



Great Harmeston Solar Farm Environmental Statement

Technical Appendix 7.4

Great Crested Newt eDNA Surveys
and Results



Great Crested Newt eDNA Survey



Tyler
Grange

Great Harmeston Solar Farm
22nd January 2026

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Admin QA	Author	Checked	Approved
-	Sara Curtis	Daria Bennetts MSc, BSc (Hons) ACIEEM	Hazel Murrells BSc (Hons) MSc MCIEEM CEnv

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Contents:

Summary	
Section 1: Introduction	4
Section 2: Methodology	6
Section 3: Results	7

Appendices:

Appendix 1: SureScreen Scientifics eGCN Report

Plans:

Plan 1: Great Crested Newt eDNA Survey Results (16720/P04)



Section 1: Introduction

- 1.1. This report has been prepared by Tyler Grange Group Ltd (TG) on behalf of ASUK HoldCo4 Ltd. (Arise Renewable Energy UK Ltd.) ("the applicant"), and relates to the Proposed Development at Great Harmeston Solar Farm, Pembrokeshire, SA62 3HL (the 'Site'). This report sets out the findings of the Great Crested Newt (GCN) eDNA survey undertaken in 2024 at the Site, see **Figure 1.1** for the finalised red line boundary.



Figure 1.1: Site Red Line Boundary (© Google Aerial Imagery)

- 1.2. The boundary of the Proposed Development extends to approximately 128ha across a number of land parcels and is segregated by two 'A' roads and a railway line. The Site comprises arable and improved grassland fields, marshy grassland, neutral grassland, broadleaved woodland, ponds and boundary features including a ditch, hedgerows and hedgerows with trees.

Quality Control

- 1.3. All ecologists at Tyler Grange Group Limited are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) or are working towards membership, and act under the direction of members and abide by the Institute's Code of Professional Conduct¹.

¹ CIEEM (2022) Code of Professional Conduct, CIEEM, Winchester



Section 2: Legislation and Conservation Status

- 2.1. As a European Protected Species, great crested newt receive legal protection in Wales under the **Conservation of Habitats and Species Regulations** 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).
- 2.2. Great crested newt are listed as a species of principal importance in Wales under Section 7 of the Environment (Wales) Act 2016. Section 7 species are recognised as being of particular conservation concern and are required to be considered by public authorities in the exercise of their functions, in accordance with the statutory duty to maintain and enhance biodiversity and ecosystem resilience.



Section 3: Methodology

Environmental DNA (eDNA) Analysis

- 3.1. Great crested newt Environmental DNA (eDNA) surveys of four ponds (Ponds 1, 2, 3 and 12 – see **Table 4.1** and **Plan 16720/04**) was undertaken on 25th June 2024. A water sample was collected from each pond, with samples sent off for laboratory analysis by SureScreen Scientifics² following the methodology detailed in the DEFRA WC1067 protocol³.
- 3.2. The surveys aimed to determine whether great crested newt are present/likely absent in the Proposed Development area.

Survey Limitations

- 3.3. Sampling of ponds could only be undertaken where accessible and safe to do so. However, twenty samples were taken from all accessible areas in accordance with best practice guidelines. Two other on Site ponds (Pond 4 and 13) did not hold enough water to take eDNA samples from and therefore could not be sampled at the time of survey. However, given the lack of desk study records and negative results recorded in other ponds, it is considered highly unlikely they support great crested newts.
- 3.4. All other on Site ponds were dry, and it was not possible to obtain samples. Owners of offsite ponds were contacted via letter and on site to request access to sample ponds within 250m of the site; however, no access was granted. As above, given lack of records and the negative results of ponds that were sampled, it is considered highly unlikely that the offsite ponds support great crested newts.

² Followed the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt Appendix 5' (Biggs et al. 2014).

³ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, 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.



Section 4: Results

4.1. A search of local biological records was undertaken by the Local Records Centre, West Wales Biodiversity Information Centre (WWBIC), for a search radius of 2 km from the Site boundary. Eight amphibian records were returned, comprising the following species, which have the potential to be present within the wider landscape given the habitats present in the vicinity of the Site:



- Common toad *Bufo bufo* – four records, with the closest located approximately 1 km north of the Site (2022);
- Common frog *Rana temporaria* – two records, with the closest located approximately 1.6 km south-east of the Site (2009); and
- Palmate newt *Lissotriton helveticus* – two records, with the closest located approximately 1.6 km south-east of the Site (2009).

4.2. No records of great crested newt were returned.





Pond Description

4.3. Table 4.1 below provides a description of the ponds, grid reference, HSI score, eDNA sample taken and a photograph.

Table 4.1: (Onsite Pond Descriptions and eDNA Results)

Pond Ref.	Grid Reference	Description	eDNA	Photograph
1	SM 92209 09445	Very shallow and vegetated (water dropwort). Poorly defined with no standing water – is all moving at least slightly as part of minor watercourse.	Yes - Negative	
2	SM 92084 09497	Large c.20 x 40m man-made possibly coarse pond.	Yes - Negative	



Pond Ref.	Grid Reference	Description	eDNA	Photograph
3	SM 91929 09948	Large c.20 x 40m man-made possibly coarse pond. Possibly only half full and quite silted (~80% full), c.150mm deep with south deeper and northern area dry.	Yes - Negative	
4	SM 92410 10188	Fairly large c.10x20m but silted up and no open water - rushes growing throughout.	No - no open water	
12	SM 93010 09421	Heavily shaded, very silted up and poor water quality. Poorly defined and silt makes access difficult - samples taken from southern / western half	Yes - Negative	
13	SM 92613 08924	Fairly large c.10x20m. Very low level so almost no water (puddle in middle) Silted up and 100% shaded.	No - almost dried up	

4.4. No records of great crested newt were returned within 2 km of the Site, and onsite terrestrial habitats offer only limited suitability.

4.5. All eDNA samples (for Ponds 1, 2, 3 and 12) returned a negative result (see Appendix 1). The remaining on Site ponds were dry at the time of survey and could not be sampled, and access to offsite ponds within 250 m was not granted.



- 4.6. Based on the negative survey results, absence of local records, and the limited quality of available habitat, great crested newt are assumed likely absent from the Site. Therefore, there will be no adverse impact to the species as a result of the proposals and great crested newt have been scoped out further assessment.
- 4.7. The aquatic and terrestrial habitat on Site including boundary habitats such as grassland margins, hedgerows and woodland edges are still considered suitable to support other amphibians, including priority species⁴ such as common toad *Bufo bufo*. Although common toad is not afforded specific legislative protection from killing or injury, it is listed as a Species of Principal Importance in Wales under Section 7 of the Environment (Wales) Act 2016⁵, and its conservation should be considered in decision-making. Any population of common amphibians present is unlikely to be reliant on the Site alone and is considered to be on negligible ecological importance.

⁴ UK Priority Species are those subject to conservation action and referred to as Species of Principal Importance. They are listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act states that local planning authorities must have regard for the conservation of SoPI.

⁵Species of Principal Importance in Wales are those subject to conservation action and are listed under Section 7 of the Environment (Wales) Act 2016. Section 6 of the Act places a duty on public authorities, including local planning authorities, to seek to maintain and enhance biodiversity and promote the resilience of ecosystems, and to have regard to species listed under Section 7 when carrying out their functions.



Appendix 1: SureScreen Scientifics eGCN Report



Great Harmeston Solar Farm, Pembrokeshire
Great Crested Newt eDNA Results

16720_R03_26th February 2026_DB_HM

Folio No: 2838-2024
Purchase Order: 16720PT-074995
Contact: Tyler Grange
Issue Date: 16.07.2024
Received Date: 02.07.2024

GCN Report

Technical Report



SureScreen Scientifics

Folio No: 2838-2024
Purchase Order: 16720PT-074995
Contact: Tyler Grange
Issue Date: 16.07.2024
Received Date: 02.07.2024

GCN eDNA Analysis

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 analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
7712	Great Harmeston, Pond 2	SM9208409497	Pass	Pass	Negative	0/12
7713	Great Harmeston, Pond 1	SM9220909445	Pass	Pass	Negative	0/12
7714	Great Harmeston, Pond 3	SM9192909948	Pass	Pass	Negative	0/12
7715	Great Harmeston, Pond 12	SM9301009421	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Daisy Chambers

Approved by: Lauryn Jewkes

Methodology

The samples detailed above have been analyzed 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 tube which then undergoes DNA extraction. The extracted sample is then analyzed 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 attention to detail to prevent the 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 analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

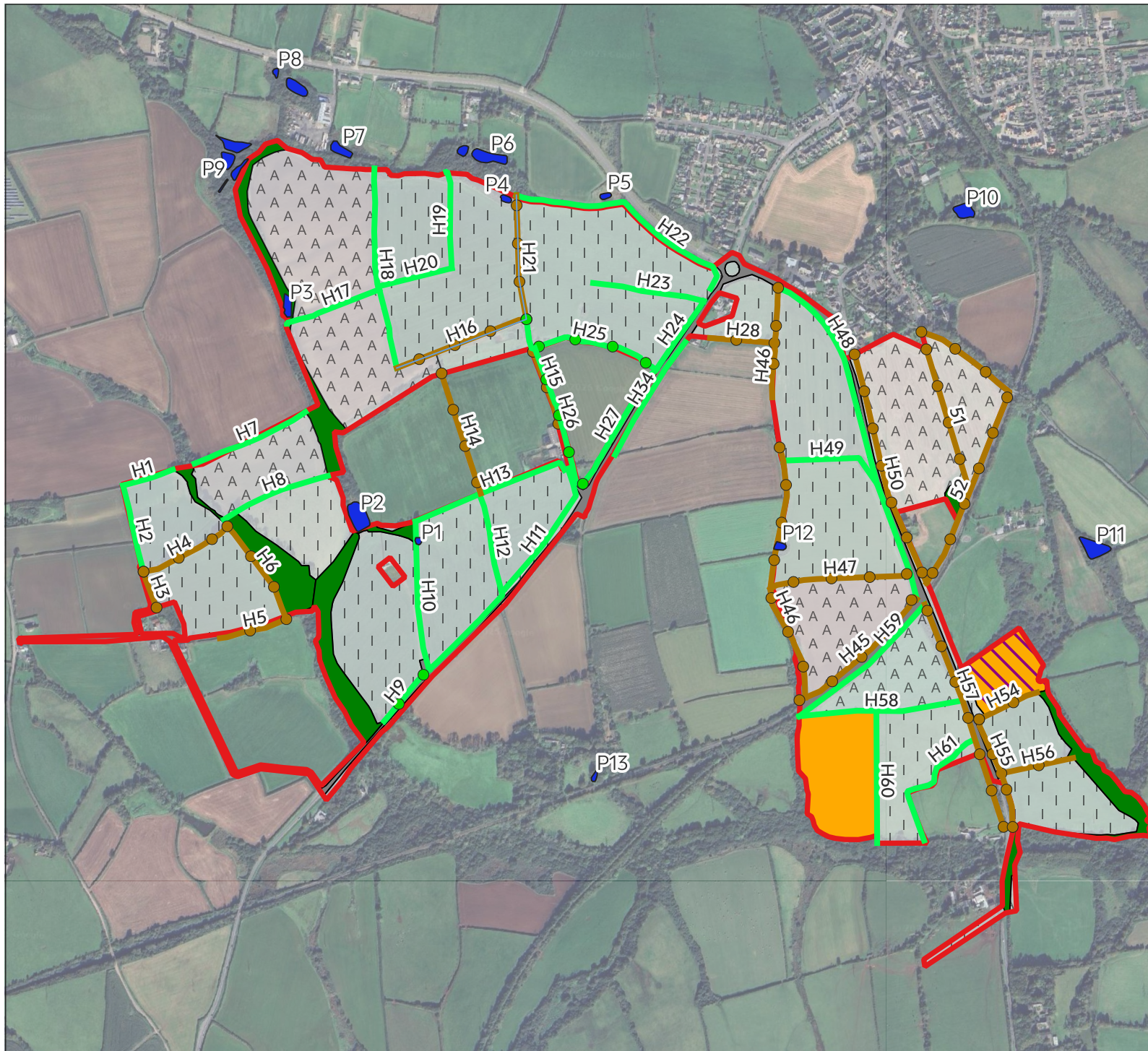
Interpretation of Results

- Sample Integrity Check:** 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. Any samples which fail this test are rejected and eliminated before analysis.
- 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.
- Inhibition Check:** **Pass/Fail.** The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. 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 the WC1067 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.
Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.

Plans:

Plan 1: Great Crested Newt eDNA Survey Results **16720/P04**





Legend

- Redline Boundary
- Ponds
- Species poor hedgerow with trees
- Species rich hedge with trees
- Species-poor
- J1.1 - Cultivated/disturbed land - arable
- Hardstanding
- G1 - Standing Water
- B5 - Marsh/marshy grassland
- B4 - Improved grassland
- B2.1 - Neutral grassland - unimproved
- A1.1.1 - Broadleaved woodland - semi-natural

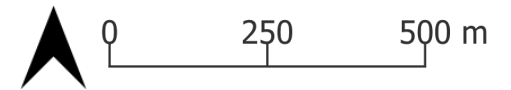


Figure X.X Habitat Features Plan

PROJECT Great Harmeston Solar Farm, Pembrokeshire

CLIENT Arise Renewable Energy UK Ltd

DATE 02/12/2025 SCALE As Shown (Approximate) DRAWN APPROVED

SHEET REV N
↑

DRAWING NUMBER



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