



Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

**Annex 5-11: Additional Great Crested Newt
(GCN) Survey Report**

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Vattenfall Wind Power Ltd

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Newt (GCN) Survey Report

Thanet Extension Offshore Wind Farm

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June, 2018

Drafted By:	SLR Consulting
Approved By:	Helen Jameson
Date of Approval	June 2018
Revision	A

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THANET EXTENSION OFFSHORE WIND FARM

Additional Great Crested Newt (GCN) Survey Report
Prepared for: GoBe Consultants

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June 2018



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1.0 Introduction

1.1 Background

SLR Consulting was commissioned by GoBe Consultants (on behalf of Vattenfall Wind Power Ltd) in January 2018 to carry out the onshore biodiversity assessment as part of the Environmental Impact Assessment (EIA) for the proposed Thanet Extension Offshore Wind Farm (TEOW). The commission included the completion of various associated studies and reports, including this report which presents the results of additional surveys for great crested newts (*Triturus cristatus*) (GCN).

1.2 Purpose and Scope of Study

Extensive surveys for GCN were carried out in 2017 by Amec Foster Wheeler (AFW). These surveys initially identified 14 waterbodies within 500m of the site boundary (henceforth referred to as the Red Line Boundary (RLB)) under consideration at that time, which were potentially suitable for GCN¹. Of these seven were subject to environmental DNA (eDNA) surveys for GCN during June 2017, all of which returned negative results. Of the other seven waterbodies, six were unable to be accessed for eDNA survey at that time and one was completely dry so was not able to be surveyed.

In February 2018 it was agreed with relevant stakeholders² that eDNA surveys for GCN would be carried out in spring 2018 for any potentially suitable waterbodies within 250m of the current RLB that were not able to be surveyed in 2017. It was also agreed that survey of ponds beyond 250m from the RLB was not required to inform the EIA.

Only two of the seven potentially suitable waterbodies initially identified that were unable to be surveyed in 2017 are located within 250m of the current RLB, a wet ditch within St Augustine's Golf Course, to the northwest of the RLB and a pond located in the southern part of Pegwell Bay Country Park. These represent the waterbodies numbered 345 and 196 respectively by AFW (2017).

Requests for a permit to survey within Pegwell Bay Country Park were declined by Kent Wildlife Trust (KWT) in April 2018. The pond within Pegwell Bay Country Park (Waterbody 196) was therefore not surveyed. Access was granted to the waterbody within St Augustine's Golf Course (Waterbody 345) however and this was therefore subject to survey in May 2018³.

The aims of the survey were to provide baseline data to inform the EIA for the project. The assessment of impacts resulting from the proposed development and the development of mitigation measures, if required, are beyond the scope of this report and are covered in a separate Environmental Statement (ES), Volume 3, Chapter 5: Onshore Biodiversity.

¹ Amec Foster Wheeler Environment & Infrastructure UK Limited (November 2017) Vattenfall Wind Power Ltd Thanet Extension Offshore Wind Farm Preliminary Environmental Information Report, Annex 5-3: Great Crested Newt Survey Report Doc Ref. 39090-03.

² Evidence Plan Meeting on 8th February 2018.

³ Following completion of the May 2018 survey, the AFW (2017) GCN survey report has been updated to reflect the findings of further screening surveys undertaken by them in October 2017 (but not previously reported). The updated AFW GCN survey report identifies four of the waterbodies previously determined to be potentially suitable for GCN, including Waterbody 345, to be unsuitable for GCN due to the presence of flowing water and connectivity with waterbodies supporting fish populations. The updated AFW GCN survey report is included as an annex to the ES (Volume 5, Annex 5-3).

1.3 Relevant Legislation

1.3.1 Conservation of Habitats and Species Regulations 2010

The Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations) transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into English law, making it an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time). GCN is included on Schedule 2 of the Habitats Regulations.

1.3.2 Wildlife & Countryside Act 1981

The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act (CRoW) 2000 and the Natural Environment and Rural Communities Act (NERC) 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;

GCN is included on Schedule 5 of the Act.

1.3.3 Natural Environment & Rural Communities (NERC) Act 2006

The NERC Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

2.0 Methodology

2.1 Survey Area

The location of the waterbody surveyed is shown in Drawing 1 and a photograph is provided below.

Photograph 1

Waterbody Subject to Survey (Waterbody 345)



2.2 Survey Methodology

The waterbody was sampled for the presence of GCN eDNA by two ecologists from SLR following the Natural England approved protocol set out by Biggs *et al.* (2014)⁴. Twenty samples were collected from the waterbody pond using sterile equipment provided by ADAS, at points evenly spread out along the length of the ditch. The water at each sampling area was gently stirred using a sterile ladle before samples were taken, whilst ensuring that sediment on the ditch base was not disturbed.

The samples were then 'fixed' in an ethanol preserving solution, and sent to the ADAS Laboratory for analysis. In order to avoid contamination, the surveyors avoided entering the water. Latex gloves were worn when sampling and only sterile equipment came into contact with the water.

The eDNA analysis was carried out in accordance with the stipulated methodology (Biggs *et al.*, 2014).

⁴ Biggs, J. *et al.* (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

2.3 Survey Dates, Times and Weather Conditions

The survey was undertaken on 2nd May at approximately 5:00pm. This date is within the approved time period for GCN eDNA surveys, which can be completed between the 15th April and 30th June. The weather was dry and approximately 12°C, cloudy, with little or no wind. The ground conditions were wet due to rainfall over the previous week.

2.4 Survey Personnel

The survey was conducted by Natasha Nixon, a Senior Ecologist with SLR with approximately ten years' experience and a full Member of Chartered Institute of Ecology and Environmental Management (MCIEEM) and a Chartered Environmentalist (CEnv). Natasha is a Class Survey Licence holder for GCN (2015-19301-CLS-CLS) and was assisted by Liam Hoadley, an Assistant Ecologist, who has had previous experience in assisting with eDNA sampling.

2.5 Survey Limitations

The ditch was fully accessible and no survey constraints were encountered.

No constraints were reported in the quality of the water samples taken; their preservation; or the laboratory analysis.

3.0 Results

The laboratory analysis did not find any traces of GCN eDNA. A copy of the full GCN eDNA analysis report, provided by the laboratory is provided in Appendix 01.

4.0 Summary and Conclusions

This report presents the results of additional surveys for GCN undertaken in May 2018. It should be read alongside the report on GCN surveys carried out in 2017 (see Volume 5 of the ES, Annex 5-3). The May 2018 survey aimed to determine the presence or absence of GCN from any waterbodies within 250m of the RLB that were initially identified as potentially suitable for GCN but were not able to be surveyed in 2017.

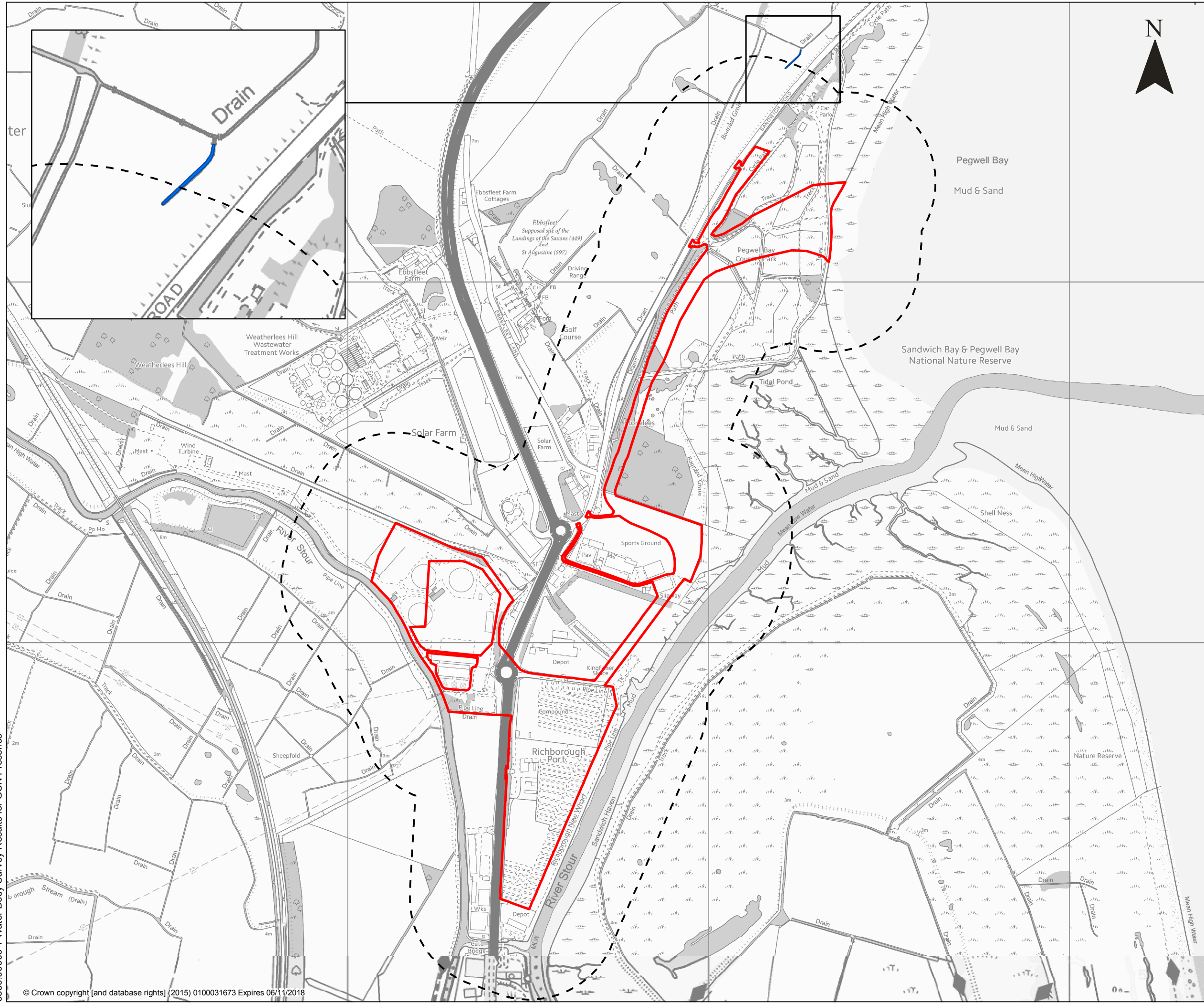
Two waterbodies located within 250m of the RLB were initially identified as potentially suitable for GCN but were not able to be surveyed in 2017, a ditch within St Augustine's Golf Course (Waterbody 345) and a pond within Pegwell Bay Country Park (Waterbody 196).

The eDNA analysis undertaken in May 2018 found no trace of GCN DNA in the water samples from the ditch within St Augustine's Golf Course (Waterbody 345) and GCN are therefore likely to be absent from this ditch.

Access to Waterbody 196 within Pegwell Bay Country Park was refused by KWT and therefore it is not possible to confirm the likely absence of GCN from this pond. However, an interpretation board located next to the pond makes no mention of GCN, despite referring to the presence of smooth newt (*Lissotriton vulgaris*), suggesting the pond has been subject to amphibian survey previously. On this basis, and given the absence of GCN records within the surrounding 2km (see AFW, 2017), GCN presence in Waterbody 196 is considered very unlikely.

DRAWINGS

Drawing 1: Location of Waterbody Surveyed



LEGEND

- ONSHORE SITE BOUNDARY
- 250m BUFFER FROM ONSHORE SITE BOUNDARY
- WATERBODY SUBJECT TO GCN SURVEY



5356.00003 1 Water Body Survey Results for GCN Presence

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**THANET EXTENSION
OFFSHORE WIND FARM
ADDITIONAL GREAT CRESTED
NEWT (GCN) SURVEY
LOCATION OF WATERBODY
SURVEYED**

1

Scale 1:10,000 @ A3 Date MAY 2018

APPENDIX 01

Great Crested Newt eDNA Laboratory Analysis Report



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Client: Natasha Nixon,
SLR Consulting Limited,
Mill Barn,
28 Hollingworth Court,
Turkey Mill,
Maidstone,
ME14 5PP

Sample ID: 2018-0776 Condition on Receipt: Low Sediment Volume: Passed
Client Identifier: Pond 345 Thanet Ext Description: pond water samples in preservative
Date of Receipt: 04/05/2018 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	08/05/2018
Degradation Control [§]	Within Limits	Real Time PCR	08/05/2018
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	08/05/2018
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: 08/05/2018 Date of issue: 08/05/2018

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 great crested newt if all of the replicates are negative; positive for great crested newt 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 achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] 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.

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)

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