Appendix 7.8

Great Crested Newt Surveys

Legislation

The great crested newt (GCN) Triturus cristatus is afforded protection under the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offense to capture, injure, kill or disturb GCN and also to damage or destroy a breeding site or resting place used by GCN.

Where development is proposed that would result in an offence under the Habitats Regulations a European Protected Species (EPS) license would need to be granted by the appropriate authority (Natural England in England) to permit an act that would otherwise be unlawful. In terms of development, the following three tests must be met before an EPS license will be granted:

- Regulation 53(2)(e) – "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".
- Regulation 53(9)(a) – "that there is no satisfactory alternative"; and
- Regulation 53(9)(b) – "that the action authorized will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."

<u>Licensing</u>
Where development is proposed that would result in an offence under the Habitats and Species Regulations a European Protected Species (EPS) licence needs to be granted by Natural England to permit an act that would otherwise be unlawful. This provides for a specific derogation from the legislation, to prevent a legal infringement occurring. To obtain an EPS licence for development it must be demonstrated that the purpose of the act to be licensed is for:

- "preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 53(2)(e)).

In addition Natural England will not grant an EPS licence unless they are satisfied that:

- "There is no satisfactory alternative" (Regulation 53(9)(a)); and
- "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" (Regulation 53(9)(b)).

Methods

Natural England Guidelines[1] suggest that all ponds within 500m of a proposed development area should be considered with respect to GCN. A pond scoping exercise was therefore undertaken using aerial photography, Ordnance Survey maps, Promap and MAGIC maps to identify all ponds within 500m of the site boundary.

A single pond (P2) is present on Site and a further two ponds (P1 and P3) are present within 500m of the Site boundary (see **Figure 7.8**). Pond 3, located c. 300m south of the Site, was found to be dry at the time of survey and was therefore excluded from the assessment/surveys below.

HSI Assessment

P1 and P2 have been assessed against a set of standardised criteria considered to influence the likelihood of use by GCN. The HSI scores were calculated following the method set out by Oldham et al.[2] and indicates whether a waterbody is of poor, average, good or excellent suitability habitat for GCN. These HSI assessments were undertaken by Michelle Bullock MCIEEM and Jamie Woollam MCIEEM on 30 June 2016.

eDNA Surveys

P1 and P2 were tested for GCN eDNA by Michelle Bullock MCIEEM and Jamie Woollam MCIEEM on 30 June 2016, following standard protocols set out by the testing laboratory whereby 20 water samples were taken from different locations around the pond margin, taking care to sample as much of the perimeter of the pond as possible. Appropriate precautions were put in place to prevent contamination of samples between ponds e.g. wearing gloves, not standing in the water etc. Each of the 20 samples were then pooled and 15ml was then transferred into each of the six ethanol-filled tubes. This method was repeated for both ponds. Samples were then transferred to the laboratory on the same day for analysis.

Limitations

There were no constraints to the survey.

Results

A single pond (P2) is present on Site and a further two ponds (P1 and P3) are present within 500m of the Site boundary. Pond 3, located c. 300m south of the Site, was found to be dry at the time of survey and was therefore excluded from the assessment/surveys.

P2 is located in the western corner of the southern land parcel. This pond comprised a very small quantity of water at the time of survey but was found to

[1] English Nature (2001). Great crested newt mitigation guidelines. English Nature, Peterborough.
[2] Oldham et al, 2000. Evaluating the suitability of habitat for the great crested newt (Triturus cristatus). Herpetological Journal, 10, pp 143-155.

be dry for the majority of the year. P1 is located c. 80m north of the Site within Brackmills Country Park.

Table 7.9.1 HSI assessment

	Pond 1	**Pond 2**
SI_1 Location	1.00	1.00
SI_2 Pond area	1.00	0.01
SI_3 Pond drying	0.50	0.10
SI_4 Water quality	1.00	0.01
SI_5 Shade	1.00	0.30
SI_6 Fowl	1.00	1.00
SI_7 Fish	1.00	1.00
SI_8 Ponds	0.38	0.78
SI_9 Terrestrial habitat	1.00	1.00
SI_{10} Macrophytes	0.90	0.31
HSI score	0.84	0.25
Pond suitability for GCN	**Excellent**	**Poor**

Table 7.9.2 eDNA survey results

Pond Reference	**Inhibition Check[2]**	**Sample Integrity[3]**	**Score[4]**	**Result[1]**
P1	Acceptable	Acceptable	0/12	Negative
P2	Acceptable	Acceptable	0/12	Negative

[1] Negative indicates that GCN DNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. Positive means that GCN DNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed.

[2] Inhibition check refers to a laboratory evaluation of the sample tested by adding a known amount of an artificial gene to the sample and running the qPCR analysis in duplicate. Variation in the point at which qPCR amplification starts indicates inhibition, which requires the sample to be diluted and retested.

[3] Sample integrity refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. PCR inhibitors can cause false results. Every effort is made to clean the sample preanalysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again. In that case the result will be reported as inconclusive.

[4] To generate the results all of the tubes from each pond are combined to produce one e-DNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.