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EXISTING DEVELOPMENT

- 2.1 The planning application area is identical to that of planning permission P. Ref. 12/101 and covers approximately 4.9 hectares (c. 12.1 acres) out of a total landholding interest area of c. 39.7 hectares (c. 98 acres). No rock extraction has been carried out within the permitted 12/101 extraction area to date and as noted previously, this planning permission is due to expire in early 2023.
- 2.2 The overall quarry site is in a rural area in the eastern part of Co. Cavan, c. 4.5km south of the village of Stradone and c. 10km southeast of Cavan town. The site location is shown in EIAR Chapter 1, **Figure 1-1**.
- 2.3 The red line application site occupies a slightly elevated area. It reaches an elevation of c. 175m AOD in the southwest corner of the application site. From here, levels fall to c. 165m AOD in the northwest corner, c. 170m AOD in the southeast corner and c. 150m AOD in the northeast corner. There are two public roads dissecting the overall landholding, the L3500 to the east of the application area and the L7503 which immediately bounds the western boundary of the application area. The overall quarry site is accessed / egressed via a dedicated link road to the R165, which crosses the L3500 in the area of the existing administration buildings and weighbridge. Levels along the L7503 (referred to as the 'Mullymagowan Pass' that runs along the western boundary of the proposed quarry extension area are c. 172-165m AOD.
- 2.4 The site contains reserves of rock that is used to produce a range of construction aggregates including high polished stone value (PSV) chippings which are of the required quality for use in national and high-speed roads. The chippings that are produced on-site following extraction are used to supply a number of local authorities for their road projects.
- 2.5 Facilities at the existing overall site include a weighbridge, wheelwash, portacabin office/canteen/toilet, water treatment system, processing plant, and all other associated site works and ancillary activities. There is a hardcore surface running from the weighbridge to the public road and a dedicated road link from the main quarry gates across the L3500, to the R165 to the northeast, refer to **Figure 2-1** for site infrastructure locations.
- 2.6 There is straight alignment on the L3500 and good visibility at this crossing point. The land-use in the immediate vicinity of the overall quarry site is predominantly agricultural grazing lands, small-scale forestry and single / small clusters of residential development.
- 2.7 Within the planning permission area for the permitted quarry (P. Ref. 07/827), there is an existing quarry void to the south of the landholding (and southeast from the planning application area), as shown on **Figure 2-1**.
- 2.8 Extraction operations within the 07/827 quarry void area were paused in c. 2014/2015. This quarry void is currently flooded, and reserves of rock still remain beneath the flooded quarry void. There is no time limited associated with the 07/827 quarry permission area. However it is not proposed to carry out any extraction operations within the existing void while extraction operations are ongoing within the proposed extension area (i.e. the existing quarry and the proposed extension area will not be operated simultaneously).
- 2.9 When rock extraction operations were being carried out within the existing void, it was done so using conventional drill and blast techniques with the blasted rock then transported to the central processing area to be processed by the fixed crushing and screening plant on site.
- 2.10 The external site boundary consists of mature hedgerows, and post and wire fencing. Residences within the general area are confined to the public roads.

PROPOSED DEVELOPMENT

Development Overview

- 2.11 This Environmental Impact Assessment Report (EIAR) provides supporting information to accompany a planning application to Cavan County Council by P&S Civil Works Ltd., in respect of their quarry extraction operations at Mullymagowan townland, Stradone, Co. Cavan.
- 2.12 The proposed development being applied for under this planning application is for:
- Quarry extension development for rock extraction and associated processing over an area of c. 4 hectares within an overall planning application area of c. 4.9 hectares as previously permitted under P. Ref. 12/101 (P. Ref. 17/383) and never commenced;
 - A time period of 15 years is being sought to allow the previously permitted extraction be completed plus 2 years to complete restoration works (total duration sought 17 years);
 - The development proposed seeks to utilise existing ancillary buildings and facilities including weighbridge, wheelwash, portacabin office/canteen/toilet, waste water treatment system, processing plant, site entrance and all other associated site works, and ancillary activities as currently permitted by P. Ref. 07/827; and
 - Final restoration of the worked out quarry to a permanent water body and naturally regenerated wildlife habitat area.
- 2.13 As the proposals are for an extension of an existing and established operation, there is no requirement for any new site infrastructure or facilities as part of this application.

Quarry Extraction Area

- 2.14 The proposed operational works within the application area will see rock extraction carried out over an area of c. 4.0 hectares as shown on **Figure 2-1** and **Figure 2-2**. The shaded area of 4.0 hectares as shown on **Figure 2-1** outlines the area where the rock for extraction previously permitted under P. Ref. 12/101 is still in-situ. This application seeks planning permission to extract this rock.
- 2.15 Overburden will be removed in the quarry extension extraction area (as previously permitted under P. Ref. 12/101). Prior to extraction, the removed overburden material will be permanently placed along the boundaries of the 4.0 hectare extraction area, to provide acoustic and visual screening and to provide ecological habitat. This proposed area of landscape screening that will be formed through the management of overburden material equates to the remaining 0.9 hectares of the 4.9 hectare planning application area.
- 2.16 Extraction will be carried out in the same format as previously practiced, by way of blasting, crushing and screening of the rock. The quarry will be developed using a conventional benching system (steps), with working faces being progressively advanced in a westerly direction.
- 2.17 It is proposed that the area will be worked to the previously permitted depth of c. 110m AOD. When extraction operations commence, it is proposed that water inflows to the extraction area will be diverted to a sump within the quarry floor of the extension area for settlement of any suspended solids and then pumped to the discharge point. This will ensure the quarry area remains dry for the duration of extraction operations.

Restoration (Reinstatement to an ecological after-use)

- 2.18 Most restoration works will be carried out on permanent completion of extraction works. As the majority of the application site is to be used for phased site clearance, extraction, processing and

storage purposes it is not feasible to restore any significant parts of the rock quarry void at an earlier stage. However, it is proposed that all existing grass and scrub areas which have established along the site boundaries will be protected and retained, as much as possible. It is also proposed that the landscaping screening berms to be established along the quarry extension boundaries prior to extraction operations will be protected and retained, as much as possible.

- 2.19 Upon the cessation of extraction operations, it is proposed to return the worked-out area to a beneficial ecological after-use area. Pumping operations which were carried out to maintain a dry working area will cease and the natural groundwater level will return to create a permanent water body. Retained rock faces and benches will be allowed to naturally colonise with local species over time which will also provide valuable nesting ledges for birds.
- 2.20 The only material requirements in respect of the planned restoration scheme are those topsoils and subsoils already present. There will be no requirement for importation of material during the restoration phase.

Aggregate Reserve Assessment

- 2.21 A detailed topographical survey of the site was undertaken by SLR Consulting on behalf of the applicant (refer to **Figure 2-1**). The survey data was used to produce a 3D digital terrain model using a quarry design software package called LSS.
- 2.22 In preparing the design, specific criteria were adopted with regard to face heights, bench widths and stand-offs to the site boundaries etc. (refer to **Figures 2-2** and **2-3**). Proposed standoffs to the site boundaries will be c. 10m to the north and south, c. 15m to the west along the stream channel and c. 20m along the western boundary with the L7503 road. Whilst the maximum permitted face height is 20m under Regulation 55 of the Safety and Welfare at Work (Quarries) Regulations 2008, the proposed face heights to be adopted are c. 15m due to the steeply dipping well bedded nature of the bedrock in this area.
- 2.23 From a stability and quarry management aspect 15m faces provide a reduced overall slope angle, reducing the risk of large scale planar failures. 15m face heights also allow for easier access for scaling and reduction of isolated loose boulders or overhangs that may develop over time. Section A-A' on **Figure 2-3** shows a 15m face height design creating a 45 degree angle from the road edge to the toe of the face. This reduces the risk of large scale multi-bench failure types in this area, particularly where the bedding dips out of the face. Bench widths are to be c. 5m with a face angle of 70 degrees.
- 2.24 Within the proposed final extraction footprint of the P. Ref. 12/101 permission area there is still approximately 3.75M tonnes of rock in-situ. This is based on a final extraction design to a depth of c. 110m AOD.

Duration of Extraction

- 2.25 The previously permitted maximum annual extraction rate (P. Ref. 12/101) was 290,000 tonnes per annum over a period of 10 years. No extraction activities have been undertaken at the application site, so the total aggregate reserve as indicated above remains in-site. However, to reflect current and projected market conditions, a revised maximum annual extraction rate of 250,000 tonnes per annum over a period of 15 years is currently proposed. A further 2 year period is proposed to carry out any final restoration works, giving an overall proposed development life of 17 years.
- 2.26 It is considered that planning permission for the proposed quarry development should be commensurate with the life of the reserves. This will ensure the developer has security for this investment and that the operation is carried out in accordance with proper planning and development guidelines. An adequate quarry life is required to secure an acceptable return on

investment, when the costs of continued investment in the site development, mobile crushing / screening plant and the on-going operational costs are considered.

Site Screening

- 2.27 The nature of the prevailing drumlin landscape in and around the landholding means that operations within it benefit from a high degree of natural screening from more distant views within the landscape. The external perimeters of the existing site are mostly well established with mature vegetation in the form of thick hedgerows and treelines.
- 2.28 The planning application area is situated centrally from existing site operations to its east and is therefore screened from external views in that location. There are relatively open views to the application site from the west, across the L7503, which is within the landholding of the applicant. The undulating nature of the landscape and its intervening vegetation help to screen the application site from the north and the wider area.
- 2.29 The proposed landscape screening berms to be formed around the perimeter of the site from the overburden material removal in the quarry extension will be planted with locally occurring species and as the vegetation matures will assist in screening the application site from external views along the L7503 road along with providing a secure site boundary. This, coupled with the natural topography will ensure that the site is mostly screened in views from the surrounding area.

Removal of Topsoil and Overburden Soils

- 2.30 Within the existing quarry footprint boundary of P. Ref. 07/827, all topsoil and overburden has already been removed from the existing permitted quarry extraction area (c. 13.9 ha).
- 2.31 Topsoil and overburden remains in-situ in the proposed 4.0 hectare extension area (P. Ref. 12/101) and will require stripping prior to commencement of quarrying.
- 2.32 Stripping will be carried out in blocks to allow sufficient area for aggregate excavation as the quarry is worked in a westerly direction. The removal of the overlying materials will thus be an intermittent operation which will progress in advance of aggregate excavation with site stripping typically taking place during periods of drier weather.
- 2.33 Use of a hydraulic excavator will be required for removal of these soils overlying the shale resources. The excavated materials will be loaded directly onto dump trucks for use in perimeter planting for acoustic and visual screening of the site and for providing ecological habitat.
- 2.34 All materials to be stripped will be used on site. There is no requirement for any soil materials to be removed from the site. Similarly, there will be no required to import any soils or materials to the site for final site restoration purposes.
- 2.35 As set out previously, the excavated materials from the application site will be placed along the boundaries of the quarry extension area, to provide acoustic and visual screening and to provide ecological habitat.

Vegetation Removal

- 2.36 No vegetation has been previously cleared within the previously permitted extraction area of P. Ref. 12/101.
- 2.37 The proposed development will require the removal of dense scrub and woodland vegetation in parts of the application site. Refer to **Figure 2-1**. All existing external hedgerows, treelines, existing planting along the application site boundaries will be protected and retained as far as possible.

Site Drainage

Existing Quarry Area – P. Ref. 07/827

- 2.38 Water from the existing quarry void (when operational) is pumped from a sump on the quarry floor to the surface water drainage channel located to the north of the landholding and running along the eastern boundary of the application site for the quarry extension. The drainage channel flows into the Mullymagowan Stream, which flows north to Corfad Lough (c. 600m north of the quarry extension area), and subsequently the Stradone River. A limited volume of the discharge water is directed to the existing settlement lagoons for use as a top-up water supply as required at the washing plant, located to the north of the existing quarry void.

Application Area – as previously permitted by P. Ref. 12/101

- 2.39 There are two minor surface water features within the proposed extension area consisting of:
- A drainage ditch feature that flows along the southern boundary of the extension area in an easterly direction where it joins the stream that flows along the eastern boundary and into the Mullymagowan stream; and
 - A drainage ditch feature that flows adjacent to the northern boundary of the extension area and joins the stream that flows along the eastern boundary at the northern-most corner of the extension area.
- 2.40 When extraction operations commence, it is proposed that waters from within the proposed extension area will be diverted to a sump within the quarry floor of the extension area for settlement of any suspended solids and then pumped to the discharge point D1.

Existing Discharge Licence

- 2.41 The applicant currently holds a discharge licence (Ref. **SS/W005/11**) from Cavan County Council in relation to discharges from the existing quarry operations (P. Ref. 07/827) and the proposed extension area (previous P. Ref. 12/101).
- 2.42 A hydrological / hydrogeological assessment has been carried out taking into consideration the existing water regime at the quarry and plant area and to determine what the requirements are for the proposed development. It addresses mitigation measures to eliminate and/or minimise the potential impacts, if any, on surface water and groundwater. These measures are/will be incorporated into the quarry design and operation (refer to Chapter 7 – Surface Water and Groundwater).

Method of Extraction

- 2.43 It is proposed that the method of rock extraction to be implemented at the site will be as follows:
- topsoil and overburden will be stripped and placed in landscape screening mounds along the boundaries of the proposed quarry extension area in advance of rock drilling and blasting;
 - rock material will be extracted using conventional blasting techniques. Prior to drilling, the quarry face will be surveyed in order to ensure safe and efficient blasting. Drilling will be carried out in accordance with the blast design. Finally, the holes will be filled with bulk emulsion explosives and the blast carried out. All blasting will be carried out in accordance with the health & safety regulations, and environmental guidelines for the sector;

- the fragmented rock will be loaded from a tracked excavator into rock dump trucks for transport to the existing processing plant via an internal haul route;
 - At the processing plant, the material will be broken down through a series of crushing and screening equipment until the specific final products (blinding, clean stone 30mm-70mm, dust, 6mm dust, 6mm chip, 10mm chip, 14mm chip, 18mm chip) are collected in end bins;
 - the aggregate products will be temporarily stored in stockpiles located within the central processing area to await use in the onsite concrete plant or dispatch off-site.
- 2.44 The proposed extraction plan sees the quarry extension area being developed over a duration of 15 years (based on a maximum annual extraction rate of c. 250,000 tonnes per annum). **Figures 2-2 and 2-3** show the proposed final quarry development layout in plan and section respectively.
- 2.45 The proposed design as previously permitted by P. Ref. 12/101 will see the quarry faces progressed in a westerly direction to give a final extraction footprint of c. 4.0 hectares and a final depth of c. 110m AOD.

Phasing of Development

- 2.46 It is proposed that the quarry extension area will be developed in 4 no. phases. Phases 1-4 will consist of extraction operations and Phase 5 will consist of final restoration works.

Phase 1

- 2.47 Vegetation will be cleared on a progressive basis in advance of overburden stripping. The overburden will be stripped from the extension area (approximately 0.4m thickness of soils assumed) and placed into dedicated storage bunds along boundaries where they will provide the most benefit in terms of acoustic and visual screening.
- 2.48 Extraction of the underlying rock will be carried out to a depth of c. 155m AOD. This is referred to as Bench 1 on **Figure 2-2**. Extraction operations will commence in the southeast corner closest to the internal access track that leads to the central aggregate processing area. As extraction continues the quarry face will gradually advance in a mainly westerly direction until the full extent of the extraction footprint is achieved. The typical quarry face height will be c. 15m.

Phase 2

- 2.49 A standoff of 5m from the toe of the Bench 1 will be maintained. During Phase 2, extraction of the underlying rock will be carried out to a depth of c. 140m AOD and the working quarry face will typically be c. 15m high. This is referred to as Bench 2 on **Figure 2-2**. Extraction operations will again commence in the southeast corner closest to the internal access track that leads to the central aggregate processing area and will gradually advance in a mainly westerly direction until the full extent of the extraction footprint is achieved.

Phase 3

- 2.50 A standoff of 5m from the toe of the Bench 2 will be maintained. During Phase 3, extraction of the underlying rock will be carried out to a depth of c. 125m AOD and the working quarry face will typically be c. 15m high. This is referred to as Bench 3 on **Figure 2-2**. Extraction operations will again commence in the southeast corner closest to the internal access track that leads to the central aggregate processing area and will gradually advance in a mainly westerly direction until the full extent of the extraction footprint is achieved.

Phase 4

- 2.51 A standoff of 5m from the toe of the Bench 3 will be maintained. During Phase 4, extraction of the underlying rock will be carried out to a final depth of c. 110m AOD and the working quarry face will typically be c. 15m high. This is referred to as Bench 4 (final floor) on **Figure 2-2**. Extraction operations will again commence in the southeast corner closest to the internal access track that leads to the central aggregate processing area and will gradually advance in a mainly westerly direction until the full extent of the extraction footprint is achieved.

Phase 5 (Cessation of extraction activities and final restoration)

- 2.52 Final restoration works will consist of removal of any plant and machinery from the quarry void, ensuring the external site boundaries are adequately secured and reinforced and allowing the natural groundwater level beneath the site to rebound to create a permanent waterbody.

Equipment and Plant

- 2.53 Equipment and plant involved at all stages will typically include 1 no. tracked excavator, 1 no. loading shovel, 2 no. rock dumpers, as well as the fixed processing plant that already exists and operates within the permitted quarry operations (P. Ref. 07/827).
- 2.54 HGV movements will be required to / from and within the application site to transport excavated materials. Chapter 14 of this EIAR sets out the volume of quarry traffic at the proposed development. It is assumed that there will be c. 45 HGV trips per day associated with the proposed development.

Extraction and Blasting

- 2.55 Once topsoil and overburden from the quarry extension site has been undertaken, drilling and blasting will be undertaken in accordance with the method of extraction outlined above. This will facilitate extraction of rock from quarry faces.
- 2.56 Industry standard blasting techniques will be used to fragment the stone prior to primary processing (crushing and screening). Blasting has previously been carried out during previous extraction operations at the existing quarry using highly trained shot blasters and blasting engineers without incident or disturbance.
- 2.57 There is no proposed change in the blast design and blast methods to be employed at the proposed quarry extraction area.
- 2.58 Projected vibration levels at site boundaries are reasonably derived from previous data and no exceedances of industry Emission Limit Values are envisaged during the development of the extension area.
- 2.59 The DoEHLG Quarries and Ancillary Activities Guidelines for Planning Authorities (April 2004) states that:
- “blast noise is characterised by containing a large proportion of its energy within a frequency that is below the normal hearing range and is termed “air overpressure”. The EPA recommends that blasting should not give rise to air overpressure values at the nearest occupied dwelling in excess of 125dB (Lin)max peak with a 95% confidence limit”.*
- 2.60 Regarding the Peak Particle Velocity (PPV), the EPA states in The State of The Environment in Ireland (February 1996) that:

“for well-maintained residential type structures there appears to be almost a consensus on a limit level below which damage is not expected. A review of the data would suggest that a conservative limit of 12mm/s peak particle ground velocity for normal quarry type blasts”.

- 2.61 This 12mm/sec limit was originally derived by the US Bureau of Mines, and subsequently adopted by the UK authorities, whereby 12.5mm/sec is the ELV above which a hairline crack in plaster might occur (structural damage threshold is of the order of 50mm/sec). Reducing the 12.5mm/sec threshold to 12mm/sec is seen as providing a further safety margin and is the internationally used ELV for Peak Particle Velocity.
- 2.62 Results obtained by Rocklift Ltd, the previously appointed blasting operations supervisors at the quarry, are included on **Table 2-1** below and illustrate that no exceedances of permitted levels have occurred at historical blasting monitoring locations at comparable distances from to the closest dwelling which An Bord Pleanála has brought attention to, in the previous application. Condition 8 attached to previous planning permission for the quarry extension area (P. Ref. 12/101) stipulates a limit of 12mm/sec PPV for blasting.
- 2.63 It is, therefore, reasonable to conclude that no exceedance of permitted levels is likely to occur at the residence. Future blast monitoring will be carried out at this location in order to corroborate the conclusion; if recorded levels are approaching the ELV, the blast design can be adjusted to ensure ongoing compliance with the industry threshold.

Table 2-1
Previous Blast Design for P&S Civil Works Ltd.

Date	Position	Location	PPV			AOP (dB)	Resultant mm/s
			(L)	(V)	(T)		
07/10/2008	V1	Residence R3	2.07	3.24	4.22	117	5.04
25/11/2008	V2	Quarry Weighbridge	1.40	2.07	1.80	113	2.34
25/11/2008	V1	Residence R3	0.97	1.17	1.21	113	1.44
16/02/2009	V	Residence R3	2.19	2.77	2.30	110	3.75
10/06/2009	V1	Residence R3	4.19	3.99	4.25	111	6.40
14/08/2009	V1	Residence R3	3.32	3.67	6.06	100	6.65
17/11/2009	V1	Residence R3	6.18	4.61	7.51	116	7.90
10/12/2009	V1	Residence R3	4.10	5.55	2.85	123	5.67
08/02/2010	V1	Residence R3	1.87	3.13	1.25	121	3.20

- Quarry weighbridge adjacent to site entrance on L3500 road.
- Residence R3 south of quarry site on L7503 road.
- refer to EIAR Figure 10-1 for locations.

- 2.64 Several mitigation measures considered appropriate by the DoEHLG and EPA as per published guidelines have been employed by the developer at the existing quarry and shall be continued at the proposed extension development site, pending grant of permission, including:
- All blasting, as is the current practice, will be carried out by highly trained shot blasters and blasting engineers;

- Regular monitoring of blasts will also take place and records will be made available to the public and Local Authority for scrutiny;
- The developer will provide advance notification of blasting to nearby residents;
- Existing and proposed earth mounds around the quarry boundary provide acoustic screening for environmental noise; and
- It is proposed to carry out noise and vibration monitoring as set out in Chapter 10 of this EIAR.

2.65 All rock extracted from the application area will be processed on site to produce a range of aggregate products including high polished stone value (PSV) chippings which are of the required quality for use in national and high-speed roads.

Processing Methods

- 2.66 The processing methods to be used at the proposed development will consist of industry standard methods which constitute size reduction through crushing and sizing by screening using fixed plant.
- 2.67 Dump trucks will transport excavated material from the quarry face to feed the primary crusher within the existing fixed processing plant to the east of the quarry extension area.
- 2.68 The primary crusher is stationary and breaks the material down to below 200mm in size. A primary screener then divides the material products, which are temporarily stockpiled prior to further crushing and screening to create end products, which are stored in end bins prior to being transported off site using identified haul routes as set out in chapter 14 of this EIAR.
- 2.69 The 6mm dust product requires a washing process to allow for its use as sand for sports pitches / arenas, as well as its use in the manufacture of concrete products at the processing plant in the existing quarry. The silt produced from the washing process is pumped to the site's settlement lagoon system and dried for its ultimate use in restoration of the overall site.
- 2.70 It is proposed that the same processing methods as those used at the existing permitted quarry will be utilised going forward. There is no requirement for any additional processing plant as part of this planning application.

Stockpiling and Dispatch of Aggregate Product

- 2.71 Excavated aggregate will be stored in temporary segregated stockpiles prior to being loaded by means of a mechanical loading shovel directly to incoming road trucks (HGV's). Trucks will then leave the stockpile area and travel to the weighbridge on the exit route out of the site where loads dispatched off-site will be weighed and recorded. The dispatch office will monitor the movement of incoming and outgoing HGV's and will also be responsible for the issuing of dispatch dockets.
- 2.72 Prior to leaving the site, all HGV's will pass through the wheelwash facility to minimise dust / mud carry onto the public carriageway.

Working Hours

- 2.73 It is intended that the proposed development will be operated during the hours of 07:00 to 18:00 hours from Monday to Friday (excluding Bank Holidays) and from 07:00 to 14:00 hrs on Saturday. with no extraction, processing or associated activities being permitted on Sundays or public holidays.
- 2.74 The proposed working hours are consistent with Section 4.7(b) of the DoEHLG Quarries and Ancillary Activities Guidelines for Planning Authorities (2004).

- 2.75 It is anticipated that a planning condition will be attached to any planning permission that would be granted for the proposed works.

Employment

- 2.76 It is anticipated that when extraction and processing operations recommence at the site, the development will secure employment for the duration of the extraction period of 15 years for c. 10 people directly on-site.
- 2.77 The development will also provide indirect employment for local people, such as sub-contractors, contract hauliers, maintenance contractors, material suppliers, etc. as well as service providers in the local area.
- 2.78 It is considered that the proposed development will contribute to the objectives of national, regional and local policy in terms of assisting the provision of a local supply of aggregates to facilitate continued economic growth and international competitiveness, and in the promotion of rural diversification through development of alternative economic opportunities within a rural area.

SITE INFRASTRUCTURE

Site Access

- 2.79 Access to the application site will be through the existing permitted quarry site, which is gained by taking the R165 regional road southbound off the N3 National Primary route. A dedicated access to the existing quarry site is provided off the R165, which traverses a local road (L3500) which connects the local rural communities with the R165.
- 2.80 The entrance gates to the quarry site are set-back from the L3500 but are approached at an angle almost perpendicular to the local road. There is a large area of hardstanding (c. 10m width) immediately outside the entrance gates, which allows HGV vehicles to pull in off the public road should the entrance gates be locked. Either side of the metal entrance gates is a decorative cut-stone wall set-back from the western edge of the carriageway which allow for adequate sightline visibility in both directions for vehicles exiting the site. The eastern side of the L3500 carriageway also has stone walls and an angled entrance to the dedicated R165 link road to allow for sightline visibility and positioning of HGVs for entrance to the quarry.
- 2.81 The gates at the site entrance will be closed at all times outside permitted working hours. The application site itself is located well within the interior of the applicant's landholding and will be approached by internal haul routes within the access described above. There is currently a gate access to the application site, along its western boundary from the L7503. That access will not be used for routine access to the proposed development but will be retained for occasional maintenance tasks. The remainder of the perimeter of the landholding is closed off by hedgerows and/or post and wire fencing.
- 2.82 The route for most vehicles/trucks leaving and entering the site is northwest along the R165 until it meets the N3, from where the national primary road network can be utilised.

Site Security

- 2.83 The boundaries of the application site that are not open to the existing quarry operations are fenced with a combination of post and wire fencing, treelines and mature hedgerows along the L7503. The site boundary will continue to be inspected on a regular basis and maintained as required under the Mines and Quarries Legislation.

- 2.84 The existing entrance to the applicant's landholding, through which the site will be accessed, has lockable gates to prevent unauthorised access outside of the working hours.

Site Roads, Parking and Hardstanding Areas

- 2.85 Internal access roads are provided within the entire landholding and extend into the application site. The main route runs from the main quarry entrance past the existing weighbridge and wheelwash within the northeast of the landholding, and there are spurs towards the processing plant, the existing quarry void within the southeast of the landholding, and into the application site at the centre of the landholding.
- 2.86 Within the existing quarry, HGV traffic movements are kept left along the internal road as they access / egress the separate areas of activity.
- 2.87 Adequate provision for car parking by existing employees and visitors is currently provided within a dedicated hardstanding area at the existing quarry office which is situated external to the weighbridge / wheelwash, which are accessed further within the site.

Wheelwash

- 2.88 There is currently a wheelwash present at the site, located within the main site entrance gates and adjacent to the weighbridge. The area leading to the wheelwash and beyond towards the site entrance is hard surfaced.
- 2.89 In addition, the existing quarry has a dust suppression system which can be utilised, and all processing equipment has inbuilt dust suppression systems.
- 2.90 The above measures have proven to be effective and acceptable to date and will be maintained in the future. The applicant will continue to regularly monitor the situation and will notify the Local Authority of any change in circumstances.

Weighbridge

- 2.91 All heavy goods vehicles (HGVs) exiting the site are required to pass over the existing weighbridge which is in line with the wheelwash and adjacent to the site entrance.
- 2.92 The weighbridge is utilised to establish a weight for each truck used for hauling products from the site. All loaded trucks will pass over the weighbridge before exiting the quarry so that a record of each load can be made. Apart from keeping a record of the quarry's productivity, the weighbridge is also used to ensure all loads exiting the site do not exceed the legal weight limit.

Offices and Ancillary Facilities

- 2.93 All existing offices and employee facilities at the quarry are permitted under the previous planning permissions for the overall landholding.
- 2.94 The existing facilities will be utilised for the duration of the development. There is no requirement for any additional buildings, structures or ancillary facilities as part of this planning application.

Utilities and Services

- 2.95 The site is served by mains electricity. An ESB power line feeds directly into the quarry site to service the office, weighbridge and processing plant.

- 2.96 The potable (drinking water) originates from the Lavey-Billis Group Water Scheme. There are two existing on-site abstraction wells, located within the general processing plant area, to the southwest of the main quarry entrance gates and therefore located northeast of the application site itself. Water from one of these wells (Well A) is used for processing activities at the existing quarry, as the other (Well B) has insufficient yield.
- 2.97 No utilities or services cross the application site area. There is no proposed change to the existing services supplying and servicing the site as part of this planning application.

Fuel and Oil Storage

- 2.98 There are no 'dangerous' substances or technologies used at the quarry. Chemicals that are stored on site include lubricating oil, hydraulic oils and diesel fuel.
- 2.99 Fuel is required on site for plant and machinery. No vehicles will be fuelled on the quarry floor, with the exception of one mobile machine, as a designated fuelling area is located in the central processing area of the quarry. All staff are trained in the use of spill kits which are available at the quarry in the case of an accidental discharge.
- 2.100 Oils and lubricants stored in drums including waste oils will be kept on spill trays inside the existing storage area. Spill kits are to be provided in the unlikely event of a spillage occurring.
- 2.101 Oils and other wastes will not be permitted to accumulate on site in large quantities. The waste oils will be stored for collection and recycling off site by an approved contractor.

Sewerage and Surface Water Drainage

- 2.102 Site staff will use existing toilet, hand washing, and welfare facilities provided at the existing site. Wastewater from these facilities is currently managed through a dedicated wastewater treatment system.
- 2.103 The wastewater from the administration building is diverted to an existing septic tank and percolation area which are located near the carpark at the quarry entrance. Details of an assessment were previously submitted to the Planning Authority within a Further Information submission (Appendix D) in relation to the previous planning permission (P. Ref/ 12/101) for the quarry extension. There continues to be no issues with this system to date.

WASTE MANAGEMENT

Extractive Waste Management

- 2.104 No extractive waste will be generated by the proposed development. As previously indicated, any excavated soils or overburden still in-situ will be stored on site for use in restoration works.
- 2.105 Almost all products and by-products arising from the aggregate processing have commercial value. Any waste materials from the site will be stored, collected, recycled and/or disposed of in accordance with any requirements of Cavan County Council.

General Waste Management

- 2.106 Any waste materials will be stored, collected, recycled and/or disposed of in accordance with the requirements of Cavan County Council.
- 2.107 Potential waste produced and the measures used to control it are described as follows: -

- **Scrap metal** – these materials are chiefly produced from the maintenance of the processing plants and can cause a nuisance if allowed to build up in an uncontrolled manner. There is a designated scrap metal area on the existing permitted site and the build-up of scrap is controlled by the regular removal by licensed scrap metal dealers.
- **Used Oil and Oil Filters** – any waste oil/oil filters that may arise from servicing of mobile plant will be collected by a licensed waste contractor for disposal / recycling.
- **Used Batteries** – similarly all used batteries will be removed from site by a licensed waste contractor. This is in accordance with Waste Management Regulations.
- **Drums / Barrels, Pallets** – removed from site by a licensed waste contractor for disposal / recycling.
- **Domestic Style Waste** (Canteen Waste) – domestic waste generated at the office and employee's existing facility will be collected by a licensed waste collection contractor.
- **Sewage Effluent** – this is collected and treated by the existing on-site wastewater treatment tank and percolation area.
- **Note:** overburden stripped from above the in-situ rock is not considered waste. It is an essential component of the restoration programme.

EXISTING ENVIRONMENTAL CONTROLS

General

- 2.108 Extraction, processing and ultimately restoration activities at the application site require a number of environmental controls to eliminate or minimise the potential nuisance to the public arising from the extraction and processing operations. The environmental control measures to be in place at the existing site are outlined in the following sections.
- 2.109 The existing operations at the site are currently regulated by conditions attached to the existing planning permission: P. Ref. 07/827.
- 2.110 Any additional control measures, over and above those already in place and/or outlined below, which may be instructed on foot of the proposed planning application, will also be implemented.

Bird Control

- 2.111 As the process of rock extraction is free of putrescible (food / kitchen) waste, site activities are unlikely to attract scavenging birds such as gulls and crows for the duration of works. Accordingly, it is not intended to implement any specific bird control measures at the site as is the case at present.

Dust Control

- 2.112 Dust generation within the application area is likely to occur from two main sources:
- point sources – such as operating plant and machinery; and
 - dispersed sources – such as the quarry floor / haul routes.
- 2.113 In dry, windy weather conditions, site activities may give rise to dust blows across and beyond the existing or planned development site areas. In order to control dust emissions, the following measures are/ will be implemented: -

- dust suppression system in the existing quarry can be used on haul routes and processing equipment has in-built dust suppression systems;
 - areas of bare or exposed soils will, insofar as practicable, be kept to a minimum;
 - emission of fugitive dust from machinery such as the crushing plant will be minimised by utilising dust suppression and the location of the processing plant within the centre of the landholding and at a lower level than the surrounding ground is advantageous; and
 - all HGV's exiting the extraction area will be routed through the existing wheelwash. This will minimise the transport of fines by HGVs over the access / egress road and the public road network;
- 2.114 The amount of dust or fines carried onto the public road network will be further reduced by periodic sweeping of internal hard surfaced areas and surrounding public roads as required.
- 2.115 A dust monitoring programme will be established, and monitoring results will be submitted to Cavan County Council on an annual basis.
- 2.116 P&S Civil Works Ltd. has and continue to implement / evaluate a full range of dust mitigation measures at the quarry in accordance with the DoEHLG (2004) Quarries and Ancillary Activities: Guidelines for Planning Authorities, and the EPA (2006) Environmental Management Guidelines for Environmental Management in the Extractive Industry, refer to EIAR Chapter 8.

Noise Control

- 2.117 Potential noise generating sources arising from the operation of the quarry will be from the processing plants, machinery such as the loading shovels and from the haulage fleet both within and outside the quarry.
- 2.118 A noise monitoring programme will be established, and monitoring results will be submitted to Cavan County Council on an annual basis.
- 2.119 P&S Civil Works Ltd. has and will continue to implement / evaluate a full range of noise mitigation measures at the quarry in accordance with the DoEHLG (2004) Quarries and Ancillary Activities: Guidelines for Planning Authorities, and the EPA (2006) Environmental Management Guidelines for Environmental Management in the Extractive Industry, refer to EIAR Chapter 10 – Noise & Vibration.

Traffic Control

- 2.120 As the planning application relates to the extension of an existing established quarry operation, the proposed development will utilise the existing established site entrance which is to be used by all development traffic.
- 2.121 Visibility at the quarry entrance is considered adequate in both directions. The access to the quarry is gated and warning signs are posted at the entrance. There are no road markings at the site entrance but there is existing lighting along the site boundary between the weighbridge and public road.

Litter Control

- 2.122 As the proposed development will be largely free of litter, the daily operational activities are unlikely to give rise to problems with windblown litter. Accordingly, there is no requirement to implement any specific litter control measures at the site.

- 2.123 In the unlikely event that any litter waste is identified, it will be immediately removed off-site to an authorised waste disposal or recovery site.

Odour Control

- 2.124 As the rock extraction activities at the site will not be biodegradable and will not therefore emit odorous gases, site activities will not give rise to odour nuisance. Accordingly, it is not intended to implement any specific odour control measures at the site.

Vermin Control

- 2.125 As the proposed development will be free of putrescible (food / kitchen) waste, on-site activities will not attract vermin (rats) for the duration of the extraction or subsequent restoration operations. Accordingly, no specific vermin control measures are implemented at the site.

Fire Control

- 2.126 As the proposed development is free of flammable and biodegradable materials which could create a fire or explosion risk, on-site extraction activities will not present a fire risk for the duration of the extraction operations. Accordingly, there is no requirement to implement specific fire control measures at the site.
- 2.127 In the unlikely event that a fire does occur, the nearest fire station in Ballyjamesduff will be contacted and emergency response procedures will be implemented. Fire extinguishers (water and foam) are provided at the office/canteen to deal with any small outbreaks which may occur.

EXISTING ENVIRONMENTAL MONITORING

General

- 2.128 As part of the previous environmental monitoring at the site, P&S Civil Works Ltd. had implemented a comprehensive environmental monitoring programme at the quarry in compliance with the existing grant of planning permission (P. Ref. 07/827). The monitoring plan operated at the site for many years with no complaints or issues from any third parties.
- 2.129 Limit values for environmental emissions arising from the site activities are identified by the existing consent from the Planning Authority. Environmental sampling, monitoring and testing will generally be undertaken by external consultants as and when required. Records of environmental monitoring and testing will be held on-site and forwarded to the Local Authority as required.
- 2.130 Environmental noise, blast, dust and water (groundwater level) monitoring will be carried out on a regular basis to demonstrate that the proposed development is not having any significant adverse effects on the surrounding environment.

Dust Monitoring

- 2.131 Dust deposition monitoring within the existing quarry site (P. Ref. 07/827) is controlled by Condition no's. 13 and 17 and will continue to be complied with by the applicant. Previous dust monitoring to-date has shown that the existing site has operated within the permitted threshold of 350 mg/m²/day averaged over a 30-day period when measured at the site boundary.
- 2.132 Baseline dust monitoring in respect of the proposed application area has been carried out at 4 locations (D1-D4) as shown on EIAR **Figure 8-1** to inform the EIA assessment. It is proposed that dust

monitoring will continue to be carried out at these locations for the duration of extraction operations. The Air Quality Assessment for the development is attached in EIAR Chapter 8, and demonstrate that, the proposed development can be operated within the current recognised thresholds.

- 2.133 Dust monitoring locations shall be reviewed and revised where and as/when necessary. The results of the dust monitoring shall continue to be submitted to Cavan County Council on a regular basis for review and record purposes.

Noise Monitoring

- 2.134 Noise monitoring within the existing quarry site (P. Ref. 07/827) is controlled by Condition no's. 6 and 17 and will continue to be complied with by the applicant. Previous noise monitoring to-date has shown that the existing site has operated within the permitted threshold of 55 dB (A) Leq when measured outside any dwelling house in the vicinity of the site.
- 2.135 Baseline noise monitoring in respect of the proposed application area has been carried out at 4 locations (N1-N4) as shown on EIAR **Figure 10-1** to inform the EIA assessment. It is proposed that noise monitoring will continue to be carried out at these locations for the duration of extraction operations. Noise predictions for the development are attached in EIAR Chapter 10, and demonstrate that, the proposed development can be operated within the current recognised national thresholds.
- 2.136 Noise monitoring locations shall be reviewed and revised where and as/when necessary. The results of the noise monitoring shall continue to be submitted to Cavan County Council on a regular basis for review and record purposes.

Blast Monitoring

- 2.137 Previous blast monitoring has been carried out at the landholding in relation to the existing quarry development (P. Ref. 07/827), at locations shown on EIAR **Figure 10-1**. Blast monitoring is carried out for each blasting event at the site and results for the period 2008-2010 are provided in EIAR **Chapter 10** and demonstrate that vibration limits are complied with, as set out in Conditions 15 and 16 of P. Ref. 07/827 and Condition 8 of the previous grant of permission P. Ref. 12/101. The results also demonstrate that no more than two blasts every four weeks are carried out.
- 2.138 All blasts will be monitored, with records kept detailing the results of vibration, air over pressure, and the blast design as part of the environmental monitoring programme implemented at the quarry.
- 2.139 Blasting will be carried out by a qualified "shotfirer". The blast design will be reviewed on a regular basis and modified where necessary to ensure compliance with ground-borne vibration limits.
- 2.140 Previous blast monitoring results at the wider landholding indicate that blasting operations have complied with condition limits imposed.
- 2.141 Neighbouring residential properties to the quarry will be called on prior to every blast being fired to notify them of the blast time and setup the monitoring devices. Records of all blasting events are to be kept.

Odour Monitoring

- 2.142 As the materials being extracted at the site are not organic or biodegradable and do not therefore emit odorous gases, the extraction and processing activities will not give rise to odour nuisance. Accordingly, no provision has been made for odour monitoring at the site.

Surface Water Monitoring

- 2.143 There is an existing discharge licence covering the overall site (Ref. **SS/W005/11**).
- 2.144 Surface water monitoring will be carried out at the site in accordance with the existing discharge licence issued by Cavan County Council.
- 2.145 Schedule 1.2 sets out the frequency for the monitoring of emissions of trade waste water and states:
“Samples shall be taken quarterly during the first year. Samples shall be taken annually in subsequent years, if it can be shown that the discharge complied with the provisions of this licence during the previous year. IF two quarterly or annual samples fail in succession, samples must be taken quarterly in the year that follows.”

Groundwater Monitoring

- 2.146 The quarry extension will initially be worked dry above the water table and thereafter through the use of pumps within the quarry void after the groundwater table has been intercepted.
- 2.147 Groundwater level and quality monitoring will be carried out during the construction and operational stages. This will allow for groundwater quality sampling (quarterly) and groundwater level data (continuous or monthly) to be collected from the proposed development site.
- 2.148 Any additional groundwater monitoring requirements will be agreed with Cavan Co. Co. prior to the commencement of any operations on site.

Ecological Monitoring

- 2.149 Given the potential for temporary stockpiles across the application site to provide nesting sites for sand martins, it is proposed that monitoring will be undertaken to determine whether such nesting is occurring. Should sand martins start to build nests in the sand stockpiles then they cannot be removed or touched during the bird breeding season.

PROPOSED FINAL RESTORATION

Proposed Restoration Scheme

- 2.150 The principal activity which will be undertaken at the application site is the extraction of the shale rock with ultimate restoration of the overall application site to a combination of natural wildlife and biodiversity diverse habitat, which is a beneficial after use listed in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006). The final restoration scheme and detail is shown on the restoration plan in **Figure 2-4** and cross section in **Figure 2-5**. A two-year period following completion of all extraction works is being requested to carry out final restoration of the site.
- 2.151 The proposed restoration scheme envisages that the worked-out area will be left to naturally infill with water. The natural rebound level is expected to be around 146m AOD. All quarry faces / benches which remain above the water level will be left to become naturally vegetated. In time, the rock will weather and grass and scrub will become established in crevices within the rock, softening the appearance of the quarry face and providing nesting habitat for birds. The perimeter landscape screening that that will have been planted with native species at the onset of the proposed development will be retained.

- 2.152 It is expected that the proposed restoration scheme would integrate into the surrounding landscape. The proposed restoration scheme relates to the application site and will be achieved by the following measures:
- stockpiles and mobile processing plant to be removed from application site;
 - the perimeter berms constructed during the construction/operational phase of extraction will be retained;
 - all existing boundary fences and hedgerows will be retained to ensure that the site is secure; and
 - the entrance gates at the site entrance will be retained and kept locked at all times, except for maintenance access.
- 2.153 Due to the extended time lapse until exhaustion of the available reserves on site and deepening to proposed final floor level, it is considered appropriate to agree the detail of the final restoration plan with Cavan County Council at a later date.
- 2.154 As the majority of the application site is used for extraction and processing purposes it is not feasible to restore large parts of the site at an earlier stage. However, it is proposed that all existing grass and scrub areas which have established along the site boundaries will be protected and retained, as much as possible.
- 2.155 The restoration works will be carried out in accordance with the EPA Guidelines (2006). Ecological advice will also be incorporated into the restoration process to facilitate future habitat value in the area for biodiversity.

Site Management and Supervision

- 2.156 The Applicant will clearly define the management responsibility for the site restoration work and will ensure that this person has the necessary information (from the planning application) and authority to manage the whole restoration process. Relevant staff will be briefed on the scheme and will be adequately supervised / controlled. A system of record keeping for the key restoration activities will be put in place.

Long Term Safety and Security

- 2.157 All components of the barrier system of the existing quarry site, consisting of existing mature boundary hedgerows, fences and walls will remain in place after extractive/ processing operations have ceased.
- 2.158 The permanent landscaped screening berm around the perimeter of the proposed extraction area will have developed and matured and will be retained as a security barrier and ecological feature.
- 2.159 As the extraction area within the proposed quarry extension will ultimately become a body of open water, secure fencing will be provided around the perimeter of the extraction area. These measures, combined with the secure and locked entrance gates to the wider landholding will prevent unauthorised third-party access.

Long Term Surface Water and Groundwater

- 2.160 Within the application area, the surface water will percolate to ground. There will be no requirement for any active long-term surface water or groundwater management at the site.

Aftercare and Monitoring

- 2.161 Establishment maintenance will be carried out for 2 years following the planting works on a (minimum) quarterly basis. This will include weed control, replacement planting, watering (if required) and the adjustment of spiral guards, ties and stakes.

FIGURES

Figure 2-1
Existing Site Layout

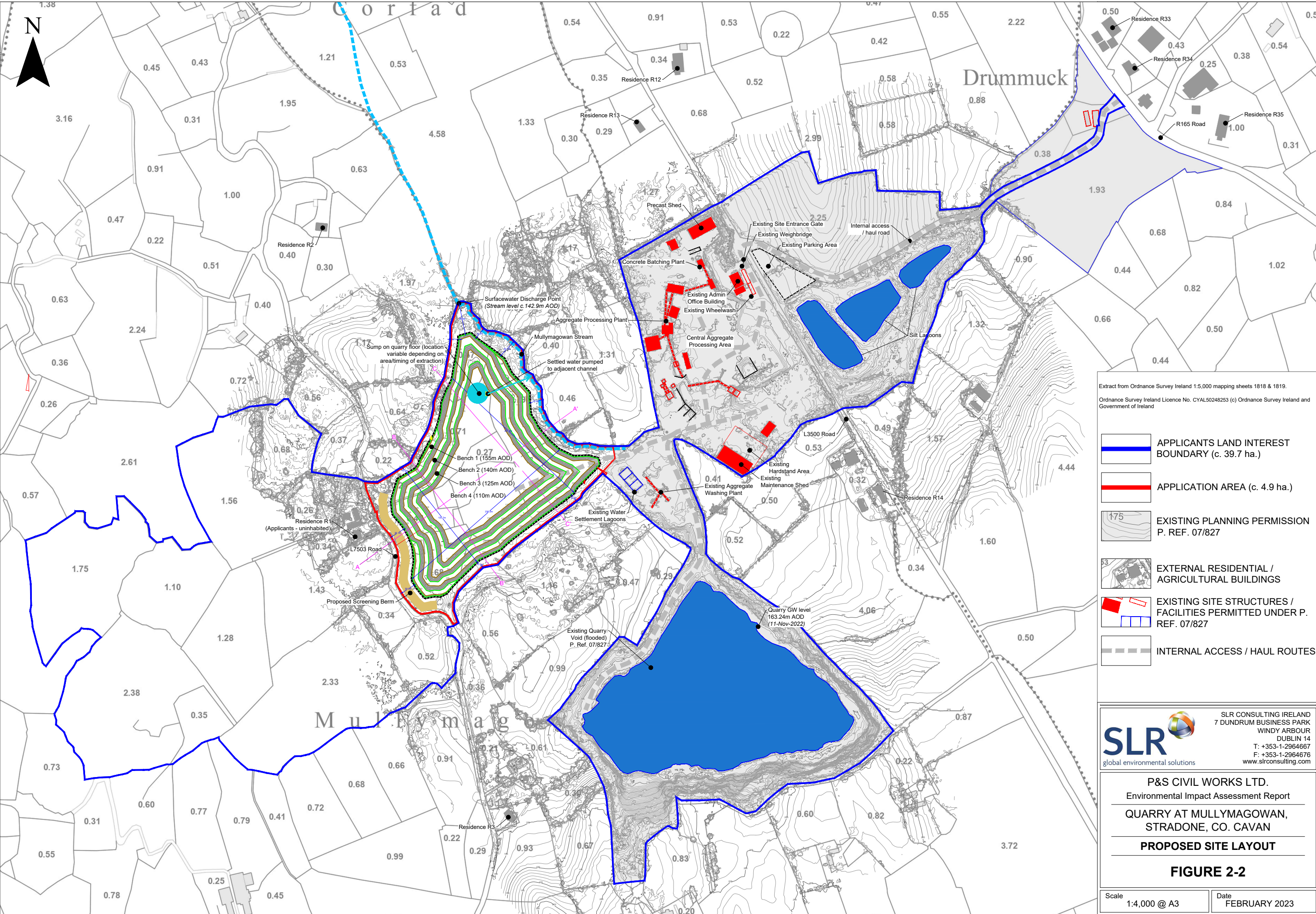
Figure 2-2
Proposed Site Layout

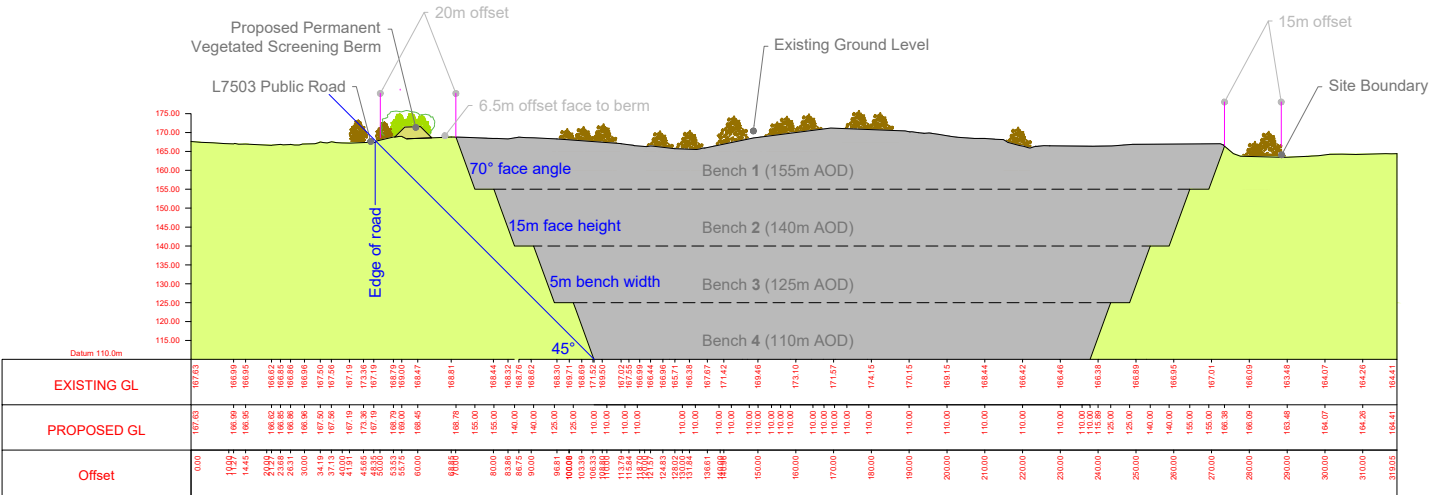
Figure 2-3
Existing / Proposed Cross Sections

Figure 2-4
Proposed Restoration Layout

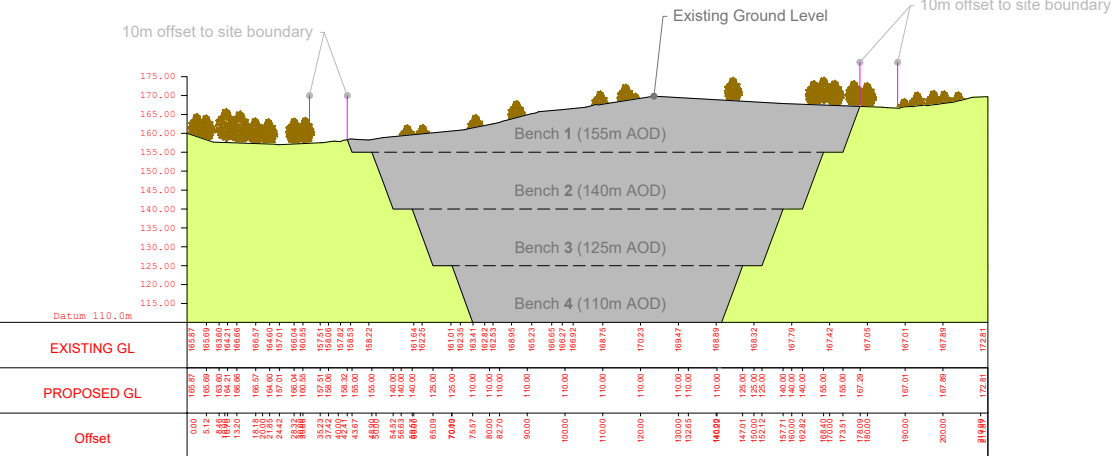
Figure 2-5
Proposed Restoration Sections

904200.064821 Stradone EIAR Fig2-2 Proposed Site Layout R1.dwg

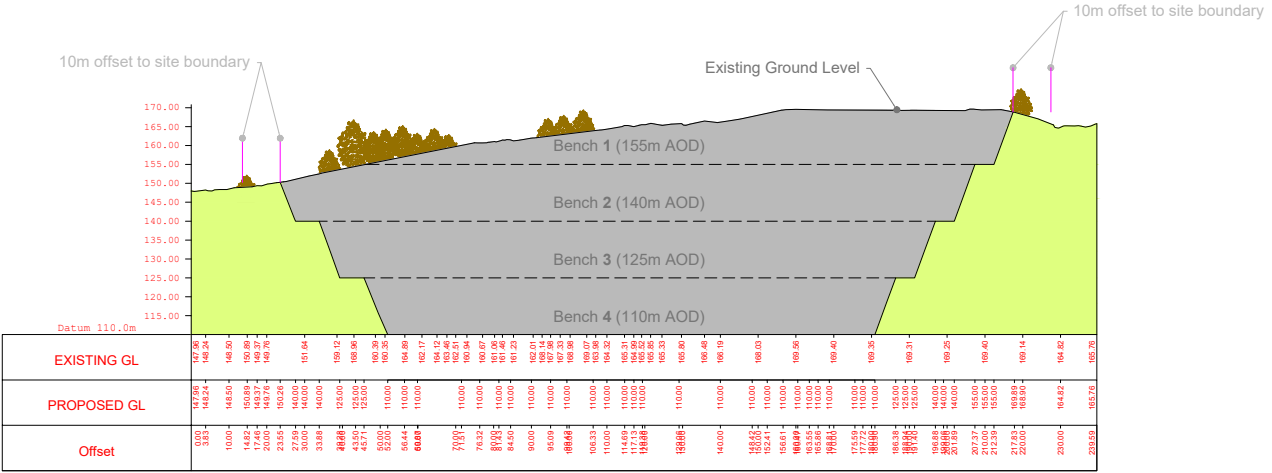




SECTION A - A'



SECTION B - B'



SECTION C - C'





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Environmental Impact Assessment Report

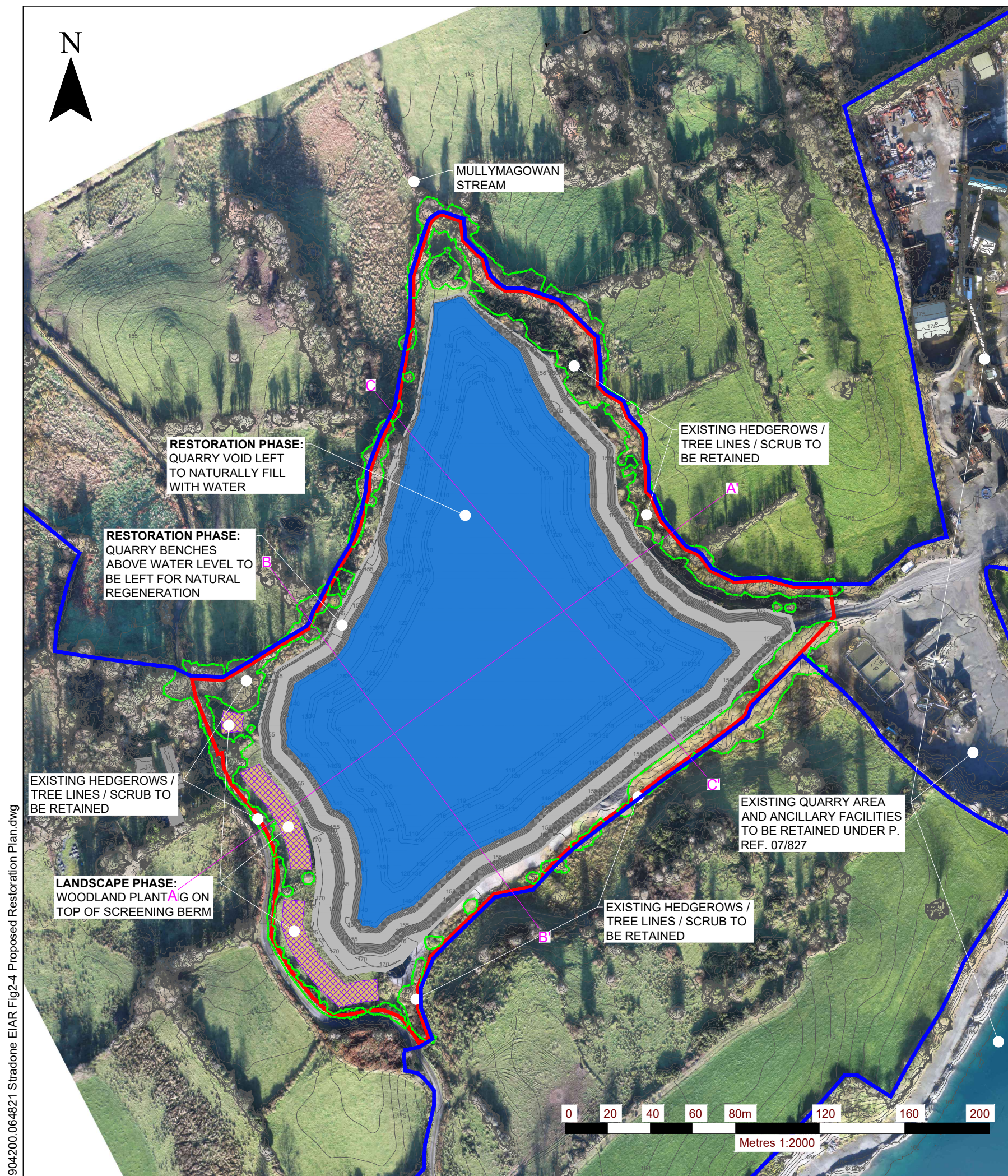
QUARRY AT MULLYMAGOWAN,
STRADONE, CO. CAVAN

EXISTING & PROPOSED
CROSS SECTIONS

FIGURE 2-3

Scale
1:2,000 @ A3

Date
FEBRUARY 2023



LANDSCAPE AND RESTORATION SCHEME

It is proposed to restore the quarry area to a natural habitat. This is one of the beneficial afteruses recommended in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006). All of the existing boundary vegetation will be retained to help minimise the visibility of the proposed development and for ecological reasons.

LANDSCAPE PHASE

(to be carried out on commencement of the extraction works):

Topsoil and overburden will be removed from the proposed extension area and used to construct a 10m wide screening berm along the south-western boundary of the extraction area (topsoil and overburden material to be handled separately, with topsoil temporarily stored on site, before placed on the berm as the top layer). All existing mature trees within this area will be retained.

Once completed, a native woodland mix will be planted on top of the berm. This will provide a visual and acoustic screen for locations to the west, as well as partially compensate the loss of existing scrub / woodland vegetation within the site.

RESTORATION PHASE

(to be carried out on completion of all extraction works):

All machinery and equipment will be removed from the quarry void, which will then be left to naturally fill with water. The natural rebound level is expected to be around 146m AOD. The final water level will vary throughout the year depending on rainfall levels.

All quarry faces / benches which remain above the water level will be left for natural regeneration. In time the rock will weather and grass and scrub will become established in crevices within the rock, softening the appearance of the quarry face. The quarry face will also provide nesting habitat for birds, such as peregrine falcon.

For health and safety reasons, i.e. due to the narrow space and adjoining steep drops, it is not feasible to place soil and carry out planting on the quarry benches.

GENERAL NOTES:

- All plant handling, planting and establishment works to be carried out in accordance with current best practice and to take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions.
- All works to be carried out by a suitably qualified landscape contractor.
- Establishment maintenance to be carried out for 2 years following the completion of planting (minimum 3 maintenance visits per year; i.e. spring, summer and autumn). Works to include weed control, replacement planting (where required) and the adjustment/removal of spiral guards.

NATIVE WOODLAND MIX

To be planted at 1.5m centres (i.e. 1 plant/2.25m²; approx. 1,315m² in total = 585 plants). To be planted randomly with no more than 4-6 plants of the same species in one group and to be supplied with spiral guards.

No.	Plant Name	Common Name	Height (cm)	Age	%
Transplants/Container Grown Shrubs					
115	<i>Corylus avellana</i>	Common Hazel	60-90	1+0	20
60	<i>Crataegus monogyna</i>	Hawthorn	60-90	1+1	10
60	<i>Prunus spinosa</i>	Blackthorn	60-90	1+0	10
60	<i>Salix aurita</i>	Eared Willow	60-120	0+1	10
60	<i>Sambucus nigra</i>	Elder	60-90	1+0	10
115	<i>Sorbus aria</i>	Whitebeam	60-90	1+1	20
115	<i>Sorbus aucuparia</i>	Rowan	60-90	1+1	20

NOTES

'Orthomosaic produced from Aerial Photography flown November 2022 by SLR Consulting Ireland (IAA Permit No. 04/2018) www.slrconsulting.com Tel. +353-1-2964667.

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LEGEND



APPLICANTS LAND INTEREST
BOUNDARY



APPLICATION AREA

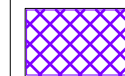


HEDGEROWS / TREE LINES /
SCRUB TO BE RETAINED

LANDSCAPE PHASE (ON COMMENCEMENT OF THE EXTRACTION WORKS)



SCREENING BERM



NATIVE WOODLAND PLANTING

RESTORATION PHASE (ON COMPLETION OF THE EXTRACTION WORKS)

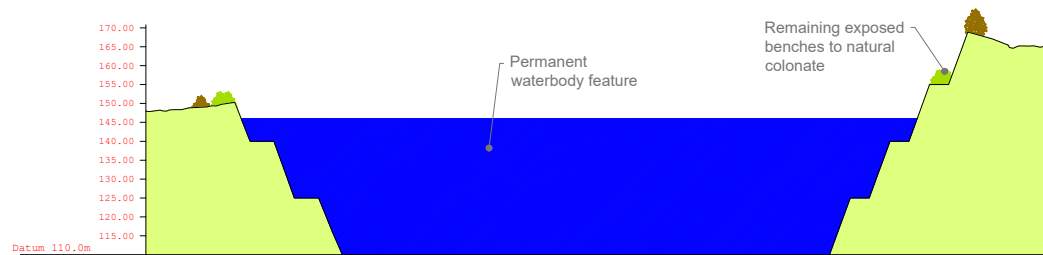
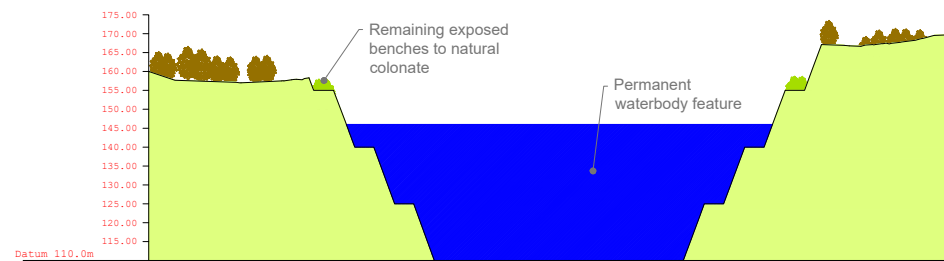
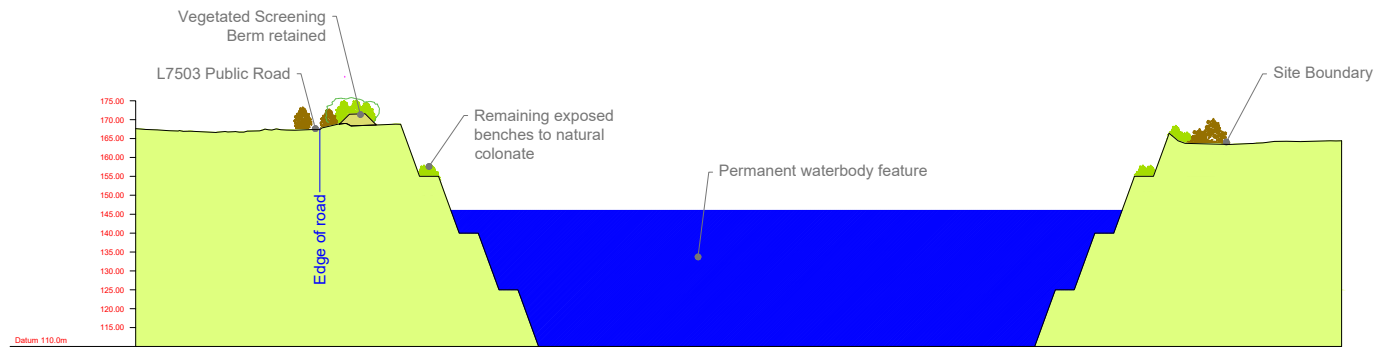


QUARRY VOID LEFT TO
NATURALLY FILL WITH WATER



QUARRY FACES AND
BENCHES, ABOVE THE WATER
LEVEL, TO BE LEFT FOR
NATURAL REGENERATION

904200.064821 Stradone EIAR Fig2-5 Restoration Cross Sections.dwg



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	P&S CIVIL WORKS LTD. Environmental Impact Assessment Report
	QUARRY AT MULLYMAGOWAN, STRADONE, CO. CAVAN
	PROPOSED RESTORATION CROSS SECTIONS
FIGURE 2-5	
Scale 1:2,000 @ A3	Date FEBRUARY 2023