



THE
ENVIRONMENT
PARTNERSHIP



EAST LANCASHIRE PAPER MILL

EDNA APPENDIX

TEP Technical Report July 2021

TEP

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1.0 Summary

- 1.1 TEP was commissioned by Great Places Housing Group in June 2021 to undertake a Habitat Suitability Index (HSI) assessment of three ponds within 500 m, and eDNA survey of one pond within 250 m, of the East Lancashire Paper Mill Island site in Radcliffe, Greater Manchester (hereafter referred to as 'the site'). The surveys are required to establish whether great crested newt (GCN) are present on or within influencing distance of the site. The information collected will be used to inform future development proposals.
- 1.2 The survey follows the recommendations of a high level due diligence report prepared by TEP for Campbell Reith in 2020 (TEP Report Ref: 7507.29.001).
- 1.3 A Habitat Suitability Index (HSI) assessment was undertaken on all accessible ponds. Pond 1 (P1) was found to have Excellent suitability for breeding GCN. Ponds 2 (P2) and 3 (P3) had Below Average and Poor suitability respectively.
- 1.4 eDNA sampling was also undertaken on one pond (P1) which falls within 250m of the site, to assess whether GCN are present within that pond. The eDNA sample returned negative results.
- 1.5 No further amphibian surveys are required at this time. The ponds do however offer suitable habitat for common amphibians, which could be present on site. An amphibian Reasonable Avoidance Measures Method Statement (RAMMS) will be required during construction at the site.

2.0 Introduction

- 2.1 TEP was commissioned by Great Places Housing Group in June 2021 to undertake a Habitat Suitability Index (HSI) assessment of three ponds within 500 m, and eDNA survey of one pond within 250 m, of the East Lancashire Paper Mill Island site in Radcliffe, Greater Manchester (hereafter referred to as 'the site'). The surveys are required to establish whether GCN are present on or within influencing distance of the site. The information collected will be used to inform future development proposals.
- 2.2 The survey follows the recommendations of a high level due diligence report prepared by TEP for Campbell Reith in 2020 (TEP Report Ref: 7507.29.001).
- 2.3 A HSI assessment was recommended for all three ponds within 500m and an eDNA sampling survey was recommended to establish whether or not great crested newts *Triturus cristatus* are present in pond P1, which is within 250m of the site.
- 2.4 The East Lancashire Paper Mill Island site is located to the east of Radcliffe town centre in Greater Manchester (central grid reference SD 79025 07403). The site predominantly comprises an area of amenity grassland and hardstanding, with scattered broad-leaved trees and areas of dense/continuous scrub. A small building, housing an electricity substation is located in the north-east corner of the site.
- 2.5 The site is bordered to the north by Spring Lane, to the south and east by Rectory lane and to the west by Cock Clod Street. The river Irwell is located approximately 0.1km to the south of the site. The wider landscape comprises urban development associated with Bury and Bolton, as well as open countryside.

- 2.6 There are no ponds on site, three ponds were identified within 500m of the site from aerial and Ordnance Survey mapping, not separated by any major barriers such as roads, rivers or dense residential developments. The site boundary is illustrated in Figure 1 and the locations of the ponds are shown in Drawing G8746.003.



Figure 1: Site location and local context

3.0 Method

Habitat Suitability Index (HSI) Assessments

- 3.1 A HSI assessment of all three ponds within 500m of the site boundary was undertaken by licenced ecologist Angie McEwan (Natural England Licence No. 2015-16877-CLS-CLS) on 29th June 2021, concurrently with eDNA surveys.
- 3.2 HSI¹ is a standard measure of calculating the suitability of a pond to support breeding great crested newts, based on an assessment of ten characteristics (indices), including size, shading, depth and vegetation profile. The assessment generates a number between 0 and 1 for each of the indices which are combined to provide an overall assessment of a pond's suitability to support GCN on a categorical scale (**Table 1**). The assessment has not been designed for or tested on other waterbodies such as ditches.

Table 1: Pond habitat suitability index scoring

HSI Score	Suitability	Predicted GCN Occupancy of Ponds in each Category
< 0.5	poor	3%
0.5 to 0.59	below average	20%
0.6 to 0.69	average	55%
0.7 to 0.79	good	79%
> 0.8	excellent	93%

eDNA

- 3.3 Environmental DNA (eDNA) sampling was undertaken at one pond (P1) on 29th June 2021 by licensed ecologist Angie McEwan (Natural England Licence No. 2015-16877-CLS-CLS).
- 3.4 Ponds P2 and P3, were not subject to eDNA survey as they are over 250m from the site which is outside the core range of GCN.
- 3.5 Samples were taken from approximately 80% of the shoreline of pond P1, due to areas of dense pond vegetation growth preventing access to the pond margins.

1: ARG UK Advice Note 5 (May 2010) Great Crested Newt Habitat Suitability Index

- 3.6 The sample kit and analysis was provided by ADAS. Both ADAS and TEP followed the relevant sections of the method set out in the DEFRA funded study endorsed by Natural England². In summary the sampling protocol is as follows:
- 20 samples were taken from around the entire perimeter of the waterbody.
 - The surveyor stayed out of the water while taking the samples (extension poles were used in situations where open/sufficiently deep water was at a distance from the dry banks.
 - Survey locations were distributed around the pond perimeter but micro-siting was used to select locations most likely to be used by GCN.
 - At each sample location the water column was stirred prior to taking the sample but care was taken to avoid disturbing the sediment on the base of the pond.
 - Once all 20 samples were taken, 15ml of the total sample were pipetted into each of the 6 sampling tubes, whilst ensuring that the water in the sample bag was mixed before taking each 15ml sample and that only one sample tube was opened at any one time.
 - At all times the surveyor ensured that the risk of contaminating the sampling equipment was minimised by avoiding the placement of the ladle or pipette on the ground or on any otherwise potentially contaminated surfaces and by changing gloves between the initial sampling stage and the pipetting stages of the method.

Chain of custody

- 3.7 On receipt from ADAS the sampling kits were registered on a central database using the unique bar codes. Immediately prior to survey, sampling kits were issued to surveyors with individual Sample Forms using the unique bar code as identification. The site name and date of issue was also recorded on this form (and on the central database). Once in the field and at the ponds, the surveyor confirmed that the appropriate field survey sheet was being completed by checking the bar code on the box and double checking the corresponding bar codes on the sample tubes. The surveyor then filled in the date of survey and the pond ID number (as well as other information relating to survey conditions) on the Sample Form.
- 3.8 On returning to the office the Sample Forms were signed to confirm for each sample who received the samples and checked them into the fridge and the temperature of the fridge. The pond IDs on each form were checked against a site map confirming which ponds had been sampled and this map was stored with the Sample Forms. All this information was also recorded on the central database. The sample preserving tubes were stored in a fridge until the morning of collection by the courier. The Sample Forms and the central database were updated to confirm the date of collection by the courier.

2: Biggs et al 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford

- 3.9 The unique bar codes were used by ADAS to report results. All results were recorded in the central database by one member of staff and cross checked by a second member of staff before issuing to the project leader for review.

Qualifications

- 3.10 TEP Associate Director (Ecology) Elizabeth Seal underwent training on the eDNA sampling method with Dr Jeremy Biggs of the Freshwater Habitats Trust³ on 11th April 2014. A copy of the certificate of this training can be provided on request. Following this Elizabeth devised a TEP internal training course covering theoretical and field based modules on eDNA sampling method, biosecurity measures and record keeping procedures. Only those TEP ecologists with GCN survey licences who have successfully undertaken this course are tasked with eDNA sampling.

Summary

- 3.11 On overview of the survey methods employed at each pond is presented in Table 2.

Table 2: Summary of field survey methods

Pond No.	eDNA Survey
P1	Yes
P2	No
P3	No

Limitations

- 3.12 There were no limitations to the survey.

3: Dr Briggs authored the 2014 DEFRA funded report on the eDNA survey method for great crested newts.

4.0 Results

Habitat Suitability Index (HSI) Assessments

- 4.1 Pond descriptions and photographs are provided in **Table 3** and the results of the HSI surveys are presented in **Table 4**.
- 4.2 Pond P1 was found to have Excellent suitability for supporting breeding GCN. Pond P2 had Below Average suitability, while Pond P3 had Poor suitability.
- 4.3 Pond P3 scored Poor as the high density of scrub and woodland shaded 100% of the perimeter, which would likely impact plant growth and therefore egg laying material.

Table 3: Pond descriptions and photos

Pond	Description & grid reference	Photograph
P1	Small pond just off footpath surrounded by dense scrub woodland. This pond is not shown on OS maps but appears on aerial mapping. SD 79313 07298	

Pond	Description & grid reference	Photograph
P2	Large fishing pond surrounded by scrub woodland. SD 79433 07434	
P3	Small pond fed by ditch just off footpath. Completely surrounded by scrub woodland. This pond is not shown on aerial images but is present on OS maps. SD 79364 07456	

Table 4: HSI assessment results

Pond Ref	SI1 Location		SI2 Pond Area		SI3 Permanence		SI4 Water Quality		SI5 Shade		SI6 Waterfowl		SI7 Fish		SI8 Pond Density		SI9 Terrestrial Habitat		SI10 Macrophyte Cover		Overall HSI	
	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	Measure	Score	HSI	Suitability
P1	A (optimal)	1	2000	0.8	Rarely	1	Moderate	0.67	50	1	Minor	0.67	Possible	0.67	3	0.66	Good	1	50	0.8	0.81	Excellent
P2	A (optimal)	1	>2000	Null	Never	0.9	Moderate	0.67	20	1	Minor	0.67	Major	0.01	3	0.66	Good	1	50	0.8	0.50	Below Average
P3	A (optimal)	1	<50	0.05	Sometimes	0.5	Poor	0.33	100	0.2	Minor	0.67	Absent	1	3	0.66	Moderate	0.67	0	0.3	0.41	Poor

eDNA

- 4.4 No great crested newt eDNA was identified in pond P1 during the eDNA survey (Table 5).

Table 5: eDNA survey results

Pond Ref	Survey Date	Surveyor	Percentage of Shoreline Surveyed (%)	Score	GCN Present? (Y/N)
P1	29/06/21	A McEwan	80	0/12	N

Results Summary

- 4.5 Table 6 summarises the amphibian survey results.

Table 6: Summary of pond survey results

TEP Pond Ref	HSI Category	GCN
P1	Excellent	Absent
P2	Below Average	N/A
P3	Poor	N/A

5.0 Further Requirements

Additional Surveys

- 4.1 There are currently no requirements for additional amphibian surveys. The survey scope and timing is considered sufficient to inform any future development proposals and review legal and policy requirements.
- 4.2 Although eDNA surveys were not undertaken on ponds P2 and P3, it is considered unlikely GCN would be present in these ponds. GCN were confirmed to be absent from P3 during eDNA surveys undertaken by WYG in 2017 (WYG Ecological Appraisal (2018) Report Ref: A090070-193). The presence of fish in P2 is also likely to deter GCN from utilizing this waterbody for breeding.
- 4.3 No amphibians were identified during the surveys but the ponds provide suitable habitat for a range of common amphibian species.
- 4.4 Great crested newt surveys are valid for at least 2 survey seasons and potentially 4 years or more depending on the specific use of the data, local conditions and the potential impact predicted on GCN. When data is greater than 2 years old advice should be sought from an appropriately experienced ecologist.

Licensing / Reasonable Avoidance Measures

- 4.5 No great crested newts have been recorded within influencing distance of the site. There are currently no licensing requirements or restrictions to works commencing on site in relation to this species.
- 4.6 No specific survey was undertaken for other common amphibians including the S41⁴ species common toad *Bufo bufo*, however it is considered that ponds P1, P2 and P3 provide some suitable habitat to support these species. A Reasonable Avoidance Method Statement (RAMMS) will therefore be required to ensure common amphibian species are protected from harm during construction works on site.

⁴ Section 41 of the Natural Environment and Rural Communities Act 2006



DRAWINGS

G8746.003 – Pond Location Plan and Great Crested Newt eDNA Survey Results



KEY

- Site boundary
- Site boundary 250m buffer
- Site boundary 500m buffer

Great Crested Newts eDNA Survey Results

- Negative
- Pond not surveyed

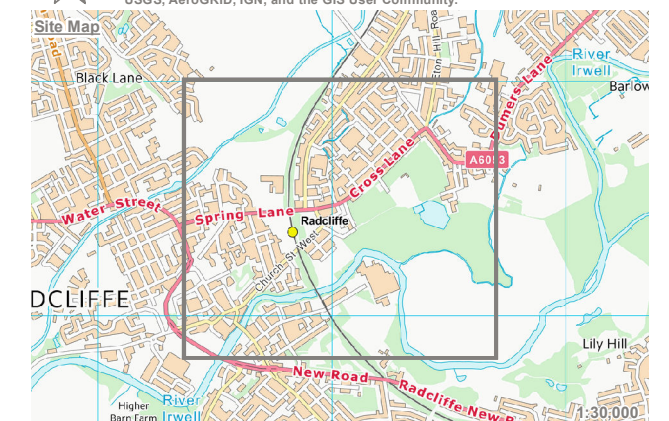
Note:

The locations of habitats and habitat features are indicative.



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Rev	Description	Drawn	Approved	Date



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Project:
ELPM Island Site, Radcliffe

Title:
Pond Location and Great Crested Newts eDNA Survey Results

Drawing Number:
G8746.003

Drawn	Checked	Approved	Scale	Date
SA	MK	CC	1:4,500 @ A3	03/08/2021



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