

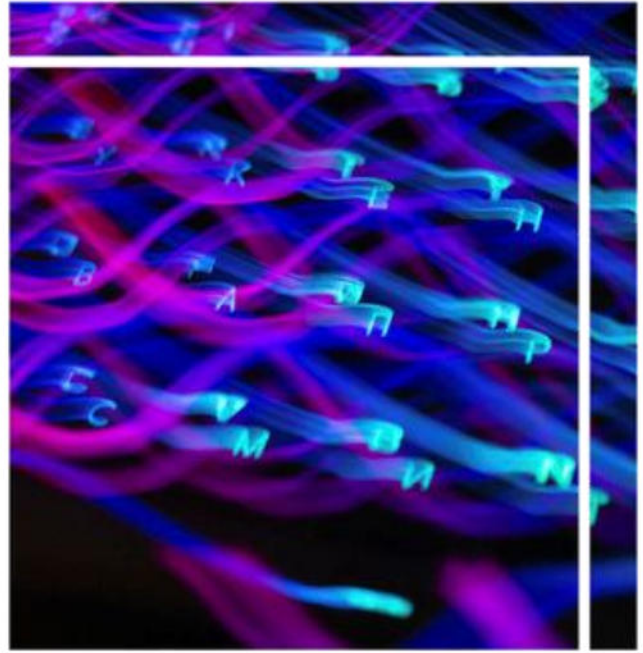
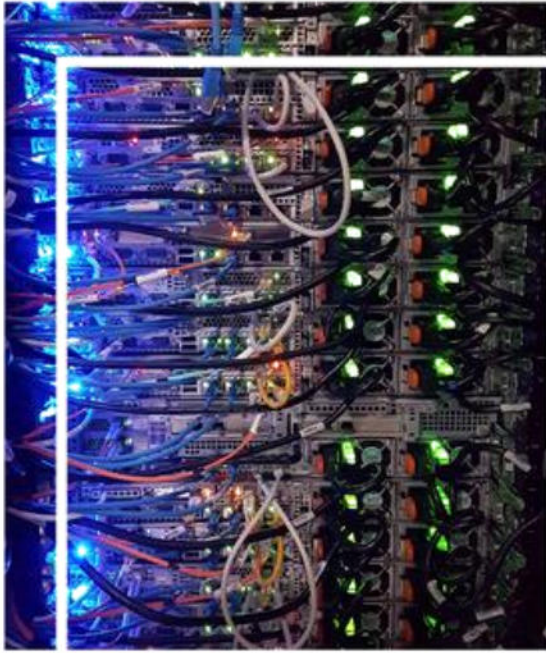


Thames Valley Park Data Centre

Great Crested Newt eDNA Surveys

Tyréns Hilson Moran | On Behalf of FH Trustees
Revision P02 | September 2026





Project Name: Thames Valley Park Data Centre

Report Name: Great Crested Newt eDNA Surveys

Issue Status: Final

Reference: 38792-HML-XX-XX-RP-U-880003

Date of Issue: 8 September 2026

Issue: P02

Suitability Code: S4 Suitable for stage approval

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Document History:

Issue	Date	Details
P01	26/8/2026	FIRST DRAFT FOR REVIEW
P02	8/9/2026	UPDATE FOLLOWING COMMENTS

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1. Introduction

1.1. Background

Tyréns Hilson Moran has been commissioned by BCS Consultancy Ltd. ('the Applicant') to undertake great crested newt *Triturus cristatus* eDNA surveys of the ponds within the study area for Thames Valley Park Data Centre, located at Microsoft Campus, Thames Valley Park, Reading, RG6 1WG, National Grid Reference SU 74711 74134 ('the Site').

1.2. Declaration of Conformity

The field work and reporting were undertaken by Amina Reeb, who holds an MSci Biodiversity and Conservation from University College London and is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM) (ACIEEM). Amina is covered by CIEEM's professional CIEEM Code of Conduct and is subject to peer review.

This report has been reviewed by Tom Priestley who has held a Natural England Great Crested Newt Level 1 Class Licence since 2015 and has 13 years' experience in ecological consultancy.

The field survey and reporting have been completed in accordance with best practice principles outlined by CIEEM and is an accurate and realistic assessment of Site conditions and potential enhancement works. The report complies with the CIEEM Code of Conductⁱ and British Standard 42020ⁱⁱ.

1.3. Disclaimer

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2. Assessment Methodology

2.1. Habitat Suitability Index

Ponds and ditches within 500 m of the Site were assessed using the great crested newt Habitat Suitability Index (HSI)ⁱⁱⁱ ^{iv}. Ponds on the far side of major barriers, such as main roads, were not considered in this assessment in line with best practice guidance^v. The ponds and ditches were examined with reference to the ten HSI scoring criteria, which are: SI1: Geographical location; SI2: Pond area; SI3: Pond drying; SI4: Water quality (as indicated by the diversity of aquatic plants and invertebrates); SI5: Shade; SI6: Waterfowl; SI7: Fish; SI8: Abundance of other ponds within a one kilometre radius; SI9: Quality of terrestrial habitat; and SI10: Macrophyte cover (such as aquatic and emergent plants).

The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown in Table 2-1.

Table 2-1 Pond Habitat Suitability Index Categories

HSI Score	Pond Suitability for Great Crested Newt
< 0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

2.2. Great Crested Newt eDNA Survey

Environmental DNA (eDNA) surveys for great crested newt were undertaken. Waterbodies within the Site and Zone of Influence considered suitable for supporting great crested newt were surveyed. Sampling was undertaken on 16th April 2026 (i.e. during the optimal survey period from mid-April to June), with each pond visited once under suitable weather conditions.

There are a series of ponds within 500 m of the Site which were not surveyed due to significant major barriers, such as major roads and other buildings, between them and the Site. A total of five waterbodies were visited and sampled. One further pond (Pond 6) was considered for analysis but deemed unsuitable to support great crested newts at the time of survey. The waterbody was artificial in nature, with ornamental features including water fountains. The water also appeared to contain a blue dye treatment.

Pond locations are shown in Figure 2-1. At each sampled waterbody, 20 discrete water samples were collected from around the pond perimeter and combined to form a single composite sample. Samples were submitted to ADAS, an accredited laboratory, for analysis using quantitative polymerase chain reaction (qPCR) techniques to detect the presence or likely absence of great crested newt DNA. The full survey methodology is detailed in Appendix A.

Results are interpreted on a presence/likely absence basis and, where applicable, provide an indication of relative abundance (based on qPCR score categories).

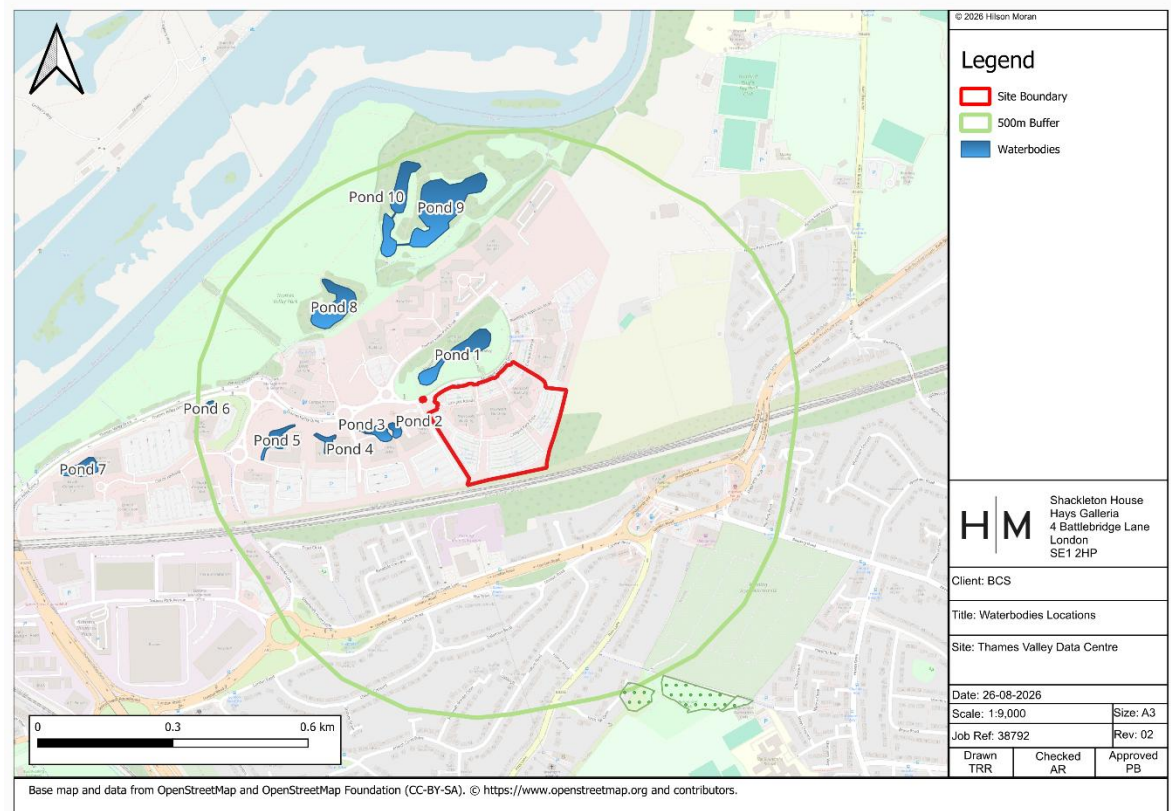


Figure 2-1 Waterbodies within 500 m of the Site

3. Results

3.1. Habitat Suitability Index Results

The results of the HSI assessment are given in Table 3-1.

Table 3-1 Habitat Suitability Index Assessment

Criteria	Description	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6
SI 1	Location	1	1	1	1	1	1
SI 2	Pond Area	N/A*	1	0.9	1	0.8	0.95
SI 3	Pond Permanence	0.9	0.9	0.9	0.9	0.9	0.9
SI 4	Water Quality	1	1	0.33	0.33	0.33	0.01
SI 5	Shade	1	1	1	1	1	1
SI 6	Waterfowl Effect	1	1	1	1	1	1
SI 7	Fish Presence	1	1	1	1	1	1
SI 8	Pond Density	1	1	1	1	1	1
SI 9	Terrestrial Habitat	0.33	0.33	0.01	0.01	0.01	0.01
SI 10	Macrophyte Cover	0.4	0.3	0.3	0.3	0.3	0.3
TOTAL score		0.81	0.5	0.49	0.5	0.48	0.35
Assessment results		Excellent	Poor	Poor	Poor	Poor	Poor

*Pond area too large to have scoring metric

The closest pond to the Site, Pond 1, is approximately 25 m to the north of the Site. It is characterised by clear water, adequate shade and macrophyte cover, an absence of waterfowl and fish, reasonable access to terrestrial habitat and only minor barrier between the pond and the Site. Since the HSI score predicts it is of excellent suitability for great crested newts, this water body is of moderate significance. All other ponds have a very poor HSI, mainly due to poor terrestrial habitat, water quality, and macrophyte cover, and therefore are of low significance.

3.2. eDNA Testing

All sampled ponds returned negative results for the presence of great crested newt DNA. Quality assurance checks confirmed that the results are considered reliable. Results are shown in Table 3-2.

Based on the outcomes of the eDNA surveys, great crested newt are considered likely absent from the surveyed waterbodies at the time of sampling.

In line with current Natural England guidance^{vi}, a negative eDNA result obtained under appropriate survey conditions is sufficient to reasonably conclude absence for the purposes of informing planning decisions.

Full survey results are detailed in Appendix B.

On the basis of these findings, no further surveys for great crested newt are considered necessary, and no impacts to this species are anticipated in relation to the Proposed Development.

Table 3-2 Great Crested Newt eDNA Survey Results

Waterbody	Coordinates	QA tests	Degradation	GCN eDNA PCR result (of 12)	GCN present?
Pond 1	474614-174265	Passed	Within limits	0	No
Pond 2	474490-174092	Passed	Within limits	0	No
Pond 3	474446-174089	Passed	Within limits	0	No
Pond 4	474327-174073	Passed	Within limits	0	No
Pond 5	474223-174075	Passed	Within limits	0	No

4. **Evaluation**

A total of six waterbodies were identified in proximity to the Site boundary and assessed for their potential to support great crested newt.

Habitat Suitability Index (HSI) assessments indicated that Pond 1 provides Excellent suitability for great crested newts, whilst the remaining ponds were assessed as having Poor suitability during the Preliminary Ecological Appraisal in April 2026^{vii}.

Despite the presence of a waterbody with excellent habitat suitability, all waterbodies surveyed for environmental DNA (eDNA) returned negative results for great crested newt. Quality assurance testing confirmed that all samples were valid and that the results are reliable.

On the basis of the HSI assessments and negative eDNA survey results, great crested newt are considered likely absent from the Site and adjacent waterbodies. Consequently, great crested newts are unlikely to represent a constraint to the Proposed Development.

5. **Recommendations**

No great crested newt-specific mitigation is considered necessary. The eDNA surveys were undertaken during the appropriate survey period and in accordance with current best practice guidance, providing a robust assessment of the surveyed waterbodies. All sampled waterbodies returned negative results for great crested newt, providing sufficient evidence to conclude likely absence for the purposes of informing the planning process.

The Proposed Development will be implemented in accordance with the embedded mitigation measures set out within the Construction and Environmental Management Plan, including good practice construction and environmental management measures designed to minimise impacts on biodiversity during the construction phase. In combination with the survey findings, these measures provide confidence that significant effects on great crested newt are unlikely to occur.

As a precaution, should an amphibian suspected to be a great crested newt be encountered during construction works, works in the immediate area should cease and a suitably qualified ecologist should be consulted before works recommence. In the unlikely event that great crested newts are subsequently identified, appropriate advice should be sought to ensure compliance with relevant wildlife legislation.

Appendix A eDNA Survey Methodology

eDNA SURVEY PROTOCOL

Kits should be kept at room temperature in an appropriate solvent store, consistent with Home Office regulations.

Kit contents: 1 sterile Whirl-Pak bag; 1 pair of sterile gloves; 1 sterile sampling ladle; a sample box containing 6 x 50 mL sample tubes two thirds full of preserving fluid (contains alcohol); 1 sterile pipette.

Please **keep all packaging** as you will require this for couriered return of samples (see instructions emailed upon ordering and overleaf).

Don't go in the water.

- Collect your eDNA water sample before you do any other surveys at the pond.
- Take the sample whilst standing on the pond bank.
- Don't tread in the pond water itself either before or during collection of the DNA water sample as there is a considerable risk of contaminating your pond sample by bringing in Great Crested Newt DNA in mud and water from other areas on your boots and equipment.

Walk around the pond, to identify areas where you can take your eDNA samples

Roughly plan where you will collect the 20 water samples from. The aim is to spread the samples out evenly around the pond edge. The samples should be taken from both open water and vegetated areas if present and if possible should avoid water that is less than 10 cm deep. If you cannot access all areas of the pond, spread the samples out as best you can without entering the water. Existing data shows that eDNA can be patchy depending on where the animals have been. Sampling in many areas considerably increases the chance of collecting their eDNA successfully.

NOTE: Before you take each ladle sample, be sure to mix the pond the water column by gently using the ladle to stir the water from the surface to close to the pond bottom WITHOUT disturbing the mud in the bottom. DNA 'sinks' and so will often be present in larger amounts close to the pond bottom. **It is important not to collect sediment as this may cause inhibition of the PCR analysis which could lead to an inconclusive result** (please see examples of different sediment levels within sampling tubes at <http://www.adas.uk/Service/edna-analysis-for-great-crested-newt>).

SAMPLE COLLECTION

- Open your kit and put on a pair of gloves.
- Open the sterile Whirl-Pak bag by tearing off the clear plastic strip along the perforated line, then pull the tabs.

Collect 20 samples of 30 mL of pond water from around the pond (in the areas you have already identified) using the sampling ladle (fill the ladle), and empty each sample into the Whirl-Pak bag.

SAMPLE PRESERVATION

1. When you have collected your 20 samples, close the bag securely using the top tabs (fold over several times and bend tabs over) and shake the Whirl-Pak bag for 10 seconds. This mixes any DNA across the whole water sample.
2. Using the clear plastic pipette provided take 15 mL of water from the Whirl-Pak bag, and transfer into one of the six conical tubes containing preserving fluid (i.e. fill tube to the 50 mL mark).
3. **Label the box** containing the six tubes with the date, your name (sampler), the pond name, and grid reference/co-ordinates.

NOTE: Please do not overfill or under fill the tubes.

4. Close the tube and ensure the cap is tight - leaky samples could later contaminate the laboratory with DNA.
5. Shake the tube vigorously for 10 seconds to mix the sample and preservative.
6. Repeat for each of the 6 conical tubes in the kit.
7. Double check that the lids are on tightly if they have leaked during shaking please also wipe the tubes.
8. Empty the remaining water from the whirl-Pack bag back into the pond.
9. Place all used gloves, pipettes, rubbish into the sampling bag and dispose.

If storage of samples is necessary prior to their return please store refrigerated (2-4°C). Samples can be stored in this way for up to 1 month prior to analysis.

RETURNING THE KIT - DROP OFF OPTION

Should you wish to return your items directly to us please email us at eDNA@adas.co.uk for address details, our laboratories are based in Beeston, Nottingham (NG9 1LA).

BOOKING YOUR DHL COLLECTION

Please email us at eDNA@adas.co.uk so we can arrange your collection.

We require the address of where the parcel will be, the number of parcels/number of kits, your contact details and the date of collection. Wherever possible we will try to book the requested date between 9am-5pm. Once we have booked your return we will email you the DHL collection documents, these will need to be printed off and attached to your parcel before your driver arrives. Please use original packaging wherever possible, if alternative packaging is used you **MUST** attach an **LQ label** () (we send along with your DHL collection documents just in case) and write **UN1170** onto the box or DHL will not transport your parcel. Should you have any problems please email us at eDNA@adas.co.uk

Appendix B eDNA Laboratory Analysis Results

Client:
BLSTV, Amina Reeb, Hilson Moran
1040091-1390, BLSTV, version 1



RSK ADAS Ltd
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-10923

Client Identifier: 1 Grid references/coordinates: 474614-174265

Description: pond water samples in preservative Condition on Receipt: Medium Sediment

Date of Receipt : 20/04/2026 Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	22/04/2026
Degradation Control [§]	Within limits	Real Time PCR	22/04/2026
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	22/04/2026
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:	22/04/2026	Date of issue:	22/04/2026

eDNA analysis 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.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for GCN if all of the replicates are negative; positive for GCN if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Client:
BLSTV, Amina Reeb, Hilson Moran
1040091-1390, BLSTV, version 1



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172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-10926

Client Identifier: 2

Grid references/coordinates: 474490-174092

Description: pond water samples in preservative

Condition on Receipt: Low Sediment

Date of Receipt : 20/04/2026

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	22/04/2026
Degradation Control [§]	Within limits	Real Time PCR	22/04/2026
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	22/04/2026
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
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[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Client:

BLSTV, Amina Reeb, Hilson Moran
1040091-1390, BLSTV, version 1



RSK ADAS Ltd
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Sample ID: ADAS-10913

Client Identifier: 3

Grid references/coordinates: 47446-174089

Description: pond water samples in preservative

Condition on Receipt: Medium Sediment

Date of Receipt : 20/04/2026

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	22/04/2026
Degradation Control [§]	Within limits	Real Time PCR	22/04/2026
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	22/04/2026
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
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[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Client:

Thames Valley, Amina Reeb, Hilson Moran
1040091-1390, Thames Valley, version 1



RSK ADAS Ltd
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Tel: 01159 229249
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www.adas.uk

Sample ID: ADAS-10927

Client Identifier: 4

Grid references/coordinates: 474327-174073

Description: pond water samples in preservative

Condition on Receipt: Medium Sediment

Date of Receipt : 20/04/2026

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	22/04/2026
Degradation Control [§]	Within limits	Real Time PCR	22/04/2026
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	22/04/2026
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
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Date of preparation:	22/04/2026	Date of issue:	22/04/2026

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[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Client:

BLSTV, Amina Reeb, Hilson Moran
1040091-1390, BLSTV, version 1



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Tel: 01159 229249
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Sample ID: ADAS-10914

Client Identifier: 5

Grid references/coordinates: 474223-174075

Description: pond water samples in preservative

Condition on Receipt: Low Sediment

Date of Receipt : 20/04/2026

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	22/04/2026
Degradation Control [§]	Within limits	Real Time PCR	22/04/2026
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	22/04/2026
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:	
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[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

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Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)

References

- ⁱ CIEEM (2024). Code of Professional Conduct. Chartered Institute of Ecology and Environmental Management, Winchester.
- ⁱⁱ BSI Standards Institution (2013). BS 42020:2013. Biodiversity – Code of Practice for Planning and Development. BSI Standards Limited, London.
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