2.0 PROJECT DESCRIPTION

This Remedial Environmental Impact Assessment Report (REIAR) has been prepared to accompany a substitute consent application for an existing sand and gravel quarry at Ballinabarny North and Bolagh Lower, Redcross, Co. Wicklow. Activities at the Site include the extraction of sand and gravel, together with processing and temporary stockpiling areas where materials are stored prior to being sold to market.

The Project Site is situated ca. 3.5 km southeast of Rathdrum, and ca. 3.5 km northwest of Redcross (see Figure 2.1). The Site is currently accessed off the L5155 that joins the L1152 to the north, which is a local road linking Rathdrum and the R772 and M11 to the east of the site.

There are currently three existing access routes to the gravel pit, refer to Figure 2.1. The first (route A) is by means of a laneway that is not in the ownership of the applicant. This route was the historical access to the pit and has been used since c.1940. The use of this access ceased in approximately 2013 when route B was brought in to use. Route B remains the current main access to the Site. Route B is the central route to the site and is accessed off the existing right of way and continues through the applicant's lands, which are the subject of an authorised waste facility. Permission (06/4577) has been granted for route C, which has been fully constructed and accesses the L5155 north of Kilmacrea crossroads. The use of this access is only permitted to an authorised quarry development and use of this access was suspended on refusal of the previous substitute consent under SU0121. It is proposed to revert to use route C should substitute consent be granted in this instance.

Figure 2.1: Site Location

The lands that are the subject of this REIAR (the ‘Project Site’ / the ‘Site’) extend to ca. 23.7 ha and reflect the historic operational site area including the extractable area of 4 ha declared under S.261 quarry registration in 2005. The quarry extraction area that makes up the application for the substitute consent planning unit currently extends to ca. 20.16 ha lying central to the Project Site. The lands adjacent to the Site are used for agricultural purposes (including pasture and tillage), with plantations of trees located along the western, and eastern edges of the Site. An area of heath and scrub occurs immediately adjacent to the south of the Site. Farmyards and one-off residential properties also occur in the vicinity of the Site.

The current quarry void is centrally located within the EIA unit and is roughly square in shape. The existing administration, maintenance, storage, and welfare facilities are located at the southern edge of the Site, with the aggregate processing plant area located towards the centre of the Site (see Figure 2.2).

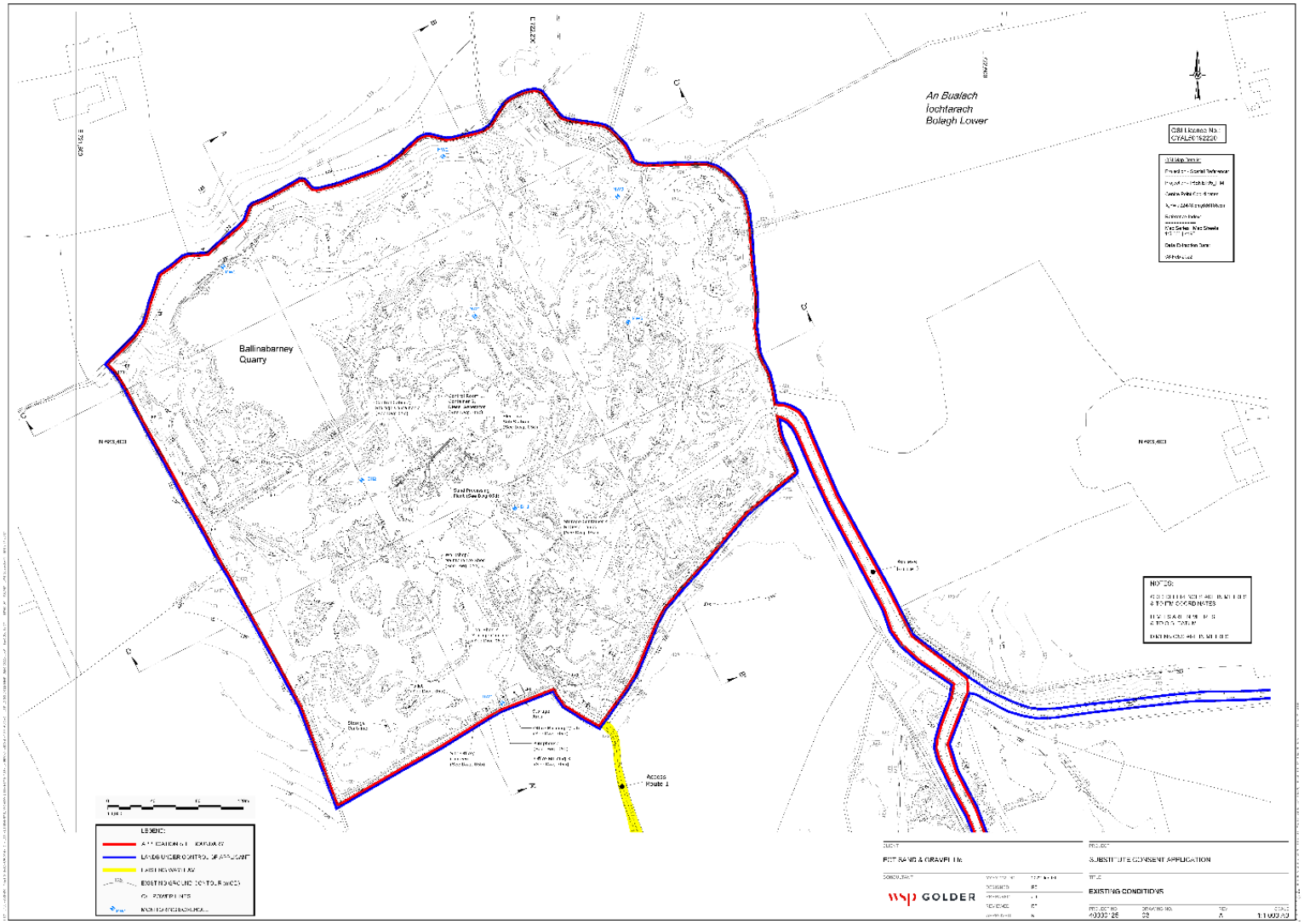

Figure 2.2: Existing Site Layout Plan

At baseline in 1990 the quarried area has been determined to extend to ca. 0.75 ha. and to have expanded laterally to ca. 20.16 ha in 2022. The average working depth in 1990 was ca. 124 MAOD and to approximately 114mOD in worked out areas of sand and gravel in 2022.

2.1 Location of Project Lands

The REIAR project unit occupies the townland areas of Ballinabarny North and Bolagh Lower, Redcross, Co. Wicklow centered at ITM X,Y coordinates 722164, 686418. It is located approximately 5km due west of the N/M11 within Wicklow County Council functional area.

2.2 Context and Landscape Character of Subject Lands

The lands that are the subject of this REIAR are roughly square in shape and are bounded by agricultural lands. A network of streams and hedgerows bounding the Site on all sides (Figure 2.2). In this way, the immediate character of the lands is rural, with low density, one-off roadside housing and farmyards.

The project lands have been used for quarrying prior to 1963 and an application for registration in accordance with Section 261 of the Act for the extraction of sand and gravel was made in 2005, with the Site assigned quarry registration number QY39. As such, the quarry and associated uses are an established feature of the landscape. The extracted area extends to ca. 20.16 ha. And occupies the central area of the Site, and is ca. 450 m by ca. 445 m.

The quarry site is accessed via a gravel covered laneway from the L5155 road linking to the L1152. The laneway is ca. 800 m long and bounded on both sides by a mixture of agricultural fields, plantation woodland and heath/scrub. The laneway currently leads to the administration buildings via the aggregate processing plant area (plant site). The plant site area is established central to the site and the depth of extraction currently takes place to ca. 125 m OD, at the central area of the plant site which is above the water-table. Extraction of sand and gravel was worked to approximately 114mOD, east and northeast of the plant site where sand and gravel deposits were exhausted. Historically, limited extraction took place below the water-table in the northwest corner of the Site, but this has now ceased, with the resulting waterbody located to the northwest of the plant site providing a series of diverse habitats,

A review of historic aerial photography and mapping indicates that the lands that are the subject of this REIAR were undulating and formed a generally low-lying area in the local landscape, which drained to the northwest by a series on interconnected streams and field drains. It is noted that the highest point of the Project Site in 1990 was 130mOD and the highest point is currently at ca. 127 m OD.

Having regard to the purpose of this REIAR as presented in Chapter 1.0, the evolution of the development for an application for substitute consent is set out below as a baseline in 1990, and as a description of the lands at the current time (2022).

2.3 Development of Subject Site from Baseline to Current Time

Section 3.6.1 of the 2022 EPA EIAR Guidance states that together: the description of the project "…the description of the baseline scenario is the second of the two factual foundations of the EIAR."

In this instance, an REIAR is presented and thus relates to development already undertaken. For this reason, the baseline scenario required to be described has passed.

In deference to the requirement for Environmental Impact Assessment arising since 1st February 1990, the baseline of this REIAR has been set at that appointed day. Therefore, the drawings submitted in support of the substitute consent application identify the Site as it existed ca. 1990 and today.

Extraction of the project lands, as evidenced in previously submitted registration and application material, was begun in the 1940s, with registration of quarrying activities in 2005 (Reg. Ref.: QY/39).

2.3.1 Sources of Information and Methodology

To retrospectively build a narrative of the development of the Project Site over its extraction lifetime, publicly available resources; historic mapping and photography; permitting and licensing histories; and historic monitoring records have been reviewed and relied upon.

The planning and related licensing history of the Project Site has been reviewed to understand the evolution of extraction and development at the Site. Site maps, surveys and information submitted with previous applications, and their consideration by authorities, have been utilised to obtain point in time descriptions of the Project Site.

Environmental monitoring records made available by the operator have been utilised alongside site visits and monitoring undertaken specifically for the preparation of this REIAR. In addition, the quarry operator has provided historical extraction rates and information on the direction of the phased extraction at the Site. Information from an EIA in 2008 and a previous substitute consent application in 2014 also informs this document. The various REIAR contributors have extrapolated these results, relative to the level and location of extraction and processing to assess the retrospective impact of development.

Information, including maps, raster data and aerial photography in respect of ground levels, ground cover and development, is available from Ordnance Survey Ireland (OSI). Figure 2.3 to Figure 2.7 provide an overlay of the substitute consent application boundary on available OSI aerial photographs from 1993, 1995, 2000, 2004, 2009 and Google Earth imagery from 2011, 2015 and 2021 in order that an independent source of description information for the lands at baseline (1990) and during the intervening years could be made. In some cases, such as the OSI aerial from 1993, the imagery covers only the quarry site and immediate area, where this occurs, the wider aerial is the default aerial base (2021 imagery) from ArcGIS. Although these are orthophotographs, an approximation of depth from these sources is possible. A topographical survey of the Site was undertaken in February 2022 providing a snapshot of the extent of the quarry today.

The baseline map submitted as part of the substitute consent application to represent the extent of the quarry void and plant site in 1990 was constructed using the 2022 topographic survey of the Site, the current OSI map for the area, and an estimation of ground levels from historic 6” maps and orthophotographs.

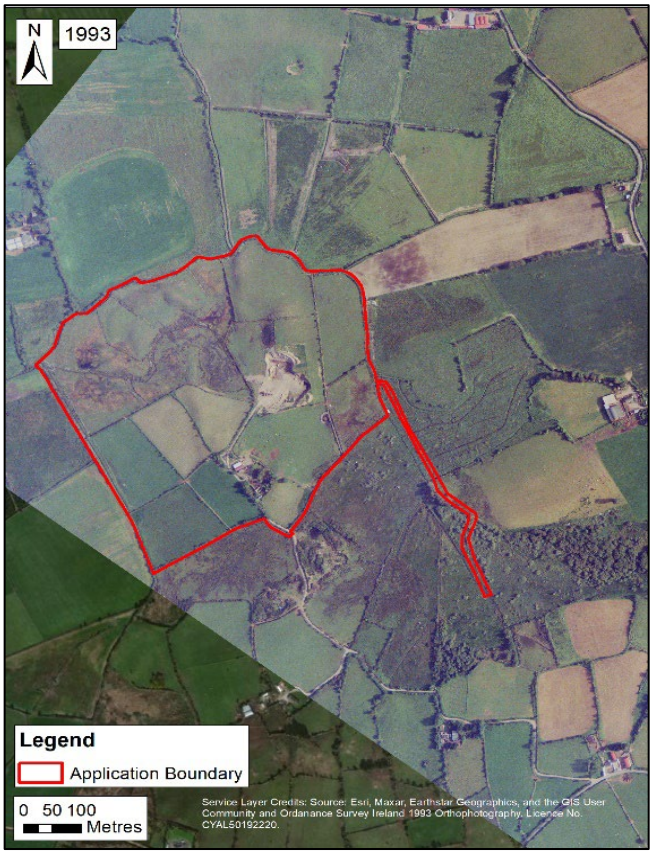

Figure 2.3: Aerial Photo of the Site in 1993

Figure 2.4: Aerial Photos of the Site in 1995 and 2000

Figure 2.5: Aerial Photos of the Site in 2004 and 2009

Figure 2.6: Aerial Photos of the Site in 2011 and 2015

Figure 2.7: Aerial Photo of the Site in 2021

The Site Layout plans submitted as part of substitute consent application (planning drawing pack) for the Site present the baseline (1990) and current (2022) site conditions.

2.3.2 Site Development Progression

Using the information collated for the Site, including depth and extent of extraction, the rate of extraction and likely traffic flows generated over the lifetime of the development has been estimated where required to inform the application.

To present this information at a single location, Table 2.1 sets out the principal occurrences on and around the Project Site, and the principal sources of information utilised to construct the history of the development of the lands, from a combination of planning, licensing and consent searches and information provided by the quarry operator.

2.3.3 Development Principal Events

Table 2.1 sets down a timeline to present the progression of the Project Site in a coherent order. The start of operations in the 1940s through to 2022 have been identified in this table. Whilst substitute consent cannot seek permission for any future development, future extraction is anticipated to remain at levels commensurate with averaged annual extraction rates for the last five years. In this way, mitigation measures have been identified to accord with the requirements of EIA and allow for the identification of mitigation measures to ameliorate anticipated effects.

February 1990 is identified as a key event year for reason of that being the appointed time from which EIARs have been required.

In order to provide a description of the Project Site and development over the identified timeline (from 1990), intervals between key dates have been chosen with intervals of no more than 10 No. years.

The principal projects in the vicinity of the Site are included alongside the principal events identified at Table 2.1 to allow for a description of the development of the site context.

Having regard to the EIAR requirement to assess in-combination and cumulative effects, significant projects in the area have been considered, with their permitting timelines and, where possible, the information submitted with those applications reviewed, to further aid in building a profile of the development subject site over its lifetime.

Table 2.1: Summary of Key Events on Project Site

Time		Events	
Year	**Reference / Source**	**Site Event**	**Principal Projects / Extra Site Events**
c. 1940	27 April 2005, S.261 Registration Form	[1] Extraction declared and accepted to be began circa. 1940	
1999	Land Registry	Lands transferred to applicant	
2005	Wicklow County Council (WCC) S.261 Registration ref. QY39	Quarry registration as existing and pre '63	
2006	Ref. 06/4577	Erect new site entrance and driveway to existing sand & gravel pit and farm	
2008	08/1153	Retention/Continuation of use of existing sand & gravel pit	
2012	126015		Permission for a C&D waste recycling facility southeast of the Site
2012	Section 261A(3)(a) Notice	Section 261A(3)(a) Notice issued by WCC	
2014	Section 261A(3)(a) Notice	Request for review to the Board by the applicant	
2014	Section 261A(3)(a) Notice	Board Direction to submit a Substitute Consent Application	
2014	SU121	Substitute Consent Application	
2016	161434		Permission for continuation of use of a C&D waste recycling facility southeast of the Site
2016	SU121	Substitute Consent Refusal by the Board	
2019	2016/187 JR	Judicial Review of the Boards Decision - Refused	
2020	ABP - 30472-20	Leave to Apply for Substitute Consent	
2021	ABP - 30472-20	Grant of Leave to apply for Substitute Consent	
2022	22278		Permission for continued of use of existing waste recycling facility southeast of the Site

NOTES: Reg. Ref. = Planning Application Register Reference Number under Planning & Development Acts. WCC = Wicklow County Council. ABP= An Bord Pleanála.

2.3.4 Summary of Progression of Extraction from Baseline to Current Time

The single most significant impact of the development, the subject of this REIAR, is that it consists of a quarry and therefore there has been movement of soils / subsoils and extraction of aggregate from the void area.

The amalgamation of historic mapping, current surveys and aerial photographs has provided a credible estimation of total volumes extracted from the Site since 1990. In order to augment these findings and provide an estimation of the rate of progression of extraction to date during the intervening period where historic mapping and photography is not available, historic planning and licensing submitted information has been consulted.

Table 2.2 provides an estimate of the amount of material recovered from the Project Site over time by combining total void size, estimates of material recovered from extraction rates provided in planning history files and information obtained from the quarry operator.

Set out below is the methodology used to estimate the total volume of material extracted from the Project Site since 1990. In the interests of a precautionary approach, no wastage has been allowed for, and therefore it is expected that the estimated total volume extracted will be higher than was actually observed being processed and leaving the site i.e., an estimate of total extracted volume has been calculated here.

The method of estimation included consideration of:

i) Estimated pre-extraction ground levels (estimated from OSI historic mapping);

ii) Observed current average working depth of ca. 114 mAOD from topographical survey of February 2022;

iii) Obtained estimated extraction direction and extraction rates from operator;

iv) Estimated current void volumes;

v) Assumed depth of sand and gravel below overburden;

vi) The m^3 total extracted volume was converted to tones using a recovery factor of 1.9 for sand and gravel;

vii) These assumptions result in an estimation of a total extraction of over ca. 1.5 million tons of aggregate from the lands over 31 years from 1990 to 2021 (inclusive) and

viii) The extraction direction of lands beginning in an area of ca. 0.75 ha in 1990, located on the eastern half the Site. Extraction then moved north and westward over an area of ca. 20.16 ha. and continues to be extracted today (2022), giving rise to a substitute consent area of ca. 23.7 ha, which includes topsoil storage areas and buffer zones.

Estimated historic extraction rates from baseline (1990) to today (2021) are provided at Table 2.2.

Table 2.2: Estimated Historic Extraction Rate from 1990 Baseline to 2021 (inc.)

Year	Estimated Extraction (Tonnes)	Year	Estimated Extraction (Tonnes)
1990*	25,000	2006	85,583
1991	25,000	2007	108,558
1992	25,000	2008	113,595
1993	25,000	2009	97,783
1994	25,000	2010	65,285
1995	25,000	2011	38,816

Year	Estimated Extraction (Tonnes)	Year	Estimated Extraction (Tonnes)
1996	25,000	2012	26,743
1997	25,000	2013	22,277
1998	25,000	2014	19,813
1999*	25,000	2015	25,099
2000	21,111	2016	38,215
2001	22,222	2017	41,808
2002	25,333	2018	36,440
2003	90,714	2019	38,584
2004	133,308	2020	41,192
2005	95,732	2021	44,336
Estimated Total: ca. 1,482,547 tonnes (ca. 1.48 Mt)			

** The current operator purchased the business in late 1999, and as a result there are no tonnage extraction records available for the period between 1990 to 1999. An estimate of 25,000 t/yr extraction has been applied to this period based on the extraction records for 2000, 2001 and 2002.*

2.3.5 Traffic

All traffic occurring within the quarry is internal traffic using internal short informal haul routes. No pedestrian access is permitted to the active extraction areas of the Site.

Once excavated aggregate leaves the quarry void, they are transported to the aggregate plant (via internal haul routes) by truck for processing: washing, and screening and temporary storage prior to being sold to the market. Internal traffic speeds are limited to less than 15 km/h.

The Traffic chapter of this rEIAR (11.0), provides a description of the traffic arising from the Site as a function of the estimated extracted material at the timelines and extraction rates presented in Table 2.2.

Access to the sand and gravel pit is from the public road along an existing access road from the southeast. The junction between the site access road and the public road is appropriate for the flows that existed during the period of the quarry development.

Planning permission (Ref. 06/4577) was granted by Wicklow County Council for a new access road to the east of the Site and entrance to the sand and gravel pit in 2007. This access road is constructed but cannot be brought into use until such time as the quarry is authorised.

Generally, there were four haulage routes over the period of the Development, with HGVs travelling to and from the site 1) to the junction of the local roads L5155 and L1152; 2) east along the L1113 and L1157 to join the N11 at ‘The Tap’; 3) west along the L1152 to join the R752 at the railway bridge 1.5km north-east of Rathdrum; and 4) returning north to the site along the L1113 from the M11 at ‘The Beehive’ (see attached map of main haulage routes).

The annual tonnage rate of extraction from the sand and gravel pit during the period of the Development was on average 50,000 tons per annum. It is estimated that approximately 20 truck movements per day out and 20 truck movements per day in, with approximately 8 No. staff/visitor cars movements in and out occurred over the period of the Development, on average.

It is considered that traffic from the Development did not have significant adverse effects on the capacity of the surrounding road network. Therefore, low to moderate environmental effect on the road infrastructure has occurred as a result of the Development with no remedial measures identified beyond maintaining appropriate access arrangements for future operations.

2.3.6 Hours of Operation

Reflecting normal practice and as declared on the S.261 registration form for the Site ref. QY39, operational hours for the Site are 07.30 to 17:30 hours Monday to Friday, and 07.30 to 14:00 hours Saturday. There is no working on Sundays or Bank/Public Holidays.

2.3.7 Employment

Direct and indirect employment is attributable to the REIAR area since baseline. Employment levels vary in accordance with market demand and associated extraction and processing requirements. Direct employment is in the categories of plant operators, fitters, laboratory technicians and administrative staff.

The operations on-site are part of a family business, led by the owner / operator who has worked himself on the site since 1999, when he purchased the Site and associated lands. Since 1990, there has been a steady increase in full time employment generated by the Site and its associated activities for reason of both increased demand and increased administrative and product audit complexities. Since 1999, full time employment on the site is an average of 8 no. employees, with haulers and other contractors and service employees generating secondary employment of a further 25 no. fulltime equivalents.

The quarry operator has a fleet of haulage vehicles and drivers, with additional haulage requirements being met by independent contractors who do not have their permanent workplace on-site.

It is noted that, at times when peak demand existed, the work, including direct employees, sub-contractors, haulers, maintenance contractors, material suppliers etc., increased from time to time.

2.3.8 Fuel and Chemical Storage

Fuel storage is in double skinned and bunded fuel tanks located in the maintenance area (refer to Drawing No.03 Rev A of the of the Planning Drawings). Refueling occurs at these tanks over a concrete apron with spill matts in place. Oils, chemicals and admixtures are ordered and used as needed, and used oil and chemical containers are separately stored within the maintenance area for disposal by licensed contractor.

2.3.9 Waste Management

The waste arising on-site is municipal waste from staff welfare activities and is disposed of via domestic waste collection. Similarly, scrap metal arising on-site is stored within a designated area at the Site prior to collection by a licensed waste contractor.

Waste is also generated from the maintenance and servicing of equipment, these include waste oils and lubricants and tyres, which are collected and managed appropriately by an authorised waste contractor. The Site generates limited quantities of light bulbs, batteries and scrap metals. These are disposed of as required by appropriately authorised contractors.

2.3.10 Waste-Water

A septic tank exists on-site to cater for full time site employees, contractors and additional visitors. The location of the septic tank and percolation area is shown on Drawing No. 03 of the planning drawing set.

2.3.11 Potable, Surface and Groundwater

There is a well adjacent to the administration area, as indicated on the site layout drawings submitted with this application. Water from the well is used to provide potable water and to service on-site welfare facilities.

Water for the washing of aggregate is sourced from an on-site waterbody and is recycled through a closed-loop system via a series of silt ponds, which are periodically emptied. Once dried, the silt from the ponds is used in the restoration of the Site.

There is currently no extraction of aggregate from below the water table. Historically this did occur in the northern part of the quarry but ceased in c. 2008. Chapter 6.0 of this REIAR presents a water balance for the substitute consent quarry and plant areas in order to demonstrate the ability of the existing settlement ponds within the substitute consent area to manage (within site boundaries) the surface water arising within the operational areas of the Project Site.

2.3.12 Power Supply and Telecommunications

Power is supplied to the Project Site via the electricity network. A 110KV power supply line enters the site overhead from the west, supplying the processing area where 3 phase power supply is required to run the washing and screening plant.

2.3.13 Safety and Security

The Project Site is required to comply with relevant legislation. In particular, the relevant Health and Safety legislation (Safety, Health and Welfare at Work Act, 2005, the Mines and Quarries Act, 1965) and subsequent Quarries Regulations relating to health and safety, training, appropriate site management etc. are complied with. Amongst these regulatory requirements are the need to keep on-site an up-to-date Health and Safety File, which records safe procedures, deviations from those procedures and accident reports.

Compliance with these requirements is assumed to have been contemporaneously complied with throughout the life of the operations to date. The operator maintains a Health and Safety File and facilitates site inspections by the Health and Safety Authority (HSA).

The Project Site is fully fenced, with any agricultural entrances permanently closed and locked. The only vehicular entrance in operation is that from the L5155, which is gated inside the edge of the carriageway to allow for safe onward travel of vehicles. All vehicles entering and exiting the Site must do so from the L5155 entrance, and travel along a dedicated private gravel covered access road to the administration/maintenance and aggregate processing areas.

There is no requirement for lighting outside of the Project Site, but within the lands, certain working hours (after dark in winter periods), necessitate lighting, which is turned off when the Site is closed.

2.3.14 Rehabilitation

This REIAR has been prepared for a substitute consent application for quarrying under S.261A of the Planning and Development Act, 2000 as amended. It is recognised that substitute consent applications cannot propose development that is not quarrying, the definitions of which are at Section 1.1.6 of this REIAR. Extraction has occurred on the project lands since the 1940s and the quarry was registered at a time when proposals for post-quarrying reuse (rehabilitation, restoration) were not envisaged nor required. It is noted that no conditions were scheduled in respect of QY39, likely due to the protracted nature of final registration of the QY39.

This REIAR (Chapter 11.0 Landscape and Visual Impact) contains a concept for a restoration plan. The plan is conceptual only, and not works to be undertaken having regard to the above limitation on the substitute consent application for further works, historic information, site surveys and analysis undertaken for the preparation of this REIAR, and the requirement to provide parameters for the analyses of the REIAR contributors and the EIA requirement to identify effects and mitigation measures.

2.4 Major Accidents and Disasters

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU), requires that an assessment is made of '*the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned*'.

The consideration of major accidents and disasters seeks to assess the relevant accidents and disasters that a Development is vulnerable to, and the relevant accidents and disasters that a Development could give rise to. These unforeseen and unplanned events are to be assessed on the risk of their occurrence, however in view of the retrospective nature of this REIAR, the scope of this section is limited to a review of previous operations at the Site.

Potential risks of major accidents and / or disasters that are inherent to quarrying operations include:

- Fire/explosion.
- Unplanned outages or disruption to services;
- Road traffic accidents resulting from Heavy Good Vehicle (HGV) movements;
- Contamination of the groundwater/ surface water;
- Flooding; and
- Falling debris or the collapse of benches or quarry faces.

Extraction activities at the Site during the assessment period have been managed to ensure the that the risk and vulnerability of the Site and the surrounding infrastructure to major accidents and disaster has been minimised.

In terms of national guidance, in January 2010 the then Department of Environment, Heritage and Local Government (DEHLG) produced 'Guidance Document 1, A Guide to Risk Assessment in Major Emergency Management' (DEHLG 2010 Guidance).

This document sets out a criterion to classify emergencies on a five-level scale from 'Minor' to 'Catastrophic', (Table 2.3). Those emergencies that have been classified as 'Serious', 'Very Serious' and 'Catastrophic' are deemed to be 'Major Emergencies'.

During the assessment period of 1990 to the present day, activities at the Site have not resulted in accidents or disasters that are deemed to be 'Major', therefore there has been an imperceptible effect (including no effect) of the Site activities on the surrounding environment in regard to major accidents and disasters.

Table 2.3: DEHLG, 'A Guide to Risk Assessment in Major Emergency Management' (2010), Risk Classification Table

Rank	Classification	Impact	Description
1	Minor	Life, Health, Welfare Environment Infrastructure Social	Small number of people affected; no fatalities and small number of minor injuries with first aid treatment. No contamination, localised effects <€0.5M. Minor localised disruption to community services or infrastructure (<6 hours).
2	Limited	Life, Health, Welfare Environment Infrastructure Social	Single fatality, limited number of people affected; a few serious injuries with hospitalisation and medical treatment required. Localised displacement of a small number of people for 6 - 24 hours. Personal support satisfied through local arrangements. Simple contamination, localised effects of short duration €0.5 - 3M Normal community functioning with some inconvenience.
3	Serious	Life, Health, Welfare Environment Infrastructure Social	Significant number of people in affected area impacted with multiple fatalities (<5), multiple serious or extensive injuries (20), significant hospitalisation. Large number of people displaced for 6-24 hours or possibly beyond; up to 500 evacuated. External resources required for personal support. Simple contamination, widespread effects or extended duration €3 - 10M. Community only partially functioning, some services available.
4	Very Serious	Life, Health, Welfare Environment Infrastructure Social	5 to 50 fatalities, up to 100 serious injuries, up to 2000 evacuated. Heavy contamination, localised effects or extended duration €10 - 25M. Community functioning poorly, minimal services available.
5	Catastrophic	Life, Health, Welfare Environment Infrastructure Social	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated. Very heavy contamination, widespread effects of extended duration. >€25M. Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.