Harworth Group

Land at Hay Green Lane, Birdwell , Barnsley

GREAT CRESTED NEWT REPORT

October 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 the Harworth Group and details the findings of great crested newt (GCN) *Triturus cristatus* surveys undertaken on a site off Hay Green Lane, Birdwell, Barnsley. The need for further surveys of this group was identified during an initial habitat assessment carried out in 2019.

1.2 Great crested newt surveys of ponds P3-P5 were undertaken in 2013[1] and 2014[2] by AES on behalf of Harworth Group in support of a previous application for an unrelated, but nearby development site. GCN surveys were undertaken on these ponds by FPCR in 2015 and repeated in 2017 to update the baseline information.

Site Location and Context

1.3 The site is located south of Hay Green Lane on the southern of Birdwell village and is approximately 3.6 hectares in size and comprises grazed field compartments, a small area of poor semi-improved grassland, a small area of dense scrub and allotments. It is surrounded by agricultural land to the south, residential estates to the north and woodland to the west and east. The site is bordered by native species hedgerows and Hay Green Lane and associated properties make up the northern boundary.

1.4 Surrounding habitats include residential development, arable land and pasture with areas of woodland to the north and north east. Junction 36 of the M1 Motorway lies approximately 1km to the south.

Site Proposals

1.5 The proposals include the construction of up to 118 houses. Along with the dwellings, associated green infrastructure including public open space, retained hedgerows, attenuation features and public footways are proposed. Hedgerows along the site boundary are to be retained although small sections will require removal to facilitate site and pedestrian access. Vehicular and emergency access to the site will be provided off Hay Green Lane at two locations.

[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 of 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 in order to compile existing baseline information regarding amphibians, relevant ecological information was requested from statutory and non-statutory nature conservation organisations, including:

- Barnsley Biological Records Centre (BBRC) - hosted by Sheffield City Council and accessed via Sheffield Biological Records Centre (SBRC),
- 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)[3]. 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.

[3] 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 five waterbodies (P1-5) 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 P1 and P2, therefore aquatic surveys were not undertaken. 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^{o}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 P1 and P2 as access was not permitted.

4.0 RESULTS

Desk Study

4.1 The desk study returned two records of Great Crested Newt within 1km of the site, with the closest record located approximately 380m south-east of the site boundary. Other records of amphibian included common frog, common toad and smooth newt. Full details of the desk study are provided in the ecological appraisal (FPCR 2019[4]).

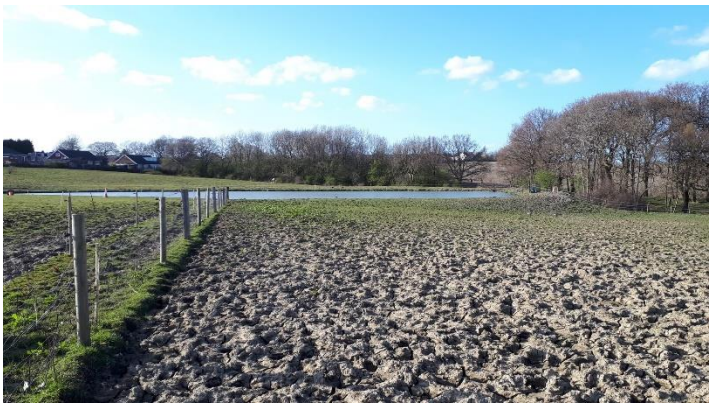
Field Survey

Pond Descriptions

Pond 1

4.2 A large pond in an agricultural setting.

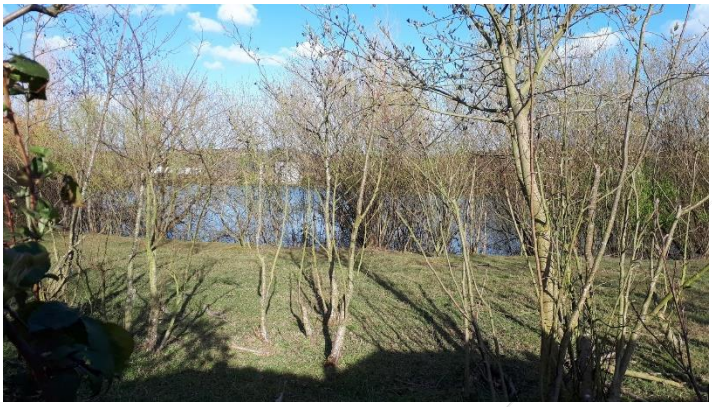
[4] FPCR 2019 Ecological Appraisal



Photograph 1: Pond 1.

Pond 2

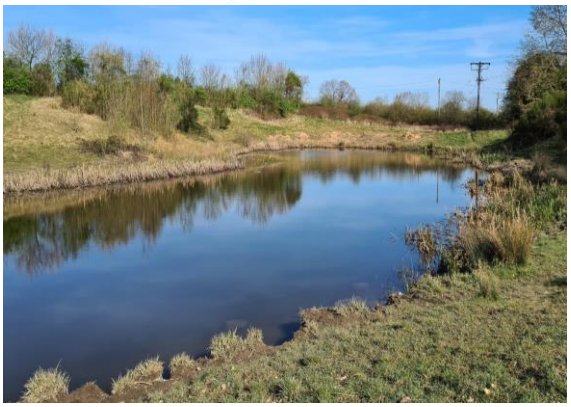
4.3 A large pond in an agricultural setting.



Photograph 2: Pond 2.

Pond 3

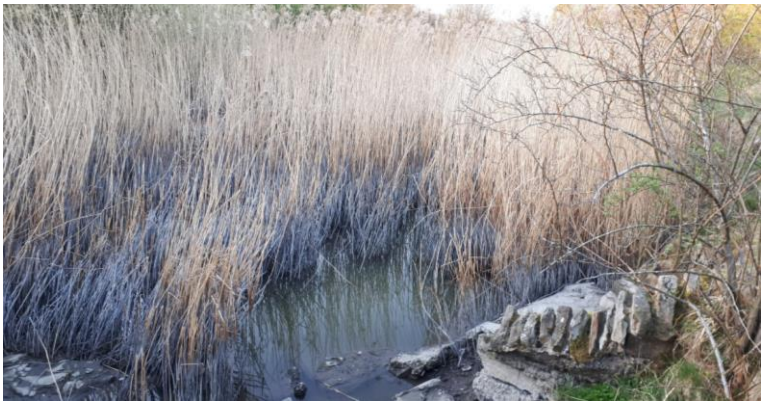
4.4 An attenuation pond located north of pond 4 (SE 3527 0142). Largely rainwater fed pond with varied aquatic vegetation and surrounded by tussocky grassland and scattered scrub. Much of the shoreline had been worn down by bird activity.



Photograph 3: Pond 3.

Pond 4

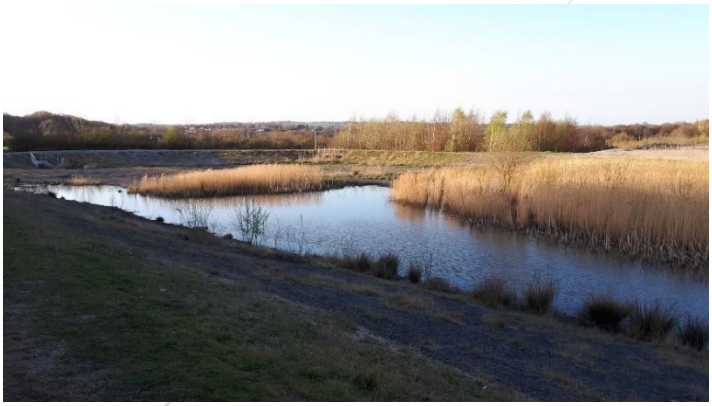
4.5 An attenuation pond (SE 3525 0133) linked to pond P3 via a drainage channel and culvert measuring 10m x 10m. Largely rainwater fed, vegetation was dominated by common reed and surrounding habitat characterised by tussocky grassland and dense scrub. This pond was largely dry with the exception of the western end by an inflow pipe.



Photograph 4: Pond 4.

Pond 5

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 5: Pond 5.

Habitat Suitability Index (HSI) Assessment

4.6 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	0.59	20%	Below Average
2	0.61	55%	Average
3	0.48	3%	Poor
4	0.45	3%	Poor
5	0.60	55%	Average

Terrestrial Habitat

4.7 The hedgerow bases, and associated ruderal margins provide some suitable terrestrial habitat for GCN, however these were generally limited in extent. The poor semi-improved grassland, which dominates the site is considered to be of negligible value for GCN, due to its homogenous nature and lack of features that may provide shelter. The area of scrub in the south west of the site provides suitable habitat for hibernating and foraging.

Connectivity

4.8 Ponds 1 and 2 have poor connections for GCN to the site given their physical distance (215m straight line or 240m shortest connecting route) with only suboptimal adjoining habitat which lacks continuous linear features or belts of good quality habitat. Additionally, more suitable habitat than at the Site is located closer to the ponds. From pond P2 scrub habitat is found approximately 75m to the east and woodland 125m to the north. P1 directly abuts woodland habitat.

4.9 Pond 3, 4 and 5 have negligible connectivity to the site along hedgerows (455m, 475m and 375m respectively). All of these ponds have more suitable terrestrial habitat than the Site in the form of scrub and woodlands directly adjoining them.

Aquatic Surveys

4.10 Aquatic surveys were undertaken on ponds P3-P5. No great crested newts were recorded during the surveys (Table 4). Smooth newt, toads and frogs were recorded in pond P3 and toads and frogs were recorded in pond P5. No amphibians were recorded in Pond P4. 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
3	-	-	10	-	15	-	2	Y
4	-	-	-	-	-	-	-	-
5	-	-	-	-	7	-	6	-

5.0 DISCUSSION & RECOMMENDATIONS

5.1 Surveys carried out in 2020 found no GCN in the off-site water bodies surveyed, with the survey effort considered suitable to provide an accurate determination of the presence/absence of newts for all ponds which were surveyed. All surveys were conducted within the recommended survey period of mid-March to mid-June.

5.2 Surveys were not undertaken on Ponds 1 and 2 as access was not granted. HSI assessments indicate these to have below average and average suitability respectively. The closest, pond 2, with average suitability for GCN is approximately 250m to the north east, with relatively poor connective habitat linkages to the site, with the most suitable habitat areas on site, more than 500m from it. Research conducted by English Nature (now Natural England) in 2004 (English Nature Research Report Number 576) to assess the value of different habitats for GCN states in the non-technical summary that

'By far the most captures were recorded within 50 m of ponds and few animals were captured at distances greater than 100 m.'

5.3 It also goes on to say:

'Captures on fences (and by other methods) at distances between 100 m and 200 – 250 m from breeding ponds tended to be so low as to raise serious doubts about the efficacy of this as an approach, although a small number of projects did report captures on significant linear features at distances approximately 150 – 200 m from ponds.'

5.4 Furthermore good practice guidance issued by Natural England and the Forestry Commission (Guidance on Managing Woodlands with Great Crested Newts in England, Version 2, 5 September 2007, section 6) suggests a number of techniques to be employed which (if followed) are permitted without the need for a Great Crested Newt Licence. Such measures include (amongst others):

- *Stacking – within 100m of a pond, try to avoid stacking timber…….*
- *Track construction or other ground-works – avoid undertaking such activities within 100 m of a pond*

5.5 In support of this, the section 5 of the Natural England/Forestry Commission guidance also provides a list of issues which is relevant to assessing the level of risk of causing damage, disturbance or harm to GCN. The guidance states *"Distance from the pond: The risk of encountering newts or their resting places generally decreases with distance from the pond. Where there are large great crested newt populations, or particularly favourable terrestrial habitats, activities even several hundred metres away from the pond could result in harm".* Whilst this guidance as a whole is obviously directed at woodland operations, the points made with regard to risk of harm to GCN are of general application.

5.6 The strong implication of the above research and advice is that the risk of GCN being present more than 100m from a pond is low; and furthermore that the risk of GCN being present beyond 100m from a pond is greatest with "large populations" or "particularly favourable habitat".

5.7 Given the distance of the site from P2 (the closest and more suitable of P1 and P2), the overall limited suitable habitat on site within 500m and the presence of a large area of optimal terrestrial is present within 100m of P2 within the woodlands to its east, it is considered that were GCN within Ponds 1 and 2, it would be highly unlikely that they would be utilising the site's habitats.

5.8 GCN were stated as being present within P5 during surveys by AES in 2014, with a single newt recorded. Aquatic surveys by FPCR in 2015 and 2017 (see planning application 2019/1573 land at Dearne Valley Parkway) found no evidence of the species in ponds P3-P5, with no GCN recorded during 2020 surveys.

5.9 Given that there is no current evidence of GCN, their presence is considered highly unlikely. All ponds are located off-site and will remain unaffected by the development. As such GCN do not pose a material constraint to this development and no mitigation is required at the Site.

Other Amphibians

5.10 All common amphibian species are protected from sale by the Wildlife and Countryside Act 1981 (as amended). Common toad *Bufo bufo* are also listed as a Species of Principal Importance under Section 41 of the NERC Act 2006.

5.11 A small population of smooth newts was recorded in P3; with a peak count of 4 individuals, while a small number of frogs and toads were recorded in ponds P3 and P5. Frogspawn was also recorded in P3. Given the low population size of each species and that the ponds are located outside of the site boundary, no direct impact on amphibians are anticipated as a result of the proposed development.

Recommendations

5.12 An on-site attenuation pond is proposed as part of the SUDS. A second pond is to be created connected to the proposed swale features. These will be designed and managed to provide suitable habitat for amphibians and other wildlife, including appropriate native species planting.

5.13 New hedgerow planting and gapping up will assist in maintaining habitat connectivity across the site and the wider landscape, providing dense ground cover for wildlife. Hedgerows and other habitats on site should be managed and maintained for biodiversity enhancement.

5.14 The provision of artificial hibernacula and refugia would provide an additional resource for amphibians. These could include log or rubble piles, positioned in close proximity of the new ponds in marginal habitat or tussocky grassland or scrub.

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	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%
2	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%
3	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%
4	A	1	970	0.9615	Sometimes	0.5	Moderate	0.67	50	1	Major	0.01	minor	0.33	14	1	Good	1	2	0.3	0.45	Poor	3%
5	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%

APPENDIX B- AQUATIC SURVEY RESULTS

Pond Number	Survey Date	Bottle Trapping																Torching																Egg Search
		GCN				Smooth Newt				Common Toad				Common Frog				GCN				Smooth Newt				Palmate newt				Common Toad				Common Frog				
		M	F	J	U	M	F	J	U	M	F	J	U	M	F	J	U	M	F	J	U	M	F	J	U	M	F	J	U	M	F	J	U	M	F	J	U	
3	06.04.2020	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	15	-	-	-	1	Frog
3	14.04.2020	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
3	21.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
3	28.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	None
4	06.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
4	14.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
4	21.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
4	28.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
5	06.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	None
5	14.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
5	21.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None
5	28.04.2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	6	None

Key

- Site Boundary
- 500m Buffer
- Pond (with reference)

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client
Harworth Group

project
Hay Green Lane, Birdwell, Barnsley

drawing title
Pond Location Plan

scale @ A3
1:5000

drawn
LTW/JDH

issue
21/5/2020

drawing / figure number
Figure 1

rev
9063