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LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN

At

Cae'r Glaw Quarry – Proposed Extension Area

Holyhead Road

Gwalchmai

Anglesey

LL65 4PW

NGR: SH 38512 77319

Prepared for: Hogan Aggregates Ltd & Caer Glaw Ltd

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Approved by: Toby Hart, UES Managing Director

A handwritten signature in black ink, appearing to read 'Toby Hart', is positioned below the 'Approved by' line.

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1 INTRODUCTION

1.1 Author and qualifications

This report is compiled and written by Tom Kenwright BSc MSc, Senior Ecologist at United Environmental Services Ltd (UES).

It has been verified by Toby Hart BSc MCIEEM PIEMA, UES Managing Director.

1.2 Objectives and scope

This landscape and ecology management plan (LEMP) presents a scheme for the design, establishment and management measures for the newly created, proposed and retained habitats, in order to maximise the benefits for wildlife and biodiversity.

1.3 Proposed development and previous survey information

The proposals are for the extension of the existing granite quarry, to allow mineral extraction from an area to the north, together with the consolidation of this new extraction area with the extant mineral planning permission in force on the wider quarry area. The proposed extension area is 6.89ha in size, which will be quarried in six phases over a period of more than 10 years. The plan at Appendix 1 shows the location of the proposed extension area (Zone A) and all other areas of the wider quarry discussed within this document.

A suite of ecological surveys has been undertaken of the proposed extension area to inform the planning application. The proposed extension area boundary has been amended on a number of occasions, in some cases to reduce impacts on ecological receptors. As such, the area surveyed to inform this application covers a greater area than is to be quarried. Surveys undertaken by UES of the proposed extension include:

- Preliminary Ecological Appraisal (PEA) – June 2021
- Reptile population size class assessment – May to October 2021
- Great crested newt (GCN) *Triturus cristatus* impact assessment and eDNA survey – May & June 2021
- National vegetation classification (NVC) survey – June & July 2021
- Invertebrate survey – July 2021

The detailed habitat, botanical and protected species surveys required were informed by the initial PEA of the proposed extension area. In addition, baseline information from the wider quarry and surrounding areas was also already available following a full suite of surveys that UES undertook to inform a planning application for an alternative proposed extension area that lies immediately adjacent to the current proposed extension area (see Appendix 1 – Area B). This area will no longer be quarried despite planning permission being granted by Anglesey Council in December 2019 (planning reference 48C79J).

Ecological surveys undertaken of the previous ecological extension area by UES included:

- PEA – January 2016
- GCN impact assessment and population size class assessment – March to June 2016
- NVC survey – July 2016



- Reptile presence / absence and population size class assessment survey – April to October 2016
- Bat activity survey – May to August 2016
- Invertebrate survey – August 2016

In addition to the surveys of the proposed extension area, PEA surveys were undertaken of the proposed compensation (Area C) and restoration areas (Areas D – G) in December 2017. These surveys were undertaken to assess the baseline value of these areas and to identify opportunities for habitat creation and management works to compensate for the loss of habitats associated with the previous extension. Reptile population size class assessment surveys were also undertaken of the compensation and restoration areas to inform the suitability for the translocation of reptiles from the previous extension area. It is proposed that these restoration and compensation areas will now be used within the new application. Some of the habitat creation and compensation works have already been undertaken in advance of the application, as detailed within this report.

Due to the presence of GCNs within ponds within the wider quarry, ongoing works within the entire quarry have been registered under a GCN European Protected Species (EPS) mitigation licence. GCN monitoring surveys of these ponds are currently ongoing, with surveys having been completed in 2020, 2021 and 2022.

1.4 Structure of the report

This report sets out the baseline ecological information before detailing how the objectives of this LEMP will be achieved during and after the development.

This report should be read in conjunction with Appendix 1, which includes a site zonation plan. It should also be read in conjunction with the following supplementary reports:

- Preliminary Ecological Appraisal V2 (reference UES02936/01).
- Reptile Population Size Class Assessment (reference UES02936/02)
- Great Crested Newt Impact Assessment (reference UES02936/03)
- National Vegetation Classification Survey (reference UES02936/04)
- Ecological Design Strategy (reference UES02936/07)
- Ecological Impact Assessment (reference UES02936/08)
- Invertebrate Survey Report



2 BASELINE ECOLOGICAL INFORMATION

2.1 Habitats

A PEA was undertaken of the proposed extension area by UES in June 2021 and an ecological impact assessment (EclA) has been undertaken of the proposed development (reference UES02936/08). The EclA has highlighted that the proposed development could have significant adverse impacts on the following species, requiring the implementation of mitigation measures to avoid or reduce these impacts:

- Badger *Meles meles*
- Breeding birds
- Amphibians including GCNs
- Reptiles
- Invasive species
- Plant communities

2.2 Badgers

No records of badger were returned from within 2km of the proposed development site and no evidence of badger activity was observed during the ecological surveys of the previously consented extension area.

A single badger scatt was observed on site during the walkover surveys but was not associated with a dug latrine. No other evidence of badger activity and no evidence of any potential badger setts were observed on site or within the immediate vicinity of the site during the suite of ecological surveys undertaken to inform this application.

The habitats on site provide some suitable foraging and commuting habitat for badgers, however the site is considered to be broadly unsuitable to support sett building opportunities for badgers due to the shallow soils over granite rock and the lack of sheltered potential sett building locations.

It is considered that badgers are not using the site and immediately adjacent habitats for sett building and badger use of the site is considered to be limited to a single of low number of individuals foraging or commuting across the site in a transitory capacity. As such, the site is considered to be of site importance for badgers.

2.3 Breeding birds

Numerous species of birds were recorded using the proposed extension area during the ecological surveys undertaken across 2021. The habitats on site provide suitable foraging and nesting opportunities for a range of species.

2.4 Amphibians including GCNs

The habitats on site vary in their suitability to support GCNs, with the areas of dense bracken *Pteridium aquilinum*, scrub and the neutral / acidic flushes offering high-quality foraging and sheltered commuting opportunities for amphibians. The western section of the site has a higher proportion of grazed semi-improved grassland, which offers lower suitability for foraging



and commuting amphibians. The drystone wall that bisects the survey site north-south also provides some commuting and potential hibernating opportunities.

There is a single area of standing water within the proposed development boundary (Pond 1), four areas of standing water within 250m of the proposed site boundary (Pond 2 and Pools 1-3) and one additional area of standing water within 250m - 500m of the proposed development boundary (Ponds 3).

As part of the GCN impact assessment, the ponds on site within 500m of the site that were holding water at the time of the survey were assessed for their suitability to support GCNs. In addition, Ponds 1 and 3 were subject to an environmental DNA (eDNA) analysis to determine the presence / absence of GCNs and a search of marginal and aquatic vegetation was undertaken to search for GCN eggs. Pond 2 was not subject to eDNA analysis, as GCN absence has already been confirmed by monitoring surveys of the pond (associated with the existing GCN EPS mitigation licence). Pools 1 – 3 were not subject to eDNA analysis as they were dry at the time and are considered to be ephemeral pools that only hold standing water for small periods of the year and are unsuitable to support breeding GCNs.

Pond 1 returned 3/12 positive replicates of GCN eDNA, indicating that GCN DNA was present within the pond. The relative low number of replicates represents a weak score, indicating that GCNs are only present in very low numbers or transiently such as using the pond for foraging purposes rather than breeding. As detailed above, Pond 1 is an ephemeral pool which had partially dried out during the second survey visit at the end of June and completely dried out by mid-July, rendering the pond unsuitable for breeding GCNs. As such, it is considered that GCNs are only using the site for foraging and commuting purposes.

As part of the ecological survey work undertaken of the proposed extension site, 130 artificial refugia were searched 15 times each as part of reptile surveys. When amphibians (including GCNs) are present on a site, they are often found sheltering beneath these refugia. During the reptile surveys, low numbers of common toad *Bufo bufo*, common frog *Rana temporaria* and palmate newt *Lissotriton helveticus* were observed, however no GCNs were recorded.

All ponds onsite and within 500m of the site returned negative results for GCNs (Ponds 2 and 3) or are ephemeral and are considered to be unsuitable to be used by breeding GCNs (Pond 1 and Pools 1-3). As such, it is considered that the low number of GCNs present on site are part of the population known to be breeding within Ponds 4 and 6 that lie within the working quarry and are being monitored as part of the ongoing licence.

2.5 Reptiles

The habitats on site, particularly the areas of gorse *Ulex spp.*, bracken, granite outcrops and associated grassland, provide suitable foraging, commuting, basking and breeding opportunities for adder *Vipera berus*, slow worm *Anguis fragilis* and common lizard *Zootoca vivipara*. The large areas of sheep-grazed grassland on site are of limited value for reptiles.

Reptile surveys undertaken of the site by UES in 2021 found that the site supports 'good' populations of common lizard (max count of eight), and slow worm (max count of seven) and 'low' populations of adder (max count of one). Juveniles of all species were also recorded on site, indicating that the site is used for breeding. The site can be classified as important for reptiles as a result of its species assemblage and can qualify for the Key Reptile Site Register.

Common lizard, slow worm and adder are known to be present within the adjacent previously consented extension area (Zone B) which was found to support a 'good' population of slow



worm (peak count of fifteen) and 'low' populations of common lizard (peak count of one) and adder (peak count of one) during the 2016 reptile surveys. This site can be classified as important for reptiles as a result of its species assemblage and can qualify for the Key Reptile Site Register.

Reptile surveys of the proposed compensation area (Zone C) found the site to support a 'low' population of slow worms (peak count of four, including juveniles) and a 'low' population of common lizard (peak count of two). Due to the species and population sizes present, the compensation area does not meet the criteria to be classified as important for reptiles and does not qualify for the Key Reptile Site Register.

Reptile surveys of the proposed restoration area (Zones D and G) found the site to support a 'good' population of slow worms (peak count of eight, including juveniles). Due to the species and population sizes present, the compensation area does not meet the criteria to be classified as important for reptiles and does not qualify for the Key Reptile Site Register.

Both the compensation and restoration areas have the potential to provide excellent quality habitat for reptiles through management techniques such as scrub clearance and enhancement of refugia and hibernacula. At present, there are high proportions of dense scrub and bracken, which dominate large areas at the expense of heathland and grassland habitats.

2.6 Invasive species

No invasive species were observed within the proposed extension area or within the immediate vicinity of the site during the suite of ecological surveys. As such, invasive species are not considered to be present on site or within the immediate vicinity of the site and are very unlikely to be spread as a result of the development proposals.

Japanese knotweed *Reynoutria japonica* however has been observed within Zone D, located adjacent to the north-western lobe of Pond 4. Japanese knotweed is highly invasive and can be detrimental by outcompeting native plant species and degrading habitats. Due to its invasive nature, this species is listed under Schedule 9 of the Wildlife & Countryside Act 1981 (as amended), making it an offence to cause or allow this species to spread into the wild. As such, this species will be eradicated from the site and this report includes details of the proposed methodology in addition to proposed monitoring and treatment of invasive species in the future.

2.7 Plant communities

The NVC survey found the following habitats to be present on or within the immediate vicinity of the site:

- W23 *Ulex Europaeus* – *Rubus fruticosus* scrub
- U1 *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland
- U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland
- MG6b *Lolium perenne* - *Cynosurus cristatus* grassland (*Anthoxanthum odoratum* sub-community)
- M25 *Molinia caerulea* - *Potentilla erecta* mire
- U20 *Pteridium aquilinum* – *Galium saxatile*
- M29 *Hypericum elodes* – *Potamogeton polygonifolius* soakway



- M23 *Juncus effusus/acutiflorus* – *Galium palustre* mire

However, the most ecologically valuable vegetative communities (M23 valley mire, M29, M25 and U4) will now be retained following their identification and the subsequent change of the development boundary. The NVC survey concluded that the communities due to be lost to the proposals are generally of low ecological significance.

It is considered that the proposed development will no impact on any habitats or vegetative communities of European importance and will have very limited impact on habitats or vegetative communities of national importance, with all habitats to be impacted being species-poor and of low quality. It is considered that the loss of some habitats of regional or local importance can be adequately compensated for through habitat creation and enhancement, with specific compensation for the loss of the M23 flushes having already been implemented. No statutory protected plants or species of conservation concern were identified during the surveys.



3 LANDSCAPING AND HABITAT MANAGEMENT

Each habitat that is being retained or created will require a certain level of establishment, maintenance and monitoring to ensure that they are providing the ecosystem function required of them. This section details the habitats being retained or created, and specific management measures for each habitat. The site zonation plan at Appendix 1 of this report provides a visual representation of the habitats and areas which will require management.

The habitat measures detailed below must be carried out in full compliance with this report (and the relevant associated method statements or mitigation strategies) as well as the Natural Resources Wales (NRW) EPS mitigation licence for GCNs.

These habitat creation and management measures will act as an outline concept plan for the future restoration of the entire quarry, post-mineral extraction.

3.1 Zone A

Zone A covers approximately 6.89ha and comprises the proposed quarry extension area.

Following the completion of mineral extraction, the exposed benches will be restored using waste quarry material and overburden that is allowed to naturally regenerate into a mosaic of dense scrub, bracken, grassland and heathland. This will follow the exact same methodology as is to be implemented within Zone H, as detailed in section 3.8 below.

The ecologically valuable habitats to the east of Zone A, namely U4 *Festuca ovina-Agrostris capillaris-Galium saxatile* grassland, M25 *Molinia caerulea-Potentilla erecta* mire, M29 *Hypericum elodes-Potamogeton polygonifolius* soakway, and M23 *Juncus effusus/acutiflorus-Galium palustre* mire, will be unaffected by the proposed development and currently do not require any management measures. However, a biennial condition assessment of these habitats will be undertaken every two years following the start of works on site to identify the need for remedial management measures.

3.2 Zone B

Zone B covers approximately 5.86ha. This area formed the previously consented extension area that will now be retained under the development proposals and the permission to quarry the zone will be relinquished through the granting of this new application.

This area comprises a mosaic of dry dwarf shrub heath, bracken *Pteridium aquilinum* and unimproved acid grassland with dense gorse *Ulex spp.* scrub. This zone is currently managed for game shooting by the estate and is being maintained in a fairly favourable condition, as evidenced by the results of the habitat and reptile surveys that were undertaken to inform the previous quarrying extension application. As such, management of this area will continue to encourage a diverse mosaic of habitats.

3.3 Zone C

Zone C covers approximately 5.2ha and will act as the receptor site for translocated reptiles and amphibians from Zone A.

Works already undertaken



At the time of the initial 2016 PEA and reptile surveys of the proposed compensation / receptor area (Zone C), this zone was found to consist of extensive areas of bramble *Rubus fruticosus agg.* scrub with willow *Salix spp.*, dense gorse and bracken. Small pockets of dry dwarf shrub heath were present on rocky outcrops. The area had previously been planted with trees, with rowan *Sorbus aucuparia*, pedunculate oak *Quercus robur* and Scots pine *Pinus sylvestris* present across the site.

Through habitat creation / enhancement and positive management, it was considered that Zone C would act as a suitable receptor site for reptiles. Following the granting of the planning permission for the previous extension area, significant habitat creation and enhancement works were undertaken, despite the proposed quarry extension and translocation never taking place. Some of these measures were also undertaken to enhance the zone for GCNs, as detailed within the EPS mitigation licence granted by NRW for the ongoing quarrying operations within the wider quarry site.

It is considered that the habitat creation and enhancement work that have been undertaken have increased the suitability of the site for reptiles, amphibians, birds, bats and other faunal species. Given that the previously consented quarrying extension has not and will not take place (instead being replaced by this new application), these works are instead to be considered as compensation for the proposed quarrying extension and Zone C will continue to act as the proposed receptor site for the reptile translocation exercise.

Habitat creation and enhancement measures already undertaken within Zone C include:

- Scattered trees and willow scrub have been selectively felled, with arisings stacked as habitat piles to act as refugia and hibernacula for reptile and amphibian species. Cut stumps were treated with a glyphosate-based herbicide via direct application (using paint brush or similar technique) to prevent regrowth. Stumps of Scots pine did not require herbicide application.
- Stands of gorse were reduced in size by removing the outer plants of each group, to reduce the ground cover by 50%.
- Areas of bramble and bracken were cut with a flail arm or mower. Cut material was then collected, stacked and retained on site as hibernacula and refugia for reptiles and amphibians.
- A section of woodland screen planting (planted in 1994-1995) present on the western perimeter of Zone C was subject to thinning to open the woodland structure by reducing competition for space and resources, and by encouraging growth of saplings to diversify the age structure. Willow scrub and alder *Alnus glutinosa* were retained in the damper areas of the woodland. Thinning was undertaken to remove 50% of trees, favouring retention of more successful specimens to maintain a diversity of woody species, but also to encourage a wetter habitat overall. All logs and brash were retained within the woodland and stacked as habitat piles.
- A new pond (Pond 8) measuring approximately 100m² was created by reprofiling the existing substrate. The pond was shaped to incorporate a shelf along the margins at a depth of 30cm to facilitate colonisation of emergent plant species, however some of the margins were profiled into shallow slopes to permit amphibians and other wildlife easy access into and out of the ponds. One of the lobes has a depth of 60cm, whereas



the other lobe has two stepped depths of 60cm and 100cm in the centre of the lobe. The pond's perimeter is scalloped to provide smaller, shallow lobes which will be ideal for breeding amphibians. The pond was lined with puddling clay to ensure the capacity to retain water throughout the year and was allowed to fill naturally. No planting was undertaken, but a small amount of water and substrate from the pond in Zone D was applied to the new pond to expedite colonisation by flora and fauna.

- A large dry scrape with encroaching scrub and trees was cleared and excavated to create a large shallow flooded depression (Pond 7). This has since naturally flooded and holds standing water for most of the year and has been colonised by numerous marginal and aquatic species, which includes but is not limited to lesser marshwort *Apium inundatum*, marsh cinquefoil *Comarum palustre*, bulbous rush *Juncus bulbosus*, floating club-rush *Eleogiton fluitans* and soft rush *Juncus effusus*.
- Ten Schwegler 2F and five Schwegler 1FF bat boxes were installed in the woodland area on the western boundary of Zone C, following the woodland management works detailed above.
- Ten Schwegler 1B (26mm) and ten Schwegler 1B (32mm) nest boxes were installed in the woodland area on the western boundary of Zone C, following the woodland management works detailed above.

Works required

In order to ensure that the site continues to be suitable and ready for the translocation of reptiles, an updated walkover and habitat suitability assessment survey was undertaken by UES in October 2022. The survey has found that many of the cleared areas are being encroached by bramble, bracken and gorse and willow scrub. Additionally, some areas of the large marshy area (Pond 7) have become dominated by tall *Juncus* species, at the detriment of uncommon forbs and general biodiversity.

Based on the findings, the following management measures will be implemented prior to the commencement of the reptile translocation exercise:

- Additional scrub removal will be undertaken sensitively due to the potential presence of reptiles and amphibians. To reduce the risk of harm, bramble, willow and gorse scrub to be removed will be identified by an ecological clerk of works (ECoW) and then removed through the use of hand tools if undertaken during March to October inclusive. If works are undertaken outside of this period when reptiles and amphibians are least likely to be active (November to February inclusive), the scrub control can be undertaken using excavator-mounted flails, under the supervision of an ECoW. Any significant scrub stumps that remain will be treated with a glyphosate-based herbicide application to prevent re-growth. To reduce the potential for herbicide drift and impacts on non-target habitats, herbicides will be applied using a weed-wiper or paint brush and will not be sprayed. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.
- Bracken re-growth will also be controlled through foliar application of Asulox herbicide. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.



- The marshy area (Pond 7) will be subject to selective rush removal through the use of a brushcutter and the application of a glyphosate-based herbicide, undertaken under the supervision of an ECoW. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.

Following the completion of the translocation exercise, the need for additional scrub or bracken control and any other remedial management measures will be determined by a biennial reptile habitat condition assessment. If management works are required, they are to be undertaken the following year (between years with reptile monitoring surveys) to reduce the likelihood of disturbance from the works influencing the results of the ongoing monitoring surveys.

3.4 Zone D

Zone D covers approximately 1.87ha and will be enhanced for biodiversity and wildlife. This area contains a large pond with a fringe of willow scrub, surrounded by bracken and gorse. Minimal intervention is recommended due to the presence of GCNs.

Works undertaken

Clearance of some willow scrub from the perimeter of the pond to remove shading from shallow areas has been undertaken to encourage the growth of marginal, submerged, emergent and floating vegetation, and to reduce leaf litter and eutrophication. Cut logs and brush were used to create hibernacula and refugia piles in the areas of bracken and scrub around the pond.

Works required

Additional willow scrub removal from the banks of the waterbody will be undertaken biennially. Works in the first year will concentrate on the north-eastern edge of the waterbody, with the next set of works focussing on the south-eastern section. Following this, the location and quantity of scrub removal will be guided by monitoring surveys and will be determined by the project ecologist. To reduce the risk of harm to amphibians and reptiles, bramble, willow and gorse scrub to be removed will be identified by an ECoW and then removed through the use of hand tools if undertaken during March to October inclusive. If works are undertaken outside of this period when reptiles and amphibians are least likely to be active (November to February inclusive), the scrub control can be undertaken using excavator-mounted flails, under the supervision of an ECoW. Any significant stumps that remain will be treated with a glyphosate-based herbicide application to prevent re-growth. To reduce the potential for herbicide drift and impacts on non-target habitats, herbicides will be applied using a weed-wiper or paint brush and will not be sprayed. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.

Any significant areas of bracken will also be controlled through foliar application of Asulox herbicide. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.

The stand of Japanese knotweed *Reynoutria japonica* will be subject to herbicide application according to the methodology detailed within the ecological design strategy (EDS) document



that has been prepared for this application (see report reference UES02936/07). This will be undertaken from July to September inclusive and will include a walkover survey by an ecologist to search for and identify any additional stand of this or any other invasive species that may be present.

3.5 Zone E

Zone E covers approximately 1.79ha and currently consists of bare ground from waste quarrying material, which is being colonised by species typical of ephemeral / short perennial and tall ruderal habitats. Willow scrub is establishing on the compacted ground. Zone E will be retained as an operational area.

3.6 Zone G

Zone G covers approximately 2.8ha and will be enhanced for biodiversity and wildlife. This area currently supports small pockets of dry dwarf shrub heath on rocky outcrops amongst dense bracken, with extensive stands of willow scrub.

Works undertaken

Some scrub removal and bracken control has already been undertaken within this area, to create rides and to favour acid grassland and heathland habitats. All felled willow stumps were treated with a glyphosate-based herbicide via direct application (using paint brush or similar technique) to prevent regrowth. All arising were stacked as habitat piles to act as refugia and hibernacula for reptile and amphibian species.

Pond 5 within this zone was subject to restoration works to increase its value for amphibians and to maximise biodiversity in general. The pond had become choked with willow scrub which created leaf litter and caused the pond to have almost completely dried up. Following the removal of the scrub and some debris, the pond has begun to hold standing water for most of the year and now functions as an aquatic habitat.

Works required

Additional scrub control will be undertaken biennially, including from around and within the pond where deemed necessary. To reduce the risk of harm to amphibians and reptiles, bramble, willow and gorse scrub to be removed will be identified by an ECoW and then removed through the use of hand tools if undertaken during March to October inclusive. If works are undertaken outside of this period when reptiles and amphibians are least likely to be active (November to February inclusive), the scrub control can be undertaken using excavator-mounted flails, under the supervision of an ECoW. Any significant stumps that remain will be treated with a glyphosate-based herbicide application to prevent re-growth. To reduce the potential for herbicide drift and impacts on non-target habitats, herbicides will be applied using a weed-wiper or paint brush and will not be sprayed. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.

Bracken re-growth will also be controlled through foliar application of Asulox herbicide. All herbicide application must be undertaken by a trained and competent contractor and the manufacturer's information must be consulted to determine the application rate.



3.7 Zone H

Zone H contains the benches left over previously quarried areas will be enhanced for biodiversity and wildlife

Works undertaken

No habitat creation or enhancement works have been undertaken within this area to date as the final ground levels have not yet been established.

Works required

As part of the reprofiling works, overburden from Phases 1, 2 and 3 will be used to restore the benches that remain following mineral extraction. The principal approach to the restoration of the site will be to deposit quarry waste together with stripped soils on worked out benches to depths of 1-2 metres, depending on access constraints. It is also proposed that similar material will be overtipped from the bench above to form a natural angle of repose. The use of materials originating on site for restoration will ensure that the ecological character of the quarry is consistent with non-quarried adjacent land.

Following the placement of materials and soils, this area will be allowed to naturally regenerate from the seedbank within the soil from Zone A. It is considered that natural colonisation and regeneration is beneficial than the importation plants and seed mixes of unknown origin and will facilitate the establishment of a mosaic of heathland, grassland, bracken and scrub. Following soil translocation and profiling, a botanical survey will be undertaken every two years to monitor the species and habitats present. This survey will be used to inform the need for remedial management intervention e.g. control of dense scrub or the provision of an appropriate seed mix.



4 MANAGEMENT RESPONSIBILITIES

4.1 Initial habitat creation responsibility

The responsibility for ensuring that the initial habitat creation works lies with the site management / operators (Hogan Aggregates). They will be responsible for ensuring that the habitat creation works are carried out in accordance with this LEMP and all other relevant ecological documents and required licences for the site.

4.2 Ongoing habitat management responsibility

Subsequent management of the habitats on site will be the responsibility of the management / owners of the quarry. They must ensure that the ongoing measures detailed within this LEMP and all other relevant ecological documents and required licences are implemented.

4.3 Monitoring and remedial measures responsibility

As detailed in the EDS report (reference UES02936/07), Zone C will be subject to biennial reptile population size class assessment surveys every two years following the completion of the translocation exercise.

To evaluate the success of habitat creation, enhancement and management works, Zones D and G will also be subject to biennial reptile population size class assessment monitoring surveys and habitat suitability assessments for the first ten years, to identify the need for remedial management measures. This monitoring will commence the year / reptile survey period following the completion of all 'initial' habitat creation and enhancement works as detailed below in Table 1. For zones where no initial habitat creation works are required or have already been completed, these surveys will commence the year / reptile survey period following the approval of planning permission.

GCN population size class assessment monitoring surveys are currently being undertaken of all waterbodies within the quarry and of all waterbodies that have recently been created as part of the habitat management works. These surveys occur annually and adhere to the methodology as agreed within the GCN EPS mitigation licence granted for the site by NRW. The monitoring surveys are due to continue until and including 2040, comprising a 21-year survey period following their commencement in 2020. All results are submitted to NRW and Cofnod annually.

The responsibility for commissioning ecological monitoring lies with the site management / owner, and must be undertaken by suitably qualified and experienced individuals.

Reports detailing the results of all monitoring surveys will be provided to the Local Planning Authority and Cofnod for their records, as well as part of any EPS mitigation licence requirements.



5 MANAGEMENT SCHEDULE

Initial works

Table 1 summarises the initial habitat creation and management measures, required timings and responsibilities during the construction phase of the development. This table should be read in conjunction with the previous sections, which include more detail which should not be overlooked.

Table 1 – Proposed initial habitat creation and management measures for each zone within the wider quarry site.

ZONE	PROPOSED WORKS	TIMINGS OF PROPOSED WORKS
A	No initial works required. Translocation of overburden and quarrying material to allow natural regeneration	N/A Following completion of mineral extraction.
B	No initial works required.	N/A
C	Removal of bramble, willow and gorse scrub and application of herbicide. Control of bracken re-growth through application of Asulox herbicide. Selective removal of and herbicide control of rush from the marshy area (Pond 7).	Prior to the commencement of the reptile translocation exercise.
D	Biennial removal of willow scrub from the banks of the waterbody will be undertaken biennially. Works in the first year will concentrate on the north-eastern edge of the waterbody, with the next set of works focussing on the south-eastern section. Control of large areas of bracken through application of Asulox herbicide. Herbicide treatment of Japanese knotweed and walkover survey to identify any additional invasive species.	Within a year or planning permission being granted. Within a year or planning permission being granted. July to September 2024
G	Biennial removal of willow scrub from the banks of the waterbody will be undertaken biennially. Works in the first year will concentrate on the north-eastern edge of the waterbody, with the next set of works focussing on the south-eastern section. Control of large areas of bracken through application of Asulox herbicide.	Within a year or planning permission being granted. Within a year or planning permission being granted.



H	Translocation of overburden and quarrying material to allow natural regeneration	During Phases 1, 2 & 3 of the proposals
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Ongoing works and monitoring

Table 2 lists the ongoing management works and ecological monitoring required in each zone and the associated timescales. Remedial measures and ongoing management may also be required based on the recommendations of these monitoring surveys.

Table 2 – Ongoing management, monitoring and remedial measures required for each zone of the wider quarry.

ZONE	MONITORING REQUIRED	TIMESCALE
A	No ongoing management or monitoring required, as this zone will be lost to quarrying activities. Botanical surveys to assess the condition of the ecologically valuable habitats to the east of Zone A (but within the original survey boundary; see Appendix 1 – Zonation plan) and the implementation of subsequent remedial management measures where necessary.	N/A Every two years for the first ten years following the start of works on site, May to August inclusive.
B	Ongoing current management regime.	N/A
C	Reptile population size class assessment Reptile habitat condition assessment and invasive species walkover survey. GCN survey. Ongoing control of scrub and bracken growth, as deemed necessary following the habitat condition assessment.	Every two years for the first ten years (starting the year after the completion of the translocation exercise) Every two years, May – September (inclusive) Annually until and including 2040). As deemed necessary.
D	Reptile population size class assessment Reptile habitat condition assessment and invasive species walkover survey. GCN survey.	Every year for the first ten years (from start of quarrying extension works). Every two years, May – September (inclusive) Annually until and including 2040). As deemed necessary.



	Ongoing control of scrub and bracken growth, as deemed necessary following the habitat condition assessment.	
G	<p>Reptile population size class assessment</p> <p>Reptile habitat condition assessment and invasive species walkover survey.</p> <p>GCN survey.</p> <p>Ongoing control of scrub and bracken growth, as deemed necessary following the habitat condition assessment.</p>	<p>Every year for the first ten years (from start of quarrying extension works).</p> <p>Every two years, May – September (inclusive)</p> <p>Annually until and including 2040).</p> <p>As deemed necessary.</p>
H	Botanical surveys to assess the establishment of habitats and the implementation of subsequent remedial management measures where necessary e.g. scrub removal.	Every two years following the completion of spoil translocation, May to August inclusive.



6 CONCLUSION

The proposed development will result in the loss of semi-improved acidic grassland, acidic / neutral flushes, dense gorse scrub and areas of continuous bracken.

The measures set out in this document will ensure that the habitats due to be lost to facilitate the proposed extension will be adequately compensated for and will ensure that the development results in an ecological enhancement. This document details the works already undertaken in advance of the previously consented extension that is no longer taking place, the initial habitat creation / enhancement required and the long-term management and monitoring that will be implemented.

Furthermore, the LEMP has been designed with the aims of specifically benefiting GCNs and reptiles through the provisioning of suitable aquatic breeding habitat and through terrestrial habitat creation and enhancements.

The ongoing management and monitoring detailed will enable the success of the mitigation works to be assessed.



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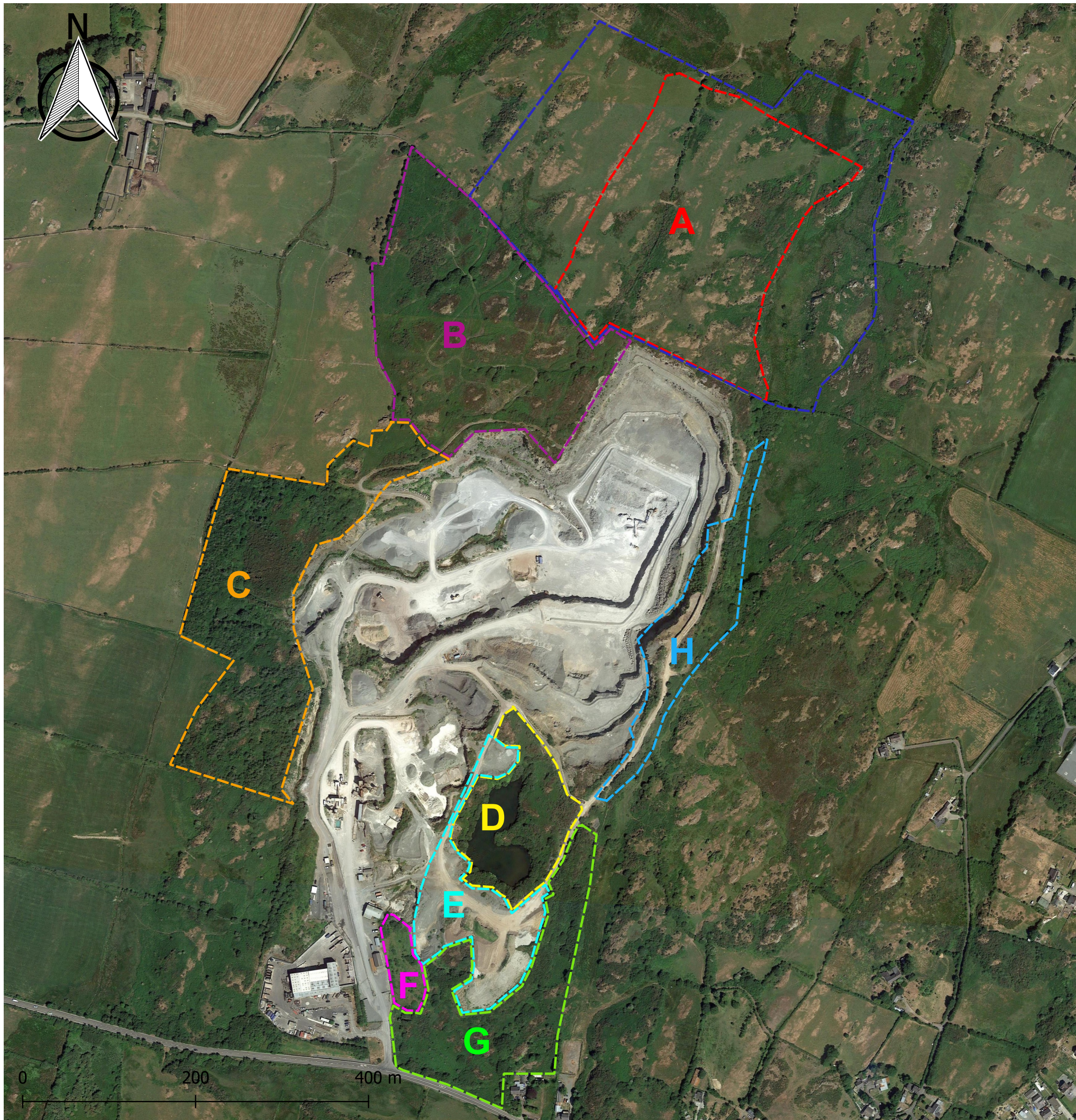
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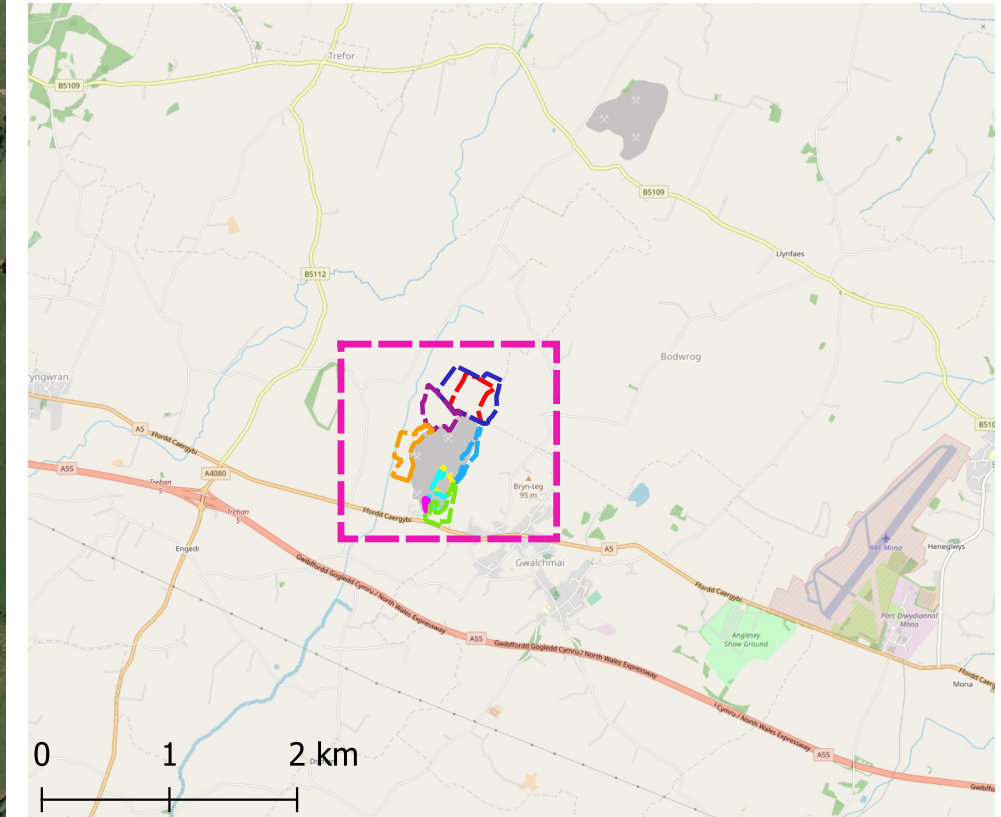
APPENDICES

Appendix 1 – Site zonation plan



Site Zonation Plan

**Site: Cae'r Glaw Quarry -
 Proposed Extension Area**
NGR: SH 38512 77319
Author: Tom Kenwright
Date: 24/11/2022



KEY:

- Zone A - Development boundary
- Survey boundary
- Zone B
- Zone C
- Zone D
- Zone E
- Zone F
- Zone G
- Zone H

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