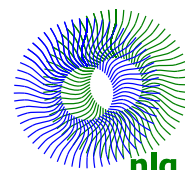


Appendix 7C

NLG Ecology Ltd (2021) Great Crested Newt (GCN) Pond Habitat Suitability Index (HSI) and eDNA Survey Report

Headbolt Lane, Kirkby

Great Crested Newt (*Triturus cristatus*) Pond Habitat Suitability Index (HSI) and eDNA Survey Report



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Introduction

This survey report has been prepared by NLG Ecology Ltd. in respect of Buckingham Group's proposals with regards to:

- Construction of a new station including transport infrastructure at Headbolt Lane, Kirkby;
- Track widening from single to dual track way between Kirkby Station and the proposed Headbolt Lane Station development;
- The demolition of the Northern Rail platform at Kirkby station;
- The construction of a proposed sub-station and supply bulk point; and
- Troughing works that extend from Fazakerley sub-station, off Wango Lane at the south western extent to the points of freight line, 200m west of Dale Lane.

The report outlines the findings of one environmental DNA (eDNA) survey and Habitat Suitability Index (HSI) assessment of nine ponds. Pond HSI assessments and the eDNA survey were carried out by Sally Conyers, NLG Ecologist (ACIEM, Natural England Class Licence Level 1 survey licence holder for great crested newt (GCN) 2015-9488-CLS-CLS), the pond HSI surveys were carried out during a number of site visits between March and April 2021, with the eDNA survey being carried out on the 26th April 2021.

Following discussion with Joe Whittick, the ecologist for Knowsley Planning Authority on the 14th April 2021 and an update to the red line boundary to be submitted for planning permission in July 2021, the scope for carrying out presence / absence surveys for GCN through eDNA and/or traditional surveys required was defined as suitable ponds within 250m of the Headbolt Lane and Kirkby Station development only.

Ponds within 250m of the proposed troughing works were assessed for pond HSI only, but no further survey has been undertaken for GCN; works within 250m of these ponds will be carried out under a Precautionary Working Method Statement (PWMS), which will be implemented as part of the Construction Environmental Management Plan (CEMP) due to the low impacting nature of the work proposals in these areas.

Legislation

Great crested newts are protected by the Wildlife and Countryside Act, 1981 (as amended) and under the Conservation of Habitats and Species Regulations 2017. It is an offence to:

- Kill, injure or knowingly disturb a great crested newt;
- Take a great crested newt from the wild;
- Damage/obstruct a place of shelter/protection used by a great crested newt; and
- Disturb a great crested newt while in a place of shelter.

Methodology

Habitat Suitability Index (HSI) Assessments for Great Crested Newt

The HSI assessments are designed to reflect a water body's suitability for great crested newt, using a range of parameters and undertaken in accordance with Oldham *et al.* (2000). The results (and parameters used) are shown in Table 2.

The methodology for assessing the ponds for their potential to support great crested newt adhered to the HSI devised by Oldham *et al.* (2000). The calculation of a HSI requires that the following 10 key habitat variables are recorded and assigned a numerical value, as shown in Table 1, below.

The calculation of the Habitat Suitability Index (HSI) is according to the formula: $HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$. This is a geometric mean, the tenth root of the product of all the suitability indices. The resulting HSI score is then allocated to the following categories of habitat suitability for great crested newt.

- <0.5 = poor
- 0.5 - 0.59 = below average
- 0.6 – 0.69 = average
- 0.7 – 0.79 = good
- >0.8 = excellent

Table 1: Habitat Suitability Index Criteria for Assessment

No	HSI Category	HSI Criteria / Score
1	Location	Location A: optimal (1), north, central & southern England; Location B: marginal (0.5), northern Pennines, north/southern Scotland & small areas of Wales; Location C: unsuitable (0.01) Scotland, west of Wales & Cornwall.
2	Pond Area	Calculated based on pond area in metre squared.
3	Pond Drying	Never dries = 0.9; Rarely Dries = 1.0; Sometimes dries = 0.5; Dries annually = 0.1.
4	Water quality	Good = 1.0; Moderate = 0.67; Poor = 0.33; Bad = 0.01.
5	Shade	Calculated as a percentage, with shading up to 60% considered suitable for great crested newt. Shade cover greater than 60% progressively declines in value.
6	Fowl	Absent = 1; Minor = 0.67; Major = 0.01.
7	Fish	Absent = 1; Possible = 0.67; Minor = 0.33; Major = 0.01.
8	Ponds	Number of ponds occurring within 1km of survey pond and divided by Pi (3.14). Exclude ponds where major barrier such as roads exist.
9	Terrestrial Habitat	Good = 1; Moderate = 0.67; Poor = 0.33; Bad = 0.01.
10	Macrophytes	Estimated percentage value of macrophyte cover (sum of emergent, floating, submerged plants reaching the surface, except duckweed).

eDNA survey

The eDNA survey was carried out following the guidance provided by SureScreen Scientifics whom the eDNA kit was provided and samples analysed by. This follows the standard methodology for eDNA surveys set out by Biggs *et al* (2014) within the accepted seasonal period for accurate assumption of presence / absence of GCN through eDNA sampling as defined by Natural England.

Results

Following review of Ordnance Survey (OS) mapping and a walk over survey, nine ponds were recorded within 250m (see Figures 1.1 – 1.3) of the Scheme; of these only two ponds are within 250m of the main Headbolt Lane development works (ponds 4 and 5).

Table 2: Pond Habitat Suitability Assessment Results

HSI Category	Northwood Hills Fishing Lake - Pond 1	Northwood Hills - Pond 2	Northwood Hills - Pond 3	Mill brook Park - Pond 4*	North of Mill Lane Fishing Lake - Pond 5*	Golf course – Pond 6	Golf course – Pond 7	Kirkby Rail Network - Pond P8	Kirkby Off network - Pond 9
	SJ 42307 99946	SJ 42328 99881	SJ 42177 99978	SJ 40883 99372	SJ 40759 99646	SJ 39198 98380	SJ 39448 98668	SJ 39630 98908	SJ 39630 98919
Location	1	1	1	1	1	1	1	1	1
Pond Area	5,500m - omit factor	0.4	0.4	0.9	Omit factor - 8700m	1	1	0.2	0.2
Pond Drying	0.9	1	0.5	0.9	0.9	0.9	0.1	0.1	0.1
Water Quality	0.67	0.67	0.67	0.67	0.33	0.33	0.33	0.33	0.33
Shade	1	1	1	1	1	1	1	0.2	0.2
Fowl	0.67	0.67	0.67	0.67	0.01	0.67	0.67	1	1
Fish	0.01	0.67	0.67	0.67	0.01	0.67	0.67	1	1
Ponds	0.85	0.85	0.85	0.6	0.6	0.65	0.65	0.55	0.55
Terrestrial Habitat	1	1	1	1	0.33	0.67	0.67	1	1
Macrophytes	0.3	0.35	0.3	0.35	0.3	0.3	0.3	0.3	0.3
HSI Score	0.47	0.72	0.66	0.74	0.23	0.67	0.54	0.43	0.43
Pond Suitability	Poor	Good	Average	Good	Poor	Average	Below Average	Poor	Poor

*only ponds highlighted in bold are within 250m of the proposed works at Kirkby Station and Headbolt Lane development, all other ponds will be covered under a CEMP as part of permitted development.

Based on the HSI assessment results, two of the nine ponds were assessed as having 'good' suitability for GCN, and two were assessed as having 'average' suitability for GCN. The remaining ponds were assessed as having below average to poor suitability for GCN.

An eDNA survey was carried out on 'Mill Brook Park' pond 4 only; the eDNA result returned was negative, indicating that it is highly unlikely GCN are present within the main works area at this time.

Conclusions and Recommendations

The two ponds within 250m of the main Headbolt Lane development and track extension, ponds 4 and 5, were assessed as offering good and poor suitability for GCN. Pond 4 was surveyed for presence / absence of GCN and the result was negative, therefore it is unlikely GCN are present within the main works area. However, pond 4 had notable tadpoles present during the eDNA survey and therefore is a breeding pond for common amphibian species; as a result, precautionary measures and care should be taken during vegetation clearance on the rail network to avoid injuring or killing species such as common toad (*Bufo bufo*) and common frog (*Rana temporaria*). Pond 5 is well fish stocked with negligible macrophyte vegetation and was therefore scoped out from requiring further survey due to the poor suitability to support GCN.

Ponds 1-3 within the Northwood Hills area had potential to support amphibian species, however it was notable during the survey that a large housing development situated 100m west of pond 3 had no GCN fencing present, indicating that GCN are likely absent from the locality.

Pond 6 within Kirkby Golf Course is a man-made pond; a common frog and toad were recorded under a piece of wood next to the pond, therefore it is considered highly likely common amphibians are present within the rail network in this area. Pond 7 is an ephemeral pond / wet area within the north eastern corner of the golf course which is likely to dry annually, however may support common amphibians during the breeding season. The proposed troughing works in this area will require some vegetation clearance, therefore precautionary working measures are recommended to avoid accidental injury or death of amphibian species.

Ponds 8 and 9 are situated approximately 170m north east of the M57 rail crossing. Pond 8 is situated within the rail network; during a walkover in March 2021 a small amount of water was present, however on re-inspection on April 26th both water bodies were dry with no aquatic vegetation present and were heavily shaded within a willow (*Salix sp.*) carr woodland giving a habitat suitability score of poor. Due to the proximity of the ponds to the rail network and associated troughing works, precautionary working measures are recommended to avoid accidental injury or death of amphibian species.

An Ecological Precautionary Working Method Statement in relation to GCN will be issued by NLG Ecology with regards to the proposed works on site as part of the Construction Ecological Management Plan. This document should be followed at all times during the works and should be sighted for full recommendations in to regards GCN for the proposed works. An identification guide is provided in Appendix 4 of this survey report.

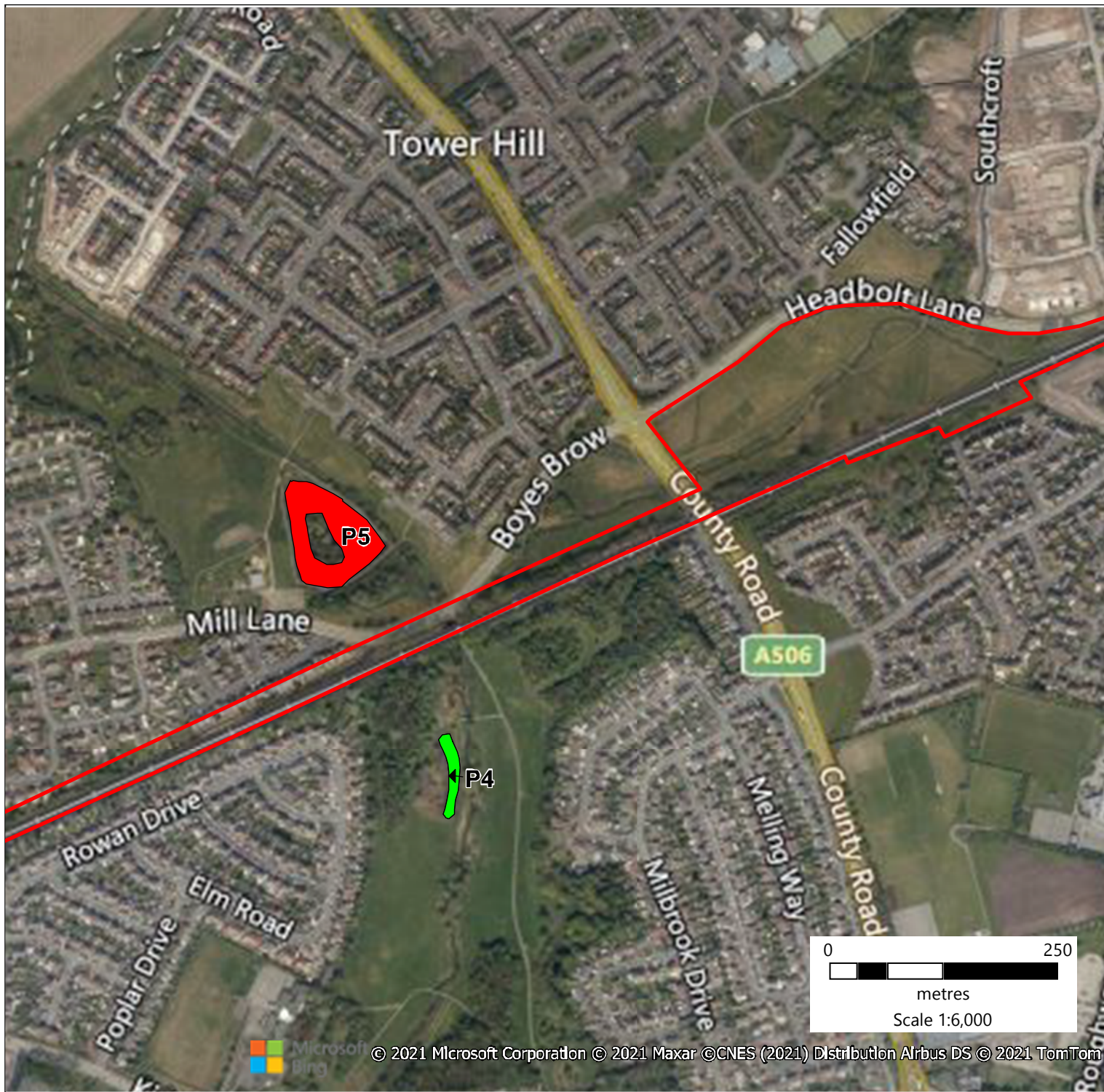
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NLG Ecology Ltd (2021) Headbolt Lane, Kirkby Preliminary Ecological Appraisal

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Appendix 1 – Figures



Key

Pond HSI Score

- Good
- Average
- Below average
- Poor

Red line boundary

Headbolt Lane

Figure 1.2: Pond location Plan

00	28/07/2021	LK	SC	SC
Rev	Date	Drawn	Checked	Approved

%

Scale at A4
1:4000

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