end-of-waste criteria set at Community, and/or National Level, article 28(3)(a) of the Regulations allows the EPA to decide on a case-by-case basis whether certain waste has ceased to be waste. The making of an end-of-waste proposal to the EPA is a complex process and to date only four decisions have been issued by the EPA with respect to EoW for recycled C&D waste (i.e., IMS 16th July 2019, Panda Greenstar 13th August 2019, Shannon Valley Plant Hire 11th October 2022 and Enva Ireland Ltd 11th October 2022).

National End-of-Waste criteria have recently been established (12th September 2023) by the EPA for recycled aggregate (EoW - N001/2023). This note establishes the criteria determining when recycled aggregate ceases to be waste under Regulation 27 of the European Union (Waste Directive) Regulations 2011 – 2022. Tables 2 and 3 in Part 3 of Annex 1 of the note

set out the pollutant limit values (PLVs) for recycled aggregates. These criteria are intended for general use rather than different sets of PLVs issued on a case by case basis but may be excessively conservative. Furthermore, the volume of C&D waste suitable for recycling as secondary aggregates for use in construction is very low relative to the overall demand for aggregates (i.e., estimates of c. 5%).

In the long term, the extraction of sand and gravel from marine sources may be implemented as terrestrial sources become depleted or increasingly in conflict in terms of land use and amenity and environmental protection. Today, marine aggregates are dredged from the seabed in the UK and elsewhere around the globe and are used largely in the production of concrete. Currently, no marine aggregate is being exploited in Ireland, although the extraction of marine aggregate from the Irish Sea has been studied (Sutton et al. 2008). The ICF (2017) stated that "It is imperative, that in order to prepare for this likely shortage of reserves, the National Planning Framework commits to investigating further the potential of Ireland's marine aggregates resources and establishing the required regulatory provisions to permit commercial extraction of marine aggregates to address any future shortage in land based aggregates."

In the absence of significant volumes of aggregates from marine and recycled / secondary sources, terrestrial deposits, such as the premium high PSV greywacke gritstone at Lobinstown Quarry, will continue in the near term to be the main source of construction aggregates in Ireland.

2.1.3 ALTERNATIVE LOCATIONS

In considering alternative locations it is a basic principle that minerals can only be worked where they naturally occur. – they are a "tied resource". The products are generally of low unit value. The most significant cost is transportation and as a result most quarries typically operate within a radius of c. 25 km of their market and up to c. 40 km where the quarry produces premium aggregate products such as the high PSV greywacke material at Lobinstown Quarry. The site is located c. 2 km southeast of Lobinstown, c. c. 8.5 km northwest of Slane, c. 9 km west of Collon, c. 10 km southwest of Ardee, c. 14.5 km north-northeast of Navan, c. 16. West of Dunleer, c. 17 km east of Kells, c. 19 km west-northwest of Drogheda, c. 19 km northwest of Duleek, c. 19 km southeast of Kingscourt, c. 21 km south of Mullagh, c. 23 km south of Carrickmacross, c. 25 km northwest of Bettystown-Laytown-Mornington, c. 25 km west of Clogherhead, and c. 25 km southwest of the most southerly outskirts of Dundalk. Access to the N51 Navan to Drogheda National Secondary Road is gained c. 1.5 km west of Slane (Refer Figure 2.1).

This market covers the region of central and northeastern County Meath, most of County Louth less the most northern parts (i.e., north of Dundalk), and the bordering areas of counties Cavan and Monaghan. Dundalk and Drogheda are designated as Regional Growth Centres, which together with Dublin and Athlone form the upper two tiers in the settlement hierarchy of the Eastern and Midland region, as defined in the Regional Spatial and Economic Strategy (RSES) 2019–2031, while Navan is designated a Key Town (EMRA 2019). Furthermore, there are numerous large towns within the market, where development is focused under the new NDP, as well as numerous smaller towns and villages. With fuel prices forecasted to follow an

overall upward trajectory, the practical limit for transport of aggregates will continue to contract the natural catchment area of individual quarries.

In addition, where it is practical, it is generally considered preferable to allow continuance of use and extensions to existing mineral workings in contrast to opening new quarries at 'greenfield' sites. The continued use and extension of the existing quarry along with the deepening of the quarry also has the benefit of lower development costs as there is already an available working quarry face, existing infrastructure such as access roads, processing plant, offices, etc., in place to operate the quarry.

In a previous case pertaining to the Greenport Waste Facility, Limerick, An Bord Pleanála decided that there is no requirement that if a more advantageous site is identified that it would exclude other sites as being unacceptable, and that the suitability of a site can be the primary element in the assessment of an application (ABP 2010).

A fundamental and important consideration in this instance is that there is a site with proven reserves of good quality rock (i.e., produces high PSV aggregates), with existing infrastructure and trained workforce. The current landholding has an established history of quarry working and is in the control of the applicant. It is concluded therefore that the only reasonable option at the present time in practical and environmental terms is continuance of use and extension of the quarry.

2.1.4 SIZE AND SCALE

The Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment state that information on reasonable alternatives, which may include size and scale, should be considered (DoHPLG 2018).

The size of the development is dictated by the physical dimensions of the resource that: (1) lies within the landholding under the control of the operator; (2) is accessible; (3) economically extractable; and (4) ultimately permitted by the planning authority.

The southern boundary of the proposed extension area is defined by a geological boundary which was determined by Ground Investigation (Refer to EIAR Section 6.5.4) defines the limit of the high PSV sandstone/mudstone metasediment unit, that is the rock of interest. The lands to the south of the proposed extraction area where determined to be underlain by less suitable, highly weathered, banded tuff with slaty metamudstones.

Extension further to the east is principally limited by above ground physical constraints rather than geological features. A 220 kV overhead transmission line traverses the eastern side of the landholding in a NNW-SSE orientation. A 10 and 20 m standoff will be maintained to the application and extraction areas respectively.

Another physical constraint is an ephemeral stream /drainage channel to the east of the application area that is rainfall runoff driven. It is proposed to retain this stream and associated hedgerow, while the extraction area will not encroach within 10 m of the eastern site boundary. The western boundary of the proposed extension area is the current eastern boundary of the existing operational quarry site.

The lands north of the northern boundary of the proposed extension area have recently been planted with forestry and were found to be underlain by 4 to 7 m of overburden (Alluvium), and as such the area was not considered economically viable to develop.

The scale of the development refers to the scale or rate of production and is dictated by many considerations, including the volume of the resource, capital costs, and cost efficiencies. Other considerations include dimensions of the site, market demand, maximum permitted production, carrying capacity of the road network, and limitations placed on the operation in terms of mitigations implemented to reduce noise, dust, visual amenity and other environmental impacts. An extraction capacity of up to 300,000 tonnes per annum is sought to provide the applicant with the ability to respond to demand for aggregates in the region. A quarry of this size would be considered to be at the lower end of medium scale for quarry development. Permission is sought for a period of 20 years.

The existing road network around the quarry comprises of rural local roads. The site is situated south of Lobinstown Village with link access to the N2, N51 and N52 National Roads provided via the L1603 which runs adjacent to the quarry site. The L1603 extends in a north to south direction from its junction to the north with the N52 to its junction to the south with the R163 (leading onto the N51). Recent traffic surveys and junction capacity analysis for the Slane Road and access junction has indicated that the roads can accommodate production volumes well in excess of what is proposed at the quarry (Refer to EIAR Section 14).

2.1.5 ALTERNATIVE SITE LAYOUT

The layout largely relates to the logical placement of infrastructure and plant associated with the elements of the process within the area of the site. It is mainly dictated by the commercial imperatives of process efficiency, operational efficiency and cost-efficiency, as well as environmental effects such as noise, dust, and visual impact.

The layout of the facility is driven by the need to streamline the basic processes of extraction, crushing and screening of rock for the production of aggregate materials, as well as the need to minimise any adverse impact and optimise the quarry for a restoration scheme to beneficial after-use. As a result of the historical and current direction and phasing of working, the visual impact of the quarry is being progressively improved in accordance with the landscaping and restoration scheme which will be updated as necessary with respect to the future development within the quarry extension area. Also, the layout and siting of areas for placement of mobile plant and machinery, stockpiling product, and settlement pond system have been sited within the existing quarry area to reduce environmental impact with respect to groundwater, visual impact, noise and dust.

As such, the layout in the quarry has developed over the years and is largely established. Thus, as this is an established quarry with existing infrastructure and stockpiles currently in place, the layout is largely predetermined. Upgrading of the water management system, including settlement ponds and hydrocarbon interceptor has taken place with respect to the existing quarry development and these works will facilitate both the lateral and extension to depth of the total extraction area to 35 m OD.

2.1.6 ALTERNATIVE DESIGNS

Design more closely relates to the visual aesthetics of the development, which is less of a consideration in quarries as compared to enduring and visual imposing residential, retail and commercial developments, public buildings or major pieces of infrastructure. Nonetheless, as negative visual impact can be a major environmental aspect associated with such developments, optimising the design alternatives is considered a priority.

Visual impacts can be resolved through a number of design solutions by varying key aspects such as the location, shape, size, orientation, colour, etc. of the facilities. In this case, the main site activity, including processing plant, is sited on the existing quarry floor and as such benefits from screening afforded by the existing quarry faces, perimeter landscaping and intervening vegetation, including forestry and mature hedgerows. As this is an established quarry, design alternatives are very limited at this point in the life cycle of the development. Consideration has been given to direction of working, phasing of development and progressive restoration of quarry faces (particularly upper southern quarry face) to reduce the visual impact from views to the north ((Refer to EIAR Figures 1.3 & 3.1 to 3.3).

As a natural consequence of the planning process, alternative schemes in terms of the working phases, face heights, direction of working and site restoration, etc. have been considered. The final scheme adopted has been determined by a process of examination and elimination to be most appropriate for the site. The detail with respect to the quarry design is described under Section 3.2.2.2, titled "*Description of Design*".

2.1.7 ALTERNATIVE PROCESSES

As this is an established quarry with infrastructure in place, no alternative working method was considered. Conventional drilling and blasting methods are used in the breaking of quarry rock faces. Extracted rock is loaded by excavator or front-end loader to a mobile crushing and screening plant at the quarry face. The crushing and screening operation comprises primary, secondary and tertiary stages to produce the range of sizes required. The aggregates produced are then stockpiled and subsequently loaded out by a front-end loader to road trucks for transport off site. A significant advantage of using mobile crushing and screening equipment is that the plant can be located close to the working face thereby reducing the impact of the plant with respect to dust, noise and visual intrusion.

Processing generally occurs on the floor of the quarry using mobile crushing and screening equipment to produce saleable aggregates. There are no viable alternatives to this widely used, conventional method of quarrying.

While the process is largely determined by the principle of best available technology (BAT), process options can include such aspects as management of the process that affect the volumes and characteristics of emissions, residues, traffic and the use of natural resources. The precise working method and phasing to be implemented was determined following a detailed examination of various environmental issues.

2.1.8 ALTERNATIVE MITIGATION MEASURES

The central purpose of an EIAR is to identify potentially significant adverse impacts at the pre-consent stage and to propose measures to mitigate or ameliorate such impacts. There are three established strategies for impact mitigation - avoidance, reduction and remedy, and thus it may be possible to mitigate effects in a number of different ways. The EIAR describes the various options and provide an indication of the main reasons for selecting the chosen options, including a comparison of the environmental effects.

2.1.9 CONSULTATION ABOUT CONSIDERATION OF ALTERNATIVES

The EIAR has been prepared by specialist Mineral Planning and Environmental consultants with over 30 years' experience in preparing EIAR for quarry developments. Consultation has also taken place with sub-consultants appointed to prepare studies on specialised subjects. These include hydrogeologists, geologists, ecologists, traffic and archaeological consultants (Refer to Section 1.9). The proposed development relates to the continuance of operation of the existing permitted quarry and deepening / extension of the quarry extraction area, and as such the impacts of the proposed development and concerns of local residents and landowners are well understood and have been considered in the EIAR.

It is acknowledged that there is need for quarries in the area to meet local and regional demand. There is a potential shortfall in the supply of aggregate given the growing population of, and demand for housing, roads and other infrastructure in, counties Meath and Louth, particularly in Navan and Drogheda, which are two of the fastest growing towns in the State (Refer to Appendix 1.1: Need for Development).

The site is located c. 2 km southeast of Lobinstown, c. c. 8.5 km northwest of Slane, c. 9 km west of Collon, c. 10 km southwest of Ardee, c. 14.5 km north-northeast of Navan, c. 16. West of Dunleer, c. 17 km east of Kells, c. 19 km west-northwest of Drogheda, c. 19 km northwest of Duleek, c. 19 km southeast of Kingscourt, c. 21 km south of Mullagh, c. 23 km south of Carrickmacross, c. 25 km northwest of Bettystown-Laytown-Mornington, c. 25 km west of Clogherhead, and c. 25 km southwest of the most southerly outskirts of Dundalk (Refer Figure 2.1).

This market covers the region of central and northeastern County Meath and most of County Louth less the northernmost parts (i.e., north of Dundalk), as well as the bordering areas of counties Cavan and Monaghan. Dundalk and Drogheda are designated as Regional Growth Centres, while Navan is designated a Key Town (EMRA 2019). Furthermore, there are numerous large towns within the market, where development is focused under the new NDP, as well as numerous smaller towns and villages. With fuel prices forecasted to follow an overall upward trajectory, the practical limit for transport of aggregates will continue to contract the natural catchment area of individual quarries.

By their nature aggregate resources can only be worked where they occur. The products are generally of low unit value, with the most significant cost being transportation. Therefore, most quarries typically operate within a c. 25-30 km radius of their market. The quarry lies in an area loosely delineated by the M3 and M1 to the southwest and northeast, respectively, and the N52 and N51 to the northwest and southeast, respectively. Most of the major towns within

25 kms lie on these national routes, and these routes largely define the practical limit of the market.

Thus, the proposed development has the benefit of reasonable access to the regional and national road network to meet future demands for aggregate in the area. It will ensure the continued viability of aggregate supply in counties Meath, Louth and the surrounding region.

In addition, where it is practical, it is generally considered preferable to allow continuance of use and extensions to existing mineral workings in contrast to opening new quarries at 'greenfield' sites. It is expected that production of construction aggregates will grow significantly as Ireland's population and economy continue grow and the construction sector tackles the legacy of the Global Financial Crash and Covid-19 pandemic, which has manifested most acutely in a chronic housing shortage and delayed infrastructure projects.

2.2 REFERENCES

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2.3 FIGURES

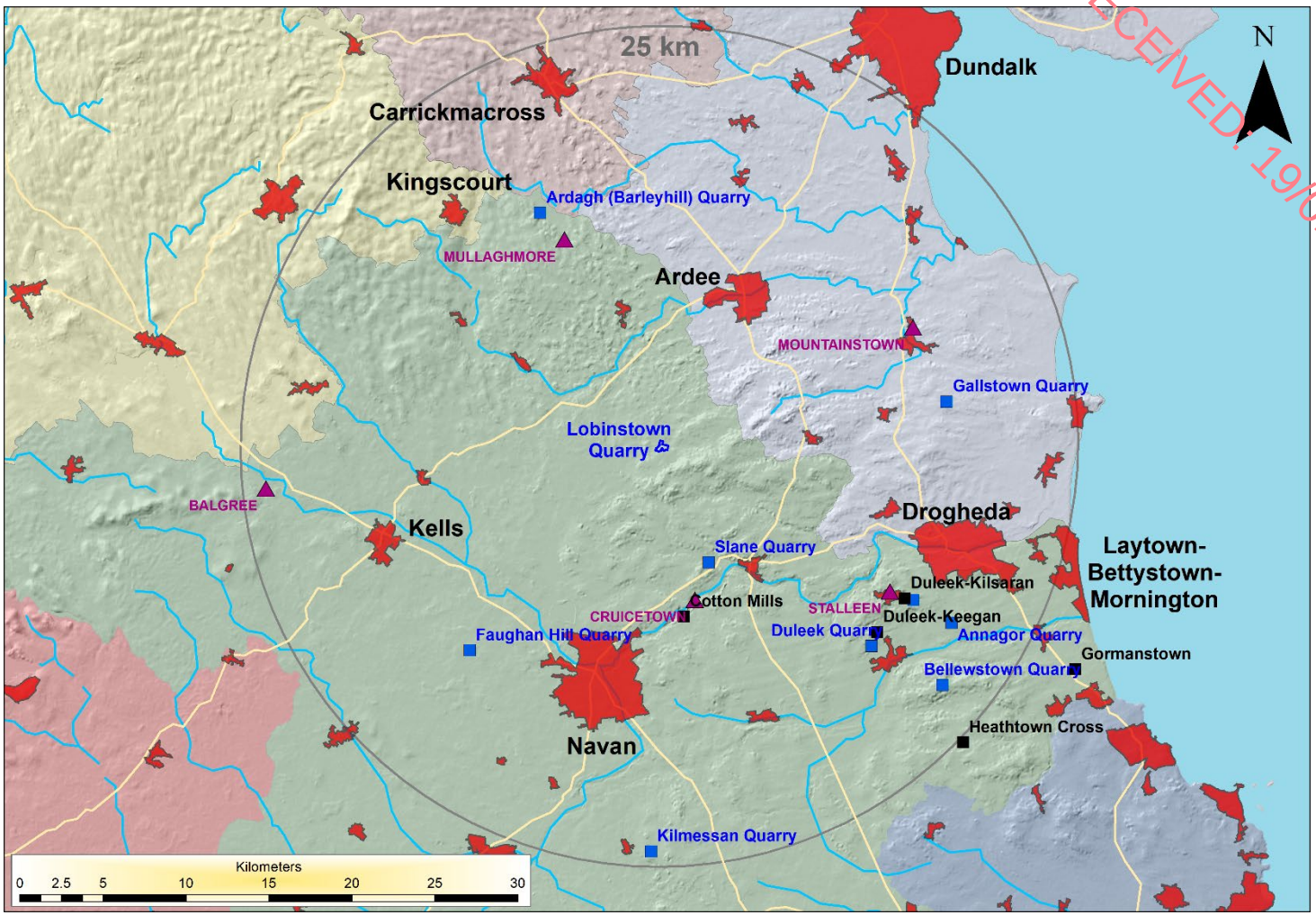

Figure 2.1 Map of Wider Region around Lobinstown

Hill-shaded relief map of Lobinstown Quarry and surrounding region showing 25 km radius market around quarry. Location of active quarries in 2014 (■), sand and gravel pits (▲), and active sand and gravel pits in 2021 (■). Major towns and national road network are also shown. Rendered in ArcGIS 10.3.1 using hill-shaded relief map derived from EU-DEM data as a basemap with data from the GSI, CSO and EPA.

JSPE