



**GREAT CRESTED NEWT SURVEY REPORT
MAPLE ROAD, TANKERSLEY**

SEPTEMBER 2017

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1 INTRODUCTION

Surface Property (Surface) was commissioned by Company Shop and Rula Developments Ltd to undertake a survey for great crested newts (GCN) (*Triturus cristatus*) in relation to a planning application for a Distribution Centre with two-storey offices, a service yard and car parking (henceforth referred to as the Development) at Maple Road, Tankersley (henceforth referred to as the Site).

During an initial ecological appraisal¹ no waterbodies were recorded on, or within 100 m of, the Site. However, suitable terrestrial habitat of moderate potential was present on the Site and GCNs have been previously recorded in ponds to the east and west of the Site. Due to the potential loss of suitable terrestrial habitat GCN surveys were undertaken to determine the impact this may have on GCN populations in the area.

This report describes the methods and results of the GCN survey and provides an overview of the potential constraints to the Development that have been identified. This report supersedes the August 2017 Great Crested Newt Survey Report previously submitted, following comments from Barnsley Metropolitan Borough Council (BMBC). Revisions have been made to Section 6 owing to changes to mitigation measures.

1.1 Site Description

The Site occupies a small area within an Industrial Park and, as such, is bounded by a commercial unit to the east, by Maple Road and further commercial units to the south, a car parking area for a unit to the north, and an area of grassland to the west.

The Site was dominated by periodically managed semi-improved grassland with deciduous woodland to the west of the Site and areas of scattered and dense scrub.

2 LEGISLATION

GCNs are legally protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2010 (as amended) as European Protected Species (EPS). Intentional or reckless killing, injury or taking, and intentional or reckless disturbance of GCN whilst occupying a 'place used for shelter or protection' is prohibited, as is the destruction of these places.

3 METHODS

3.1 Habitat Suitability Index (HSI) Assessment

All water bodies within the Site and 500 m of the Development (the Survey Area) were identified during walkover surveys and from OS 1:10,000 maps and aerial photographs. GCN may utilise suitable terrestrial habitat up to 500 m from their natal or breeding ponds and, therefore, if they are present in any of the ponds in the Survey Area or surrounds, GCN could be present within suitable terrestrial habitat within the Site.

Nine water bodies were identified during the walkover surveys and review of maps and aerial imagery, all of which were accessible at the time of survey. A Habitat Suitability Index (HSI) assessment² was made of each to determine their potential to support GCN

¹ Surface (August 2017), Ecological Appraisal

² Oldham, R. S., Keeble, J., Swan, M J. S., and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* (10) pp. 143–155.

(Table 3.2.2 and shown on Figure 1). On the basis of this assessment, Ponds 1–6 were selected for presence/absence surveys. Ponds 7–9 were dry throughout the surveys and therefore could not be subjected to further assessment.

3.2 Presence/Absence and Population Surveys

Surveys to determine the status of GCN were undertaken in accordance with guidance³ and under licence from Natural England, as well as adhering to ARG-UK guidance on minimising the risk of spreading disease (particularly Chytridiomycosis) among amphibian populations. Six surveys were undertaken (Table 3.2.1) to help accurately estimate the local population size; this is required should a Natural England licence be necessary to facilitate development.

Table 3.2.1: Great crested newt survey dates and weather conditions.

Visit	Date	Weather Conditions
1	27/28 April 2017	Ground conditions: damp Wind: fresh NE Cloud cover: 7/8 Oktas Precipitation: light periodically Temp range: 9–5°C
2	4/5 May 2017	Ground conditions: dry Wind: light S Cloud cover: 1/2 Oktas Precipitation: none Temp range: 16–9°C
3	9/10 May 2017	Ground conditions: dry Wind: none Cloud cover: 0/1 Oktas Precipitation: none Temp range: 10–5°C
4	16/17 May 2017	Ground conditions: damp Wind: none Cloud cover: 8 Oktas Precipitation: none Temp range: 13–18°C
5	22/23 May 2017	Ground conditions: damp Wind: none Cloud cover: 3 Oktas Precipitation: none Temp range: 12–19°C

³ English Nature (2001) *Great crested newt mitigation guidelines*. Peterborough: English Nature.

Visit	Date	Weather Conditions
6	08/09 June 2017	Ground conditions: dry then damp Wind: light to fresh Cloud cover: 3 Oktas Precipitation: light shower in late evening Temp range: 12–15°C

All ponds were visited four times to establish GCN presence/absence, with a further two visits completed if GCN were present in a water body. All six visits were carried out between mid-April and June 2017, with three visits completed during the optimum mid-April to mid-May period.

Three of the four approved surveying techniques were adopted, i.e. torching, bottle trapping, netting and egg searching in accordance with Natural England guidance, during each survey visit.

- *Torchlight survey* – The perimeter of each pond was walked after dark whilst illuminating the water's edge with a powerful torch. This method is only used when visibility in the water column is not impaired by rain, wind, turbidity or vegetation. Note that distinguishing between female smooth and palmate newts under torchlight is extremely difficult and so females of these species are classified as 'unidentified small female' during these surveys.
- *Bottle trapping* – Bottle traps constructed from two-litre plastic bottles were set around the perimeter of each water body shortly before dusk. The bottle traps were revisited early the next morning to record any newts captured and ensure their safe release. This method is especially useful where visibility is poor, for example in heavily vegetated or turbid water.
- *Netting* – The perimeter of the pond was sampled with a long-handled dip net with care taken not to disturb the macrophyte community.
- *Egg searching* – The vegetation within each pond was inspected for the presence of eggs. Once eggs are found (and breeding therefore confirmed), no further searches are conducted.

The physical condition of the ponds (depth, size, turbidity, vegetation, access *etc.*), determined which survey methods were appropriate. Health and Safety issues were also considered when selecting the survey methods. A combination of torch survey, egg searching and bottle trapping were used for the six ponds. Further justification for the choice of survey methods selected is presented in Table 3.2.2 along with more information about the pond habitats.

Table 3.2.2: Pond descriptions.

Pond no.	Grid reference	HSI Score	Description	Survey methods
1	SK 32945 99628	0.86 'excellent'	Large pond dominated by reedbed with central grassed island. Waterfowl prevalent and water often turbid, except near perimeter.	Suitable for bottle trapping, torch surveys and egg searching. Slightly turbid, but shallows easily torched. Marginal vegetation prevented access to all parts of water's edge.
2	SK 33094 99423	0.76 'good'	Northernmost of three, once interconnected, ponds. Pond water level	Suitable for torch surveys, bottle trapping and egg searches.

			frequently changed. Some aquatic invertebrates noted.	Bottle trapping limited to deeper areas during dry spells.
3	SK 33122 99420	0.81 'good'	Middle of the three, once interconnected, ponds. Water levels stable, emergent vegetation dominated by bulrush.	Suitable for bottle trapping, torch surveys and egg searching. Slightly turbid, but shallows easily torched. Marginal vegetation prevented access to all parts of water's edge.
4	SK 33138 99389	0.93 'excellent'	Southernmost of the three, once interconnected, ponds. Kidney shaped pond with bulrush and slight turbidity.	Suitable for bottle trapping, torch surveys and egg searching. Slightly turbid, but shallows easily torched. Marginal vegetation prevented access to all parts of water's edge.
5	SK 33638 99377	0.87 'excellent'	Large manufactured pond to the east of the Site. Extensive bulrush and duckweed coverage which has increased turbidity of pond. Clear waterfowl presence.	Suitable for bottle trapping, torch surveys and egg searching. Duckweed impacted visibility at some of the pond edges. Two-thirds of the water's edge was inaccessible due to construction from sheet metal and depth of water. Reedbed habitat within the pond made it unsuitable for wading access due to unknown water depth.
6	SK 33599 99431	0.56 'below average'	Small pond surrounded by trees, highly shaded with very limited emergent vegetation.	Suitable for bottle trapping, torch surveys. Egg searching was limited due to lack of suitable emergent vegetation, what little vegetation present was searched.
7	SK 33771 99559	0.34 'poor'	Shallow pond dominated by reedbed and colonised by grass species.	Dry during all surveys, no methods completed.
8	SK 33804 99586	0.34 'poor'	Shallow pond dominated by reedbed and colonised by grass species.	Dry during all surveys, no methods completed.
9	SK 33826 99607	0.34 'poor'	Balancing pond, dry at the time of survey. Steep banks and clay lined.	Dry during all surveys, no methods completed.

3.3 Population Size Class

The maximum adult count recorded from a water body on a single night using a single survey technique is used to estimate the population size class as Small (≤ 10 individuals), Medium (11–100 individuals) or Large (> 100 individuals). The populations of waterbodies within 250 m of each other can be considered together to form an effective meta-population if there are no significant barriers to dispersal and migration among the waterbodies⁴.

3.4 Artificial Refugia

Artificial refugia were placed within the Site and inspected seven times as part of a dedicated reptile survey. This survey was not undertaken specifically to determine the

⁴ JNCC (2003) *Herpetofauna Workers' Manual*. Peterborough: JNCC.

presence of GCN but since the species is known to rest under refugia, inspecting such refugia provided an additional and accepted method of surveying GCN because the presence of refugia may increase the chance of recording GCN in terrestrial habitat on a site³. The inspections were undertaken during May and June, which are considered to be two of the most effective months to find GCN using refuges³.

4 LIMITATIONS

Due to a potential health and safety risk at Pond 5 which could not be mitigated, the water body could only be trapped along its western and northern edges. The level of reedbed cover, depth and lack of water clarity meant that wading further into the pond to place traps was not safe.

After the fourth survey visit a dead water shrew (*Neomys fodiens*) was recorded in Pond 5 by an ecologist working for Barnsley Metropolitan Borough Council (BMBC). The water shrew is an IUCN species of concern and it is considered good practice to cease bottle trapping if it is considered to be a threat to the species. For this reason, Ponds 5 and 6 (due to its close proximity to Pond 5) were not trapped during survey visits 5 and 6. Torching had previously recorded the peak count during each survey visit for both Pond 5 and 6, therefore a reduction in trapping visits was not considered to affect peak counts gained during the surveys. Therefore, the cessation of bottle trapping is not a limitation to the overall survey and conclusions.

5 Results

5.1 Habitat Suitability Index (HSI) Assessment

The results of the HSI are shown in Table 3.2.2. The three dry ponds (Ponds 7–9) were assessed to be of poor or below average suitability to support GCN. The remaining ponds had good or excellent suitability to support GCN.

5.2 Presence/Absence and Population Surveys

The results of the presence/absence and population surveys for each pond are presented separately in Table 5.2 below. GCN and any other amphibian species were recorded.

Table 5.2. Survey Results

Visit Number: 1	Survey Method			Peak GCN ⁵
Pond	Torching	Bottle Traps	Egg Search	
1	2 mGCN*, 2 fGCN, 1 uCF	1 mGCN, 2 fGCN	Egg recorded	4
2	7 mGCN, 14 fGCN, 2 mSN, 7 USF, 1 uCF	21 mGCN, 8 fGCN	None recorded	29
3	7 mGCN, 4 fGCN	9 mGCN, 5 fGCN	Egg recorded	14
4	15 mGCN, 16 fGCN, 3 mSN	32 mGCN, 9 fGCN, 1 uCF	None recorded	41
5	0	4 mGCN, 1 fGCN, 1 uCF	None recorded	5
6	2 mGCN, 4 fGCN	1 mGCN, 4 fGCN	None recorded	6
Visit Number: 2	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	1 uCF	3 mGCN, 1 fGCN, 1 uCF	No egg search as egg recorded	4
2	10 mGCN, 3 fGCN, 1 uCF, 5 USF	2 mGCN, 3 fGCN, 1 fSN	None recorded	13
3	15 mGCN, 14 fGCN, 1 mSN, 1 USF	5 mGCN, 2 fGCN	No egg search as egg recorded	29
4	32 mGCN, 34 fGCN, 6 mSN, 6 USF	18 mGCN, 6 fGCN, 2 fSN	Egg recorded	66
5	0	1 mSN	None recorded	0
6	2 mGCN, 3 fGCN	1 mGCN, 3 fGCN	None recorded	5

⁵ Peak count is highest number recorded over all survey methods.

Visit Number: 3	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	1 fGCN	2 fGCN, 1 uCF	No egg search as egg recorded.	2
2	18 mGCN, 10 fGCN, 2 mSN, 1 USF	6 mGCN, 7 fGCN, 1 mSN, 3 fSN	Egg recorded	28
3	7 mGCN, 2 fGCN, 1 USF	7 mGCN, 7 fGCN, 1 mSN, 1 fSN	No egg search as egg recorded	14
4	23 mGCN, 26 fGCN, 4 USF	8 mGCN, 7 fGCN	No egg search as egg recorded	49
5	1 fGCN	1 mGCN, 1 fGCN	None recorded	2
6	1 USF	1 fGCN	None recorded	1
Visit Number: 4	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	2 mGCN, 1 USF	9 mGCN, 4 fGCN	No egg search as egg recorded	13
2	9 mGCN, 14 fGCN, 5 mSN, 9 USF	11 mGCN, 8 fGCN, 3 mSN, 4 fSN	No egg search as egg recorded	23
3	22 mGCN, 20 fGCN, 2 mSN, 8 USF	12 mGCN, 7 fGCN, 1 mSN, 1 fSN	No egg search as egg recorded	42
4	47 mGCN, 25 fGCN, 1 mSN, 1 USF	27 mGCN, 11 fGCN, 1 fSN	No egg search as egg recorded	72
5	0	0	None recorded	0
6	6 mGCN, 1 fGCN	8 mGCN, 3 fGCN	None recorded	11

Visit Number: 5	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	4 mGCN, 5 fGCN, 1 mSN, 2 USF	1 mGCN, 3 fGCN	No egg search as egg recorded	9
2	6 mGCN, 2 mSN	2 mGCN, 4 fGCN	No egg search as egg recorded	6
3	11 mGCN, 16 fGCN, 1 USF	1 mGCN, 3 fGCN, 1 mSN	No egg search as egg recorded	27
4	20 m GCN, 13 fGCN	6 mGCN, 9 fGCN	No egg search as egg recorded	33
5	1 mGCN	Not trapped	None recorded	1
6	2 mGCN, 10 fGCN, 4 mSN, 4 USF	Not trapped	None recorded	12
Visit Number: 6	Survey Method			Peak GCN
Pond	Torching	Bottle Traps	Egg Search	
1	2 mGCN, 1 fGCN, 2 mSN	1 fGCN, 1 mSN, 1 fSN	No egg search as egg recorded	3
2	12 mGCN, 8 fGCN, 3 mSN, 6 USF	1 mGCN, 2 fGCN, 1 mSN	No egg search as egg recorded	20
3	3 mGCN, 1fGCN, 1 USF	0	No egg search as egg recorded	4
4	16 mGCN, 12 fGCN, 1 mSN	0	No egg search as egg recorded	28
5	0	Not trapped	None recorded	0
6	5 mGCN, 7 fGCN, 2 USF	Not trapped	None recorded	12

*Key:	GCN – Great crest newt	m – Male
	SN – Smooth newt	f – Female
	CF – Common frog	U – Unknown
	CT – Common toad	USF – Unidentified small female

The results confirm the presence of GCN in all six waterbodies located in the Survey Area.

5.3 Population Size Class

The peak survey count and population class estimate is shown in Table 5.3.

Table 5.3: Peak Count and Population Class

Pond	Peak Count	Population Class
1	13	Medium
2	29	Medium
3	42	Medium
4	72	Medium
5	5	Low
6	12	Medium

Except for Pond 5, which had a low population, all waterbodies had a medium population. However, Ponds 1–4 are within 250 m of each other and so there is reasonable certainty that there will be a regular interchange of newts between the ponds². Therefore, the peak numbers obtained on any one visit for Ponds 1–4 can be summed to give a metapopulation estimate of 140 GCN, which is a large population. Ponds 5 and 6 are within 50 m of each other and are therefore considered to be a medium metapopulation.

5.4 Artificial Refugia

No GCN or other amphibians were recorded during the inspections of the refugia on the Site³.

6 CONCLUSIONS AND MITIGATION

6.1 Potential Effects of Development

GCN are active throughout the warmer months, generally March to October inclusive, during which they spend time in both water and on land, usually sheltering and foraging in habitats offering cover near to their breeding ponds such as scrub and tall grassland. Any work on terrestrial habitats likely to support the species, or on areas between breeding ponds and such habitat, carries the risk of disturbing or harming the newts. Such disturbance or harm could constitute an offence under the Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2010 (as amended).

No GCN have been recorded on the Site itself (during surveys using artificial refugia) and the Site is separated from the nearest pond by 100 m of largely building and hardstanding habitat. Furthermore, the 2017 survey of the nearest ponds (Ponds 5 and 6) has recorded a drop in the population estimates (Table 6.1).

Table 6.1: Peak Count

Pond	2007 GCN Peak Count	2009 GCN Peak Count	2017 GCN Peak Count
5	8	15	12
6	11	13	5

Habitat Loss

Despite the presence of breeding great crested newts in nearby ponds, the potential impacts to GCN from the Development are unlikely to affect their favourable conservation status. The Site offers potential moderate terrestrial habitat for GCN, although no waterbodies are present on the Site or within 100 m and so the ponds will not be directly impacted by the Development. Similarly, the highest value terrestrial habitat (i.e. the woodland) will only be partially affected by the Development and so there will not be a complete loss of local refugia or hibernacula. The loss of the grassland which provides moderate foraging habitat, is considered to be of low value to local GCN population in the context of the wider environment. All of the breeding ponds within 500 m of the Site are sited within good terrestrial habitat, with the habitat to the west of the Site being extensive, high value and connected to all ponds within 500 m (as discussed below). It is therefore likely that although the Development may result in potential displacement of GCN using the grassland area within the Site (although considered unlikely), adequate, alternative foraging resources are present in the immediate vicinity of the Site, such that negative effects to local GCN population as a result of this displacement are likely to be negligible. The Development, without mitigation, is likely to have a long-term minor negative impact on GCN through the removal of foraging habitat and disturbance to individual GCNs.

Habitat Fragmentation

The off-site railway corridor to the north of the Site has been highlighted as a wildlife corridor by previous reports by Access Ecology⁶ and Middleton Ecology⁷, which is to remain unaffected by Development. The Development is considered to have negligible impact through fragmentation as the ponds to the east and west of the Site are still connected by the existing wildlife corridor. The existing Pilkington site, which is in line with the Site to the east, already forms a physical barrier to GCN movement. Due to avoidance behaviour of animals it is considered likely that they will consistently use the wildlife corridor to the north rather than traverse the Site to connect with the other ponds.

Direct Harm

No GCN have been recorded on the Site itself (during surveys using artificial refugia) and the Site is separated from the nearest pond by 100 m, the nearest pond is set within good terrestrial habitat. As GCN are more likely to use their core habitat and based on the above, it is considered unlikely that construction activities have the potential to cause direct harm to GCN.

Whilst the above potential impacts have been identified, it is considered unlikely that they would significantly adversely affect the favourable conservation status of the local GCN population. Nonetheless, mitigation will be put in place to further reduce such impacts and to avoid potential legal offences.

⁶ Access Ecology (February 2016), *Feasibility Study*, Project Reference: 1058

⁷ Middleton Ecology (June 2017), *Great Crested Newt Survey Report*, Document ref: MEC/PSS/2017/05/02

6.2 Mitigation Measures

Natural England provides guidance⁸ to determine whether or not a development is at risk of harming GCN and thereby breaking the law and what, if any, appropriate action should be taken. Natural England expects proposed mitigation and compensation to be proportionate to the impacts of the planned works on the GCN population which should therefore be sufficient to offset the damaging effects of the project without overcompensating, especially in light of the four new policies⁹.

Natural England's Risk Assessment Tool⁸ assesses that for a loss of 1–5 ha of terrestrial habitat 100–250 m from a breeding pond there is a likely offence from development. With an 'offence likely' Natural England suggests that the best option is to redesign the development (location, layout, methods, duration or timing) using Natural England's Non-licensed avoidance measures tool. Using the key redesign elements of methods, duration and timing, mitigation measures will be put in place to ensure minimal impact to GCN.

All works will be strictly controlled under licence due to the impact on an EPS. Natural England is the current licensing body and any licence application would be supported with a detailed Method Statement which will include a series of appropriate mitigation measures (key measures detailed below).

6.2.1 Translocation

Any GCN found during the works are likely to be habituated to the two closest waterbodies (Ponds 5 and 6), and it considered that the area has the carrying capacity for the low number of GCN expected to be recorded on the Site. Therefore, any GCN captured during the translocation exercise will be released within Sowell Pond LWS or the retained woodland (the Receptor Areas).

A translocation exercises will be combined for both GCN (and other amphibians) and grass snakes (because a grass snake was recorded on the Site). This exercise will be facilitated by temporary herptile-proof fencing (high enough to prevent grass snakes entering the Site) erected prior to the construction phase, along with pitfall traps and artificial refugia. A suitable trapping effort will be implemented (likely to be a minimum of 30 suitable days) during suitable weather conditions.

All works will be carried out during an appropriate time of year when both amphibians and reptiles are fully active (although weather and temperature-dependent, reptiles are later to emerge and earlier to overwinter, but are usually active from April to September inclusive).

Any animals found during the translocation exercise will be caught, checked for any damage and released into the Receptor Areas with a record kept of the number of each species caught. In the unlikely event that high numbers of herptiles are present then all works will stop and the Council's ecologist and Natural England consulted to agree appropriate action.

6.2.2 Clearance Exercise

Once a suitable trapping effort has been implemented a destructive search (removal of ground vegetation leaving only bare earth) will be supervised by a licenced ecologist.

This exercise will be carried out in accordance with the following outline methodology:

⁸ Template for Method Statement to support application for licence under Regulation 53(2)(e) of The Conservation of Habitats and Species Regulations 2010 (as amended) in respect of great crested newts *Triturus cristatus*. Form WML-A14-2

⁹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575709/eps-consultation-outcome.pdf

- Clearance works will only be carried out when all species of herptile (reptile and amphibian) are active. Although activity is weather- and temperature-dependent, reptiles are usually latest to emerge and are fully active from April to September, inclusive. All works will be directly supervised by a suitably qualified and licenced (for great crested newts) ecologist.
- A hand search of the area will be carried out, with any natural or artificial refugia (e.g. logs and refuse) inspected for sheltering animals; animals would then be removed from the Site into nearby suitable habitat.
- After the ecologist is satisfied with the preparatory works, they will supervise a destructive search of the area. This will involve the removal of all remaining ground vegetation leaving only bare earth. An excavator will be used for this purpose, with the turf/topsoil being placed carefully to one side. Particular care will be required during this exercise, which will be closely monitored by the ecologist.
- Any animals caught during this exercise will be removed from Site. In the unlikely event that high numbers of herptiles are present then all works will stop and the Council's ecologist and Natural England consulted to agree appropriate action.

Herptile-proof fencing will be installed around the Site (and will prevent recolonisation of the Site once it has been cleared).

6.3 Enhancement Measures

6.3.1 Woodland

83 % of the existing woodland on the Site will be retained. This vegetation provides suitable habitat for GCN, providing foraging habitat, resting areas and hibernation potential. Management of this area will include periodic pruning, with any arisings retained on site as a mixture of log piles, low brash and chippings to act as mulch. It is considered in this case, that lack of interference (except for periodic pruning) is the best management option for the woodland and will result in safeguarded terrestrial habitat for GCN. Planting of hazel and subsequent coppicing can prove an effective method of providing a continuous shrub layer, if required.

In order to provide sheltering habitat and a potential feeding resource, a number of log piles will be created within the woodland to be retained. As well as providing shelter they will act as a food source for insects, which in turn provide food for amphibians.

Supplementary planting will be undertaken to the retained woodland and should use species of value to wildlife in order to provide enhanced foraging resources (through provision of food for insect larvae and adult insects). Furthermore, the south-west corner of the Site, which is currently dominated by tall ruderal vegetation which offers limited habitat for GCN, will be allowed to continue its natural succession and return to woodland which will provide more overwintering and foraging habitat.

6.3.2 Wildlife Corridor Buffer

The off-site railway corridor to the north of the Site has been highlighted as a wildlife corridor and is to remain unaffected by Development. A buffer will be maintained between the Development and the railway corridor, with the 3 m closest to the wildlife corridor managed as terrestrial habitat for GCN. This area will be largely managed through lack of interference and will be allowed to colonise with self-seeded saplings, scrub and tall ruderal which will provide foraging and overwintering for GCN. The buffer along the northern

boundary, as well as the off-site railway corridor, will be kept unlit to limit disturbance to crepuscular movements of GCN.

6.3.3 Off-site Waterbodies

Two of the ponds within Company Shop land located approximately 300 m to the east of the Site (shown as Ponds 7 and 8 on Figure 1) will be restored, as currently they are dry for extended periods of time and therefore do not offer breeding opportunities for GCN. This is in line with Management Option 2 of the 2016 Feasibility Study¹⁰. It is considered that reinstating these two ponds may improve the population size of GCN to the east of the Site as currently the population size is reducing. This may be due to limited breeding opportunities offered by Ponds 5 and 6. The third waterbody located within Company Shop land is a large soakaway, which is considered to be subject to run off from the adjacent car park which may contain some level of pollution and is therefore unlikely to offer potential breeding opportunities for GCN.

Restoration of the ponds will include removal of the outflow drainage pipe leading to the soakaway and installing a weir at the lip of the ponds so that drainage to the soakaway only occurs once the ponds are past carrying capacity.

Any works to the woodland habitat surrounding these ponds, which involve pruning or felling, should retain the arisings as brash piles in the vicinity. In order to provide more long-term hibernation habitat in this area a hibernacula could be constructed.

6.3.4 General Measures

The effects of artificial lighting on plants and animals are difficult to assess but it is known that lighting can adversely affect wildlife. Although the Site currently experiences some artificial lighting, especially within the eastern half of the Site, any new artificial lighting should be designed in line with good practice¹¹, such as minimising light spill and directing artificial lighting away from the woodland and off-site wildlife corridor to the north.

6.4 Conclusions

It is considered that with the detailed mitigation and enhancement measures to be carried out under EPS licence the Development will not result in a significant negative impact on GCN. This conclusion is based on the following assessment:

- The two closest ponds (Ponds 5 and 6) have reduced in population size, therefore only low numbers of GCN are likely to be disturbed.
- No GCN have been recorded on the Site during various surveys.
- Both the ponds to the east and west of the Site are located within excellent terrestrial habitat with plenty of opportunities for shelter, overwintering sites and foraging. It is therefore considered that the majority of GCN will be concentrated within the immediate vicinity of these ponds.
- Enhancement measures will ensure off-site improvements to breeding habitats, as well as on-site enhancement of the woodland for foraging and shelter.
- Woodland belt to the north of the Site provides a link between ponds to the east and west and will be augmented by a buffer including 3m strip of vegetation

¹⁰ Access Ecology (February 2016), *Feasibility Study*, Project Reference 1058.

¹¹ Bat Conservation Trust (2014), *Artificial Lighting and Wildlife*.

APPENDIX A – Figure

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Surface

- Site Boundary
- Dry Pond
- Pond



Produced By: CA	Ref: 50104-REP-005
Checked By: CA	Date: 29/06/2017

Pond Locations
Figure 1

Great Crested Newt Survey Report
Maple Road, Tankersley