Appendix 10.1f
Extension Area – Great Crested Newt Survey Report

LINHAY HILL QUARRY: EXTENSION AREA

GREAT CRESTED NEWT SURVEY REPORT

On behalf of E & JW Glendinning Ltd.

MARCH 2016

CONTENTS

LIST OF FIGURES

SUMMARY

E&JW Glendinning Ltd. is proposing an extension of their existing operation at Linhay Hill limestone quarry, near Ashburton. The site being considered for the extension lies immediately north-east of the existing quarry and is currently managed as mixed farmland associated with Alston Farm.

Suitable terrestrial habitat for Great Crested Newts was identified within the site during the Extended Phase 1 habitat survey carried out in April 2014, which included woodland edges, the extensive network of hedges and unmanaged areas in / around Alston Farm yard. No records of this species were retrieved from within the 2km study area during the desk study and the site does not fall within a Great Crested Newt Consultation Zone.

During a desk-based exercise five potential waterbodies within a 500m radius surrounding the site were identified. Of these five, three ponds were scoped out of the further presence / likely absence surveys as they were considered unsuitable for Great Crested Newts. This was due to them being dry (or virtually dry) based on the findings of the walkover / Habitat Suitability Index (HSI) Assessment or given their isolation due to the presence of major physical barriers (A38 slip road / interchange).

Two attenuation ponds within cattle-grazed pasture immediately north-west of the site were assessed as offering 'average' habitat suitability for Great Crested Newts based on HSI scoring. Both of these ponds were subject to further presence / likely absence surveys completed in accordance with current best practice guidelines (English Nature, 2001) which comprised four visits undertaken between late April – May 2014 using a combination of torchlight searching, bottle-trapping, egg-searching and netting.

The further surveys concluded a likely absence of Great Crested Newts within the two potentially suitable waterbodies and hence, a likely absence of this species from the Site itself can also be inferred. Given these findings, the Site is concluded to be of negligible value to Great Crested Newts.

Incidental records were made for low numbers of Common Toad, which is listed as a Species of Principal Importance (SPI) under Section 41 of the NERC Act 2006 and low populations of Palmate Newts, a relatively common and widespread species which is not considered to be of conservation concern.

1.0 INTRODUCTION

1.1 OVERVIEW & SURVEY OBJECTIVES

Woodfield Ecology was commissioned to carry out a Great Crested Newt (GCN) *Triturus cristatus* survey on behalf of E&JW Glendinning Ltd. within / surrounding land to the north-east of Linhay Hill Quarry near Ashburton, Devon. The area of land is being proposed for a quarry extension to extend the operational lifespan of this working limestone quarry.

The land for the proposed extension (hereafter referred to as "the Site") is owned by E&JW Glendinning Ltd., which together with associated screening, infrastructure and mitigation, covers an area of c. 47 hectares situated within the south-eastern edge of Dartmoor National Park, in and around Alston Farm (centred on NGR SX776717).

The purpose of this assessment was to:

- Undertake a Habitat Suitability Index (HSI) assessment for GCNs of waterbodies within the Site and in a 500m radius; and
- Based upon the assessment of the ponds, carry out more detailed surveys to ascertain the likely presence / absence of GCNs within suitable waterbodies within this radius.

The results of these surveys, together with an evaluation of the importance of the Site with regards this species are detailed within the following report.

1.2 CONSERVATION STATUS & PROTECTION

1.2.1 Conservation Status

GCNs cover a range over much of northern Europe however; throughout most of this range they are rare. The UK once had one of the strongest GCN populations in Europe but the species has declined significantly over recent decades largely due to habitat loss and in particular loss of ponds through drainage, infilling as well as lack of management.

Devon is on the western extent of the UK's GCN population with only a handful of sites where they are known to successfully breed. East Devon and Teignbridge are the key areas for this species within the County where the greatest concentration of historical and recent records are found.

1.2.2 Legal Protection

GCNs are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and they receive full protection under Section 9 which was further extended by the Countryside and Rights of Way Act 2000 (the CRoW Act). This species is also listed as a European Protected Species (EPS) on Schedule 2 of the Conservation of Habitats & Species Regulations 2010, as amended, which gives it full protection under Regulation 39.

Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

GCNs are also included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a Species of Principal Importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

1.2.3 Planning Policy

The National Planning Policy Framework (NPPF) forms the basis for planning decisions with respect to conserving and enhancing the natural environment. The ODPM circular 06/2005 provides supplementary guidance, including confirmation that the presence of a legally protected species may be a material consideration in the making of planning decisions.

The NPPF sets out, amongst other points, how at an overview level the 'planning system should contribute to and enhance the national and local environment' by:

- *recognising the wider benefits of ecosystem services; and*
- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures…'*

A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF. They include the following:

- *'if significant harm resulting from a development cannot be avoided…adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *…opportunities to incorporate biodiversity in and around developments should be encouraged.'*

In addition, the Dartmoor National Park Core Strategy and Development Management and Delivery Development Plan Document (DPD) include a number of policies which include for protected species:

- *'protect, maintain or enhance the biodiversity interests, and seek opportunities to restore or recreate habitats or linkages between them;*
- *further the conservation and enhancement of nationally protected species or habitats;*
- *conserve, enhance or restore priority habitats and species;*
- *protect and where appropriate enhance other defined sites, features, habitats, species, networks or natural processes of ecological importance;*
- *ensure that effective avoidance or mitigation measures are implemented (which may include off-site compensation); and*
- *result in no net loss of biodiversity.'*

1.3 PRE-EXISTING SURVEY INFORMATION & RECORDS

In April 2014, an Extended Phase 1 Habitat Survey was completed by Woodfield Ecology which was supported by an ecological desk study exercise. Records of legally protected species and species of conservation concern were requested from Devon Biodiversity Records Centre (DBRC) for the Site and within a 2km radius. During the desk study, records of the following amphibian species were retrieved:

- Common Frog *Rana temporaria* - a 2002 record from Waterleat (2km to the west) and a 2001 record from Ashburton (2km to the south-west);
- Common Toad *Bufo bufo* - a 2002 record from Ashburton (2km south-west);
- Smooth or Palmate Newt *Lissotriton sp*. - a 2006 record from a garden pond in Ashburton (>1.5km south-west).

No records of Great Crested Newts were retrieved from the 2km search area and the Site does not fall within a Great Crested Newt Consultation Zone[1] .

During the Extended Phase 1 Habitat Survey, suitable habitat for GCNs during the terrestrial phase of their lifecycle was identified within the Site and included the woodland edges, extensive network of hedges and unmanaged areas in / around Alston Farm yard. No waterbodies were identified within the Site itself; the closest ponds to the Site were two man-made attenuation ponds found within 100m of the Site located within cattle-grazed pasture immediately north-west.

[1] Given that GCN distribution is largely unknown across the county, 'consultation zones' have been drawn up throughout Devon and include a 2km buffer zone around existing and historical records (post 1970) based on the assumption that there is particular potential for the species to be present in suitable habitat within these zones.

2.0 METHODOLOGY

2.1 HABITAT SUITABILTY INDEX ASSESSMENT

A search for all waterbodies within a 500m radius of the Site was undertaken using freely available on-line resources, including aerial photos and OS 1:25,000 mapping. Given the presence of a major barrier to GCN dispersal to the south-east of the Site (the A38 Devon Expressway), together with the lack of any identified suitable crossing points such as culverts, underpasses etc., all ponds to the south of the A38 were scoped out of the HSI assessment.

Once identified using desk-based methods, each waterbody within a 500m radius with habitat connectivity with the Site was assessed during a walkover survey to determine its suitability for GCNs using a Habitat Suitability Index (HSI) developed by Oldham et al. (2000). There is a positive correlation between HSI scores and both presence and abundance of GCNs in ponds and generally, ponds with high HSI score are likely to support larger populations.

As part of the HSI methodology, ten indices were used to determine the HSI score for each pond, these were:

SI1 Geographic location
SI2 Pond area
SI3 Pond drying (frequency)
SI4 Water quality
SI5 Pond shading
SI6 Water Fowl
SI7 Fish
SI8 Pond density
SI9 Surrounding terrestrial habitat
SI10 Macrophyte (aquatic plant) density

At each waterbody, each of these criteria was given a score between 0.01 and 1 depending upon how they compared to the diagnostic data provided in the HSI guidelines. The final HSI score was then calculated using the following equation:

$$HSI = (SI1 * SI2 * SI3 * SI4 * SI5 * SI6 * SI7 * SI8 * SI9 * SI10)1/10$$

Further research by Brady (unpublished) has developed a system for using HSI scores to categorise pond suitability for GCNs as shown in Table 1 below. This was cross-referenced to assign each of the identified waterbodies to one of the five suitability categories which were then used to inform the decision regarding the requirement for further surveys. It should be noted that HSI calculation is not a failsafe method of identifying whether a

water body is likely to support GCNs or not, therefore professional judgement was also used to inform the requirement for further survey.

Table 1: Relationship between HSI scores and pond suitability for GCNs (Oldham, 2000)

HSI Score	Suitability for GCNs
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

2.2 PRESENCE / LIKELY ABSENCE SURVEY

Based on the results of both the HSI and qualitative assessment, all waterbodies found to provide potentially suitable habitat for GCNs, were subject to further survey to determine the presence or likely absence of this species (refer to Figure 1 and section 3 below).

The survey comprised four visits to each waterbody, within the recommended survey period (mid-March to mid-June, with at least two of the visits falling between mid-April and mid-May). Survey visits were completed during suitable weather conditions, when overnight temperatures were above 5°C and wind and rain were not sufficient to affect the torchlight survey results (through disturbance to the water surface).

At least three survey techniques were used during each survey visit to search for the presence of GCNs in line with good practice (English Nature, 2001); these included:

- Torchlight searching – each water body was searched systematically for amphibians after dark using a bright torch (1,000,000 candle power or equivalent); all amphibians observed were recorded, with the number of male, female and juvenile newts noted. The duration of the torchlight survey was determined by the time taken to walk slowly around the water body perimeter, or a maximum of 15 minutes per survey visit;
- Bottle-trapping – each water body was trapped using bottle traps constructed and set in accordance with standard guidance (JNCC, 1998). Traps were set at a ratio of one for every 2m of water body perimeter. The traps were set prior to or shortly after dusk, and checked and removed the following morning;
- Egg searching – suitable vegetation in each water body was searched for newt eggs which are laid on submerged or floating leaves and folded around the egg. The duration of the egg search was either the amount of time required to search thoroughly all vegetation present, or a maximum of 15 minutes per survey visit; and / or
- Netting – a net was used to sample each water body at regular intervals (every 2m) around the water body perimeter. This technique was only used where any

one of the above three survey techniques could not be undertaken (e.g. where visibility was too poor for torchlight searching).

2.3 BASELINE EVALUATION CRITERIA

The ecological valuation is based on the guidelines set out in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2016). The known or potential value of an ecological resource or feature is determined within the following geographical context:

- International and European;
- National;
- Regional;
- County;
- Local.

2.4 DATES OF SURVEY, WEATHER CONDITIONS & PERSONNEL

The dates for each of the survey visits and summary weather conditions are shown in Table 2 below.

Table 2: GCN Survey Dates and Summary Weather Conditions

Date	Survey Method	Weather (late PM visit)	Weather (early AM visit)	Personnel
24/04/2014	Pond Scoping & HSI Assessment	N/A		Becky Prudden MCIEEM (GCN Class licence CL08 Registration No. CLS02821)
29/04/2014	Presence / absence survey Visit 1	Time: 19:50 – 21:30 Dry, light breeze, air temp. 10.1°C	Time: 07:15 to 08:00 Dry, still, air temp. 9.2°C	Jennifer Reid MCIEEM (GCN Class Licence CL08 Registration No. CLS01802) & Laura Snell MCIEEM (GCN Class Licence CL08 Registration No. CLS0544)
06/05/2014	Presence / absence survey Visit 2	Time: 19:45 – 20:45 Dry, light breeze, air temp. 11.3°C	Time: 08:00 to 09:00 Light rain showers, still, air temp. 12.8°C	
08/05/2014	Presence / absence survey Visit 3	Time: 19:50 – 20:45 Dry (rain immediately prior), gentle breeze, air temp. 12.5°C	Time: 07:45 to 08:15 Dry, still, air temp. 12.2°C	
19/05/2014	Presence / absence survey Visit 4	Time: 20:00 – 21:00 Dry (rain immediately prior), still, air temp. 14.2°C	Time: 07:45 to 08:15 Dry, still, air temp. 14.8°C	

All surveys were carried out by skilled field ecologists with strong herpetofauna survey skills, all of whom are registered to use Natural England's WML-CL08 (Great Crested Newt Class 1) Licence.

2.5 LIMITATIONS

No significant limitations (for example access difficulties or adverse weather conditions) were encountered during any of the survey visits and all ponds were surveyed in line with good practice (English Nature, 2001).

Due to poor water clarity (as a result of turbidity caused by livestock and waterfowl) noted within the surveyed ponds over the course of the visits, netting was used as a substitute for torching on visits 2-4, ensuring three methods were employed on each occasion.

Given that few broad-leaved aquatic or marginal plants were recorded in either of the surveyed waterbodies, two artificial egg-laying traps (comprising strips of thin plastic membrane fixed securely to the bottom of the pond) were deployed in each on the first visit and were thoroughly checked for newt eggs on subsequent visits.

3.0 RESULTS

3.1 HABITAT SUITABILTY INDEX ASSESSMENT

The desk-based search for ponds within a 500m radius surrounding the Site identified the presence of five potential waterbodies. The location of these ponds (identified as Ponds 1-5 for ease of reference) is shown on Figure 1.

Of the five ponds identified during the desk-based search, all except Pond 5 were subject to a walkover survey and HSI scoring (the latter being used only in those waterbodies found to hold water). Pond 5 was scoped out at the initial stages given its isolated location within a busy interchange / slip road of the A38 Devon Expressway. During the walkover survey, Pond 4 was found to be completed dry and silted up (even after a long period of rainfall in the preceding months / weeks) and therefore was also scoped out at this stage as being unsuitable as aquatic habitat for GCNs.

Ponds 1-3 were found to hold water (to varying degrees) and were subject to further HSI scoring during the field survey. Full details of the HSI assessment results for Ponds 1-3 are provided in Appendix A and a summary, together with representative photographs are provided in Table 3 below.

Table 3: Summary of HSI scores for waterbodies within a 500m radius

Pond ID	Brief Description	Distance from Site	Photo	Suitability for GCNs
1	Man-made attenuation pond within cattle-grazed pasture with central island.	45m		'Average'

Pond ID	Brief Description	Distance from Site	Photo	Suitability for GCNs
2	A man-made attenuation pond located approximatel y 75m from Pond 1 (very similar in size / character).	25m		'Average'
3	Silted up wet woodland ground layer which was virtually dry at time of survey. A maximum water depth of <20cm was recorded despite prolonged heavy rainfall in previous weeks.	170m		'Below Average' based on HSI score but considered too shallow / prone to drying out and unsuitable overall.

Ponds 1 and 2 were both assessed as having 'average' suitability for GCNs based on HSI scoring. These man-made attenuation ponds were similar in size and character and are understood to have been created within the last few decades as part of the drainage / water management strategy for the existing quarry. Both ponds were heavily poached by cattle around the margins (resulting in turbid water conditions) and contained stands of emergent vegetation (predominantly Bulrush *Typha latifolia*) with small central islands which supported Grey Willow *Salix cinerea* scrub. Based on the HSI score as well as a qualitative assessment, both ponds were considered to offer potentially suitable aquatic habitat for GCNs and were subject to presence / absence surveys (see below).

Pond 3 was found to be essentially a seasonally wet ground layer within wet woodland which scored a 'below average' suitability for GCNs with regards the HSI. Low individual HSI scores were given due to the high likelihood of drying out (most likely each spring / summer given the low water levels recorded at the time of survey), dense shading from over-hanging trees and poor water quality as a result of the anoxic / anaerobic conditions. A qualitative assessment of this waterbody deemed it to be unsuitable overall for GCNs given the insufficient depth of water recorded during the main breeding period for GCNs and consequently this pond was scoped out of the further surveys.

3.2 PRESENCE / LIKELY ABSENCE SURVEYS

The survey results indicate the **likely absence** of GCNs from the Site; no GCNs or signs of their presence (i.e. eggs or larvae) were recorded from either Pond 1 or Pond 2 during the further presence / likely absence surveys.

All surveys were completed under optimal conditions for methods used to be considered fully effective. Full details of weather and pond conditions on each survey visit are included in Appendix B.

Table 4 below provides a summary of the survey findings at both of the ponds subject to presence / likely absence surveys including details of other amphibian species recorded within each.

Table 4: Summary of Presence / Likely Absence Survey Results

Pond ID	Presence of GCN detected?	Other newt species recorded	Other amphibians recorded
1	No	Low numbers of Palmate Newts (maximum count of 1 adult) and evidence of breeding.	Common Toad
2	No	Low numbers of Palmate Newts (maximum count of 2 adults)	Common Toad

4.0 VALUATION AND CONCLUSIONS

A total of five waterbodies were identified within a 500m radius surrounding the Site boundary during the desk-based search. Of these, one pond (Pond 5) was scoped out of any further assessments given its location within a busy interchange of the A38 Devon Expressway and separation from the Site by a busy slip road which is assumed to act as a barrier to GCN dispersal.

The walkover survey also scoped out Pond 4 (which was found to be completely dry) and Pond 3 (virtually dry), given that both waterbodies were assessed as unsuitable as aquatic habitat for GCNs.

Ponds 1 and 2 were found to hold a sufficient depth of water and were assessed as having 'average' suitability for GCNs and were subject to further presence / likely absence surveys. A likely absence of GCNs was recorded for Ponds 1 and 2 and can therefore also be assumed from within the Site itself, which is consequently assessed as being of **negligible** value to this species.

The presence of low numbers of Palmate Newts was confirmed within Ponds 1 and 2, with evidence of breeding (presence of eggs/ gravid female) recorded in Pond 1. Palmate Newts are widespread throughout the UK and particularly abundant in the south-west given their preference for shallow ponds on acid-rich soils. This species is not currently of conservation concern in the UK.

Common Toad was recorded within Ponds 1 & 2 and is listed as a Species of Principal Importance (SPI) under Section 41 of the NERC Act 2006, therefore as for GCNs, public bodies, including local planning authorities, have a duty to have regard for the conservation of this species when carrying out their functions.

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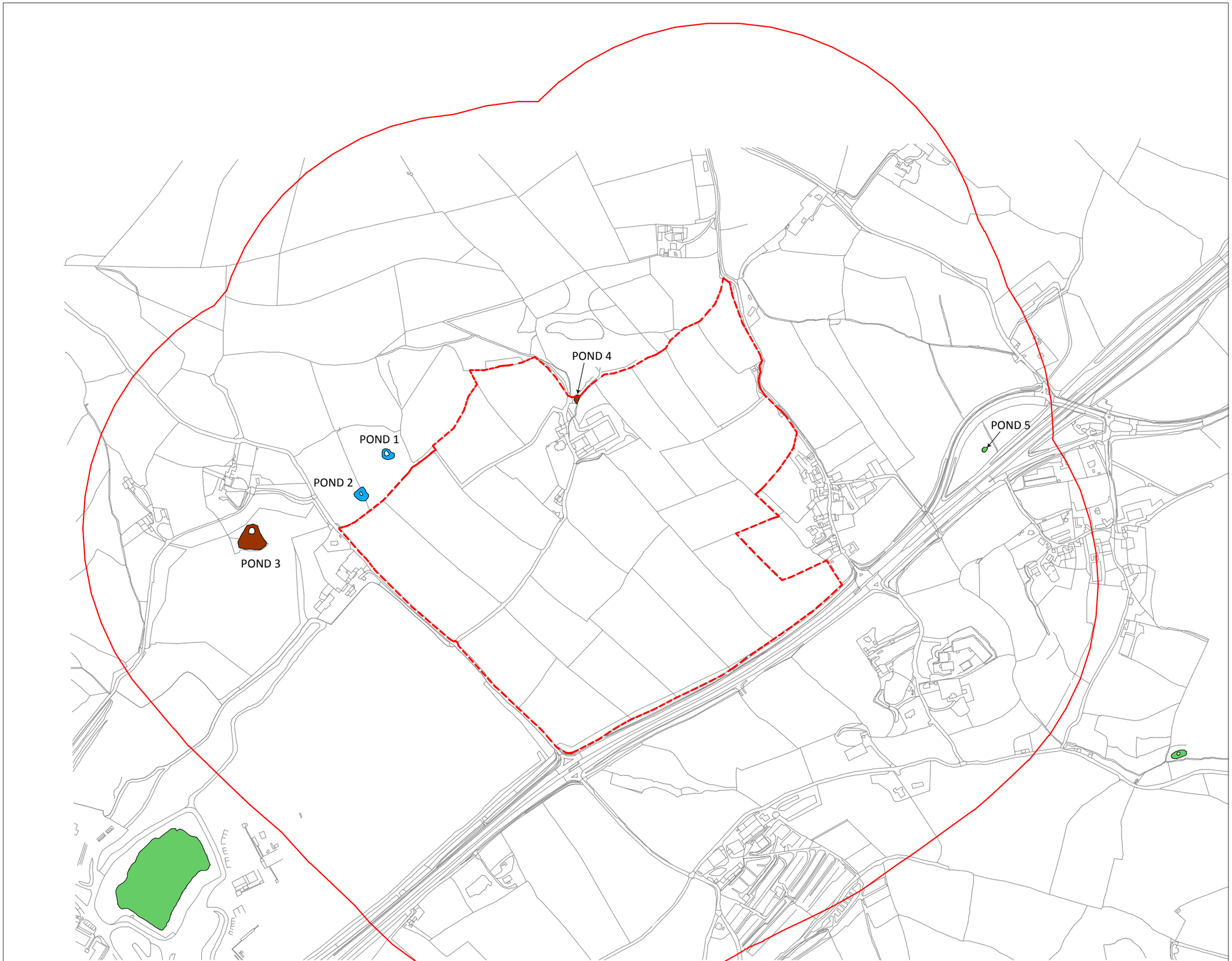

Survey area

500m radius surrounding survey area

Ponds subject to presence / likely absence survey

Dry /virtually dry ponds

Other ponds not surveyed (due to distance / presence of physical barriers e.g. busy roads)

0 200

Linhay Hill Quarry: Extension Area

Great Crested Newt Survey: Pond Location Plan

Figure 1

WOODFIELD ECOLOGY

APPENDIX A: HABITAT SUITABILTY INDEX FORMS

Project Name	Land at Alston	**Pond No.**	1
Recorder(s):	BP	**Survey Date:**	24/04/2014

Description of waterbody:

Man-made attenuation pond within cattle-grazed pasture with heavily poached margins and turbid water. Bulrush *Typha latifolia* covers approximately 50% of the pond surface area and clumps of a waterweed *Elodea spp.* are frequent. Few other aquatic / marginal species are present (including dicotyledons favoured as egg-laying sites). A small central island covered with Grey Willow *Salix cinerea* scrub was noted. A pair of Canada geese was seen near the pond.

											SI Score
SI 1: Location											
Zone A (1)		Zone B (0.5)	✓	Zone C (0.01)							**0.5**
SI 2: Pond Area											
Max Length: 25m		Max Width: 25m		Area (to nearest 50m^2): 625m^2							**1**
SI 3: Pond Drying											
Never (0.9)		Rarely (1)	✓	Sometimes (0.5)		Annually (0.1)					**1**
SI 4: Water Quality											
Good (1)		Moderate (0.67)	✓	Poor (0.33)		Bad (0.01)					**0.67**
SI 5: Shade											
Estimate % pond perimeter shaded to at least 1m from shore.								10%			**1**
SI 6: Waterfowl											
Absent (1)		Minor (0.67)	✓	Major (0.01)							**0.67**
SI 7: Fish											
Absent (1)		Possible (0.67)		Minor (0.33)	✓	Major (0.01)					**0.33**
SI 8: Pond Density											
No. of ponds within 1km of survey pond (do not include survey pond or ponds separated by major barriers)											**0.5**
SI 9: Terrestrial Habitat (within 500m of pond, on nearside of major barriers)											
Good (1)		Moderate (0.67)	✓	Poor (0.33)		None (0.01)					**0.67**
SI 10: Macrophytes											
Estimate % of pond surface area occupied by vegetation cover during March to May.								50%			**0.8**
OVERALL HSI SCORE HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10)1/10											**0.65 (Average)**

Project Name	Land at Alston	**Pond No.**	2
Recorder(s):	BP	**Survey Date:**	24/04/2014

Description of waterbody:

Very similar to Pond 1 (located approximately 75m to the south-west) and also a man-made attenuation pond within cattle-grazed pasture. Emergent / aquatic plant diversity similar to that recorded within Pond 1 (estimated 75% macrophyte cover) with bare, heavily poached margins surrounded by tightly grazed grass (heavily grazed by geese).

												SI Score
SI 1: Location												
Zone A (1)		Zone B (0.5)		✓	Zone C (0.01)							**0.5**
SI 2: Pond Area												
Max Length: 30m		Max Width: 30m			Area (to nearest 50m^2): 900m^2							**0.95**
SI 3: Pond Drying												
Never (0.9)		Rarely (1)		✓	Sometimes (0.5)		Annually (0.1)					**1**
SI 4: Water Quality												
Good (1)		Moderate (0.67)		✓	Poor (0.33)		Bad (0.01)					**0.67**
SI 5: Shade												
Estimate % pond perimeter shaded to at least 1m from shore.									0%			**1**
SI 6: Waterfowl												
Absent (1)		Minor (0.67)		✓	Major (0.01)							**0.67**
SI 7: Fish												
Absent (1)		Possible (0.67)			Minor (0.33)	✓	Major (0.01)					**0.33**
SI 8: Pond Density												
No. of ponds within 1km of survey pond (do not include survey pond or ponds separated by major barriers)												**0.5**
SI 9: Terrestrial Habitat (within 500m of pond, on nearside of major barriers)												
Good (1)		Moderate (0.67)	✓		Poor (0.33)		None (0.01)					**0.67**
SI 10: Macrophytes												
Estimate % of pond surface area occupied by vegetation cover during March to May.									75%			**1**
OVERALL HSI SCORE HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10)1/10												**0.66 (Average)**

Project Name	Land at Alston	**Pond No.**	3
Recorder(s):	BP	**Survey Date:**	24/04/2014

Description of waterbody:

Silted up / mostly dry pond (seasonally wet ground layer) within dense wet woodland dominated by Grey Willow. Heavily shaded by overhanging trees, with numerous fallen / horizontal limbs. Water quality was noted to be poor with a deep layer of anaerobic / anoxic silt from decomposing leaf litter. Water Parsnip *Berula erecta*, Water Mint *Mentha aquatica* and Yellow Iris *Iris pseudacorus* were all frequent. Maximum water depth of 20cm (in spite of prolonged rainfall in preceding few months and weeks) and likely to dry out completely for much of the GCN breeding season and is therefore assessed as unsuitable.

												SI Score
SI 1: Location												
Zone A (1)		Zone B (0.5)	✓	Zone C (0.01)								**0.5**
SI 2: Pond Area												
Max Length: 20m		Max Width: 15m		Area (to nearest 50m^2): 300m^2								**0.7**
SI 3: Pond Drying												
Never (0.9)		Rarely (1)		Sometimes (0.5)		Annually (0.1)	✓					**0.1**
SI 4: Water Quality												
Good (1)		Moderate (0.67)		Poor (0.33)	✓	Bad (0.01)						**0.33**
SI 5: Shade												
Estimate % pond perimeter shaded to at least 1m from shore.								100%				**0.2**
SI 6: Waterfowl												
Absent (1)		Minor (0.67)	✓	Major (0.01)								**0.67**
SI 7: Fish												
Absent (1)	✓	Possible (0.67)		Minor (0.33)		Major (0.01)						**1**
SI 8: Pond Density												
No. of ponds within 1km of survey pond (do not include survey pond or ponds separated by major barriers)												**0.5**
SI 9: Terrestrial Habitat (within 500m of pond, on nearside of major barriers)												
Good (1)	✓	Moderate (0.67)		Poor (0.33)		None (0.01)						**1**
SI 10: Macrophytes												
Estimate % of pond surface area occupied by vegetation cover during March to May.								80%				**1**
OVERALL HSI SCORE HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10)1/10												**0.53 (Below Average)**

APPENDIX B: PRESENCE / LIKELY ABSENCE SURVEY RESULTS

POND 1							
Visit No.	Dates	Overnight min / max Temp	Rain	TORCHLIGHT SURVEY	BOTTLE TRAPPING	EGG / VISUAL SEARCH	NETTING
				% shoreline searched: 100% Water clarity: Poor	No. of traps used: 20	% shoreline searched: 50% (where vegetation present)	% shoreline searched: 100%
1	29/04/14-30/04/14	13.2°C max 5.1°C min	Nil	1 adult Palmate Newt I Common Toad (sub-adult)	Nil	Nil	Not used
2	06/05/14-07/05/14	13.2°C max 10.1°C min	Light rain during AM survey	Not used due to poor water clarity	Nil	Nil	1 Common Toad (sub-adult)
3	08/05/14-09/05/14	12.9°C max 11.1 °C min	Nil		Nil	Nil	1 adult Palmate Newt (gravid female)
4	19/05/14-20/05/14	14.8°C max 11.7 °C min	Nil		Nil	Nil	1 Palmate Newt egg

POND 2							
Visit No.	Dates	Overnight min / max Temp	Rain	TORCHLIGHT SURVEY	BOTTLE TRAPPING	EGG / VISUAL SEARCH	NETTING
				% shoreline searched: 100% Water clarity: Poor	No. of traps used: 20	% shoreline searched: 55% (where vegetation present)	% shoreline searched: 100%
1	29/04/14-30/04/14	13.2°C max 5.1°C min	Nil	2 adult Palmate Newts I Common Toad (sub-adult)	Nil	Nil	Not used

POND 2							
Visit No.	Dates	Overnight min / max Temp	Rain	TORCHLIGHT SURVEY	BOTTLE TRAPPING	EGG / VISUAL SEARCH	NETTING
				% shoreline searched: 100% Water clarity: Poor	No. of traps used: 20	% shoreline searched: 55% (where vegetation present)	% shoreline searched: 100%
2	06/05/14-07/05/14	13.2°C max 10.1°C min	Light rain during AM survey	Not used due to poor water clarity	Nil	Nil	1 Common Toad (sub-adult)
3	08/05/14-09/05/14	12.9°C max 11.1 °C min	Nil		Nil	Nil	1 adult Palmate Newt
4	19/05/14-20/05/14	14.8°C max 11.7 °C min	Nil		Nil	Nil	1 adult Palmate Newt

DOCUMENT CONTROL INFORMATION

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