SPRING GROVE GREEN POWER

Great Crested Newt Scoping and eDNA Survey
Technical Note
Prepared for: Acorn Bioenergy Ltd

SLR Ref: 404.11923.00002
Version No: fv1
January 2023

Document Control	
Document Properties	
Organisation	SLR Consulting Ltd
Project Name	Spring Grove Green Power
Report Title	Great Crested Newt Scoping and eDNA survey report
Author(s)	Blake Perkins
Draft version/final	Final
Document reference	404.11923.00002 Spring Grove Green Power GCN fv1

Date	Revision No	Prepared By	Reviewed By	Approved By	Status	Comments
08/03/2023	1	Blake Perkins	Olivia Guindon	Richard Arnold	Final	Issue to client as final for review and comments

BASIS OF REPORT

CONTENTS

DOCUMENT REFERENCES

TABLES

DRAWINGS

APPENDICES

1.0 Introduction

SLR Consulting was commissioned by Acorn Bioenergy Ltd to carry out a great crested newt (*Triturus cristatus*) scoping and eDNA survey for the proposed development known as Spring Grove Green Power and located in Withersfield, Haverhill, CB9 7SN.

1.1 Background

A habitat (UKHab) survey was undertaken in February 2022 during which the potential for habitats on site to support Great crested newt (GCN) was assessed. In conjunction with this, site-specific information was sourced through a biological records search from the Cambridgeshire Peterborough Environmental Records Centre (CPERC).

The UKHab Survey identified aquatic habitat within 500m of the main AD site and terrestrial habitats in the form of hedgerows, scrub and rough grassland suitable to support GCN. An additional GCN scoping survey (including Habitat Suitability Index (HSI) and eDNA survey (if ponds suitable) was therefore recommended.

1.2 Site Description and details of the Proposed Development

The Proposed Development is located north of Spring Grove Farm and the A1307, approximately 250m to the west of the edge of the settlement of Haverhill, in West Suffolk District, in the county of Suffolk. It lies immediately to the northeast of the administrative boundary with South Cambridgeshire District, which defines part of the application boundary to the Proposed Development.

The Proposed Development comprises two distinct components, being, firstly, an anaerobic digester plant (the 'AD plant site') and, secondly, a buried pipeline connecting to an offsite digestate lagoon (the 'pipeline and digestate lagoon site').

The AD plant site comprises two adjoining fields pertaining to Spring Grove Farm – Bowsey field and Spring Grove field. It is proposed that Bowsey field will house most of the Site infrastructure, utilising a marginal area of Spring Grove field to the east. The pipeline site extends north from the AD plant to connect to a new digestate lagoon, located approximately 2.5km due north of the AD site beside Cadge's Wood.

Anaerobic Digester (AD) plant site

Bounded by established trees and hedgerow of varying density to the north and west, Bowsey field and Spring Grove field are bordered by an additional tree belt of substantial depth extending along southern boundary. The Stour Brook runs west to east along the southern boundary of the Site and is flanked by the broadleaved woodland/riparian corridor describe above.

Pipeline and digestate lagoon Site

The pipeline and digestate lagoon Site include several relatively large-scale, arable fields located to the north-west of Haverhill, and west and north of Withersfield.

The pipeline would extend north of the main AD Plant site through arable fields located between ancient woodland blocks of Howe Wood, Lawn Wood and Littley Wood, with at least 150m standoffs to each.

Cadge's Wood an ancient woodland, is located adjacent to the west of the digestate lagoon site and north of the end of the pipeline Site. North Wood (ancient woodland) is approximately 300m to the east of the digestate lagoon site.

1.3 Evidence of Technical Competence and Experience

Olivia Guindon, who undertook the survey and reviewed this report, has a Bachelor's degree in Ecology and Wildlife Conservation (BSc Hons) and a Master's degree in Species Identification and Survey Skills and is a Qualifying member of CIEEM. Olivia is a Senior Ecologist at SLR and has over three years' professional experience within ecological consultancy and has undertaken numerous ecological assessments of this type.

Darcey Haldar, who undertook the survey and wrote this report, has a Masters degree in Conservation Ecology and over a years' experience working within ecological consultancy.

This report has been subject to Quality Assurance review as per SLRs policies by Richard Arnold BSc MRes MCIEEM CEnv. Richard has 23 years of experience as a professional ecological consultant, during which time he has worked on many development projects. He has a particular interest in ecology in London, and is co-author of the London Bird Atlas.

1.4 Legislative Context

The great crested newt is fully protected through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) (The Habitats Regulations). In brief, this legislation makes it offence to:

- deliberately kill, injure or take a great crested newt;
- deliberately disturb a great crested newt in such a way as to be likely to impair their ability to survive, breed or reproduce, or rear or nurture their young; to hibernate or migrate; or to affect significantly the local distribution or abundance of that species;
- deliberately take or destroy the eggs of a great crested newt;
- damage or destroy the breeding or resting place of a great crested newt;
- intentionally or recklessly obstruct access to a place that a great crested newt uses for shelter or protection; and
- intentionally or recklessly disturb a great crested newt whilst it is occupying a place which it uses for shelter or protection.

A European Protected Species (EPS) Licence may be required for any activity which:

- Is likely to result in the deliberate capture, injury or killing of a GCN;
- Will result in the deliberate disturbance of newts; and/or
- Will damage or destroy a breeding site or resting place used by GCN.

An EPS licence can only be granted if the following tests can be met:

- The consented operation must be for "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment";
- There must be "no satisfactory alternative"; and
- The action authorised will not be detrimental to the maintenance of the population of the species concerned at a Favourable Conservation Status (FCS) in their range.

2.0 Methodology

The GCN scoping survey involved an initial visual inspection of all ponds/waterbodies within 500m of the main AD site followed by a Habitat Suitability Index (HIS) assessment and an environmental DNA (eDNA) survey.

A review of online mapping identified four ponds/waterbodies within the 500 m search radius (Drawing 1).

2.1 Habitat Suitability Index (HSI) Assessment

GCN HSI scores are calculated using ten parameters: site location; pond area; frequency of pond drying; water quality; shade; waterfowl; fish; presence of other ponds in the area; terrestrial habitat; and macrophyte communities. Each parameter scores a value of between 0.01 and 1. These scores are then multiplied and 'rooted' to produce a geometric mean score, of between 0 and 1. The following categorical scale is then used to estimate the overall suitability of the water body concerned:

HSI score Pond suitability for GCN:

<0.5 Poor

0.5-0.59 Below average

0.6-0.69 Average

0.7-0.79 Good

>0.8 Excellent

2.2 Environmental eDNA survey

Twenty samples of pond water were taken from each of the ponds by Olivia Guindon, named as an accredited agent on Richard Arnold's licence (Natural England Class Licence 2016-21231-CLS-CLS) in accordance with standard protocol[1] as approved by Defra and Natural England.

The 20x samples were subsequently mixed and stored in 6x tubes of ethanol for eDNA preservation. Appropriate measures were undertaken to avoid cross-contamination, e.g. the use of sterile gloves and avoidance of heavy rain conditions when eDNA may inadvertently splash into the samples. The 20x samples of pond water were taken from suitable areas at different locations around the perimeter of the ponds and care was taken to sample towards the base of the water column (eDNA tends to sink over time) both in areas of open water (potential GCN display areas) and from areas of potentially suitable GCN egg-laying vegetation.

The samples were collected on the 3rd May 2022 as per the approved protocol. The samples were subsequently labelled and refrigerated as per the approved protocol prior to being sent by courier for laboratory analysis by SureScreen Scientifics Ltd, a Natural England approved agency, on the day the water samples were collected.

In aquatic environments, eDNA is diluted and distributed in the water. Sources of eDNA in pond water derive from faeces, mucous, gametes, shed skin and carcasses. The eDNA survey involves the collection of water samples for laboratory analysis for the DNA of species of interest, in this case GCN. The sampling procedure is prescribed in the published method and requires that the water sample be taken between mid-April and end-June.

The laboratory testing was conducted in two phases. The samples first went through an extraction process where all 6 tubes were pooled together to acquire as much eDNA as possible. The pooled sample was then tested via

[1] 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. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

real time Polymerase Chain Reaction (or q-PCR). This process amplifies the selected part of DNA allowing it to be detected and measured. All controls were acceptable.

2.3 Survey Limitations

The water samples were collected, stored and tested as per the approved protocol at the correct time of year. The laboratory controls all passed (see Appendix 1). It is noted that a negative result does not exclude presence at levels below the limit of detection; however, it is noted that the technique used is considered to be more effective at detecting GCN presence than 'traditional' survey techniques such as bottle trapping, torchlight surveys and egg-searches combined. It is concluded that there were no significant survey limitations.

3.0 Results

3.1 Desk study

Consultations with CPERC have confirmed that there are no records of GCN within 2km of the Site. Pond 3 and 2 were deemed too isolated from the proposed development due to the presence of the A1307 and was therefore not included in this assessment.

3.2 Habitat Suitability Index

Pond 1 was dry at the time of survey. It was therefore considered that it was not suitable for assessment under the HIS assessment methodology or eDNA. Pond 1 was therefore the only pond assessed as potentially suitable to support great crested newts.

Pond 1 was therefore subject to a Habitat Suitability Index (HSI) assessment to assess its potential to support great crested newt (GCN).

Table 3-1 Pond 2 HSI Factor Details and Score

	Factor Details	Score
Geographic Location SI_1	A	1
Pond area SI_2	130m^2	0.2
Permanence SI_3	Never	0.9
Water quality SI_4	Moderate	0.67
Shade SI_5	10%	1
Waterfowl SI_6	Absent	1
Fish SI_7	Absent	1
Pond count SI_8	9	1
Terrestrial habitat SI_9	Moderate	0.67
Macrophytes SI_{10}	10%	0.4
HSI Score		**0.71**

3.3 eDNA survey

One pond was surveyed for GCN eDNA in accordance with the published method. The eDNA Technical Report from SureScreen Scientifics is reproduced at Appendix 1. The eDNA analysis confirmed the absence of GCN in pond 2.

4.0 Discussion and recommendations

GCN were confirmed absent within pond 2 so there is no potential for them to be present within the terrestrial habitat on the Site itself. GCN therefore do not need to be considered any further with regards to the proposed development

DRAWING 1

Ponds within 500m of the main AD site

APPENDIX 1

eDNA results

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
belfast@slrconsulting.com

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 906 4280

CARDIFF
T: +44 (0)29 2049 1010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 335 6830

EXETER
T: + 44 (0)1392 490152

GLASGOW
glasgow@slrconsulting.com

GUILDFORD
guildford@slrconsulting.com

LONDON
T: +44 (0)203 805 6418

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER (Denton)
T: +44 (0)161 549 8410

MANCHESTER (Media City)
T: +44 (0)161 872 7564

NEWCASTLE UPON TYNE
T: +44 (0)191 261 1966

NOTTINGHAM
T: +44 (0)115 964 7280

SHEFFIELD
T: +44 (0)114 245 5153

SHREWSBURY
T: +44 (0)1743 23 9250

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: + 353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)6 23 37 14 14