



**Ballswood
Protected Species Surveys: eDNA Surveys**

in respect of

***Planning Application For 2No. Changes to the Limits of Extraction within
the Existing Permitted Planning Boundary of Ballswood Quarry***

for

Cheshire and North Wales Sand and Gravel Ltd

Prepared By

Heaton's

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1.0 INTRODUCTION

- 1.1 Heatons have been commissioned by Cheshire and North Wales Sand and Gravel Limited to undertake surveys for great crested newts (GCN), at Ballswood Quarry (hereafter referred to as the site).
- 1.2 These surveys have been undertaken to fulfil the protected species survey requirements identified in the Preliminary Ecological Appraisal (PEA) completed in March 2020.
- 1.3 In June 2021, NRW provided a response to Wrexham County Borough Council for the variation of conditions 01 and 08 of planning permission P/2016/0110 to change limits of extraction within permitted quarry boundary.
- 1.4 In relation to GCN, the NRW response states ‘ However, in our view inadequate survey and assessment has been carried out in respect of Great Crested Newt (GCN). This is because only a sample of ponds that could potentially be occupied by the species have been surveyed and field survey methods used eDNA and Habitat Suitability Index (HSI) only.
- 1.5 GCN are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). Paragraph 6.3.7 of Technical Advice Note 5: Nature Conservation and Planning (TAN5) states that your Authority should not grant planning permission without having satisfied itself that the proposed development either would not impact adversely on any GCN on the site or that, in its opinion, all three conditions for the eventual grant of a licence are likely to be satisfied. We consider that there currently is not enough information to assess potential effects of the proposal on any GCN that may be present at this site. Further information is required to assess the extent of adverse effects on GCN and any avoidance or mitigation measures required. We advise further survey. Following this, it must be demonstrated that the proposed development would not be likely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range. NRW would refer the Planning Authority to the letter from the Welsh Government to the Chief Planning Officer’s letter dated 1 March 2018 which advises Local Planning Authorities to attach an informative regarding licence requirements to all consents and notices where European Protected Species are likely to be present on site’.
- 1.6 A response to this comment has been provided within section 5 below.

Survey Scope

- 1.7 The scope of these surveys is to identify:
- the presence or likely absence of GCN within the Site;
 - the presence or likely absence of GCN within a 500m radius of the Site; and
 - the GCN population size, in areas where they found to be present.
- 1.8 GCN are afforded full protection under European and British law which makes it an offence to deliberately kill or injure individuals, damage their breeding or resting places, and/or obstruct access to their breeding or resting places.
- 1.9 Sufficient ecological information is required to fully inform the site design and the proposed works. Reports will enable the project to satisfy all current UK and European legal wildlife requirements, as well as national and local planning regulations. All public bodies have statutory obligations under the Natural Environment and Rural Communities Act 2006 to conserve and enhance biodiversity.

Site location and description

- 1.10 Ballswood Quarry is located at Gegin Lane, Wrexham, LL12 0NU, and is one of three active sand and gravel quarries in the County Borough of Wrexham (the others being Borrass Quarry and Hafod Quarry). Ballswood Quarry is operated by Cheshire and North Wales Sand and Gravel Ltd.
- 1.11 The majority of the site is comprised of existing quarry, with areas of scattered scrub and tall ruderal vegetation located around existing soil bunds. The boundaries of the existing quarry are comprised of broad-leaved semi natural woodland and hedgerows. There are a number of waterbodies located within the existing quarry. The eastern section of the site is comprised of arable fields and heavily grazed improved grassland.

Proposed Development

- 1.12 The proposed development involves the 2 extensions which are within the permitted red line boundary of the existing Ballswood Quarry, although outside the extraction area on the approved plans. Access to the site for the purpose of extending mineral extraction from the existing quarry to the west would best be



supplied through the existing quarry site. The proposed development will release currently sterilised mineral within the permitted planning boundary of the site.

2.0 LEGISLATION

2.1 GCN are a European protected species and are safeguarded by both the Wildlife and Countryside Act 1981 (as amended) and the Habitat Directive. Legislation extends protection to the animals, their eggs, their breeding sites and resting places and is a means by which sites can be protected from undesirable change.

- Actions that would cause an offence under UK law include:
- The deliberate capture, killing, disturbance or injury of GCN
- Damaging or destroying a breeding or resting place
- Obstructing access to their resting or sheltering places (deliberately or by not taking enough care)
- Possessing, selling, controlling or transporting live or dead newts, or parts of them
- Taking GCN eggs

2.2 The legislation covers each of the life stages including eggs, tadpoles and adult equally.

2.3 A European Protected Species (EPS) licence may be required from Natural Resources Wales (NRW) if the disturbance or damaging of their habitats (ponds and the land around ponds) cannot be avoided. An application can only be made once planning permission for the scheme has been approved. In order to obtain a protected species licence, the client must demonstrate that the work cannot be avoided and that there are no alternatives.

2.4 The protected species licence will also require a suitable protection and mitigation method to be adopted.

3.0 ASSESSMENT METHODOLOGY

Desktop Study

- 3.1 In order to inform the extended Phase 1 habitat survey and to compile background information on the site and its immediate surroundings, information on statutory and non-statutory designated sites within a 2km radius of the site was obtained from the COFNOD North Wales Environmental Information Service.
- 3.2 The COFNOD North Wales Environmental Information Service was also commissioned to undertake a data search for information on protected and notable species within the area. The National Biodiversity Network (NBN) database was also searched for protected species records within 2km of the site boundary.
- 3.3 Reference was also made to Ordnance Survey maps and aerial photography, which were used to determine the presence of open water and ponds in the area and to provide information on land use and habitat connectivity throughout the area.

Habitat Suitability Index

- 3.4 HSI Assessments were undertaken on all still water bodies within the site as well as those on the near side of major dispersal barriers (major roads, rivers and railways) within 500m of the site. This assessment was undertaken in order to establish the likelihood of great crested newts either breeding on the site or dispersing to the site in their terrestrial phase.
- 3.5 The HSI is a standard assessment method developed specifically to evaluate the habitat suitability for great crested newts. A series of factors must be considered. Each factor is assessed along suitability guidelines and allocated a value of between 0.1 (highly unsuitable) to 1.0 (highly suitable). The geometric mean of these values provides an overall suitability score for each pond. Although this is no substitute for a dedicated survey it does give an indication of whether such a survey is needed.
- 3.6 The HSI assessment was carried out on the waterbodies within the site during the extended Phase 1 habitat survey undertaken in March 2020. Previous HSI assessments had been undertaken on the site prior to the eDNA surveys being conducted in 2019. These assessments were then updated as part of the PEA Survey undertaken in March 2020.

Great Crested Newt eDNA Surveys

- 3.7 Environmental DNA analysis is a method of monitoring specific fauna within waterbodies. It is used to generate fast results for GCN presence or absence by collecting water samples from the waterbody margins. The analysis is used as it picks up fragments of DNA displaced in the water i.e. skin, faeces or animal fatalities. This method is most effective on waterbodies that hold a depth of 10cm or greater.
- 3.8 GCN eDNA surveys were undertaken on four waterbodies in total, these were Ponds 1,2,3 and 4.
- 3.9 The methodology used for surveying GCN eDNA is approved by Natural Resources Wales (NRW) following Defra funded research into the suitability of using this protocol to determine presence/likely absence of GCN. eDNA kits were supplied and analysed by SureScreen Scientifics.
- 3.10 The eDNA survey included taking 20 water samples from each of the four ponds spread out evenly around the pond edge. The samples were taken from both open water and vegetated areas, avoiding water less than 10cm deep. The water column was mixed gently avoiding stirring up sediment from the bottom.
- 3.11 All water samples were collected in a Whirl-Pak. bag and shaken for 10 seconds to mix evenly. Using a clear plastic pipette, 15ml of water was taken from the Whirl-Pak. bag, and transferred into each of six conical tubes containing 35ml preserving fluid (i.e. filling the tube to the 50ml mark). The samples were then transported to the laboratory for analysis.
- 3.12 GCN Surveys were undertaken in April 2019 by suitably licenced ecologist commissioned by Heaton.
- 3.13 These surveys were undertaken during the optimum survey season time between April and June following the methodology that of Froglife: Great Crested Newt Conservation Handbook.

Constraints

- 3.14 There were no constraints identified whilst carrying out the GCN eDNA Surveys.

4.0 RESULTS

Desk Study

Statutory Designated Sites

- 4.1 There are three Statutory Designated Sites located within 2km of the site boundary. The closest of these is the Chwarel Singret Special Site of Scientific Interest (SSSI). This is located approximately immediately adjacent to the quarry plant site and is designated for geological interest. There were no records for GCN for this site, however there was one record returned for smooth newt, (*Lissotriton vulgaris*).
- 4.2 The Marford Quarry SSSI is located 0.6km to the south-east of the site boundary. This site is designated for its large diversity of lepidopteran species which include a variety of nationally rare species. In addition to this there is a number of floral species indicative of a calcareous sand and gravel substrate, with a range of seral succession stages from bare ground to scrub/woodland. There were records for GCN returned within this designated site.
- 4.3 The Alyn waters Local Nature Reserve (LNR) is located approximately 1.9km to the south-west of the site boundary. The site is designated for its rich meadow habitat, variety of grassland, woodland. There were no records returned for GCN within this designated site.

Non-Statutory Designated Sites

- 4.4 The COFNOD search returned records for seven non-statutory designated sites within 2km of the site boundary. The closest of these is the Ballswood Quarry and Cockpit Wood Local Wildlife Site (LWS) which covers the existing quarry and the wider extending broad-leaved semi natural woodlands. There were no records for GCN returned for this (LWS).
- 4.5 The Marford Quarry SSSI site is also designated as a North Wales Wildlife Trust Reserve. This site returned records for GCN.
- 4.6 There were no records for GCN returned within any other non-statutory designated sites.

Species Records

- 4.7 COFNOD returned three counts of great crested newts (GCN), all located 800m from the site boundary in the Marford Quarry SSSI and LWS. These records were dated from 2003 to 2005.
- 4.8 The NBN search returned over 700 records GCN located approximately 1.2km to the south of the site. A large number of these records were dated from 2019.

Habitat Suitability Index

- 4.9 The PEA survey identified seven waterbodies within the site. In addition, there was one additional waterbody located approximately 200m to the west of the site boundary. All of the waterbodies located within the existing quarry were active quarry lagoons. Of the quarry lagoons, ponds 1,2 and 3 had been established for a period of time and therefore vegetation had begun to establish within the pond. Ponds 5,6 and 7 were assessed as silt lagoons. In addition, pond 8 was a newly created pond that had been recently excavated. The pond located 200m to the west of the site boundary is a large pond, surrounded by willow and alder tree species.
- 4.10 As all these ponds are present within 500m of the site (maximum dispersal distance for great crested newts), Habitat Suitability Index (HSI) assessments were carried out for each of the ponds. Please see Table 1 below for the full HSI assessment details.
- 4.11 Table 1 HSI calculations for each waterbody assessed and their suitability for GCN

Waterbody	HSI Score	Suitability
Pond 1 (Grid Reference SJ348565)	0.43	Poor
Pond 2 (Grid Reference SJ349564)	0.43	Poor
Pond 3 (Grid Reference SJ350562)	0.7	Average
Pond 4 (Grid Reference SJ344559)	0.42	Poor
Pond 5 (Silt Lagoon) (Grid Reference SJ348563)	0.43	Poor
Pond 6 (Silt Lagoon) (Grid Reference SJ348563)	0.43	Poor
Pond 7 (Silt Lagoon) (Grid Reference SJ348563)	0.43	Poor
Pond 8 (Grid Reference SJ346560)	0.43	Poor

4.12 The above table indicates that Pond 3 has an average suitability for GCN. This was assessed as this pond is closer to the southern boundary broad-leaved semi natural woodland providing higher quality terrestrial habitat for GCN. In addition, this pond contained a higher percentage of macrophyte cover providing suitable egg laying habitat for GCN.

4.13 Ponds 1, 2,4,5,6, 7 and 8 were all considered to provide a poor suitability for GCN. These ponds were all within the centre of the quarry workings and therefore the surrounding terrestrial habitat was poor. In addition, the macrophyte cover and water quality of these waterbodies was also assessed as poor.

eDNA Survey Results

4.14 GCN eDNA samples were undertaken on four waterbodies. Ponds 1,2 and 3 were located within the existing quarry and Pond 4 is located approximately 200m to the west of the site boundary.

Table 2 Results Summary of the eDNA Samples

GCN Pond Number	Distance from Site	Description of Waterbody	HSI Score	eDNA Result
1	Within the site boundary	Existing quarry lagoon, aquatic vegetation beginning to form	0.43	Negative
2	Within the site boundary	Existing quarry lagoon, aquatic vegetation beginning to form	0.43	Negative
3	Within the site boundary	Existing quarry lagoon, aquatic vegetation more established	0.7	Negative
4	250m to the South East of site boundary	Waterbody surrounded by woodland and fence. Limited aquatic vegetation suggesting the presence of fish	0.42	Negative

- 4.15 All waterbodies tested for GCN eDNA returned negative results. Please see Appendix A for the result certificate provided by Surescreen Scientifics.

5.0 RESPONSE TO NRW

- 5.1 *'However, in our view inadequate survey and assessment has been carried out in respect of Great Crested Newt (GCN). This is because only a sample of ponds that could potentially be occupied by the species have been surveyed and field survey methods used eDNA and Habitat Suitability Index (HSI) only.'*
- 5.2 *GCN are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). Paragraph 6.3.7 of Technical Advice Note 5: Nature Conservation and Planning (TAN5) states that your Authority should not grant planning permission without having satisfied itself that the proposed development either would not impact adversely on any GCN on the site or that, in its opinion, all three conditions for the eventual grant of a licence are likely to be satisfied. We consider that there currently is not enough information to assess potential effects of the proposal on any GCN that may be present at this site. Further information is required to assess the extent of adverse effects on GCN and any avoidance or mitigation measures required. We advise further survey. Following this, it must be demonstrated that the proposed development would not be likely to be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range. NRW would refer the Planning Authority to the letter from the Welsh Government to the Chief Planning Officer's letter dated 1 March 2018 which advises Local Planning Authorities to attach an informative regarding licence requirements to all consents and notices where European Protected Species are likely to be present on site'.*
- 5.3 Heatons Response – The NRW guidance states that eDNA test results as evidence or absence of great crested newts are now accepted. 'We will accept this new technique to determine GCN presence or absence if samples are undertaken in strict accordance with the published technical advice note and they are collected by a suitably trained and experienced licensed GCN surveyor'. Therefore, by conducting the initial HSI assessment and then undertaking eDNA samples on suitable ponds, it is therefore considered that Heatons have followed the recommended guidance provided by NRW to assess the absence of GCN within the site boundary and also within the maximum dispersal zone for GCN.
- 5.4 As part of the breeding bird surveys conducted on the site, in order to further clarify the validity of the GCN eDNA surveys, egg searches were conducted within onsite waterbodies to identify if GCN eggs may be present. It should be

noted that no evidence of GCN was observed within any of the onsite waterbodies or within any waterbodies located 500m of the site. In addition, these waterbodies provided very limited aquatic vegetation that would be suitable for breeding GCN.

- 5.5 It is assessed that all surveyed waterbodies present within the site are highly unlikely to contain a population of GCN due to the intense quarrying activity immediately surrounding waterbodies. Any waterbodies present within the quarry that were not surveyed were either temporary lagoons or used as silt lagoons which are highly unlikely to contain the presence of GCN.
- 5.6 It is also assessed that the proposed works will have very limited impact on areas of suitable terrestrial habitat. Area A contains no suitable terrestrial habitat for GCN that are to be removed. For area B, the woodland is surrounded by intensively worked quarry directly to the south and south-west, the main quarry haul road to the east and the existing plant site to the north. It is considered that even in the case that a GCN population was present surrounding the site, then the more favourable area of terrestrial habitat would be located to the south which has a large area of broad-leaved woodland.
- 5.7 Within the 2021 survey season, further GCN eDNA testing was conducted on waterbodies located approximately 650m outside of the site boundary. It should be noted that these surveys were conducted on ponds with a higher suitability for GCN with less adjacent disturbance and with more surrounding areas of terrestrial habitat. All results from these tests were negative further suggesting the absence of a local population of GCN.

6.0 CONCLUSIONS

- 6.1 The results of the GCN eDNA test were negative for all four ponds testing within the site and within 500m of the site boundary. It is not anticipated that GCN would be present within any of the waterbodies scoped out as part of the HSI assessment.
- 6.2 In the unlikely case that any GCN are discovered during the works, then all works must be stopped immediately, and a suitably qualified ecologist must be informed so the issue can be dealt with accordingly.
- 6.3 As outlined in section 5 below in response to the comment from NRW, it is not anticipated that GCN are present within the site due to the active quarry nature of the site, the negative results from eDNA or due to the limited terrestrial habitat to be removed. It is considered that Heatons have followed the recommended guidance provided by NRW to assess the absence of GCN within the site boundary and also within the maximum dispersal zone for GCN.

7.0 REFERENCES

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Appendix A

eDNA Ponds Map

Appendix B

eDNA Test Results