

**Tillbridge Solar Project
EN010142**

**Volume 6
Environmental Statement**
Appendix 9-5: Baseline Report for Great Crested Newt
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Executive Summary

- ES-1. In July 2022, AECOM (on behalf of Tillbridge Solar Limited) undertook a Preliminary Ecological Appraisal (PEA) for the proposed Tillbridge Solar Farm (hereafter referred to as the Scheme). This PEA is incorporated within the Environmental Statement (ES) [EN010142/APP/6.1] identified water bodies within and up to 500m from the Order limits (within the Zone of Influence (Zol) for this species), which triggered the need for follow-up surveys to determine the presence or absence of Great Crested Newt.
- ES-2. Surveys were therefore undertaken to determine the presence or absence of Great Crested Newt within the Order limits and within an appropriate survey radius of 500 m (referred to hereafter as the Survey Area) as in line with Natural Englands standing advice (Ref 19).
- ES-3. A total of 112 water bodies were identified within the Zol as needing to be assessed for their suitability to support Great Crested Newt.
- ES-4. As set out in **Chapter 3: Scheme Description** of the ES [EN010142/APP/6.1], the Scheme has worked collaboratively with Gate Burton Energy Park, Cottam Solar Project and West Burton Solar Project to minimise environmental impacts along the Cable Route Corridor by using a shared route, where practicable. Therefore, wider ecological survey data for these schemes was reviewed as part of the desk study and informed the assessment of Great Crested Newt presence in the wider landscape.
- ES-5. Of the 112 water bodies identified within the Zol, surveys were undertaken by the Applicant on 58 water bodies, with 44 water bodies scoped out of requiring further survey (see **Table 2**) and sufficient information received from neighbouring schemes, on the presence or absence of Great Crested Newt, for ten waterbodies.
- ES-6. The assessment for Great Crested Newt, undertaken through a desk study and field surveys, identified this species is present within the Principal Site (water body 7, see **Figure 9-5-2**); within the Cable Route Corridor (water body 52, see **Figure 9-5-2**); and in two water bodies outside of the Order limits (water bodies 26 and 124, see **Figure 9-5-2**).
- ES-7. Furthermore, desk study records indicate the presence of Great Crested Newt in water bodies to the east of the Cable Route Corridor around Cottam (see **Figure 9-5-2**), although no impacts upon this species are predicted in this area, based upon Scheme proposals (e.g. no impacts on aquatic habitats, use of existing access roads for construction-related traffic and limited or no clearance of vegetation).
- ES-8. Notwithstanding the international legislation that protects the species, due to confirmed presence within four surveyed water bodies (from 112 water bodies assessed) within 500 m of the Order limits (confirmed through eDNA laboratory analysis) and the presence of Great Crested Newt in the wider area, a Great Crested Newt population of only Local Importance is considered to be present within the Zol.

1. Introduction

1.1 Background

1.1.1 This report forms a technical appendix to the Environmental Statement (ES), specifically to accompany **Chapter 9: Ecology and Nature Conservation** of this ES [EN010142/APP/6.1]. The report provides information on the presence and distribution of Great Crested Newt *Triturus cristatus* relevant to the Tillbridge Solar project, hereafter referred to as the Scheme, including the results of surveys, undertaken within (and up to 500m from) the Order limits.

1.2 Site Description

- 1.2.1 The Scheme is located approximately 5 kilometres (km) to the east of Gainsborough, Lincolnshire and approximately 13km to the north of Lincoln. The Scheme comprises two distinct parcels, which are:
- a. 'the Principal Site', which is the location where ground mounted solar PV panels, electrical sub-stations, and BESS will be installed; and
 - b. 'the Cable Route Corridor', which will comprise the underground electrical infrastructure required to connect the Principal Site to National Grid Cottam Substation.
- 1.2.2 The Principal Site is located within the administrative district of West Lindsey. The Cable Route Corridor tracks south of the Principal Site, to the east of Willingham by Stow before tracking west towards the River Trent and to the south of Gate Burton. The Cable Route Corridor crosses into Nottinghamshire (within the administrative district of Bassetlaw) before connecting to the Cottam Power Station.
- 1.2.3 This report is based on the administrative county of Lincolnshire whilst recognising that key aspects of biodiversity are coordinated and managed within the geography of Greater Lincolnshire, for example the Nature Strategy for the Greater Lincolnshire Nature Partnership.
- 1.2.4 The Order limits covers an area of approximately 1,670 hectares (ha) and is dominated by arable fields (which make up a minimum of 80% of the Order limits). There are numerous mature trees and hedges within the Order limits, with woodlands and small wooded copses. It is surrounded by mainly arable and improved grassland livestock fields.
- 1.2.5 The location of the Scheme is presented in **Figure 9-5-1**, included in **Annex A** of this survey report.

1.3 Aims and Objectives

- 1.3.1 The aim of this report is to determine the presence and distribution of Great Crested Newt within the Zone of Influence (Zoi) (see **Section 3.1**).
- 1.3.2 The objectives, therefore, are to:
- a. review existing ecological data to identify any records of Great Crested Newt occurring within the Study Area (see **Section 3.1**);

- b. identify the presence of potentially suitable water bodies located within the Survey Area using Ordnance Survey (OS) aerial mapping and online sources; and
- c. undertake Great Crested Newt Habitat Suitability Index (HSI) assessments on identified accessible water bodies, followed by eDNA surveys of those water bodies which are assessed as potentially suitable, to confirm presence or absence of Great Crested Newt.

1.3.3 Combined, this is being used to:

- a. determine the nature conservation value of the Order limits for Great Crested Newt; and
- b. the potential impacts of the Scheme on Great Crested Newt and any required mitigation.

2. Relevant Legislation, Policy and Guidance

2.1 Legislation

- 2.1.1 All stages of the Great Crested Newt life cycle as well as their habitat are fully protected under Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 1). Great Crested Newt is listed on Schedule 5 of the Wildlife & Countryside Act 1981 (Ref 2), which affords it protection under Section 9, as amended by the Countryside Rights of Way (CROW) Act 2000 (Ref 3). It is also listed on Annex II and VI of the European Council (EC) Habitats Directive (Ref 4), is included as a Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 5) and is a United Kingdom (UK) Post-2010 Biodiversity Framework (Ref 6) species, listed on the UK Biodiversity Action Plan (UK BAP). In combination, this makes it an offence to:
- a. deliberately capture, injure or kill a Great Crested Newt;
 - b. deliberately take or destroy their eggs;
 - c. deliberately, intentionally or recklessly disturb an individual; or
 - d. damage, destroy or obstruct access to any structure which a Great Crested Newt used for shelter or protection.
- 2.1.2 The protection includes both the breeding water body itself and the terrestrial habitat used for foraging and hibernation, which may be distant from the water body.

2.2 European Protected Species Licencing

- 2.2.1 Where Great Crested Newt habitat, including their breeding sites and resting places, is present on a site and a development has the potential to cause one or more offences under The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 1), a European Protected Species Licence (EPSL) is required from Natural England to allow the development to proceed. This licence allows the development to proceed with exemption from offences, provided works are undertaken with strict accordance of the terms of the licence. A licence cannot, however, be obtained to provide protection against offences under the Wildlife & Countryside Act 1981 (as amended) (Ref 2).
- 2.2.2 In determining whether to grant a licence, Natural England must apply the requirements of Regulation 55 of the Regulations (Ref 1), these being:
- a. Regulation 55(2)(e) states: "subject to the provisions of this regulation, the relevant licensing body may grant a licence for the purposes specified in paragraph 2". The relevant section of paragraph 2 being:
 - i. (e) a licence can be granted for the purposes of "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."

- b. Regulation 55(9)(a) states: “the relevant licensing body must not grant a licence under the regulation unless it is satisfied –
 - i. (a) “that there is no satisfactory alternative”; and
 - ii. (b) “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”
- 2.2.3 A determining authority must also apply these tests when determining a planning/DCO application, where a proposed development is likely to cause an offence under The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 1).
- 2.2.4 In order for a European Protected Species Licence to be approved by Natural England for works with Great Crested Newt, it must be demonstrated that the proposed development will minimise any potential impacts upon Great Crested Newt and will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 2.2.5 Offences can be avoided through the implementation of appropriate mitigation that will minimise the potential for any offences to be committed. Mitigation can include the undertaking of vegetation clearance works at an appropriate time of the year and completing works in accordance with methods that will minimise or avoid potential disturbance or destruction of habitats. In such circumstances it is sensible for works to be completed using Reasonable Avoidance Measures (RAMs).

2.3 Priority Species

- 2.3.1 The NERC list of Species of Principal Importance (Ref 5) is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act (in this context, the Secretary of State). Under Section 40 every public authority (e.g. a local authority or local planning authority) must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity, including restoring or enhancing a population or a habitat.
- 2.3.2 The UK Biodiversity Action Plan (UKBAP) (Ref 7) was launched in 1994 and established a framework and criteria for identifying species (and habitat types) of conservation concern. From this list, action plans for Priority Species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 6) which is relevant in the context of Section 40 of the NERC Act 2006. These species are identified as those of conservation concern due to their rarity or a declining population trend.
- 2.3.3 Great Crested Newt was added to the UK BAP as a priority species in September 2007 and subsequently was included as a Species of Principal Importance in England under Section 41 of the NERC Act (2006) (Ref 5) meaning that they are of material consideration in planning.

2.4 Local Biodiversity Action Plan

- 2.4.1 The Scheme is located within the counties of Lincolnshire and Nottinghamshire. Formerly, the Lincolnshire Biodiversity Action Plan (3rd edition) (Lincolnshire BAP) (Ref 8) provided context to inform identification of threatened or uncommon species of local relevance, alongside priorities for conservation and enhancement targeted at a local level in Lincolnshire. However, under the Environment Act 2021 (Ref 9), these are being replaced by Local Nature Recovery Strategies (LNRSs), which are a system of spatial strategies for nature which will support delivery of biodiversity net gain (BNG) and provide more focussed action for nature recovery. Whilst this is still being developed for Lincolnshire and with no specific habitat or species plans currently in place, this report references the Lincolnshire BAP, for which Great Crested Newt is included in a grouped species action plan for newts (Ref 8).
- 2.4.2 Additionally, the Lincolnshire BAP (Ref 8), identified the following threats to Great Crested Newt populations in Lincolnshire.
- a. loss of suitable breeding ponds due to lowered water-tables; infilling for development, farming or waste disposal; neglect; natural succession; shading from surrounding vegetation;
 - b. degradation, loss and fragmentation of terrestrial habitats;
 - c. introduction of fish into breeding ponds, which eat young newts and eggs; and
 - d. chemical pollution, eutrophication and toxic effects of agrochemicals.
- 2.4.3 The Nottinghamshire Biodiversity Action Plan (Nottinghamshire BAP) (Ref 10), whilst continuing to provide context to inform identification of threatened or uncommon species of local relevance, does not include Great Crested Newt as a priority species.

3. Methods

3.1 Characterising the baseline

3.1.1 Within this report, the following terminology is used when referring to the geographic areas within which assessments were made:

- a. Study Area– the area within the Order limits and a 2km radius which was subject to collection of background information e.g. desk study records for amphibians to supplement the findings of the survey work
- b. Zone of Influence (Zol) – the area over which Great Crested Newt may be affected by the Scheme which, using the criteria below, is typically no greater than 500m from the Order limits. Through review of likely impacts of the Scheme and results of the desk study, the scope of field surveys was then defined; and
- c. Survey Area – this is the area within which the Great Crested Newt survey work was undertaken (the Order limits plus a radius of up to 500 metres (m)).

3.1.2 The Zol is based on:

- a. the nature of the project (a solar farm scheme), project activities and the potential for effects at all development stages (construction, operation and decommissioning);
- b. the nature of the land use (minimum 80% arable) and habitats in the vicinity (majority being arable), the number of water bodies, their connectivity (e.g. through hedgerows, grassland margins) and how they may be used by Great Crested Newt;
- c. the presence of Great Crested Newt in the wider area, based on the location of the Order limits and desk study data; and
- d. the habits, behaviours and preferences of Great Crested Newt and whether these could be affected both spatially and temporally.

3.2 Desk Study

3.2.1 A desk study was undertaken as part of the Preliminary Ecological Appraisal (PEA) in July 2022 (Ref 11). Records of Great Crested Newt within a 2km radius of the Order limits were obtained through Greater Lincolnshire Nature Partnership (GLNP) and Nottinghamshire Biological and Geological Records Centre (NBGRC).

3.2.2 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of Great Crested Newt presence in the local area.

3.2.3 Aerial imagery and ordnance survey (OS) mapping were reviewed as part of the PEA to identify water bodies of potential value to Great Crested Newt within the Zol. The review of aerial photography and mapping included identifying any key routes of potential habitat connectivity to the Scheme from outside water bodies (e.g., ponds) and significant barriers to Great Crested Newt dispersal (e.g., main roads or rivers), which was used to scope

out the need for field surveys where connectivity was limited or there were barriers to dispersal for Great Crested Newt. Furthermore, any water bodies that were beyond 250 m from the Order limits were not subject to further survey as Great Crested Newts are thought to commonly move between water bodies up to a distance of 250 m from each other (Ref 12). It is recognised that there are studies showing Great Crested Newt travelling much further than this, subject to a variety of factors including barriers to dispersals and quality terrestrial habitat (Ref 13) and consideration for survey was made in recognition of these factors where necessary.

- 3.2.4 Multi-Agency Geographic Information for the Countryside ('Magic') website (Ref 14) was reviewed to identify species licence returns of Great Crested Newt that are within 2km of the Order limits.

3.3 Collaborative Dataset

- 3.3.1 As set out in **Chapter 3: Scheme Description** of the ES [EN010142/APP/6.1], the Scheme has worked collaboratively with Gate Burton Energy Park, Cottam Solar Project and West Burton Solar Project to minimise environmental impacts along the Cable Route Corridor by using a shared route, where practicable. As a result, a wealth of ecological information has been collected along this corridor. To minimise disturbance to wildlife and landowners, through repeated access by multiple schemes, where relevant, the Applicant has collaborated with the other proposed developments to 'share' data. Where this has been the case, it is clearly described in this report. In addition, the Applicant has undertaken surveys to ground truth these data, where relevant.
- 3.3.2 Wider ecological survey data for these schemes was reviewed as part of the desk study and informed the assessment of Great Crested Newt presence in the wider landscape (Gate Burton Energy Park (Ref 15), Cottam Solar Project (Ref 16) and West Burton Solar Project (Ref 17)).

3.4 Field Survey

Habitat Suitability Index (HSI)

- 3.4.1 The Habitat Suitability Index (HSI) was devised to quantitatively assess the suitability of water bodies to support Great Crested Newt (Ref 18) using ten suitability factors of a water body, which are assessed in the field and are later converted into a suitability index to determine an index of breeding suitability for Great Crested Newt.
- 3.4.2 A description of the ten indices is presented in **Table 1**.

Table 1. Great Crested Newt suitability indices and description

Suitability Indices	Suitability Indices Title	Suitability indices Description
(SI1)	Geographic location	Different areas of the UK represent different indices scores, with the UK divided into three zones (A, B and C) which illustrate decreasing potential for

Suitability Indices	Suitability Indices Title	Suitability indices Description
		Great Crested Newt in regard to their geographical range.
(SI2)	Water body area	The optimum water body size is between 500 and 750m ² .
(SI3)	Water body permanence	The optimal frequency of drying is one year per decade as this reduces the number of predatory fish. However, permanent water retention is preferable to annual drying up.
(SI4)	Water quality	Good water quality is optimal and is measured through invertebrate diversity and the condition of the water body.
(SI5)	Water body shading	Represented as a percentage of the bank, Great Crested Newt occurrence is significantly reduced above a threshold of 75% shade.
(SI6)	Impact of waterfowl	Waterfowl impact on water body vegetation and water turbidity is a negative indicator for Great Crested Newt as heavy use by waterfowl can deteriorate the suitability of a waterbody for Great Crested Newt
(SI7)	Occurrence of fish	The effect of fish presence is related to the species. Some species can have negative impacts and Great Crested Newt hardly ever coexist with larger predatory fish species. Other species (depending on conditions) are not detrimental.
(SI8)	Water body density	The presence of water bodies within the local area increases the chances of Great Crested Newts becoming established from nearby water bodies (and also the suitability of the local area to support a meta-population).
(SI9)	Terrestrial habitat	In general, scrub, unimproved grassland, woodland (deciduous and coniferous) and gardens are regarded as being suitable terrestrial habitat, unlike improved pasture, arable and hardstanding. The SI9 is the combination between positive factors (suitable habitat) and negative factors (e.g., inherent in barriers to movement such as roads). The surrounding habitat is scored according to the extent of high-quality terrestrial newt habitat.

Suitability Indices	Suitability Indices Title	Suitability indices Description
(SI10)	Macrophyte content	The highest occurrence of Great Crested Newt is found in water bodies with emergent vegetation cover between 25% and 50% and submerged vegetation between 50% and 75%.

3.4.3 The ten field scores are converted into suitability index scores which are multiplied together then calculated to the power of 0.1, to give the resulting HSI score which are categorised in terms of their suitability to support Great Crested Newt as follows:

- a. <0.5: poor likelihood of presence;
- b. 0.5 – 0.59: below average likelihood of presence;
- c. 0.6 – 0.69: average likelihood of presence;
- d. 0.7 – 0.79: good likelihood of presence; and
- e. >0.8: excellent likelihood of presence.

3.4.4 Any water body with an HSI score of below average or greater, is then surveyed using eDNA analysis or field-based methods, to determine Great Crested Newt presence or absence.

3.4.5 A full summary of HSI scores for the locations surveyed is provided in Annex B of this document.

Environmental DNA (eDNA) Laboratory Analysis

3.4.6 Further to the HSI assessment, suitable (see **Section 4.3.6**) and accessible water bodies identified within the Survey Area were scoped in for Environmental DNA (eDNA) survey.

3.4.7 eDNA survey is an established technique for determining presence or absence of Great Crested Newt within aquatic habitats, which is approved by Defra and Natural England within their standing advice (Ref 19). In aquatic environments, eDNA is diluted and distributed in the water. Sources of eDNA in waterbody 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 Great Crested Newt. The sampling procedure is prescribed in the published method and requires that the water sample be taken between 15th April and 30th June.

3.4.8 The eDNA surveys were undertaken in accordance with the published protocol for survey (Ref 19, Ref 20), using eDNA sampling kits and analysis services by one of the approved suppliers. To prevent contamination of the samples:

- a. gloves were worn at all times during the sampling process, and gloves were replaced between sample collection from the water body and pipetting into the sterile sub-sample tubes; and

- b. samples were collected without entering the water *i.e.*, the surveyor stood only on the water body bank or water body edges. This prevented disturbance of the substrate to limit cross-contamination.

3.4.9 The field sampling protocol consisted of the following steps for each surveyed water body:

- a. the location of sub-samples was spaced as evenly as possible around the margin of the water body or watercourse. Sub-samples generally targeted areas with potential egg laying substrate (*e.g.*, vegetation) and open water areas which newts may be using for displaying. Prior to sampling, the water column was mixed by gently using a ladle to stir through the entire water column, whilst avoiding disturbing the sediment on the bed of the water body. Sampling of very shallow water (less than 5-10cm deep) was avoided where possible;
- b. a new pair of gloves was put on to keep the next stage as uncontaminated as possible;
- c. using a clear plastic pipette, approximately 15mL of water were taken from the bag and pipetted into six sterile tubes containing 35mL of ethanol to preserve the eDNA sample (*i.e.*, the tube was filled to the 50mL mark)
- d. the tube was shaken vigorously for ten seconds to mix the sample and preservative. This is essential to prevent DNA degradation and was also repeated for each of the six conical tubes. Before taking each sample, the water in the bag was shaken to homogenise the sample, as DNA material constantly sinks to the bottom; and
- e. the box of preserved sub-samples was kept in a fridge and then later returned to ambient temperature in the laboratory for analysis.

3.4.10 eDNA kits were procured from SureScreen Scientifics and on collection of samples, they were then sent back to SureScreen Scientifics to be analysed in their laboratory. Laboratory analysis was consistent with the methods described in Appendix 5 of the WC1067 Technical Advice Note (Ref 20), including control analysis for inhibition and degradation.

3.4.11 eDNA sampling resulted in a result of either positive (eDNA was detected in the water sample), negative (no eDNA was detected in the sample and Great Crested Newt are likely absent) or inconclusive (the sample was degraded or otherwise could not provide a positive or negative result).

3.5 Biodiversity Importance

3.5.1 An essential prerequisite step to allow an ecological impact assessment of the Scheme was an evaluation of the relative biodiversity importance of the Survey Area for Great Crested Newt. This is necessary to set the terms of reference for the subsequent ecological impact assessment.

3.5.2 The method of evaluation that was utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (Ref 21). This gives guidance on scoping and carrying out environmental assessments and places appraisal in the context of relevant policies and at a geographical scale at which feature matters (*i.e.* international, national, regional, county, district, local or site).

Data received through desk study and field-based surveys were used to identify the importance of Great Crested Newt. Professional judgement was also applied, where necessary. Relevant published national and local guidance and criteria can be used, where available, to inform the assessment of biodiversity importance and to assist consistency in evaluation. Population and conservation status for Great Crested Newt within Lincolnshire has been made with reference to the GLNP's '*Newts: an assessment of current status in Greater Lincolnshire*' (Ref 22).

3.6 Assumptions and Limitations

Desk Study

- 3.6.1 The aim of a desk study was to help characterise the baseline context of the Scheme and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of a desk study was dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for Great Crested Newt does not necessarily mean that this species does not occur in the study area. Likewise, the presence of records of Great Crested Newt does not automatically mean that these still occurred within the area of interest or were relevant in the context of the Scheme.

Field Survey

- 3.6.2 The HSI survey is not sufficiently precise enough to conclude that any particular water body with a high score will support Great Crested Newt or that a water body with a low score will not support Great Crested Newt. However, it is a useful tool for establishing the potential suitability of waterbodies for breeding Great Crested Newt to support further survey requirements. The HSI for Great Crested Newts is a measure of habitat suitability and is not a substitute for aquatic amphibian surveys.

4. Results

4.1 Desk Study

- 4.1.1 Fourteen records of Great Crested Newt from four different locations were returned from the data search through GLNP, one of which was within the Principal Site. Seventy-nine records were returned from NBGRC, all of which surround Cottam Power Station.
- 4.1.2 A review of 'MAGIC' (Ref 14) identified 15 Great Crested Newt class survey licence returns to the east of the Cottam Power Station, the most recent of these was from 2017.
- 4.1.3 From the desk study, using maps and aerial photography, 112 water bodies were identified within the Zol and Survey Area, as presented in **Figure 9-5-1**, included in **Annex A**.

4.2 Collaborative Dataset

- 4.2.1 The collaborative datasets received for the Gate Burton Energy Park (Ref 15), Cottam Solar Project (Ref 16) and West Burton Solar Project (Ref 17) provided information on the presence or absence of Great Crested Newt (confirmed through eDNA laboratory analysis) in eight water bodies within 500m of the Order limits. In addition, three water bodies where sufficient data was gathered on the likely presence or absence of Great Crested Newt (and in some cases permanence of the water body) was received (through HSI scores).
- 4.2.2 A single water body (water body 124 as presented in Figure 9-5-2) surveyed as part of the Gate Burton Energy Park (Ref 15), located within the Cable Route Corridor returned a positive eDNA result for Great Crested Newt (see Figure 9-5-2).
- 4.2.3 No other water bodies surveyed as part of these neighbouring or overlapping solar schemes, within 250m of the Cable Route Corridor returned any positive eDNA samples for Great Crested Newt.

4.3 Field Survey

- 4.3.1 Of the 112 water bodies identified (see **Section 4.1.3**), the desk study and a review of collaborative datasets scoped out the need for further survey, i.e., through HSI and eDNA, of 43 water bodies for the following reasons:
- distance (>250m) from the Order limits (36 water bodies);
 - barriers to dispersal (six water bodies); and, or
 - other reasons (landowner information on the pond no longer being present) (one water body) or not a visible water body on aerial imagery (one water body).
- 4.3.2 A summary of the 43 water bodies scoped out of further assessment for Great Crested Newt is presented in **Table 2** alongside the rationale for why they were scoped out.

Table 2. Water bodies scoped out of assessment

Water body reference (see Figure 9-5-1)	Reason for scoping out	Rationale
1, 2, 5, 17, 30, 35, 45, 46, 47, 61, 62, 67, 72, 74, 75, 76, 79, 80, 81, 84, 86, 87, 88, 89, 91, 92, 93, 96, 103, 107, 109, 110, 115, 116	Distance >250m from the Order limits	Water bodies >250m from the Order limits and therefore any impacts arising from the Scheme upon Great Crested Newt would not occur, even if this species was present.
3, 6, 8	Barriers to dispersal	Within 250m of the Order limits but separated from the Order limits by the A631, a main road which would act as a barrier to Great Crested Newt dispersal to the Scheme.
71, 95, 99	Barriers to dispersal	Water body 71 is 222m from the Order limits with no connectivity to the Order limits. Water body 95 is 228m from the Order limits, is surrounded by residential properties and has no connectivity to the Order limits. Water body 99 is also 228m from the Order limits and there is intensively managed arable farmland separating the Order limits and this water body, which would inhibit dispersal from this water body.
108	No longer exists	A review of aerial imagery did not identify a water body in this location.
113	Barriers to dispersal	Water body 113 is within the industrial setting of the Cottam Power Station, surrounded by roads and buildings which would inhibit any movement of Great Crested Newt (even if present).
59	Landowner information	Landowner confirmed this water body has been dry for many years.

4.3.3 Sufficient information was obtained through a review of collaborative datasets from eleven water bodies from surveys undertaken in 2022 (see section 4.2) and 43 water bodies were scoped out of requiring further survey (see **Table 2**). Therefore, 58 water bodies were identified during the desk study as requiring further assessment for Great Crested Newt presence or absence. Where water bodies were accessible, the majority of these were then the subject of further surveys (see below).

4.3.4 An initial walkover of the Survey Area identified that eight water bodies (19, 21, 34, 70, 85, 104, 117 and 119) no longer exist as no evidence of a water

body was located during the survey. These water bodies were therefore scoped out of requiring any further assessment.

Habitat Suitability Index

- 4.3.5 Thirty water bodies identified within the Survey Area were subject to an initial check that each water body held water and then a HSI survey, where required. These surveys were undertaken in March 2022 and between April and June 2023, as access became available.
- 4.3.6 The results of the HSI surveys are presented in **Table 3**.

Table 3. HSI Scores

HSI Score	Water body reference (see Figure 9-5-1)
Excellent	None
Good	4, 7, 11, 12, 15, 20, 24, 26, 37, 52, 54, 55
Average	10, 22, 28, 40
Below Average	27, 38, 41, 42
Poor	9, 13, 14, 16, 23, 29, 32, 33, 39, 43

eDNA Surveys

- 4.3.7 Between April and June 2022; and May and June 2023, eDNA surveys were undertaken on 20 water bodies that were scoped in for further assessment as these water bodies were within 250 m of the Order limits and the HSI score was greater than 'poor' (see **Table 3**). However, precautionary eDNA samples were taken for six water bodies (9, 23, 29, 32, 33 and 43) where the HSI was poor, or no HSI score was taken (owing to the timing of surveys whereby the HSI was undertaken at the same time as eDNA surveys and therefore no calculation of the HSI score was made in the field). eDNA samples were not taken on four water bodies (13, 14, 16 and 39) where the HSI survey was completed in advance of an eDNA survey and had a result of poor.
- 4.3.8 Positive eDNA samples were returned from three water bodies (7, 26 and 52, see **Figure 9-5-1**). The remaining 23 waterbodies returned negative samples for Great Crested Newt eDNA. The laboratory results of the eDNA analysis are presented in **Table 4** and included in **Annex C** of this document.

Table 4. Water bodies surveyed for Great Crested Newt eDNA

eDNA Result	Water body reference (see Figure 9-5-1)
Positive	7, 26, 52
Negative	4, 9, 10, 11, 12, 15, 20, 22, 23, 24, 27, 28, 29, 32, 33, 37, 38, 40, 41, 42, 43, 54, 55

Table 5. Summary of Great Crested Newt assessment for all water bodies

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
4	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
■	Within the Principal Site	Present	Great Crested Newt confirmed as present by eDNA analysis.	Yes
9	4m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
10	212m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
11	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
12	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
13	Within the Principal Site	Likely Absent	Poor HSI score, with poor water quality that dries annually (see Annex B) and therefore unlikely to support Great Crested Newt.	No
14	162m from the Principal Site	Likely Absent	Poor HSI score, with poor water quality that dries annually (see Annex B) and therefore unlikely to support Great Crested Newt.	No
15	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
16	Within the Principal Site	Likely Absent	Agricultural irrigation reservoir (with no vegetation) covered with a plastic lining, preventing access to the water body. Great Crested Newt confirmed as absent in a more suitable water body (12) which is	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
			approximately 35m north. Therefore, this water body is unsuitable for Great Crested Newt.	
18	211m from the Principal Site	Likely Absent	No access to this water body in 2023. This water body is within 40m of water body 17 which has been subject to eDNA and was negative for Great Crested Newt. Furthermore, the distance between the Scheme and this water body (>200 m) and the intensively managed arable habitats that separate the Scheme from the water body (that would act as a barrier to restrict Great Crested Newt dispersal to the Scheme, if present) indicate that no impacts on Great Crested Newt would occur, even if present.	No
20	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
22	2m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
23	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
24	21m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
25	10m from the Principal Site	Likely Absent	No access and no records of Great Crested Newt occurring within nearby (1km) water bodies (also confirmed by eDNA), namely 23, 27 and 28. Therefore, absence is likely from this water body also.	No
■	202m from the Principal Site	Present	Great Crested Newt confirmed as present by eDNA analysis. However, owing to the distance between this water body and the Order limits (>100m) and the intensively managed arable habitats that	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
			separate the Order limits from the water body (that would act as a barrier to restrict Great Crested Newt dispersal), no impacts on Great Crested Newt are predicted.	
27	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
28	16m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
29	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
31	96m from the Principal Site	Unknown	There was no access to this water body, however given the distance between this water body (nearly 100m) and the Order limits and the isolated setting of the water body (surrounded by intensively managed arable farmland) indicate that Great Crested Newt is unlikely to be present and, in the unlikely event of presence, would not be impacted upon by the Scheme.	No
32	133m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
33	15m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
36	224m from the Principal Site	Unknown	No access. However, pond (if present) is within an industrial farm setting to the north of Cow Lane, Upton. Therefore, if Great Crested Newt are present, this would present a barrier to any dispersal to the Scheme. The distance between this water body and the Scheme is nearly 250m and therefore this water body is scoped out of requiring	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
			any further assessment as any impacts from the Scheme on Great Crested Newt, if present, will not occur	
37	63m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
38	Within the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
39	Within Principal Site	Likely Absent	Poor HSI score, with bad water quality that dries annually (see Appendix B) and therefore unlikely to support Great Crested Newt.	No
40	4m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
41	15m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
42	167m from the Principal Site	Absent	Great Crested Newt confirmed as absent by eDNA analysis.	No
43	163m from the Cable Route Corridor	Absent	Great Crested Newt confirmed as absent by eDNA analysis. This pond was also surveyed as part of the Cottam Solar Project in 2022 (Ref 16) and the eDNA results were negative for Great Crested Newt.	No
44	18m from the Principal Site	Unknown	Whilst this water body is 18m from the Principal Site, there was no access to this water body to undertake further survey. However, this water body is located adjacent to land set aside for mitigation and is approximately 1480m from the developable areas of the Scheme. Therefore, there would be no impacts on Great Crested Newt, even if present within this water body.	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
■	Within the Cable Route Corridor	Present	Great Crested Newt confirmed as present by eDNA analysis. This pond was also surveyed as part of the Cottam Solar Project in 2022 and the eDNA results were positive for Great Crested Newt.	Yes
54	20m from the Cable Route Corridor	Absent	Great Crested Newt confirmed as absent by eDNA analysis. This pond was also surveyed as part of the Cottam Solar Project in 2022 and the eDNA results were negative for Great Crested Newt.	No
55	37m from the Cable Route Corridor	Absent	Great Crested Newt confirmed as absent by eDNA analysis. This pond was also surveyed as part of the Cottam Solar Project in 2022 and the eDNA results were negative for Great Crested Newt.	No
60	98m from the Cable Route Corridor	Unknown	No access to this water body. Water body is on the south side of Fillingham Lane, for which this part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Due to the proximity of this water body from the Scheme (nearly 100m), Great Crested Newt would not be impacted upon by any such minor works, even if present. Therefore, this water body is scoped out of further survey and assessment.	No
63	192m from the Cable Route Corridor	Unknown	No access to this water body. Water body is on the south side of Fillingham Lane, for which this part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Due to the proximity of this water body from the Scheme (nearly 200m), Great Crested Newt would not be impacted upon by any such minor works, even if present. Therefore, this water body is scoped out of further survey and assessment.	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
64	197m from the Cable Route Corridor	Unknown	No access to this water body. Water body is on the south side of Fillingham Lane, for which this part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Due to the proximity of this water body from the Scheme (nearly 200m), Great Crested Newt would not be impacted upon by any such minor works, even if present. Therefore, this waterbody is scoped out of further survey and assessment.	No
65	170m from the Cable Route Corridor	Unknown	No access to this water body. Water body is on the south side of Fillingham Lane, for which this part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Due to the proximity of this water body from the Scheme (>100m), Great Crested Newt would not be impacted upon by any such minor works, even if present. Therefore, this waterbody is scoped out of further survey and assessment.	No
66	138m from the Cable Route Corridor	Unknown	No access to this water body. Water body is on the south side of Fillingham Lane, for which this part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Due to the proximity of this water body from the Scheme (>100m), Great Crested Newt would not be impacted upon by any such minor works, even if present. Therefore, this waterbody is scoped out of further survey and assessment.	No
69	235m from the Cable Route Corridor	Unknown	No access to this water body. Furthermore, the distance between the Scheme and this water body (>200m) and the intensively managed	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
			arable habitats that separate the Scheme from the water body (that would act as a barrier to restrict Great Crested Newt dispersal to the Scheme, if present) indicate that this water body can be scoped out of requiring further survey and assessment.	
77	223m from the Cable Route Corridor	Unknown	No access to this water body. Furthermore, the distance between the Scheme and this water body (>200m) and the intensively managed arable habitats that separate the Scheme from the water body (that would act as a barrier to restrict Great Crested Newt dispersal to the Scheme, if present) indicate that this water body can be scoped out of requiring further survey and assessment.	No
82	166m from the Cable Route Corridor	Unknown	No access to this water body. Scoped out during desk study, of requiring any further assessment or survey, due to the distance between this water body and the Scheme (>100m from the Scheme) and the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt, even if present, will not occur.	No
■	187m from the Cable Route Corridor	Likely Present	No access to this water body. Great Crested Newt likely to be present in this water body, identified through data received as part of the desk study. Whilst no field surveys have been undertaken on this water body to verify, the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt will not occur.	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
97	20m from the Cable Route Corridor	Absent	Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No
98	Within the Cable Route Corridor	Likely Absent	This water body was surveyed for the Gate Burton Energy Park and was considered unlikely to ever hold water outside of winter months and therefore the likelihood of Great Crested Newt being present was low. Furthermore, there are no records of Great Crested Newt in nearby water bodies (as confirmed through the data search and eDNA laboratory analysis of nearby ponds).	No
100	124m from the Cable Route Corridor	Absent	Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No
101	153m from the Cable Route Corridor	Absent	Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No
102	82m from the Cable Route Corridor	Absent	Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No
█	122m from the Cable Route Corridor	Likely Present	No access to this water body. Great Crested Newt likely to be present in this water body, identified through data received as part of the desk study. Whilst no field surveys have been undertaken on this water body to verify, the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt will not occur.	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
█	118m from the Cable Route Corridor	Likely Present	No access to this water body. Great Crested Newt likely to be present in this water body, identified through data received as part of the desk study. Whilst no field surveys have been undertaken on this water body to verify, the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt will not occur.	No
108	119m from the Cable Route Corridor	Likely Absent	A review of aerial imagery indicates that this water body no longer exists, due to the presence of dense scrub. Whilst no field surveys have been undertaken on this water body to verify, the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt (even if present) will not occur.	No
111	12m from the Cable Route Corridor	Unknown	No access to this water body. This water body is 12m from the Cable Route Corridor and the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt (even if present) will not occur.	No
112	212m from the Cable Route Corridor	Unknown	No access to this water body. This water body is 212m from the Cable Route Corridor and the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt (even if present) will not occur.	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
█	123m from the Cable Route Corridor	Likely Present	No access to this water body. Great Crested Newt likely to be present in this water body, identified through data received as part of the desk study. Whilst no field surveys have been undertaken on this water body to verify, the closest part of the Scheme would be utilised for access only, with very limited and minor vegetation removal (if required) to facilitate access vehicles during construction. Therefore, any impacts from the Scheme on Great Crested Newt will not occur.	No
118	Adjacent to the Cable Route Corridor	Absent	No access to this water body. Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No
121	Within the Cable Route Corridor	Absent	Not considered a water body as this area is filled with <i>Phragmites</i> and a base of gravel at approximately 1m depth. Therefore, unlikely to support Great Crested Newt.	No
120	229m from the Cable Route Corridor	Absent	Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No
122	114m from the Cable Route Corridor	Likely Absent	Dataset supplied to the Applicant from the Gate Burton Energy Park indicated that the HSI of this water body was 'poor' (pond dry at the time of survey (in 2022), heavily shaded and little to no macrophytes, therefore this water body is unlikely to support Great Crested Newt.	No
123	22 m from the Cable Route Corridor	Likely Absent	Dataset supplied to the Applicant from the Gate Burton Energy Park indicated that the HSI of this water body was 'poor' (pond dry at the time of survey, with likely poor water quality (based on similar ponds)	No

Water body number	Distance from Order limits	Great Crested Newt Status?	Supporting Comments	Potential to be Impacted by the Scheme?
			and poor terrestrial habitat, therefore this water body is unlikely to support Great Crested Newt.	
█	79 m from the Cable Route Corridor	Present	Great Crested Newt present, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	Yes
125	7 m from the Cable Route Corridor	Absent	Great Crested Newt absent, as confirmed through eDNA laboratory analysis undertaken for the Gate Burton Energy Park and supplied to the Applicant as part of the collaborative dataset.	No

6. Conclusion

- 6.1.1 The primary purpose of this report is to provide an assessment of the presence or absence of Great Crested Newt and their biodiversity importance within the Zol to inform **Chapter 9: Ecology and Nature Conservation** of the ES [EN010142/APP/6.1]. This chapter includes an assessment of potential impacts (considering embedded mitigation), any additional mitigation and residual effects.
- 6.1.2 The assessment for Great Crested Newt presence or absence identified this species is present within the Principal Site (water body 7, see **Figure 9-5-2**); within the Cable Route Corridor (water body 52, see **Figure 9-5-2**); and in two water bodies outside of the Order limits (water bodies 26 and 124, see **Figure 9-5-2**).
- 6.1.3 Furthermore, desk study records indicate the presence of Great Crested Newt in water bodies to the east of the Cable Route Corridor around Cottam (see **Figure 9-5-2**), although no impacts upon this species are predicted in this area, based upon Scheme proposals (e.g. no impacts on aquatic habitats, use of existing access roads for construction-related traffic and limited or no clearance of vegetation).
- 6.1.4 Notwithstanding the international legislation that protects the species, due to confirmed presence within four surveyed water bodies (from 112 water bodies assessed) within 500m of the Order limits (confirmed through eDNA laboratory analysis) and the presence of Great Crested Newt in the wider landscape (confirmed through desk study records or data received from neighbouring and overlapping schemes), a Great Crested Newt population of only Local Importance is considered to be present within the Zol.
- 6.1.5 In recognition of the presence of Great Crested Newt within the Zol, mitigation will be implemented, formalised through a Construction and Environment Management Plan (CEMP) to:
- a. ensure compliance with relevant legislation; and
 - b. avoid impacts that would give rise to a potential “significant effect”, therefore contrary to planning policy and biodiversity obligations of the NERC Act (Ref 8).

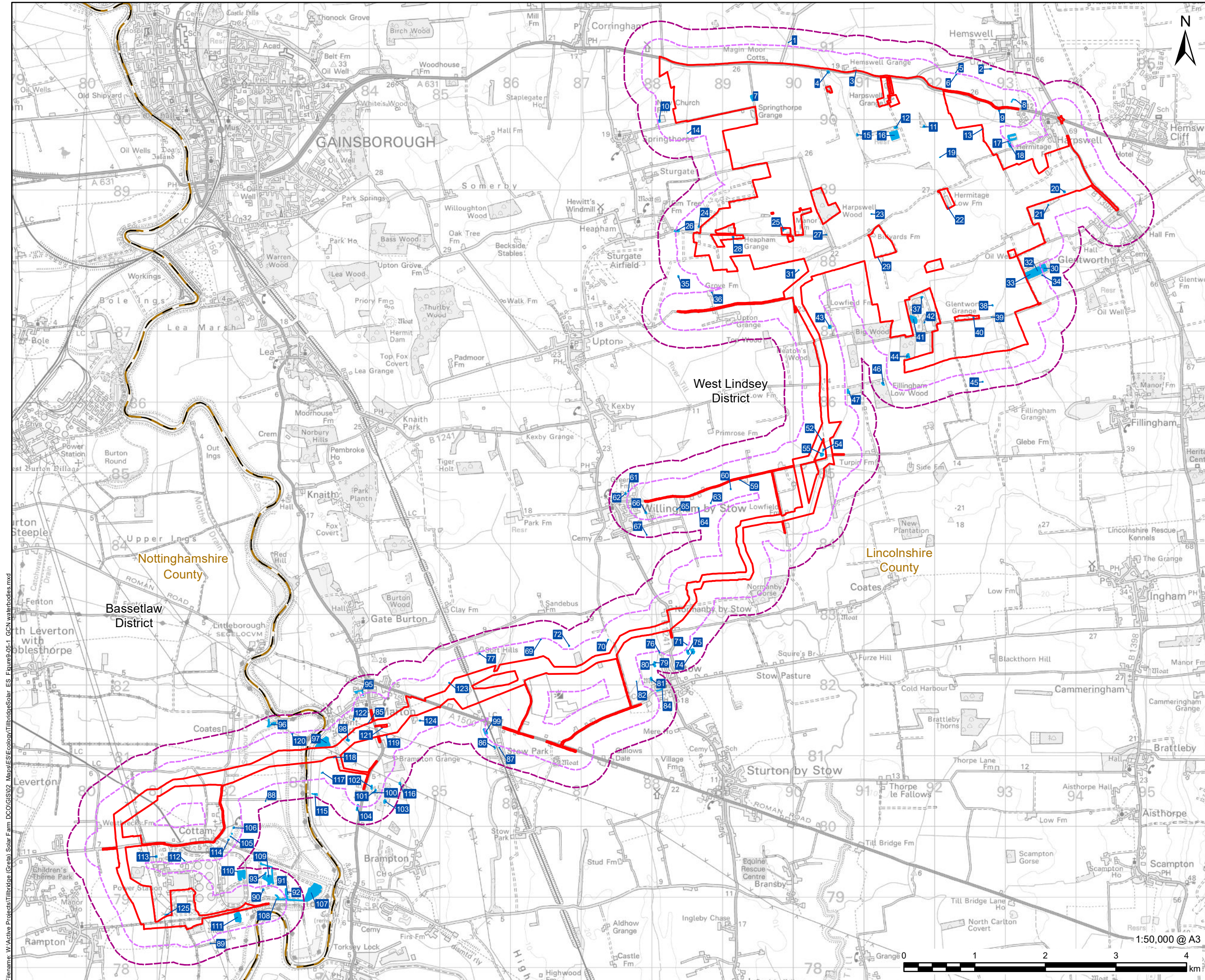
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[REDACTED]
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Annex A Figures

Figure 9-5-1 Water bodies within 500m of the Order limits



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- LEGEND**
- Order Limits
 - County Boundary
 - District Boundary
 - Study Area
 - 250m Buffer
 - 500m Buffer
 - ➔ Waterbodies within 500m of Order Limits

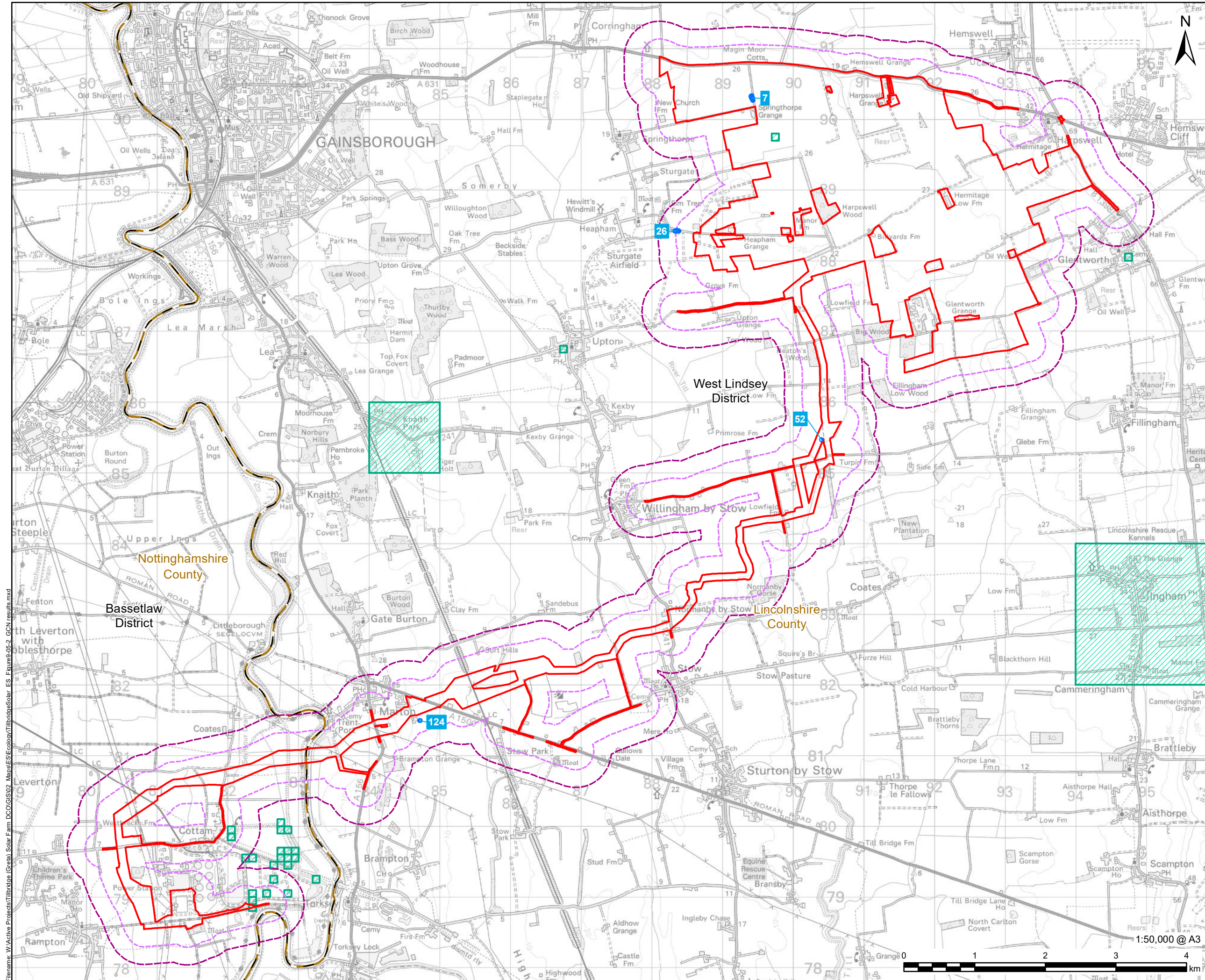
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ISSUE PURPOSE
DCO Submission
PROJECT NUMBER
60677969
FIGURE TITLE
Water Bodies within 500m of Order Limits

FIGURE NUMBER
Figure 9-5-1

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Figure 9-5-2 Water bodies with presence of Great Crested Newt within 500m of the Order limits



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- LEGEND**
- Order Limits
 - County Boundary
 - District Boundary
 - Study Area**
 - 250m Buffer
 - 500m Buffer
 - Waterbodies with Presence of Great Crested Newts within 500m of Order Limits
 - GCN Presence from Biological Record Centres

NOTES
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ISSUE PURPOSE
DCO Submission

PROJECT NUMBER
60677969

FIGURE TITLE
Water Bodies with Presence of Great Crested Newts within 500m of Order Limits

FIGURE NUMBER
Figure 9-5-2

Annex B HSI Scores

Survey data for Great Crested Newt HSI assessment for all surveyed water bodies

Water body reference (See Figure 9-5-1)	Pond Area (m2)	Pond Drying	Quality	Shade (%)	Fowl	Fish	Pond Count	Terrestrial Habitat	Macrophytes	HSI Score
4	350	Sometimes	Good	80	Absent	Absent	0.32	Poor	30	0.64
7	1150	Never	Good	30	Absent	Possible	0	Good	30	0.71
9	185	Sometimes	Poor	100	Absent	Absent	0.6	Poor	<5	<0.50
10	850	Never	Moderate	10	Minor	Minor	0.6	Poor	5	0.61
11	350	Never	Poor	10	Absent	Absent	1.59	Good	5	0.73
12	750	Never	Poor	40	Minor	Absent	0.96	Good	5	0.71
13	50	Annually	Poor	10	Absent	Absent	1.27	Moderate	5	<0.50
14	290	Annually	Poor	100	Absent	Absent	0.63	Poor	0	<0.50
15	430	Rarely	Moderate	70	Minor	Possible	1.27	Good	0	0.79
16	11053	Annually	Bad	0	Minor	Absent	0.95	Moderate	0	<0.50
20	400	Sometimes	Good	30	Absent	Absent	0.32	Good	0	0.72

Water body reference (See Figure 9-5-1)	Pond Area (m2)	Pond Drying	Quality	Shade (%)	Fowl	Fish	Pond Count	Terrestrial Habitat	Macrophytes	HSI Score
22	290	Never	Moderate	10	Absent	Possible	0.1	Good	0	0.61
23	75	Rarely	Good	40	Absent	Absent	0.63	Bad	10	<0.50
24	600	Rarely	Poor	80	Absent	Absent	4.4	Good	5	0.75
26	1090	Never	Moderate	50	Minor	Possible	4.4	Poor	25	0.73
27	50	Sometimes	Poor	70	Absent	Absent	1	Moderate	0	0.53
28	310	Never	Good	0	Minor	Minor	1.5	Poor	80	0.68
29	100	Annually	Moderate	80	Absent	Absent	1.27	Moderate	0	<0.50
32	9217	Never	Good	5%	Major	Minor	0.96	Moderate	20%	0.50
33	8391	Never	Good	5%	Major	Minor	0.96	Moderate	20%	0.50
37	280	Never	Poor	70	Minor	Absent	2.2	Good	90	0.75
38	150	Sometimes	Poor	30	Absent	Absent	1.91	Moderate	5	0.59
39	<50	Annually	Bad	0	Absent	Absent	2.23	Moderate	0	<0.50
40	230	Never	Good	70	Absent	Possible	1.9	Good	5	0.69
41	6621	Never	Moderate	10	Minor	Major	2.2	Good	15	0.52

Water body reference (See Figure 9-5-1)	Pond Area (m2)	Pond Drying	Quality	Shade (%)	Fowl	Fish	Pond Count	Terrestrial Habitat	Macrophytes	HSI Score
42	65	Never	Moderate	30	Minor	Absent	2.5	Moderate	50	0.57
43	1130	Never	Moderate	25	Major	Major	0.3	Good	<5	<0.50
52	125	Rarely	Good	0	Absent	Absent	1.5	Good	40	0.79
54	260	Never	Good	10	Minor	Possible	1.5	Good	0	0.71
55	120	Never	Good	10	Absent	Minor	2.2	Good	<5	0.76

HSI Score colour coding – Dark green: Excellent likelihood of Great Crested Newt present; Light green – Good likelihood of Great Crested Newt present; Yellow – Average likelihood of Great Crested Newt present; Orange – Below average likelihood of Great Crested Newt present; and Red – Poor likelihood of Great Crested Newt present

Annex C eDNA Results

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: 30/06/2022
Date Reported: 13/07/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1446	PD23 Till Bridge	SK933018782 8	Pass	Pass	Pass	Negative	0
3239	PD17 Till Bridge	SK921818874 6	Pass	Pass	Pass	Negative	0
3241	PD24 Till Bridge	SK934378779 9	Pass	Pass	Pass	Negative	0
3245	PD21 Till Bridge	SK944368741 7	Pass	Pass	Pass	Negative	0
3247	PD28 Till Bridge	SK946658603 7	Pass	Pass	Pass	Negative	0
7013	PD25 Till Bridge	SK935408785 2	Pass	Pass	Pass	Negative	0
7014	PD15 Till Bridge		Pass	Pass	Pass	Negative	0
7015	PD08 Till Bridge	SK909058977 0	Pass	Pass	Pass	Negative	0
7016	PD12 Till Bridge	SK918428989 7	Pass	Pass	Pass	Negative	0
7017	PD39 Till Bridge	SK943448465 2	Pass	Pass	Pass	Negative	0
7018	PD20 Till Bridge	SK942888781 2	Pass	Pass	Pass	Negative	0
7020	PD18 Till Bridge	SK938418896 7	Pass	Pass	Pass	Negative	0

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: 05/06/2023
Date Reported: 12/06/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
3538	Tillbridge, Lines - Pond 23 (Field 68)	491110 388668	Pass	Pass	Pass	Negative	0

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: 05/06/2023
Date Reported: 12/06/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
4066	Tillbridge Solar - Pond 29 (Next to Field 54)	491198 388055	Pass	Pass	Pass	Negative	0
4067	Tillbridge Solar - Pond 38	492827 387376	Pass	Pass	Pass	Negative	0
4068	Tillbridge Solar - Pond 4 (Field 55)	490495 390673	Pass	Pass	Pass	Negative	0
4069	Tillbridge Solar - Pond 27 (Field 47)	490470 388373	Pass	Pass	Pass	Negative	0
4070	Tillbridge Solar - Pond 12 (Fields	491450 389890	Pass	Pass	Pass	Negative	0

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: 29/06/2023
Date Reported: 06/07/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
5831	Tillbridge - 9	-	Pass	Pass	Pass	Negative	0
5835	Tillbridge - 40	-	Pass	Pass	Pass	Negative	0
5836	Tillbridge - 37	-	Pass	Pass	Pass	Negative	0
5837	Tillbridge - 42	-	Pass	Pass	Pass	Negative	0
5838	Tillbridge - 24	-	Pass	Pass	Pass	Negative	0
5839	Tillbridge - 41	-	Pass	Pass	Pass	Negative	0
5840	Tillbridge - 28	-	Pass	Pass	Pass	Negative	0
5842	Tillbridge - 10	-	Pass	Pass	Pass	Negative	0

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: 10/07/2023
Date Reported: 20/07/2023
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
5821	55	-	Pass	Pass	Pass	Negative	0
5822	Tillbridge 54	-	Pass	Pass	Pass	Negative	0
5834	Tillbridge 43	-	Pass	Pass	Pass	Negative	0