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## INTRODUCTION

- 7.1 This chapter of the ES presents the findings of an Ecological Impact Assessment (EclA). It examines those issues relating to nature conservation and ecology arising from the proposed small lateral extension to Penrhyn Quarry (referred to as the proposed development) which has been described in Chapter 3 above. The purpose of this chapter is to describe the ecological baseline at the application site, identify important ecological features that may be affected by impacts from the proposed development and to describe mitigation and monitoring necessary to minimise any adverse effects.

## Background

- 7.2 Significant amounts of pre-existing ecological information are available for Penrhyn Quarry and surrounding land. In preparing this EclA, SLR has reviewed the ecological work undertaken in c. 2010 for a similar small quarry extension (referred to as the 'realignment area'; planning permission C12/0874/16/MW dated 18 December 2012 refers) and ecological work undertaken in c. 2015 for the Review of Old Mineral Permission under the Environment Act 1995 (Permission ref. C16/1164/16/MW): specifically, the individual survey reports for Lichenised and Lichenicolous Fungi, Mycology, Great Crested Newt, Bats, Badger, Reptile, Otter, Bird, Botanical, Invertebrates and Water Vole included as Appendices to the 2012 ES.
- 7.3 SLR has also reviewed information in respect of the leat<sup>1</sup> (a drainage channel) at the southern edge of the proposed extension area.

## Site Description

- 7.4 As noted from Chapter 2 above, Penrhyn Quarry is located to the south of the town of Bethesda, to the west of the A5(T), on the northernmost flank of the Glyderau mountain range. The quarry itself extends over an area of some 318 hectares, the majority of which has been disturbed to some degree by quarrying or associated activities. The main elements of Penrhyn Quarry are the old North Quarry (now worked out and flooded); the existing permitted working area in the South Quarry; the slate waste tips; the processing area, aggregate processing plant and the administration offices. The northern and eastern limits of the quarry comprise a series of slate waste tips, many of which are very old and reflect the primary means of slate waste disposal in the nineteenth century. The more recent slate waste tips are located on the north-western limits of the quarry and within the current quarry working area (at its northern end).
- 7.5 The proposed extension to the slate workings is located at the south-western corner of the quarry workings, contiguous with the working area. The extension would be wholly within the confines of the area covered by planning permission C12/0874/16/MW but out with the extraction limits shown on the approved plans attached to that permission.

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<sup>1</sup> Internal report dated June 2017 provided by T. Healy, Welsh Slate.

- 7.6 The application site is approximately rectangular, measures around 2.26 ha and would re-align the north-western boundary of the working area to create a straighter edge (it should be noted that not all of this land would be disturbed).
- 7.7 The proposed extension to the working area is bounded to the south and east by the quarry working area (current and future) with areas of open upland land (Gwaen Gynfi) and the constructed leat forming the northern and western boundaries. As set out in earlier chapters in this ES, the application site has been reduced from that which was consulted on at the end of 2020/beginning of 2021.
- 7.8 This chapter uses the following terms for discrete areas at the quarry, the location and extent of each are shown to Drawing PQ 7/1
- “Site” refers to land within the boundary of planning permission C16/1164/16/MW;
  - Proposed “Extension Area” comprises a small area of previously unworked land within the application site;
  - “Extraction Area” is the zone within the Site or proposed Extension Area that would be subject to disturbance from quarry activities. It includes all access, storage and tipping requirements;
  - “Tip 1” is an area within the Site (within the quarry void in the South Quarry) currently used for tipping and which has not been subject to restoration;
  - “Compensation Area” comprises land at the west side of quarry, that has not been subject to quarry operations and that was identified in 2012 to mitigate for loss of area (not features) from Eryri SAC resulting from quarry extension at that time (planning reference C12/0874/16/MW).

## Purpose of this Assessment

- 7.9 The purpose of this EclA chapter is to:
- describe the baseline data collection and assessment methods used;
  - summarise the baseline ecological conditions;
  - identify and describe all potentially significant ecological effects associated with the proposed development;
  - set out the design, mitigation and compensation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects;
  - identify how mitigation and compensation measures will/could be delivered;
  - provide an assessment of the significance of any residual effects in relation to the effects on biodiversity and the legal and policy implications;
  - identify appropriate enhancement measures and how these will/could be delivered; and
  - set out the requirements for post-construction monitoring.

## Evidence of Technical Competence and Experience

- 7.10 Jess Colebrook is a Principal Ecologist at SLR and has over 20 years experience as a professional ecologist, including time spent working in the statutory sector. She is a Chartered Environmentalist (CEnv) and full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Bob Edmonds CEnv MCIEEM has provided technical review of the Chapter; Bob is SLR's Ecology Technical Discipline Manager and has over 20 year's experience writing and reviewing ecological impact assessments, with more than 15 years working within the minerals sector.
- 7.11 For details of surveyors expertise, please refer to the relevant reports in the Appendices.

## Relevant Legislation and Policy

- 7.12 When undertaking EIAs and preparing an ES, it is conventional practice to carry out a review of relevant planning policy. This is not an express requirement of the EIA Regulations, but the exercise acts as a useful checklist in terms of environmental topics considered in the EIA, and allows the conclusions reached by the EIA/ES to be assessed against planning policy objectives and requirements.
- 7.13 Legislation and Policy relevant to this EclA Chapter is included at **Appendix 7/1**.

## METHODOLOGY

### Scope

- 7.14 To inform the scope of this EclA the ecological work undertaken in c. 2010 for the realignment extension has been reviewed; specifically, the individual survey reports for Lichenised and Lichenicolous Fungi, Mycology, Great Crested Newt, Bats, Badger, Reptile, Otter, Bird, Botanical, Invertebrates and Water Vole included as Appendices to the 2012 ES. Allied to this, consideration has also been given to the updated ecological survey and assessment work carried out in c. 2015 as part of the ROMP. The majority of these are considered to remain sufficient for the purpose of impact assessment and a proportionate approach to additional survey work, based upon the earlier results was proposed in the initial scoping report.
- 7.15 Following receipt of scoping responses from Natural Resources Wales (NRW) and Gwynedd County Council (GCC), a site meeting was attended by Jess Colebrook CEnv MCIEEM (on behalf of Breendon Trading Ltd) and Emily Meilleur (GCC Biodiversity Officer) to further refine and agree the scope of the assessment. Full details of scoping consultation and liaison are contained in the MPA Scoping Opinion dated 29/01/2019 and included at **Appendix 4/1 and 4/2** in Chapter 4 for reference.
- 7.16 A pre-application consultation including a copy of the proposed application was submitted to GCC in December 2020. NRW provided a response in January 2021 (refer to **Appendix 4/1 and 4/2**) raising significant concerns about impacts to Eryri SAC. As a result of NRW's concerns and in order to maintain continuity of mineral extraction, a revised scheme with a smaller extraction area is now proposed, which reduces direct impacts to Eryri SAC.
- 7.17 The final scope of this EclA has been formed following the above discussions and consultation responses and includes detailed assessment of potential impacts to the following ecological features:

- Eryri Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI); and
- Chough (*Pyrrhocorax pyrrhocorax*), Otters (*Lutra lutra*), badger (*Meles meles*) and lichen species.

7.18 The rationale for ‘scoping out’ other ecological features, in particular reptiles, birds (other than chough), fish and amphibians is “*the information submitted with the planning application should be proportional to the likelihood of effects on nature conservation interests and to their potential significance.*” (Planning Policy Wales, Technical Advice Note 05, 2009). In the case of these species/species groups listed, there is considered to be sufficient pre-existing information to determine that no significant impact will arise as a result of the proposal (assuming mitigation agreed as part of the existing consent is implemented as part of the scheme).

7.19 To this end, the following baseline data has been gathered to inform the EclA:

- an updated desk study and data gathering exercise;
- a detailed habitat survey at the Extension Area, and monitoring of quadrat locations at Gwaen Gynfi;
- a detailed habitat survey and preliminary ecological assessment at Tip 1 and Tip E2 in respect of protected or notable species that may be present;
- full re-survey of the Extension Area and water courses/water bodies within c.250m for otter and badger, given their recorded presence and occurrence of suitable habitat.
- full resurvey of the lichen flora of the Extension Area;

7.20 Within the Extension Area, no additional protected species survey was undertaken on the basis that earlier survey results are sufficient for impact assessment.

7.21 At Tip 1 and E2, no additional protected species survey was undertaken on the basis of the habitat types present, the low potential for significant impacts to any species group, and the existence of good quality survey data for surrounding areas. Moreover, no changes are now proposed for these areas and they will continue to be developed in line with the extant planning permission.

## Baseline Data Collection

### Desk Study

7.22 The following sources of information have been reviewed in January 2022 to inform this EclA:

- Cofnod – for Local Wildlife Sites, protected and notable species records within 2km;
- Magic.gov.uk website – for statutory designated site details within 2km;
- NRW website – for statutory designated site details within 2km;
- JNCC website – for details pertaining to Eryri SAC.

7.23 In addition, the following reports were reviewed:

- 2016 Environmental Statement for the Penrhyn Quarry “Review of Old Mineral Permissions” under the provisions of the Environment Act 1995 (ref. C16/1164/MW). In particular Chapter 13 Ecology and the individual survey reports contained within Appendices to the Chapter. Hereafter referred to as the “2016 ES”.

### Field Surveys

#### Habitat Survey

7.24 A habitat survey and/or botanical recording was undertaken at locations within and adjacent to the site as described in the table below. In all cases the surveyor also noted any signs of or potential for protected or notable faunal species. Full details of the habitat/botanical survey is included in the report at **Appendix 7/2**.

**Table 7-1**  
**Habitat/Botanical Survey**

Location	Survey Method	Date	Weather	Surveyor
Extension Area	Update walkover survey	22.11.18	Very cold, clear and dry	Jess Colebrook
	Walkover survey/site meeting	07.01.19	Cold, overcast and dry	Jess Colebrook & Emily Meilleur
	Detailed habitat survey, mapping Section 7 and/or Annexe 1 habitats	23.07.19	Warm dry and sunny	Jess Colebrook
	Update walkover survey	26/01/22	Cold, overcast and dry	Jess Colebrook
Gwaen Gynfi	Quadrat sampling and fixed point photographs, repeat survey at locations used in earlier ecological reports	23.07.19	Warm dry and sunny	Jess Colebrook
Compensation Area	Walkover survey and condition assessment	23.07.19	Warm dry and sunny	Jess Colebrook
Tip 1 & Tip E2	Habitat Survey, mapping Section 7 and/or Annexe 1 habitats	05.09.19	Mild, clear and dry	Jess Colebrook

#### Lichen Survey (Extension Area)

7.25 In 2010 experienced lichenologist Steve Chambers carried out a lichen survey of a broad area including the proposed extension (reported in the 2016 ES). The Extension Area was revisited by an experienced lichenologist (Alan Orange) on 15 February 2019 during a period of cool dry weather. A total of 13 localities within the Extension Area were subject to detailed examination. Results of the survey were supplied in an internal report to the applicant<sup>2</sup> and are included at **Appendix 7/3**.

<sup>2</sup> Realignment of Penrhyn Quarry: lichen survey of the area outlined in blue on map supplied in email dated 11/01/2019 Alan Orange February 2019

### Otter Survey

- 7.26 An otter survey was undertaken at the Extension Area plus water courses within c.250m on 22/11/18 during cold, dry weather and again on 24/07/19 during warm dry weather. Jess Colebrook undertook the survey on both occasions, following standard best practice methods, involving a search for: droppings (spraints), footprints, feeding remains, lying-up areas, holts (permanent places of rest and shelter) and areas of habitat considered suitable for otters.

### Badger Survey

- 7.27 A badger survey was undertaken by Jess Colebrook at the Extension Area plus surrounding 30m on 22/11/18 and again on 24/07/19. Standard best practice methods were used, and involved searching for setts, latrines, droppings, hairs, well-trodden paths and foraging signs.

### Limitations

#### Desk Study

- 7.28 Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

#### Field Surveys

- 7.29 No significant constraints to any of the field surveys were noted.

### Assessment Approach

- 7.30 The ecological evaluation and impact assessment approach used in this report is based on Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("*CIEEM guidelines*") (CIEEM, 2018, updated in September 2019).

### Important Ecological Features

- 7.31 Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

#### Determining Importance

- 7.32 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/ published accounts of distribution and rarity where available, and professional experience:

- International;

- National (i.e. UK/Wales);
- Regional (i.e. North Wales);
- County (i.e. Gwynedd); and
- Local (i.e. within circa 5km).

- 7.33 The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this assessment.
- 7.34 The value of habitats has been measured against published selection criteria where available. Examples of relevant criteria include: descriptions of habitats listed on Annex 1 of the Habitats Directive; descriptions of priority habitats listed under Section 7 of the Environment (Wales) Act 2016 and Local Wildlife Site Selection Criteria.
- 7.35 In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Reference has therefore been made to published lists and criteria where available. Examples of relevant lists and criteria include: species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive); priority species listed under Section 7 of the Environment (Wales) Act 2016 and Birds of Conservation Concern<sup>3</sup>.
- 7.36 For the purposes of this assessment ecological features of local importance or greater and/or subject to legal protection have been subject to detailed assessment. Effects on other ecological features are considered unlikely to be significant in legal or policy terms.

### Impact Assessment

- 7.37 The impact assessment process involves the following steps:
- identifying and characterising potential impacts;
  - incorporating measures to avoid and mitigate (reduce) these impacts;
  - assessing the significance of any residual effects after mitigation;
  - identifying appropriate compensation measures to offset significant residual effects (if required); and
  - identifying opportunities for ecological enhancement.
- 7.38 When describing impacts, reference has been made to the following characteristics, as appropriate:
- Positive or negative;

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<sup>3</sup> Eaton, M.A., Aebischer, N.J., Brown, A., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A., & Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds*, 108: 708-746.

- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

7.39 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the interruption of water courses which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of downslope or downstream habitats.

7.40 Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

### Significant Effects

7.41 The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of an EclA, a '*significant effect*' is an effect that either supports or undermines biodiversity conservation objectives for '*important ecological features*' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

### Cumulative Effects

7.42 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

### *Avoidance, Mitigation, Compensation and Enhancement*

- 7.43 The purpose of avoidance, impact minimisation and compensation measures is to reduce the extent or magnitude of project impacts. The aim of these measures should be to reduce projects impacts such that there is no net loss of biodiversity as a result of the project; and often enhancement measures are proposed to deliver gains to biodiversity. Within EclA, mitigation measures should be described clearly and their likely success assessed. There is no requirement within EclA to quantify losses and gains, e.g. using a metric, and this approach has not been used in this project.
- 7.44 When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure, wherever possible, no adverse effects upon the population status at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.
- 7.45 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.
- 7.46 It is important for the EclA to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:
- Avoidance is used where an impact has been avoided, e.g. through changes in scheme design;
  - Mitigation, or minimisation, is used to refer to measures to reduce or remedy a specific negative impact in situ;
  - Compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
  - Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

## **BASELINE ECOLOGICAL CONDITIONS**

- 7.47 This section provides a description of the baseline conditions for all ecological features considered within the EclA. Descriptions are based on the conditions at the time of survey, a statement of the geographical context within which each ecological feature is considered to be important is provided, including justification for the evaluation.

### **Designated Sites**

- 7.48 The MAGIC website, NRW website, Cofnod, NRW scoping response and GCC Scoping response confirm the only statutory designated site within 2km is the Eryri SAC/SSSI. It occurs directly adjacent to the Site, and the entire proposed Extension Area (2.26 ha) falls within it.

- 7.49 **Drawing PQ 7/2** shows the location of Eryri SAC/SSSI relative the Site, and **Appendix 7/4** (Habitat Regulations Assessment) provides further details in relation to the designations. To summarise:
- Eryri SAC is 19,732.98 ha in extent and is of importance for its upland habitats and low-nutrient lakes;
  - Eryri SSSI which underpins the SAC is 20,343.5 ha in extent and is of importance primarily for its upland habitats, a large number of streams and rivers, rare floral and faunal species, in addition to its geology and geomorphology.

## Non-Statutory Sites

- 7.50 Cofnod confirmed the presence of sixteen Local Wildlife Sites (LWS) within 2km of the application site. Of these, two are pertinent:
- Gwaen Gynfi, which occurs at the west side of the quarry adjacent to the tips leading up to Tip E2 and stretches westward toward Gefnan at Mynydd Llandegai. It is of importance for its upland flush, blanket bog and open mosaic habitat of previously developed land. Braich y Gwair (Candidate LWS, and includes the Compensation Area) occurs immediately to the north of this site and is of interest for its marshy grassland; semi-improved neutral grassland and acid grassland; and
  - Penrhyn Slate Quarry, which includes portion of the quarry north of the main void and east of the haul route. The interest feature is listed as quarry/spoil.
- 7.51 The remaining LWS are over 500m from the Extension Area and no potential impact pathways have been identified. No impacts are anticipated at these sites and they are not considered further within this EclA.

## Habitats

- 7.52 The majority of the Site comprises land affected by current or previous quarrying activity and is subject to an extant planning permission; it has not been deemed necessary to survey it for the purpose of this EclA. **Drawing PQ 7/1** identifies the Location of the Extension Area, Tip 1, Tip E2, plus adjacent land that has been subject to survey. A summary description of the habitat types present within these areas is provided below; full details of the habitat surveys are included at **Appendix 7/2**, with detailed habitat plans provided at **Drawings PQ 7/3** and **PQ 7/4**.

### Extension Area

- 7.53 With the exception of the leat, the habitats at the extension area have not materially changed from that as reported in 2010 (contained in the 2012 ES and 2016 ES and reproduced in **Appendix 7/2** for ease of reference).
- 7.54 The Extension Area comprises species poor acid grassland, bracken and boulders, with soft rush (*Juncus effuses*) where drainage is impeded and along seepage lines. The table below summarises the areas of each habitat type, and evaluates them against habitats of nature conservation value.

**Table 7-2**  
**Evaluation of Habitat Types within Extension Area**

Habitat Type	National Vegetation Classification description	Annex 1 Classification	Section 7 classification <sup>4</sup>	Area (ha) within the Proposed Extension Area	Area (ha) within extraction limit
Acid grassland	U5a - Nardus stricta-Galium saxatile grassland, species-poor sub-community	In some instances, U5 grassland may count toward Annex 1 habitat 6230 (species rich Nardus grassland; this especially applies to any Carex panicea – Viola riviniana sub-community of U5). However, at this location the grassland is not species rich, nor are there any records of such grassland within this part of Eryri SAC <sup>5</sup> .	None	1.83	1.45
Bracken	Pteridium aquilinum-Galium saxatile community, species-poor sub-community	None	None	0.23	0.13
Leat and track (bare ground, rock and running water)	N/A	N/A	N/A	0.21	0
<b>TOTAL</b>				2.26	1.58

*Tip 1*

7.55 Comprises 23.58 ha of unvegetated, active tip. Due to the lack of any vegetation and regular disturbance, this area is of negligible ecological value at the current time.

<sup>4</sup> Based upon descriptions within UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)

<sup>5</sup> Eryri SAC Core Management Plan and Conservation Objectives (March 2008) section 3.1.5, Management Unit 70 Glyderau north west (within which the application site occurs) is not listed as containing any species rich Nardus grassland. In addition, Section 4.13 of the Management Plan gives the conservation objectives for Annex 1 habitat 6230 – it is almost all focussed on the area of habitat above Llyn Llydaw on the flanks of Snowdon

*Tip E2*

- 7.56 Comprises 8.08 ha of tip, 3.34ha of which has largely remained undisturbed for over 10 years. The disturbed areas of the tip comprise 4.74ha unvegetated slate waste and bare ground of minimal ecological value.
- 7.57 The undisturbed area of the tip is of variable character, depending on the slope, size of slate waste and length of time since last disturbed. The areas with largest pieces of slate typically comprise the steepest slopes and support cushions of the moss *Racomitrium lanuginosum* and little else. Shallower slopes with smaller slate pieces also include parsley fern *Cryptogramma crispera* and foxglove (*Digitalis purpurea*). Level areas and those with the finest slate waste have been colonised by the above species but also a mixture including (but not limited to) birch scrub, heather (*Calluna vulgaris*), wood sage (*Teucrium scorodonia*), thyme (*Thymus polytrichus*) and bryophytes. Wall cotoneaster (*Cotoneaster horizontalis*) was noted to be present in this area. As a whole, the undisturbed part of this tip is considered to represent the Section 7 habitat “Open Mosaic Habitat on Previously Disturbed Ground<sup>6</sup>” since;
- it is at least 0.25ha in size;
  - has a known history of disturbance;
  - contains some vegetation, comprising early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought);
  - contains unvegetated, loose bare substrate; and
  - shows spatial variation, forming a mosaic of one or more early successional communities plus bare substrate, within 0.25ha.
- 7.58 Whilst the area has not been subject to detailed lichen or bryophyte survey, the presence of notable species is considered low since the slate at the tip has only been exposed, undisturbed for 10-15 years. However, the potential for such species cannot be entirely ruled out and has therefore been taken forward in this EclA.

**Flora**

*Vascular plants*

- 7.59 No rare or notable species were recorded during surveys in 2019, and the lesser twayblade reported present in 2010 in the south western parts of the Extension Area (refer to report in **Appendix 7/2**) could not be relocated. Since this uncommon plant is inconspicuous, its continued presence within the mire and wet heath cannot be ruled out.
- 7.60 Wall cotoneaster was recorded at Tip E2. This non-native invasive species is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

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<sup>6</sup> As defined in UK Biodiversity Action Plan (2010) available at <http://data.incc.gov.uk/data/a81bf2a7-b637-4497-a8be-03bd50d4290d/UKBAP-BAPHabitats-40-OMH-2010.pdf>

- 7.61 Cofnod hold no other records for protected, notable or invasive plant species for the Extension Area, Tip 1, Tip E2 or the Compensation Area.

### Lichen

- 7.62 The boulders at the Site support well-developed and typical lichen communities of upland areas in North Wales. A total of 69 species were recorded during the 2019 survey, including two graded as Vulnerable in the Welsh Red Data Book, and 6 Nationally Scarce species as follows (refer to **Appendix 7/3** for a full species list and **Drawing PQ 7/4** for boulder locations referred to):

- Welsh Red Data Book Vulnerable species

*Bryoria fuscescens* is graded as Vulnerable, due to its marked decline in recent decades. It is rarely seen on rocks in Snowdonia.

*Mycoblastus affinis* is graded as Vulnerable, due to the small population in Wales. It is recorded from only four hectads in Wales, of which two are represented by pre-1960 records. Nationally it is recorded mainly on acidic bark, but sometimes on rock.

- Welsh Red Data Book Nationally Scarce species

*Cladonia cyathomorpha* – a widespread species of mossy upland rocks.

*Lecanactis dilleniana* – a species of rain-sheltered rocks.

*Miriquidica pycnocarpa* f. *sorediata* – upland rocks.

*Porpidia melinodes* – upland rocks.

*Psilolechia clavulifera* – a species of rain-sheltered shady rocks.

*Rhizocarpon subgeminatum* – an uncommon species of nutrient-enriched rocks, known only from six hectads in Wales.

- 7.63 Nationally scarce species are not necessarily threatened. Probably of equal significance are some typically upland species which are widespread but rarely abundant in Snowdonia, including, *Sphaerophorus fragilis*, *Umbilicaria polyphylla*, *U. polyrrhiza* and *U. torrefacta*.

- 7.64 Due to relative lack of lichen survey data to provide context, it is difficult to robustly evaluate this assemblage. It is noted that NRW stated the lichens are of National importance since they form part of the SSSI notified feature (refer to NRW's response within the scoping details at **Appendix 4/1** and **4/2**). However, the assemblage at the Extension Area does not meet SSSI qualifying criteria in itself, nor is it critical for the lichen assemblage notified feature at Eryri SSSI to merit SSSI status. On that basis, and following the evaluation approach outlined in the CIEEM Guidelines, it is not of National importance (much as individual bats are not Nationally important, even if they use a roost/form part of a colony notified as a SSSI). It has therefore been assessed as being of County - Regional Importance.

## Faunal Species

### Chough

- 7.65 In its pre-application response NRW raised the fact that chough nest in Penrhyn Quarry (but did not specify a location), are a notified feature of Eryri SSSI and potential impacts to them require clearer assessment. Cofnod supplied three records of chough from within the northern parts of the quarry, more than 1km from the Extension Area, dating from 2000, 2008 and 2015; none relate to breeding pairs or nests. However, it is possible that some of the older quarry buildings are potentially suitable for nesting by this species; none of these areas are directly or indirectly affected by the current application.
- 7.66 The proposed extension area do not support any cliff habitats or buildings that could be used by nesting chough. However, the short acid grassland at the extension area is potentially suitable for use by foraging chough. Due to the abundance of similar habitat in the wider landscape, both within and outside of Eryri SSSI, the small area (1.83 ha) of grassland is not considered to be critical to the maintenance of the local population. In addition, since it is over 300m<sup>7</sup> from the nearest potential nesting habitat at the northern parts of the quarry, it is not considered material to the breeding success of any pairs that may nest at the quarry.

### Otter

- 7.67 Surveys undertaken in 2010 and Cofnod confirm that otter has been recorded on many of the water courses at Gwaen Gynfi, though no records relate to the Extension Area itself. No evidence of otter was recorded during surveys in 2019. However, it is considered most likely that the species would be present at pools and water courses at Gwaen Gynfi during the spring, when amphibians are at their most numerous and easy to prey upon. None of the water courses are of a size to sustain adequate fish populations to support a resident otter year round, though it's probable that a questing otter may make use of them to travel between larger water courses and water bodies at any time of year. The Extension Area and Tips are considered highly unlikely to be used by sheltering otter, due their distance from good quality feeding areas and lack of potential lying up or holt opportunities.
- 7.68 The Extension Area is not considered to be critical to the maintenance of the local otter population<sup>8</sup>.

### Badger

- 7.69 Cofnod did not supply records for badger but the species is known to occur locally at the current time<sup>9</sup>. No evidence of badgers was recorded at or adjacent to the Site during surveys in 2019 or the 2022 update and it is considered to be absent at the current time. Habitats are suboptimal for sett digging at the Extension Area and Tips due to the limited depth of soil available, and the high water table where soil is present.

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<sup>7</sup> Choughs feed mainly within 300 m of the nest and the extent of good foraging habitat close to nesting sites has been shown to influence breeding success. Kerbiriou C, Gourmelon F, Jiguet F, Le Viol I, Bioret F and Juilliard R (2006) Linking territory quality and reproductive success in the Red Billed Chough *Pyrrhocorax pyrrhocorax*. Implications for conservation management of an endangered population. Ibis 148: 352-364.

<sup>8</sup> Care has been taken not to include the entire Site within this evaluation, since the Afon Ogwen is adjacent to the northern eastern side of the quarry, supports a good fish population and has abundant opportunities for sheltering otter which are known to use it. No impacts are anticipated to otters that may be present at the Afon Ogwen.

<sup>9</sup> Recorded by the author close to Tregarth.

7.70 Badgers are protected for welfare rather than for nature conservation reasons; the future presence of badger cannot be entirely ruled out and best practice reasonable avoidance measures are recommended during quarry activities as a result.

*Other fauna*

7.71 Habitats within the Extension Area remain suitable for use by:

- Foraging and sheltering reptiles and amphibians (common lizard, common frog, common toad, palmate newt). However, this is considered to be seasonally restricted to the warmer months. The area is north facing at located at approximately 450m altitude; it is unlikely to be frost-free and is therefore unsuitable for use by hibernating reptiles or amphibians; and
- breeding birds, in particular meadow pipit, wheatear and skylark, but also cuckoo and common songbirds (including Section 7 species).

7.72 In all cases habitats within the Extension Area are not considered critical to the maintenance of local populations, due to its small size and the abundance of immediately adjacent similar habitat.

**Summary of Important Ecological Features**

7.73 The table below lists all important ecological features for which detailed assessment is required (i.e. all features of at least local level of importance and/or subject to legal protection), the geographical context within which each is considered to be important and their legal status.

**Table 7-1**  
**Summary of Important Ecological Features Subject to Detailed Assessment**

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
<p><b>Eryri SAC</b> The Extension Area is within this designation but does not support any habitat for which the SAC is designated. The lichen species at the site are part of the assemblage for which the SSSI is designated.</p>	<p>Internationally important upland habitats and low nutrient lakes.</p>	<p>Protected under the terms of the Habitats Regulations 2017 and Wildlife &amp; Countryside Act 1981 (as amended). Also protected under national and local planning policies.</p>
<p><b>Eryri SSSI</b> The Extension Area is within this designation, but does not support habitats for which the SSSI is designated. Lichen species on boulders at the Extension Area are part of the assemblage for which the SSSI is designated.</p>	<p>Nationally important for its upland habitats, rare floral and faunal species.</p>	<p>Protected under the terms of the Wildlife &amp; Countryside Act 1981 (as amended). Also protected under national and local planning policies.</p>

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
<b>Gwaen Gynfi LWS</b>	County importance for its upland flush, blanket bog, open mosaic habitat of previously developed land.	Protected under local planning policies.
<b>Penrhyn Slate Quarry LWS</b>	County importance for its quarry and spoil habitats	Protected under local planning policies.
<b>Lichen Assemblage, including two Vulnerable and 6 Nationally Scarce species, plus an additional 3 species rarely recorded in Snowdonia.</b>	Up to Regional. Contributes toward SSSI designations.	Due to relative lack of lichen survey data to provide context, it is difficult to robustly evaluate this assemblage. However, the assemblage at the Extension Area does not meet SSSI qualifying criteria so is not of National importance. It has therefore been assessed as being of County to Regional Importance.  Protected under local planning policies related to biodiversity conservation and legislation highlighted above concerning SSSI designation.
<b>3.34 ha Open Mosaic Habitat on Previously Disturbed Ground</b>	Less than local	Section 7 Habitat. Protected under local planning policies related to biodiversity conservation Historic slate tips at Penrhyn Quarry represents the single largest area of this habitat type locally. Given the small amount present at Tip E2 relative to that at the rest of the quarry (and more widely up to c.5km) it is assessed as being of less than Local importance.
<b>Otter</b>	Local	Protected under the terms of the Habitats Regulations 2017 and Wildlife & Countryside Act 1981 (as amended). Section 7 Priority Species. Also protected under national and local planning policies. Protected under local planning policies related to biodiversity conservation
<b>Badger</b>	N/A	Protected under Protection of Badgers Act 1992 for welfare reasons.
<b>Common Lizard</b>	Less than Local	Protected under the terms of the Wildlife & Countryside Act 1981 (as amended). Section 7 Priority Species Protected under local planning policies related to biodiversity conservation
<b>Breeding Birds, including chough</b>	Less than Local	All species protected whilst nesting under Wildlife and Countryside Act 1981 (as amended). Many species (including skylark) are listed as being of principal importance under Section 7 of the Environment Act.

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
		Protected under local planning policies related to biodiversity conservation

## SUMMARY PROJECT DESCRIPTION

- 7.74 Full details of the quarry development scheme are set out in Chapter 3 and summarised in paragraphs 7.9 to 7.29 above. A summary is provided below in order to give a context for the EclA.
- 7.75 The proposed extension to the slate workings is located at the south-western corner of the quarry workings, contiguous with the working area. The extension would be wholly within the confines of the area covered by planning permission C12/0874/16/MW (dated 18 December 2012) but out with the extraction limits shown on the approved plans attached to that permission.
- 7.76 The proposed extension measures around 2.26 ha in extent and would effectively re-align the north-western boundary of the working area to create a straighter edge. Whilst it is recognised that some boundary areas of the extension area may remain undisturbed, for the purpose of this impact assessment it has been assumed that all vegetation within the extension area would be subject to loss or significant disturbance such as would affect its quality or extent.
- 7.77 Soils and overburden would be removed separately in stages to allow for the working of annual blocks of slate. As per the current planning permission, the precise location of soil storage areas would be provided to the MPA prior to the commencement of soil stripping operations. These soils would then be available for restoration of the quarry benches and quarry floor at the appropriate stage. Slate extraction and processing would be undertaken as per current permission, and reserves are estimated to last 10 years.
- 7.78 The extant planning permission contains conditions relating to ecological works required prior to stripping. This includes pre-earthworks surveys for lichens and ecological clerk of works during earthworks to minimise the risk of harm to reptiles. Should any boulders be identified as having lichenological interest, then they are to be removed from the working area (where possible and safe to do so given the terrain).

## ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

- 7.79 This section describes the predicted effects and proposed mitigation measures of the proposed development and changes to tipping arrangements, focussing on the important ecological features identified above as a separate 'sub-headings'.
- 7.80 Potential impacts relate to direct effects that are typically associated with the operational phase i.e. habitat loss to enable quarrying and restoration activities, whereas indirect impacts encompass adverse effects such as alterations to hydrology etc that may occur during operational and post-operational stages. Consideration to both stages is given in the following assessment as applicable to the identified ecological feature.

- 7.81 Proposed mitigation measures relate to those embedded in the scheme design i.e. the phasing of works and early / phased establishment of new habitats as part of progressive restoration works. Where any significant residual effects are identified, further compensation may then be required.
- 7.82 Embedded mitigation measures include those which are included as planning conditions within existing consents that are expected to apply to this proposed scheme:
- within the design of the proposal good practice environmental and pollution control measures are employed with regard to current best practice guidance such as, but not limited to, the following:
    - CIRIA C532, 'Control of water pollution from construction sites: guidance for consultants and contractors' (2001).
    - CIRIA C741, 'Environmental good practice on site guide' (2015 4th Ed.).
  - Standard good practice for pollution prevention and surface water management.
  - Removal of potential nesting bird habitat outside of the breeding season (considered to be April – August inclusive), or where this is not possible a check for the presence of nesting birds by a suitably experienced ecologist in advance of work, and retention of active nests until such time as young fledge.
  - Protection for reptile species.
  - A scheme to minimise the losses of lichen covered-boulders.

## Eryri SAC

### Potential Impacts

- 7.83 Detailed consideration of the potential impacts to this site are contained within a separate Habitats Regulation Assessment (HRA) at **Appendix 7/4**. This section summarises the content of the HRA.
- 7.84 The proposed extension to the quarry has the potential to result in impacts and effects on the SAC due to the following:
- **Direct, permanent and irreversible loss of 2.26 ha of vegetated habitat.** None of the habitat is a qualifying feature of the SAC, nor are any qualifying species of the SAC present. None of the habitat is an Annex 1 type. Whilst this area is within the SAC boundary, it is not considered to contribute to site integrity<sup>10</sup>.
  - **Indirect, increased grazing pressure on undisturbed parts of the SAC,** outside of the application site, as a result of loss of the above area from Gwaen Gynfi common, which includes habitats for

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<sup>10</sup> where the 'integrity of the site' can be defined as 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and / or populations of species for which the site is or will be classified' (as defined here [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision\\_of\\_art6\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf))

which the SAC is designated. The common covers 314ha, less the 3.7 ha that has already been subject to mineral extraction (2012 re-alignment, consent ref C12/0874/16/MW), *i.e.* 310.3ha remains. The total permitted level of grazing is 240 sheep and 3 cows, equivalent to 39 Livestock Units (LU, where a breeding ewe is 0.15 LU and cattle are 1). The maximum level of grazing experienced is therefore 0.1256 LU/ha. If the 2.26 ha grazing at the extension area is lost such that 308.04 ha of the common remains, then grazing pressure would increase to 0.1266 LU/ha, an increase of 0.001 LU/ha.

- **Changes to habitat quality or extent due to dust deposition** on areas outside of the quarry workings. Chapter 11 of the ES describes the potential impact to air quality as a result of the scheme. In summary:

potential dust generated by on-going operations is considered to remain unchanged and therefore does not represent an increase in the potential for dust impact compared to existing operations. Generated dust is not considered to be significantly alkaline or acidic, or at a significant risk of becoming airborne.

Standard industry good practice is followed to minimise dust generation and to suppress dust; these are for the benefit of site staff health and safety rather than for ecological reasons and on that basis are NOT deemed to be mitigation for the purpose of this assessment.

Therefore, there is considered to be a low risk of dust deposition.

#### *Proposed Mitigation Measures*

- 7.85 It is not possible to avoid direct habitat losses impacts within the SAC boundary. The proposed extension is entirely within the notified SAC boundary and alternative quarry designs are not possible due to the location of the slate mineral in relation to the boundary of the current workings. No mitigation measures are proposed to mitigate for loss of SAC Area.
- 7.86 The potential increase of 0.001 LU/ha at Gwaen Gynfi is so small that it not considered to result in measurable or material change to the quality or extent of any of the habitats present, including those for which the SAC is designated.
- 7.87 It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (*i.e.* dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within the SAC and no further mitigation is necessary.

#### *Significance of Residual Effects*

- 7.88 No likely significant effects have been identified as a result of the proposals, either alone or in-combination with other plans or projects.

## Eryri SSSI

### Potential Impacts

- 7.89 The proposal would result in the loss of 2.26 ha of the SSSI. This includes 1.83 ha of acid grassland that includes boulders which support lichen species forming part of the assemblage for which the SSSI is designated. The grassland may also be used by foraging chough.
- 7.90 The proposed extension to the quarry has the potential to result in impacts and effects on the SSSI due to the following:
- Direct, permanent loss of 2.26 ha of vegetated habitat. None of the habitats are notified feature of the SSSI, but the grassland provides the context for boulders supporting lichens that contribute toward the SSSI lichen assemblage (but which do not meet SSSI selection criteria in isolation). The grassland may also be used by foraging chough, which are a notified feature of the SSSI, however the grassland is not considered critical for maintenance of the local population;
  - Indirect increased grazing pressure on undisturbed parts of the SSSI, outside of the application boundary, as a result of loss of the above area from Gwaen Gynfi common, which includes habitats for which the SSSI is designated. As set out above, if the 2.26 ha grazing at the Extension Area is lost such that 308.04 ha of the common remains, then grazing pressure would increase to 0.1266 LU/ha; and
  - changes to habitat quality or extent due to dust deposition on areas outside of the quarry. However:
  - potential dust generated by on-going operations is considered to remain unchanged and therefore does not represent an increase in the potential for dust impact compared to existing operations. Generated dust is not considered to be significantly alkaline or acidic, or at a significant risk of becoming airborne.
  - Standard industry good practice is followed to minimise dust generation and to suppress dust; these are for the benefit of site staff health and safety rather than for ecological reasons and on that basis are NOT deemed to be mitigation for the purpose of this assessment.
  - Therefore, there is considered to be a low risk of dust deposition.

### Proposed Mitigation Measures

- 7.91 No mitigation measures are proposed to mitigate for loss of SSSI Area.
- 7.92 Mitigation for impacts to the lichen flora are already employed as required by a condition of the current planning consent, as follows:

Prior to any soil stripping, vegetation or boulder removal in each phase of development, a suitably qualified lichenologist appointed by the operator shall be afforded the opportunity to survey the area. Any boulders identified as having lichenological interest shall only be removed and thereafter stored/re-located under the instruction of the lichenologist in areas set aside for this purpose in accordance with the written agreement of the Mineral Planning Authority.

7.93 However, attempts at relocating boulders supporting notable lichens has not always proved possible, due to the below ground size of some of the boulders in question (i.e. they are not possible to remove by machine). Notwithstanding these difficulties, the mitigation process shall remain as follows:

- working area to be marked out. Lichenologist to identify boulders/areas of boulders which support notable lichens. Relocation of all boulders identified in the 2019 report should be attempted. Special effort should be focussed on relocating boulder numbers 18, 22, 23 and 27 as these support vulnerable lichen species.

- Lichenologist then to oversee translocation of boulders or lichens as follows:

The preferred option is to remove boulders supporting notable lichens via excavator and relocate them to a nearby undisturbed part of the site at the same altitude, placing them at the same aspect. The most appropriate location would be along the north west boundary of the extension area.

In cases where the aspect cannot be maintained then translocation of boulders will still be undertaken since it preserves the opportunity for lichens to colonise in future.

Where translocation of boulders is not possible (such as if the boulder is not transportable machinery) then parts of boulders (unlikely to be feasible in most cases) or the lichen specimen itself will be translocated to the best available undisturbed boulders nearby.

- Translocated lichens to be subject to monitoring every 3 years, to determine target species presence and extent, in order to assess if mitigation has been a success. The monitoring results shall be shared with NRW and [conservationevidence.com](http://conservationevidence.com) in order that others may learn from the scheme at Penrhyn.

7.94 Given this is an innovative approach with no known precedent in the region, it is not possible to be certain of success. The operation described above is however, most likely to succeed for the *Bryoria* and *Umbilicaria* species due to their habit and size.

### *Significance of Residual Effects*

7.95 There will be loss of 2.26 ha, representing 0.01% of the SSSI area (which is 20,343.5 ha in extent). This includes loss 1.83 ha of acid grassland and boulders which support notable lichen species. Significant adverse effects are considered unlikely due to the small extent of area affected.

7.96 Loss of boulders supporting a notable lichen assemblage is subject to mitigation, but confidence in the success of the methods is low. Therefore a precautionary approach has been applied and a “worst case” assumed for this assessment. However, significant adverse effect to the designated feature is considered unlikely due to the small extent of area affected (i.e. the lichen assemblage within Eryri SSSI would still meet SSSI qualifying criteria).

7.97 The potential increase of 0.001 LU/ha at Gwaen Gynfi is so small that it not considered to result in measurable or material change to the quality or extent of any of the habitats present, including those for which the SSSI is designated.

- 7.98 It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any notified habitats within the SSSI and no further mitigation is necessary.

## Glan Gynfi LWS

### *Potential Impacts*

- 7.99 No direct impacts to this area would occur as it is outside of the extraction area. Indirect impacts are as for Eryri SSSI above, since the area is part of Gwaen Gynfi common.

### *Proposed Mitigation Measures*

- 7.100 None required.

### *Significance of Residual Effects*

- 7.101 No residual effects anticipated.

## Penrhyn Slate Quarry LWS

### *Potential Impacts*

- 7.102 No direct impacts to this area would occur as it is outside of the extraction area. No indirect impacts have been identified.

### *Proposed Mitigation Measures*

- 7.103 None required.

### *Significance of Residual Effects*

- 7.104 Not applicable.

## Open Mosaic Habitat (OMH) on Previously Disturbed Ground (Section 7 Priority Habitat)

### *Potential Impacts*

- 7.105 There are no proposed changes to tipping arrangements as a result of the proposal; however tipping would continue over a slightly longer period (3 years) than is currently the case. This is considered likely to facilitate the continued presence of OMH at the quarry, in a range of stages of colonisation. Overall this is considered to be a neutral impact.

### *Proposed Mitigation Measures*

- 7.106 Mitigation not proposed. A significant part of Penrhyn Quarry already supports this habitat, or is highly likely to do so in the coming years as quarrying/tipping ceases and areas are left undisturbed enabling recolonization by vegetation as part of the approved restoration scheme.

### *Significance of Residual Effects*

- 7.107 None.

## **Lichen Assemblage**

### *Potential Impacts*

- 7.108 An area of acid grassland and boulders that supports notable lichen species would be lost. Previous sections in this chapter have considered the likely impacts upon the function and integrity of designated sites, this section considers the impacts on features of biodiversity importance.

### *Proposed Mitigation Measures*

- 7.109 Mitigation measures are as described in paragraph 7.93 above.

### *Significance of Residual Effects*

- 7.110 Loss of boulders supporting a notable lichen assemblage is subject to mitigation, but confidence in the success of the methods is low. Therefore a precautionary approach has been applied and a “worst case” assumed – all lichens lost. This would include the loss of species which are rarely recorded in the area and as such is considered to be a significant impact at the County - Regional level. It is worth noting that confidence in the evaluation is compromised by the lack of contextual baseline available for this species group, and it’s possible that impacts are less than those stated.

## **Otters**

### *Potential Impacts*

- 7.111 The habitats present are not considered critical to the local otter population. No potential holt or lying up habitats are present within the Extension Area and as such no impacts to the species are predicted.

### *Proposed Mitigation Measures*

- 7.112 None required.

### *Significance of Residual Effects*

- 7.113 No residual impacts predicted.

## Badgers

### *Potential Impacts*

- 7.114 Badger is considered absent from the Extension Area at the current time, and due to the poor quality of habitat for sett digging its presence in future is considered unlikely but possible.

### *Proposed Mitigation Measures*

- 7.115 Immediately prior to soil stripping the area will be searched for burrows. If a burrow is found, the advice of an ecologist will be sought prior to work commencing.
- 7.116 In the event that an active badger sett is located within 20m of the working area, the ecologist will prepare a Method Statement to minimise risks to the species. A licence from NRW would be sought in advance of work if necessary.

### *Significance of Residual Effects*

- 7.117 No residual impacts predicted.

## Common Lizard

### *Potential Impacts*

- 7.118 Common lizard occurs in small numbers at low density at the Site, and loss of habitat as a result of the proposal is not considered to significantly adversely affect the local population. However, in view of the species legal protection mitigation measures are proposed.

### *Proposed Mitigation Measures*

- 7.119 Condition 11 of the existing planning consent states:

Unless otherwise agreed in writing, the operator shall submit for the approval of the Mineral Planning Authority a plan of reasonable avoidance measures to ensure that reptiles will be protected during works. The plan must be implemented before soil stripping commences and evidence of such measures thereafter provided to the Mineral Planning Authority.

- 7.120 Reasonable effort would be made to ensure reptiles are absent from the working area prior to works commencing. The ground conditions at the Site preclude “standard” mitigation measures for this species, such as phased strimming or searching of potential hibernaculae. Reasonable avoidance measures are therefore suggested to reduce the risk of committing an offence under the protecting legislation, as follows:

- From December – February
- The area is unlikely to be frost-free and is therefore unsuitable for use by hibernating reptiles. The requirement for further ecological oversight in respect of reptiles during works from December - February whilst the temperature is less than 5 degrees are therefore not considered proportionate or necessary.

- From March – November, where applicable and practicable,
- vegetation would be strimmed to 10cm height and arisings removed off site.
- soil stripping and removal of boulders would occur when conditions are suitable for reptiles to be active, which means dry, with an ambient air temperature of at least 9°C, rainy, frosty or windy conditions are unsuitable<sup>11</sup>.
- all materials, and in particular piles of stones, rubble, loose soil or vegetation would be removed from the working area so as to prevent reptiles from taking residence within them. If removal is not possible, then such materials would be stored in skips or other containers that reptiles cannot access.
- site staff to remain vigilant for the presence of lizards, and if any are seen work that may risk killing or injury to individuals would pause until the individual had moved from the risk area. If individual reptiles do not naturally disperse, they would be caught and moved at least 25m beyond the working area, into undisturbed, adjacent heath/mire habitats.

### *Significance of Residual Effects*

7.121 No residual impacts predicted.

## **Breeding Birds**

### *Potential Impacts*

7.122 There is potential for effects on individuals of local populations of bird species that benefit from various forms of legal protection if the works are conducted during any part of the bird breeding season. Due to the temporary nature and small scale of the works proposed, none of these effects are predicted to have an effect on the status of local populations. However, it is considered that risks to individuals can be effectively mitigated by the adoption of standard and good practice ecological avoidance, mitigation and compensation measures.

### *Proposed Mitigation Measures*

7.123 Mitigation is enshrined in Condition 10 of the existing Planning Consent (ref C16/1164/16/MW) which states:

No cutting or removal of shrubs and/or vegetation clearance shall take place during the bird nesting season (April to July inclusive) in any year unless a pre-construction survey and report can be provided and submitted for the approval of the Mineral Planning Authority to demonstrate that nesting birds will not be disturbed. Unless otherwise agreed, the recommendations of the bird survey and report shall be implemented before, during and/or after the development where appropriate.

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<sup>11</sup> Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth

### Significance of Residual Effects

7.124 No residual impacts anticipated.

## CUMULATIVE EFFECTS

7.125 Cumulative effects are assessed in terms of residual effects only (whether significant or not) and on the basis that proposed mitigation measures are implemented. Where no effects or unappreciable effects on an ecological feature are predicted when considering the project alone then there is no pathway for cumulative effects to occur.

7.126 No plans or projects have been identified in the vicinity of the site that could potentially give rise to cumulative impacts. Based on the above, no significant effects are likely during operation or restoration in-combination with other plans or projects.

## Proposed Compensation Measures

7.127 No compensation measures for loss of area within the SAC or SSSI are possible.

7.128 No compensation measures for loss of 2.26 ha acid grassland and bracken is proposed.

7.129 Residual Impacts remain as previously described for all features.

## Proposed Monitoring

7.130 Condition 33 of the existing consent makes it a requirement to monitor conditions at Gwaen Gynfi. It states

A monitoring report on the condition of plant communities in the adjacent Gwaen Gynfi blanket bog/wet heath shall be undertaken and thereafter submitted for the approval of the mineral planning authority every 5 years to assess any changes in species composition and abundance due to any alterations in hydrological conditions. The monitoring survey and report shall include for the following;

- i. The maintenance of permanent monitoring quadrats in accordance with the mitigation strategy set out in Section 13 of the Environmental Statement,
- ii. Reference to current Conservation Objective Performance Indicators for the Eryri SAC, issued by Natural Resources Wales.

7.131 Condition 48 of the existing consent also requires a degree of monitoring and management at the Compensation Area. Consideration of the Compensation Area is not included as part of this EclA, as it relates to impacts that have already been assessed and realised through ongoing quarry activities. The monitoring and management of the Compensation Area is not relevant with regards to impacts of the proposed extension and tipping arrangements<sup>12</sup>.

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<sup>12</sup> Details from the most recent monitoring at Gwaen Gynfi and the Compensation Area are included in the Habitat Report that is appended to this chapter. It is recognised that the Management Plan for the Compensation Area was due to be updated in December 2018 and that this has not been completed. An updated Management Plan based upon results from surveys undertaken in 2019 will be submitted to the MPA as a separate item.

## Summary of Effects

- 7.132 A summary of potential impacts, proposed mitigation, residual effects and, where relevant, proposed compensation measures is provided for each important ecological feature included in the assessment in Table 7-4. Table 7-4 also includes a summary of proposed biodiversity enhancements.

**Table 7-4**  
**Summary of Potential Impacts, Proposed Mitigation, Residual Effects and Proposed Compensation Measures**

Ecological Feature	Potential Impacts	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
<p><b>Eryri SAC</b> <b>Internationally important</b></p>	<p>Direct, permanent and irreversible loss of 2.26 ha of vegetated habitat. None of the habitat is a qualifying feature of the SAC, nor are any qualifying species of the SAC present. None of the habitat is an Annex 1 type. Whilst this area is within the SAC boundary, it is not considered to contribute to site integrity.</p> <p>Indirect, increased grazing pressure on undisturbed parts of the SAC, outside of the application boundary, as a result of loss of the above area from Gwaen Gynfi common, which includes habitats for which the SAC is designated.</p> <p>Changes to habitat quality or extent due to dust deposition on areas outside of the quarry workings.</p>	<p>It is not possible to avoid direct habitat losses impacts within the SAC boundary. No mitigation is proposed for loss of SAC area.</p> <p>The potential increase of 0.001 LU/ha at Gwaen Gynfi is so small that it not considered to result in measurable or material change to the quality or extent of any of the habitats present, including those for which the SAC is designated.</p> <p>It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any qualifying habitats within the SAC and no further mitigation is necessary.</p>	<p>N/A</p>	<p>No likely significant effects have been identified as a result of the proposals, either alone or in-combination with other plans or projects.</p>

Ecological Feature	Potential Impacts	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
<p><b>Eryri SSSI</b> <b>Nationally important</b></p>	<p>Direct, permanent loss of 2.26 ha of vegetated habitat. None of the habitats are notified feature of the SSSI, but the grassland provides the context for boulders supporting lichens that contribute toward the SSSI lichen assemblage. The grassland may also be used by foraging chough, which are a notified feature of the SSSI, however the grassland is not considered critical for maintenance of the local population;</p> <p>Indirect, increased grazing pressure on undisturbed parts of the SSSI, outside of the application boundary, as a result of loss of the above area from Gwaen Gynfi common, which includes habitats for which the SSSI is designated. and changes to habitat quality or extent due to dust deposition on areas outside of the quarry.</p>	<p>No mitigation measures are proposed to mitigate for loss of SSSI Area or loss of extent of SSSI habitat features.</p> <p>Mitigation for impacts to the lichen flora have already been employed as required by a condition of the current planning consent. This would continue.</p>	<p>Planning Condition</p>	<p>None anticipated.</p> <p>Significant adverse effects as a result of habitat loss are considered unlikely due to the small extent of area affected.</p> <p>Loss of boulders supporting a notable lichen assemblage is subject to mitigation, but confidence in the success of the methods is low. Significant adverse effect to the designated feature is considered unlikely due to the small extent of area affected.</p> <p>The potential increase of 0.001 LU/ha at Gwaen Gynfi is so small that it not considered to result in measurable or material change to the quality or extent of any of the habitats present, including those for which the SSSI is designated.</p> <p>It is concluded since that there is low risk of airborne dusts, and the neutral chemical composition of the dust (i.e. dust arising from a similar geology as the receiving habitats and dust that is not nutrient or mineral rich), there is no likely significant effect on any notified habitats within the SSSI and no further mitigation is necessary.</p>

Ecological Feature	Potential Impacts	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
<b>Glan Gynfi LWS</b>	No direct impacts to this area would occur as it is outside of the extraction area. Indirect impacts are as for Eryri SSSI above, since the area is part of Gwaen Gynfi common.	None proposed.	N/A	None anticipated.
<b>Penrhyn Slate Quarry LWS</b>	None identified.	N/A	N/A	N/A
<b>Open Mosaic Habitat on Previously Disturbed Ground Less than locally important</b>	There are no proposed changes to tipping arrangements as a result of the proposal; however tipping would continue over a slightly longer period than is currently the case. This is considered likely to facilitate the continued presence of OMH at the quarry, in a range of stages of colonisation. Overall this is considered to be a neutral impact.	Mitigation not proposed. A significant part of Penrhyn Quarry already supports this habitat, or is highly likely to do so in the coming years as quarrying/tipping ceases and areas are left undisturbed enabling recolonization by vegetation as part of the approved restoration scheme.	N/A	None anticipated.

Ecological Feature	Potential Impacts	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
<p><b>Lichen Assemblage</b> <b>Up to Regional importance</b></p>	<p>An area of acid grassland and boulders that supports notable lichen species would be lost.</p>	<p>Mitigation as described for Eryri SSSI</p>	<p>Planning Condition</p>	<p>Loss of boulders supporting a notable lichen assemblage is subject to mitigation, but confidence in the success of the methods is low. Therefore a precautionary approach has been applied and a “worst case” assumed – all lichens lost. This would include the loss of species which are rarely recorded in the area and as such is considered to be a significant impact at the County - Regional level. It is worth noting that confidence in the evaluation is compromised by the lack of contextual baseline available for this species group, and it’s possible that impacts are less than those stated.</p>
<p><b>Common lizard</b> <b>Less than local importance</b></p>	<p>Common lizard occurs in small numbers at low density at the Site, and loss of habitat as a result of the proposal is not considered to significantly adversely affect the local population. However, in view of the species legal protection mitigation measures are proposed.</p>	<p>Reasonable avoidance measures are suggested to reduce the risk of committing an offence under the protecting legislation.</p>	<p>Planning Condition</p>	<p>No residual impacts are predicted.</p>

Ecological Feature	Potential Impacts	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
<p><b>Breeding Birds</b> <b>Less than local importance</b></p>	<p>There is potential for effects on individuals of local populations of bird species that benefit from various forms of legal protection if the works are conducted during any part of the bird breeding season. Due to the temporary nature and small scale of the works proposed, none of these effects are predicted to have an effect on the status of local populations.</p>	<p>Mitigation is enshrined in Condition 10 of the existing Planning Consent (ref C16/1164/16/MW)</p>	<p>Planning Condition</p>	<p>No residual impacts are predicted.</p>

## CONCLUSIONS

- 7.133 This chapter presents an assessment of the significance of predicted ecological impacts that would result from the proposal, and has been undertaken following current CIEEM guidance. The conclusions of the report have been based on detailed desk study and field survey information for the site and surrounding area.
- 7.134 The 2.26 ha extension area is wholly within Eryri SAC/SSSI but does not include any habitats that are qualifying features for the designated sites. It does, however, include grassland that may be used by foraging chough which are a notified feature of the SSSI, and contains boulders which support lichen species which are part of the notified lichen assemblage.
- 7.135 A detailed Habitat Regulations Screening Assessment is included as **Appendix 7/4** of this chapter in relation to potential impacts at the SAC. No likely significant effects have been identified as a result of the proposals, either alone or in-combination with other plans or projects.
- 7.136 Loss of boulders supporting a notable lichen assemblage that count toward the qualifying feature of the SSSI would be subject to mitigation, but confidence in the success of the methods is low. However, significant adverse effects to the designated feature are considered unlikely due to the very small extent of area affected.
- 7.137 The potential for hydrological impacts to the designated sites is avoided through the continued undisturbed presence of the existing leat. Monitoring of adjacent habitats would continue.
- 7.138 No changes to tipping arrangements are proposed, but tipping would continue for a further three years. This would assist in the continued presence of open mosaic habitat on previously disturbed ground (a Section 7 Priority Habitat) at Tip E2. No significant residual impacts are predicted.
- 7.139 Breeding birds and common lizard are likely to occur within the site and precautions outlined in the sections above aim to reduce the risk of harm to these species and avoid any offences under the governing legislation.