

Castlepollard Quarry, Deerpark, Castlepollard, Co. Westmeath

Castlepollard Quarry

Environmental Impact Assessment Report

Section 3

Description of the Proposed Project

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Part of the Breedon Group

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3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 INTRODUCTION

This Environmental Impact Assessment Report (EIAR) pertains to a proposed development at an existing limestone quarry at Deerpark, Castlepollard, Co. Westmeath, known as Castlepollard Quarry. The development, will consist of the continued use and operation of the existing quarry (permitted under P.A. Ref. 01/525), including deepening of the quarry, along with minor amendments to the permitted quarry layout comprising an extraction area of c. 4 ha within an overall application area of c. 11.4 ha. The development will include provision of new site infrastructure including water management system, wheelwash and other ancillaries.

3.2 CHARACTERISTICS OF THE PROJECT

The description of the whole project should comprise information on the site, layout, design, size/scale resource use, waste production, emissions and nuisance, and risk of accidents. It should consider the full life-cycle of these characteristics across all relevant phases of the life of the project. They have the potential to generate different effects at different times and different places, both on- and off-site, from construction through to operation, and in some cases to decommissioning, closure and restoration (EPA 2017).

3.2.1 THE EXISTING SITE

3.2.1.1 General Site Description & Layout

The site is located in the Townland of Deerpark c. 2 km southeast of Castlepollard and c. 13.5 km northwest of Delvin, Co. Westmeath. The quarry is located on the southwest side of, and with direct access onto, the R395 regional road connecting Edgeworthstown, Castlepollard, Collinstown and Delvin (Refer to Figure 1.2 & 1.3).

The site is roughly rectangular with an axial orientation of NW-SE. The proposed extraction area is irregular in shape and runs axially to the southern boundary occupying the central and southern sections of the site. The site is bounded by a copse of trees on both the eastern and western boundaries and by hedgerows on the remaining boundaries, with stock fencing on the boundaries of the access road to the main site entrance. The access road extends from the northeastern corner of the main section of the site c. 130 m to the R395 regional road. Sight distances at the site entrance of at least c. 160 m are achievable in both directions along the R395 at a distance of 3 m back from the hard shoulder. To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility is provided.

The site occurs at an elevation of 88 m AOD along the northern boundary and a maximum elevation of 128 m AOD within the site and along the longitudinal axis of the ridge. The surrounding lands are largely agricultural, specifically pasture, with a substantial level of forestry plantation in the wider area. The topography of the region is characterised by a rolling, hilly landform with prominent hills

topped with cherty limestone with enclosed lakes and areas of peat deposits. The site is situated near the northern end of the Carboniferous limestone terrain of the Irish Midlands, where elevations typically vary from 90 to 200 m AOD.

Land-use in the area consists of a patchwork of variably small to large agricultural fields, which are predominantly held in pasture, with lesser coniferous and mixed forest, and transitional woodland scrub. There are two remnant areas of mixed broad leaved woodland located on the verges of the main quarry area. The dominant species are Ash and Hazel, with hawthorn, blackthorn, holly, willow, ivy, bramble and gorse.

Although pasture is the dominant land use in the wider area, there is a history of quarrying, with a few active and disused/restored quarries in the wider area, such as at Whitehall c. 2 km to the southwest, Ankerland c. 1.5 km southeast of Fore, and Blackmiles and Baronstown c. 2.5 km east of Crookedwood.

Castlepollard Quarry is located in an area between Lough Lene and Lough Derravaragh that is characterised by NW-SE oriented ridges and a resulting parallel drainage system.

The application site is situated in the Inny (Shannon) Sub-Catchment (SC_030), part of the Upper Shannon Catchment (Hydrometric Area 26F). The site is a hill sitting on the landscape and the topography falls on all sides from the hilltop. The site position and surrounding topography is such that the site appears to straddle the catchments of two streams (see EIAR Figure 7.8). Each of the streams that drain these small catchment areas flow southwest towards the Yellow (Castlepollard) River, which rises in Collinstown and outfalls into the northern end of Lough Derravaragh. No part of the site is hydrologically connected to Lough Lene. The nearest part of the catchment that drains to Lough Lene is 570 m to the northeast of the site under consideration here.

The quarry layout comprises an extraction area of c. 4 ha within an overall application area of c. 11.4 ha (Refer to EIAR Figures 1.2 & 1.3). The applicant has full control of the lands via a leasehold interest in the property. To date, extraction has taken place in the northern and central sections of the quarry. The quarry comprises disturbed ground in a large, level processing area located in the northern section of the site and a central horseshoe-shaped extraction area driven into the northern end of the limestone ridge. The extraction area is bordered by copses of trees on the flanks of the ridge with grassland atop, which has been stripped of overburden within the area proposed for extraction. A perimeter earthen berm has been constructed and seeded on the boundaries of the extraction area at the southern end of the site. The floor of the existing quarry is at c. 88 m AOD.

The surrounding area is typically agricultural land, mostly pasture and forests, with dispersed farmsteads and diffuse, clustered or more rarely ribbon development along roadsides and around villages. The residences in the locality are shown on Figure 4.1. The County Development Plan policy recognises that most of the county including, the wider area around Castlepollard, are Rural Areas Under Strong Urban Influence in respect of rural housing demand and need. In general, the provision of single houses in the open countryside is based on the core consideration of demonstrable economic or social need to live in a rural area, and compliance with statutory guidelines and plans. The closest large residential settlements to the site, is Castlepollard c. 2 km to the northwest. Excluding the R395 Regional Road, roads

in the wider area are of a local character and typical of a rural location. The site is situated in a predominantly rural area of central north County Westmeath.

3.2.1.2 Planning History

Historically, the quarry had been used for the extraction of limestone since the early 1900s by Westmeath County Council, among others. In 2001, P. Clarke & Sons Ltd. applied for planning permission to reopen/work the quarry and install a bituminous macadam manufacturing plant. The development involved installation of the following infrastructure: crushing and screening plant, a bitumen plant, including a 20 m high exhaust stack, a plant control room, weighbridge and site office. The in-situ resource comprised 2 M tonnes, and with an extraction rate of c. 100,000 tpa, was estimated to last 20 years. The method of extraction of the limestone used a combination of blasting and mechanical digging. An average extraction capacity of 100,000 tonnes is anticipated as part of the proposed development.

The Council issued a notification of decision to grant conditional planning permission (P.A. Ref. 01/525) for the development on the 7th December 2001. The decision was challenged by third party appeals to An Bord Pleanala. The Bord decided to grant permission for the said development in accordance with the said plans and particulars, subject to 18 conditions specified in the Second Schedule (PL 25.128072).

On 15th September 2004, P. Clarke & Sons applied to the Council for a change in use of residence from a domestic house to an office, specifically for use as the site office. The Council granted planning permission for the change of use on the 20th June 2005, which was not appealed (P.A. Ref. 04/2262).

The quarry interest was acquired in 2017 by the applicant, Lagan, who have leasehold interest in the lands.

On the 3rd November 2017, Lagan Bitumen Ltd applied under Section 42 of the Planning and Development Act 2000, as amended to "Extend Appropriate Period" for the quarry development. As noted by the planning officer in consideration of the extension of duration application, the asphalt plant has been removed from site and the weighbridge, weighbridge building and office still exist at the site entrance. It was estimated at the time that the quarried area was c. 1.5 ha and that substantial works have been carried out pursuant to the planning permission. It was considered that the development to which the permission relates was commenced before the expiration of the appropriate period sought to be extended, that substantial works were carried out pursuant to the permission during that period, and that the development will be completed within a reasonable time. The Council subsequently recommended that an extension of the appropriate period of planning permission (P.A. Ref. 01/525) for a period of 5 years plus one year for final re-instatement.

The Schedules of Conditions attached to P.A. Ref. 01/525, PL 25.128072 and decision for extension of appropriate period are listed in Appendix 2.

The quarry is currently being worked dry with infiltration of rainfall to ground on the quarry floor.

3.2.2 PROPOSED DEVELOPMENT

3.2.2.1 Development Overview

The proposed development will consist of the continued use and operation of the existing quarry (permitted under P.A. Ref. 01/525), including deepening of the quarry, along with minor amendments to the permitted quarry layout comprising an extraction area of c. 4 ha within an overall application area of c. 11.4 ha. The development will include provision of new site infrastructure including water management system, wheel wash and other ancillaries. The workable aggregate reserves within the proposed extraction area have been calculated as c. 2 million tonnes (Refer to EIAR Section 6.4.3.2). An average extraction capacity of 100,000 tonnes is anticipated over a 20 year extraction life for the proposed development, plus an additional two years to complete final restoration works.

The floor of the existing quarry is at c. 88 m AOD. It is proposed to develop an additional extractive bench to c. 70 m AOD. The development will include upgrading of the Water Management System. Development of the quarry at depth below the current floor will require dewatering and discharge to surface water. The proposed discharge to surface water will be subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977. The Water Management Plan is presented in EIAR Section 7.0 and includes design specifications for settlement tanks and mechanisms of discharge, and an appropriately sized hydrocarbon interceptor.

The asphalt plant previously granted planning permission under P.A. Ref. 01/525 has been removed and will not be reinstated as part of this proposed application.

There will be no changes to the method of extraction and processing (crushing, screening, rinsing, etc) as a result of this planning application. Drilling and blasting will continue to be utilised with processing of extracted rock using mobile crushing and screening plant located within the quarry void. This will reduce handling of material and will also have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust. The broken rock will be excavated by a combination of either a wheeled loading shovel and / or excavator. Blasted material is then transported to a mobile crushing and screening plant, located on the quarry floor, where material is processed into various grades of aggregate depending on market demand and stored in designated stockpiles.

Plant and machinery that operate at the application area consist of tracked excavators, wheeled loaders and mobile processing plant. Ancillary plant, such as a drilling rig and a water bowser, will be deployed on an intermittent basis.

The volume of traffic generated by the proposed development will result in an average daily vehicle flow of 44 vehicles, 32 of which would be HGVs. It has been shown that these increases can be comfortably accommodated by the local road network.

There will be no bulk fuels stored on-site. Servicing of vehicles will take place off site. Lubricants and any other hydrocarbons will be stored on spill pallets with containment. All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006). Refueling of mobile plant will be carried out entirely by a licensed third party

using a double-skinned mobile bowser/road tanker which will be mobilised to site on an as needs basis. As a result, there will be no storage of any fuels onsite. Refuelling of construction vehicles will be carried out on a dedicated hard standing area with runoff to a hydrocarbon interceptor.

The proximity to residences and the requirement to protect their amenity value has been given due consideration through scale, siting and layout of plant and machinery, phasing and direction of working and site restoration. A working scheme has been designed for the quarry that provides for the sequence and direction of working. The objective of this scheme is to reduce as far as possible the overall visual impact of the workings (Refer to Figures 3.1 to 3.3). Furthermore, mitigation measures to alleviate any adverse impacts from the development on the environment have been incorporated into the design to ensure that the development can be operated above / within accepted thresholds / standards for this type of development.

The site will continue to be worked from the existing quarry area in a southeasterly direction in a series of 14 to 18 metre benches between 128 and 70 m AOD (Refer to Figures 3.1 to 3.3).

Deepening the quarry below the current quarry floor to 70m AOD will require a sump with a minimum available volume of 4,454 m³ to be maintained. Waters will be pumped from the quarry's sump to a settlement tank system via a hydrocarbon interceptor, which must be designed to ensure drop out of any suspended solids prior to discharge from the site.

The site has the benefit of being strategically located on the R395 regional road, which connects Edgeworthstown and Castlepollard c. 20 and 2 km, respectively, to the northwest with Delvin c. 13.5 km to the southeast. The proposed haulage route for all site-related HGV traffic is therefore directly onto the R395 (Refer to Figure 1.1). As such, site traffic will be immediately directed onto the regional road network and thus avoid adversely impacting the local road network.

The entranceway has substantial splays providing fairly good visibility. Sight distances at the site entrance of at least c. 160 m are achievable in both directions along the R395 at a distance of 3 m back from the hard shoulder. To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility is provided. At the quarry access junction on the R395, when travelling to/from the quarry, it is anticipated that development traffic will be split 50:50 to the northwest and southeast.

In the vicinity of the site, the R395 is approximately 6 m wide with no footways or hard strips. It is bounded on both sides by a grassed verge and a hedgerow, or property boundaries, to its rear. The posted speed limit of the R395 in the vicinity of the site is 80 kph. The pavement of the roads in the vicinity of the existing quarry and the R395 is in good condition.

The quarry will directly employ 2 people, while indirect employment, including local hauliers and contractors, will continue to be generated. It is anticipated that indirect employment, i.e., those people who rely directly upon the quarry and the associated business for their earnings, will amount to a further 5 people.

3.2.2.2 Description of Design

Details of the description of design are addressed in Section 2.1.6 Alternative Designs.

Figure 3.1 shows the site layout including the position of the mobile crushing and screening plant, wheel wash, water management system including hydrocarbon interceptor, and other ancillaries. Cross sections through the site also illustrate the effectiveness of working the quarry top-down, with progressive restoration of the back face (Refer to Figure 3.3).

The main site activity including mobile processing plant will continue to be sited on the quarry floor and as such benefit from screening afforded by the existing quarry faces, perimeter berms, hedgerows and trees.

As a natural consequence of the planning and EIA process, alternative schemes in terms of the working phases, face heights, direction of working and site restoration, etc. have been considered. By a process of examination and elimination the final scheme now proposed is considered to be the most appropriate.

3.2.2.3 Description of Size or Scale

The proposed development will consist of the continued use and operation of the existing quarry including deepening of the quarry to 70m AOD, along with minor amendments to the permitted quarry layout comprising an extraction area of c. 4 ha within an overall application area of c. 11.4 ha. The site is roughly rectangular with an axial orientation of NW-SE. The quarry comprises disturbed ground in a large, level processing area located in the northern section of the site and a central horseshoe-shaped extraction area driven into the northern end of the limestone ridge. The extraction area is bordered by copses of trees on the flanks of the ridge with grassland atop, which has been stripped of overburden within the area proposed for extraction. A perimeter earthen berm has been constructed and seeded on the boundaries of the extraction area at the southern end of the site. The development will include provision of new site infrastructure including water management system, wheel wash and other ancillaries. Refer to Figures 1.3 and 3.1 for details of the site layout.

The workable aggregate reserves within the proposed extraction area have been calculated as c. 2 million tonnes (Refer to EIAR Section 6.4.3.2). An average extraction capacity of 100,000 tonnes is anticipated over a 20 year extraction life for the proposed development, plus an additional two years to complete final restoration works.

Residential development in the area consists of dispersed farmsteads and diffuse or sporadic ribbon development along roadsides and around towns and villages. The closest large residential settlement to the site is Castlepollard, which is located c. 2 km to the northwest. There are 10 residences within 250 m, 16 within 500 m and 42 within 1 km of the site planning application boundary (Refer Figure 4.1). There are several clusters of residential dwellings located near the site. A cluster of 6 residences are located within 250 m on the east side of the R395 across from the site entrance and north along the L5743 (i.e., nos. 5-10), while another cluster of 4 residences are located within 250 m west of the site adjacent to the drainage ditch into which it is proposed to discharge surface waters (i.e., nos. 1-4).

There are no occupied residences within the application site or landholding, and the closest is located c. 270 m northeast of the quarry extraction area. There has been a long historical association with quarrying at this location and consideration has been given to screening of the development, phasing and direction of working with respect to receptors, in order to reduce environmental impacts.

The site will continue to be worked from the existing quarry area in a southeasterly direction in a series of 14 to 18 metre benches between 128 and 70 m AOD. The development will be worked in a phased manner to ensure full implementation of the mitigation and restoration measures proposed. The existing workings have been incorporated into the overall phasing of the scheme to ensure a consistent approach to landscaping and restoration within the entire project area. Plans and sections of the design and associated restoration are shown on Figure 3.1 and 3.3.

3.2.2.4 Duration of Permission

This application seeks to secure permission on the remaining reserves within the quarry. This is extremely important if the site is to be worked in accordance with sound planning practice. In particular, the ongoing restoration of the site needs to be considered as part of a restoration scheme for the whole of the site.

Many extractive operations begin without a long term strategic vision, principally because of the tendency for granting of short term permissions only. Such short term permissions lead to a fragmented approach to site operation and in particular to the site restoration.

The working of minerals generally takes place over medium to long term time scales. Without the certainty of a planning permission of reasonable duration there cannot be a long term strategy. This application therefore seeks permission on all of the remaining reserves within the landholding.

Operating under short term permissions is not conducive to sound planning of the site or to the implementation of best restoration practice. There are therefore no sound reasons as to why permission should not be granted over those reserves remaining within the permitted site.

It is considered that the planning authority should have regard to the expected life of the reserves within the site. The need for a reasonable duration of planning permission is also recognised within Guidance issued by the Department of the Environment to Planning Authorities i.e., 'Quarries and Ancillary Activities Guidelines for Planning Authorities (April 2004). Section 4.9 – Life of planning permissions states that "*Where the expected life of the proposed quarry exceeds 5 years it will normally be appropriate to grant permission for a longer period (such as 10 – 20 years), particularly where major capital investment is required at the outset. In deciding the length of the planning permission, planning authorities should have regard to the expected life of the reserves within the site*".

In this case, the applicant already has in place much of the necessary infrastructure together with a buoyant market for the aggregate products.

The proposed development is required for a duration of c. 20 years in order to extract a known resource with a further 2 years to fully restore the site to a woodland/ecological amenity, and to justify the capital expenditure and provide for the continued employment of the current workforce within the local community and a supply of locally sourced construction aggregates.

3.2.3 GOVERNMENT POLICY

Government Policy in both the National and Regional contexts with respect to the proposed development, as well as Planning & Development Control, are addressed in Appendix 1.

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3.3 EXISTENCE OF THE PROJECT

The description of the existence of the project considers all aspects of the project lifecycle from construction to decommissioning. These include the following:

- Construction;
- Commissioning;
- Operation;
- Changes to the project; and
- Decommissioning.

3.3.1 DESCRIPTION OF CONSTRUCTION

3.3.1.1 Land-Use

The site lies in rolling hilly lakelands near the northern margin of the Irish Midlands. Topographically the lands are within the watershed of the River Shannon Basin. The quarry has been developed into the northern flank of a prominent NW-SE oriented hill, with elevations reaching 128 m AOD. The hill contains high quality cherty limestone resources.

The site occurs at a maximum elevation of c.128 m Above Ordnance Datum (AOD) at the summit of the hill into which the quarry is developed, and an elevation of c.88 m AOD along the internal access road (i.e., northern boundary). The surrounding lands are largely agricultural with copses of mature native trees flanking prominent hills and significant acreages of forestry plantation in the wider area, particularly to the west.

The permitted quarry layout comprising an extraction area of c. 4 ha within an overall application area of c. 11.4 ha (Refer to EIAR Figures 1.2 & 1.3). To date, extraction has taken place in the northern and central sections of the quarry. The quarry comprises disturbed ground in a large, level processing area located in the northern section of the site and a central horseshoe-shaped extraction area driven into the northern end of the limestone ridge. The extraction area is bordered by copses of trees on the flanks of the ridge with grassland atop, which has been stripped of overburden within the area proposed for extraction. A perimeter earthen berm has been constructed and seeded on the boundaries of the extraction area at the southern end of the site. The development will include provision of new site infrastructure including water management system, wheel wash and other ancillaries. Refer to Figures 1.3 and 3.1 for details of the site layout.

The processing area is currently located on the floor of the quarry at c. 88 m AOD in the central section of the site, where mobile crushing and screening plant has been installed. The mobile crushing and screening plant is located within the quarry void so as to reduce handling of material and also has the benefit of screening these activities from outside views, and also mitigate impacts associated with noise and dust.

The lands are bounded by agricultural land and afforestation, while the surrounding area is typically agricultural land, mostly pasture and forests, with dispersed farmsteads and diffuse or sporadic ribbon development along roadsides and around towns and villages. The closest

large residential settlement to the site is Castlepollard, which is located c. 2 km to the northwest. Roads are of a local character and typical of a rural location.

There are 10 residences within 250 m, 16 within 500 m and 42 within 1 km of the site planning application boundary (Refer Figure 4.1). There are several clusters of residential dwellings located near the site. A cluster of 6 residences are located within 250 m on the east side of the R395 across from the site entrance and north along the L5743 (i.e., nos. 5-10), while another cluster of 4 residences are located within 250 m west of the site adjacent to the drainage ditch into which it is proposed to discharge surface waters (i.e., nos. 1-4). There is a discernible pattern of clusters of residences on major roads, with widely scattered residences and farmsteads along the more rural roads and lanes.

The area is generally characterised by rolling topography and vigorous hedges with many hedgerow trees, which provide near and some middle distance views, but typically few long distances views. The site is bounded by farmland and copses of trees, with a 10m wide frontage to the R395 via a 130 m internal access road to the northeast corner of the site. Because the quarry has been developed by excavating into the northern flank of the hill, the latter screens all views of the workings in an arc from the northwest anti-clockwise to the east. Presently, there are only intermittent views of the workings along the R395 east of the entranceway with most views of the current quarry workings screened by the copse of trees on the flank of the hill into which the quarry has been excavated. There are limited, middle-distance views further north along the R395, which generally amount to views of the upper quarry face, against the copse of trees defining the rim of the quarry void. However, there will be no significant additional visual intrusion with continuation of quarry operations as the back quarry face progresses southwards. There are also middle-distance intermittent views from rural road L5741. These intermittent views generally amount to views of the upper quarry face.

There has been a historical association with quarrying at this location and consideration has been given to screening of the development, phasing and direction of working and restoration of the upper quarry face with respect to receptors so as to reduce the visual impact, while impacts due to noise and dust are substantially attenuated.

3.3.1.2 Aggregate Reserve Assessment

The aggregate reserves within the proposed extraction area have been calculated following a geophysical survey by Apex Geophysics (Refer to Appendix 6.1), well drilling programme (Refer to EIAR Section 7.5.4) and geological mapping of the quarry faces to refine the geological model for the site.

An aerial drone survey of the site was used to produce orthorectified images and a centimetre accurate Point Cloud for existing topography of the site. Digital terrain modelling (DTM) software was then used to produce 3D models of the existing topography, geological formations, and quarry design.

The following design constraints were incorporated into the calculations (i.e., standard criteria were adopted with regard to face heights, bench widths, haul road design, etc.):

- 1:2 Side slopes for soils and construction of screening berms;
- 1:10 Longitudinal gradient for internal haul road ramps within the quarry;
- Provision for construction of 1.5 m high safety berms along quarry ramps;
- Quarry working face at 80°;
- 3 m Residual benches between subsequent benches;
- The site will be worked from the existing quarry area in a southerly direction in a series of c. 15m benches between 128 and 70 m AOD (Refer to Figure 3.1 & 3.3);
- The final quarry bench 85m to 70m AOD will be developed below the groundwater table with discharge to surface water subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977; and
- For the purpose of calculations, an average rock density of 2.5 tonnes / m³ was assumed.

The workable aggregate reserves within the proposed extraction area have been calculated as c. 2 million tonnes (Refer to EIAR Section 6.4.3.2 and Table 6.3). An average extraction capacity of 100,000 tonnes is anticipated over a 20 year extraction life for the proposed development, plus an additional two years to complete final restoration works.

3.3.1.3 Preliminary Development works

The site is an existing limestone quarry and therefore much of the infrastructure required for this type of extraction operation is already in place. The development will include provision of new site infrastructure including water management system, wheel wash and other ancillaries. Refer to Figures 1.3 and 3.1 for details of the site layout.

The proposed discharge to surface water will be subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977. The Water Management Plan is presented in EIAR Section 7.0 and includes design specifications for settlement tanks and mechanisms of discharge, and an appropriately sized hydrocarbon interceptor.

Refuelling of construction vehicles will be carried out on a dedicated hard standing area with runoff to a hydrocarbon interceptor.

These facilities will be sited within the footprint of the existing quarry area and as such there will be no requirement to strip overburden and/or prepare the ground.

The perimeter of the entire working area has been secured in accordance with the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations.

3.3.1.4 Access

It is proposed to use the existing entrance to the site, which has been serving the quarry development for a number of years. Access to the proposed development is directly onto the R395 Regional Road. All materials from the site are transported directly via Castlepollard c. 2 km to the northwest or Delvin c. 13.5 km to the southeast. At the quarry access junction on the R395, when travelling to/from the quarry, it is anticipated that development traffic will be split 50:50 to the northwest and southeast for arrivals and departures.

There is a well set-back (c. 30 m), splayed, and paved entrance with large heavy-duty lockable metal gates. Sight distances at the site entrance of at least c. 160 m are achievable in both directions along the R395 at a distance of 3 m back from the hard shoulder. To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility is provided.

A wheelwash will be provided to ensure that the wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned.

The access road is c. 10 m wide with a tarmac surface and accommodates two-way HGV traffic flow. A speed restriction of <15 kph applies to all vehicles along the access road.

Warning signs are displayed at appropriate intervals along the property and excavation boundary. The existing boundaries around the site perimeter will be maintained and will be reinforced, where necessary. The boundaries will be maintained in accordance with the operator's obligations under various health and safety legislation. The access gate is kept padlocked outside of the normal working hours.

3.3.1.5 Site Drainage

The application site is situated in the Inny (Shannon) Sub-Catchment (SC_030), part of the Upper Shannon Catchment (Hydrometric Area 26F). The site is a hill sitting on the landscape and the topography falls on all sides from the hilltop. The site position and surrounding topography is such that the site appears to straddle the catchments of two streams (see EIAR Figure 7.8). Each of the streams that drain these small catchment areas flow southwest towards the Yellow (Castlepollard) River, which rises in Collinstown and outfalls into the northern end of Lough Derravaragh. The site and immediate surrounds, the Yellow (Castlepollard) River and Lough Derravaragh are all within WFD Catchment & Hydrometric Area 26: Upper Shannon. No part of the site is hydrologically connected to Lough Lene. The nearest part of the catchment that drains to Lough Lene is 570 m to the northeast of the site under consideration here.

In theory, the marshy pond to the east is within the area of influence. However, site surveying coupled with the extensive drilling programme undertaken onsite suggests that the marshy pond water is separated from groundwater by underlying impermeable peats. Water level in the marshy pond is controlled by an artificial drainage outlet. The low permeability subsoil barrier between the marshy pond and the active quarried area restricts hydraulic connectivity. Therefore, the marshy pond is not, in fact, within the radius of potential future dewatering at the site and is hydraulically disconnected from the underlying groundwater regime.

Sustainable quarry operation requires that the local natural surface water drainage network has adequate capacity to receive and safely transmit the potential discharge rates outlined above. A hydraulic capacity study of the receiving waters was carried out (Refer to EIAR section 7.5.9). The study concluded that the discharge can be adequately accommodated by the receiving stream route and shall cause only a negligible increase in stream water levels. Hence, upgrade works are not deemed necessary on the route to facilitate the predicted discharge during a storm event.

In order to maintain a dry working environment on the floor of the quarry, some rainfall-runoff and groundwater will need to be discharged from site. Such waters will enter local surface water channels and drainage network.

To date, the only waters leaving the site are natural surface overland flows generated by rainfall. There is currently no pumped discharge of waters from the site and therefore no discharge license is required to regulate groundwater and/or surface waters at the site.

The floor of the existing quarry is at c. 88 m AOD. It is proposed to develop an additional extractive bench to c. 70 m AOD. The development will include upgrading of the Water Management System. Development of the quarry at depth below the current floor will require dewatering and discharge to surface water. The proposed discharge to surface water will be subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977. The Water Management Plan is presented in EIAR Section 7.0 and includes design specifications for settlement tanks and mechanisms of discharge, and an appropriately sized hydrocarbon interceptor.

Deepening the quarry below the current quarry floor to 70m AOD will require a sump with a minimum available volume of 4,454 m³ to be maintained. Waters will be pumped from the quarry's sump to a settlement tank system via a hydrocarbon interceptor, which must be designed to ensure drop out of any suspended solids prior to discharge from the site.

In line with standard practice, discharge surface water should be limited to the pre-quarrying discharge rate to mitigate against downstream flooding.

Relatively small amounts of water will be used for the purpose of process water, as follows:

- dust suppression, in the order of ≤ 1 m³/d;
- mobile plant sprinklers for washing of chips of ≤ 2 m³/d;
- wheelwash with a top-up water demand will be less than ≤ 0.5 m³/d.

The process water can be sourced from the sump. Given the nature of site topography any excess water from the above processes shall drain by gravity back to the water management system proposed.

There will be no bulk fuels stored on-site. Servicing of vehicles will take place off site. Lubricants and any other hydrocarbons will be stored on spill pallets with containment. All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006). Refueling of mobile plant will be carried out entirely by a licensed third party using a double-skinned mobile bowser/road tanker which will be mobilised to site on an as needs basis. As a result, there will be no storage of any fuels onsite. Refuelling of construction vehicles will be carried out on a dedicated hard standing area with runoff to a hydrocarbon interceptor.

3.3.2 DESCRIPTION OF COMMISSIONING

On some large projects there is a considerable time delay between the end of construction and the commencement of full operation.

The presence of the existing quarry means that there is little development works required apart from provision of new site infrastructure including wheel wash and water management system (i.e. quarry sump, settlement tanks and an appropriately sized hydrocarbon interceptor).

It is envisaged that these facilities will be commissioned over a 3 to 6 month time frame.

3.3.3 OPERATION OF THE PROJECT

3.3.3.1 Management of the Facility

3.3.3.2 Technical Competences & Site Management

Lagan has appointed a competent quarry manager with the relevant experience of extraction, crushing and screening and haulage of construction aggregates. The site currently employs 1 full-time and 1 part-time staff member and it is not anticipated that these numbers will increase.

3.3.3.3 Environmental Management & Monitoring

Lagan Materials Ltd operates asphalt plants, concrete plants, aggregate quarries, and associated products manufacturing facilities in strategic locations in order to have the ability to service all but the remotest regions of Ireland. The Company's head office is based on the outskirts of Dublin at Rosemount Business Park, Ballycoolin.

The Company has established an environmental management system (EMS) designed to comply with the environmental requirements of the ISO 14001:2015 standard and the Quality Management requirements of ISO 9001:2015. The integrated management system IMS is a two-tier system with this top-level Environmental Manual based on ISO EN 14001:2015 being applicable to all activities. The top-level Quality manual then feeds down to the Factory Production Control (FPC) Quality Plans and the depot specific Environmental Management Plans.

The FPC Quality Plans incorporate the procedures and controls in place to reflect the quality system for asphalt and aggregate production. The Environmental Management Plans (EMP's)

are depot specific and have been designed to comply with the requirements of ISO EN 14001:2015. The EMP's record the procedures and controls in place to reflect the Quality System and the specific environmental aspects and impacts and the legislative requirements applicable at each depot.

The Company has implemented a quality assurance system and an environmental management system and has certification to the ISO 9001 and ISO 14001 standards. The Company's experience and implementation of the systems has identified the advantages of a structured and systematic approach in achieving managerial objectives. The establishment of an IMS will ensure that the objectives and targets that the Company sets themselves in the environmental and quality policies are appropriate.

The Operations Director will implement the company requirements at regional level and is responsible for the establishment of the EMS. The Head of Planning and Environment is responsible for ensuring that the company's EMS requirements are implemented and maintained in order to comply with the requirements of ISO 14001. The Depot (Operations) Manager implements the day to day requirements of the EMS at depot level and will report on the effectiveness of the operation of the EMS. The Managing Director will ensure that sufficient resources are allocated to the system to ensure its satisfactory operation.

A copy of the Environmental Management Plan (EMP) for the Castlepollard Quarry is included in Appendix 10. This will be updated in accordance with any new planning consents or licences.

The EMP contains the following documentation:

1. Environmental Manual;
2. Depot Procedures Manual;
3. Current Planning Permits, Registrations, Licences and Authorisations;
4. Audit and Inspection Sheets; and
5. Environmental Training for Contractors.

The Depot Procedures manual contains procedures and instructions that govern the environment-critical activities of the product/ service in accordance with the stated objectives of the Environmental Manual.

The detailed procedures to be followed, in respect of monitoring for the purpose of demonstrating compliance with Permits/ Licences, etc. are outlined in the Depot Procedures Manual. Monitoring procedures, recording, and reporting procedures and specific procedures for dealing with non-compliances, and corrective actions are outlined in these procedures.

Table 3.1 provides a summary of the Depot Procedures that have been put in place for the quarry at Castlepollard.

The EMP for the quarry will include regular monitoring activities (e.g., Water, Blasting, Noise and Dust) to demonstrate that the development is not having an adverse impact on the surrounding environment.

The facility will also be operated in accordance with current relevant guidance issued by the EPA and DoELHG, i.e.;

- Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals), have been produced by the EPA (EPA 2006); and
- Quarries and Ancillary Activities – Guidelines for Planning Authorities (DoEHLG 2004).

The locations of environmental monitoring stations used to inform the EIAR for the proposed development are shown on the Existing Site Plan of Figure 1.3.

Future environmental monitoring programmes for the site will be submitted to Westmeath County Council for their approval prior to the commencement of quarry activities.

The monitoring programs will be compiled to demonstrate compliance with any environmental conditions attached to any decision to grant planning permission, and also to ensure that the development is not having an adverse impact on the surrounding environment.

Table 3.1 Depot Procedures

Depot Procedure No.	Depot Procedure Title
DP001	Air Quality & Air Emissions Management
DP002	Energy Management
DP003	Waste Management
DP004	Emergency Preparedness & Response
DP005	Legislation Management
DP006	Fuel oil, Bitumen & Chemical storage
DP007	Oil Interceptor Management
DP008	Water Management
DP009	Ecological Management
DP010	Noise & Vibration Management
DP011	Landscape & Visual Impact
DP012	Traffic Management
DP013	Archaeology Impact Management
DP014	End-of-Life Plant Management
DP015	Site Security
DP016	Contractor Management
DP017	Communications, Incidents & Complaints
DP018	Corrective & Preventive Actions
DP019	Site Inspection Checklists
DP020	Accident Prevention Policy



3.3.3.4 Working Hours

The proposed quarry working hours are:

Monday to Friday:	07:00 to 18:00 hours.
Saturdays:	07:00 to 14:00 hours
Sundays/Public Holidays	No working except in the case of maintenance or emergency.

It is considered that the proposed development can operate for the proposed working hours and comply with the EPA Recommended General Noise Limit Criteria (For EPA Scheduled Activities (NG4 2016) Daytime Noise Criterion, 55 dB L_{Ar,T} (07:00 to 19:00 hrs).

3.3.3.5 Duration of the Extraction

The planning application provides for a total depth of extraction down to the floor level of approximately 70 m AOD. The workable aggregate reserves within the proposed extraction area have been calculated as c. 2 million tonnes (Refer to EIA Section 6.4.3.2 and Table 6.3). An average extraction capacity of 100,000 tonnes is anticipated over a 20 year extraction life for the proposed development (subject to economic demand), plus an additional two years to complete final restoration works.

3.3.3.6 Management of Topsoil & Overburden Soils

Consideration has been given to soil and subsoil management. Importantly, the EPA/Teagasc subsoil map clearly shows the dominance of subcropping bedrock and the almost complete lack of subsoil deposits underlying the topsoil across the site. Topsoil and subsoil stripped to obtain access to the underlying limestone resource has been used directly for construction of peripheral screening berms to aid attenuation and visual impact or has been stored for later restoration. The storage areas are vegetated as soon as possible, to reduce both visual impact and erosion.

Stripping was carried out in accordance with the principles of good soil handling. These principles are aimed at reducing possible adverse effects such as smearing and compaction of the soil. Measures which are to be incorporated to achieve this aim include:

- Storage of soils within perimeter security / screening embankment of the site. This is to allow the vegetation of these screening embankments as soon as possible;
- Placement of soils directly on completed sections of the quarry as part of the final quarry restoration;
- Soils will not be handled in wet conditions or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure;
- Soils will not be stripped or placed when the moisture content is high, i.e., after heavy rainfall;

- No soils will be moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust;
- All temporary storage mounds will have slope angles not greater than 1:1.5 and will be re-vegetated as quickly as possible to avoid soil erosion by air and water; and

Topsoil shall be stored to a height not exceeding 3 metres to preserve organic constituents.

Further details with respect to volumes of soils and overburden and mitigations measures for soil handling are contained in EIAR Section 6.6.1 – Land, Soil & Geology.

3.3.3.7 Method of Extraction

There will be no changes to the method of extraction and processing (crushing, screening, rinsing, etc) as a result of this planning application. Drilling and blasting will continue to be utilised with processing of extracted rock using mobile crushing and screening plant located within the quarry void. This will reduce handling of material and will also have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust. The broken rock will be excavated by a combination of either a wheeled loading shovel and/or excavator. Blasted material is then transported to a mobile crushing and screening plant, located on the quarry floor, where material is processed into various grades of aggregate depending on market demand and stored in designated stockpiles.

The rock will be extracted using the conventional extraction methods for hard rock quarries. There are a number of stages to the extraction process, which occur on a progressive basis as the quarry is developed. A pattern of shot holes will be drilled prior to the day of blasting by a specialist drilling contractor equipped with a tracked mounted drilling rig using air rotary drilling. A drilling contractor will be mobilised to site as and when required to undertake drilling operations. The operator will ensure that the drilling contractor uses a drill rig that is properly maintained and is fitted with adequate noise suppression and dust control/ extraction equipment to reduce any impact arising from drilling operations.

Blasting will be undertaken using slurry-based explosives by a company holding a current explosive licence (i.e., Irish Industrial Explosives). The rock will be fragmented utilising standard blasting procedures that have been long established at this location. The primary objectives of these procedures are to efficiently extract rock from the quarry face, while ensuring safety of all persons and property.

Blasting in quarries gives rise to ground transmitted vibrations as well as air overpressure, which also maybe perceptible at nearby residences. In order to minimise these effects, the blast management practice at this quarry will include several mitigation measures, such as: (1) best professional practice in the design and execution of blasting; (2) only certified Shotfirers are used to conduct blasting; (3) millisecond time delays are used in sequential detonation of the explosives to limit the maximum instantaneous charge; and (4) explosive charges are properly confined by a sufficient quantity of quality stemming material.

Efficient blasts ensure as much of the explosive energy as possible is utilised for rock fragmentation, and by implication ground vibration and air overpressure is inefficient use of this energy. Air overpressure values arising from blasting operations fluctuate depending on

the weather conditions, a factor outside the control of operators. The emission limit value should be specified with a 95% confidence limit to address this issue.

The following measures should be considered to reduce the effects of blasting:-

- Optimise blast design;
- Monitor blasts and revise blast design, as required;
- Limit ground borne vibration and minimise air over pressure by:
 - taking care in unusual situations e.g., corners;
 - including geological considerations in blast design;
 - Air overpressure is minimised through proper blast design, avoiding detonation of large unconfined charges, and by consideration of atmospheric conditions before blasting;
 - A blast must be carried out on a specified day as concerns over security does not allow for explosives to be stored on site. In exceptional circumstances or unforeseen circumstances (e.g. late delivery, security, meteorological conditions, etc.) a blast may be delayed or brought forward. Where possible the operator should endeavour to inform the public of the revised blasting timetable;
 - Adequate stemming of holes;
 - Ensure the correct blasting ratio is obtained. The blasting ratio is a measure of the amount of work expected per unit volume of explosives i.e., tonnes/kg; and
 - Notify nearest residences prior to the blast.

The Environmental Protection Agency publication "Integrated Pollution Control Licensing – Guidance Notes for Noise in Relation to Scheduled Activities" states that "*in the case of quarrying and mining operations, the vibration levels from blasting should not exceed a peak particle velocity of 12 mm/sec, measured in any three mutually orthogonal directions at a receiving location when blasting occurs at a frequency of once per week, or less. For more frequent blasting the peak particle velocity should not exceed 8 mm/sec. These levels are for low frequency vibration, i.e., less than 40 Hertz. Blasting should not give rise to air overpressure values at sensitive locations which are in excess of 125 dB (Lin) max peak*".

This is consistent with with Conditions No. 9 to 11 of Planning Permission P.A. Ref. 01/525 (PL 25.128072):

9. *The vibration levels from the blasting shall not exceed a peak particle velocity of 12 millimetres per second (when measured in any one of three mutually orthogonal planes) for any blast when measured at the site boundaries.*
10. *Blasting shall not give rise to air overpressure values at noise sensitive locations exceeding 125 dB (Lin) max peak.*

Ground vibration and air overpressure measurements will continue to be undertaken taken at agreed residences within the area.

The local community will be informed by the Company of the blasting schedule i.e.,

- Residences within 500 m of the quarry will be provided with a minimum of 24 hours' written notice of intention to blast.

- On the day of the blast, all of these identified residents will be contacted by phone approximately 1 hour before the blast is due to take place. A clearly audible warning siren is sounded before each blast. When blasting operations are completed an ALL CLEAR siren is sounded.

Lagan have in place a “Blast Notification Procedure & Blast Monitoring Programme”. A copy of the procedure is provided in Appendix 11. This procedure will be amended as necessary on any grant of planning permission for the quarry development.

This is the extraction method that has been in use at the quarry over many years.

Blasting procedures and a description of any potential environmental impacts, mitigation measures and monitoring of blasting operations is provided in Section 10 – Noise and Vibration.

3.3.3.8 Extraction Design & Phasing

The site will continue to be worked from the existing quarry area in a southeasterly direction in a series of 14 to 18 metre benches between 128 and 70 m AOD. The development will be worked in a phased manner to ensure full implementation of the mitigation and restoration measures proposed. The existing workings have been incorporated into the overall phasing of the scheme to ensure a consistent approach to landscaping and restoration within the entire project area. Plans and sections of the design and associated restoration are shown on Figure 3.1 and 3.3. The following table provides details with respect to the duration of development of the quarry benches top down.

Table 3.2 Phasing & Duration of Development

Bench m OD	tonnes	Duration
128 to 114	259,446	3
114 to 99	498,976	5
99 to 85	560,844	6
85 to 70	708,861	7
Totals	2,028,126	20

Deepening the quarry below the current quarry floor to 70m AOD will require a sump with a minimum available volume of 4,454 m³ to be maintained. Waters will be pumped from the quarry’s sump to a settlement tank system via a hydrocarbon interceptor, which must be designed to ensure drop out of any suspended solids prior to discharge from the site.

Cross sections through the site also illustrate the effectiveness of working the quarry top-down in successive benches, with progressive restoration of the upper back western face to further reduce the visual impact of the development on the surroundings (Refer to Figures 3.1 to 3.3).

The proposed development will enable the operator to fully complete the restoration of both the existing quarry and the proposed development to beneficial after-use. Plans and sections of the design and associated restoration are shown on Figure 3.1 to 3.3.

All crushing and processing will be carried out on the quarry floor being screened by the quarry face and perimeter screening berms. The working scheme has been phased with consideration given to implementation of landscaping proposals and restoration of worked out areas (in

particular the upper quarry face) to further reduce the visual impact of the development on the surroundings (Refer to EIAR Section 11 – Landscape).

The main aim of the landscaping & restoration plan is to minimise the impact of quarrying on the existing landscape of the area both now and into the future. A restoration and landscaping plan has been prepared as part of the application (Refer to Figures 3-2 and 3-3).

A further 2 years will be required to implement and complete final restoration of the site to a secure wildlife refuge/ amenity use. The proposed development will also enable the operator to fully complete the restoration of both the proposed and existing quarry to beneficial after-use.

3.3.3.9 Stability of the Workings

A detailed working scheme/restoration plan (Refer to Figures 3.1 to 3.3) has been prepared. This working scheme was prepared by a qualified mining engineer. In preparing the design, standard criteria were adopted with regard to face heights and slopes, standoffs to site boundaries, etc. (Refer to EIAR Section 3.3.1.2 above).

Excavations at the site will also be subject to the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations. These regulations replace the existing provisions in the Mines and Quarries Act 1965, various Regulations relating to quarries made under that Act, and the provisions of the Safety, Health and Welfare at Work (Extractive Industries) Regulations, 1997 (S.I. No. 467 of 1997), as it relates to quarries. The Regulations are accompanied by a comprehensive set of guidelines outlining how the regulations should be implemented.

3.3.3.10 Processing Methods

A wheeled loading shovel and / or backhoe excavator will be used to feed the blasted rock to the mobile crushing and screening plant, which will be relocated close to the working face so as to reduce handling of materials. Stockpiles will be strategically placed on the quarry floor area and will not be visible from outside views.

All crushing and processing (crushing, screening, rinsing, etc) will be carried out on the quarry floor, which is screened by the quarry face and perimeter screening berms.

The crushing and screening operation will consist of primary, secondary, and tertiary stages to produce the range of sizes required including rinsing of aggregates as necessary to provide chips for surface dressing.

3.3.3.11 Plant & Machinery

The following are brief descriptions of the plant and machinery used on site:

- Drill Rig (mobilised to site as necessary);
- Wheeled loading shovel feeding the mobile crushing & screening plant;
- Backhoe excavator to feed the primary crushing unit at the quarry face;
- Mobile Crushers (Primary, Secondary, Tertiary);
- Mobile Screening units;

- Stacking conveyors for stockpiling of material; and
- Road trucks:
 - 4 axle 20 t capacity rigid bodied tippers;
 - 4 axle 28 t capacity articulated units.

3.3.3.12 Waste Management/Recycling

Waste produced from the development is minimal. Almost all products and by-products arising from processing have commercial value. Any excess material produced as part of the extraction process (e.g., topsoil / overburden / fines) will be utilised in the restoration process.

Waste oils, batteries, scrap metal, etc. will be removed from site for recycling by approved contractors. A licensed waste collection contractor will remove any office/canteen waste requiring recovery/disposal to a licensed waste management facility.

3.3.3.13 Site Safety & Security

Warning signs are / will be displayed at appropriate intervals along the property and excavation boundary. The existing boundaries around the site perimeter will be maintained and, if necessary, reinforced. The boundaries will be maintained in accordance with the operator's obligations under various health and safety legislation. The access gate will be kept padlocked outside of the normal working hours.

The following barrier system has/will be put in place in the interest of public safety and to prevent public access to the quarry.

The barrier system will be as follows:

- The perimeter of the entire working area will be secured in accordance with the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations. All necessary warning signs will be displayed at visible locations along the boundary at appropriate intervals.
- Two rows of boulders of c. 1 m diameter will be placed at the limit of extraction to form a further permanent hurdle.
- There are two remnant areas of mixed broad leaved woodland located on the verges of the main quarry area. The dominant species are Ash and Hazel, with hawthorn, blackthorn, holly, willow, ivy, bramble and gorse. As such these form a substantial natural barrier.
- The existing copses of trees, scrub and hedgerow on the site perimeter will be retained, and if necessary reinforced, for the duration of the workings. Any gaps in the existing boundary which would provide uncontrolled access to the proposed quarry will be blocked by a suitable means and reinforced with further planting as necessary and / or fenced.
- In order to prevent unauthorised vehicular access, the site entrance has a lockable steel gate which will remain closed and locked outside normal working hours (Refer to Section 3.3.1.4).

This barrier is designed to be a permanent, maintenance-free barricade to man and farm animals. Together the berms, existing trees, hedgerows and all other natural vegetation will develop into a permanent, dense & impenetrable barrier. The above measures are considered sufficient to prevent accidental access to the quarry workings.

3.3.3.14 Fuel & Oil Storage

There will be no bulk fuels stored on-site. Servicing of vehicles will take place off site. Lubricants and any other hydrocarbons will be stored on spill pallets with containment.

All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006).

Refueling of mobile plant will be carried out entirely by a licensed third party using a double-skinned mobile bowser/road tanker which will be mobilised to site on an as needs basis. As a result there will be no storage of any fuels onsite.

An impermeable hardstanding pad is located in the northern part of the site adjacent to the stockpiling area. All hardstanding runoff shall be diverted to the hydrocarbon interceptor for the site, which will also have silt storage capacity, prior to outfall. Runoff from the refuelling hardstanding area will drain by gravity to the hydrocarbon interceptor. The hardstanding is therefore appropriate for refueling of mobile plant (e.g., loading shovel), haulage vehicle(s) and emergency repairs, where necessary.

Spill kits will be stored on site and site operatives will be trained in their appropriate usage. The operator will put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.

A final protection measure will be provided by means of a hydrocarbon Interceptor on the inlet to the final element of the water management system, which is the proposed settlement tanks in the northwestern area of the site (Refer to EIAR Figure 3.1).

All waste oils will be collected and removed offsite by an approved waste collection contractor in the area.

3.3.3.15 Water Management

The current active quarry floor is at 88m OD and it is proposed to deepen this by one bench only and this usually results in an excavation depth of 18m, when access routes and slopes are accounted for. This will bring the floor to a future elevation to 70m OD. Works will progress, as dry workings, from the current floor in a south-eastern direction towards the site's boundary and the quarry's plan for phased development suggests that it will be over a decade before the final bench will be excavated from the current floor level to the proposed final level of 70m OD.

The development will include upgrading of the Water Management System. Development of the quarry at depth below the current floor will require dewatering and discharge to surface water. The proposed discharge to surface water will be subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977. The Water Management Plan is presented in EIAR Section 7.0 and includes design

specifications for settlement tanks and mechanisms of discharge, and an appropriately sized hydrocarbon interceptor.

In order to maintain a dry working environment on the floor of the quarry, some rainfall-runoff and groundwater will need to be discharged from site. Such waters will enter local surface water channels and drainage network.

To date, the only waters leaving the site are natural surface overland flows generated by rainfall. There is currently no pumped discharge of waters from the site and therefore no discharge license is required to regulate groundwater and/or surface waters at the site.

Deepening the quarry below the current quarry floor to 70m AOD will require a sump with a minimum available volume of 4,454 m³ to be maintained. Waters will be pumped from the quarry's sump to a settlement tank system via a hydrocarbon interceptor, which must be designed to ensure drop out of any suspended solids prior to discharge from the site.

In line with standard practice, discharge surface water should be limited to the pre-quarrying discharge rate to mitigate against downstream flooding.

Relatively small amounts of water will be used for the purpose of process water, as follows:

- dust suppression, in the order of ≤ 1 m³/d;
- mobile plant sprinklers for washing of chips of ≤ 2 m³/d;
- wheelwash with a top-up water demand will be less than ≤ 0.5 m³/d.

Given the nature of site topography any excess water from the above processes shall drain by gravity back to the water management system proposed.

With respect to dust suppression and any spray waters in the conveyor belts of the crushers/screening units, the onsite PW3 and/or the site's stormwater sump shall provide the waters that do not need to be of potable water quality.

A wheel wash facility will be installed on the site and the roads have sprinkler systems. The site access from the proposed wheelwash to the entrance has been paved with a permeable tarmac surface. Regular sweeping of paved areas including the site entrance will be implemented to reduce the amount of sediment being washed into roadside drainage.

The site is supplied by mains water. Additionally, potable water dispensers from bottled water suppliers are supplied at company sites. It is our understanding that welfare facilities are available at the site. A septic tank and percolation area were previously installed for wastewater management.

3.3.3.16 Employment

Lagan has appointed a competent quarry manager with the relevant experience of extraction, crushing and screening and haulage of construction aggregates. The site currently employs 1 full-time and 1 part-time staff member and it is not anticipated that these numbers will increase.

Indirect employment, i.e., those people who rely directly upon the quarry and the associated business for their incomes, amounts to a further 5 people, e.g., local hauliers and contractors.

3.3.3.17 Transport & Access

Traffic entering and leaving the site will use the existing site access onto the R395 Regional Road. This is the sole access for the delivery of aggregates from the site and will be maintained for the life of the proposed development.

Access to the proposed development is directly onto the R395 Regional Road. All materials from the site are transported directly via Castlepollard c. 2 km to the northwest or Delvin c. 13.5 km to the southeast. At the quarry access junction on the R395, when travelling to/from the quarry, it is anticipated that development traffic will be split 50:50 to the northwest and southeast for arrivals and departures.

There is a well set-back (c. 30 m), splayed, and paved entrance with large heavy-duty lockable metal gates. Sight distances at the site entrance of at least c. 160 m are achievable in both directions along the R395 at a distance of 3 m back from the hard shoulder. To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility is provided.

A wheelwash will be provided to ensure that the wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned.

A weighbridge has been provided to ensure that no trucks leaving the site will be overloaded (Refer to Figure 3.1). In the event of material being spilled on the public road, the quarry operator will ensure that spilled material is removed from the road surface in a safe and timely manner as soon as they notice or are notified that a spillage has arisen. The R395 road in the vicinity of the entrance will be mechanically swept on a regular basis.

The access road is c. 10 m wide with a tarmac surface and accommodates two-way HGV traffic flow. A speed restriction of <15 kph applies to all vehicles along the access road.

An average extraction capacity of 100,000 tonnes is anticipated as part of the proposed development. The volume of traffic generated by the proposed development will result in an average daily vehicle flow of 44 vehicles, 32 of which would be HGVs. It has been shown that these increases can be comfortably accommodated by the local road network. Refer to EIAR Section 14 for details of traffic generation.

There will be no indirect impacts during the construction and decommissioning phases of the development due to the low requirement for mobilisation of earth moving equipment to the site during these phases. It is considered that there will be no significant cumulative impacts with respect to the operation of the proposed development given that the site is removed from other significant projects including extractive, industrial or commercial development in the locality.

The proposed development of the quarry directly employs a work force of two persons i.e., 4 trips per day. There will be occasional contractor, maintenance and delivery vehicles travelling to/from the quarry supporting the needs of the quarry, which will amount to 8 trips per day.

The parking requirements for the proposed development mainly relate to the quarry employees and visitors. It is proposed to provide sufficient parking spaces within the quarry

for employees and visitors. The maximum number of direct employees will be 2, while spaces will be provided for other contractors. A total of 6 parking spaces will be provided. Adequate parking will be provided adjacent to the site office and weighbridge for employees and visitors. Appropriate signage will be provided to direct traffic within the quarry area via a one way system as illustrated on the Site Layout Figure 3.1.

3.3.4 SITE INFRASTRUCTURE

The site is an existing limestone quarry and therefore much of the infrastructure required for this type of extraction operation is already in place. The attached Site Layout Figure 3.1 shows the site layout including the position of the mobile crushing and screening plant, proposed wheel wash and water management system including hydrocarbon interceptor, and other ancillaries.

The presence of the existing quarry means that there is little development works required apart from provision of new site infrastructure including wheel wash and water management system (i.e. quarry sump, settlement tanks and an appropriately sized hydrocarbon interceptor).

Refuelling of construction vehicles will be carried out on a dedicated hard standing area with runoff to a hydrocarbon interceptor.

A weighbridge has been provided to ensure that no trucks leaving the site will be overloaded (Refer to Figure 3.1).

The processing area is currently located on the floor of the quarry at c. 88 m AOD in the central section of the site, where mobile crushing and screening plant has been installed. The mobile crushing and screening plant is located within the quarry void so as to reduce handling of material and also has the benefit of screening these activities from outside views, and also mitigate impacts associated with noise and dust.

3.3.4.1 Site Utilities

A 38 kV power line is located within the northwest boundary of the site (Refer to Figure 1.3). An overhead telephone line serving the property crosses the R395 just north of the site entrance connects with the site office (Refer to Figure 3.1).

The site is supplied by mains water for the toilet. Additionally, potable water dispensers from bottled water suppliers are supplied at company sites.

With respect to dust suppression and any spray waters in the conveyor belts of the crushers/screening units, the onsite PW3 and/or the site's stormwater sump shall provide the waters that do not need to be of potable water quality.

No existing services (water / telephone / power) will have to be relocated as part of this development.

3.3.4.2 Site Lighting

The lighting for this development will be that attached to any mobile equipment, to the processing plant and utilised by the site office. For those short periods when the operation will be working into darkness (i.e., over winter months), the operators will ensure that sufficient lighting is

provided to ensure safe operations. All lighting will be directed downwards and into the quarry. As most quarry activity will be below ground level, light pollution from site activity will be minimal.

3.3.5 EXCEPTIONAL OPERATIONS

There will be no major servicing of plant and machinery carried out on site apart from routine maintenance and running repairs.

3.3.5.1 Accident Prevention and Emergency Response

As outlined in Section 3.3.3.3, the operator has put in place an Environmental Management System (EMS) that will address such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in impacts on the environment.

A copy of the Environmental Management Plan (EMP) for the Quarry is included in Appendix 10. In order to prevent and mitigate the environmental impacts of accidents and emergency situations, the Company has established and maintains procedures to identify and respond to these situations. The Emergency Preparedness and Response Depot Procedures Manual (DP004) details how this function is managed.

The Company will review and revise, where necessary its emergency preparedness and response procedures. Special emphasis will be placed on such reviews and revisions should an accident or emergency situation actually arise.

In addition to emergency response procedures developed, the Company will provide staff with emergency and event-based instructions. Management will also ensure that if an employee is absent from work that his or her roles in an emergency event is reassigned to another adequately trained employee. Lagan also has in place an Accident Prevention Policy (Refer to DP020, Appendix 10).

The purpose of this Accident Prevention Policy (APP) is to set out the policies of the Company in respect of Accident Prevention at Lagan Materials Ltd. sites. The objective of this APP is to outline the protection provided for man and the environment by appropriate means, structures and management systems. The key features of this objective are:

- No major accidents;
- No “near miss” incident capable of leading to a major accident;
- No requirement to evacuate persons from areas on the site; and
- No injury to neighbours or employees or damage to the environment as a result of accidental emissions.

3.4 SITE RESTORATION, DECOMMISSIONING & AFTERCARE

3.4.1 SITE RESTORATION

The development will be worked in a phased manner to ensure full implementation of the mitigation and restoration measures proposed. Plans and sections of the design and associated restoration are shown on Figures 3.2 to 3.3.

Site restoration allows vegetation to become established during the course of the development, thereby reducing the overall impact of the development (i.e., visual impact, dust impact, flora and fauna impact, etc.). It also has the added benefit to the operator of spreading out the cost of restoration over the life of the development.

A well-coordinated restoration process (in consultation with the GSI, Refer to EIAR Section 6.6.2) will ensure that representative areas of quarry faces are left unvegetated. Parts of the upper benches will also be seeded with suitable species of shrubs and climbers to create vegetated ledges. Vegetation and natural colonisation on these benches will encourage growth on the faces and will subsequently break up the natural harshness of the exposed rock face.

Cross sections through the site also illustrate the effectiveness of working the quarry top-down in successive benches, with progressive restoration of the upper back western face to further reduce the visual impact of the development on the surroundings (Refer to Figures 3.1 to 3.3).

The proposed development will enable the operator to fully complete the restoration of both the existing quarry and the proposed development to beneficial after-use. Plans and sections of the design and associated restoration are shown on Figures 3.1 to 3.3.

Grading and planting on completed sections of the upper quarry face will be carried out as shown in Figures 3.1 to 3.3. The upper benches will be seeded with suitable species of shrubs and climbers to create vegetated ledges. Vegetation and natural colonisation on these benches will encourage growth on the faces and will subsequently break up the natural harshness of the exposed rock face. This will occur in a progressive manner as quarrying progresses.

Further information on the restoration scheme is given in Section 3.4.2 below – Final Site Restoration Scheme and Section 11 – Landscape.



3.4.2 FINAL SITE RESTORATION SCHEME

The main aim of the restoration is to minimise the impact of quarrying on the existing landscape of the area, both now and into the future. As discussed in previous sections, restoration of the site will be carried out in a progressive fashion over the life of the operation (Refer to Section 3.4.1). Figure 3.2 shows the final layout of the restoration scheme at cessation of extraction operations, and Figure 3.3 shows sections through this restoration.

It is anticipated that final restoration will be achieved within 2 years of completion of extraction operations. Final restoration will be to a beneficial after-use as a secure wildlife amenity with water feature. A detailed restoration and landscaping plan has been prepared as part of the application (Refer to Figure 3.2).

3.4.3 LONG TERM SAFETY, STABILITY & SECURITY

A detailed working scheme / restoration plan has been prepared (Refer to Refer to 3.1 to 3.3). In preparing the design, standard criteria were adopted with regard to face slopes, standoffs to site boundaries, etc. The final quarry face angles have been assessed by a geotechnical engineer to ensure long-term stability after completion of extraction operations. The stability of restored faces observed in the existing quarry indicates that the long term stability of the final quarry faces will be satisfactory in this geological environment.

All components of the barrier system of the site protection outlined in Section 3.3.3.13 above will remain in place after quarry operations have ceased. The growth of vegetation over the duration of the operation will have created a thick, virtually impenetrable barrier around the site. This, in conjunction with the other barriers, is considered sufficient to prevent unauthorised access to the restored quarry.

3.4.4 LONG TERM WATER MANAGEMENT

The final site restoration will contain a landscaped woodland / amenity with water feature.

The intention is to create a habitat suitable for aquatic life and birds, such that the disused workings will eventually become of considerable amenity value. Some of the methods to be employed are detailed on the Restoration Plan Figure 3.2.

There will be no requirement for long-term water management following a short period of aftercare and monitoring.

3.4.5 DECOMMISSIONING

Redundant structures plant equipment and stockpiles will be removed from site on cessation of quarrying activity. Plant and machinery will either be utilised by Lagan on other sites or sold as working machinery or scrap.

The former plant areas will be restored using topsoil / overburden and planted with a mixture of native trees and shrubs.

As bulk fuels will not be stored on site, there will be no potential for fuel or oil to cause long-term water pollution following cessation of extraction activities.

3.4.6 AFTERCARE & MONITORING

There will be no on-going requirement for environmental monitoring after extraction operations have ceased.

A final site inspection 2 years after site closure will be carried out to ensure that the final site restoration scheme implemented is functioning and progressing as required.

Westmeath County Council Planning Authority - Inspection Purposes Only



3.5 CHANGES TO THE PROJECT

The proposed development has taken into consideration the application area as a whole. It is considered that given appropriate stand-offs to sensitive receptors within the vicinity that the application area can accommodate the extraction area as proposed. Further development outside of the identified application area is restricted by the extent of the limestone resource (i.e., the accessible resource), proximity to residential property, visual impact and protection of the copses of trees.

Continuation of quarrying operations in accordance with the scheme proposed will provide for the security of the existing business of Lagan for the full duration of the permission being sought, i.e., 20 years. Castlepollard Quarry is an important component in Lagan's future business model.

3.6 DESCRIPTION OF RELATED PROJECTS

There are no required or apparent opportunities for any further associated developments at this time.

3.7 CUMULATIVE IMPACT

Cumulative impacts associated with other developments within the wider area are dealt with where necessary under the respective topic in this EIAR.

There are no other significant projects, quarries, commercial or industrial facilities in close proximity to the site. As such it is considered there is no significant cumulative impact with respect to the operation of the quarry on the area.



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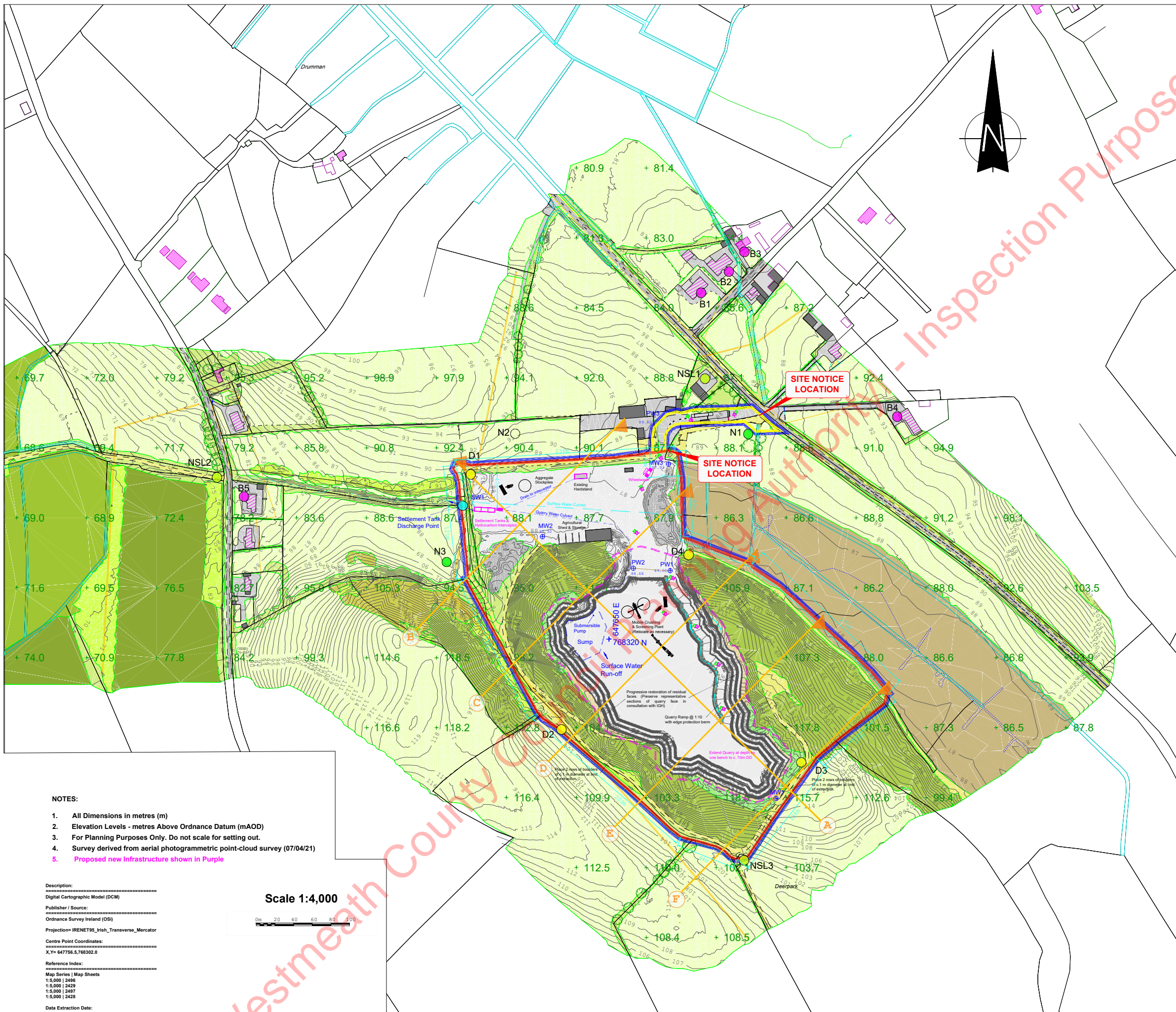
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3.9 FIGURES

Westmeath County Council Planning Authority - Inspection Purposes Only



Legend

- Lands under Operators Control (c.11.7 ha)
- Application Area (c. 11.4 ha)
- Wayleave
- Extraction Area (c. 4 ha)
- Quarry Area
- Pasture
- Rough Pasture
- Scrubland
- Buildings/Structures
- Hedgerows
- Gorse
- Berms - Plant with native barrier species (e.g Hawthorn, Blackthorn)
- Hard Standing/Asphalt
- Track
- Marshy Area
- Aggregate Stockpiles
- Telephone Lines
- Power Lines
- Forestry
- Residence
- Surface Water Culvert
- Fence
- Gate
- Contours (mAOD)
- Traffic In
- Traffic Out
- Spot Levels (mAOD)
- Irish Transverse Mercator (ITM) geographic coordinates
- Sections (Refer to Drawing D06)
- D1 Dust Monitoring Points
- N1 Noise Monitoring Points
- NSL1 Noise Sensitive Location
- B1 Blast Monitoring Points
- SW1 Surface Water Monitoring Points
- PW MP Groundwater Monitoring Points & Wells

- NOTES:**
1. All Dimensions in metres (m)
 2. Elevation Levels - metres Above Ordnance Datum (mAOD)
 3. For Planning Purposes Only. Do not scale for setting out.
 4. Survey derived from aerial photogrammetric point-cloud survey (07/04/21)
 5. Proposed new Infrastructure shown in Purple

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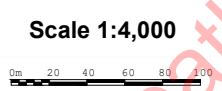
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Ordnance Survey Ireland (OSi)

Projection: IRENET95_Irish_Transverse_Mercator

Centre Point Coordinates:
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Reference Index:
Map Series / Map Sheets
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1:5,000 | 2429
1:5,000 | 2487
1:5,000 | 2428

Date Extraction Date:
Date= 10-May-2021



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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Lagan Materials Ltd		
DRAWING	Site Plan - Proposed		
LOCATION	Deerpark, Castlepollard, Co. Westmeath		

Drawn by John Sheils	Scale 1: 4,000		
Checked by John Sheils	Job No. JSPE 277		
Date 20/12/21	Figure No. 3.1	Rev. 0	

Legend



Water depth 0.5-2m
Good light penetration
Vigorous plant growth
Abundant invertebrates
Main bird usage - feeding by diving ducks, grebes

Water depth 0.5
(a) Colonisation by emergent plants
(b) Open water
(c) Exposed mud

Seasonally flooded
(a) Willow carr
(b) Wet grassland
(c) Main bird usage - nesting habitat, original feeding
(d) Main bird usage - nesting habitat, feeding by grazing and dabbling wildfowl, wader feeding and nesting habitat
(e) Main bird usage - feeding by dabbling ducks, ducklings and waders
(f) Main bird usage - feeding by some ducks and waders

Planting of Pond Areas:

Marginal planting in Quarry Lake	Spacing	Density
<i>Phragmites australis</i> (Common reed)	100m ² blocks, plant @ 1m centres	n/a
<i>Typha latifolia</i> (Bulrush)	100m ² blocks, plant @ 1m centres	n/a
<i>Najas pseudoceros</i> (Yellow flag)	100m ² blocks	20%
<i>Scheuchzeria palustris</i> (Common sparganium)	2 nos. plants per metre	20%
<i>Sparganium angustifolium</i> (Branched bur-reed)	2 nos. plants per metre	15%
<i>Glyceria maxima</i> (Reed sweetgrass)	Plant in groups of 10	15%
Planting Vegetation: <i>Najas</i> spp. (Yellow flag)	groups of 10	n/a
	2 nos. groups of 10	n/a

Tree adjacent to Ponds	Size (DBH)	Spacing	Density
<i>Alnus glutinosa</i> (Alder)	1 + 1	Random	30%
<i>Betula pendula</i> (Weeping Birch)	1 + 1		50%
<i>Salix alba</i> (Willow)	1 + 1		20%

RESTORATION

The reinstatement provides for localised opportunities for creation and establishment of native species woodlands, and wildflower grassland mix. The final land use of the site is proposed as management for habitat creation and wildlife benefit.

The stockpile area to be made level, capped with sub soil and topsoil and grass seeded. Where required additional subsoil and topsoil to be imported to achieve levels as per plan and section.

Where possible natural recolonisation of slopes will be encouraged. If necessary the slopes will be planted with an appropriate wild flower grassland mix.

Quarry Face & Benches:

A well co-ordinated restoration process (in consultation with the IGH) will ensure that representative areas of quarry faces are left unvegetated.

Parts of the upper benches will also be seeded with suitable species of shrubs and climbers to create vegetated ledges. Vegetation and natural colonisation on these benches will encourage growth on the faces and will subsequently break up the natural hardness of the exposed rock face.

Preparation:

The site is to be left in a good condition for the landscaping works.

Topsoil

The Contractor shall place topsoil in areas that require topsoil to attain finished levels for grass and planted areas. It should be properly graded and levelled.

The topsoil shall be free of subsoil, stones exceeding 50mm in diameter. It shall be free from rubbish, chemicals, pollutants or other injurious matter. It shall be free from any obnoxious weeds, couch grass, roots or top growth of trees and shrubs.

The Contractor shall loosen any compacted soil after topsoiling operation and protect area from further compaction.

Reinforcement of hedges:

(As necessary)

Plant the hedge in a double row with 300mm between rows, plant each row at 500mm centres. Plant the first row 50mm from the new fence. Plant at the depth of the original root collar. Hedging rows shall be firm to ensure close contact with the roots. Fencing shall be such as to ensure that the roots will be held securely in the soil and that the penetration of moisture will not be restricted. Prune new hedge by a quarter to encourage side shoots and a thicker hedge.

Plant regraded side slopes with wildflower grassland mix

Grass mix:
Agricola capillaris Common bent 5%
Festuca rubra ssp. *commutata* Red fescue 25%
Festuca rubra ssp. *slender* Creeping Red fescue 15%
Cynodon dactylon Crested Dogtail 35%

Wild flower mix:
Achillea millefolium Yarrow 1%
Centaurus nigra Common knapweed 3%
Oxycoccus Wild carrot 1%
Gallium verum Lady's bedstraw 1%
Leucanthemum vulgare Oxeye daisy 2%
Plantago media Heavy plantain 1.5%
Rumex acetosa Common sorrel 1.5%
Sanguisorba minor ssp. *minor* Sailed burnet 3%
Silene dioica Red campion 1%

Hedgerow Species:	Size (DBH)	Spacing	Density
<i>Corylus avellana</i> (Hazel)	1 + 1	0.5m	10%
<i>Castanopsis monogyna</i> (Hazelhorn)	1 + 1	0.5m	60%
<i>Rex aquilum</i> (Holly)	1 + 1	0.5m	10%
<i>Prunus spinosa</i> (Blackthorn)	1 + 1	0.5m	20%

Planting:

All whips are to be min. 1 + 1 (40 - 60cm), high quality obtained from a reputable Nursery. Whips should be stored in a cool environment not allowing roots to dry out and watered as necessary. Only take out whips as they are required.

Cope Planting

Once restoration gradients have been achieved, in location where woodland planting is proposed, the ground should be crosspiped, topsoiled and prepared. Tree and shrub species will be planted directly into previously prepared pits incorporating 30gms of approved slow release fertiliser per planting station. Transplant material of height range 300-600mm, either calli-grown or bare root stock as per schedule. Shrub and hedgerow planting would be protected as required by rabbit-proof guards and staked appropriately.

No fertiliser or soil improver will be used in the scrub or grassland areas. The proposed plant species will consist of native species of local provenance, where possible, but as a minimum, of Irish provenance.

This habitat will be allowed to grow to maturity with minimal maintenance and intervention. Details with respect to tree and shrub cope planting are provided in the following tables.

Tree species: Symbols	Size (DBH)	Spacing	Density
Dominant species: <i>Fraxinus excelsior</i> (Ash)	1 + 1	1.5m	20%
<i>Quercus robur</i> (Oak)	1 + 1	1.5m	30%
Sub dominant species: <i>Betula pendula</i> (Weeping Birch)	1 + 1	1.5m	10%
<i>Betula pubescens</i> (Common Birch)	1 + 1	1.5m	10%
<i>Sorbus aucuparia</i> (Mountain Ash)	1 + 1	1.5m	15%
<i>Prunus avium</i> (Wild Cherry)	1 + 1	1.5m	15%

Edge species: Symbols

Edge species: Symbols	Size (DBH)	Spacing	Density
<i>Castanopsis monogyna</i> (Hazelhorn)	1 + 1	1.5m	20%
<i>Prunus spinosa</i> (Blackthorn)	1 + 1	1.5m	10%
<i>Corylus avellana</i> (Hazel)	1 + 1	1.5m	20%
<i>Ilex aquifolium</i> (Holly)	1 + 1	1.5m	10%
<i>Rosa canina</i> (Dog Rose)	1 + 1	1.5m	10%
<i>Silene acaulis</i> (Cone)	1 + 1	1.5m	10%
<i>Sambucus nigra</i> (Elder)	1 + 1	1.5m	10%

Defects liability period:

The defects liability period shall be 12 months for tree and shrub planting from practical completion.

Maintenance:

To be carried out as necessary for one season (April to October) from practical completion as part of the defects liability period.

- Trees and shrubs are to be checked for pests & diseases and damage. Straighten and firm in trees that may have loosened in the ground.

- Any die back or damaged branches should be pruned out to sound growth to encourage healthy growth.

- During the defects liability period any trees or shrubs that die or are not thriving, or do not develop a full canopy are to be replaced at the earliest opportunity prior to the end of defects liability period.

Management:

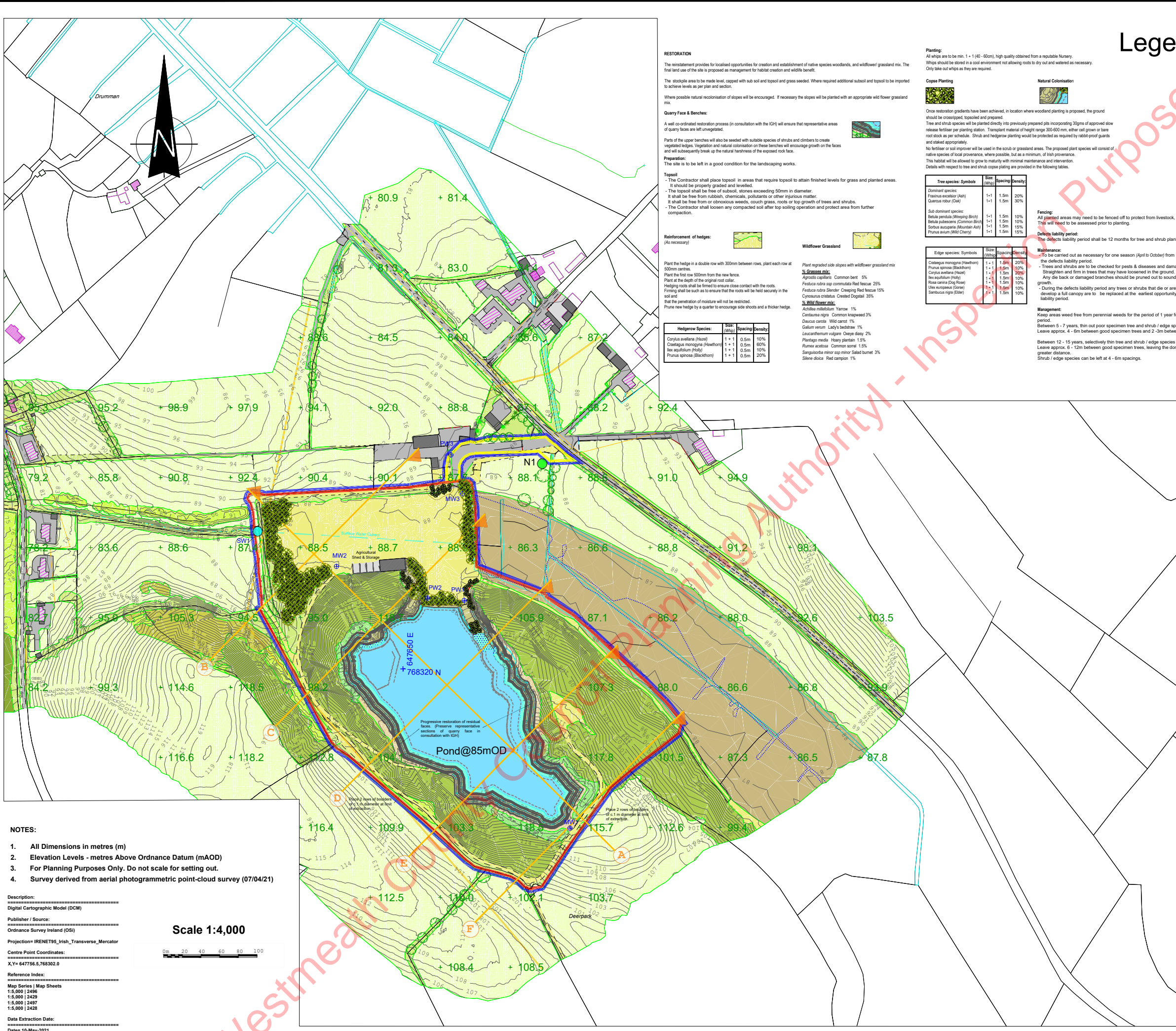
Keep areas weed free from perennial weeds for the period of 1 year following the defects liability period.

Between 5 - 7 years, thin out poor specimen tree and shrub / edge species.

Leave approx. 4 - 6m between good specimen trees and 2 - 3m between shrub / edge species.

Between 12 - 15 years, selectively thin tree and shrub / edge species retaining good specimens. Leave approx. 6 - 12m between good specimen trees, leaving the dominant tree (i.e.) Oak at the greater distance.

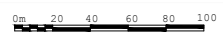
Shrub / edge species can be left at 4 - 6m spacings.



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Data Extraction Date:
Date= 10-May-2021

Scale 1:4,000



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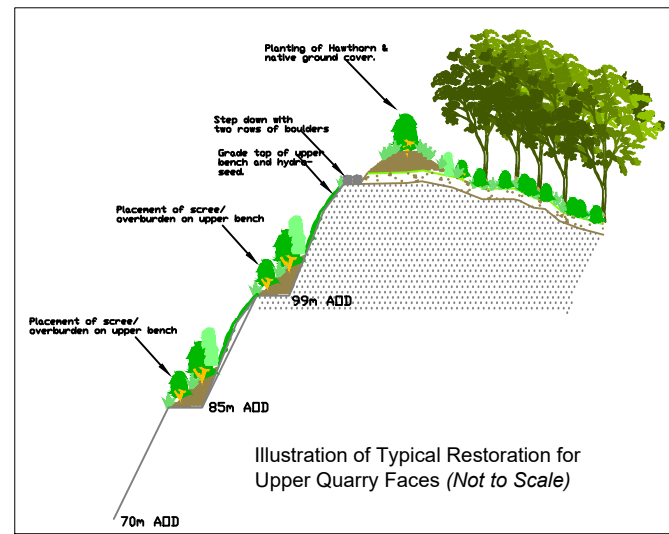
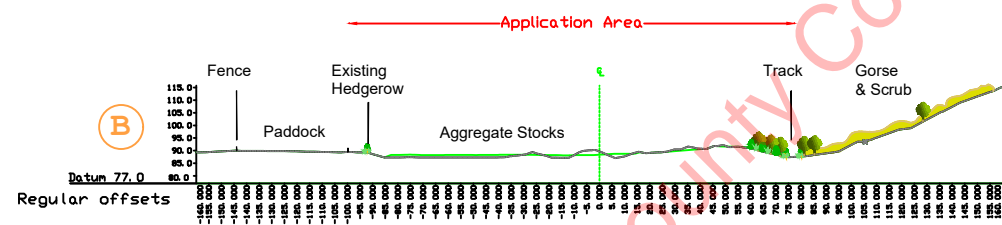
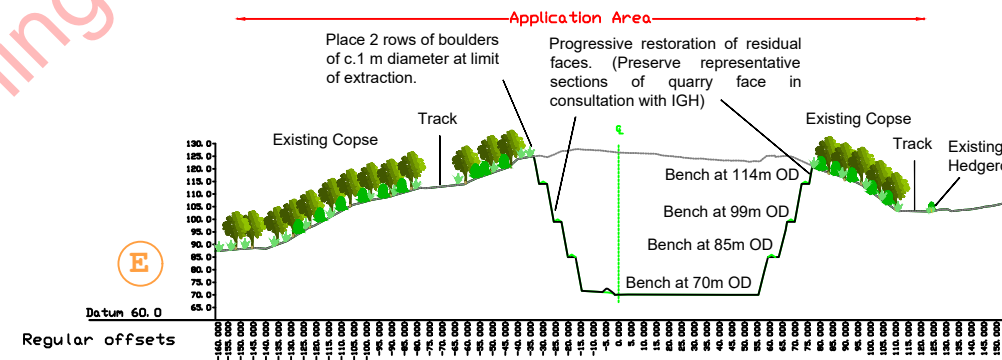
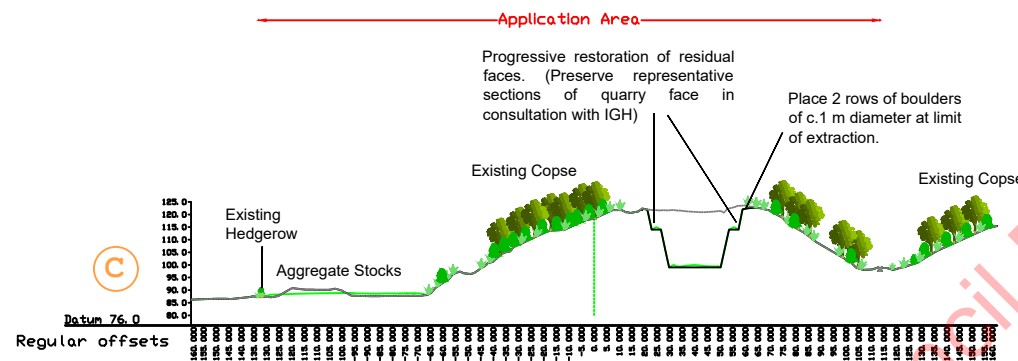
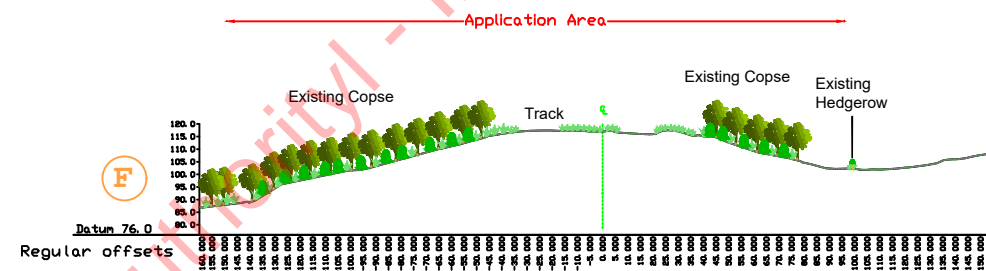
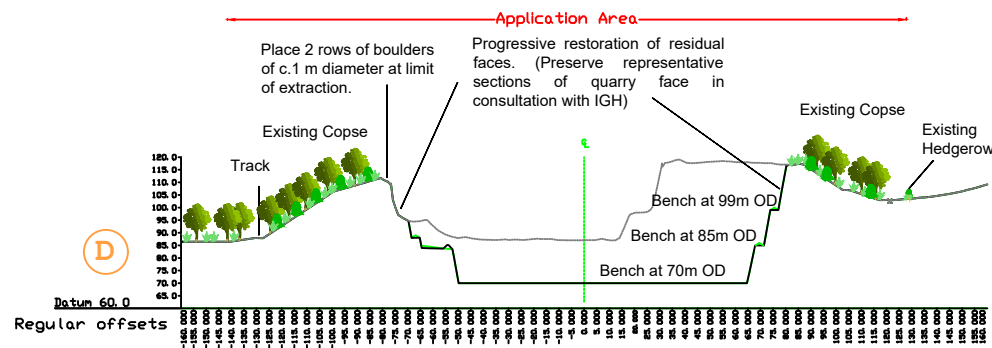
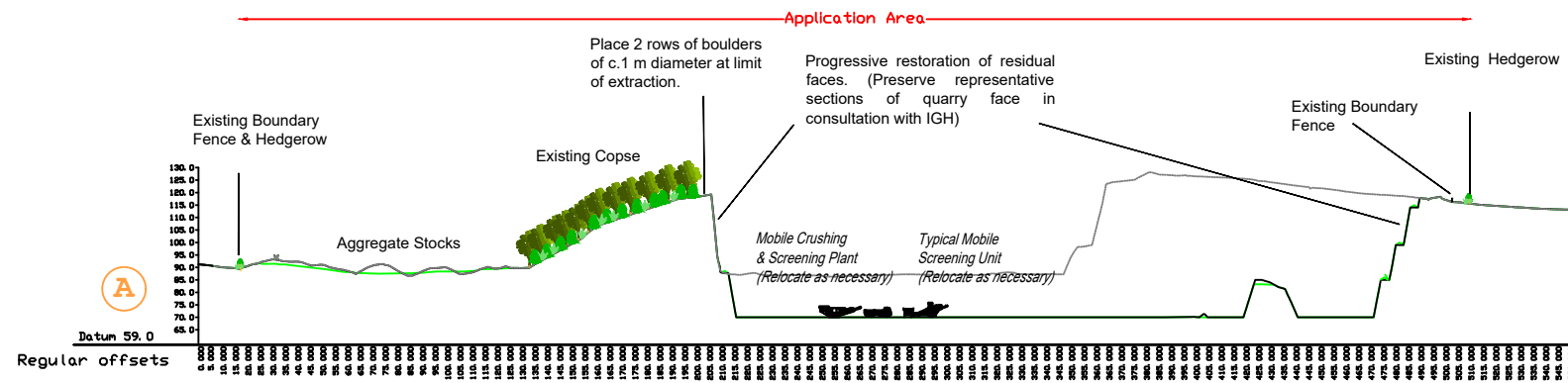
J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT
Lagan Materials Ltd

DRAWING
Landscaping & Restoration Plan

LOCATION
**Deerpark, Castlepollard,
Co. Westmeath**

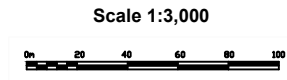
Drawn by John Sheils	Scale 1: 4,000
Checked by John Sheils	Job No. JSPE 277
Date 20/12/21	Figure No. 3.2
	Rev. 0



- NOTES:**
- All Dimensions in metres (m)
 - Elevation Levels - metres Above Ordnance Datum (mAOD)
 - For Planning Purposes Only. Do not scale for setting out.
 - Survey derived from aerial photogrammetric point-cloud survey (7/04/21)
 - Cross Sections B to F - Centre Line (CL) offset distance from Cross Section A (Refer to Figures 3.1 & 3.2).

Legend

- Existing Ground Profile (mAOD)
- Extraction Profile (mAOD)
- Final Restoration Profile (mAOD)



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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Lagan Materials Ltd
DRAWING	Cross Sections
LOCATION	Deerpark, Castlepollard, Co. Westmeath

Drawn by	John Sheils	Scale	1: 1000
Checked by	John Sheils	Job No.	JSPE 277
Date	20/12/21	Figure No.	3.3
		Rev.	0