

**M42 Junction 6 Improvement  
Scheme Number TR010027  
Volume 6**

**6.3 Environmental Statement**  
**Appendix 9.9 Great Crested Newt Survey  
Report**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009

January 2019

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms  
and Procedure) Regulations 2009**

**M42 Junction 6 Improvement  
Development Consent Order 202[ ]**

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**6.3 Environmental Statement  
Appendix 9.9 Great Crested Newt Survey Report**

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<b>Regulation Number</b>	Regulation 5(2)(a)
<b>Planning Inspectorate Scheme Reference</b>	TR010027
<b>Application Document Reference</b>	6.3
<b>Author</b>	M42 Junction 6 Improvement Project Team and Highways England

<b>Version</b>	<b>Date</b>	<b>Status of Version</b>
Rev	January 2019	DCO Application

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## Appendix 9.9 - Great Crested Newt Survey Report

### 1 Introduction

#### 1.1 Purpose of this document

- 1.1.1 The purpose of this report is to provide the results of the amphibian surveys carried out by AECOM in 2018 to determine the status and distribution of great crested newts in the zone of influence of the Scheme.
- 1.1.2 The survey results will inform an assessment of the potential ecological effects of the Scheme, and will also be taken into account when identifying requirements for ecological mitigation to be included in the Scheme.
- 1.1.3 All ponds within 500m of the Scheme were previously identified during surveys carried out in 2017 (refer Annex A). This report is provided in Annex A.

### 2 Legislation

- 2.1.1 Great crested newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) [REF 1] and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 [REF 2]. This legislation, when taken together, results in a level of protection that prohibits the intentional, deliberate or reckless:
  - a. killing, injuring, taking or disturbance of great crested newts;
  - b. damaging, destroying or obstructing any place used by great crested newts for the purposes of breeding, sheltering/protection; and
  - c. selling and/or advertising for sale a great crested newt or any part thereof.
- 2.1.2 Great crested newt and common toad (*Bufo bufo*) are listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 [REF 3] as Species of Principal Importance for Conservation in England. Section 40 of the same Act [REF 3] requires that local and regional authorities have regard to the conservation of biodiversity in England, when carrying out their normal functions.
- 2.1.3 Common species of amphibian in the UK, common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helvetica*) are protected from commercial sale only under the Wildlife and Countryside Act 1981 (as amended) [REF 1].

### 3 Methodology

#### 3.1 Habitat Suitability Index assessment

- 3.1.1 Ponds within 500m from the Order Limits (see **Figure 9.9**) that were not subject to any access restrictions, were assessed for their suitability to support great crested newt in 2018 using the standardised Habitat Suitability Index (HSI) [REF 4] (summarised in **Table 3.1**). The HSI is a mathematical model that incorporates ten suitability indices, all of which are thought to influence the likelihood of the presence of great crested newt in a waterbody. The result of an HSI is a score between 0 (unsuitable) and 1 (optimal). The HSI is a tool for assessing the

suitability of waterbodies for great crested newt; however, it is not a substitute for surveys. The HSI is calculated using the following formula:

$$\text{HSI} = (\text{SI1} \times \text{SI2} \times \text{SI3} \times \text{SI4} \times \text{SI5} \times \text{SI6} \times \text{SI7} \times \text{SI8} \times \text{SI9} \times \text{SI10})^{1/10}$$

3.1.2 Where SI are Suitability Indices, as detailed below in **Table 3.1**.

**Table 3.1: Habitat Suitability Indices**

Suitability Indices	Factor
SI1	Geographic Location
SI2	Pond Area
SI3	Permanence
SI4	Water Quality
SI5	Shade
SI6	Waterfowl

## 3.2 Environmental DNA surveys

- 3.2.1 A method for establishing the presence or likely absence of great crested newts through detection of fragments of environmental DNA (eDNA) in waterbodies was approved for use by Natural England in 2014 [REF 5]. As only one survey visit is required, this has the potential benefit of reduced disturbance to the ponds than the traditional field surveys required to establish presence/absence and less conventional survey visits required unless the eDNA result is positive. In the latter case six standard surveys are usually still required to provide a population estimate to inform any licencing requirements.
- 3.2.2 A number of factors were considered when determining which waterbodies needed eDNA sampling, this included ponds that had been previously scoped out due to a low HSI score but were within or very close to the boundary of the Order Limits and some which previously had presence/ absence surveys but it was considered appropriate to test them to confirm the previous results. Other ponds were tested that had been recorded previously as dry and held water in 2018 or where no access was available to survey previously.
- 3.2.3 Surescreen Scientifics provided the sampling kits and were used to analyse the samples for eDNA. The water samples were collected using the guidance in Biggs *et al* (2014) [REF 5]. One of the surveyors held a great crested newt survey licence.

## 3.3 Limitations

- 3.3.1 Ponds with no access and so could not be surveyed in 2018 were; 5, 14, 15, 16, 18, 19, 22, 27 - 33 and 37.
- 3.3.2 Ponds that were dry in 2018 and so could not be sampled were; 3, 8, 10, 23, 24, 25, 38 and 43.
- 3.3.3 Ponds 18 and 46 no longer exist.

# 4 Results

- 4.1.1 The HSI assessments were conducted in April 2018; the results of which can be found below in **Table 4.1** and are illustrated in **Figure 9.9**.

**Table 4.1: HSI scores**

Pond number	HSI score 2017	Suitability 2017	HSI score 2018	Suitability 2018
1	0.5	Below Average	0.59	Below Average
2	0.77	Good	0.67	Average
3	0.57	Below Average	Pond Dry	
4	0.49	Poor	0.47	Poor
5	0.62	Average	No Access	
6	0.58	Below Average	0.58	Below average
7	0.85	Excellent	0.79	Good
8	No pond present		Pond Dry	
9	0.76	Good	0.8	Good
10	No pond present		Pond Dry	
11	0.83	Excellent	0.87	Excellent
12	0.62	Average	0.71	Good
13	0.65	Average	0.86	Excellent
14	No Access		No Access	
15	No Access		No Access	
16	No Access		No Access	
17	0.81	Excellent	0.92	Excellent
18	No Access		Pond not present	
19	No Access		No Access	
20	0.47	Poor	0.38	Poor
21	0.74	Good	0.75	Good
22	0.66	Average	No Access	
23	Pond Dry		Pond Dry	
24	Pond Dry		Pond Dry	
25	Pond Dry		Pond Dry	
26	No Access		0.82	Excellent
27	No Access		No Access	
28	No Access		No Access	
29	No Access		No Access	
30	No Access		No Access	
31	No Access		No Access	
32	No Access		No Access	
33	No Access		No Access	
34	0.8	Excellent	0.76	Good
35	0.46	Poor	0.45	Poor
36	0.82	Excellent	0.79	Good
37	0.72	Good	No Access	
38	Pond Dry		Pond Dry	
39	Pond Dry		0.51	Below Average
40	0.42	Poor	0.39	Poor

Pond number	HSI score 2017	Suitability 2017	HSI score 2018	Suitability 2018
41	0.82	Excellent	0.87	Excellent
42	0.45	Poor	Was found to have merged with pond 35 to become 1 waterbody for results see pond 35.	
43	0.32	Poor	Pond Dry	
44	0.62	Average	0.32	Poor
45	0.43	Poor	0.53	Below Average
46	0.29	Poor	This pond has been filled in. It no longer exists.	
47	0.6	Average	0.64	Average

## 4.2 Scoping for further survey in 2018

- 4.2.1 Using the results from the HSI survey, access limitations and the Order Limits, ponds were scoped in or out for further survey in 2018.
- 4.2.2 As detailed in the limitations section above, the ponds with no access that could not be surveyed were; 5, 14, 15, 16, 19, 22, 27 - 33 and 37. Ponds that were dry and so could not be sampled were; 3, 8, 10, 23, 24, 25, 38 and 43. The ponds 18 and 46 no longer existed.
- 4.2.3 Pond 42 had merged with Pond 35 and so both ponds are covered by the eDNA sampling of Pond 35.
- 4.2.4 This left 22 ponds that had HSIs undertaken (see **Table 4.1**). Only ponds 12, 13 & 45 demonstrated an improved HSI score, with all other ponds surveyed either remaining unchanged or decreasing in suitability according to the HSI.
- 4.2.5 Of these 22 ponds, the ponds 1, 2, 41, 44 and 47 had returned a negative result when surveyed using standard survey techniques in 2017 and Ponds 6, 7, 11, 12, 13, 21 and 36 a positive result when similarly surveyed in 2017.

## 4.3 eDNA Surveys

- 4.3.1 The scoping resulted in 11 ponds having water samples taken and sent for analysis for the presence/ absence of eDNA; Pond 36 whilst returning a positive result in 2017 using standard surveys was sampled for eDNA analysis in 2018.
- 4.3.2 **Table 4.2** below provides the results of the analysis of water samples taken from the 11 ponds in 2018 for presence of GCN eDNA.

**Table 4.2: eDNA results**

Pond Number	Result
4	Negative
9	Negative
17	Negative
20	Negative
26	Negative
34	Negative
35	Negative

Pond Number	Result
36	Negative
39	Negative
40	Negative
45	Negative

## 5 Discussion

- 5.1.1 All the ponds sampled for eDNA in 2018 tested negative confirming the absence of great crested newt populations. These were targeted at ponds that were located within or close to the Order Limits, or that were unable to be surveyed previously in 2017.
- 5.1.2 Fourteen ponds could not be surveyed in 2018 due to access restrictions. Of these, ponds 5, 22 and 37 were accessible in 2017; great crested newts had been confirmed absent and therefore these ponds do not represent a constraint (Annex A). The following considers the remaining 11 ponds which were not accessible to survey in 2017 or 2018:
- a) Only pond 19 is located within Order Limits. As a precaution it is assumed that a great crested newt population is present in pond 19.
  - b) The cluster of ponds located immediately east of the M42 (ponds 14, 15 & 16), between 200 - 350m from the Order Limits along the M42. However, there are no works proposed in this location, with the nearest physical works located over 750m from the ponds, which is far in excess of the typical dispersal distance of GCN [REF 6]. Therefore, given the magnitude of this distance the ponds 14, 15 & 16 are not considered to represent a constraint.
  - c) There are ponds just north of the A45 east of Junction 6 (ponds 27 & 28); these ponds are located in a quarry and were not accessible to survey. Previous survey of the ponds had confirmed the absence of GCN [REF 7]. Given the previous confirmation of absence of GCN, their location within an active quarry and their separation from the Scheme by a barrier, it is considered that these ponds do not represent a constraint.
  - d) The desk study (Appendix 9.1 [TR010027/APP/6.3]) identified a cluster of ponds with GCN south of the A45, east of the M42 beyond 250m from the Order Limits. These ponds (ponds 29 - 33) are associated with a working quarry and there was no access to survey them. Given the distance separating these ponds from the Order Limits, and the poor quality of intervening habitat, which includes the operational areas of the active quarry and/or the barrier provided by Old Station Road, it is considered that any GCN present in these ponds do not pose a constraint.
  - e) Pond 48 was not accessible to survey. This pond was surveyed by others in 2018<sup>1</sup> and GCN were confirmed to be present by eDNA, with no GCN recorded by aquatic surveys during suitable weather conditions [REF 8]. Therefore, at most the pond is assumed to support a small GCN population. The pond is

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<sup>1</sup> pond reference 23 in that report



located approximately 250m from the Order Limits and therefore given this distance and the low population recorded this pond is not considered to represent a constraint.

- 5.1.3 The surveys conducted in 2017, identified six ponds with great crested newt populations, none of which are located within the boundary of the Order Limits (Annex A). In summary, the confirmed great crested newt metapopulations are as follows [except where indicated otherwise, these are based upon populations size class data from 2017 (refer Annex A)]:
- a) pond 6 with a peak count of one and pond 7 with a peak count of five, are in close proximity to each other and considered to form a metapopulation with a combined peak count of six newts, which corresponds to a small population (less than ten adults);
  - b) pond 11 with a peak count eight and pond 12 with a peak count of one, are in close proximity to each other and considered to form a metapopulation with a combined peak count of nine newts, which corresponds to a small population. A survey undertaken by others in 2018 [REF 8] identified a Medium meta-population (peak count 15 adults) in ponds 11 and 12;
  - c) pond 13 with a peak count of eight, which corresponds to a small population; and
  - d) pond 36 with a peak count of two, which corresponds to a small population, Environmental DNA survey in 2018 did not identify GCN from this pond.
- 5.1.4 The great crested newt population of pond 13 lies within 100m of the west side of the M42, but no works are proposed here. Furthermore, pond 13 is separated from any area of physical works by a distance of over 500m, which exceeds the typical dispersal distance for GCN, and on this basis pond 13 is not considered to represent a constraint.
- 5.1.5 The Scheme is likely to result in impacts to the great crested newt populations known to be supported by ponds 6, 7, 11, 12 and 36, and also the assumed population in pond 19.
- 5.1.6 The proposed works are unlikely to result in the loss of any of these ponds that have great crested newt populations present. The works are also unlikely to result in fragmentation of any populations, as the works will not result in any ponds with great crested newts present being separated any more than they are now by existing barriers such as the M42 and A45.
- 5.1.7 The Scheme does however result in the loss of terrestrial habitat that could be used by GCN populations. Further consideration of the impacts upon great crested newts is provided in the draft Great Crested Newt Licence Application (see Appendix 9.19 [TR010027/APP/6.3]).

## 6 References

Reference Number	Source
REF 1	Wildlife and Countryside Act 1981. HMSO
REF 2	Conservation of Habitats and Species Regulations 2017. HMSO

REF 3	Natural Environment and Rural Communities Act 2006. HMSO
REF 4	Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) <i>Evaluating the suitability of habitat for the Great Crested Newt</i> (Triturus cristatus). Herpetological Journal 10(4), 143-155.
REF 5	Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014a) <i>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</i> (Triturus cristatus) <i>environmental DNA</i> . Freshwater Habitats Trust, Oxford.
REF 6	Cresswell W. and R. Whitworth (2004) <i>English nature Research Report 576 - An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt</i> Triturus cristatus. English Nature
REF 7	Middlemarch Environmental Ltd. (2011) <i>Land in the packington estate, Solihull, West Midlands – Great Crested Newt Survey</i> . A report to Greenfeild Associates and Packington Estate
REF 8	Wardell Armstrong (2018) <i>Motorway Service Area (MSA) and New Junction between Junction 5 &amp; 6 of the M42, Solihull – Great Crested Newt Survey – 2018 Update</i> . A report produced on behalf of Extra MSA Group

## ANNEX A - WSP (2017) M42 Junction 6 Improvement: Great Crested Newt Survey Report. Report by WSP, Leeds for Highways England

HIGHWAYS ENGLAND

# M42 JUNCTION 6 IMPROVEMENT GREAT CRESTED NEWT SURVEY REPORT

JULY 24, 2017

CONFIDENTIAL







# M42 JUNCTION 6 IMPROVEMENT GREAT CRESTED NEWT SURVEY REPORT

FINAL  
CONFIDENTIAL

PROJECT NO.: 62241010  
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# QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	24.07.17			
Prepared by	Lucy Elliott			
Signature				
Checked by	Rebecca Bailey			
Signature				
Authorised by	Andy Bascombe			
Signature				
Project number	62241010			
Report number				
File reference				

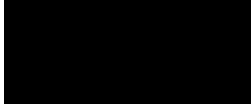




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# SIGNATURES

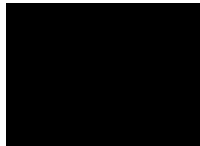
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# 1 INTRODUCTION

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## 1.1 BACKGROUND

WSP (formerly Mouchel) was commissioned by Highways England to undertake ecological surveys to inform the proposed M42 Junction 6 Improvement Scheme. Great crested newt surveys were undertaken between April and June 2017, the aim of which was to confirm the presence or likely absence of great crested newts from waterbodies within 500m of the proposed route options. This report presents the results of the survey work undertaken.

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## 1.2 SCHEME LOCATION

At the time of writing, three possible route options (Options 1, 2 and 3) are being considered. All three options are predominantly located to the south-west of Junction 6 close to the village of Bickenhill, although all route options also include improvements to the junction itself. The land within the proposed scheme is predominantly used for agriculture and pasture grazing, although the scheme is also close to the National Exhibition Centre (NEC), Birmingham International Railway Station and Birmingham Airport as well as proposed developments including High Speed 2 (HS2) route and terminal, a Motorway Service Area (MSA) and UK Central development.

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## 1.3 STUDY AREA

A review of OS mapping identified 41 waterbodies within 500m of the proposed route options. Six additional waterbodies were recorded during field surveys. Given that great crested newts often disperse into terrestrial habitats up to 500m from their breeding ponds, these 47 waterbodies were subsequently assessed for their likelihood to support great crested newts. The location of these waterbodies are shown in Figure 1.

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## 1.4 STUDY AIMS AND OBJECTIVES

The study sought to determine whether great crested newts are present within the study area. To achieve this aim, the following tasks were undertaken:

- Habitat Suitability Index (HSI) assessments of ponds within 500m of the proposed route options to assess their suitability for breeding great crested newts;
- Field surveys, including presence/likely absence surveys and where appropriate, population size assessment surveys of ponds within 500m of the proposed works to gather on the distribution and size of great crested newt populations..

## 2 METHODOLOGY

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### 2.1 FIELD SURVEY

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#### 2.1.1 HSI ASSESSMENT

Ponds within 500m from the proposed route options were assessed using the Habitat Suitability Index published by Oldham *et al.* (2000)<sup>1</sup>. The HSI method examines a range of criteria at each pond to produce an overall score between 0 (unsuitable) and 1 (optimal). The HSI score obtained provides an indicator of the suitability of a waterbody to support great crested newts. An HSI score of less than 0.5 indicates poor suitability, 0.5 – 0.59 below average suitability, 0.6 – 0.69 average suitability, 0.7 – 0.79 good suitability and greater than 0.8 excellent suitability.

HSI assessments were carried out between 14<sup>th</sup> and 16<sup>th</sup> February 2017. Ponds scoring 0.5 or higher were subject to presence/absence surveys, as detailed below. Ponds scoring less than 0.5, indicating poor suitability for great crested newts, were scoped out of any further survey work.

Pond 22 scored a value of 0.66, suggesting it is of average suitability for great crested newts. However it is considered that this score does not accurately reflect the on-site conditions; the waterbody is a large ornamental lake present within the centre of the National Exhibition Centre. Accordingly, this waterbody was scoped out of any further survey work.

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#### 2.1.2 PRESENCE/LIKELY ABSENCE AND POPULATION SIZE ASSESSMENT SURVEYS

Presence/likely absence of great crested newts can be determined with four survey visits carried out in suitable weather conditions. Surveys should be undertaken between mid-March and mid-June with at least two of these visits occurring from mid-April to mid-May.

If presence of great crested newts is confirmed, a population size assessment can be informed by undertaking a further two visits in suitable weather conditions within the same time period (a total of six visits, with at least three of these visits occurring during mid-April to mid-May).

Presence/likely absence and population size assessment surveys were undertaken using the following survey methods, in line with the Great Crested Newt Mitigation Guidelines<sup>2</sup>:

**Bottle Trapping:** This method requires setting bottle traps around the pond margin and leaving the traps set overnight. A density of one trap per two meters of shoreline was used. All bottle trapping was undertaken when night-time air temperatures were above 5°C, below which this method becomes unreliable.

**Torching:** This method specifies searching for great crested newts at night by shining a powerful torch (minimum one million candlepower) in the waterbody. All accessible areas of the waterbody margins were walked once, slowly checking for great crested newts. All torching was undertaken approximately 1 hour after sunset when fully dark.

**Egg Searching:** This method comprises searching both live and dead submerged vegetation for great crested newts. It is normally necessary to ‘unwrap’ the eggs to confirm identification, which can leave the egg vulnerable to

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<sup>1</sup> Oldham R.S., Keeble J., 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

<sup>2</sup> English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature.

predation and adverse effects from UV light. As this method conveys no information about population sizes, egg searching was terminated once the presence of great crested newt eggs had been confirmed.

*Netting:* This method involves using a long-handled hand net to sample the areas around the pond edge. Netting was undertaken at night, when adult newts are more likely to be in open water. At least 15 minutes of netting per 50m of shoreline was undertaken.

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## 2.2 LIMITATIONS

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### 2.2.1 ACCESS

Access was not permitted to the following ponds: 14, 15, 16, 18, 19, 26, 27, 28, 29, 30, 31, 32 and 33. Accordingly, HSI assessments and presence/absence surveys were not undertaken at these ponds.

Access to ponds 13 and 37 was not available during the HSI surveys, but was granted at a later date and HSI surveys were undertaken in conjunction with presence/absence surveys.

Access to pond 17 was rescinded following the HSI survey and as such, no further survey work was undertaken at this pond.

The implications of these access restrictions are discussed in Section 4 below.

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### 2.2.2 POND 3

Pond 3 was found to be dry throughout the duration of the survey work. Accordingly, presence/likely absence surveys could not be undertaken at this pond.

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### 2.2.3 POND 9

Access to pond 9 was not possible; the pond is fenced on all sides with barbed wire and surrounded by dense vegetation. Accordingly, surveys could not be undertaken at this pond. The implications of this are discussed in Section 4 of this report.

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### 2.2.4 POND 21

During the second survey carried out at pond 21, a water shrew *Neomys fodiens* was captured in one of the bottle traps. To avoid harm to this species, no further bottle trapping was undertaken at this pond and alternative survey methods were used. Accordingly, the survey methods used did not pose a constraint in this instance.

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### 2.2.5 POND 31

The banks of pond 31 are very steep and as such, it was deemed unsafe to carry out bottle trapping or egg searching at this pond. Torching and netting was undertaken from the top of the banks where safe to do so. However, the use of torching as a survey method was limited by the turbidity of the pond. The implications of these limitations are set out in Section 5 of this report.

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### 2.2.6 POND 36

The surface of pond 36 is entirely overgrown with water fern *Azolla filiculoides*, an invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). As a result, torching and netting of this pond could not be undertaken. Bottle trapping was carried out and all surveyors followed a survey protocol which was established to prevent the spread of this invasive species to other ponds being surveyed as part of the scheme.



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### *2.2.7 WEATHER CONDITIONS*

During the first survey undertaken on 18/04/17, overnight temperatures were forecast to fall to 3°C. To avoid harm to any newts which may have been caught, and ensure the results obtained were reliable, bottle trapping was not undertaken during this survey. Alternative methods, comprising egg searching, netting and torching were undertaken, during which temperatures remained above 5°C. Accordingly, the weather conditions did not pose a constraint in this instance.

# 3 RESULTS

## 3.1 FIELD SURVEYS

### 3.1.1 HSI SURVEYS

47 waterbodies are present within 500m of the route options. HSI surveys were undertaken to assess the suitability of these waterbodies to support breeding great crested newts. A summary of the results of the HSI assessment are provided in Table 3.1, with the full results provided in Appendix 1.

**Table 3.1 Summary of HSI assessment.**

POND NUMBER	HSI SCORE	SUITABILITY	POND NUMBER	HSI SCORE	SUITABILITY	POND NUMBER	HSI SCORE	SUITABILITY
1	0.5	Below average	17	0.81	Excellent	33	No access	
2	0.77	Good	18	No access		34	0.8	Excellent
3	0.57	Below average	19	No access		35	0.46	Poor
4	0.49	Poor	20	0.47	Poor	36	0.82	Excellent
5	0.62	Average	21	0.74	Good	37	0.72	Good
6	0.58	Below average	22	0.66	Average	38	Pond dry	
7	0.85	Excellent	23	Pond dry		39	Pond dry	
8	No pond present		24	Pond dry		40	0.42	Poor
9	0.76	Good	25	Pond dry		41	0.82	Excellent
10	No pond present		26	No access		42	0.45	Poor
11	0.83	Excellent	27	No access		43	0.32	Poor
12	0.62	Average	28	No access		44	0.62	Average
13	0.65	Average	29	No access		45	0.43	Poor
14	No access		30	No access		46	0.29	Poor
15	No access		31	No access		47	0.6	Average
16	No access		32	No access				

### 3.1.2 PRESENCE/ABSENCE AND POPULATION SIZE SURVEYS

The dates and weather conditions of each of the surveys are shown in Table 3.2.

**Table 3.2 Dates and weather conditions of presence/absence and population size surveys**

DATE	SURVEY TYPE	PONDS SURVEYED	WEATHER CONDITIONS
18/04/2017	Presence/absence	1, 2, 11, 12, 47	3°C, BF0, 30% CC, dry, frost forecasted
19/04/2017	Presence/absence	5, 6, 7, 9, 41, 44	11°C, BF1, 80% CC, dry
20/04/2017	Presence/absence	13, 36, 37,	11°C, BF1, 60% CC, dry
02/05/2017	Presence/absence	26, 34, 13, 36, 37, 41, 44	11°C, BF2, 80% CC, dry
03/05/2017	Presence/absence	21, 1, 2, 11, 12, 47,	11°C, BF2.5, 80% CC, dry
04/05/2017	Presence/absence	5, 6, 7	10°C, BF3, 80% CC, dry
15/05/2017	Presence/absence	21, 26, 5, 6, 7	15°C, BF3, 80% CC, light intermittent rain
16/05/2017	Presence/absence	34, 13, 36, 37, 41,	14°C, BF0, 80% CC, dry
17/05/2017	Presence/absence	1, 2, 11, 12, 47,	10°C, BF1, 80% CC, dry
18/05/2017	Presence/absence	26, 34, 44	11°C, BF1, 80% CC, dry
30/05/2017	Presence/absence	5, 6, 7, 26, 44	15°C, BF1, 60% CC, heavy rain before survey, dry
31/05/2017	Presence/absence	41, 36, 13, 34, 37	15°C, BF1, 60% CC, dry
01/06/2017	Presence/absence	1, 2, 11, 12, 31	17°C, BF0, 10% CC, dry
07/06/2017	Population size assessment	6, 7, 36	11.5°C, BF3, 0% CC, rained earlier, dry
06/06/2017	Population size assessment	11, 12, 13	11°C, BF2, 20% CC, light rain
12/06/2017	Population size assessment	6, 7, 11, 12, 13, 36	13°C, BF1, 80% CC, dry

The full results of the surveys undertaken are shown in Appendix 2. A summary of these results is shown in Table 3.3 below.

**Table 3.3 Presence/absence and population survey results**

GCN			DATE RECORDED	SURVEY METHOD USED	POPULATION SIZE ASSESSMENT
POND	PRESENT/ABSENT	PEAK COUNT			
1	Absent	N/A			
2	Absent	N/A			
5	Absent	N/A			
6	Present	1F	19/04/17	Trapping	Small

7	Present	3M, 2F Eggs present	19/04/17	Torching	Small
11	Present	5M, 3F	03/05/17	Torching	Small
12	Present	1F 1F	01/06/17 12/06/17	Trapping Torching	Small
13	Present	5M, 3F	02/05/17	Torching	Small
21	Absent	N/A			
26	Absent	N/A			
34	Absent	N/A			
36	Present	1M, 1F  2F	20/04/17 & 02/05/17  16/05/17 & 06/06/17	Trapping  Trapping	Small
37	Absent	N/A			
41	Absent	N/A			
44	Absent	N/A			
47	Absent	N/A			

## 4 EVALUATION

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### 4.1 INTERPRETATION AND EVALUATION

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#### 4.1.1 PRESENCE/ABSENCE

The survey work undertaken confirmed the presence of great crested newt within six of the ponds surveyed (Ponds 6, 7, 11, 12, 13 and 36). No great crested newts were recorded in the other ten ponds surveyed.

Great crested newt eggs were recorded in Pond 7 which confirms that this pond is used for breeding. Eggs were not recorded in any of the other ponds surveyed.

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#### 4.1.2 POPULATION SIZE ASSESSMENT

As set out within the Great Crested Newt Mitigation Guidelines, the maximum adult count per pond per night gained through either torching or bottle-trapping can be used to determine the size of the population present. Populations with up a maximum count of 10 are classed as small; between 11 and 100 are classed as medium; and counts of over 100 are classed as large.

Pond 6 had a peak count of one newt on 19/04/17 and pond 7 had a peak count of five newts on 19/04/17. Given the close proximity of these ponds to each other and the likely dispersal of individuals between ponds, ponds 6 and 7 are considered to form a metapopulation. Therefore, the peak count for this metapopulation is six newts on 19/04/17 which corresponds to a small population of great crested newts.

Pond 11 had a peak count of eight newts on 03/05/17 and pond 12 had a peak count of one newt on 01/06/17 and 12/06/17. Again, given the close proximity of these ponds to each other and the likely dispersal of individuals between ponds, ponds 11 and 12 are considered to form a metapopulation. Therefore, the peak count for this metapopulation is eight newts on 03/05/17, which corresponds to a small population of great crested newts.

Pond 13 had a peak count of eight newts on 02/05/17 which corresponds to a small population of great crested newts.

Pond 36 had a peak count of two great crested newts recorded on four of the six surveys, and this corresponds to a small population of great crested newts.

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#### 4.1.3 CONSTRAINTS

Due to access restrictions, HSI surveys were not undertaken at 13 of the ponds identified as being within 500m of the proposed route options. HSI surveys were carried out at ponds 3, 9 and 17, and all were found to be suitable for great crested newts, however further surveys of these ponds were not undertaken, as detailed in Section 2 above. Accordingly, there are 16 ponds within 500m of the proposed route options where the presence or likely absence of great crested newts could not be confirmed during the survey work undertaken.

Although presence/likely absence surveys were completed at P36 and P37, constraints identified during the surveys mean that the results should be interpreted with caution. Great crested newts were confirmed to be present within P36, however, due to the presence of water fern on the surface of the pond, torching and netting could not be undertaken. Accordingly, the peak count recorded may underrepresent the population size class present. In addition, eggs were not recorded during the surveys undertaken, however, newts may have made use of the water fern to lay their eggs and it was not possible to carry out a comprehensive search of this. As such, the absence of great crested newt eggs from this pond does not conclusively show that breeding is not occurring.

Finally, due to the steep banks present around P37, it was not possible to safely access the edge of the water and so trapping and egg searching was not undertaken. Torching and netting was undertaken however high turbidity levels on three of the four surveys meant that the results obtained from torching should not be relied upon. Accordingly, the survey work undertaken at P37 does not conclusively show that great crested newts are absent from this pond.

## 5 FIGURES

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### 5.1 FIGURE 1: GREAT CRESTED NEWT SURVEY MAP



# APPENDIX

## A HSI SURVEY RESULTS





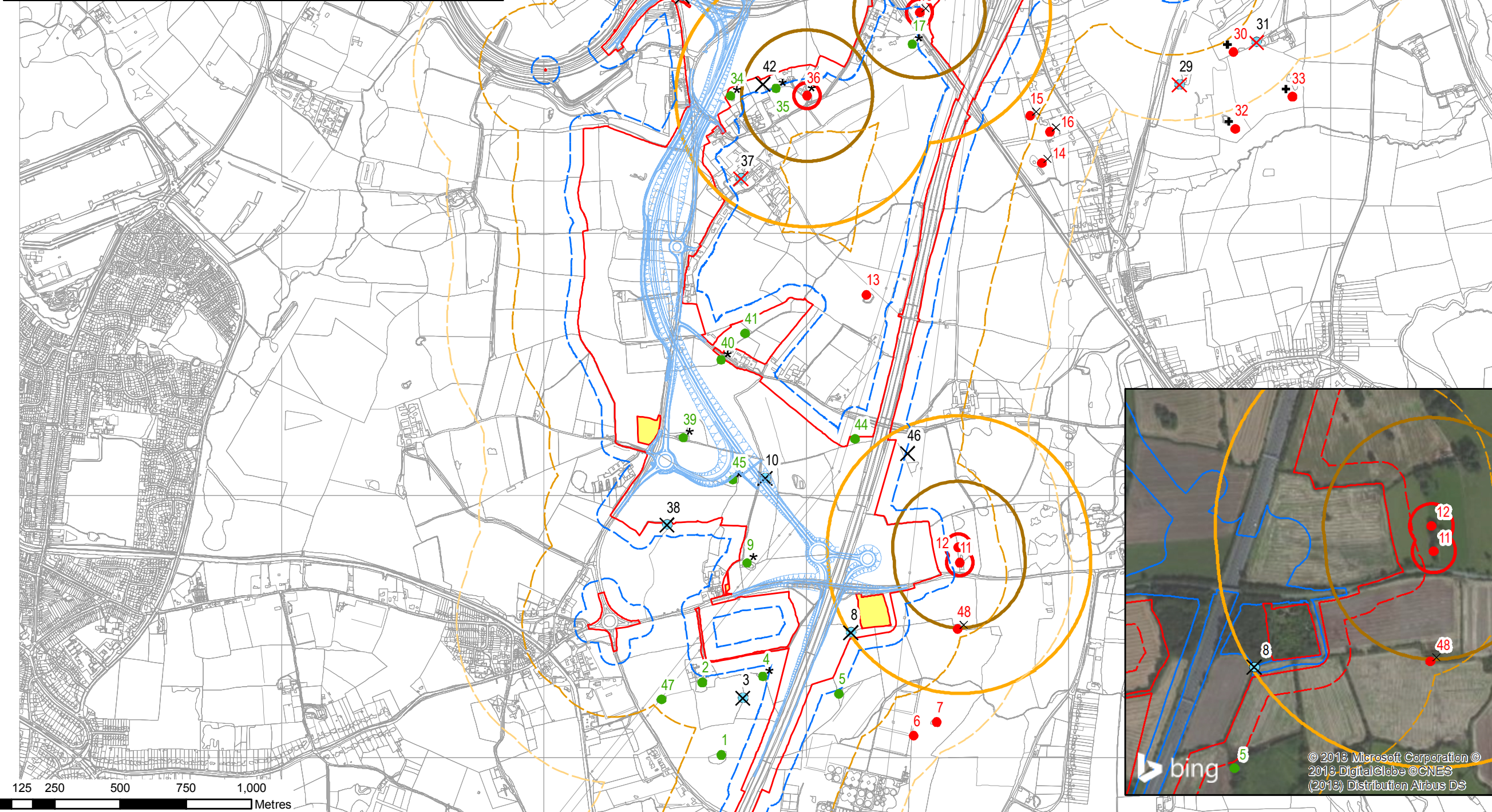
POND NUMBER	DATE OF	SI1	SI4			SI9				SI10			HSI SCORE	HSI CATEGORY
	SURVEY VISIT	GEOGRAPHIC LOCATION	SI2 AREA	POND SI3 DRYING	WATER QUALITY	SI 5		SI6 FOWL	SI7 FISH	SI8 PONDS	TERRESTRIAL	SUM		
						SHADE	HABITAT				MACROPHYTES			
1	16/02/2017	1	0.2	0.1	0.33	0.6	1	1	0.83	1	0.3	0.00	0.50	Below Average
2	15/02/2017	1	0.88	1	0.67	1	0.67	0.67	0.88	1	0.3	0.07	0.77	Good
3	15/02/2017	1	0.3	0.1	0.64	0.2	1	1	0.88	1	1	0.00	0.57	Below Average
4	15/02/2017	1	0.3	0.1	0.67	0.2	1	1	0.92	0.67	0.3	0.00	0.49	Poor
5	16/02/2017	1	0.2	0.5	0.67	0.4	1	1	1	1	0.3	0.01	0.62	Average
6	16/02/2017	1	0.3	0.5	0.67	0.2	1	1	1	0.67	0.3	0.00	0.58	Below Average
7	16/02/2017	1	1	1	1	0.8	1	1	1	0.67	0.35	0.19	0.85	Excellent
8	16/02/2017	No pond present												
9	15/02/2017	1	0.8	1	0.67	0.8	0.67	0.67	0.95	0.67	0.5	0.06	0.76	Good
10	15/02/2017	No pond present												
11	16/02/2017	1	0.9	0.5	0.67	1	1	1	1	0.67	0.8	0.16	0.83	Excellent
12	16/02/2017	1	0.1	0.5	0.67	1	1	1	1	0.67	0.4	0.01	0.62	Average
13	19/04/2017	1	1	1	0.67	0.2	0.67	0.67	0.89	0.67	0.35	0.05	0.74	Good
14	No Access													
15	No Access													
16	No Access													
17	14/02/2017	1	0.9	1	0.67	1	1	0.67	0.83	1	0.35	0.12	0.81	Excellent
18	No Access													
19	No Access													
20	14/02/2017	1	0.05	0.1	0.67	0.7	1	1	0.83	0.67	0.4	0.00	0.47	Poor
21	14/02/2017	1	0.8	0.9	0.67	1	0.67	0.67	0.92	0.67	0.35	0.05	0.74	Good
22	14/02/2017	1	0.8	0.9	0.67	0.9	0.67	0.67	0.38	0.67	0.3	0.01	0.66	Average
23	14/02/2017	Pond Dry												
24	14/02/2017	Pond Dry												
25	14/02/2017	Pond Dry												
26	No Access													
27	No Access													
28	No Access													

# APPENDIX

POND NUMBER	DATE OF SURVEY VISIT	SI1 GEOGRAPHIC LOCATION	SI2 POND AREA	SI3 POND DRYING	SI4 WATER QUALITY	SI 5 SHADE	SI6 FOWL	SI7 FISH	SI8 PONDS	SI9 TERRESTRIAL HABITAT	SI10 MACROPHYTES SUM	HSI SCORE	HSI CATEGORY
29										No Access			
30										No Access			
31										No Access			
32										No Access			
33										No Access			
34	14/02/2017	1	0.6	1	0.67	1	1	1	1	0.67	0.4	0.11	0.80 Excellent
35	14/02/2017	1	0.05	0.1	0.67	0.4	1	1	1	1	0.3	0.00	0.46 Poor
36	14/02/2017	1	0.4	1	0.67	1	1	0.67	1	1	0.8	0.14	0.82 Excellent
37	20/04/2017	1	0.6	1	0.67	1	0.67	0.67	0.89	0.67	0.35	0.04	0.72 Good
38	15/02/2017									Pond Dry			
39	15/02/2017									Pond Dry			
40	14/02/2017	1	0.05	0.1	0.67	0.2	1	1	0.95	1	0.3	0.00	0.42 Poor
41	14/02/2017	1	0.3	0.5	1	1	1	1	0.95	1	1	0.14	0.82 Excellent
42	14/02/2017	1	0.05	0.1	0.67	0.2	1	1	1	1	0.5	0.00	0.45 Poor
43	14/02/2017	1	0.05	0.5	0.01	0.2	1	1	0.98	0.67	0.35	0.00	0.32 Poor
44	15/02/2017	1	0.4	0.5	0.67	0.2	1	1	0.92	1	0.35	0.01	0.62 Average
45	15/02/2017	1	0.05	0.1	0.67	0.2	1	1	1	1	0.3	0.00	0.43 Poor
46	16/02/2017	1	0.05	0.1	0.33	1	1	1	1	0.01	0.3	0.00	0.29 Poor
47	19/04/2017	1	0.8	0.5	0.67	0.2	1	0.67	0.85	0.67	0.3	0.01	0.6 Average

## Annex B: Figures





NOTES  
THIS DRAWING IS TO BE READ IN CONJUNCTION  
WITH ALL OTHER RELEVANT DOCUMENTATION.

- LEGEND
- THE SCHEME
  - LIMITS OF LAND TO BE ACQUIRED OR  
USED PERMANENTLY OR TEMPORARILY  
(THE ORDER LIMITS)
  - LIMITS OF LAND TO BE TEMPORARILY  
ACQUIRED FOR SIGNAGE INSTALLATION
  - LAND NOT INCLUDED WITHIN THE  
ORDER LIMITS
  - 50 M BUFFER
  - 250 M BUFFER
  - 500 M BUFFER
  - GCN RECORDED IN 2017
  - ASSUMED GCN POND - NO ACCESS
  - NO GCN IN 2018 (EDNA) BUT GCN  
RECORDED IN 2017
  - NO ACCESS - DESK STUDY GCN RECORD
  - NO ACCESS
  - NO GCN RECORDED IN 2017
  - NO GCN RECORDED IN 2018 (EDNA)
  - POND DRY
  - DOES NOT EXIST ANYMORE
- BUFFERS AROUND GCN PONDS  
SCOPED IN THE ASSESSMENT
- 50 M
  - 250 M
  - 500 M

FIRST ISSUE	GSB	JG	13/12/18	P01
Revision Details	By	Check	Date	Suffix

Purpose of Issue

DCO SUBMISSION

Client  
Highways England  
Floor 5  
38 Colmore Circus  
B4 6BN

Development Consent Order Number

TR010027

Project Title

M42 JUNCTION 6  
IMPROVEMENT

Drawing Title

FIGURE 9.9  
GCN SURVEY PLAN

Designed  
MMH

Drawn  
GSB

Checked  
MMH

Approved  
JG

Date  
13/12/18

Internal Project No  
60543032

Suitability  
D7

Scale @ A3  
1:16,500

Zone  
M42

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Drawing Number  
HE551485 -ACM -EGN-

Location  
M42 SW ZZ ZZ -DR-DC-0243

Rev  
P01

Filename: K:\GIS Management\60543032 - M42 Jct 6 GIS Folder\_GIS01\_Maps\02\_Figures\New Template\Ecology\_Figures\FIGURE 9.9.mxd

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