

West Burton Solar Project

Environmental Statement Appendix 9.7: Great Crested Newt Survey Report Revision A

Prepared by: Clarkson & Woods
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Schedule of Changes

Figure Reference	Page	Description of Changes	Reason for Revision
Figure number 8	28	eDNA results for WB3-30 changed to DNA positive	Updated results from GCN Surveys undertaken in July 2023
Figure number 9	29	eDNA results for WBCR3 – WBCR10 changed to DNA negative	Updated results from GCN Surveys undertaken in July 2023

All other changes made to text and to tables are shown as tracked changes.

GREAT CRESTED NEWT SURVEY REPORT
WEST BURTON SOLAR PROJECT

carried out by



commissioned by

WEST BURTON SOLAR PROJECT LTD.

AUGUST 2023



GREAT CRESTED NEWT SURVEY REPORT

WEST BURTON SOLAR PROJECT

CONTENTS

1	INTRODUCTION.....	5
1.2	Aims and Limitations	5
1.3	Description of the Survey Area	5
1.4	Quality Assurance	6
1.5	Assessment Scope / Consultation	6
2	METHODOLOGY	8
2.1	Desk Study.....	8
2.2	Field Surveys.....	8
3	RESULTS.....	19
3.1	Desk Study Information.....	19
3.2	Field Survey Results.....	19
4	ECOLOGICAL EVALUATION.....	31
4.2	Potential Sources of Impact	31
APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION FOR GREAT CRESTED NEWTS		33

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The information, data and advice which has been prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report and its contents remain the property of Clarkson and Woods Ltd. until payment has been made in full.



1 INTRODUCTION

- 1.1.1 Clarkson and Woods Ltd. was commissioned by West Burton Solar Project Ltd to carry out great crested newt (GCN) presence/likely absence surveys for the West Burton Solar Project. The Scheme broadly comprised three Sites: West Burton (WB) 1, WB2 and WB3, situated in the West Lindsey District of Central Lincolnshire. These are referred to hereafter as 'the Sites', or individually as given above. In addition, the route of the below-ground electrical cable which will connect the Sites to one another and to the National Grid point of connection was included within the survey scope. Proposals comprise the development of an NSIP-scale solar park, containing solar energy production and storage components.
- 1.1.2 Environmental DNA surveys and Habitat Suitability Index assessments were carried out on waterbodies within and surrounding (up to approximately 250m from the Sites' red line boundaries) between 28th April 2021 and 30th June 2023.
- 1.1.3 Surveys followed a scope agreed through consultation with Natural England via a Discretionary Advice Service dialogue, as well as Lincolnshire Wildlife Trust, and followed survey methodology aligned with the Great Crested Newt Mitigation Guidelines¹.
- 1.1.4 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre in order to augment their records for the area. This is in line with the CIEEM code of professional conduct².

1.2 Aims and Limitations

- 1.2.1 Surveys for GCN were undertaken to establish species presence or absence to ensure that the works remain in line with relevant legislation, and to inform an appropriate approach to mitigation during the construction and operational phases of the Scheme.
- 1.2.2 This report details the methods and results of the surveys and provides an overview of the potential impacts on GCN that could result from the proposals, to inform the layout of the Scheme.
- 1.2.3 This information will be used within the eventual West Burton Solar Project Environmental Statement to inform the ecological evaluation of the habitats used by GCN and to characterise the impacts on them considered likely to result from the Scheme.

1.3 Description of the Survey Area

The Sites

- 1.3.1 The Sites are spread over an approximately 8km area between the settlements of Broxholme (WB1), Ingleby (WB2) and Brampton (WB3), as shown in Figure 1.
- 1.3.2 The Sites all predominantly comprise large, open and generally flat arable fields characterised by winter-sown cereal crops and fields of permanent pasture (notably in WB2), bounded by a network of managed hedgerows and ditches with narrow field margins, where present.
- 1.3.3 These Sites' habitats are very much typical of the surrounding landscape, which is dominated by arable farmland interspersed with small settlements and farmsteads linked by minor and single-track roads. The landscape surrounding WB1–3 is mostly flat, but to the east of the Sites at the 'Lincoln Cliff' (3km east of WB1), lies a significant north-south escarpment. The River Trent is located west of the Sites and is located 1.4km from WB3 at its closest point, as it flows north towards the Humber Estuary.
- 1.3.4 Whilst no woodland is present within the Sites, several small stands of managed and unmanaged woodland are present adjacent to the Sites and in the surrounding landscape, often the result of historical game management.

¹ Great Crested Newt Mitigation Guidelines. English Nature. 2001.

² Code of Professional Conduct. CIEEM, January 2019.



- 1.3.5 Standing water is generally absent from the Sites and the surroundings (with the exception of WB3) following the in-filling of traditional livestock drinking ponds, save for a very small number of agricultural pools/pits, decoy ponds or managed recreational fisheries.
- 1.3.6 Flowing water occurs occasionally in proximity to the Sites, with the River Till running adjacent to the eastern boundary of West Burton 2 and 0.4km west of West Burton 1, and the River Trent running 1.4km west of West Burton 3. Various feeder streams for the above watercourses are managed as agricultural drainage ditches within or adjacent to the Sites, which regularly dry out.

Cable Route Survey Area

- 1.3.7 As shown on Figure 1, the proposed cable route will run a length of approximately 15km from West Burton 1 in the east to West Burton Power Station in the west, approximately 1.3km west of the River Trent. It will connect up each of the Sites to one another and carry power to West Burton Power Station as the National Grid point of connection.
- 1.3.8 For the GCN surveys, a study area for the cable route was determined, to comprise a c.100m swathe of land along the approximate preferred route of the cable. This is referred to as the West Burton Cable Route (WBCR).
- 1.3.9 At the time of creation of the cable route survey area for the purposes of this survey, the exact final cable route was not decided, but was agreed that it would be sited within this swathe of land following completion of all environmental assessments, therefore the surveys conducted represent a wider study area than the eventual Order Limits.
- 1.3.10 In order to collect baseline information on the presence or otherwise of GCN within and in proximity of the WBCR, a 250m search buffer was determined to be appropriate for the location of candidate ponds for further survey.

1.4 Quality Assurance

- 1.4.1 All ecologists employed directly by Clarkson and Woods are members or pending members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct³ when undertaking ecological work.
- 1.4.2 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS)⁴.
- 1.4.3 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*⁵. It has been prepared by an experienced ecologist who is a member of CIEEM. The report has also been subject to a two-stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

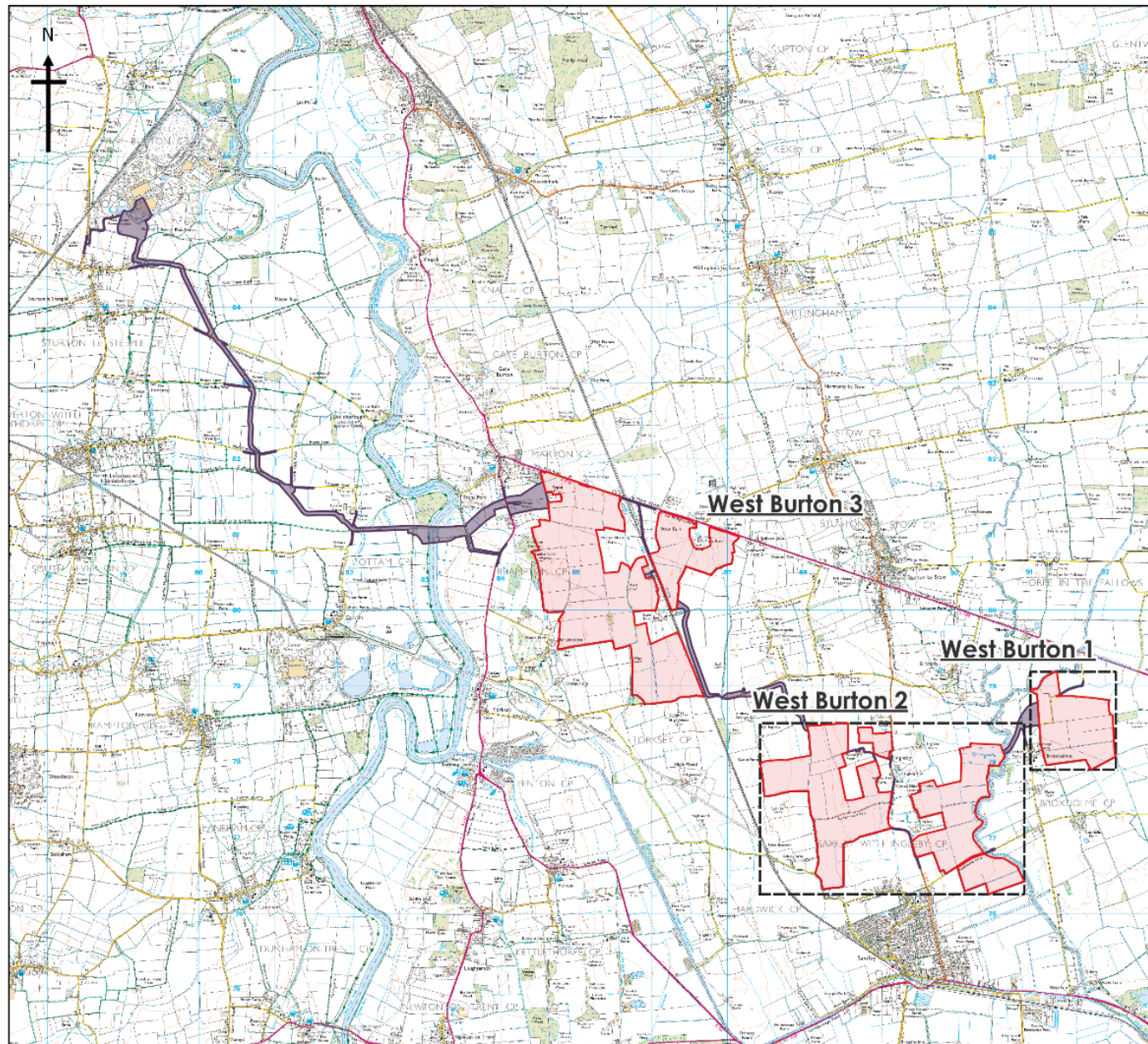
1.5 Assessment Scope / Consultation

- 1.5.1 The following statutory bodies were consulted to agree the appropriate scope of GCN surveys for the project:
- **Natural England** – Advisor assigned at onset of consultation. Paid-for Discretionary Advice Service available outside of statutory consultation process.
 - **Lincolnshire Wildlife Trust** – Principal adviser to West Lindsey District Council on ecological matters.
- 1.5.2 No concerns were raised by these statutory bodies regarding the scope of surveys discussed.

³ CIEEM (February 2022). *Code of Professional Conduct*. <https://cieem.net/resource/code-of-professional-conduct/>

⁴ CIEEM (2013). *Competencies for Species Survey (CSS)*. www.cieem.net/competencies-for-species-survey-css

⁵ The British Standards Institution (2013). *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.



Key:

- Scheme boundary
- Cable route corridor
- Site bounding box

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
West Burton Solar Project

Title
Proposed development sites and cable corridors

Figure number Date
1 **09/01/2023**

Scale

Figure 1. Proposed Development Sites and Cable Route



2 METHODOLOGY

2.1 Desk Study

- 2.1.1 The Lincolnshire Environmental Records Centre (LERC) and Nottinghamshire Biological and Geological Record Centre (NBGRC) were consulted for records of amphibians, specifically GCN within 1km of the Sites.
- 2.1.2 Clarkson and Woods' own database of ecological records derived from past survey work was also consulted for further locally-relevant data.
- 2.1.3 The Natural England/DEFRA web-based MAGIC map database was also consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning bats within 1km of the Site.
- 2.1.4 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

2.2 Field Surveys

Survey Area Rationale

- 2.2.1 In determining an appropriate Survey Area radius beyond the red line boundary of the Sites and cable route, a rationale was applied in consultation with Natural England. In general, development proposals which have the potential to significantly harm GCN or their habitats (and so may lead to a licence application) should be underpinned by survey evidence derived from either 250m or 500m beyond the site boundaries. The following factors were considered in order to determine the appropriate survey buffer for the Scheme:
- **Habitat Suitability, Connectivity and Land Management:** Habitats within the Sites and local landscape are almost uniformly of low suitability, being dominated by arable farmland with limited pasture and woodland blocks. Very few or no areas of wetland or waterbodies exist beyond mostly dry ditches and the River Till corridor. Habitat connectivity is limited to narrow uncultivated field margins, managed hedgerows and woodland edges and represents a network of poor interconnectivity given the ubiquitously large field sizes and presence of minor and A-roads. The dominant arable land management is not generally conducive to thriving amphibian populations owing to the annual cultivation regime, application of sprays and the in-filling/drainage of waterbodies or clearance of stands of vegetation, together degrading the ability for GCN to disperse within this landscape.
 - **Density of Ponds and GCN Records in Lincolnshire:** From a review of OS mapping and Desk Study data it is evident that, while GCN are present across Lincolnshire, they tend to be recorded at a relatively low density. While this may be hampered by under-recording considering the arable-dominated landscape, it is considered to likely be a relatively fair representation of the fragmented condition of the pond network and GCN population in this part of the County. A large GCN population local to the Scheme was therefore not considered likely to occur. Furthermore, due to the land management types given above, the pond network is considered to be sporadic. One exception was in relation to West Burton 2, where there was a particular concentration of ponds just to the west of the Site. However, an examination of maps indicated that the 250m buffer zone captured this cluster in its entirety, with a typically low density being present beyond.
 - **Characteristics of Likely Development Impacts:** The installation of a ground mounted solar array will result in temporary impacts to the fields within the Sites, including the tracking of machinery, laying of cabling and the insertion of piled frameworks onto which the panels will be mounted. Grassland and other natural habitats will be created and managed beneath the arrays themselves. Other structures installed will include electrical inverter cabinets, minor electrical substations, perimeter fencing and access trackways. A development free buffer from all field boundaries will be observed within the Scheme design. This will mean that hedgerows, woodland, waterbodies, watercourses and uncultivated margins will be preserved throughout the development and enhanced wherever possible.
- 2.2.2 Following consideration of the above factors, a 250m radius was considered an appropriate and proportionate distance within which to identify and survey waterbodies for GCN impacts associated with the Scheme. Consequently, the Survey Area incorporated all land at the Sites and the cable routes, as well as an additional 250m radius from these. In some cases, nearby and easily accessible ponds on connected land beyond 250m were also surveyed, usually as permission was forthcoming and under the same ownership



of other ponds within 250m. This was seen as a straightforward way to provide supplementary, though not essential, data.

- 2.2.3 GCN are associated with, and most frequently use, suitable habitats within close proximity to their breeding ponds (or networks thereof). GCN may be found up to 250m from ponds (and up to 500m from ponds in exceptional circumstances⁶); however, studies by Jehle⁷ and Cresswell & Whitworth⁸ have demonstrated that the habitat within 50m of the pond is the most important to GCN and supports the majority of a population within its terrestrial phase. Based on Natural England's GCN mitigation guidelines, habitat within 50m is noted to be 'immediate' or 'core' habitat, 50 – 250m is known as intermediate habitat and >250m is termed 'distant' habitat.
- 2.2.4 Presence of GCN in ponds >250m are not considered to be relevant to the temporary and low impacts associated with the proposals. Any records or presence of GCN beyond 250m of the Sites would not impact the proposals or mitigation due to the negligible impact on any newts present, lack of habitat provided by the Site and lack of connective habitat the Site may otherwise provide. This approach is also supported by and forms the basis of GCN district licensing schemes elsewhere in the country administered by Natural England.

Identification of Waterbodies and Access

- 2.2.5 Candidate waterbodies were identified through consultation of Ordnance Survey 1:25,000 mapping, and the OS MasterMap 'Inland water' dataset, as well as cross-checking with Google Earth aerial imagery, where appropriate.
- 2.2.6 Land agents, Savills, were commissioned to undertake identification of landowners and correspondence with them in writing in advance of the survey periods to ensure sufficient notice was given to landowners and to ensure an adequate level of effort was expended in attempting to gain access permissions. Follow-up telephone or email contact, and/or site visits were also undertaken where necessary.
- 2.2.7 All waterbodies within the Sites and approximately a 250m radius of the Site boundaries were accessed and surveyed across the 2021 and 2022 survey seasons, where access permission was granted. Of the 64 waterbodies identified, 55 were granted access for GCN survey, as shown in Figures 2, 3 & 4 overleaf and in Table 1.

Table 1: Waterbodies Identified within approximately 250m of the Site

Site	Waterbody Ref	Distance / Direction from Site	Access Granted?	Waterbody Present?
West Burton 1	1	120m Southwest	Y	Y
West Burton 2	1	30m North	Y	Y
	2	7m North	Y	Y
	3	50m South	N	-
	4	110m West	Y	Y
	5	140m Northwest	Y	Y
	6	230m East	Y	Y
	7	160m East	N	-
	8	200m North	Y	Y

⁶ Great Crested Newt Mitigation Guidelines. 2001. Natural England

⁷ Jehle R (2000) The terrestrial summer habitat of radio- tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). Herpetological Journal 10: 137-142

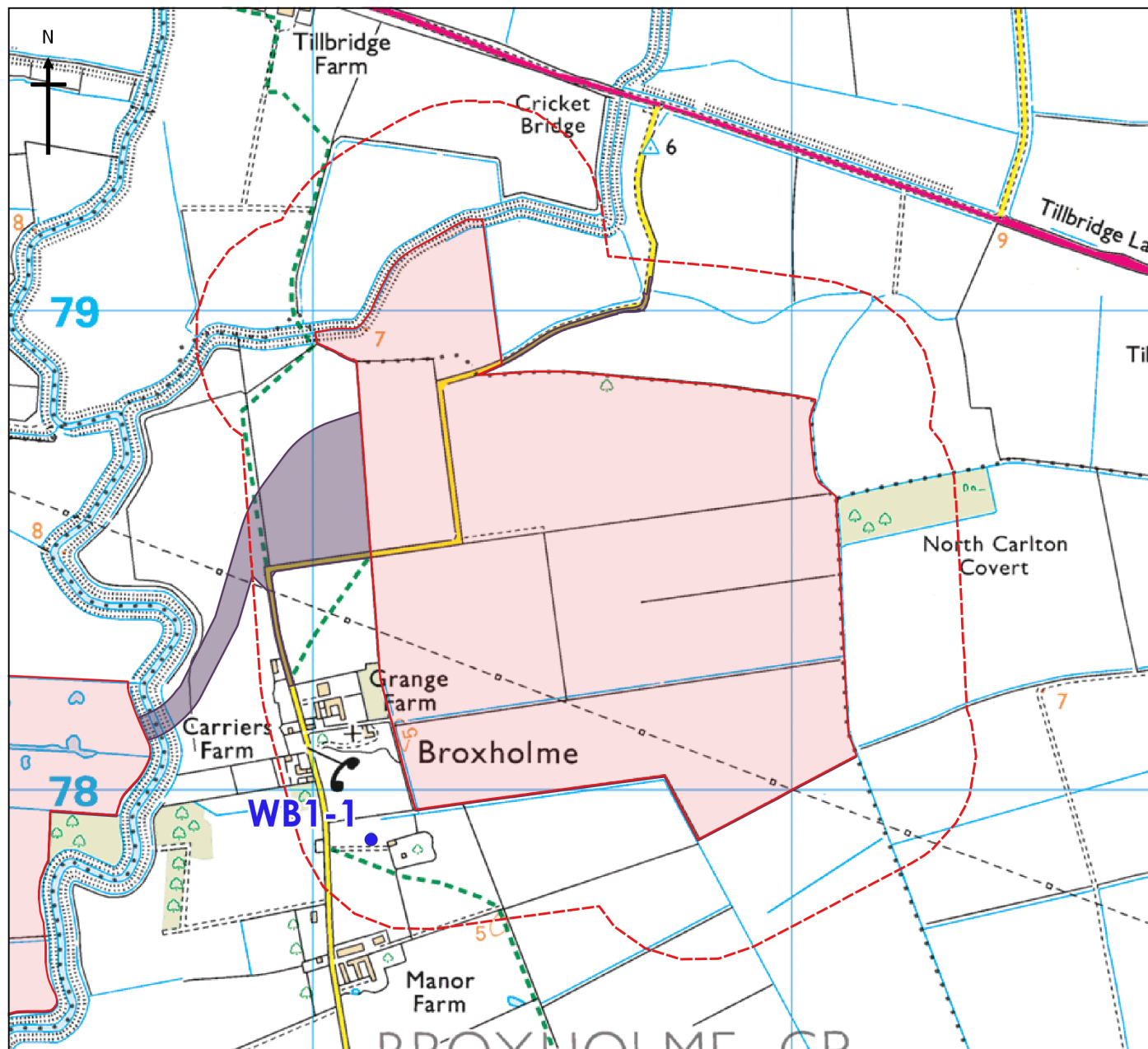
⁸ Cresswell W and Whitworth R (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*. English Nature Research Report 576. English Nature, Peterborough



Site	Waterbody Ref	Distance / Direction from Site	Access Granted?	Waterbody Present?
	9	Adjacent North	Y	Y
	10	360m Northeast	Y	Y
	11	15m West	Y	Y
	12	On Site	Y	Y
	13	On Site	Y	Y
	14	On Site	Y	Y
	15	On Site	Y	Y
	16	On Site	Y	Y
	17	On Site	Y	Y
	18	On Site	Y	Y
	19	On Site	Y	Y
	20	On Site	Y	Y
West Burton 3	1	265m South	Y	Y
	2	225m South	Y	Y
	3	15m South	Y	Y
	4	35m South	Y	Y
	5	15m South	Y	Y
	6	400m Southwest	Y	Y
	7	40m Southwest	N	-
	8	5m Southwest	N	-
	9	On Site	Y	Y
	10	10m South	Y	Y
	11	100m Southeast	Y	N
	12	On Site	Y	Y
	13	30m West	Y	Y
	14	50m West	Y	Y
	15	260m West	Y	Y
	16	430m West	Y	Y
	17	415m West	Y	Y



Site	Waterbody Ref	Distance / Direction from Site	Access Granted?	Waterbody Present?
	18	420m West	Y	Y
	19	50m West	Y	Y
	20	75m Northeast	N	-
	21	75m North	Y	Y
	22	110m North	Y	Y
	23	110m North	Y	Y
	24	35m North	Y	Y
	25	250m Northeast	N	-
	26	110m North	Y	Y
	27	210m West	N	-
	28	115m West	Y	Y
	29	60m West	Y	Y
	30	240m Northwest	Y	Y
	31	70m Southeast	Y	Y
West Burton Cable Route	1	220m Northwest	Y	Y
	2	45m Northwest	Y	Y
	3	135m North	Y	Y
	4	On Site	Y	Y
	5	135m North	N	-
	6	On Site	Y	Y
	7	80m North	N	-
	8	90m North	Y	Y
	9	On Site	Y	Y
	10	10m South	Y	Y
	11	140m South	Y	N
	12	300m South	Y	N



Key:

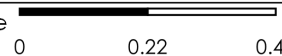
- Ponds
- Scheme boundary
- 250m boundary buffer
- Cable route corridor

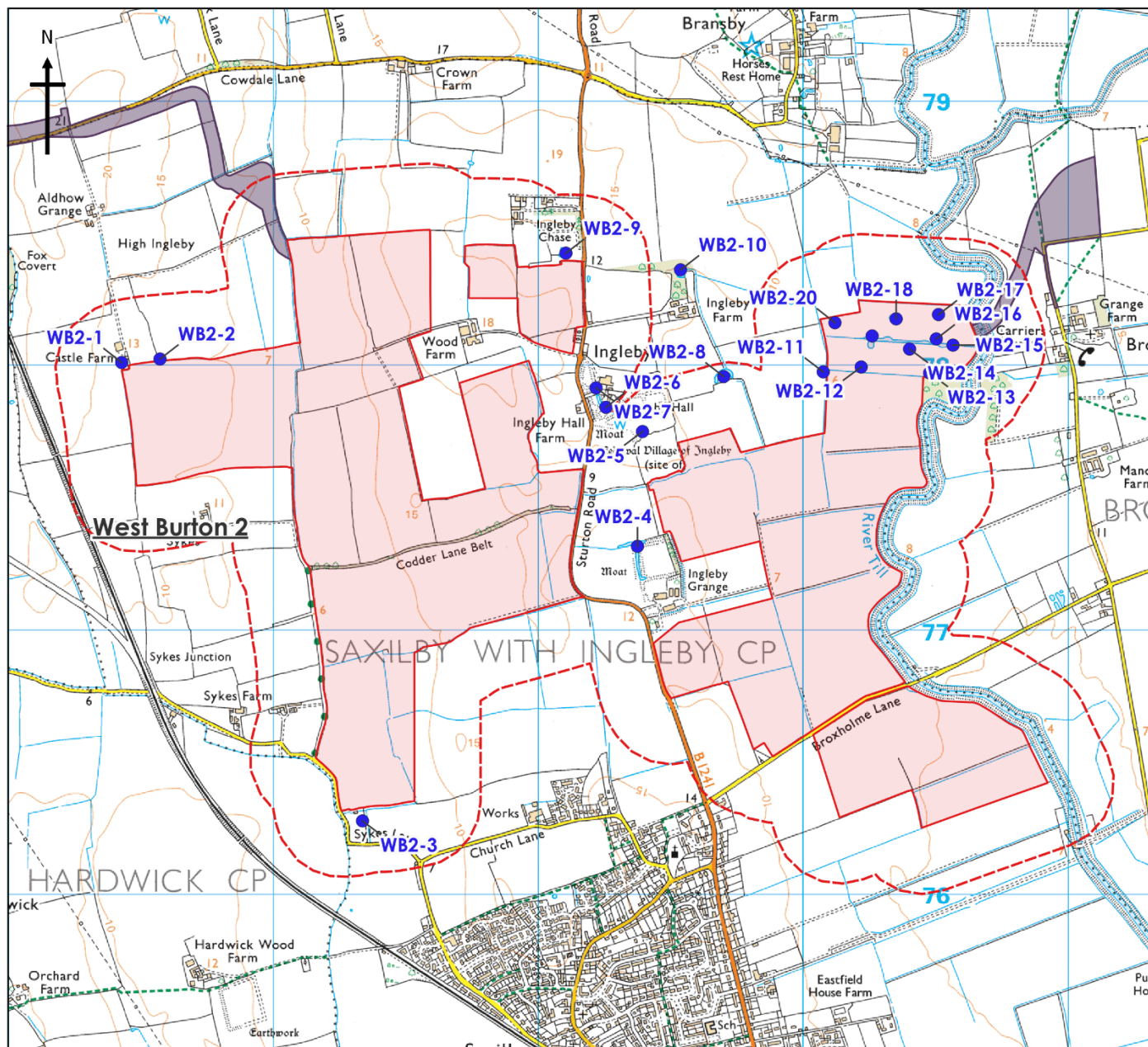


Project
West Burton Solar Project

Title
Locations of waterbodies found during search

Figure number Date
2 **09/01/2023**

Scale 



Key:

- Ponds
- Scheme boundary
- 250m boundary buffer
- Cable route corridor

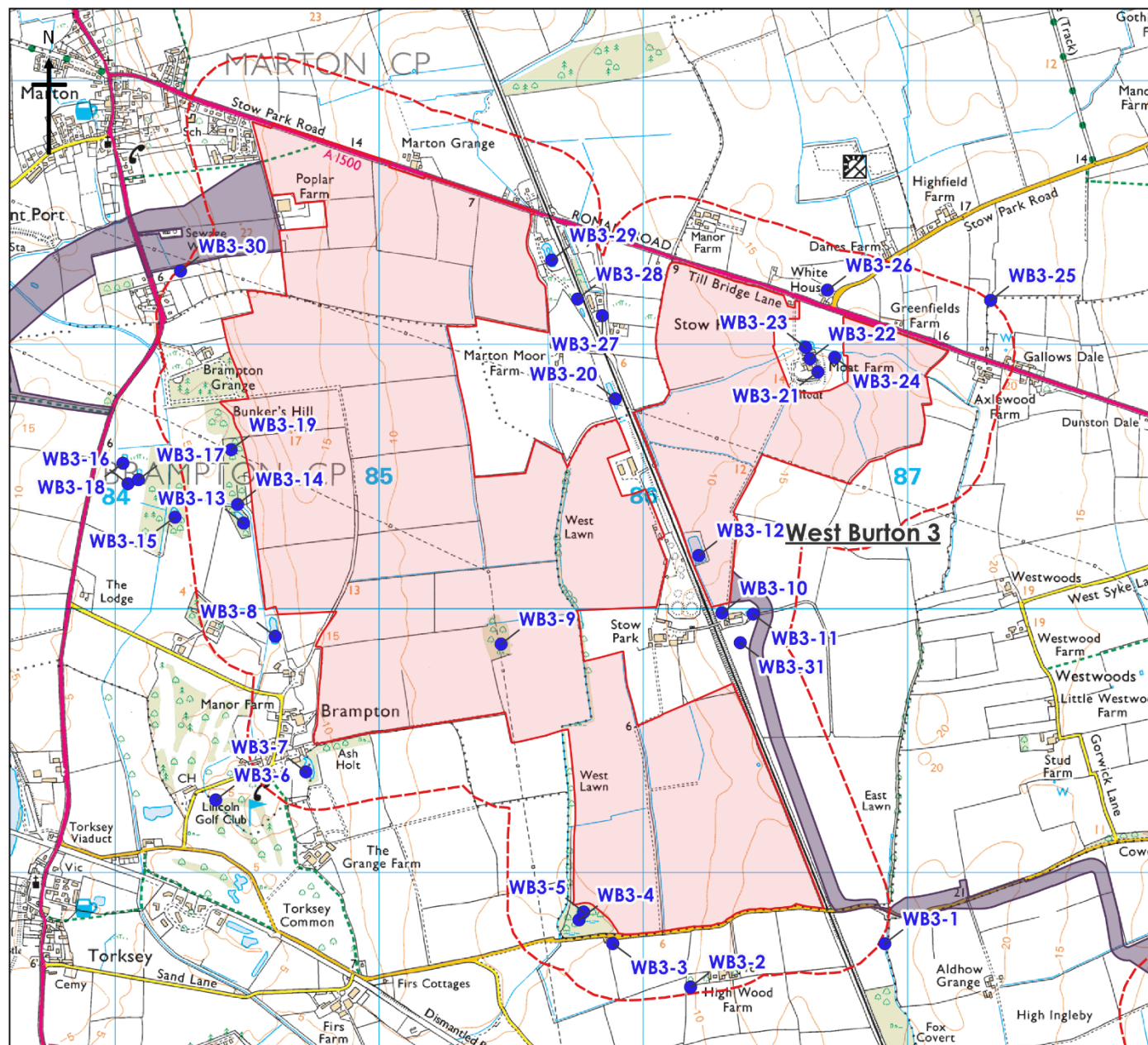


Project
West Burton Solar Project





Title
Locations of waterbodies found during search

Figure number Date
3 **16/01/2023**

Scale
0 0.4 0.8 km



Key:

-  Ponds
-  Scheme boundary
-  250m boundary buffer
-  Cable route corridor

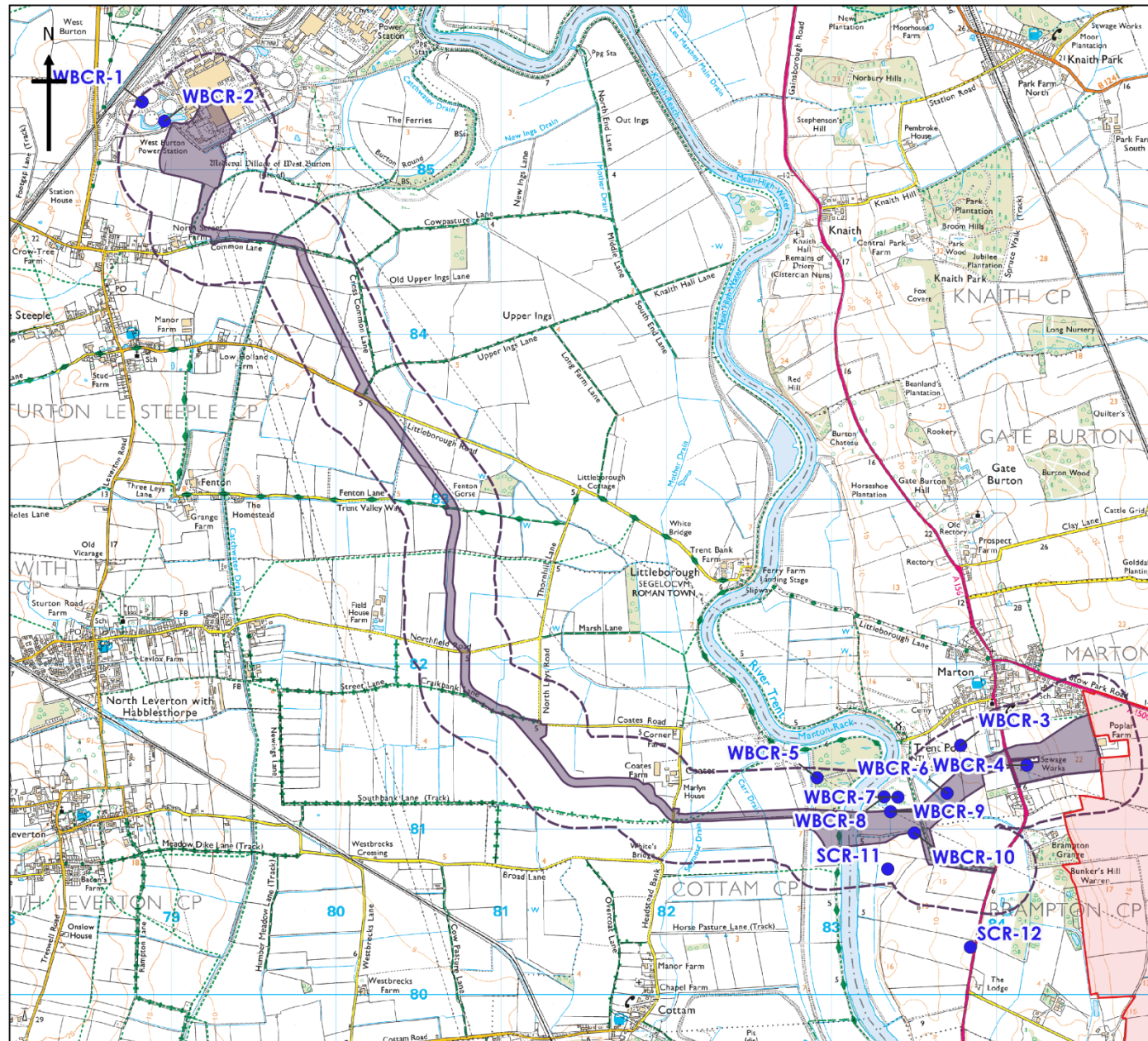


Project
West Burton Solar Project

Title
Locations of waterbodies found during search

Figure number Date
4 **18/01/2023**

Scale
0 0.4 0.8 km



Key:

- Ponds
- Scheme boundary
- Cable route corridor
- Cable route pond search buffer



Project
West Burton Solar Project

Title
Locations of waterbodies found during search

Figure number Date
5 **18/01/2023**

Scale



Personnel

2.2.8 Table 2 presents the surveyor details for the individuals associated with undertaking the GCN eDNA surveys and habitat assessments.

Table 2: Surveyor Details

Name and Relevant Qualifications	Surveyor Details including Natural England Licence #
Charlie Durigan BSc MSc	ACIEEM, 9 years' survey experience Personal survey licence (2017-28064-CLS-CLS)
Harry Fox BSc	MCIEEM, 14 years' survey experience Personal survey licence (2016-19781-CLS-CLS)
Mike Hockey BSc	MCIEEM, 8 years' survey experience Personal survey licence (2019-38987-CLS-CLS)
Mark Jermy BSc	14 year's survey experience Personal survey licence (2015-17366-CLS-CLS)
Joel Wright BSc MSc	MCIEEM, 9 year's survey experience
Adèle Remazeilles	ACIEEM, 5 years' survey experience
Rebecca Sandey MSc	ACIEEM, 3 years' survey experience
James Latham	MCIEEM, 18 years' survey experience
Sarah Richards BSc MSc	QCIEEM, 2 years' survey experience
Molly Brown BSc MSc	StuCIEEM, 1 year's survey experience
Indie England BSc	QCIEEM, 1 year's survey experience
Matt Jones MSc BSc	2 year's survey experience
Fabian Bowes-Richley MSc BSc	1 year's survey experience
Bryony Blades MSc	1 year's survey experience

HSI and eDNA Survey Methods

2.2.9 Where suitable waterbodies were identified on accessible land a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al⁹. HSI scores give a relative indication of the likelihood that a waterbody would support breeding GCN. Factors which increase these scores include the presence of other potentially suitable waterbodies nearby, water quality, waterbody size, absence of fish/waterfowl, vegetation cover and shading. Full HSI results for each waterbody are provided in Appendix A.

2.2.10 All survey visits undertaken during 2021 were limited to the waterbodies on the Sites (i.e. within the red line boundary) and those outside of the development boundary, but within the same ownership. Survey visits undertaken in 2022 focused on those waterbodies on third party land within 250m of the Scheme and within

⁹ Oldham, R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.



the WBCR search area. Attempts were also made to resurvey waterbodies in 2022 that had been recorded during the 2021 survey visit as *dry, but likely to hold water*.

- 2.2.11 Surveys for six ponds within the cable route corridor, for which access agreements and logistics had not previously been agreed, and of a further three ponds which were previously found to be dry, were undertaken within the 2023 survey season on 17th May.
- 2.2.12 eDNA surveys can only be undertaken where the water level is of a sufficient depth (>10cm) and the surveys must be undertaken between 15th April and 30th June, inclusive, for the result to be considered reliable. This spans the GCN breeding season and immediately after, when eDNA from the species will likely remain in the water column once the animals have left. Within this period, it is possible for waterbodies to have dried up and therefore be unsuitable for eDNA survey. Professional judgement was used, based on habitats and vegetation present, to determine the suitability for breeding GCN in any given year, and surveys were repeated wherever possible if a pond was found to be dry at the time of survey only due to weather conditions. Water samples were taken from 20 locations around each of the surveyed waterbodies following best practice as outlined in the Defra Project Report WC1067¹⁰. Care was taken to ensure that the water was not contaminated from other sources and that the sediment was not stirred up to contaminate the samples with denatured DNA from prior GCN habitation.
- 2.2.13 GCN eDNA kits were provided and water samples analysed by ADAS, an approved laboratory under the Natural England proficiency testing scheme.
- 2.2.14 Figure 3 presents the Sites along with the approximately 250m buffer within which waterbodies were assessed. Where water was present and access was consented, these waterbodies were then subject to the above detailed HSI and eDNA surveys.

eDNA Survey Limitations

- 2.2.15 False positive scores can occur due to a number of factors; including;
- Cross contamination between sites (due to equipment, clothing etc.).
 - Aquatic animals (e.g. heron, water vole) transferring newt DNA between sites (e.g. in faeces, in water trapped in fur).
 - In-flows, bringing eDNA from sites with newts into unoccupied waterbodies.
 - A laboratory false positive.
 - Historic eDNA in sediment released into the water column.
- 2.2.16 False negative scores can occur due to a number of factors; including;
- Resident very low population present.
 - Very wide, shallow drawdown zones where samples are collected, where no newt activity has occurred.
 - Presence of very densely packed aquatic vegetation in waterbody reducing sample collection/newt activity in these areas.
 - Limited access to the entire waterbody perimeter.
 - Laboratory false negatives.
- 2.2.17 Despite the above listed limitations, use of GCN eDNA survey as a survey technique method is a tried and tested method, and is approved for use by Natural England, with studies showing it can provide a more reliable result than the traditional survey techniques⁹. Furthermore, ADAS are a Natural England approved laboratory and undertake proficiency testing, consistently returning a reliable 100% score, including the 2021 and 2022 seasons. The results are therefore considered to be reliable and accurate. Furthermore, care was

¹⁰ 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.



taken to strictly follow the GCN eDNA sampling best practice measures to prevent cross-contamination, as well as biosecurity issues.

- 2.2.18 All samples were taken from sufficient water depths (i.e. >10cm), however, where water levels were noted to be close to this depth, this was noted during the survey. Where features such as in-flows into the waterbodies sampled were observed, which are not included within the HSI assessment, these were recorded during the survey and have been reported as such, so that they may be taken into account.
- 2.2.19 In some instances, an indeterminate result is returned from the eDNA analysis; this occurs where factors such as the presence of contaminants or high sediment content in the water column make DNA extraction difficult, as in the case of slurry pits, waterbodies with high waterfowl populations, or waterbodies subject to accumulated leachate or agricultural runoff. Where survey results were returned as indeterminate following survey in 2021 and HSI scores suggested that the waterbody may have some potential suitability for GCN, these were resurveyed using filter kits during the 2022 season. Filter kits allow the water sample to be taken, while removing the potential for inhibition during analysis. In this case, all waterbodies with an HSI score of "Below Average" or above were revisited, excluding those with "Poor" suitability".
- 2.2.20 While best efforts were made to access all waterbodies identified, in some cases access was refused by the landowner or the landowner could not be identified/contacted for permission. In these cases, an attempt is made to infer GCN presence or absence from the results associated with nearby waterbodies, if any, and from HSI scores. Eleven ponds out of 66 (16.67%) could not be accessed, as shown in Table 1. These were distributed across all three Sites and associated cable routes.
- 2.2.21 Where waterbodies were observed to be dry in the 2021 survey season, these were revisited during 2022 to account for potential temporal fluctuations in water level. In few cases, the waterbody was assessed as unlikely to hold water at any time of year following the 2021 survey, often due to a complete lack of vegetation associated with damp/wet habitats or due to the presence of dense vegetation associated with dry habitats, such as bramble scrub. These waterbodies were therefore not subject to a second survey and were scoped out as unsuitable for GCN.
- 2.2.22 Where dense vegetation surrounded a waterbody and made access difficult, attempts were made to clear areas as best as possible in order to take water samples. In some cases where this happened, access to the shoreline was greatly reduced and samples were either taken from a more limited area, or fewer samples were collected in total. This has been highlighted within the relevant tables below. Where these samples were returned as negative for GCN, the suitability of the surrounding habitat, presence of other nearby waterbodies and the HSI score of the waterbody will also be taken into account when recommendations for appropriate mitigation are made.



3 RESULTS

3.1 Desk Study Information

- 3.1.1 For West Burton 1, 65 GCN records were present beyond 250m of the Site, the closest being 1.4km northwest of the Site.
- 3.1.2 For West Burton 2, 23 GCN records were present beyond 250m of the Site, the closest being 1.9km southwest of the Site.
- 3.1.3 For West Burton 3, 6 GCN records were returned, although exact locations were not provided.
- 3.1.4 GCN records are very sparsely distributed within the West Lindsey district, reflecting the fact that the intensive agricultural land-use, which characterises the landscape, provides generally poor habitat for this species. The West Burton Sites are considered to be consistently sub-optimal for GCN in terms of intrinsic habitat value and local population densities.
- 3.1.5 GCN are Species of Principal Importance (SoPI) under the NERC Act (2006) and are listed on the Lincolnshire Biodiversity Action Plan (BAP).
- 3.1.6 GCN district level licensing (DLL) is not currently available in South Lincolnshire.
- 3.1.7 A search for previously issued European Protected Species Licences for great crested newts from within 1km of the Sites and cable route were obtained using the DEFRA MAGIC website¹¹. No records were found.

3.2 Field Survey Results

Descriptions and HSI of Accessible Waterbodies

- 3.2.1 A large proportion of the waterbodies surveyed were noted to be in an agricultural setting and were thought to dry up most years. Many waterbodies were noted to be unmanaged and in areas of dense, inaccessible vegetation, which were observed to be generally high in sediment, heavily shaded and lacking aquatic as a result.
- 3.2.2 A number of waterbodies at West Burton 2 and 3 were assessed as being of “average” to “excellent” for GCN, which is likely due in part to the high concentration of waterbodies in these areas.

West Burton 1

- 3.2.3 A single waterbody was identified within 250m of West Burton 1, for which access for survey was granted in 2022. This waterbody was subject to GCN eDNA survey.

Table 3: WB1 Waterbody Description and HSI Score

Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
WB1-1	0.36 POOR	28/06/2022	Open in-field waterbody	eDNA survey undertaken

West Burton 2

- 3.2.4 Of the 21 waterbodies that were identified within 250m of West Burton 2, 18 (85.71%) were found to exist, with access granted for surveying and were subsequently visited during the 2021 and/or 2022 survey seasons. 11 of these waterbodies held water and were subject to GCN eDNA survey.

Table 4: WB2 Waterbody Descriptions and HSI Scores

Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
WB2-1	0.43 POOR	11/05/2022	Small waterbody surrounded by scrub	eDNA survey undertaken

¹¹ <https://magic.defra.gov.uk/> accessed 14/07/2022



Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
WB2-2	0.62 AVERAGE	11/05/2022	Open agricultural waterbody	eDNA survey undertaken
WB2-4	0.67 AVERAGE	15/06/2021	Agricultural pond, poached by sheep	eDNA survey undertaken
WB2-5	0.78 GOOD	15/06/2021	Mature willows on banks, poached by sheep	eDNA survey undertaken
WB2-6	0.45 POOR	15/06/2021	Fenced waterbody with waterfowl present	eDNA survey undertaken
WB2-8	0.68 AVERAGE	11/05/2022	Generally shallow (<20cm) surrounding willow carr	eDNA survey undertaken
WB2-9	0.80 GOOD	11/05/2022	Large open pond	eDNA survey undertaken
WB2-10	0.74 GOOD	11/05/2022	Heavily shaded in woodland copse	eDNA survey undertaken
WB2-11	N/A (dry)	15/06/2021 11/05/2022	Series of waterbodies within single field associated with drainage ditch bisecting field. Presence of aquatic vegetation suggests most hold water at some times. No livestock access.	Dry 2021 & 2022
WB2-12	N/A (dry)	15/06/2021 11/05/2022		Dry 2021 & 2022
WB2-13	N/A (dry)	15/06/2021 11/05/2022		Dry 2021 & 2022
WB2-14	N/A (dry)	15/06/2021 11/05/2022		Dry 2021 & 2022
WB2-15	N/A (dry)	15/06/2021 11/05/2022		Dry 2021 & 2022
WB2-16	0.79 GOOD	15/06/2021		eDNA survey undertaken
WB2-17	N/A (dry)	15/06/2021 11/05/2022		Dry 2021 & 2022
WB2-18	0.80 GOOD	15/06/2021		eDNA survey undertaken
WB2-19	0.64 AVERAGE	15/06/2021 11/05/2022		Dry 2021, eDNA survey undertaken 2022
WB2-20	0.76 GOOD	15/06/2021		eDNA survey undertaken

West Burton 3

3.2.5 Of the 32 waterbodies that were identified within 250m of West Burton 3, 27 (84.38%) were found to exist, with access consent granted and were subsequently visited during the 2021, 2022 and/or 2023 survey seasons. Eleven of these waterbodies held water and were subject to GCN eDNA survey.


Table 5: WB3 Waterbody Descriptions and HSI Scores

Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
WB3-1	0.73 GOOD	11/05/2022	Open agricultural waterbody	eDNA survey undertaken



Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
WB3-2	0.39 POOR	11/05/2022	Low water level <5cm	No eDNA – water too low
WB3-3	0.50 BELOW AVG.	11/05/2022	Fairly shallow (<30cm)	eDNA survey undertaken
WB3-4	0.60 AVERAGE	16/06/2021	Adjacent to WB3-5; mostly wooded and well shaded	eDNA survey undertaken
WB3-5	0.75 GOOD	16/06/2021	Adjacent to WB3-4; more open, densely vegetated with bulrush	eDNA survey undertaken
WB3-6	0.72 GOOD	15/06/2022 11/05/2022	Stocked ornamental pond on golf course	eDNA survey undertaken
WB3-9	0.89 EXCELLENT	15/06/2021	Large agricultural waterbody within area of unmanaged ruderals/scrub	eDNA survey undertaken
WB3-10	0.46 POOR	17/06/2021	Agricultural slurry pit with young shelduck present	eDNA survey undertaken
WB3-11	0.46 POOR	17/06/2021	Agricultural slurry pit	Unsuitable for eDNA
WB3-12	0.40 POOR	17/06/2021	Large waterbody managed for game shooting	eDNA survey undertaken
WB3-13	0.44 POOR	10/05/2022	Within willow carr	eDNA survey undertaken
WB3-14	N/A (dry)	10/05/2022	Dry at time of survey	No eDNA survey
WB3-15	0.80 EXCELLENT	11/05/2022 15/06/2022	Within woodland, adjacent to farmland & canal	eDNA survey undertaken
WB3-16	0.83 EXCELLENT	11/05/2022	Agricultural pond with dense bulrush cover	eDNA survey undertaken
WB3-17	0.85 EXCELLENT	11/05/2022	Agricultural pond with dense common reed / bulrush cover	eDNA survey undertaken
WB3-18	0.95 EXCELLENT	11/05/2022	Agricultural pond with 70% bulrush cover	eDNA survey undertaken
WB3-19	0.90 EXCELLENT	10/05/2022	Within willow carr, with dense cover of bulrush & flag iris	eDNA survey undertaken
WB3-21	N/A (dry)	11/05/2022 18/06/2021	Within woodland copse, dry at time of survey	Dry 2021 & 2022; no eDNA survey
WB3-22	N/A	11/05/2022 18/06/2021	Within woodland copse & choked with ruderals. Steep banks with trees.	eDNA survey undertaken in 2022



Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
			Dry at time of survey (2021 only)	
WB3-23	0.79 GOOD	18/06/2021	Large open waterbody with steep, densely vegetated banks	eDNA survey undertaken
WB3-24	0.67 AVERAGE	18/06/2021	Within woodland copes, water level low (<20cm)	eDNA survey undertaken
WB3-26	0.73 GOOD	11/05/2022	Fenced agricultural pond adjacent hedgerow	eDNA survey undertaken
WB3-28	N/A		Dry at time of survey	No eDNA survey
WB3-29	N/A		Dry at time of survey	No eDNA survey
 WB3-30	2022: N/A (dry) 2023: 0.74 GOOD	17/06/2022 and 17/05/2023	Dry in 2022, revisited in 2023 and found to hold water. Shallow banks; likely dries seasonally. Fed by ditch to north.	eDNA survey undertaken (2023)
WB3-31	0.44 POOR	17/06/2021	Likely used as slurry pit; waterfowl present	eDNA survey undertaken

West Burton Cable Route

3.2.6 Of the 10 waterbodies that were identified within 250m West Burton cable route that fell outside of the option areas, 8 (80%) were found to exist, were given access consent and were subsequently visited during the 2022 survey season. Six of these waterbodies held water and were subject to GCN eDNA survey.

Table 6: WBCR Waterbody Descriptions and HSI Scores

Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
WBCR-1	0.64 AVERAGE	29/06/2022	Industrial water storage	eDNA survey undertaken
WBCR-2	0.31 POOR	29/06/2022	Industrial water storage	eDNA survey undertaken
WBCR-3	2022: 0.58 - BELOW AVG. 2023: 0.62 - AVERAGE.	04/07/2022 and 17/05/2023	Almost dry at time of survey (2022). Sufficient water in 2023. Evidence of livestock grazing in field.	eDNA survey undertaken (2023)
WBCR-4	2022: 0.48 - POOR. 2023: 0.57 - BELOW AVG.	04/07/2022 and 17/05/2023	Water level <10cm during 2022 survey. Sufficient water in 2023. Connected to ditch on western edge. Next to sewage works, but good invertebrate diversity.	eDNA survey undertaken (2023)
WBCR-5	2023: 0.53 BELOW AVG.	04/07/2022 and 17/05/2023	Almost dry at time of survey (2022).	eDNA survey undertaken (2023)



Waterbody Ref.	HSI Score	Date Surveyed	Waterbody Description	Other Notes
	2023: 0.57 BELOW AVG.		Sufficient water in 2023. Sheep in field; pond unfenced. Fish present and some duckweed observed.	
WBCR-6	2022: N/A (dry) 2023: 0.34 POOR	04/07/2022 and 17/05/2023	Pond dry in 2022. 2023 water level very low; only just 10cm in centre for eDNA sample collection. Very polluted; high sediment content in sample.	eDNA survey undertaken (2023)
WBCR-7	2022: 0.79 GOOD 2023: 0.78 GOOD	04/07/2022 and 17/05/2023	Large marshy area comprising SCR-7 and SCR-8 (no discernible banks) set within area of willow scrub. Low water.	eDNA survey undertaken (2023)
WBCR-8		04/07/2022 and 17/05/2023		eDNA survey undertaken (2023)
WBCR-9	2022: N/A (dry) 2023: 0.54 BELOW AVG.	04/07/2022 and 17/05/2023	Dry during 2022 survey. Sufficient water in 2023. Fed by wet ditch	eDNA survey undertaken (2023)
WBCR-10	2022: 0.50 BELOW AVG. 0.70 AVERAGE	04/07/2022 and 17/05/2023	Almost dry at time of survey. Likely only holds enough water early in season	eDNA survey undertaken (2023)



GCN eDNA Survey Results

West Burton 1

- 3.2.7 Only one waterbody was identified within approximately 250m of WB1, which was subsequently subject to eDNA survey for GCN (Table 7 refers). This was c.105m southwest of the Site boundary and returned an indeterminate result for GCN. Analysis of the sample found it contained very high levels of sediment likely as a result of agricultural leachate from the adjacent land. Results are mapped on Figure 6 overleaf.

Table 7: West Burton 1 eDNA Results

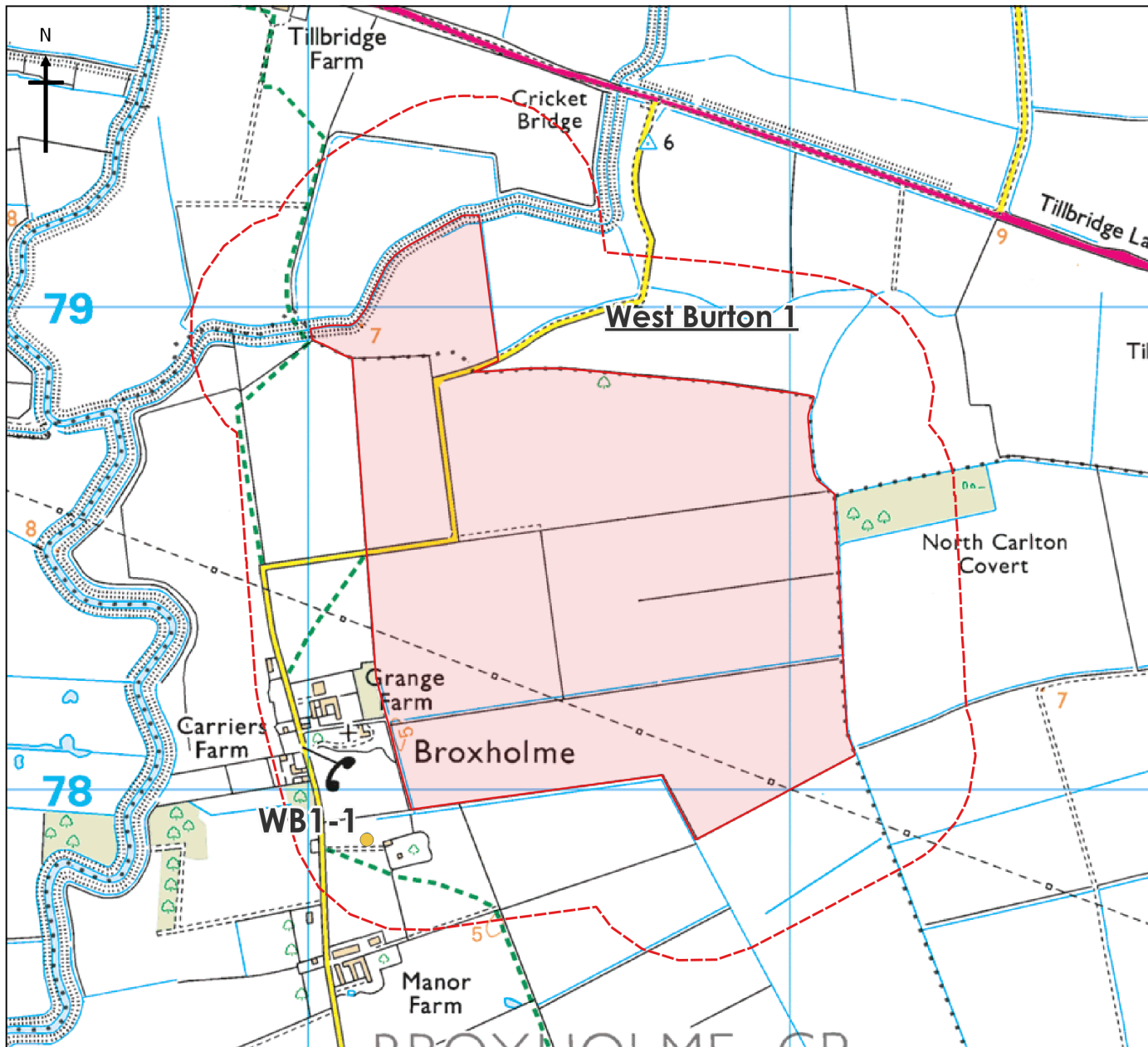
Waterbody Ref.	eDNA Result	Other Notes
WB1-1	Indeterminate	High levels of sediment in water column

West Burton 2

- 3.2.8 A total of 12 waterbodies within approximately 250m of WB2 were subject to eDNA survey for GCN (Table 9 refers). No results were returned as positive and GCN are not considered to be a constraint at the WB2 site. Results are mapped on Figure 7 overleaf.

Table 8: West Burton 2 eDNA Results

Waterbody Ref.	eDNA Result	Other Notes
WB2-1	Negative	N/A
WB2-2	Negative	N/A
WB2-4	Negative	N/A
WB2-5	Negative	N/A
WB2-6	Negative	N/A
WB2-8	Negative	N/A
WB2-9	Negative	N/A
WB2-10	Negative	N/A
WB2-16	Negative	N/A
WB2-18	Negative	N/A
WB2-19	Negative	N/A
WB2-20	Negative	N/A



Key:

eDNA results

● eDNA INDETERMINATE

■ Scheme boundary

⋯ 250m boundary buffer

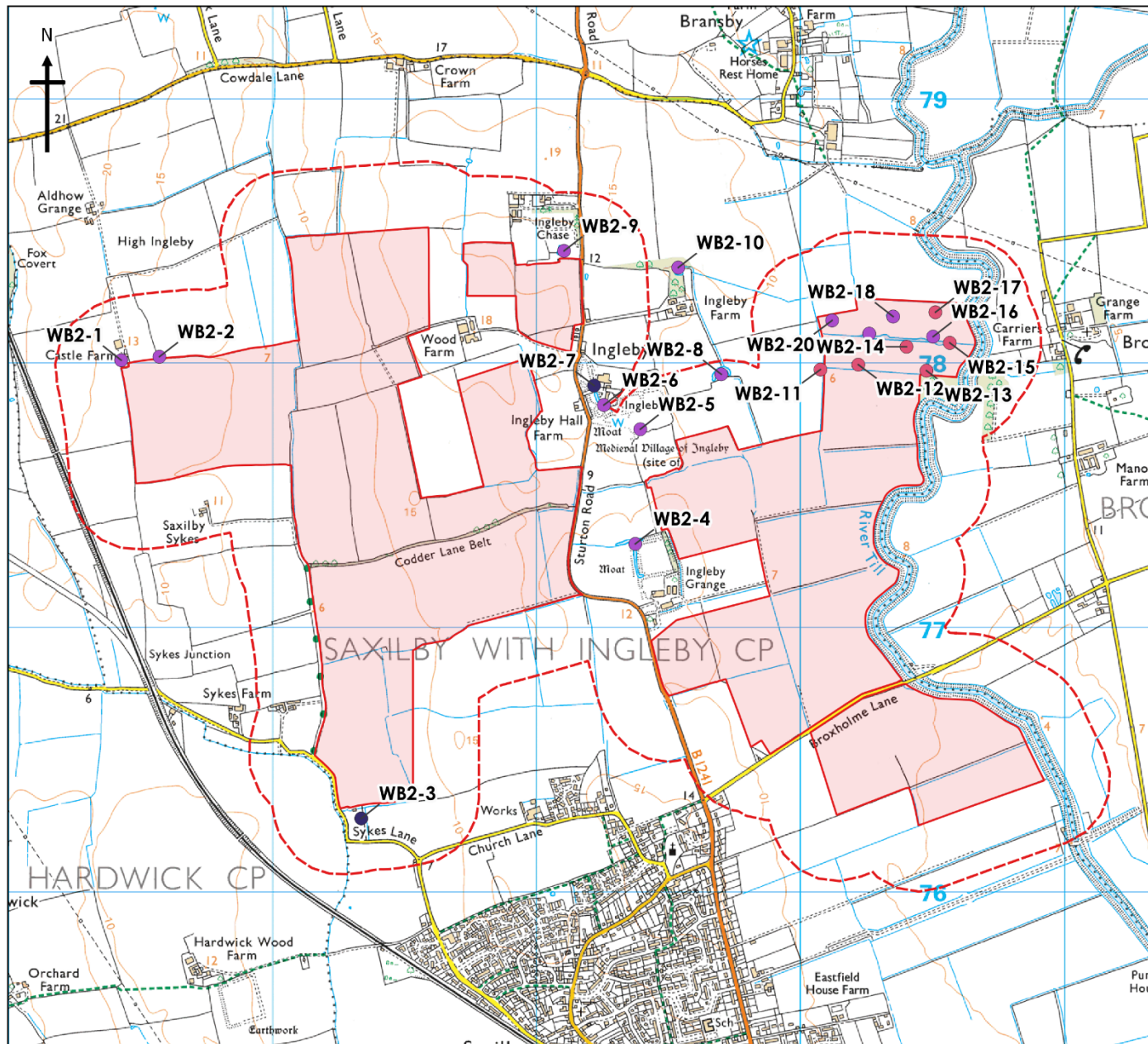


Project
West Burton Solar Project

Title
GCN eDNA survey results

Figure number Date
6 **09/01/2023**

Scale
0 0.22 0.44 km



Key:

eDNA results

- GCN POSITIVE
- GCN NEGATIVE
- eDNA INDETERMINATE
- POND DRY
- NO LANDOWNER CONSENT
- NO POND
- NO eDNA UNDERTAKEN
- Scheme boundary
- 250m boundary buffer



Project
West Burton Solar Project

Title
GCN eDNA survey results

Figure number Date
7 **18/01/2023**

Scale 0 0.4 0.8 km

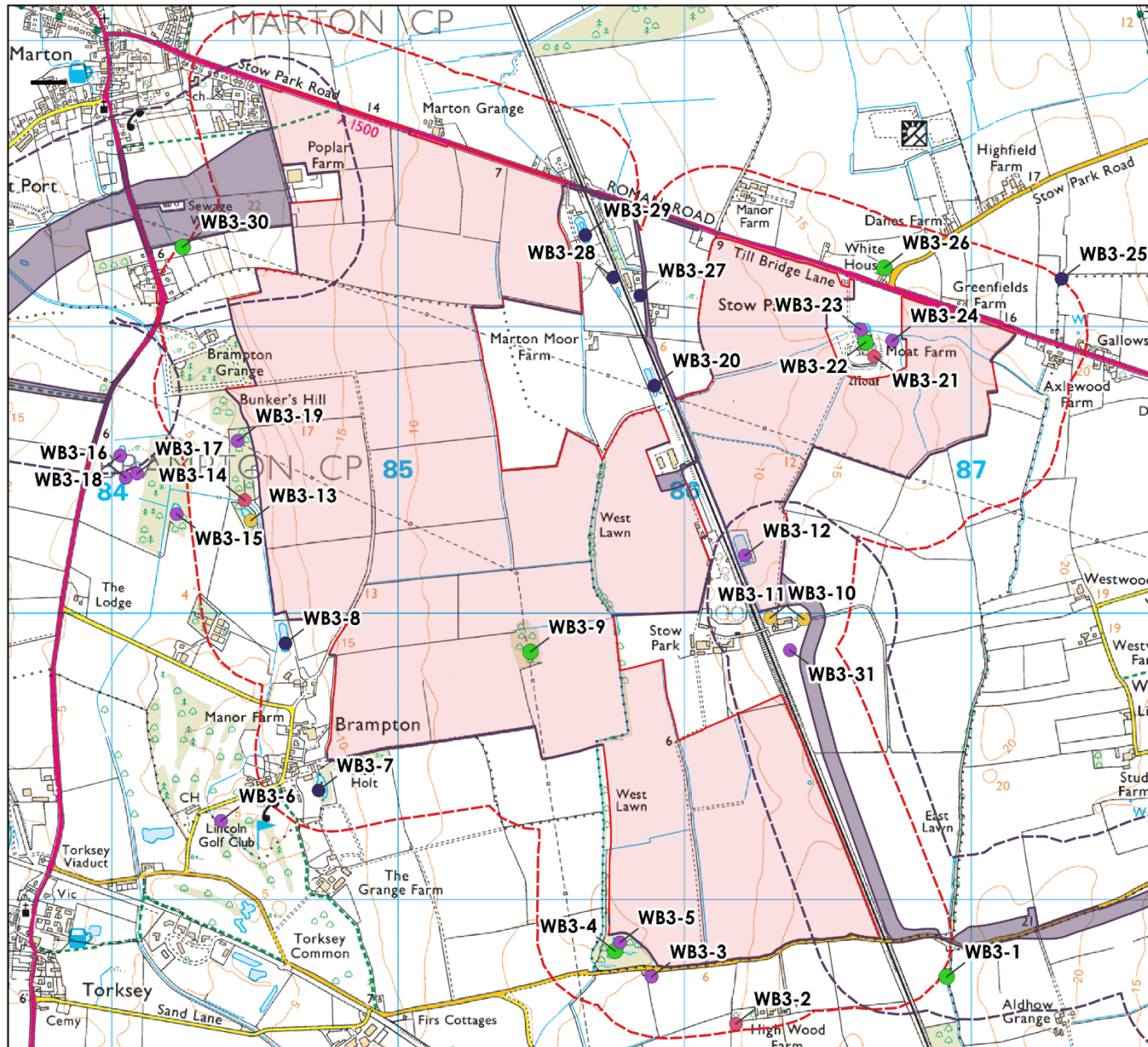


West Burton 3

3.2.9 A total of 20 waterbodies within approximately 250m of WB3 were subject to eDNA survey for GCN (Table 10 refers). Of these, six were returned as positive for GCN, which comprised both waterbodies on site and within approximately 250m. The results are mapped on Figure 8 overleaf.

Table 9: West Burton 3 eDNA Results

Waterbody Ref.	eDNA Result	Other Notes
WB3-1	Positive	Smooth newt <i>Lissotriton vulgaris</i> eggs recorded
WB3-3	Negative	N/A
WB3-4	Positive	Immediately adjoining WBS-5
WB3-5	Negative	May support GCN in some years due to proximity to WB3-4. Conditions not as optimal for GCN as WB3-4
WB3-6	Negative	Resurveyed with filter after indeterminate result due to high sediment
WB3-9	Positive	N/A
WB3-10	Indeterminate	20 samples collected; 30% of shoreline surveyed. Unlikely to be suitable for GCN; not resurveyed
WB3-12	Negative	High sediment in water column
WB3-13	Indeterminate	Unlikely to be suitable for GCN; not resurveyed
WB3-15	Indeterminate / Negative	Resurveyed with filter after indeterminate result due to high sediment, which was subsequently returned as negative
WB3-16	Negative	N/A
WB3-17	Negative	N/A
WB3-18	Negative	N/A
WB3-19	Negative	N/A
WB3-22	Positive	N/A
WB3-23	Negative	May support GCN in some years due to proximity to WB3-23, however, stickleback observed 20 samples collected; 75% of shoreline surveyed
WB3-24	Negative	May support GCN in some years due to proximity to WB3-23 16 samples collected; 70% of shoreline surveyed
WB3-26	Positive	N/A
WB3-30	Positive	N/A
WB3-31	Negative	N/A



Key: eDNA RESULTS

eDNA results

- GCN POSITIVE
- GCN NEGATIVE
- eDNA INDETERMINATE
- POND DRY
- NO LANDOWNER CONSENT
- NO POND
- NO eDNA UNDERTAKEN
- Scheme boundary
- 250m boundary buffer
- Cable route corridor
- Cable route pond search buffer

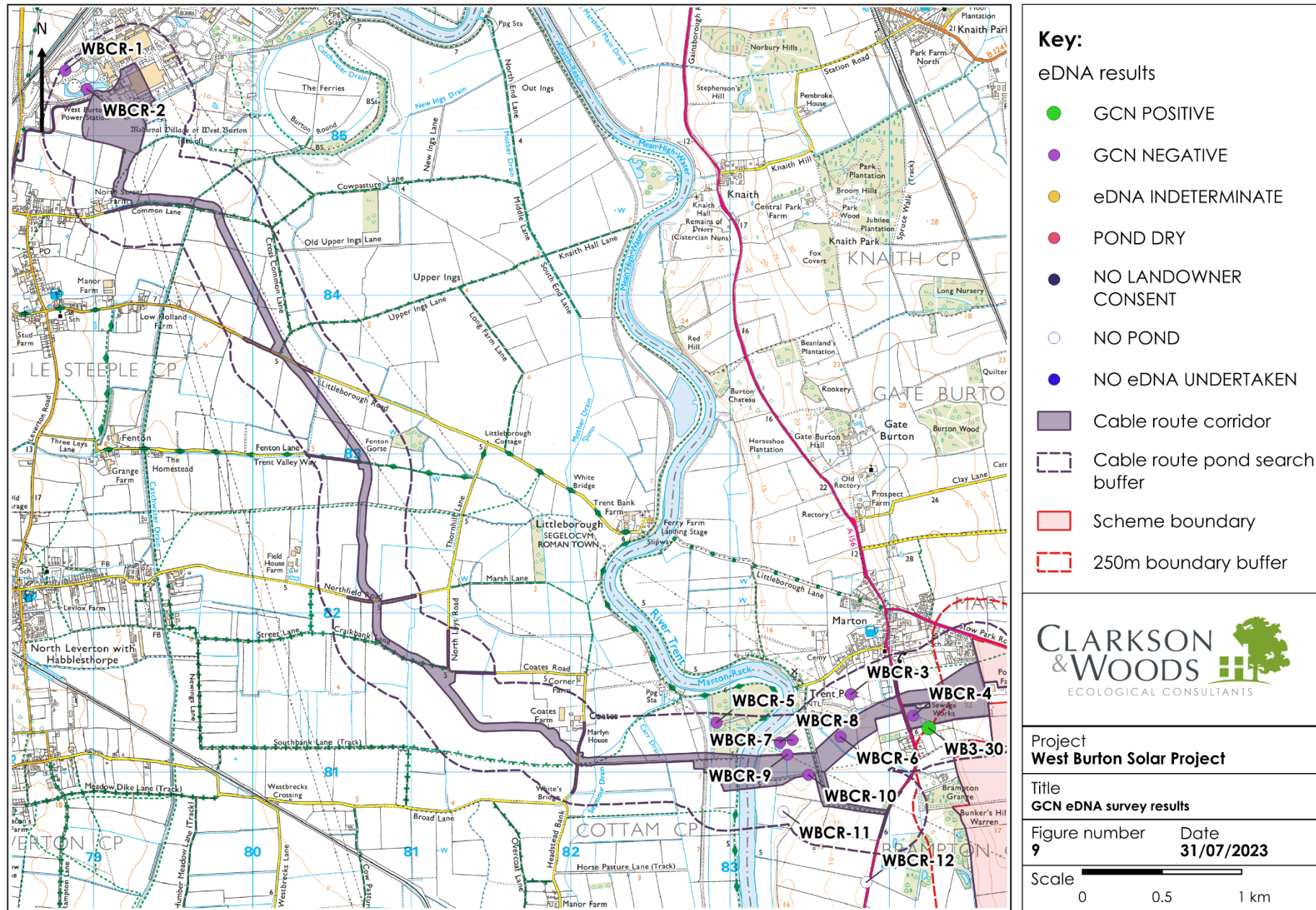


Project
West Burton Solar Project

Title
GCN eDNA survey results

Figure number Date
8 **31/07/2023**

Scale 0 0.2 0.4 km





West Burton Cable Route

3.2.10 A total of ten waterbodies within approximately 250m of the WBRC were subject to eDNA survey for GCN (Table 12 refers). All were negative, however a single waterbody (WB3-30), which was surveyed as part of the WB3 parcel, lies approximately 20m outside of the cable route corrido and was returned as positive for GCN. The results are mapped on Figure 9 above.

Table 10: West Burton Cable Route eDNA Results

Waterbody Ref.	eDNA Result	Other Notes
WBCR-1	Negative	N/A
WBCR-2	Negative	N/A
WBCR-3	Negative	N/A
WBCR-4	Negative	May support GCN in some years due to proximity to WB3-30, although Poor-Below Average HSI score.
WBCR-5	Negative	N/A
WBCR-6	Negative	N/A
WBCR-7	Negative	Approximately half of area impossible to access due to marshy ground and dense vegetation.
WBCR-8	Negative	
WBCR-9	Negative	N/A
WBCR-10	Negative	N/A



4 ECOLOGICAL EVALUATION

- 4.1.1 This section provides an analysis of the value of GCN as an ecological feature.
- 4.1.2 Of the 43 waterbodies subject to eDNA survey, six returned a positive result for GCN presence, all within proximity of WB3. These positive results constitute 13.95% of those subject to eDNA survey within 250m of the Sites and Cable Route.
- 4.1.3 No ponds will be lost to the development (regardless of GCN result).
- 4.1.4 A single waterbody was present at WB1, which was suitable for eDNA survey. This waterbody was returned as indeterminate, however, due to a lack of any wider pond network and the low suitability of the surveyed waterbody, GCN are likely absent from WB1. Furthermore, the waterbody was 120m outside of the redline boundary and of the core habitat zone (50m of the redline boundary). GCN will therefore not be directly impacted by the development proposals and are unlikely to pose a constraint to the proposed Scheme.
- 4.1.5 No GCN were recorded in any ponds within proximity (250m) of WB2.
- 4.1.6 GCN were found present within five of 20 waterbodies subject to eDNA survey at WB3, both onsite and within 250m, which constitutes the highest density of GCN recorded across any of the Sites. It is possible that nearby waterbodies, which were dry during the surveys or were found to be indeterminate, will support a GCN meta-population. GCN presence should be assumed on a precautionary basis.
- 4.1.7 No positive eDNA results were returned as a result of the dedicated cable route waterbody surveys. However, WB3-30 lies within 20m of the cable route corridor and was returned as positive for GCN. The nearest cable route waterbody to this was WBCR-4, which lay approximately 120m northwest of WB3-30, although was returned as negative for GCN and was assessed to be of Poor / Below Average suitability. It remains possible that WBCR-4 may be used in some years by GCN given its proximity to a known population and an appropriate mitigation strategy should be implemented on this basis, which may comprise licensing or a sensitive working methodology depending on likely impacts and final cable route.
- 4.1.8 On the basis of the low suitability of the vast majority of habitat, lack of species records within the red line boundary and general lack of positive eDNA records with the exception of WB3 and a short section of the cable route, GCN are considered to be of Local Importance for WB3, and of Site Importance for all other areas.

4.2 Potential Sources of Impact

- 4.2.1 The following activities associated with construction, operation and decommissioning of the solar array sites and cable routes may result in adverse impacts on GCN and their habitats. Illegal activities which may occur include:
- capturing, killing, disturbing or injuring great crested newts deliberately'
 - damaging or destroying a breeding or resting place, and
 - obstructing access to their resting or sheltering places (deliberately or by not taking enough care)
- 4.2.2 The above illegal activities could result from the following:
- Site clearance (associated with construction and decommissioning) including: removal of trees, scrub and vegetation, removal of spoil, rubble
 - Site preparation including: construction of roads, compounds, substations security fencing and site compounds
 - Pollution of retained habitats resulting from construction (both direct and indirect)
 - Construction and operational lighting affecting habitat quality
 - Insensitive management of habitats post construction.

Potential Mitigation, Compensation and Enhancement Options

- 4.2.3 Despite confirmed presence of GCN in six waterbodies surrounding WB3, the proposals have the potential to mitigate any impacts through a number of sensitive design and management options.



4.2.4 To avoid impacts on GCN the following should be considered:

- Following the mitigation hierarchy, impacts on the known GCN ponds, as well un-surveyed and indeterminate ponds can be avoided through retaining a 50m undeveloped buffer around ponds. This buffer should be enhanced to create optimal sheltering and foraging habitat for GCN through creation of rough grassland scrub mosaic.
- All newly created habitats will need to be sensitively managed under a site-specific landscape and ecological management plan.
- The majority of ponds were located within an intensively farmed landscape. Where land ownership permits, there is significant potential to enhance the existing ponds through sensitive management and pond restoration. This could include removal of tree and scrub shading, removal of silt and deepening (up to 1m) as well creation of shallow, profiled margins specifically on the southern aspect.
- New ponds can be created to connect up pond networks, providing stepping stone waterbodies. This should be in line with emerging local nature recovery strategies.
- Construction within 250m of ponds within confirmed or un-surveyed ponds (on a precautionary basis) should be restricted to the hibernation period for GCN (November to early February inclusive). This is an approach which has been applied on other solar sites and has been approved by Natural England and corresponding Local Planning Authorities. When following this approach all potentially suitable overwintering / sheltering and breeding habitat including any hedgerows, woodland and scrub margins will need to be demarked with appropriate exclusion fencing prior to any construction commencing.
- Pending the start date of construction, it may be possible to obtain a great crested district licence from the relevant authority to proceed with the works. At present South Lincolnshire is not covered under district licensing however this is being rolled out across England and is likely to be in place before construction. District licensing will allow construction to proceed without timing or mitigation constraints (pending the zoning of the Site); however, in all cases it is recommended that the best practice guidance is followed.
- Best practice would include a toolbox talk to contractors prior to construction to outline identification of great crested newts and steps to take in the unlikely event that they are encountered during construction.
- In the absence of a district licence and where winter working is unavoidable, it may be possible to proceed works under a Non-Licensable Risk Avoidance Method Statement. This Method Statement would be detailed within a Construction Environmental Management Plan prepared for the construction phase of the development.

4.2.5 Apart from potential construction impacts on GCN, no adverse long-term effects upon GCN or other amphibians are anticipated.

4.2.6 On completion of the construction phase, the land within the array Sites should be managed to facilitate the establishment of a variety of habitats including targeting rough grassland and species-rich wildflower meadow. Provision of new grassland habitat within the array fields is likely to constitute a significant enhanced area in comparison with the regularly disturbed species-poor arable habitat, which currently exists on the site.

4.2.7 It is considered highly unlikely that such areas would suffer no net loss of habitat quality for amphibians in the medium term or beyond, especially considering the dominant arable habitat present within the survey area, and the disruption/disturbance currently encountered.



APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION FOR GREAT CRESTED NEWTS

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

PLANNING POLICY IN RELATION TO BIODIVERSITY

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in July 2021. Additional guidance can be found online at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 174), including:

- (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 176):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 175) by applying principles including:

- (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶ and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate..



The following should be given the same protection as habitats sites:

- (a) potential Special Protection Areas and possible Special Areas of Conservation;
- (b) listed or proposed Ramsar sites⁷; and
- (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 182 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The Natural Environment and Rural Communities Act (2006) states that a public 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; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

ECOLOGICAL ENHANCEMENTS

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In England, the National Planning Policy Framework (NPPF), issued in July 2021, states that the planning system should contribute to "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*;. It also states that "*opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".



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