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Environmental DNA (eDNA) Survey Results for Great Crested Newt (GCN)

October 2022

The Poplars,
Cockbank Lane,
Marchwiel,
Wrexham,
LL13 0SU

National Grid Reference: SJ35334609



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Table of Contents

1.0 Background & Introduction

2.0 Great Crested Newt (GCN) – Legislation & Policy

3.0 Environmental DNA (eDNA) Survey Results

4.0 Impact Assessment

5.0 Conclusions & Recommendations

6.0 Bibliography

Appendix I: *Preliminary Ecological Appraisal* (Tyrer Ecological Consultants Ltd, May 2022)

Appendix II: *Environmental DNA (eDNA) raw data* (ADAS, Sample ID: ADAS-5901) (July 2022)

1.0 Background & Introduction

- 1.1 As part of a planning application in relation to The Poplars in Marchwiell, Wrexham, Tyrer Ecological Consultants Ltd carried out a Preliminary Ecological Appraisal (PEA) in April 2022 – the PEA report was issued in May 2022 and is attached (see Appendix I).
- 1.2 Proposals are understood to involve the development of the property including a larger driveway and detached garage.
- 1.3 As part of the PEA, a Habitat Suitability Index (HSI) scoring assessment of ponds 1 – 4 (see Figure 1.1 below for pond locations) was carried out in relation to Great Crested Newt (GCN) (*Triturus cristatus*); the ponds varied in suitability, with 2 and 3 scoring 'Good' - 1 and 4 scoring Below Average; all of which were assessed by Miss. T. Hesketh, Consultant Ecologist, who authored the PEA report and is an accredited agent on the GCN Class 1 survey licence of M. Pritchard ACIEEM (Great Crested Newt Survey Level 1 / Natural England: 2018-34062-CLS-CLS), Senior Ecologist at Tyrer Ecological Consultants Ltd.
- 1.4 Having carefully considered results derived from a thorough desktop assessment, field survey results, HSI results of ponds on and adjacent to the site, and taking into account the nature of the proposals which will primarily affect habitat which is unsuitable for GCN in its current state, no further surveys were recommended in the PEA report. However, following correspondence with Emma Broad from Wrexham Borough Council however, it was request that further surveys should be undertaken.
- 1.5 Tyrer Ecological Consultants Ltd were therefore re-commissioned by Blueprint Architectural Ltd to undertake an Environmental DNA (eDNA) study of pond 1 (the only pond within red line boundary of site) during an optimal time of the year to detect aquatic based GCN (optimal period is between 15th April and 30th June). Notwithstanding this, and on arrival to the site it was established that pond 1 had dried (figure 1) as has pond 3 (figure3) located off site, therefore a decision was made to survey pond 2 to establish if GCN were present in the locality. This report thus details the methodology used, results and conclusions derived from the eDNA sampling of pond 2 and will present any further recommendations, including any avoidance, minimisation or indicative mitigation required to inform the planning application, and/or inform an application to Natural England for a European Protected Species Mitigation Licence (EPSML), if necessary.



Figure 1 – Pond 1 (on site) was found to by dry on the day of the site visit



Figure 2 – Pond 3 (off site) was found to be dry on the day of the site visit

- 1.6 No additional water bodies within 250 metres were surveyed as part of this study, although pond 2 is outside of the ownership boundary it is the closest surveyable pond to the site (due to Pond 1 being dry). If the eDNA surveys detected presence of GCN in the pond, the search would be widened to include all accessible ponds in the 250m search radius, however, based on the small-scale low magnitude nature of the proposals, eDNA surveys of the closest pond to the site was considered an appropriate and proportionate survey approach on which to base sound conclusions and recommendations.
- 1.7 The eDNA survey aims to determine presence or reasonably assert absence of Great Crested Newts at Pond 2.
- 1.8 If GCN were detected during the survey and / or may be affected by the development proposals, then a European Protected Species Mitigation Licence (EPSML) or District Level Licence (DLL) may be required to proceed with the development.
- 1.9 This report should be read, understood and presented to the local authority as an addendum document to Appendix I (see Contents page).

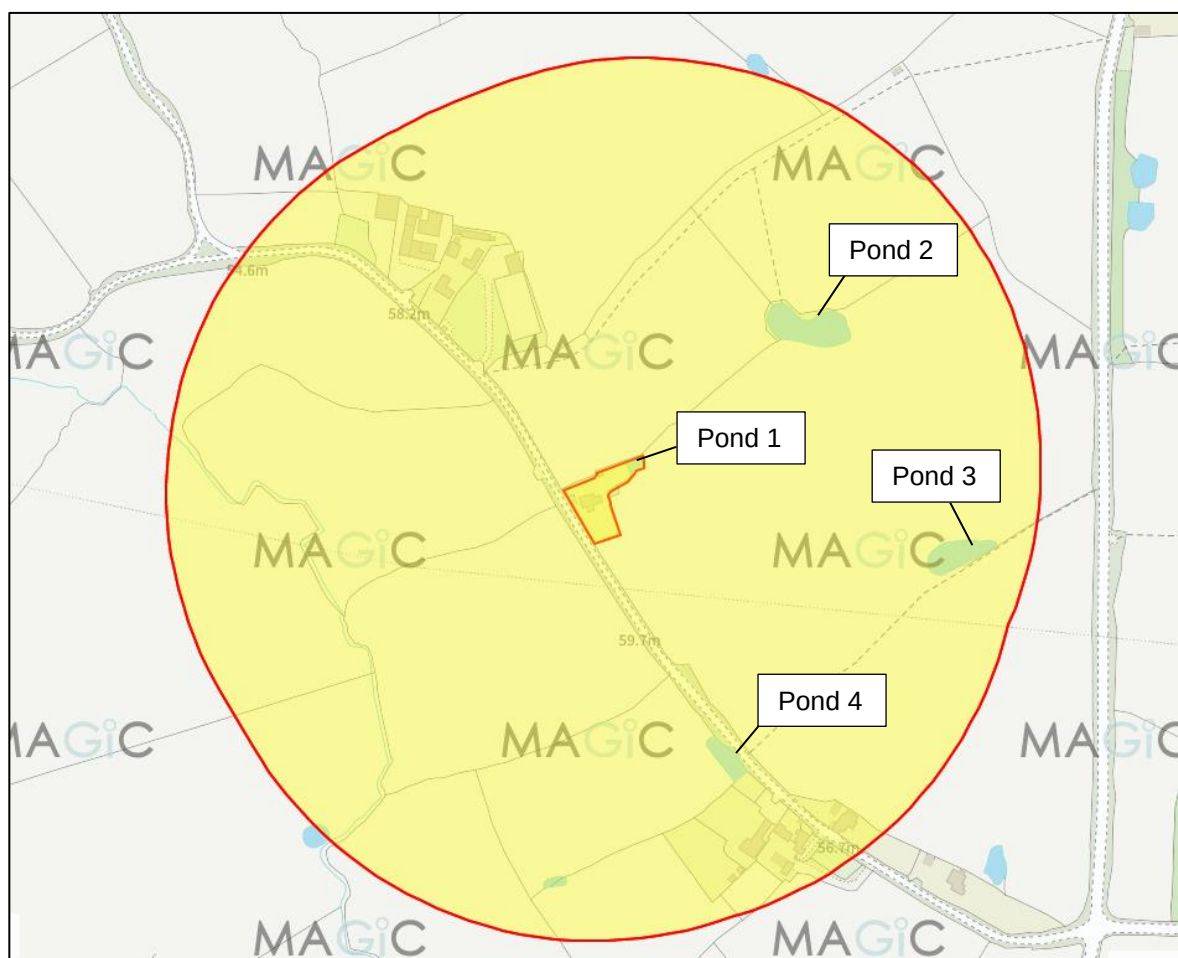


Figure 1.1 – The locations of the ponds HSI assessed as a part of the PEA, with Pond 2 surveyed using eDNA

2.0 Great Crested Newt (GCN) – Legislation & Policy

Great Crested Newt (GCN)

2.1 GCN's are fully protected in all life stages by the Conservation of Habitats & Species Regulations 2019 (EU Exit) (as amended), the Wildlife and Countryside Act (1981) (as amended) and The Environment (Wales) Act (2016). If both national and international legislation are taken together, it is an offence to:

- Deliberately, intentionally or recklessly kill, injure or take a GCN,
- Deliberately, intentionally or recklessly take or destroy GCN eggs
- Possess or control any live or dead specimen, or anything derived from a GCN,
- Deliberately, intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a GCN,
- Deliberately, intentionally or recklessly disturb GCN in such a way to be likely to significantly affect:
 - their ability to survive, breed, reproduce, rear or nurture their young,
 - their ability to hibernate or migrate,
 - their local distribution or abundance,
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead GCN, any part of GCN or anything derived from GCN

They are listed a priority species under section 41 (s.41) of the Natural Environment Rural Communities Act 2006 (NERC Act), and named under WB1 - Species Protection of the Flintshire Unitary Development Plan.

Penalties for offences include fines of up to £5000, plus up to six months imprisonment, for each offence committed.

GCN are also protected by the Protection of Animals Act 1911, which prohibits cruelty and mistreatment. Releasing a GCN in such a way as to cause undue suffering may be an offence under the Abandonment of Animals Act 1960.

In addition to the above, there are various statutory provisions relating to the transport of animals, designed to ensure their welfare. GCN are also listed under Section 7 of the Environment (Wales) Act 2016.

2.2 In summary Great Crested Newts (GCN's) are protected from disturbance, killing, injuring or possession at any life stage, whilst confirmed breeding ponds and resting places are afforded the same protection once identified. This places an obligation on local authorities to fully assess the impacts of development on this species prior to determining a planning application.

2.4 Great Crested Newts (*Triturus cristatus*) (GCN) have declined within the UK over recent years due to destruction and fragmentation of breeding ponds and terrestrial habitat. They spend a high percentage of their adult life in terrestrial habitat and shelter in environments with piles of rubble, log piles, tree roots, and miscellaneous other for safety, refuge and hibernation. In North Wales, GCN's are generally distributed to known strongholds and occur in mixed abundance on the periphery of those strongholds. The animals are typically found where favourable habitat coincides with connectivity to breeding ponds.

- 2.5 It is important to identify the presence of GCN individuals and also to identify suitable habitat on sites so that legal obligations regarding this species can be observed. If a survey identifies the presence of GCN on the site, an assessment of the population size class is required. This can then inform a mitigation scheme, which would need to be developed in liaison with the local Natural Resources Wales (NRW) team, and which minimises direct threats to newts and compensates for any loss of habitat. A licence issued by NRW is required for the legal implementation of a mitigation scheme.
- 2.6 An NRW mitigation licence application requires a Mitigation Method Statement and a Reasoned Statement of Application. The Mitigation Method Statement contains details of the proposed mitigation works. The Reasoned Statement needs to provide a rational and reasoned justification as to why the proposed development meets the requirements of the Conservation of Habitats & Species Regulations 2019 (EU Exit) (as amended).

Other amphibians

- 2.7 More common British amphibians, such as common frog (*Rana temporaria*), common toad (*Bufo bufo*), smooth newt (*Triturus vulgaris*) and palmate newt (*Triturus helveticus*) are protected only by Section 9(5) of the Wildlife and Countryside Act 1981 (as amended). This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.
- 2.8 The above named species are also listed as UK Species of Conservation Concern. Due to general declines in most British amphibian species in recent years, many local authorities require amphibian surveys as a planning condition, or as part of environmental information submitted as part of a planning application, even where the presence of GCN is ruled out. Water bodies that support all five (more common) species of British amphibians in high numbers, may be afforded protection in local plans, as Sites of Importance for Nature Conservation (SINC), or a similar equivalent, for sites of local importance. A site may require statutory protection as a Site of Special Scientific Interest (SSSI).
- 2.9 Natterjack toad (*Bufo calamita*) and Pool frog (*Pelophylax lessonae*) are also offered the same level of protection as GCN, through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2019 (EU Exit) (as amended). Natterjack and common toad are also listed under Section 7 of the Environment (Wales) Act 2016.

Policy

- 2.10 Planning Policy Wales (PPW) 11th Edition (2021) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy.
- 2.11 PPW and the National Development Framework (published as Future Wales – the National Plan 2040) set out how the planning system at a national, regional and local level can assist in delivering these requirements through Strategic Development Plans (SDPs) and Local Development Plans (LDPs).
- 2.12 PPW (2021) states:

“The presence of a species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained. Planning authorities should advise anyone submitting a planning application that they must conform with any statutory species protection provisions affecting

the site, and potentially the surrounding area, concerned. An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the development management process. It is considered best practice that screening to determine the presence of protected species should be carried out by a competent ecologist on the basis of data provided by the relevant Local Environmental Record Centre.”

- 2.13 Planning authorities must therefore follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, or minimized, or mitigated, and as a last resort compensated for; enhancement must be secured wherever possible.
- 2.14 The first priority for planning authorities is therefore to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or pro-gain have been fully considered.
- 2.15 The Environment (Wales) Act 2016 (“the Act”) - requires local planning authorities to have regard to area statements in the development of Local Development Plans. The Act introduced an enhanced biodiversity and resilience of ecosystems duty (Section 6 Duty). This duty applies to public authorities in the exercise of their functions in relation to Wales and will help maximise contributions to achieving the well-being goals. The Nature Recovery Action Plan supports this legislative requirement to reverse the decline in biodiversity, address the underlying causes of biodiversity loss by putting nature at the heart of decision-making and increasing the resilience of ecosystems by taking specific action focused around objectives for habitats and species.

Part 1 of the Act promotes sustainable management of natural resources, and in Part 1 section 6 states:

“A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.”

- 2.16 This national focus on sustainably managing natural resources is echoed in Policy EC6 of the Wrexham Unitary Development Plan, which states:

“Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported.”

3.0 Environmental DNA (eDNA) Survey Results

Sample Collection Protocol

- 3.1 A daytime survey visit for the collection of eDNA samples from Pond 2 was carried out on the 30th of June 2022 in sunny, clear conditions (17°C), 30% Cloud, wind 1/12 Beaufort by Miss. T. Hesketh, a Junior Ecologist at Tyrer Ecological Consultants Ltd
- 3.2 Miss. T. Hesketh has previously undertaken many eDNA surveying visits and has worked on a number of both eDNA and traditional GCN surveys, having also received training from senior ecologist Mr. M. Pritchard; Miss. Hesketh is an accredited agent on the CL08 Level 1 Great Crested Newt License (2018-34062-CLS-CLS) of Mr. Pritchard. Mr. M. Pritchard has extensive training in GCN surveying, licencing and mitigation, having previously carried out x30+ eDNA surveys to date, and having also been involved in a large number and variety of development schemes, many of which have involved Great Crested Newt surveys, implications and mitigation.

- 3.3 All eDNA sampling was carried out in accordance with the stringent survey methodologies defined within Natural England's accepted protocol (*Biggs J., et al., 2014*).

Summary of Technical Sampling Procedure

- 3.4 A total of 20 water samples were taken respectively from Pond 2 to form the basis of the DNA sample. The samples were taken using a sterile ladle and emptied into a sterile self-supporting Whirl-Pak bag. All samples were taken from locations around the margins of each pond in areas which could be utilised by GCN for egg laying or displaying. Once all 20 samples were collected, the sterile self-supporting bag was shaken to mix any DNA across the whole pond sample. A sterile plastic pipette was used to transfer approximately 15.0 ml of the mixed pond sample water into a sterile conical tube. This was undertaken for each of the six sterile conical tubes in the kit. Each sterile conical tube(s) contained 35.0 ml of ethanol to preserve any DNA within the samples. The box of six sterile conical tubes were returned within 48 hours at ambient air temperature to the ADAS eDNA testing service for laboratory analysis.

eDNA Analysis

- 3.5 eDNA analysis by ADAS was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

eDNA Survey Constraints

- 3.6 Any constraints such as access issues at the water body, likely contamination, weather problems or other limitations are given below, where applicable.
- **Pond 2** – no significant constraints that may adversely affect results, findings, or recommendations of this report

eDNA Survey Results

- 3.7 Following analysis of samples provided to, and by, ADAS of Pond 2 as described in this report, the eDNA presence/absence results are presented below (see Figure 3.1). The raw data returned by ADAS is also provided as Appendix II.

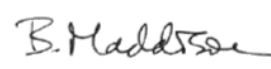
Sample ID: ADAS-5901	Condition on Receipt: Good	Volume: Passed	
Client Identifier: pond 2 Poplars	Description: pond water samples in preservative		
Date of Receipt: 04/07/2022	Material Tested: eDNA from pond water samples		
Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	07/07/2022
Degradation Control [‡]	Within Limits	Real Time PCR	07/07/2022
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	07/07/2022
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN
Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	11/07/2022	Date of issue:	11/07/2022

Figure 3.1 – Pond 2 eDNA results

4.0 Impact Assessment

- 4.1 Following the DNA analysis of samples taken from Pond 2 at The Poplars, as described, the eDNA presence/absence tests conclude a result of '**Negative**' for the presence of GCN.
- 4.2 It is thus concluded absence of GCN can be reasonably asserted at the site and that GCN do not form an ecological constraint against the proposals for which the applicant seeks consent.

5.0 Conclusions & Recommendations

- 5.1 No impacts are anticipated in relation to GCN as a result of the proposed works, therefore no further surveys, licensing or mitigation for this species is required.
- 5.2 With absence of GCN DNA recorded within the surveyed pond, their presence in the landscape is unlikely, given the site-specific factors described in this report; impacts to this species through habitat loss from the proposals can be reasonably discounted.
- 5.3 Notwithstanding the above, RAM's for GCN is recommended in the site associative PEA report; any RAM's conditioned should be extended to include amphibians to act as a sufficient safeguard for herpetofauna. It is recommended that a detailed and bespoke working Method Statement should be applied outlining key reasonable avoidance measures (RAM's) and working protocols to be in effect during the proposed work schedule once confirmed. The recommended RAM's should be drafted by a suitably experienced and qualified GCN licenced Ecologist/Ecological clerk of works (ECoW). Upon gaining understanding of the details contained within the RAMS, the applicant and associated contract team would be expected to comply with the measures recommended within it.
- 5.4 Any RAM's drafted should be subject to the approval of the local planning authority - following approval, adherence to the terms of the RAM's would be a requirement of the named authority and the applicant would be the liable party, with the Ecologist/ECoW acting for and on behalf of the applicant.
- 5.5 The applicant and all contractors would be aware that if at any stage GCN are encountered during works, or at any other stage of the work programme, works would be required to immediately cease and the Ecologist/ECoW be made aware as to provide further guidance if an Ecologist is not already present

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Appendix I: *Preliminary Ecological Appraisal* (Tyrer Ecological Consultants Ltd, May 2022)

Appendix II: *Environmental DNA (eDNA) raw data* (ADAS, Sample ID: ADAS-5901) (July 2022)