

VAYNOR QUARRY

Appendix 7/7 to EclA – Great Crested Newt Mitigation

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1.0 Introduction

This document represents Appendix 7/7 of the Ecological Impact Assessment (EclA) undertaken in relation to the continued operation of Vaynor Quarry.

Baseline information relating to Great Crested Newt (GCN) is set out in the EclA and Appendix 7/4 Great Crested Newt Survey Report.

Due to the presence of a large population of GCN being identified, and scale of potential impacts predicted (in the absence of mitigation) this document sets out further detail regarding the approach to GCN mitigation in order to ensure the continued operation of the site does not result in any detriment to the favourable conservation status of GCN. This information is given in the format of Natural Resources Wales's (NRW) European Protected Species Licence Method Statement for GCN which will be formalised as an application at the appropriate time i.e. when a date is known for the planned resumption of quarrying.

It should be noted that this document has many aspects presented in outline and following current approaches to great crested newt mitigation being implemented at minerals sites across Wales. As the site is currently inactive, and when operations resume may be active for 100 years or more, there remains the possibility that revised approaches or new options to mitigation have become available and preferable to the approaches set out below.

A Executive Summary.

Vaynor Quarry, hereafter referred to as the 'site', is a limestone quarry situated immediately north of Trefechan and approximately centred on the National Grid Reference (NGR) SO 035 103. The site falls within both the Merthyr Tydfil County Borough Council (MTCBC) and Brecon Beacons National Park Authority (BBNPA) administrative areas.

Quarrying operations are understood to have first began in c.1847 and there is currently 48.8 million tonnes of mineral reserve that could be extracted from the quarry. At present, the site has been inactive and subject to minimal disturbance since 2007. The quarry layout was developed with two separate excavation areas, one along the western side and the other along the eastern side due to geological conditions. The central spine between the two excavation areas forms part of the reserve. These areas now hold scrub vegetation with areas of pooling running water from the cliff faces found in both the western and eastern excavations. An established pond occurs in the south of the eastern void.

The first known presence of great crested newts (GCN) relates to surveys undertaken by SLR Consulting in 2018, this survey was conducted to inform an Ecological Impact Assessment (EcIA) that will assess the potential impact of resuming quarry operations on the GCN population. A large population of GCN (peak count of 180) with signs of breeding was recorded in Pond 5 within the eastern void of the quarry, and a small population of GCN (peak count of 4) was recorded in Pond 6 within the western void.

Although the site is currently inactive, it is planned for works to recommence in the future and the quarry development plan is based around a remaining 100 year period of operations. The site benefits from three separate planning permissions that were collated and granted in 1959, 1962 and 1982 and extend to 2045. The Environment Act 1995 set out a process whereby the planning conditions imposed on mineral planning permissions are reviewed on a 15 year cycle (Periodic Review), a process often referred to as a 'Review of Old Minerals Permissions' or 'ROMP' review. In resuming operations at the site, there will be a need to re-instate former access roads and processing and storage areas, as well as continue mineral extraction from within the permitted extraction limit

In respect of GCN, recommencing quarry operations will directly affect the terrestrial and aquatic habitats of the populations on the site, however the current quarry development plans have been designed to minimise impacts as far as possible during initial phases of works whilst a dedicated receptor site establishes.

Overall, it is considered that the proposed habitat creation and translocation offers the opportunity for the conservation status to become more favourable in accordance with the provisions of Section 6 of the Environment (Wales) Act 2016 and Article 2:2 of the Habitats Directive.

B Introduction

B.1 Background to activity/development

Include a brief summary of what the proposed activity is and why it is necessary.

The quarry development relates to the resumption of quarrying following established working/extraction limits with restoration taking place alongside mineral extraction.

The proposed activity is the resumption of limestone extraction and processing at Vaynor Quarry. The activity is necessary to meet local and regional requirements for aggregates.

The site was last worked during 2007 with material being used to supply the Porth By-pass. Before then, quarrying activity had been intermittent with the drystone plant closing in 2002 and the coating plant closing in 2003. The fixed plant was eventually removed in 2008.

B.2 Full details of proposed works on site that are to be covered by the licence

Please ensure sufficient detail is provided on the proposed works e.g. construction of buildings, roads, fences etc. Include current status of planning permission or other consents (if applicable) and any outstanding conditions/reserved matters. Include timescales and order of work.

Three planning permissions are still valid at Vaynor Quarry; one granted in 1959 and one granted in 1962, which straddle the boundary between Merthyr Tydfil CBC and the National Park; and a separate permission granted in 1982 wholly within Merthyr Tydfil CBC.

Under the Environment Act 1995, a review of the mineral planning conditions at the Site was undertaken in May 1997 with modified planning conditions granted on 1st January 2002.

These updated conditions relate to operational aspects, there are no specific conditions relating to GCN. There are no conditions or reserved matters that need to be addressed and operations at the site are able to recommence at any time by virtue of the current planning permission although it is anticipated that updated planning conditions will be in place by the time of an EPSL application being formally submitted to NRW.

The exact history regarding GCN at the site is not clear/documented as no prior baseline ecological surveys are known to have been undertaken prior to 2018, a situation that is not uncommon with mineral sites of this age.

The licence is sought to cover the continued operation of the site which will require the disturbance and removal of terrestrial areas and waterbodies known to be used by small and large populations of GCN. As the quarry operation progresses, the locations of the waterbodies will need to change and it is their removal which poses the greatest risk to GCN. At present GCN can access all future operational areas of the site and, therefore, day to day operations may also pose a risk to GCN if they remain in the site itself.

B.3 Actions requiring licensing

E.g. disturb, capture, translocate, damage or destroy breeding site or resting place (terrestrial and/or aquatic), kill. Briefly explain why these actions are necessary.

Recommencing quarrying operations at Vaynor Quarry requires the disturbance of terrestrial habitats within 500m of identified breeding ponds (Ponds 5 & 6). The quarry development extends beyond this 500m zone, although for the purpose of this method statement a bespoke 'impact and mitigation' zone is considered based on a 500m buffer from Pond 5 and a 250m buffer from Pond 6 within any significant barriers to GCN movements. This is shown on Drawing GCN 1.

This licence application relates to this area only, as any further operations beyond these zones are not considered to require formal mitigation measures based on the current baseline situation and negligible potential for GCN to occur beyond these zones.

Both identified breeding ponds (Ponds 5 & 6) will eventually be destroyed therefore the mitigation scheme has been proposed accordingly. The resumption of quarry activities at the site will also directly impact the surrounding

terrestrial habitat which would prevent GCN from accessing the ponds. As part of the scheme GCN would be excluded from the operational quarry void and accessing Pond 5 & 6. As such, the actions requiring licencing are:

- Disturb – any GCN using terrestrial refugia/habitats within the working area;
- Capture and translocate – to move any GCN from the working area to the receptor site;
- Destroy breeding site – GCN access to Ponds 5 & 6 will be prevented (to avoid potential for inadvertent impacts on GCN during quarry operation) and thus the pond will effectively be lost as a GCN breeding site; and
- Destroy terrestrial resting places – terrestrial resting places within 500m of breeding ponds which occur within the working area will be lost in order to reinstate site access etc and resume mineral extraction.

C Survey and site assessment

C.1 Existing information on great crested newts at the survey site.

Provide records from local environmental records centres, predictive modelling, local herptile groups, previous survey work by the applicant or others. Include records from within 2km.

A desk-top study was completed to inform the EcIA, with the initial baseline data held by South East Wales Biodiversity Records Centre (SEWBReC). The latest search, undertaken in 2022, identified the presence of records for GCN within the search area.

In 2018, presence or likely absence surveys for GCN were carried out by SLR Consulting to inform the EcIA. The surveys confirmed presence of GCN in two of these ponds. One of these, pond 5, situated in the eastern quarry void had a large population with a peak count of 180 individuals and was confirmed as a breeding pond. A small population was also recorded in the western void with a peak count of 4 GCN.

C.2 Statutory sites notified for the species (SSSIs or SACs) within 10km

A review of the statutory designated sites indicated that there are no statutory protected sites within 10km of Vaynor Quarry that have been designated on account of GCN interests.

C.3 Objectives of the survey

E.g. to determine presence/absence of all sub-populations of great crested newts likely to be affected, an estimate of population size and their usage of site (e.g. breeding, hibernation, and foraging).

The objectives were to establish the presence/absence and population size, of great crested newt in the context of the site to enable further assessment of any potential impacts that may arise in relation to the proposed reopening of the quarry.

C.4 Scaled plan/map of survey area

This should be of appropriate scale and orientation with integral or separate location map at 1:50,000 or 1:25,000 scale and aerial photographs.

See Appendix 7/2 of EcIA.

C.5 Site/habitat description (relevant to great crested newts)

This should be based on day-time visits (to include description of site and habitat relevant to great crested newt ecology). Include annotated photographs if applicable.

The Joint Nature Conservation Committee (JNCC) suggests that suitable terrestrial habitats up to 500m from GCN breeding ponds may be used by newts for foraging, resting, hibernation and migration. However, English Nature guidelines suggest that GCN commonly use terrestrial habitat within 250m of a breeding pond. Jehle, R. (2000) determined that 95% of summer newt refuges are located within 63m of a breeding pond¹ whilst trapping surveys have recovered few GCN at distances greater than 100m².

Based upon published research and surveyor experience, high quality terrestrial habitats have been broadly defined as lightly or un-grazed grassland, ruderal vegetation, hedgerows and mature woodland close to breeding ponds or connected by linear habitat features, such as ditches or hedgerows. Moderate quality terrestrial habitat has been broadly defined as grazed grassland, immature plantation woodland and habitats which offer fewer habitat connections or refugia for GCN. Low-value habitats are defined as those with sparse vegetation, that are compacted or recently developed and lack linear habitat features.

Using the above definitions, the site (and connected habitats within the impact and mitigation zone shown on Drawing GCN 1) support habitats ranging from low suitability (bare rock, aggregate etc) to high (broad-leaved woodland, scrub, and lightly grazed unimproved grassland) quality for GCN. Broad descriptions and photographs of the main habitat types are provided below.

Quarry Void

The main quarry void itself contains variable extents of vegetation, with bare rock dominating the majority, although areas of developing scrub occur and are characterised by butterfly bush, goat willow and silver birch. Scrub vegetation is more developed on the slopes and faces to the east of the quarry, in the west vegetation is virtually absent from the quarry floor with areas which are dominated by bare rock, scree and boulders (Photograph 1).



Photograph 1- Quarry void in the north west of the site (to be worked in Phase 1).

Whilst GCN have evidently entered the quarry void to access aquatic habitats, it is considered highly unlikely that the majority of the GCN population spend any significant periods of time within the actual quarry void. This is due to: the absence of established vegetation/habitats which would provide optimum foraging habitats i.e grassland and woodland; and the temperature variation in hard rock quarries comprised of exposed bedrock that heats up rapidly, providing an increased risk of GCN becoming desiccated.

GCN access to the western quarry void is heavily restricted by the presence of vertical quarry faces, typically two to three 'faces' high (typically 15m in height each), which enclose the quarry. Access to the eastern void is less

¹ Jehle, R. (2000). *The terrestrial summer habitat of radio-tracked great crested newts (Triturus cristatus) and marbled newts (Triturus marmoratus)*. The Herpetological Journal, 10 (4), 137-142

² Cresswell, W. and Whitworth, R. (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus*. English Nature Research Reports, Number 576.

restricted as the topography to the east is more sloped allowing vegetation to become established (Photograph 2).



Photograph 2- Sloped boundary to the east of the quarry voids.

The quarry voids offer limited opportunities for GCN in terms of foraging habitat due to the absence of established vegetation and generally compact nature of the quarry floor. The principle use of the quarry voids by GCN is considered to relate to dispersal of GCN from aquatic habitats to the surrounding high value terrestrial habitats i.e woodland and grassland, and use of refugia and rock fissures as places of rest or shelter when environmental conditions are suitable (noting above comment on desiccation risks), which could potentially include during the hibernation period.

Potential GCN refugia within the extraction area itself, which includes areas outside of the quarry voids, occur most frequently along the edges of internal roads and quarry benches where narrow bunds were created during the last period of operation to provide 'edge protection' for quarry vehicles and plant.

Ponds within the site boundary

Ponds 2 to 7 are all located within the quarry working area and will either be lost or potentially disturbed/indirectly affected by the resumption of operations. Pond 5 (Photograph 3) is the largest of the ponds, located at the south eastern boundary of the extraction area, and bordered by four smaller shallow pools along the eastern side of the pond and another shallow pool to the north. With water depth between 1 and 1.5 meters, aquatic vegetation is well established including bulrush and pondweed (*Potamogeton sp.*) considered suitable for egg laying in breeding season. Surveys carried out by SLR in 2018 confirmed a large population of breeding GCN with a count of 180.



Photograph 3 - Pond 5

Pond 4 consists of two small pools separated by a pile of boulders. The northern side is densely vegetated by bulrush but the pond is considered ephemeral due to the low levels of water, and rapid drying in the warmer months and is unsuitable for fish or water fowl. Pond 7 is a small ephemeral pond in the south of the quarry containing some sparse aquatic vegetation (10% cover). The other ponds (Photograph 4) are ephemeral, consisting of a bare rock substrate, and supporting very sparse or no aquatic vegetation. In the 2018 surveys a small population (4 individuals) of GCN were found to be using pond 6.



Photograph 4- Pond 4

Moorland/Scrub Mosaic

Several areas of moorland and scrub occur around the edges of the quarry and extend up through the north western reaches of the site boundary. Vegetation encompasses tussocky grasses such as tufted hair grass (*Deschampsia cespitosa*), purple moor grass (*Molinia caerulea*) and cock's foot (*Dactylis glomerata*) with heather, bilberry (*Vaccinium myrtillus*) and bracken (*Pteridium aquilinum*). Hawthorn (*Crataegus sp.*) and gorse (*Ulex europaeus*) are also found in a scattered distribution, with regenerating silver birch (*Betula pendula*), willow (*Salix*

sp.) and buddleia (*Buddleia davidii*) towards the quarry rim. These areas are considered to provide opportunities for GCN to forage, disperse and shelter but are largely more than 500m from Pond 5.

Central spine

An undulating aggregate tip and unworked reserve separates the east and western quarry void. Plant species include wild strawberry (*Fragaria vesca*), bracken, hawthorn, common sorrel (*Rumex acetosa*), fescue (*Festuca sp.*), mosses, gorse, Yorkshire fog (*Holcus lanatus*), creeping bent (*Agrostis stolonifera*), soft rush (*Juncus effusus*), annual meadow grass (*Poa annua*), occasional cherry tree (*Prunus cerasus*), yarrow (*Achillea millefolium*), brambles (*Rubus fruticosus*) and locally abundant buddleia. This area is considered suitable for foraging and sheltering GCN, however connectivity to breeding ponds within the quarry voids is poor due to steep, vertical rock faces on both sides of strip of land.

Woodland

There are two areas of broadleaved plantation woodland in the southeast of the site retained by future operations. These areas consist of young trees, planted as screening woodland, consisting of species such as beech (*Fagus sylvatica*), alder (*Alnus sp.*), ash (*Fraxinus excelsior*), silver birch, goat willow (*Salix caprea*), larch (*Larix sp.*), sycamore (*Acer pseudoplatanus*) and hazel (*Corylus avellana*). The ground flora is varied in extent and diversity, with the narrower eastern strip containing sparse grasses, lesser celandine (*Ranunculus ficaria*) and *Polytrichum* mosses. The larger woodland to the south has a sparse understory of ash saplings, hawthorn and dog rose (*Rosa canina*). Ground flora is limited to mosses, soft rush, cock's foot and tufted hair grass.

Further out to the east and adjacent to the site boundary there is grazed pasture/Ffridd and the Nant-y-Glais Woodland. Part of this is classified as ancient woodland and the northern reaches are part of the Nant Y Glais and Nant Glais Caves SSSI. It is a steep sloping woodland with an ash dominated canopy and hazel (*Corylus avellana*) in the understory and bryophyte rich ground flora which also includes frequent tufted hair grass, opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*), primrose (*Primula vulgaris*), bluebell (*Hyacinthoides non-scripta*) and wood sedge (*Carex sp.*)

These habitats are assessed as high quality habitat for GCN and are considered more likely to be used than the lower quality habitats that dominate working area, quarry void and immediate surroundings of ponds in the quarry void.

C.6 Field survey(s).

Include survey method (night counts, bottle trapping, egg surveys, site inspections), timings (day/evening), weather conditions (wind, rain, air and water temperature – tabulated for multiple survey visits), personnel involved (provide individual licence numbers, if held) and details of experience/competence in this type of work, and equipment used (type and power of torch). Also record any occurrence of non-native invasive plant species or fish, and structures or features that may cause incidental capture or killing, e.g. gulley pots. Also include any constraints and justifications for departures from best practice.

To inform the EcIA, survey work comprised of an initial daytime pond scoping/Habitat Suitability Index (HSI) assessment, followed by evening torch/netting/egg search surveys.

As no specific guidelines for GCN survey are provided by Natural Resources Wales, the approach to survey follows the Great Crested Newt Mitigation Guidelines (English Nature 2001) (GCNMG). In accordance with guidance, four survey visits are required to establish presence/absence of GCN between mid-March and mid-June, with a further two visits required to assess population size.

Surveys consisted of evening torch counts only. Bottle trapping was not deemed a suitable method of survey due to ponds being ephemeral and either holding very little water or having solid rock substrates which prevented the use of bottle traps. Whilst there are alternatives to conventional bottle traps (for example 'Dewsbury' traps), it was not considered necessary to use non-standard methods to unnecessarily capture amphibians when a large population had already been confirmed by torch counts.

The surveys were led by Mr Robert Williams, a Senior Consultant with SLR (NRW GCN Licence No: 77894:OTH:SA:2017) and Mr Chris Mitchell, a Principal Ecologist with SLR (NRW GCN Licence No: S086650/1) who are experienced in GCN survey and were assisted during the surveys by various ecologists employed by SLR.

Table C1- Survey Timings and Climatic Data 2018

Date	Survey Type / Methods	Equipment used	Weather Conditions	Lead Surveyor
02/05/2018	Evening torch survey, netting and egg search.	Clulite candlepower torches and standard pond net.	1m Suitable as per the published guidance.	Robert Williams
09/05/2018	Evening torch survey, netting and egg search.	Clulite candlepower torches and standard pond net.	1m Suitable as per the published guidance.	Robert Williams
22/05/2018	Evening torch survey, netting and egg search.	Clulite candlepower torches and standard pond net.	1m Suitable as per the published guidance.	Chris Mitchell
06/06/2018	Evening torch survey, netting and egg search.	Clulite candlepower torches and standard pond net.	1m Suitable as per the published guidance.	Chris Mitchell

C.7 Survey Results.

Summarise findings in table form (if appropriate); provide clear, annotated and cross-referenced maps/plans/photographs to show locations of breeding sites, and habitat maps. Raw data to be appended.

Table 2 below provides a summary of the ponds surveyed and the survey results.

Table C2- 2018 GCN Survey Summary Results

Pond Area	Number of surveys	Comments	Peak GCN Count
1	0	Pond not considered close enough to site to require survey.	0
2	4		0
3	4		0
4	4		0
5	4		180
6	4		4
7	4		0

The 2018 results show that Pond 5, within the eastern void, supports a large population of GCN, i.e the peak count during a single survey session exceeded 100 GCN, evidence of breeding was confirmed. A small population of GCN was recorded in Pond 6 within the western void with no evidence of breeding confirmed.

Other species of amphibian were identified within the ponds present, these included common frog (*Rana temporaria*) in all seven ponds within the site. Common toad (*Bufo bufo*) was recorded in Ponds 4, 5, 6 and 7, and palmate newt (*Lissotriton helveticus*) was identified in Ponds 4, 5 and 6.

C.8 Interpretation/evaluation of survey results (Great crested newt Mitigation Guidelines section 5.8)

Provide count/estimate of great crested newt numbers, status of site (e.g. breeding, foraging, resting or hibernating), population significance, constraints on survey (e.g. time of year, cold weather, access problems – justify as necessary).

A large population of GCN has been recorded at the site, comprising a peak count of 180 GCN in Pond 5 and four GCN in Pond 6, potentially making an overall maximum peak count of 184 GCN. The presence of common frog, common toad and palmate newt was also recorded during the surveys.

Given full survey of Pond 5 was not possible due to restricted safe access and certain elements of the survey were constrained as a result of the nature of the waterbodies present i.e. bottle traps could not be used, it is considered overall that the actual numbers of GCN within Pond 5 would have likely been greater. The remaining ponds were all very shallow and clear with unrestricted access and so it is considered the other pond survey results are reflective of the distribution of the population being heavily focussed around Pond 5. This would also correspond to the location of accessible suitable terrestrial habitat being heavily focussed towards the south-eastern and eastern fringes of the site.

Using the selection criteria described in Herpetofauna Workers' Manual, the assemblage present on site could meet the criteria for selecting Wildlife Sites in South Wales on the basis of four amphibian species being present and a large population of GCN.

Based on knowledge of other great crested populations in South Wales, this is considered likely to represent one of the larger known populations.

The value of the site, in terms of amphibians, is therefore assessed as being at the Regional (South Wales) level of importance but currently in an unfavourable status as there is no management to maintain habitat condition.

D Impact assessment – potential impact of proposed works in absence of mitigation/compensation. See Great Crested Newt Mitigation Guidelines (section 6.2)

D.1 Short-term impacts: disturbance

E.g. artificial light, restricting access to feeding or breeding sites, sheltering habitats and dispersal corridors.

The short term impacts are those associated with initial site preparation works to re-instate site access roads and infrastructure (weighbridge and car park etc) in order to enable the site to re-open and mineral extraction/processing operations to re-commence.

These works will require the removal of any vegetation and loose spoil/sedge protection bunds within the area shown as 'initial GCN Capture' on Drawing GCN 1. This area offers limited opportunities for GCN in terms of foraging habitat due to the sparsely vegetated ground and dominance of bare rock. However, this could still be suitable as an area for shelter, therefore disturbance has the potential to injure or kill resting GCN.

D.2 Long-term impacts: site modification

E.g. destruction or damage of part of breeding site or preferential sheltering/foraging habitats Note that impacts can be positive or negative as this is in absence of mitigation.

Ponds 5 & 6 occur within the operational quarry voids and their removal, together with loss of associated terrestrial habitat, would represent a more significant impact.

The most significant potential impacts to the GCN population during the long term operation of the site (in the absence of mitigation) include:

- Draining of Ponds to utilise water for site operations, which may directly kill any GCN caught in the pump or lead to draw down of the water level exposing eggs or partially developed GCN.
- Accidental pollution i.e from fuel spillages/leaks.
- Sedimentation as a result of run-off from mineral stockpiles and the wash plant.

D.3 Long-term impacts: site loss

Impact on different sub populations to be taken into account at 2km, 10km, local, regional, and national level.

Taking a worst case scenario approach that the population of GCN is lost; the following impacts on the wider GCN population are predicted:

- 2km – high impact as the population at Vaynor Quarry is large.
- 10km – high/moderate impact as GCN are not known to occur in comparable numbers at other locations at this geographic scale.
- Regional (i.e South Wales) – moderate impact, the species is relatively widespread across lowland areas of South Wales and other populations of this scale are known to occur. This distribution would not be adversely affected by the proposal.
- National (i.e Wales) – low impact, the species is relatively widespread across areas of South Wales and North Wales. This distribution would not be adversely affected by the proposal.

D.4 Long-term impacts: fragmentation and isolation

E.g. loss of ponds or terrestrial habitat including stepping stones and linear features such as hedges, tree lines, severance of migration routes by roads.

The working area (i.e where impacts are predicted) is not assessed as providing any key dispersal routes in the context of GCN movement or connectivity to other local populations due to the separation distances involved.

D.5 Post-development interference impacts

E.g. gully pots or other features that could effect incidental capture or killing, predation, disturbance, including those associated with recreation and human pressure,.

No post-development impacts are predicted taking the type of development (quarrying) into account as no gully pots etc are required and following completion of the mineral extraction the site would naturally regenerate and a suitable water body would occur in perpetuity.

E Works to be undertaken

Please identify which works will be undertaken or supervised by a licensed ecologist

E.1 Great Crested Newt capture and exclusion (if applicable).

Timings, effort, methods to be employed, reasonable avoidance schemes or measures for great crested newts (fencing, fence maintenance, logging captures, inspection and maintenance of fences), locations

of receptor sites etc. Include diagrams to show locations of draft and exclusion fencing, pitfall trap design and trap density. State if site based weather stations are used to demonstrate appropriate trapping conditions

The capture and exclusion methods are to follow guidance in Great Crested Newt Mitigation Guidelines (2001) where possible. The current quarry development plans have been designed around the presence of great crested newt to ensure only minimal impact would occur during initial phases and to maximise the period for habitat creation and establishment ahead of the removal of Pond 5 and the core terrestrial habitats which surround it.

The approach to mitigation is based upon a staged approach as follows.

Stage 1 – Initial clearance as shown on Drawing GCN 1

This relates to works in advance of Phase 1 of Quarry development. Translocation relies on the ability to install a barrier to movement which contains newts in an area and a means of capture. This usually involves the combination of amphibian barrier fencing of the area subject to development activities and the installation at regular intervals of pitfall traps which are dug so they are flush with the ground level. Due to the hard nature of the substrates surrounding the waterbodies at Vaynor Quarry, it will not be possible to employ the usual methods outlined above across the majority of the clearance area(s).

The proposed approach will involve the targeted use of barrier fencing material which is wooden battened or backfilled with Type 1 material (i.e crushed limestone) along the base. This could then be secured by partial burial with looser material, stapling into rock or concreting in as required to meet localised ground conditions and ensure a secure installation. Sand bags or props may be required to keep the fence vertical.

The Temporary Amphibian Fence (TAF) proposed at this Phase will be of the 'one way' design to enable any GCN not captured during the 30 translocation period to natural migrate towards Pond 5.

The supervising ecologist(s) will undertake hand searches/checks prior to fence installation, this will involve systematically searching potential refuges i.e leaf litter, logs or rocks, carefully lifting items from one 'edge' in order to avoid injuring any amphibians that may be seeking shelter beneath.

If any materials are assessed as being too heavy to lift by hand, then they will be moved by the machinery using either a bucket or sling as deemed appropriate and safe by the operator. If this is necessary, the supervising ecologist will direct to ensure the item is 'rolled' backwards away from the unsearched area so as to avoid the risk of injuring any amphibians that may be beneath.

It is unlikely that pitfall traps will be applicable due to the clearance area being within a hard rock quarry. As such, GCN will be caught using refuges (terrestrial habitats) at a density of 50 per hectare.

Refuges and traps will be checked daily by an ecologist, or assistant following training, with captures logged. Weather conditions will also be logged on site, with traps only being set when night time temperatures are anticipated to be above 5°C. Any GCN, and other amphibians, will be then be relocated to a comparable habitat/feature within 50m of Pond 5. A period of 30 appropriate days of capture is proposed for this initial phase between March and the end of October.

Stage 2 – development of a receptor site as shown on Drawing GCN 2

This relates to works during Phase 1 of Quarry development. The receptor area would have a permanent fence installed to stop GCN re-entering the quarry voids once translocated. This would be installed following the procedure above. Any GCN encountered during fence installation would be moved to a pre-constructed hibernacular feature.

Stage 3 – main translocation as shown on Drawing GCN 3

This relates to works during Phase 2 of Quarry development and represents the main translocation effort.

Again, it is unlikely that pitfall traps will be applicable due to the clearance area being within a hard rock quarry. As such, GCN will be caught using refuges (terrestrial habitats) at a density of 50 per hectare and funnel traps/Dewsbury style traps will be deployed to capture GCN from Pond 5 (as bottle traps cannot be used) during each night of capture.

Refuges and traps will be checked daily by an ecologist, or assistant following training, with captures logged. Weather conditions will also be logged on site, with traps only being set when night time temperatures are anticipated to be above 5°C. Any GCN, and other amphibians, will then be relocated to the receptor area and

released at a hibernaculum (terrestrial captures) or new pond (aquatic captures). A minimum of 90 appropriate days of capture is anticipated between March and the end of October, this will be supplemented with 10 'night searches'.

The receptor area will already have a permanent fence installed to stop GCN re-entering the quarry void once translocated.

Stage 4 – as shown on Drawing GCN 4

This relates to Phases 3-5 of Quarry development, no capture is proposed during this stage but the one way fence will remain in place.

Stage 5 – as shown on Drawing GCN 5

This relates to the final quarry development, no capture is proposed during this stage but the one-way fence will be removed enabling GCN to return to the restored quarry.

E.2 Great Crested Newt habitat

E.2.1 Receptor site modification, enhancement or creation.

Include details of new breeding sites and resting places e.g. pond creation- design, layout, number, planting schemes, water supply and hydrology regimes, terrestrial habitat diversification or creation – design, habitat type, planting schemes, provenance of imported plants, consideration of biosecurity impacts.

This section details habitat creation and measures that will be undertaken during Stage 2 i.e. in advance of the main GCN translocation commencing.

A key concept of the mitigation strategy relates to the exclusion of GCN from the operational quarry void to a dedicated receptor site. Five ponds are to be constructed as part of the translocation effort. The receptor site has been chosen for this purpose because it has the following attributes:-

- The receptor site is land which is owned by Hanson and also under their control;
- The receptor site will not be subject to development activities;
- The receptor site is close to the existing populations of GCN and has habitat linkages to the site;
- The receptor site can be reached via a track thus providing access for machinery to create and manage ponds; and
- The receptor site is currently under agricultural management which can be modified to favour GCN.

The five ponds will be constructed within areas of semi-improved grassland. They will be broadly oval-shaped and extend to 0.3ha in extent being up to 2 m deep with shallow margins. The ponds will be lined to ensure that they hold water throughout the year. It is proposed to utilise synthetic liners as these have proven more successful at other limestone quarries in Wales.

The receptor ponds are considered to offer more than sufficient replacement for Ponds 5 & 6 as they will provide reliable aquatic breeding habitats for the translocated GCN population, ensuring the population is maintained until final restoration when additional aquatic habitat will be available. Due to holding permanent water, the mitigation ponds will also develop diverse aquatic invertebrate assemblages suitable for adult and larval GCN feeding, and also an abundance of aquatic plants suitable for egg-laying. In contrast, one of the aquatic habitats being compensated for (Pond 6) is an ephemeral pond and not a permanent water body. Due to variable presence/extent of water, Pond 6 does not support any submerged or marginal aquatic vegetation and is highly unlikely to support established invertebrate fauna on account of regular/prolonged drying.

A bi-monthly check will continue to be undertaken as part of the compliance audit during the first two years and thereafter checks will be annually to assess water levels and determine whether any supplemental 'topping up' is required. The ponds may require occasional maintenance to ensure that open water conditions persist across a minimum of 60% of the surface area and to prevent any one particular plant species from becoming dominant. The need for management intervention would also be assessed during the annual habitat and presence/absence pond surveys which are proposed.

Twenty hibernacula (exceeding the minimum dimensions suggested by GCNMG i.e minimum of 2m x 1 m x 1m) are proposed within the receptor area and a detailed grassland management plan implemented to maintain favourable terrestrial habitat.

E.2.2 Temporary loss of breeding sites, resting places

Provide details of all reasonable avoidance measures to be undertaken throughout the period of works

Not applicable.

E.2.3 Destruction of existing breeding sites, resting places

Full project programme including dewatering schemes(including filter specifications), programmes of terrestrial searches, fencing location and construction, transport methodologies, void infilling.

Terrestrial habitats

The area highlighted on Drawings GCN 1 and GCN 3 for clearance/capture will be subject to a full hand search (i.e. destructive search).

The ecologist(s) undertaking this will systematically search potential refuges i.e leaf litter, logs or rocks, carefully lifting items from one 'edge' in order to avoid injuring any amphibians that may be seeking shelter beneath. This approach will be followed during fence removal.

If any materials i.e rock/boulders are assessed as being too heavy to lift by hand, then they will be moved by the fencing contractor's machinery. If this is necessary, the supervising ecologist will direct to ensure the item is 'rolled' backwards away from the unsearched area so as to avoid the risk of injuring any amphibians that may be beneath.

Any amphibians found during terrestrial searches will be moved to terrestrial areas. In stage 1 this will be within 50m of Pond 5 and at Stage 3 to the receptor site i.e the hibernacular features.

Aquatic Habitats

Following completion of the capture, Pond 5 will be drained down. When draining down, the pumps used will be fitted with a fine (<1.5mm) mesh to prevent any remaining newts (or other wildlife) from being drawn through the pump. Hand searching of any refuges and netting would take place by a licensed ecologist as the pond is being drained down. Any GCN, or other amphibians, that are found during the draining of any pond will also be transferred to the aquatic habitats of the receptor site.

E.2.4 Scaled maps/plans

To show proposals for mitigation outlined above in relation to existing and proposed habitat features and in relation to the proposed development outline. A GIS data layer may be included with your application to illustrate locations of habitats in E.2.1 to E.2.3

Drawings GCN 1 to GCN 5 show the broad areas for mitigation, more detailed site investigation and design work will be required to confirm pond locations in advance of the eventual EPSL application.

E.3 Mechanisms for ensuring delivery of mitigation and compensation measures

E.3.1 Measures to ensure compliance with this method statement.

This may require appointment of an external auditing scheme including audit key performance indicators, for medium, large scale or long term schemes e.g. residential development, pipeline construction or maintenance, way leaves for utilities, quarrying and mineral extraction.

A compliance audit (logbook) will be completed in accordance with NRW guidance and following the structure set out by the NRW template. At present, this is assumed to be a Tier 3 audit due to multiple phases of translocation affecting a large population.

E.3.2 Ensure that sufficient land has been acquired for compensation purposes

Provide scaled maps/plans

Drawing GCN3 shows the extent of the receptor and enhancement areas which comprise 10ha of grassland and woodland habitats. This receptor area is considered more than sufficient to ensure the maintenance and, with improved aquatic habitats, longer term improvement in conservation status of the local GCN population prior to final restoration of the site.

E.3.3 Ensure that designs of subsequent development are newt friendly

Do not include features likely to result in incidental capture or killing

The key consideration/driver behind the GCN mitigation strategy has been to ensure GCN have secure habitats away from the working area to avoid the risk of incidental capture or killing that would be present if GCN were retained within or allowed continued access to the quarry.

E.3.4 Provide sufficient resources

To ensure effective site management and associated wardening and monitoring where relevant.

Hanson will be site operators and landowners for the foreseeable future given the overall development timescale associated with hard rock quarry developments and current planning consent which is valid until 2045 but likely to extent to at least 2122. The receptor area, and associated habitat creation, enhancement and management proposed within it, occurs within Hanson's land ownership but outside of the permitted extraction area. Hanson will either undertake works directly or fund completion of required tasks using specialist contractors or consultants. In the event of any future sale, either during operational or following restoration stages, the requirements and commitments made in respect of GCN would be considered and included in any legal documentation.

E.4 Mitigation contingencies

Describe any contingency proposals including circumstances when the contingencies will be instigated.

The mitigation contingencies that may be required relate to the following aspects with further details to be provided as a Habitat Management Plan at the point of applying for an EPSL:

- Amphibian fence repairs if any damage is noted during routine inspections. Minor repairs will be completed by site staff although a specialist contractor may be required for any significant repairs;
- Management of aquatic habitats where habitat quality is below predicted standards i.e removal of rubbish or excessive vegetation to maintain open display areas for GCN; and
- Removal of fish should any unplanned introduction occur.

E.5 Biosecurity risk assessment

Consider presence of non-native species and disease on site and actions to be undertaken that will prevent their spread onto or off the site

Ecological survey work since 2018 have not identified the presence of any non-native species that would require specific consideration during implementation of the mitigation works, for example Japanese knotweed where terrestrial works are proposed however such species are present in the quarry and control measures proposed to be implemented as part of the EclA. No non-native species were noted in any of the ponds surveyed in 2018.

The risk of transferring amphibian disease, for example *Chytridiomycosis*, or introducing invasive non-native species, will be minimised by cleaning and disinfecting equipment used by staff implementing the required mitigation works in accordance with current NRW and ARG UK advice. Furthermore, any GCN translocated would all be part of the same meta-population and so a degree of interaction between these animals would already take place.

This also relates to undertaking measures to minimise the risk of spreading *Phytophthora* and *Chalara* due to the presence of woodland habitats at the site.

A biosecurity risk assessment will be prepared as part of the EPSL implementation based on specific risks at the time.

F Post-development site safeguard

F.1 Habitat/site management and maintenance

Include ongoing land management proposals, details of who will be responsible for management and maintenance, on going running costs, site/structure ownership and monitoring development of new habitats.

Hanson will create and thereafter manage (and fund) the receptor site and management tasks committed to in order to ensure that the identified targets are met and maintained. This will be co-ordinated by Hanson's Site Manager and Landscape Architect who will, as required, appoint an ecological consultant and landscape contractor to ensure specific commitments are implemented as required to comply with the licence.

The following management and maintenance tasks will be undertaken on an annual basis for a minimum of 10 years, with further details to be provided in a Habitat Management Plan:

- General maintenance tasks (amphibian fence checks and repairs, maintenance of interceptor channel, removal of rubbish);
- Walkover assessment to review terrestrial and aquatic habitat quality targets;
- Terrestrial habitat management (mowing or cutting of grassland, woodland and scrub management); and
- Aquatic habitat management (vegetation management, clearance of scrub around pond margins, desilting of ponds and checking for fish presence).

Following the minimum 10 year period, the requirement for ongoing maintenance will be reviewed and agreed with NRW but will remain the responsibility of Hanson.

F.2 Population monitoring

Include details of monitoring effort and timing, personnel involved and equipment to be used.

Post construction monitoring will comprise a population size class assessment survey undertaken over 10 year period commencing the year after Stage 3 translocation. Survey visits will be undertaken in accordance with the GCN mitigation guidelines and will be led by an appropriately experienced and licensed ecologist.

Survey visits will employ torch survey as the primary method, using 1m candle power torches (subject to any future development of comparable technology) unless water conditions are such that torch survey is deemed constrained at which point other methods may be required. This is to minimise any additional capture of GCN that may not be necessary to confirm the population size. Egg searches will be undertaken to confirm breeding.

F.3 Post-development mitigation contingencies

Describe the action that you will take if monitoring results are unfavourable.

In the event of the monitoring results being unfavourable i.e they indicate a decrease in population size class across the survey area, then the type and duration of any required remedial action will ultimately be dependent on the nature of identified issues. The potential issues that may arise are considered in outline by Table F1 below.

Table F1
Monitoring Targets and Actions for GCN

Attribute	Measure	Target	Comments
Presence/absence and Population size as per baseline surveys.	Large breeding population of GCN recorded.	Distribution of species across study area to remain stable and as per 2018 baseline. No decrease in population class size, subject to natural fluctuations. Confirm evidence of breeding in mitigation ponds within two years of translocation.	Surveys commencing following Stage 3 translocation. If target not met, consider the reasons why through a site management review. Is additional planting / habitat creation required etc.
Aquatic habitat quality of standard to maintain population.	Habitat Suitability Index of mitigation ponds.	Maintain high HSI in all created ponds and monitor changes of each attribute during monitoring surveys.	Instigate appropriate management, dependent upon results. Top up if water levels not sustained naturally. Re-line if any damage i.e vandalism/accidental stock access, occurs (considered unlikely given location). Where fish populations become apparent, consider control by draining down, electro-fishing, Rotenone or other methods.
Terrestrial habitat quality.	Extent and quality of terrestrial habitats, using habitat survey.	Maintain a mosaic of high quality habitats within receptor site.	Maintain sward heights of grassland at minimum of 20cm.

F.4 Mechanism for ensuring delivery of post-development works

As appropriate e.g. Section 106 Agreement, to include details of who will undertake the work and reporting details, other covenants, contractual agreements or wardening schemes.

Hanson will be site operators and landowners for the foreseeable future given the overall development timescale associated with the quarry development until at least 2122. They will either undertake works directly or fund completion of required tasks using specialist contractors or consultants.

G Timetable of works

Include timings of all capture, development activities and mitigation measures, monitoring and other post development works

Exact times and dates will be subject to confirmation in the eventual EPSL application.

H Land Ownership – Mitigation Site/Compensation Site

H.1 Mitigation Site/Compensation Site Ownership

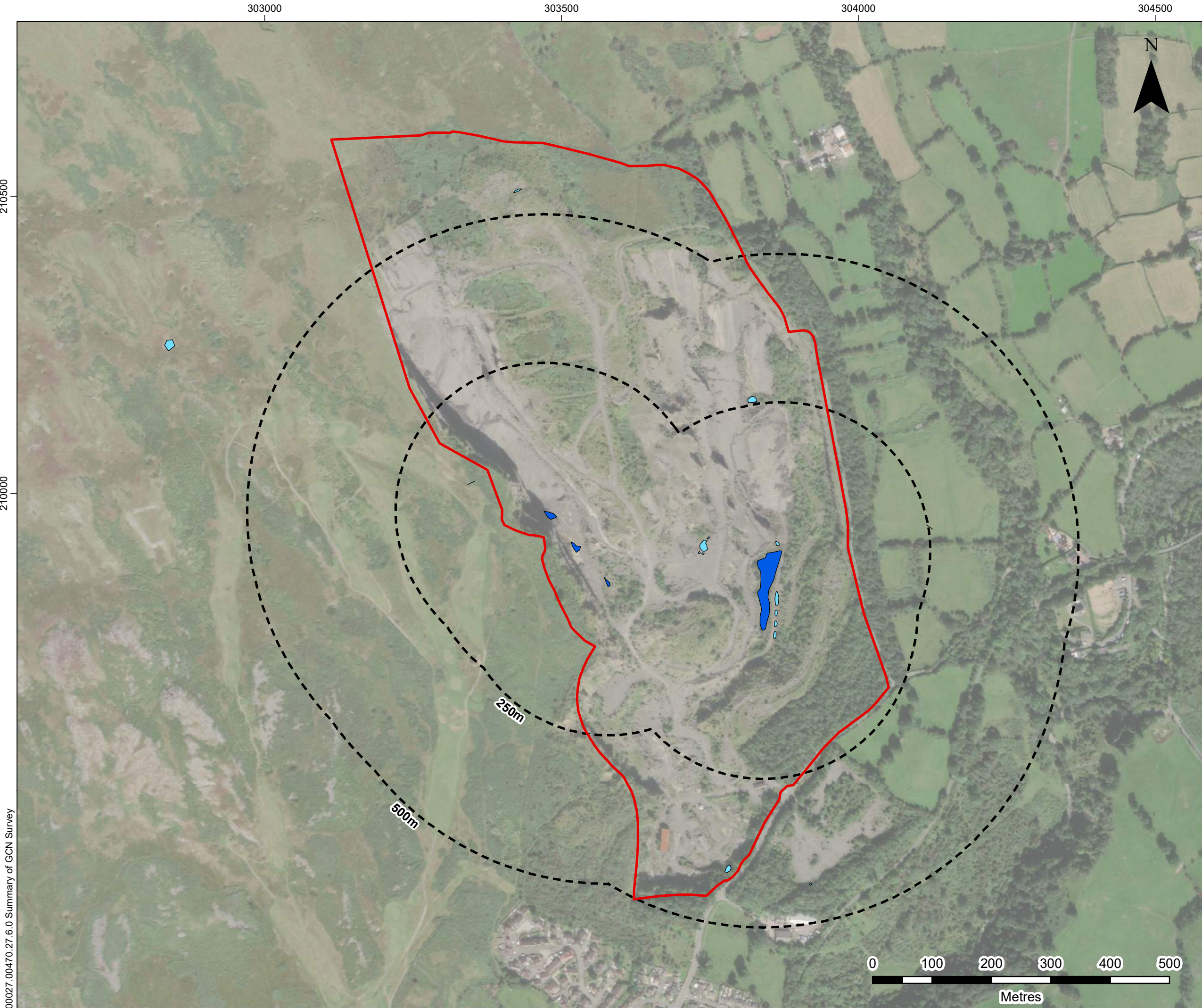
If mitigation is to be undertaken at a location not owned by the applicant, you must provide the written consent of the relevant land owner(s). You must also provide details of how the mitigation is to be maintained in the long term (e.g. a legal agreement, transfer of legal interest).

Not applicable.

H.2 Mitigation Site/Compensation Ownership post construction

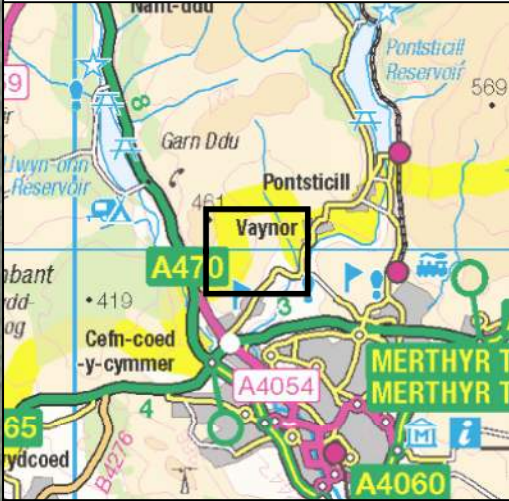
If the ownership of the mitigation site will change after construction please confirm the identity of the prospective owners/occupiers together with timescales associated with transfer of occupancy or other forms of legal interest. You must also provide details of how the mitigation is to be maintained in the long term (e.g. a legal agreement).

Not applicable.



LEGEND

	SITE BOUNDARY
	GREAT CRESTED NEWT POND
	OTHER POND



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VAYNOR QUARRY
ECOP
SUMMARY OF GREAT CRESTED NEWT SURVEY

6

Scale	1:6,000 @ A3	Date	MAY 2022
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00027.00470.27.6.0 Summary of GCN Survey

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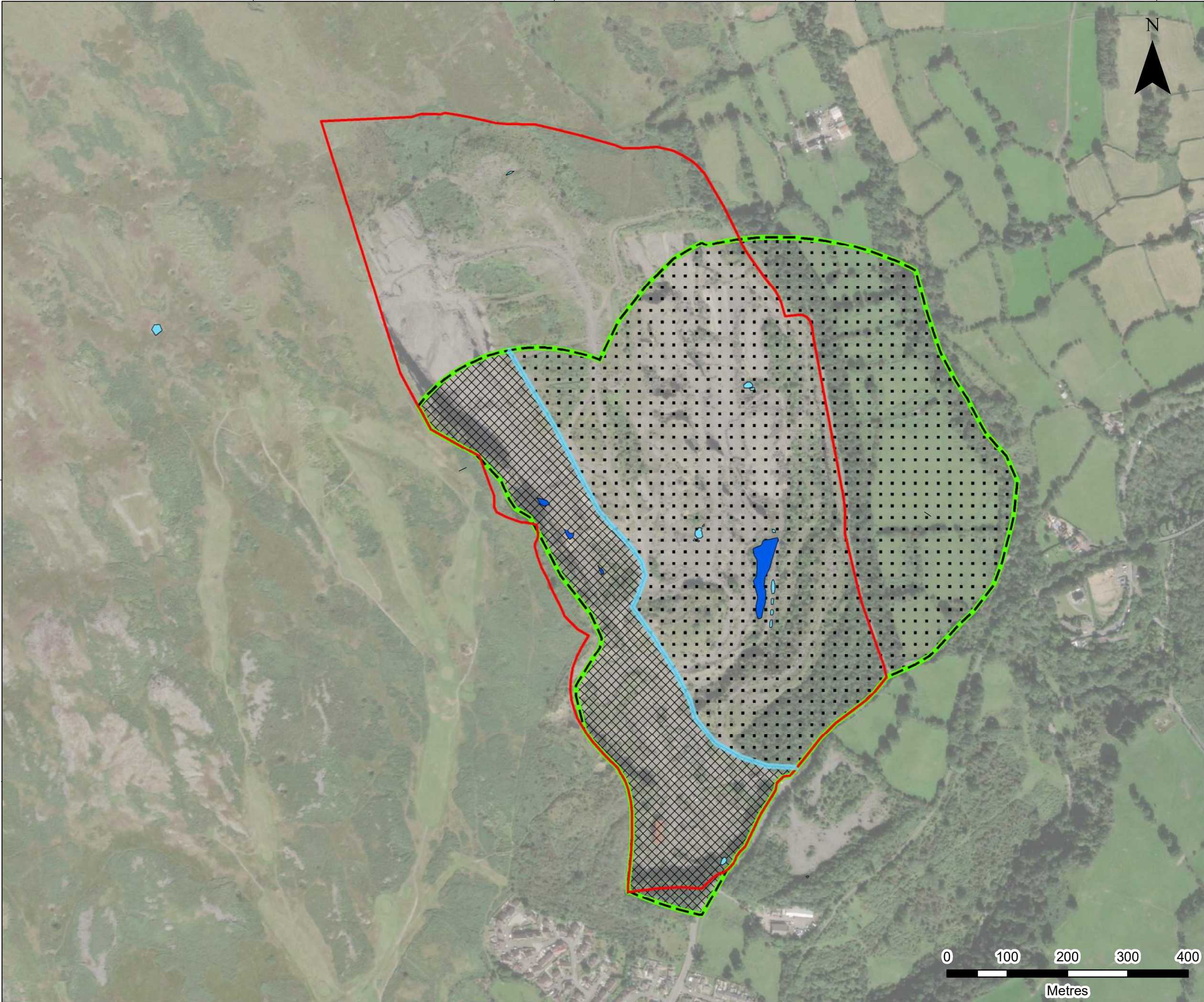
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00027.00470.27.008.0 GCN Habitat Plans



LEGEND

- Site Boundary
- Great Crested Newt Pond
- Other Pond
- Impact and Mitigation Zone
- Initial GCN Capture
- Land Available to GCN
- Temporary GCN Fence

4/5 LOCHSIDE VIEW
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INITIAL WORKS

GCN 1

Scale 1:6,000 @ A3 Date JUNE 2022

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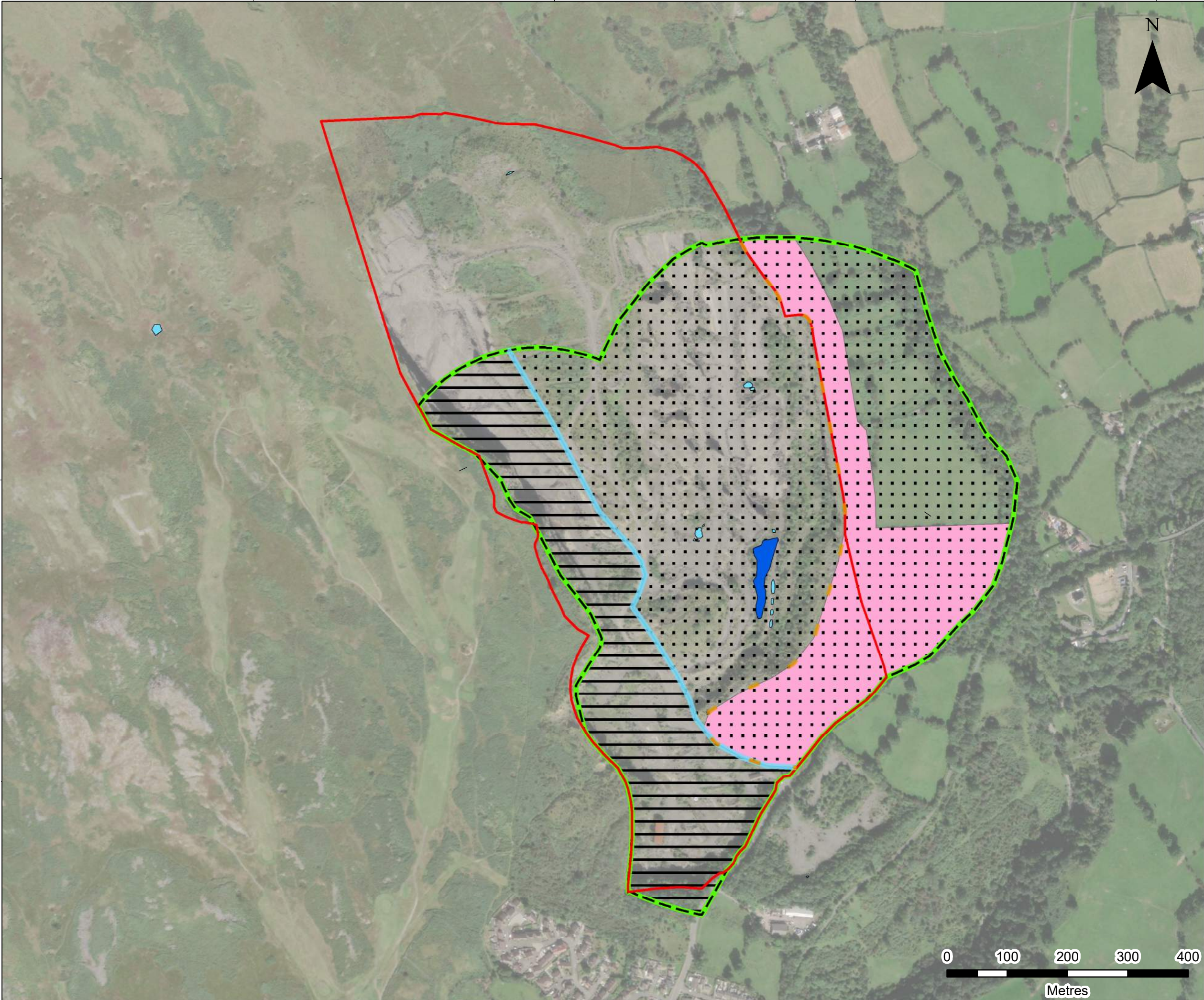
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LEGEND

Site Boundary

Great Crested Newt Pond

Hanson

SLR

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WORKS DURING PHASE 1
QUARRY DEVELOPMENT

GCN 2

Scale 1:6,000 @ A3

Date JUNE 2022

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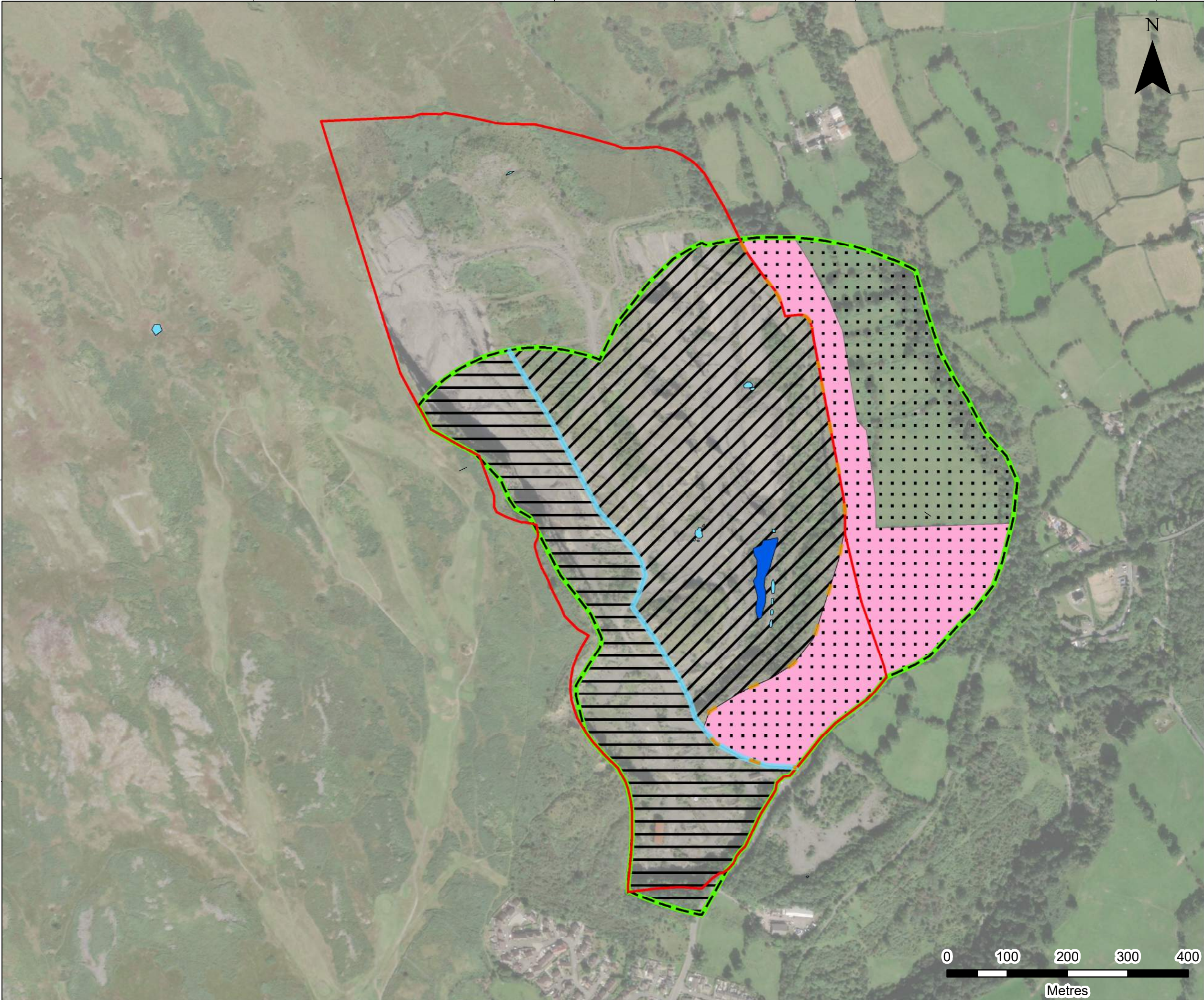
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00027.00470.27.008.0 GCN Habitat Plans



LEGEND

Site Boundary

Great Crested Newt Pond

Hanson

SLR

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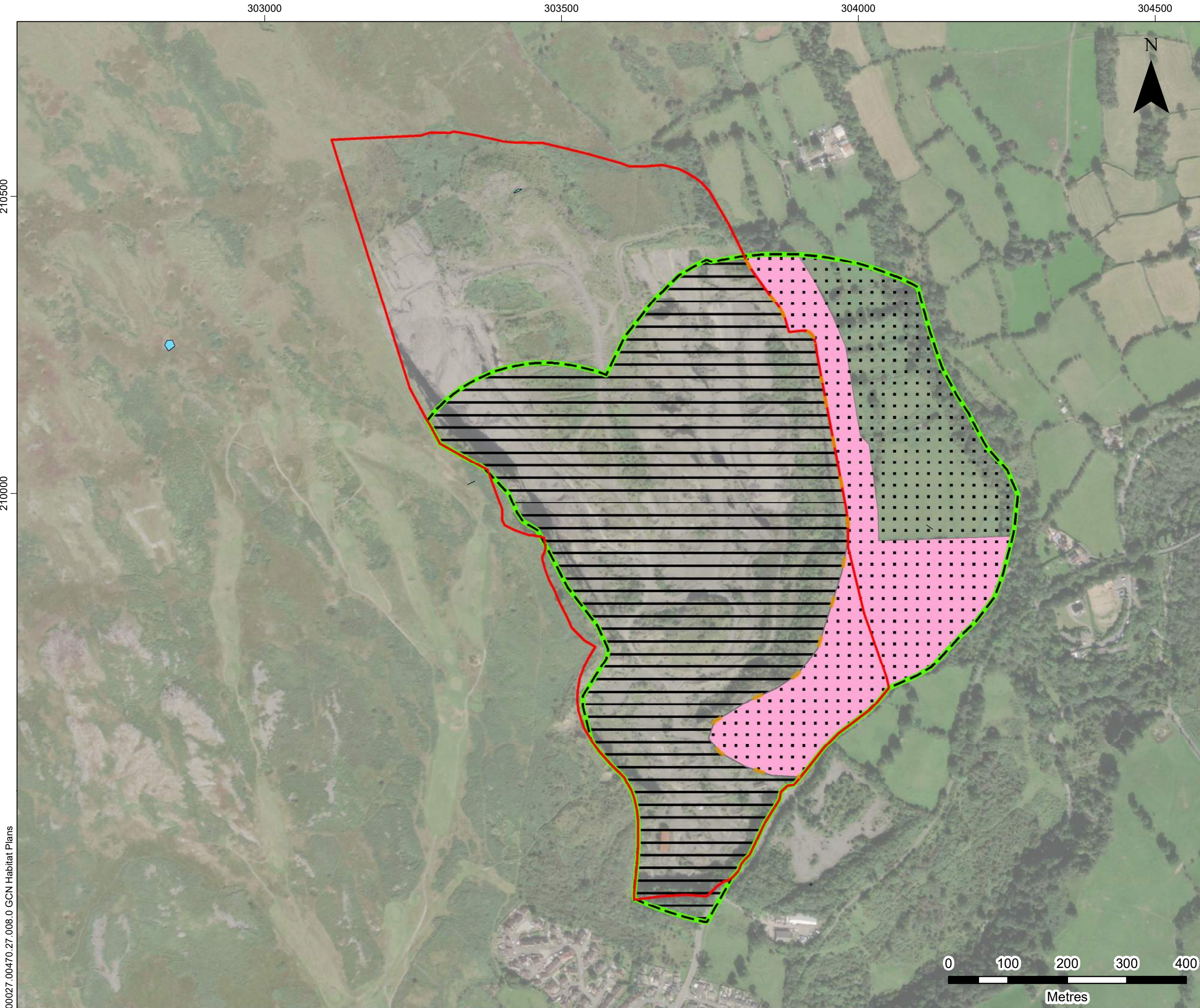
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WORKS DURING PHASE 2
QUARRY DEVELOPMENT

GCN 3

Scale1:6,000 @ A3

DateJUNE 2022



- LEGEND
- Site Boundary
 - Other Pond
 - Impact and Mitigation Zone
 - Area Cleared of GCN
 - Land Available to GCN
 - Receptor Site Managed for GCN
 - One Way GCN Fence



4/5 LOCHSIDE VIEW
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PHASE 3 -5
QUARRY DEVELOPMENT

GCN 4

Scale 1:6,000 @ A3

Date JUNE 2022

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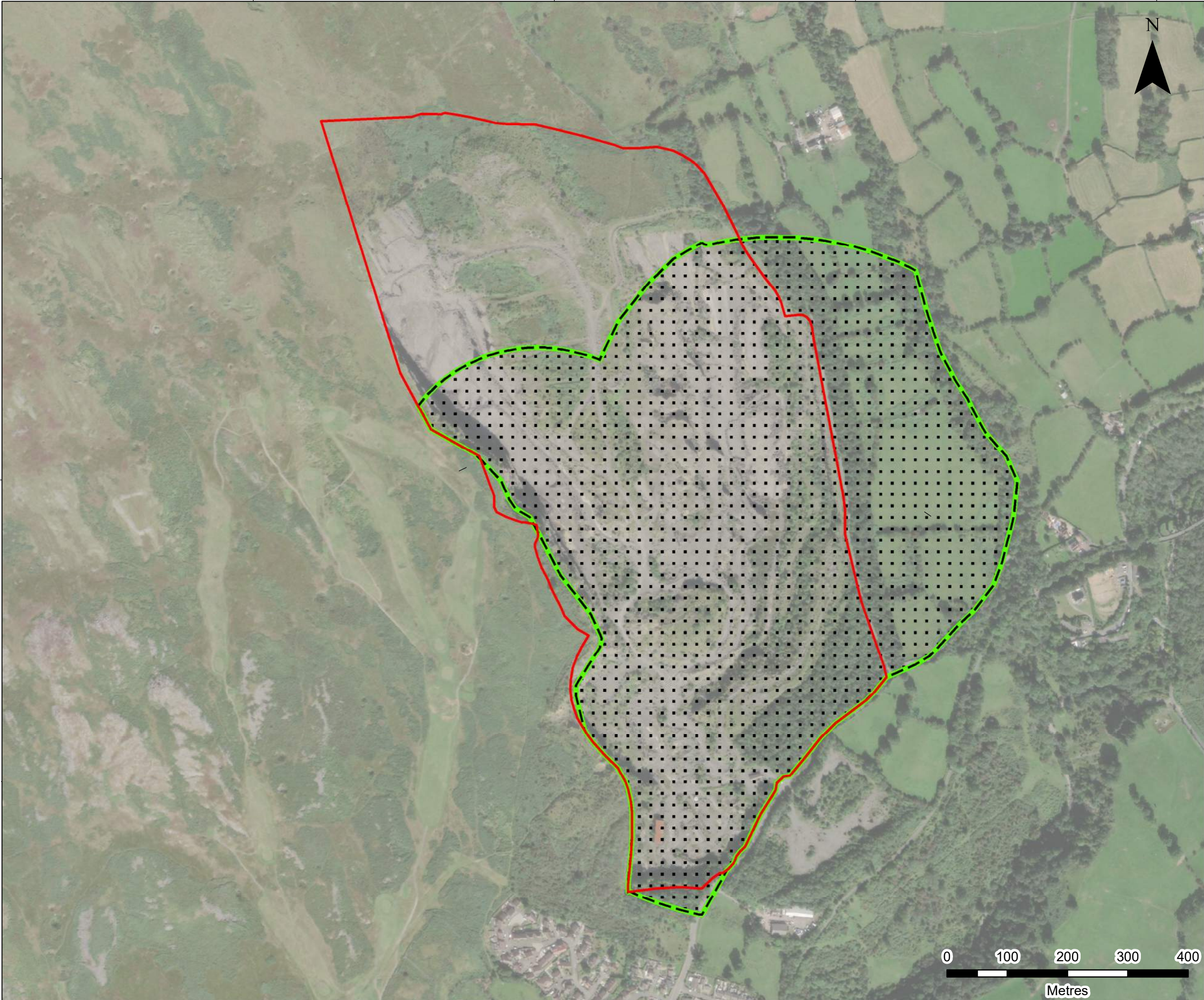
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00027.00470.27.008.0 GCN Habitat Plans



LEGEND

Site Boundary

Impact and Mitigation Zone

Land Available to GCN



4/5 LOCHSIDE VIEW
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VAYNOR QUARRY

ECIA

FINAL
QUARRY DEVELOPMENT

GCN 5

Scale 1:6,000 @ A3

Date JUNE 2022

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