

Report : Great Crested Newt Assessment:
Proposed development at Church House Farm,
Clee St Margaret, Craven Arms SY7 9DT

Reference : IL/2532/20.1

Date : 28 June 2021

Client : Mr. J. Godrich

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Purpose : To inform the proposed conversion of buildings including the installation of
a sewage system

Planning : Shropshire Council:
Applications 21/01318/FUL & 21/01319/LBC

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**Great Crested Newt Assessment:
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1. Introduction

There is a proposal to convert (a) traditional-type buildings within the Church House Farm yard and building complex into residential use.

The proposed development includes the installation of a new package sewage treatment plant and associated drainage field.

Full details of the proposed development may be obtained from Inklines Limited and/or from viewing documents submitted to Shropshire Council to inform Planning Application 21/01318/FUL and Listed Building Consent 21/01319/LBC.

The total area of the proposed development site is 3400m² (0.34 hectares). However, the proposed development predominantly requires internal works to the buildings and retains existing garden and vehicle parking/yard areas. The proposed development will require minimal groundworks, mainly the installation of the package sewage treatment plant and associated drainage field, and the approximate total area of land to be altered by the proposed development is approximately 850m² (0.085 hectares).

From this point forward the area of the proposed development site to be subject to groundworks is referred to as 'The Site'.

There are three mapped ponds within 250m of The Site:

- Pond 1 : a former slurry and dirty water lagoon situated at approximate NGR 356410, 284280; approximately 20m west of the southernmost point of The Site.
- Pond 2 : a pond of unknown status at approximate NGR 356325, 284330; approximately 110m west of The Site.
- Pond 3 : a pond of unknown status situated at approximate NGR 356550, 284540; approximately 220m north of The Site.

Pond 1 is in the ownership of Mr. J. Godrich and was surveyed.

Pond 2 and Pond 3 are under separate ownership. Mr. J. Godrich and Inklines Limited were asked to seek permission for Pond 2 and Pond 3 to be surveyed; however, it is understood (from Mr. J. Godrich) that permission was not forthcoming.

On 9 June 2021 Pond 1 was assessed for its suitability to be used by Great crested newt for breeding purposes. As the assessment was being carried out within the Great crested newt

season, and permission had not been granted for Pond 2 or Pond 3 to be surveyed, water samples were taken from Pond 1 and sent for laboratory analysis to establish if Great crested newt were present or not within the pond.

An assessment has been made of the likely impact of the proposed development on Great crested newt (should they be present).

The Great Crested Newt Assessment was carried out by Dr. R. M. Jones, experienced field biologist, surveyor and Natural England licensed newt worker (Licence number 2016-19615-CLS-CLS).

2. Legislation

Great crested newt (*Triturus cristatus*) are protected under the Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended).

Under the Conservation of Habitats and Species Regulations 2017 (as amended) legislation it is illegal to:

- deliberately capture, injure or kill a Great crested newt;
- deliberately disturb Great crested newt. This includes in particular, disturbance in a way any such which is likely to (i) impair their ability to survive, breed or reproduce, or to rear or nurture their young; (ii) impair their ability to hibernate or migrate; or (iii) to affect significantly the local distribution or abundance of the species to which they belong
- damage or destroy a breeding site or resting place of a Great crested newt;
- to be in possession or control, to keep, transport, to sell or exchange, or to offer for sale or exchange, any live or dead Great crested newt, or any part of, or anything derived from such a wild animal.

Under the Wildlife and Countryside Act 1981, it is illegal to:

- intentionally or recklessly disturb a Great crested newt while it is occupying a structure or place which it uses for shelter or protection.
- intentionally or recklessly obstruct access to any structure or place which a Great crested newt uses for shelter or protection.

A European Protected Species (EPS) Development Licence from Natural England will be required for development works triggering Conservation of Habitats and Species Regulations 2017 (as amended) offences against Great crested newt.

3. Historical records of Great crested newt

A search for historical records of Great crested newt (and other protected species) in the locality was not commissioned.

Mr. J. Godrich and his family are not aware of Great crested newt, or other common newt, being present within the Church House Farm property.

4. Habitat of The Site

The Site - the area of land to be used for the installation of a package sewage treatment plant and associated drainage field - consists of part of a maintained vegetable garden and part of a small permanent pasture field that is used for the grazing of livestock and for making of hay.

A photographic record of The Site is contained in Appendix 1.

5. Pond 1

5.1 Suitability

The likelihood of Great crested newt using Pond 1 for breeding purposes was assessed using the Habitat Suitability Index⁽¹⁾ (HSI) using the National Amphibian and Reptile Recording Scheme HSI calculation method⁽²⁾.

The HSI for Great crested newt is a measure of habitat suitability but is not a substitute for formal Great crested newt surveys. In general, ponds/waterbodies with high HSI scores are more likely to support Great crested newt than those with low scores.

A photographic record of Pond 1 is contained in Appendix 2.

The HSI Score for Pond 1 was calculated as follows:

HSI variable	Comment	Score
SI1 - Location	Zone A	1.00
SI2 - Pond area	≈ 800m ²	1.00
SI3 - Pond drying	Informed value: 'never dries'	0.90
SI4 - Water quality	Informed value: 'bad'	0.01
SI4 - Shade	Informed value	0.20
SI6 - Fowl	Informed value: 'major'	0.01
SI7 - Fish	Informed value: 'absent'	1.00
SI8 - Nearby ponds	≈ 9	0.90
SI9 - Terrestrial habitat	Informed value: 'good'	0.67
SI10 - Macrophytes	Informed value	0.30
HSI		0.28

The HSI score of Pond 1 is 0.28.

Pond 1 provides 'poor' habitat for Great crested newt to use for breeding purposes.

5.2 Environmental DNA Analysis

Water samples taken from waterbodies between mid-April and 30 June may be sent for to a laboratory for environmental deoxyribonucleic acid (eDNA) analysis to establish if Great crested newt are present or not within the sampled waterbody.

On 9 June 2021 water samples were taken from Pond 1. The water samples were sent to and analysed by SureScreen Scientifics Limited eDNA testing service. SureScreen Scientifics Limited provided the results of the analysis to Star Ecology on 18 June 2021. Water samples were collected and analysed in accordance with published protocols^(3, 4).

The results of the eDNA analysis indicate that Great crested newt were not present within Pond 1 on or within 7-21 days-or-so before 9 June 2021.

A copy of SureScreen Scientifics's report for the eDNA sampling of Pond 1 is contained in Appendix 3.

6. Pond 2 and Pond 3

Pond 2 and Pond 3 were not visited or surveyed.

It is not known if Ponds 2 or Pond 3 still exists or if they provide habitat suitable to be used by Great crested newt for breeding purposes.

However, Pond 2 and Pond 3 are too far from The Site to be of significant concern.

Research undertaken by Natural England (previously English Nature)⁽⁵⁾ indicates the distances from breeding ponds within which Great crested newts are most likely to be encountered.

In relation to the appropriate use of Great crested newt mitigation measures, Natural England⁽⁵⁾ determines:

"The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality.

At distances greater than 200-250m, capture operations will hardly ever be appropriate."

Natural England's valuation of habitats according to distance from Great crested newt breeding ponds has been adopted within the Natural England European Protected Species Licence application form for Great crested newts and within their 'rapid risk assessment' tool (contained in Form 'WML-A14-2.xls')⁽⁶⁾.

If it is hypothesised that Great crested newts use Pond 2 and/or Pond 3 for breeding purposes; the Natural England 'rapid risk assessment' tool shows the potential affect of installing a package sewage treatment plant and associated drainage field within The Site (i.e. 0.085 hectares in size), on Great crested newt is:

- 'Green: Offence Highly Unlikely'.
- Notional offence probability score 0.1.

7. Conclusion

The assessment indicates that the closest pond to The Site, Pond 1, does not provide Great crested newt habitat.

Considering the:

- aquatic habitat of Pond 1;
- low likelihood of Great crested newt using Pond 1 for breeding purposes;
- absence of Great crested newt DNA within Pond 1;
- distances of Pond 2 and Pond 3 from The Site; and,
- nature and scale of the proposed development – the installation of a package sewage treatment plant and associated drainage field

Great crested newt do not impose a constraint on the proposed development.

The results of the assessment indicate that no further Great crested newt survey work is necessary to inform the proposed development. Furthermore, it is not necessary for a European Protected Species Licence for Great crested newt to be granted by Natural England to allow the proposed development to lawfully proceed.

8. References

- (1) Oldham, R.S., Keeble, J., Swan, M.J.S., and Jeffcote, M (2000). *Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal, Vol. 10, pp. 143-155.
- (2) Amphibian and Reptile Groups of the United Kingdom (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index.
- (3) Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. and Dunn F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.
- (4) Williams, P. (2013). How to collect a water sample to detect Great Crested Newt eDNA. GCN eDNA protocol, Freshwater Habitats Trust.
- (5) English Nature/Natural England (2006). An Assessment of the Efficiency of Capture Techniques and the value of different habitats for the great crested newt *Triturus cristatus*, Report Number 576.
- (6) Natural England (2020). European Protected Species Method Statement document. Form WML-A14-2.xls.

Appendix 1 – Photograph of The Site



View of The Site.
Looking northeast from southwest.

Appendix 2 – Photograph of Pond 1



View of Pond 1.
Looking northwest from southeast.

Appendix 2 – eDNA analysis report



Folio No: E10933
Report No: 1
Purchase Order: 1106
Client: STAR ECOLOGY
Contact: R. M. Jones

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 14/06/2021
Date Reported: 18/06/2021
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
5429	Church House Farm	356415, 284280	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth

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METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

- SIC:** **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:** **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:** **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:** **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

