



Harworth Estates

Rockingham Business Park, Barnsley

GREAT CRESTED NEWT REPORT

May 2020

FPCR Environment and Design Ltd

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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft 1	MAF/ 19.05.20	PH / 19.05.20 / JD 21.05.2020

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1.0 INTRODUCTION

- 1.1 The following report has been prepared by FPCR Environment and Design Ltd on behalf of Harworth Estates Ltd. and details the findings of great crested newt (GCN) *Triturus cristatus* surveys undertaken on a site adjacent to Shortwood Business Park, Barnsley. The need for further surveys of this group was identified during an initial habitat assessment carried out in 2019.
- 1.1 Great crested newt surveys of ponds P1 and P2-P5 were undertaken in 2013¹ and 2014² by AES in support of a previous application. GCN surveys were undertaken on the same ponds by FPCR in 2015 and repeated in 2017 to update the baseline information.

Site Location and Context

- 1.2 The subject site is located adjacent to the west of Shortwood Business Park in Barnsley, South Yorkshire (central grid ref: SE356 010) and includes parcels of land to the north and south of the A6195 dual carriageway. The subject site consists of a former quarry restored to arable and improved pasture with associated native hedgerows and plantation broad-leaved woodland. An attenuation pond, drainage channel (partially culverted) and associated semi-improved grassland are in the southwest and further limited parcels of semi-improved grassland are associated with plantation margins.
- 1.3 In terms of surrounding habitats, the existing residential development of Birdwell is situated to the north-west and to the south the more extensive residential area of Hoyland. Junction 36 of the M1 Motorway lies less than 600m to the west. The surrounding land use is largely arable and pasture with an area of broad-leaved semi-natural woodland to the north.
- 1.4 Pond 1 overlaps the western site boundary, and pond P1a (a ditch culvert head) is located within the site boundary. A number of seasonally wet ditches run throughout the site, two of which held water during the surveys. A further eight ponds were identified within 500m of the site boundary.

Proposals

- 1.5 Proposals are for a business park development comprising warehousing with associated parking, lorry compounds and infrastructure.

¹ AES 2013 Great Crested Newt Late Season Survey, Rockingham

² AES 2014 Survey and Assessment for Great Crested Newt (*Triturus cristatus*) and other Amphibian Species, Rockingham.

2.0 LEGISLATION

- 2.1 GCN are afforded full legal protection under the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife & Countryside Act 1981 (as amended).
- 2.2 Under Regulation 41 of the Conservation of Habitats and Species Regulations 2010 (as amended) it is illegal to:
- Deliberately capture, injure or kill any wild animal of a European Protected Species (EPS);
 - Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young;
 - Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate;
 - Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong;
 - Deliberately disturb wild animals of an EPS (whilst occupying a structure or place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection;
 - Damage or destroy a breeding site or resting place of a wild animal an EPS.
- 2.3 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:
- Recklessly or intentionally kill, injures or take any wild animals included in Schedule 5;
 - Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection;
 - Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.

3.0 METHODOLOGY

Desktop Study

- 3.1 In order to compile existing baseline information regarding amphibians, relevant ecological information was requested from statutory and non-statutory nature conservation organisations, including:
- Sheffield Biological Records Centre (SBRC)
 - Rotherham Biological Records Centre (RBRC)
 - Natural England via the Multi Agency Geographic Information for the Countryside (MAGIC) interactive map (www.magic.gov.uk)
- 3.2 Further inspection, using colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk), was also undertaken in order to

provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

Field Study

Habitat Suitability Index (HSI)

- 3.3 The site was walked in 2019 and any waterbodies found within the site were noted and described along with any suitability to support GCN. Where access was granted, ponds within a 500m radius of the site were also surveyed and assessed for their suitability.
- 3.4 The assessment to determine the suitability of each pond for GCN was made using the HSI methodology, as developed by Oldham et al (2000)⁶. The HSI provides a measure of the likely suitability of a waterbody for supporting newts. This methodology assesses ponds against ten pre-determined criteria, producing a score that indicates suitability for GCN occupation. Generally, waterbodies with a higher score are more likely to support GCN than those with a lower score and there is a positive correlation between HSI scores and waterbodies with newts recorded. Ten separate attributes are assessed for each pond:
- Location (Area A, B or C within the UK);
 - Pond Area (size in metres²);
 - Permanence (how many times it may dry out in a decade);
 - Water quality (invertebrate diversity);
 - Shade (percentage of a water bodies perimeter shaded);
 - Fowl (impact of waterfowl if present);
 - Fish (impact of fish if present);
 - Pond Count (density of ponds within 1km);
 - Terrestrial Habitat (quality of surrounding habitat); and
 - Macrophytes (percentage of surface area occupied).
- 3.5 A score is assigned according to the most appropriate criteria level set within each attribute and total score calculated of between 0 and 1. Pond suitability is then determined according to the following scale.

⁶ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the Suitability of Habitat for the GCN (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155.

Table 1: HSI Scale

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Aquatic Surveys

- 3.6 A total of eight waterbodies (P1, P1a, P1b, P2, P3 P4, D1 and D2) were surveyed following the methods recommended by Natural England as detailed in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). No access was permitted for ponds P5-P7. P8 and the majority of on-site ditches were dry on an initial inspection and were therefore not surveyed in this period. To determine the presence or absence of great crested newts, four individual survey visits were performed. For any ponds where GCN were recorded during the first four survey visits a total of six individual survey visits were undertaken. Appropriately licensed ecologists (James Hutchison 2019-41008-CLS-CLS, Sam Arthur WML-CL08 (Level1) (CLS02268), Alex Radl 2019-41319-CLS-CLS) from FPCR completed these surveys during suitable conditions i.e. when the ambient air temperature exceeded 5°C, with little/no wind and no rain. Survey conditions for each occasion are detailed in Table 2.

Table 2: Survey Conditions

Survey Date	Survey Conditions					
	Wind	Rain	Evening temp (°C)		Morning temp (°C)	
			Air pm	Water pm	Air am	Water am
06/04/2020	1	None	14	11	14	11
14/04/2020	1	None	13	11	7	7
21/04/2020	1	None	13	12	11	10
28/04/2020	0	Drizzle	9	8	7	8

- 3.7 On each survey occasion (if the presence of GCN had not previously been confirmed), three of a possible four different techniques (egg search, sweep net, bottle-trap and torch-light surveys) were used where possible. Where GCN had been confirmed guidance requires only two survey methodologies (bottle-trapping and torch-light) to be undertaken. A summary of all methodologies is provided below:

Bottle Trapping

- 3.8 Bottle traps were set within the water body in the evening at densities of one trap per two metres of shoreline (where feasible) and left overnight for inspection in the morning. Traps were partially submerged in the water leaving an air bubble in the bottle and secured by a cane marked with a high visibility tape to ensure relocation the following day. Care was taken to ensure that trapping did not occur during excessively warm weather, when the temperature inside the trap could rise considerably, reducing oxygen levels and potentially suffocating the newts.

Sweep Netting

- 3.9 Long handled sweep-nets were used to sample the margins of the pond for GCN, with approximately 15 minutes of netting per 50m of shoreline.

Torch-Light Survey

- 3.10 Torching involved searching the water body after dusk using high-powered torches to scan the margins and potential display areas for newts. The perimeter of the pond was walked slowly to record any newts observed. Torch surveys are unsuitable within heavily vegetated and / or turbid ponds or after periods of heavy rain as visibility is diminished.

Egg Searching

- 3.11 Newts lay single eggs on leaves of aquatic plants or other suitable pliable material, after which the material is folded over the egg to protect it. GCN eggs can be distinguished from those of the other newts by their size, shape and colour. Submerged vegetation was examined for newt eggs and folded leaves gently opened to check for eggs. If a GCN egg had been identified, no further leaves would have been examined thereby minimising any further potential disturbance.

Survey Limitations

- 3.12 Aquatic surveys were not undertaken on ponds P5, P6 and P7 as access was not permitted.
- 3.13 P8 and the majority of ditches were dry on initial inspection.
- 3.14 Bottle traps at pond at P1b were interfered with on the third survey occasion. Therefore, netting was used as alternative at this pond on further survey occasions.
- 3.15 The ditches were too shallow to make netting or bottling a viable option, therefore surveys of these were limited to torching and egg searching.

4.0 RESULTS**Desk Study**

- 4.1 Full details of the desk study are provided in the separate ecological appraisal (FPCR 2019⁷). In summary, one record of GCN was returned within the site boundary (Pond P1) and another two records within 1km of the site boundary (one in Pond P2 and the second south of Tankersley Common more than 500m from site).
- 4.2 Smooth Newt *Lissotriton vulgaris*, Common Frog *Rana temporaria*, and Common Toad *Bufo bufo* were also recorded within the site boundary (in Pond 1) in 2014. Several records of all three species were recorded within 1km of the site boundary.

⁷ FPCR 2018 Ecological Appraisal

Field Survey

Pond Descriptions

Pond 1

- 4.3 A balancing pond located at the site boundary (SE 3553 0065), connecting into ditch D1. This pond was dominated by bulrush *Typha sp.* and reedbed, but with areas of open water reaching the shore in several places. The western bank was shaded by young trees.



Photograph 1: Pond P1.

Pond 1a

- 4.4 A culvert end forming a pooled section of ditch D1 (SE 3553 0065), located within the site boundary. Connected to P1 and P1b via ditch D1. It had a mix of gravel and mud base with limited marginal aquatic flora and open areas of water increasingly dominated by broad-leaved pondweed *Potamogeton natans*.



Photograph 2: Pond P1a.

Pond 1b

- 4.5 A culvert end forming a steep sided pooled section of ditch D1 (SE 35617 00575) located south of the site boundary connected to pond P1a via ditch D1. The waterbody was devoid of aquatic and marginal vegetation.

Pond 2

An attenuation pond (SE 3523 0102) located north of the A6195. During surveys water levels meant that two separate sections of pond were present. The main area, pictured below, was characterised by reedmace and common reed. A smaller, shallow area to the north by the culvert head was largely dominated by water mint.



Photograph 3: Pond 2.

Pond 3

- 4.6 An attenuation pond (SE 3525 0133) linked to pond P4 via a drainage channel and culvert measuring 10m x 10m. Largely rainwater fed, vegetation was dominated by common reed and surrounding habitat characterised by tussocky grassland and dense scrub. This pond was largely dry with the exception of the western end by an inflow pipe.



Photograph 4: Pond 3.

Pond 4

- 4.7 An attenuation pond located north of pond 3 (SE 3527 0142). Largely rainwater fed pond with varied aquatic vegetation and surrounded by tussocky grassland and scattered scrub. Much of the shoreline had been worn down by bird activity.



Photograph 5: Pond 4.

Pond 5

- 4.8 An established balancing pond (SE 3561 0151) at Shortwood Business Park with dense reedmace cover and sweet-grass surrounded by tussocky grassland and dense scrub.



Photograph 6: Pond 5.

Pond 6

- 4.9 A large pond in an agricultural setting.



Photograph 7: Pond 6.

Pond 7

- 4.10 A large pond in an agricultural setting.



Photograph 8: Pond 7.

Pond 8

- 4.11 An offsite pond (SE 35308 00631), which was dry from initial visit.



Photograph 8: Pond 8 was dry on initial inspection.

Ditch D1

- 4.12 A shallow wet ditch located connected to P1, P1a and P1b.



Photograph 9: Ditch D1.

Ditch D2

- 4.13 A shallow section of standing water within an otherwise dry ditch.



Photograph 10: Ditch D2.

Habitat Suitability Index (HSI) Assessment

- 4.14 Table 3 provides a summary of the HSI assessment for all accessible ponds. Detailed HSI results are provided in Appendix A.

Table 3: HSI Scores

Pond	HSI Score	Predicted Presence	HSI Category
1	0.77	79%	Good
1a	0.39	3%	Poor
1b	0.43	3%	Poor
2	0.60	55%	Average
3	0.45	3%	Poor
4	0.48	3%	Poor
5	0.75	79%	Good
6	0.61	55%	Average
7	0.59	20%	Below Average
8	0.49	3%	Poor

Terrestrial Habitat

- 4.15 To the north of the A6195 the site was divided between species poor semi-improved fields and broad-leaved plantation woodland. The fields habitats offered limited suitability for GCN due to their exposed nature and lack of habitat structure. The plantation woodland comprised habitat of greater value providing potential connectivity between the ponds surrounding with potential habitat for

sheltering and over-wintering. To the south of the A6195 the majority of the site was split between further areas of broad-leaved plantation woodland providing habitat of greater value and intensively managed improved grassland which was considered to be generally unsuitable for GCN. The remainder of the habitats included scrub, hedgerows and wet and dry ditches, all of which had value providing potential sheltering and foraging habitat and links across the site and into the wider area.

Aquatic Surveys

- 4.16 Aquatic surveys were undertaken on ponds P1-P5, and ditches D1 and D2. No great crested newts were recorded during the surveys (Table 4). Smooth Newt were recorded in ponds P1 and P4, and toads were also recorded in ponds P1, P1a, P2, P4 and ditch D1. Full survey results can be found in Appendix B.

Table 4: Great Crested Newt Survey Results

Pond Number	Total Count							
	GCN		Smooth		Toad		Frog	
	Num	Eggs	Num	Eggs	Num	Eggs	Num	Eggs
1	-	-	9	-	43	-	9	-
1a	-	-	-	-	9	-	3	-
1b	-	-	-	-	-	-	-	-
2	-	-	-	-	7	-	6	-
3	-	-	-	-	-	-	-	-
4	-	-	10	-	15	-	2	Y
5	-	-	-	-	-	-	-	-
D1	-	-	-	-	56	Y	1	-
D2	-	-	-	-	-	-	-	-

5.0 DISCUSSION & RECOMMENDATIONS

Ponds

- 5.1 Pond P1a is the only pond fully located within the site boundary, with pond 1 located on the western site boundary. Ditches D1 and D2 were both located within the site boundary. The remainder of the ponds were located in surrounding habitat within 500m.
- 5.2 Both ponds P1 and P1a, as well as ditch D1 are to be retained as part of the development proposals. In addition the terrestrial habitat in immediate proximity to these are to be retained as far as the public footpath to the east.

Great Crested Newts

- 5.3 GCN were stated as being present within Pond P1 in 2013 and pond P2 in 2014 by AES Ltd. In both cases a single newt was recorded. No GCN were found during works to 'Phase 1' of the

development and full suites of GCN surveys undertaken by FPCR in 2015 and 2017 also observed no GCN.

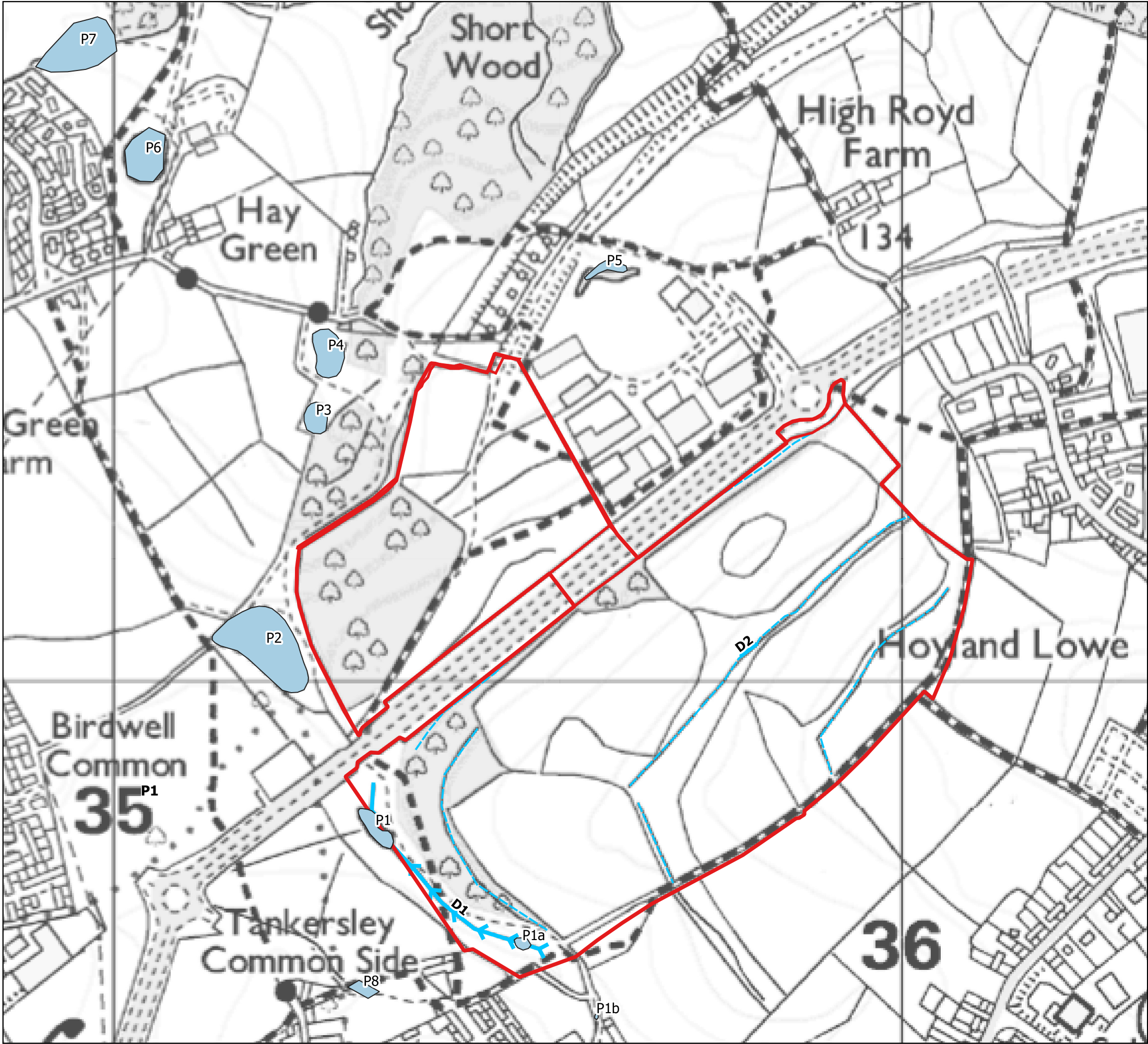
- 5.4 During the 2020 surveys, no GCN were recorded. It is therefore concluded that GCN are no longer present within the site. Natural England will not licence projects unless there is current evidence of GCN presence as determined by presence/absence surveys. Therefore, no specific GCN mitigation is required.

Other Amphibians

- 5.5 All common amphibian species are protected from sale by the Wildlife and Countryside Act 1981 (as amended). Common toad is listed as a Species of Principal Importance under Section 41 of the NERC Act 2006.
- 5.6 Small populations of Smooth Newt were recorded in P1 and P4. In both ponds the peak number was recorded was 4 individuals. As the populations are so low, and pond habitats are to be retained no significant impacts on aquatic habitat for this species are anticipated.
- 5.7 A small number of frogs and frogspawn were recorded during surveys (Ponds P1, P1a, P2, P4 and ditch D1). As the populations are so low, and pond habitats are to be retained no significant impacts on aquatic habitat for this species are anticipated.
- 5.8 Common toad *Bufo bufo* was present in large numbers, notably on the first survey occasion (06/04/2020). Peak counts on this survey for connected habitats Pond 1, P1a and ditch D1 were 43, 9 and 56 individuals respectively; a total of 108 toads along an approximately 300m stretch. As noted in 5.2 these habitats are to be retained along with adjoining terrestrial habitat. Further toads were recorded in ponds P2 and P4 with respective peak counts of 6 and 15 also on the first survey occasion.
- 5.9 No toads were recorded in ditch D2, however toads have been observed in seasonal pools (communication with Trevor Mayne, Barnsley Council Biodiversity Officer) and in the terrestrial environment as part of reptile surveys (FPCR 2020). The loss of seasonally wet ditches and woodland have the capacity to impact the wider foraging, commuting and hibernating habitats for this species.

Mitigation

- 5.10 Given the high degree of confidence derived from three sets of surveys covering 2015-2020 that all returned negative results for GCN, no specific mitigation is required for any of the ponds at this Site.
- 5.11 Three new ponds are to be created on this site, which will provide additional suitable habitat as well as creating new linkages between existing ponds. Further off-site ponds will also be created as part of biodiversity net gain proposals. New waterbodies will provide a variety of topographies in terms of both volume and topography providing a range of niches for amphibian species.
- 5.12 New hedgerow planting on site is to be made in association with new ditches which will assist in maintaining habitat connectivity across the site. New on-site woodland and scrub planting will provide long term habitats for this species and minimise impacts on amphibian species at the site. Additional creation of 3 new on-site waterbodies and further offsite ponds will enhance wetland habitat for amphibians in the wider area.



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Key

- Site Boundary
- Ponds (with ref)
- Ditches (with ref)
- Standing water
- Running water
- Dry ditch



client
Harworth Estates

project
Rockingham Business Park,
Barnsley

drawing title
POND LOCATION PLAN

scale @ A3
1:5000

drawn
MAF/JDH

issue
20/5/2020

drawing / figure number
Figure 1

rev
-

APPENDIX A – HSI SCORES

Pond	SI -1		SI - 2		SI -3		SI -4		SI -5		SI -6		SI -7		SI -8		SI -9		SI -10		HSI Score	Pond Suitability	Predicted Presence
	Geographical Location		Pond Area		Pond Drying		Water Quality		Shade (Perimeter)		Water Fowl		Fish		Ponds within 1km		Terrestrial Habitat		Macrophytes				
	Field result (A, B, C)	SI score	Field result (m2)	SI score	Field result	SI score	Field result	SI score	Field result (% cover)	SI score	Field result	SI score	Field result	SI score	Field result	SI score	Field result	SI score	Field result (% cover)	SI score			
1	A	1	950	0.9615	Never	0.9	Good	1	40	1	Minor	0.67	minor	0.33	14	1	Good	1	10	0.4	0.77	Good	79%
1a	A	1	6	0.05	Annually	0.1	Poor	0.33	100	0.2	Absent	1	possible	0.67	14	1	Good	1	5	0.35	0.39	Poor	3%
1b	A	1	6	0.05	Annually	0.1	Poor	0.33	80	0.6	Absent	1	possible	0.67	14	1	Good	1	2	0.3	0.43	Poor	3%
2	A	1	7300	0.1838	Never	0.9	Moderate	0.67	5	1	minor	0.67	minor	0.33	14	1	Moderate	0.67	10	0.4	0.60	Average	55%
4	A	1	1930	0.8152	Never	0.9	Moderate	0.67	5	1	Major	0.01	minor	0.33	14	1	Good	1	10	0.4	0.48	Poor	3%
5	A	1	530	1	Sometimes	0.5	Moderate	0.67	40	1	minor	0.67	possible	0.67	14	1	Good	1	10	0.4	0.75	Good	79%
6	A	1	2705	0.692	Never	0.9	Moderate	0.67	70	0.8	minor	0.67	minor	0.33	14	1	Poor	0.33	2	0.3	0.61	Average	55%
7	A	1	4520	0.4148	Never	0.9	Moderate	0.67	0	1	minor	0.67	minor	0.33	14	1	Poor	0.33	2	0.3	0.59	Below Average	20%
8	A	1	200	0.4	Annually	0.1	Poor	0.33	100	0.2	absent	1	absent	1	14	1	Good	1	0	0.3	0.49	Poor	3%

APPENDIX B – AQUATIC SURVEY RESULTS

[illegible]