

Chapter 15:

LANDSCAPE & RESTORATION

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15 LANDSCAPE & RESTORATION

15.1 Introduction

This Chapter of the remedial Environmental Impact Assessment Report (rEIAR) will establish potential landscape and visual impacts/effects arising from the existing extraction and ancillary operations associated with this quarry site at Drumbeagh, Mountcharles, Co. Donegal. It aims to identify and assess the effects on the appearance and character of the local environs arising from the existing development. A landscaping plan is proposed which will be implemented during the operational lifetime of the extraction site with a restoration plan to be implemented upon closure of the quarry.

A Landscape and Visual Impact Assessment combines the magnitude of change with the sensitivity of the landscape to the existing development, which provides a measure of the significance of the impacts. The acceptability of a development is determined by the extent to which the long-term landscape and visual effects are significant. Understanding the character, quality and value of the landscape determines the sensitivity of that landscape to accommodate change through development. The two principal factors determining the visual impact of a development are the sensitivity of the location or receptor and the scale or magnitude of the development.

15.2 Methodology

A detailed landscaping and visual assessment were undertaken to assess the impact of the existing development on the surrounding landscape. This involved field work and a desk-based study to gather information on the existing landscape, visual resources, planning context and landscape designations. Information has been gathered from:

- Ordnance survey Ireland
- Aerial photography
- Field surveys
- Donegal County Development plan 2018-2024

The following methodologies for assessment of landscape character, sensitivity and visual impact have also been used in the preparation of this report:

- DOE Landscape and landscape assessment guidelines (June 2000).
- EPAs Guidelines on the information to be contained in an Environmental impact statement, 2022.
- Guidelines for landscape and visual impact assessment, (GLVIA) by the landscape Institute of Environmental Management and assessment (Second edition, 2002).
- The landscape Institute with the Institute of Environmental Management and Assessment, 2013, Guidelines for landscape and visual assessment (Third edition).

Field observations were undertaken to assess the landscape character and structure of the subject site and surroundings. A visual impact assessment of the subject site was undertaken from publicly accessible viewpoints in the vicinity. This Chapter now assesses the potential impacts that may arise from the existing development on the landscape within the receiving environment.

15.2.1 Landscape Assessment Criteria

When assessing the potential impacts on the landscape resulting from a development, the following criteria are considered:

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

The sensitivity of the landscape to change is the degree to which a particular landscape receptor can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. Table 15.1 outlines landscape value and sensitivity classified using the following criteria:

Table 15.1: Landscape value and sensitivity

Sensitivity	Description
High	A landscape of particularly distinctive character, susceptible to relatively small changes.
Medium	A landscape of moderately valued characteristics reasonably tolerant to change.
Low	A relatively unimportant landscape, the nature of which is potentially tolerant to substantial change.

The magnitude of a predicted landscape impact is a product of the scale, extent or degree of change that is likely to be experienced because of the development. The magnitude considers whether there is a direct physical impact resulting from the loss of landscape components and/or change that extends beyond the proposal site boundary that may have an effect on the landscape character of the area, as outlined in Table 15.2.

Table 15.2: Magnitude of landscape impacts

Magnitude of impact	Description
High	Notable changes in landscape characteristics over an extensive area and/ or permanent long-term change.
Medium	Moderate changes in a localised area and/or medium-term change.
Low	Small change in any components and/or short term/temporary change.

The significance of a landscape impact is based on a balance between the sensitivity of the landscape receptor and the magnitude of the impact. Table 15.3 outlines the significance of landscape impacts is arrived at using the following matrix.

Table 15.3: Landscape impact significance matrix

Magnitude of landscape resource change	Landscape Sensitivity		
	Low	Medium	High
No change	No change	No change	No change
Low	Slight	Slight/ Moderate	Moderate
Medium	Slight/Moderate	Moderate	Moderate/Substantial
High	Moderate	Moderate/Substantial	Substantial

15.2.2 Visual Impact Assessment criteria

As with the landscape impact, the visual impact of the development is accessed as a function of sensitivity versus magnitude. In this instance the sensitivity of the visual receptor is weighted against the magnitude of the visual effect.

Sensitivity of visual receptors

Unlike landscape sensitivity, the sensitivity of visual receptors, see Table 15.4, has an anthropogenic basis (i.e. it balances the visual susceptibility of the viewer against the value of the view on offer). The susceptibility of a viewer to changes in a particular view related to the occupation or activity they are engaged in at that location and whether views of the surrounding landscape are an important aspect of that occupation or activity i.e., hill walkers versus commuters. By comparison, the value of the view relates to the visual setting of the viewer and whether this is recognised through county designations and guidebooks or is likely to just have local value.

Table 15.4: Visual receptor sensitivity

Sensitivity	Description
High	e.g. users of an outdoor recreation feature which focuses on the landscape; valued views enjoyed by the community; tourist visitors to scenic viewpoint; occupiers of residential properties with a high level of visual amenity.
Medium	e.g. users of outdoor sport or recreation which does not offer or focus attention on landscape; occupiers of residential properties with a medium level of visual amenity
Low	e.g. regular commuters, people at place of work; occupiers of residential properties with a low level of visual amenity.

Visual impact magnitude

The magnitude of visual effects, see Table 15.5, is determined on the basis of two factors: the visual presence of the development and its effects on the visual amenity. Visual presence is something of a quantitative measure relating to how noticeable or visually dominant the proposal is within a particular view. This is based on a number of aspects beyond simply scale in relation to distance. Some of these include the extent of the view as well as its complexity and the degree of movement is presented and its relationship with other focal points or prominent features within the view is also considered. Visual presence is essentially a measure of the relative visual dominance of the proposal within the available vista.

Table 15.5: Magnitude of visual impact

Criteria	Description
High	Total loss or alteration to key elements/features/characteristics of the existing landscape or view and/or introduction of elements considered totally uncharacteristic when set within the attributes of the receiving landscape or view.
Medium	Partial loss or alteration to key elements/features/characteristics of the existing landscape or view and/ or introduction of elements that may be prominent but not necessary substantially uncharacteristic when set within the attributes of the receiving landscape/ view.
Low	Minor loss or alteration to key elements/features/characteristics of the existing landscape or view and/or introduction of elements that may not be uncharacteristic when set within the attributes of the receiving landscape/view.
No change	Very minor loss or alteration to key elements/features/characteristics of the existing landscape or view and/or introduction of elements that are not uncharacteristic when set within the attributes of the receiving landscape/ view.

Visual impact significance

As stated above, the significance of visual impacts is a function of visual receptor sensitivity and visual impact magnitude. The relationship is expressed in the significance matrix in Table 15.6.

Table 15.6: Visual impact significance matrix

Magnitude of visual resource change	Visual sensitivity		
	Low	Medium	High
No change	No change	No change	No change
Low	Slight	Slight/Moderate	Moderate
Medium	Slight/Moderate	Moderate	Moderate/Substantial
High	Moderate	Moderate/Substantial	Substantial

15.3 Scope

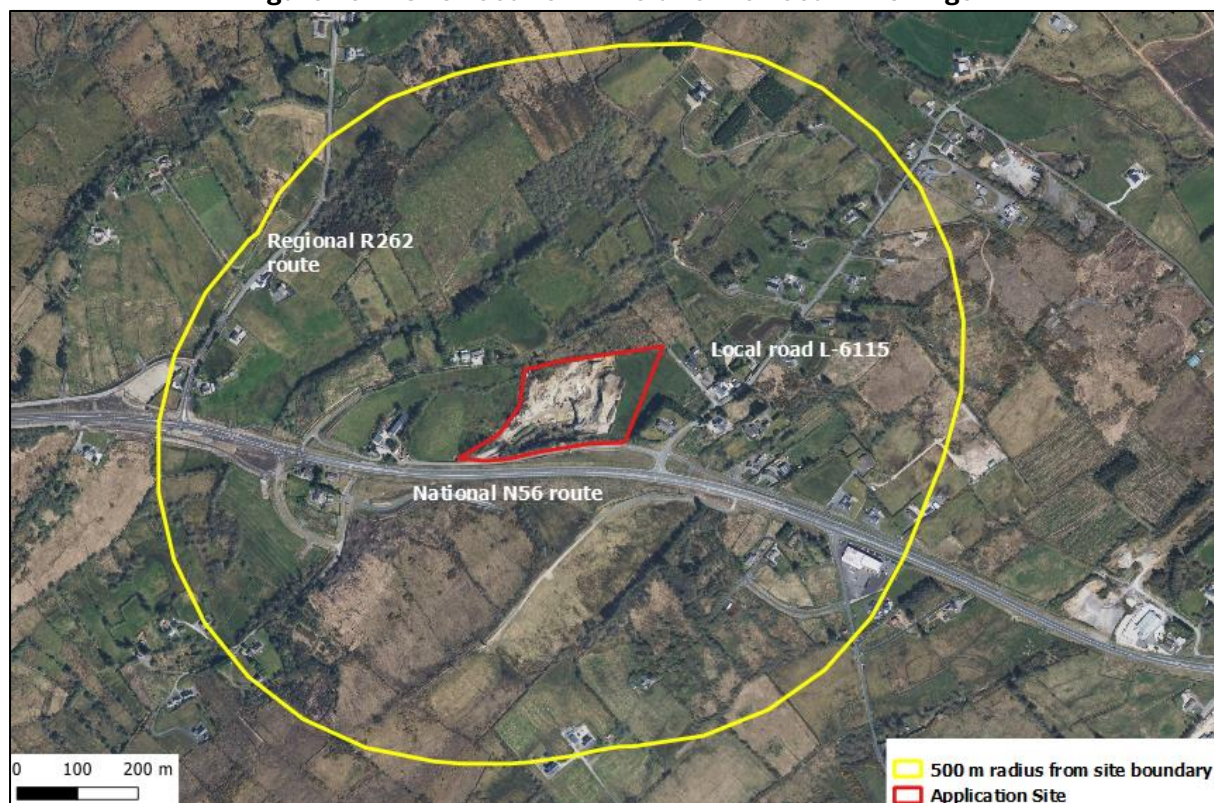
The scope of this section includes:

- An assessment and description of the existing landscape.
- The capacity of the existing landscape to absorb the existing development.
- An assessment of the impact of the quarry development and its ancillary activities on the landscape character and the visual impact of the quarry development.
- Recommendation of remedial measures to reduce or mitigate against any potential visual impacts or adverse effect on landscape character.

15.4 Existing environment

The quarry is situated in a sparsely populated rural area with sporadic once off housing. There are occupied dwellings to the west, north and east of the site. The N56 national route runs adjacent to the southern boundary of the site. Figure 15.1 shows domestic dwellings and the road network in relation to the quarry with 500m radius.

Figure 15.1: Site Location in Relation to Local Dwellings



(Created using QGIS software & Bing satellite imagery)

The application site is located in an area detailed as an area of high scenic amenity (HAS) in the Donegal County Development plan 2018-2024. A detailed habitat assessment of the subject site and surrounding environs was conducted as part of Chapter 6, *Biodiversity*, of this rEIAR. Figure 15.2 demonstrates the locations of woodland (WN6) and scrub (WS1) within the site. Also worth noting is the proportion of recolonised bare ground (ED3) which aids screening of the quarry from the east. The woodland area along the southern and southwestern boundaries provides exceptionally good screening. These are the areas of the quarry that historically would have been worked out over 100 years ago and have now formed mature woodland.

Figure 15.2: Location of habitats within the application site



The topography of the surrounding area slopes gently from northeast to southwest. The site itself slopes northeast (73 mOD in eastern boundary) to southwest (54 mOD in central western part of quarry void). Landscaped berms surrounding the quarry are in place to screen workings. These were created with the overburden from the development in the past and have become naturally vegetated with time. The berms are present along the eastern boundary and along the northwestern boundary of the site.

15.5 Landscape Character Assessment

The Donegal County Council development plan 2018-2024 classifies the subject site as being in a 'Structurally Weak Rural Area' with the nearest Urban Area located 2.5 km east around the village of Mountcharles. The County Development plan for 2018-2024 highlights areas of Especially High Scenic Amenity (EHSA) as worthy of protection from any deterioration in landscape character. The quarry site is located outside of the EHSA. The quarry site is classified as being located within an Area of High Scenic Amenity (HSA).

15.5.1 Landscape Appraisal

County Donegal has many distinctive attributes, unique landscapes and defining features; it is the most northerly county in Ireland with the most northerly landfall at Malin Head, the highest sea cliffs in Europe at Sliah Liag and reputedly the oldest town in Ireland, Ballyshannon, to name but a few.

The Landscape Character Assessment for Donegal is a document that identifies and describes the landscape character of each part of the county. Landscape Character Types are the physical attributes that make up a landscape; they are generic in nature and not specific to an area so are present throughout the County. Landscape Character types were identified following a desk-based examination of various layers of spatial data on the physical attributes of the County, in combination with historical mapping, photography surveys, 3D photography and aerial photography. The application site is located in the Donegal Bay Drumlins Landscape Character Area (LCA) which is shown in Figure 15.3 below.

Figure 15.3: Landscape Character Areas for County Donegal



(Taken from Landscape Character Assessment for County Donegal May 2016)

Donegal Bay Drumlins Landscape Character Area (LCA) consists of a large distinctive drumlin belt that flow along a northeast-southwest axis from the Blue Stack Mountains and the Pettigo Plateau east towards Donegal Bay. The drumlin formation is more prominent in the north converging at the head of Donegal Bay becoming less prominent and obvious towards the south. The drumlins are draped in a patchwork of fertile agricultural fields of various sizes bound by deciduous hedgerow and trees that are interspersed with patches of woodlands and conifer plantations. Loughs are a common feature amongst the drumlins and a large number of streams and rivers rise in higher lands to the north and east and course along valleys through the drumlins towards the sea.

This LCA is framed by the Bluestack Mountains to the north, the bog covered uplands to the east, and the meandering coastal edge curled around the mouth of Donegal Bay, with Donegal Town

in the centre. The good soils, coupled with ready access to fresh water and proximity to the sea have meant this area has been settled for a long period of history as evidenced by the many archaeological and historic sites throughout the landscape. Agriculture and fishing remain a dominant land use in this area, however tourism also contributes significantly to the local and wider economy. The tourism product is based on the landscape, seascape, history and cultural qualities of the area with a focus around the coast including the 'Wild Atlantic Way' that follows the route of the N56.

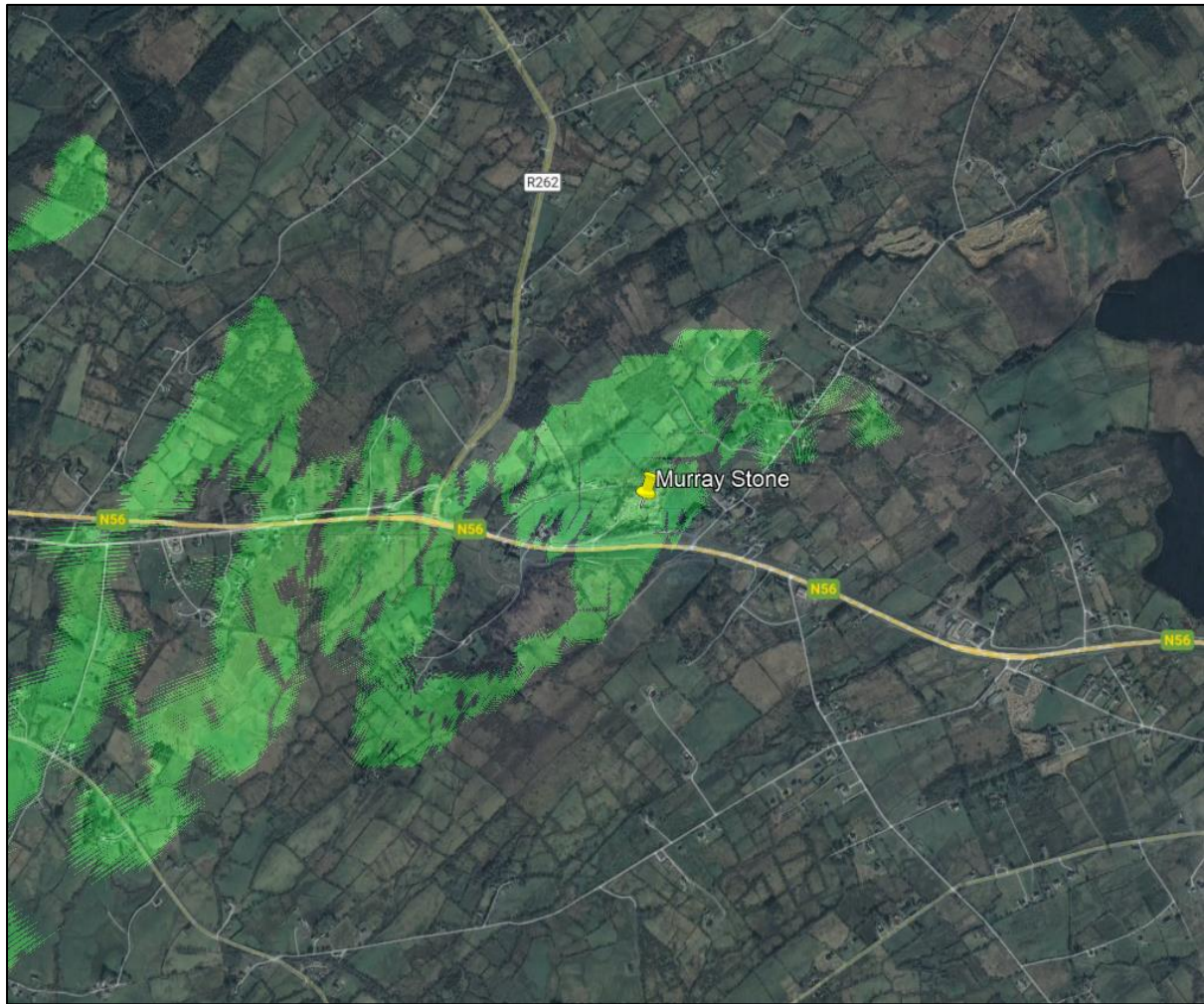
15.6 General Visual Impact

The nature and topography of the site lends itself well to being very unobtrusive on the surrounding landscape. The quarry is screened from view from approaches from the west and east on the N56 due to the extensive wooded area on site screening from the west, and mainly topographical reasons screening it from the east. No flood lighting has been or will be used in the quarry.

The development is exceptionally well screened from view. Only a few of the closest dwellings to the site can see the quarry. The visibility of the proposed development site was initially assessed by a desktop study of Ordnance Survey and street view maps to identify potential viewpoints. The viewshed feature on the software Google Earth Pro™ was also accessed. This was followed up by a field survey where viewpoints were chosen at locations from which the proposed development was visible. The viewpoints were chosen to give a representative sample of views of the proposed development within the landscape to illustrate the impact on local residential properties, transport routes and on protected views, where relevant.

15.6.1 Viewsheds

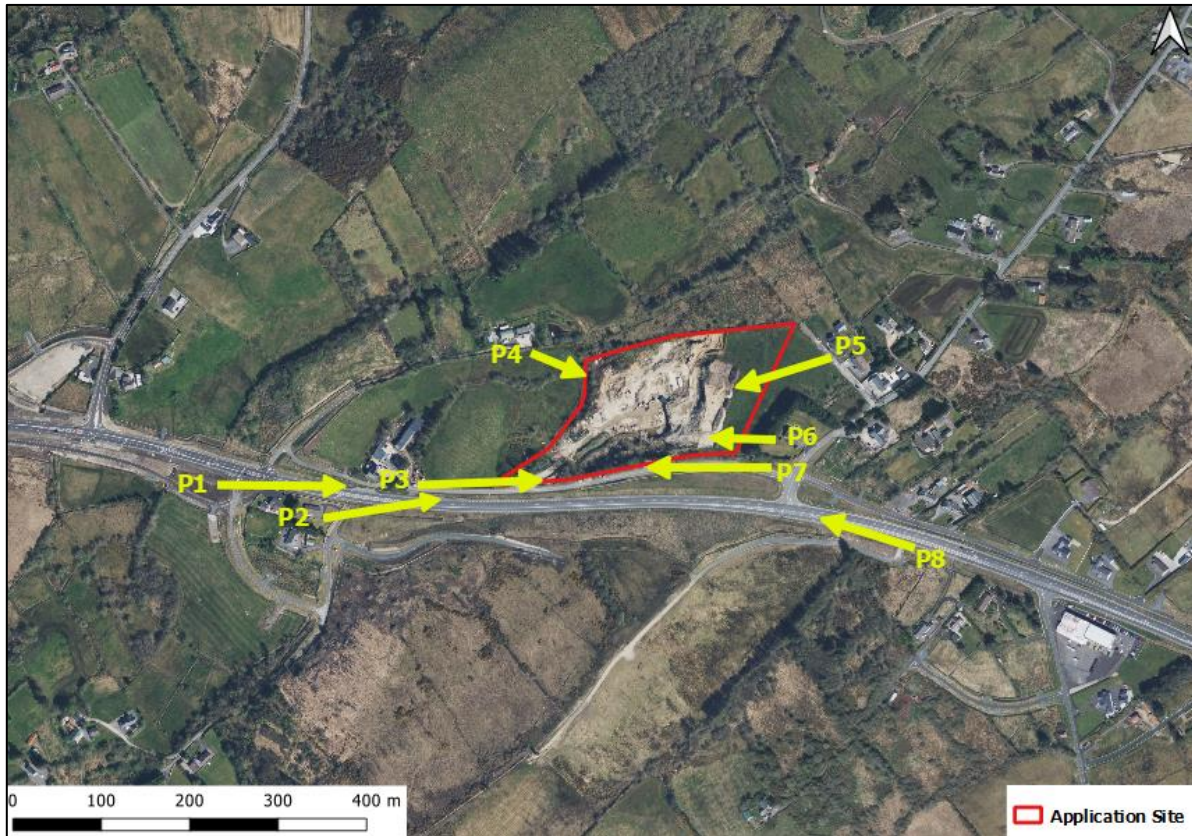
Google Earth Pro™ software was accessed and a viewsheds was defined in Figure 15.5. The viewshed were calculated using a nominal height of 6m above existing ground level on the quarry deck. In figure 15.5, shown in green are the areas from which the proposed development is hypothetically visible. It appears that the proposal may be visible from a small section of the L262, various sections of the N56 and from some areas north and south of the site. The screening value of existing vegetation & tree cover is not considered in these viewsheds. The proposed development will not be visible from as large an area as indicated and ground-truthing of the viewshed results was undertaken.

Figure 15.4: Viewshed for the quarry development

(Taken from Google Earth Pro™)

15.6.2 Visual Assessment

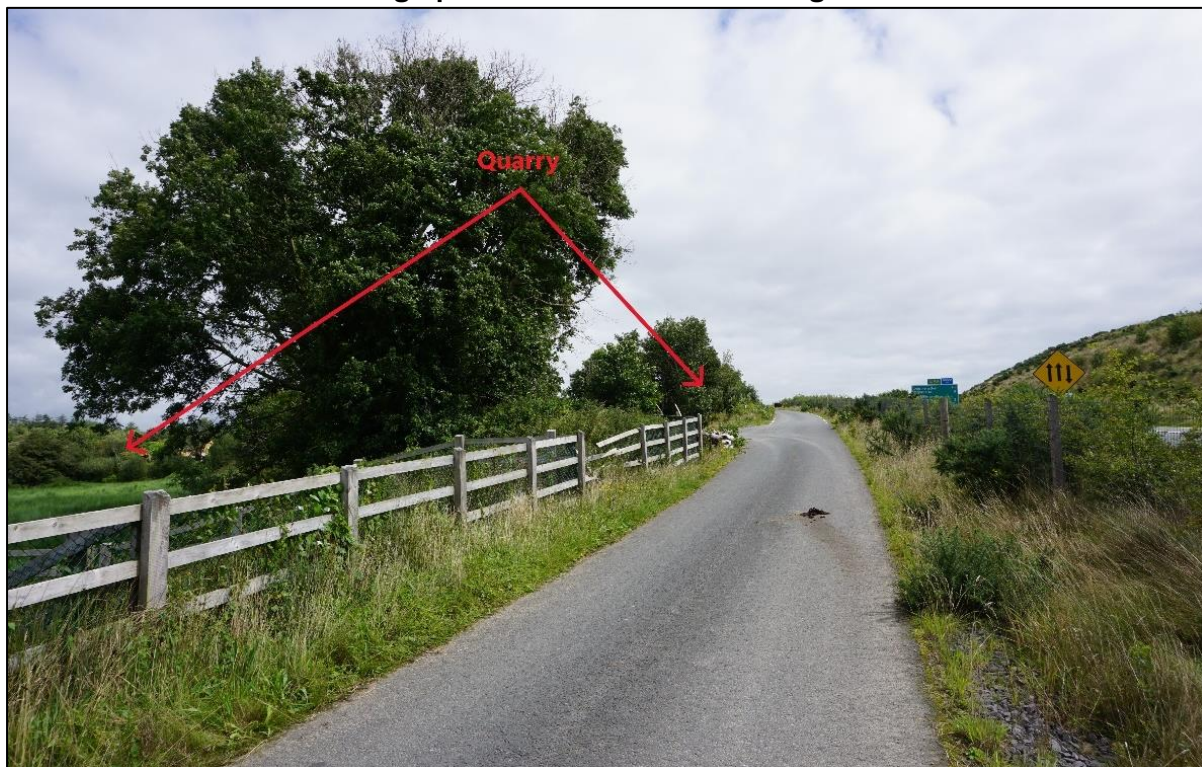
The visibility of the quarry site was initially assessed by a desktop study of OS and street view maps to identify potential viewpoints. This was followed up by a field survey where viewpoints were chosen at locations from which the quarry was visible. The viewpoints were chosen to give a representative sample of views of the quarry development within the landscape to illustrate the impact on local residential properties and on protected views, where relevant. Figure 15.5 identifies locations within the surrounding environs which were investigated regarding the visual impact of the quarry site. Photographs 15.1 to 15.9 shows the view from the various viewpoints in relation to the subject site. Table 15.7 assesses the locations of the viewpoints in relation to the subject site and whether the quarry was visible or not.

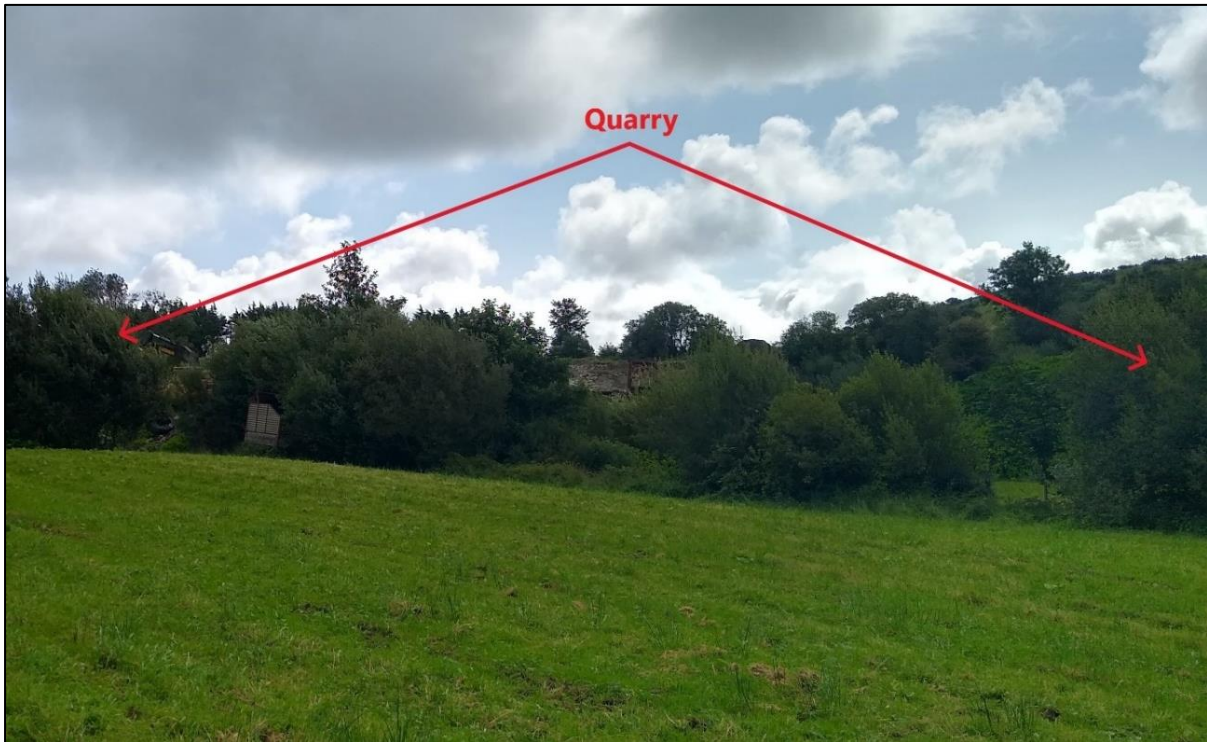
Figure 15.5: Views of the application site.

(Created using QGIS software)

Photograph 15.1: View from P1 looking east.

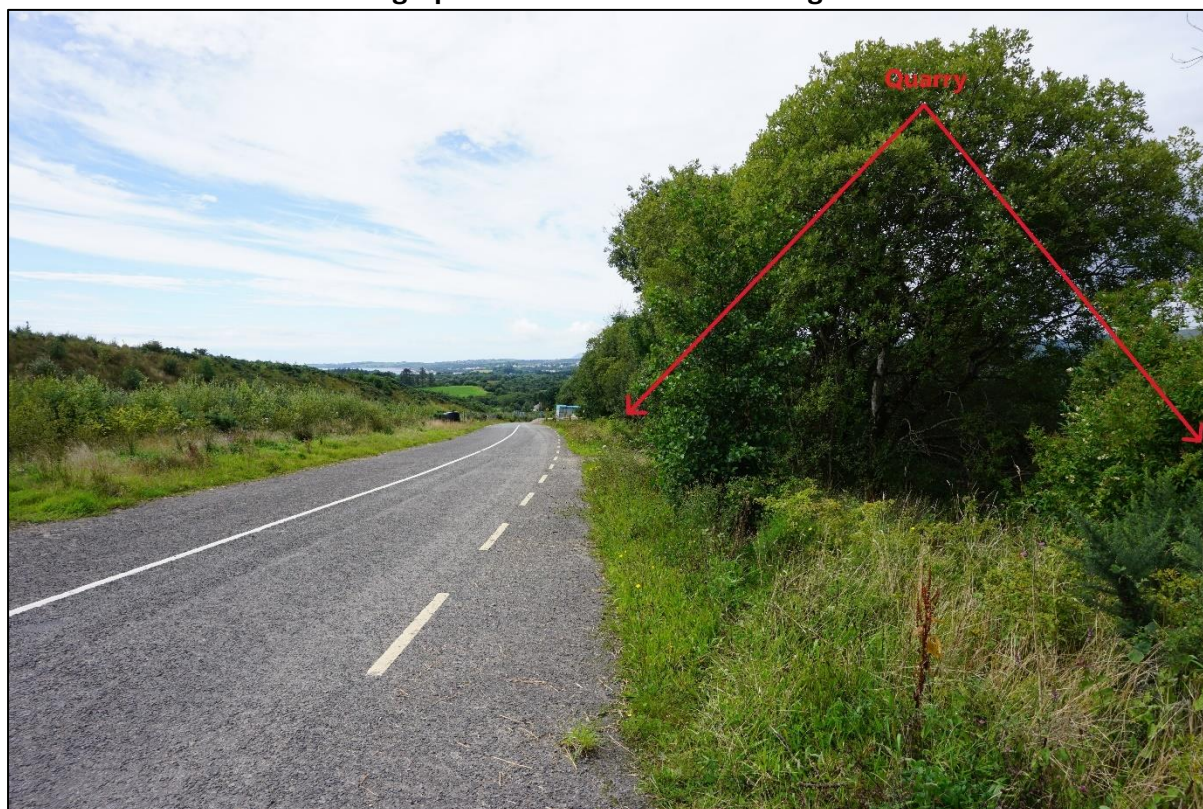
The quarry is not visible on approach from the west of the N56 due to the extensive scrub and tree cover on the southern and south-western boundaries of the site. The quarry is also not visible from the nearest dwelling to the site south of the N56 as Photograph 15.2 shows, and from the slip road to the south the quarry only the quarry entrance is visible and some machinery but none of the active faces are visible.

Photograph 15.2: View from P2 looking east.**Photograph 15.3: View from P3 looking east.**

Photograph 15.4: View from P4 looking east.

Photograph 15.4 shows the view from the nearest dwelling to the northwest of the site. The site is largely screened by an area of scrub along the northwestern boundary of the site and also by hedge in the adjacent fields. Some redundant machinery is visible, and a partial view of the quarry face is apparent. Photograph 15.5 shows the typical view that the dwellings to the northeast have of the quarry. The screening berms provided adequate visual screening in this area and no quarry plant or activity can be seen. The same screening berms provide visual screening of the quarry from the nearest dwelling to the southeastern corner of the site as is shown in Photograph 15.6.

Photograph 15.5: View from P5 looking west.

Photograph 15.6: View from P6 looking west.**Photograph 15.7: View from P7 looking west.**

Photograph 15.8: View from P7 looking west.

The quarry is not visible from the approaches on the slip road or on the approach from the east on the N56. The screening is due to the scrub, semi-mature and mature trees located on the southern boundary of the site. These provide excellent screening for the development. There is likely to have been a similar boundary historically along the southern edge of the quarry. Searches of historical aerial images on Google Earth Pro™ would suggest a significant vegetated boundary going back at least 20 years. Photograph 15.9 below is an elevated photograph taken from within the quarry showing the extent of scrub and tree cover along the southern boundary of the site.

Photograph 15.9: Extent of scrub and tree cover along southern boundary of the site (looking east).



Table 15.7: Descriptions of view from viewpoints as shown in Figure 15.5

Viewpoint	Location of Viewpoint	Description of View from Viewpoint
1	View from N56 290m west from the subject site nearest boundary	No aspect of the development is visible from this position due to the existing trees which screen the site very well
2	Nearest dwelling to the west, 210 m from site boundary	No aspect of the development is visible from this position due to the existing trees which screen the site very well
3	Applicant's dwelling 120 m west of subject site.	The development is barely visible from this position due to the existing trees which screen the site very well
4	Dwelling 70 m northwest of the subject sites nearest boundary	Partial view of some redundant machinery and one quarry face. Most of the development is screened by area of scrub and intervening hedges.
5	Dwellings 70 m to the northeast of the subject sites nearest boundary	The berms provide adequate screening. No part of the development is visible beyond the berms.
6	Dwellings 70 m to the northeast of the subject sites nearest boundary	The berms provide adequate screening. No part of the development is visible beyond the berms.
7	View from junction of slip road with L-6115 approximately 60 from southeast corner of subject site.	No aspect of the development is visible from this position due to the screening effect of the hedge/trees along the southern boundary of the site.
8	On approach to quarry from N56, c. 225 m from southeast corner of site	The development is not visible from the N56 approach due to the screening effect of the trees/hedge along the southern boundary of the site.

The visual impacts posed by quarry on the dwelling views to the northwest and east/northeast are considered slight to moderate. This quarry has existed long before these houses were built, even so the visual impact from these dwellings need to be taking into consideration.

15.7 Impact Assessment

15.7.1 Landscape

Based on the field survey and reference to the current Donegal County Development Plan, the landscape character has been given a landscape value and sensitivity of “*High*” (Table 15.1). Quarrying has taken place in the area for over 100 years which has resulted in the alteration of the landscape. The current applicant has taken measures to reduce the visual impact of the current site by creating screening berms along the boundaries and allowing the development of a mature wooded area along the southern boundary of the site. These berms have become partially colonised naturally over time and helped the quarry integrated into the landscape.

15.7.2 Visual

The field survey confirmed that the application area is almost screened from all of the viewpoints, one quarry faces is partially visible from one dwelling to the northwest and the screening berms are effective for the dwellings to the east and northeast. The subject site is not visible from other southern viewpoints, or approach on the N56 due to the topography, treelines and berms that have naturally vegetated over time.

As illustrated in Table 15.6, the assessment of the significance of the visual impacts on the viewpoint is based on a combination of the visual sensitivity and magnitude of visual changes to the viewpoint. The visual receptor sensitivity was considered “*Medium*” due to the High Scenic value of the surrounding environs the visual amenities enjoyed by occupiers of neighbouring residential properties, the magnitude of visual impact was currently considered “*Low/Medium*” due to the loss of characteristics of the existing landscape and the degree to which rock extraction activities have altered the landscape to date. The magnitude of the visual impact as a result of the development has therefore been currently assessed as “*Slight/Moderate*” (Table 15.6). Further mitigation has been proposed below which will then reduce this to “*Slight*”.

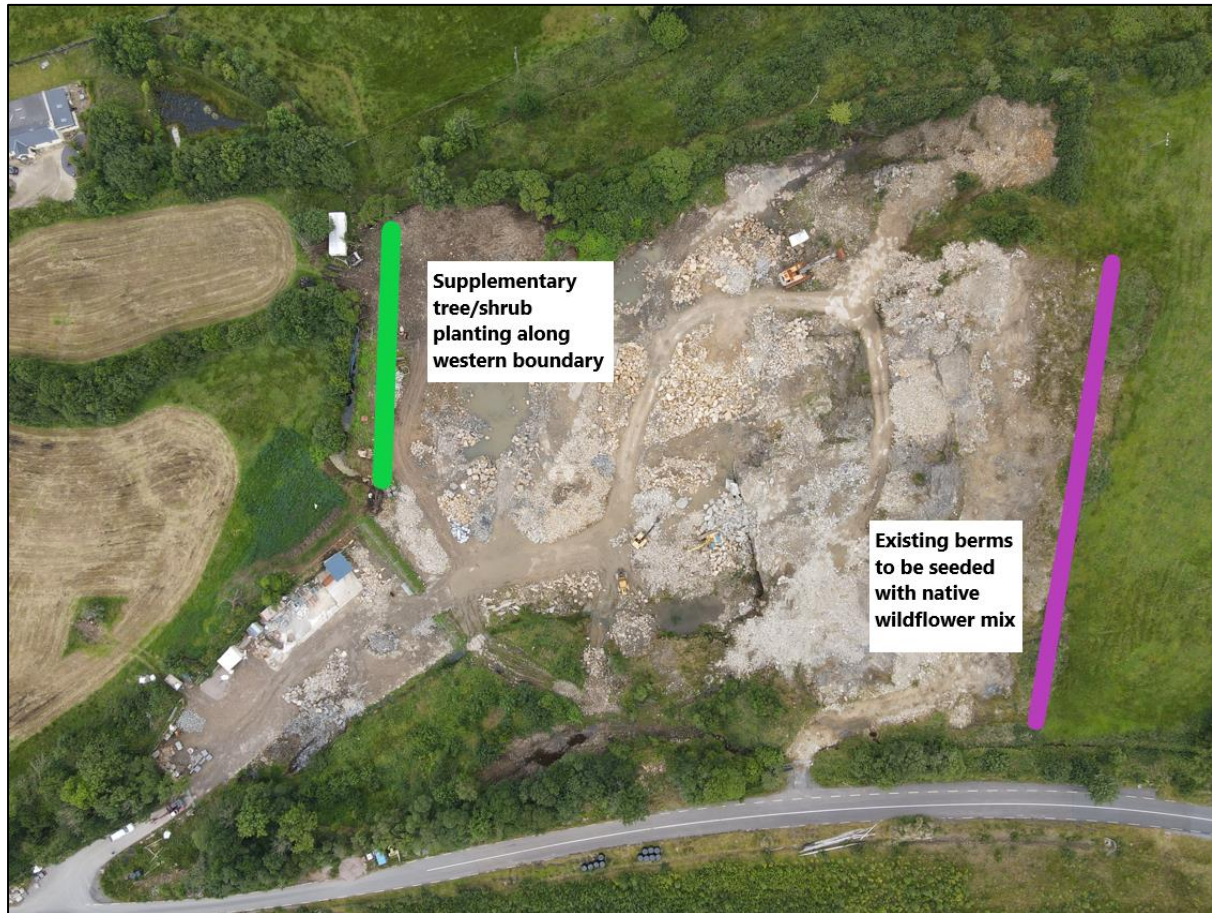
15.8 Landscaping and Restoration Measures

15.8.1 Screening

The existing berms to the east of the quarry site near the settlement ponds will be planted with native wildflower seed which will help soften the visual impact of the berms and add to the biodiversity value of the area. The use of native species will support a wider range of insects and animals and will contribute to the connectivity and biodiversity value of the region. It is not recommended to plant trees along these berms as this may impact on the wider landscape view to the hills in the west that is apparent from these dwellings to the east/northeast of the site.

It is also recommended to supplement the screening on the western boundary with native trees/shrubs so that the entire quarry is screen from view from the dwelling to the northwest. Species to be planted is listed in 15.8.2.

The existing berms and the supplementary planting area are illustrated schematically on the aerial photograph in Figures 15.6.

Figure 15.6: Supplementary planting

15.8.2 Planting Works

Planting of semi mature native species is to be carried out on the western boundary for additional screening. All plants and trees must be purchased from a source compliant with the plant health regulation 2016/2031/EU. All planting works will be carried out during the dormant season (November to March). Any trees that fail should be replaced during the next dormant planting season.

The planting mix to be used on site is as follows

- | | |
|--------------|-------------------|
| • Alder | • Holly |
| • Aspen | • Pedunculate oak |
| • Blackthorn | • Sessile oak |
| • Crab apple | • Rowan |
| • Elm | • Whitebeam |
| • Hazel | • Willow |
| • Hawthorn | |

Inter-planting between trees must also include the following:

- | | |
|----------------|------------------------|
| • Spindle | • Woodbine honeysuckle |
| • Guelder rose | • Cherry. |
| • Dog rose | |

15.9 Mitigation Measures and Monitoring

The mitigation measures that have been in place on site to reduce the visual impact of the development and blend the development into the landscape are the creation of screening berms

and the development of vegetated buffer/screening zones around the boundaries of the site. Specifically, these have been:

- a mature hedgerow along the northern boundary of the site.
- extensive mature wooded area along the southern boundary of the site.
- berms, vegetation and scrub along the western boundary.
- Screening berms along the eastern boundary

Additional mitigation measures are proposed to further screen, increase biodiversity and enhance the appearance of the development within the landscape:

- Planting berms on eastern boundary with native wildflower mix
- Supplementary native tree/shrub planting along western boundary
- Using plants suited to the given soil type and conditions to reduce the need for expensive and intrusive remedial measures (ex. Replacing failed plants).
- All planting of trees and shrubs must take place during the first dormant season, avoiding times of frost.

15.10 Restoration & After Use

The greatest potential for increased biodiversity in relation to the subject site is after the operation has ceased. With time, nature reclaims a quarry, and the landscape can revert to a rich zone of biodiversity with little intervention from human hands. The aim of any natural restoration plan is to restore ecological balance and to produce self-sustaining plant and wildlife communities and habitats. Restoration/decommissioning of a quarry can fall within three main activities, namely:

- Do Nothing
- Land Forming
- Revegetation/planting

Each activity and related options/recommendations are now examined in more detail.

15.10.1 Do Nothing

The most frequent form of reinstatement is the “do nothing” approach and allow nature to take its’ course. Upon decommissioning, the subject site will similarly be reclaimed by nature. The seedbank will have the opportunity to germinate and vegetation in the surrounding area will spread into the bare soils.

15.10.2 Land forming

The subject site will have some near vertical faces with various crevices and ledges upon decommissioning. The vertical faces of the quarry after use could provide potential nesting sites for birds and other small mammals. Topsoil could be imported and spread on the available benches against the bottom of the quarry face creating a buttress of approximately 0.5 to 1m in height. This buttress will provide a foot hold for vegetation to become established at the bottom of the quarry face to improve biodiversity.

15.10.3 Restoration Plan

A full and comprehensive restoration plan must be submitted and agreed with the planning authority in relation to one or both of the following as they become relevant:

- Restoration of the c. 2.49-hectare excavation area.
- Restoration of the entire subject site of c. 3.45 hectares.

The restoration plan outlines the work to be carried out in a phased programme to ensure that the restoration of the quarry lands will be implemented in accordance with the landscaping

proposals. The following matters have been considered as part of the Landscape and Restoration Plan to protect:

- Biodiversity
- Habitat type and species local to the quarry.
- Planning requirements and applicable legislation.
- Interaction with the surrounding environment.
- Health & safety considerations.
- Resources available.
- Nature and extent of aggregates extraction.
- Availability of suitable restoration materials.

The restoration of the quarry is divided into the following phases:

Phase I – Permanent restoration of side slopes during rock extraction.

Quarry faces adjacent to the boundary of the quarry works or adjoining lands will be restored to a permanent restoration. This activity will be undertaken during extraction activities and will include following works:

- Benches will be brought to form 70-degree side slopes to the quarry face.
- The maximum height of a bench in the quarry will be 20 metres and the proposed width of each bench will be 5 metres wide.
- Suitable side slopes will be covered with a layer of subsoil where possible and allowed to regenerate with natural vegetation indigenous to the area.

Phase II – Final restoration of areas after completion of extraction.

The final restorations will commence on the completion of the quarry excavations. This will consist of the following:

- All plant and machinery and office facilities will be removed from the excavation area.
- All site boundaries will be secured.
- Side slopes will be brought to a 70-degree slope if not done so already.
- The area of the quarry above the water table will be covered with subsoil, topsoil and allowed to regenerate. Additional planting of trees and shrubs may be necessary in some areas. The existing berms and planting will be retained.
- Other areas such as rock surfaces exposed by excavation that are undergoing low levels of disturbance have the potential to be valuable habitats for species.
- Areas of bare ground also provide an opportunity for the establishment of species, some of which may be locally or regionally important. This can also be of benefit as a food resource for invertebrates.
- Prior to flooding the quarry, the natural groundwater level of the quarry will be established and set out on site. Overburden will be placed along this zone and planted to establish a vegetated area.
- All other areas will be reinstated by grading the final ground profile using subsoil from the site and planting using soil from the site. Slope should not be more than 45 degrees to keep a stable environment for the new vegetation. It is important to ensure a variety of growing mediums, rock, rubble, etc. to encourage soil formation and plant colonisation.
- A varied mix of native shrubs, trees and plants will be planted (Section 15.8.2) which are reflective of those in the surrounding environs. These will be planted in clusters to provide adequate habitat and to promote diversity. Native species will support a wider variety of wildlife.

Phase III - Decommissioning

- When quarrying activity has ceased at the site, all fixed and mobile plant, equipment and buildings and plant machinery will be removed from the site. The majority of plant and equipment on site does not pose any environmental concern in the event of decommissioning.
- In the event of decommissioning, all machinery removed from the quarry will be reused at a different location or if not required at another location plant will be dismantled and the metal sold as scrap.
- After stockpiles, plant equipment and unused structures are removed from the site an inspection will be undertaken to ensure that all plant and equipment has been decommissioned and removed.

15.10.4 Mitigation Measures & Monitoring (Restoration)

- Quarry faces brought to form maximum 70-degree angles.
- Suitable areas covered with soil and allowed to revegetate naturally with selected supplementary planting of native trees and shrubs.
- The restoration works will be carried out in accordance with the EPA Guidelines (2006).
- 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.
- The site will be securely fenced on all sides with secure and locked entrance gates to prevent unauthorised third-party access.
- Redundant structures, plant equipment and stockpiles will be removed from site on permanent cessation of extraction activity.

15.11 Residual Impacts

The extraction area does have a slight visual impact on the landscape from the viewpoints of dwellings to the northwest and east/northeast of subject site. The proposed wildflower planting of the berms to the east of the subject site will help soften the appearance of the screening berms while also adding biodiversity value and screening the quarry extraction area reducing the residual impact of the proposal. The supplementary tree/shrub planting proposed along the western boundary will reduce the visual impact from the dwelling to the northwest of the site. The proposed restoration plans will create supporting habitat for many species with opportunities for nesting, foraging and water. The formation of new habitats will increase the biodiversity of the area and will go some way to mitigating the initial disturbances in the longer term. A summary is presented in the Tables 15.8 ,15.9 and 15.10 of impacts pre mitigation, mitigation measures and residual impacts post mitigation.

Table 15.8: Determination of Significance of Impacts Pre-mitigation

Impact	Receptor	Description of Impact (Character/Magnitude/ Duration/Probability/ Consequences) Negligible to High	Existing Environment (Significance/ Sensitivity) Negligible to High	Significance Imperceptible to Profound
Negative visual impact on the landscape character of the surrounding environs from stripping and extraction activities	Visual receptors within the vicinity of the subject site	Low/Medium	Medium	Slight/Moderate
Loss of habitat from stripping from quarrying activities	Wildlife within the surrounding environs	Low	Low	Moderate
Loss of soils/subsoils due to extraction	Soils/ subsoils	Low	Low	Moderate
Loss of bedrock geology as extracted product	Bedrock geology	High	Low	Moderate

Table 15.9: Summary of Mitigation Measures in Place & Proposed

Summary of Mitigation Measures In Place & Proposed
A mature hedgerow has been allowed to develop along the northern boundary of the site.
An extensive mature wooded area has been allowed to develop along the southern boundary of the site.
Screening berms have been constructed along the western boundary and allowed to vegetate naturally. Areas of scrub along the western boundary have been allowed to develop.
Screening berms have been constructed along the eastern boundary
The screening berms on the eastern boundary must be planted with native wildflower mix to soften their appearance and increase biodiversity.
The boundary on the west of the quarry must have supplementary planting with a mix of native trees (15.8.2) to screen the extraction area and to provide natural vegetation and wildlife corridors of connectivity.
All planting of trees and shrubs must take place during the first dormant season, avoiding times of frost.
Planting to be monitored by the Ecological Clerk of Works with appropriate advice and guidance given to the site manager.
Using plants suited to the given soil type and conditions to reduce the need for expensive and intrusive remedial measures (ex. Replacing failed plants).
Maintaining and monitoring existing berms that are 2.5-3m in height throughout the subject site to reduce the loss of biodiversity and enhance the conservation value of the subject site area and reduce environmental impacts of quarrying activity.
A full and comprehensive restoration plan must be submitted and agreed with the planning authority in relation to one or both of the following as they become relevant: - Restoration of the c.2.5 ha excavation area. - Restoration of the 3.45 ha entire subject site.

Table 15.10: Determination of Significance of Impacts Post mitigation

Impact	Receptor	Description of Impact (Character/Magnitude/ Duration/Probability/ Consequences) Negligible to High	Existing Environment (Significance/ Sensitivity) Negligible to High	Significance Imperceptible to Profound
Negative visual impact on the landscape character of the surrounding environs from stripping and extraction activities	Visual receptors within the vicinity of the subject site	Low	Low	Imperceptible
Loss of habitat from stripping and construction works	Wildlife within the surrounding environs	Low	Low	Imperceptible
Loss of soils/subsoils due to extraction	Soils/ subsoils	Low	Low	Slight
Loss of bedrock geology as extracted product	Bedrock geology	High	Low	Moderate

15.12 Technical Difficulties

No technical difficulties were encountered.