Project: Land East of Rugby Road, Clifton upon Dunsmore
Date: 07/08/2025

Habitat Suitability Index Assessment and eDNA Analysis

1 Introduction

1.1.1 Aspect Ecology was commissioned by Richborough Estates in December 2024 to undertake a Great Crested Newt *Triturus cristatus* (GCN) Habitat Suitability Index assessment of ponds in respect of proposed development of land east of Rugby Road, Clifton upon Dunsmore, centred at grid reference SP 52659 75960 (see Plan 6976/ECO1), hereafter referred to as 'the site'. Aspect were then subsequently commissioned to undertake an eDNA survey of pond P1 (see Plan 6976/ECO4).

1.1.2 The proposals are for development of the site to provide 160 residential units with associated open space, access and infrastructure (see Appendix 6976/1).

2 Method

2.1.1 The HSI study was undertaken in line with the guidelines developed by Oldham et al. and subsequently adapted by ARG UK (2010)[1]. A suitably experienced ecologist undertook the assessment, informed by desktop research and a site survey conducted on 9th January 2025.

2.1.2 As a first step in assessing the possible presence of GCN at the site, Ordnance Survey mapping and satellite imagery were examined to identify water bodies within 500m of the site boundary.

2.1.3 Guidance set out within Natural England's Method Statement template, to be used when applying for a Great Crested Newt development licence, states that surveys of ponds within 500m of the site boundary are only required *"when all of the following conditions are met: (a) maps, aerial photos, walk-over surveys or other data indicate that the pond(s) has potential to support a large great crested newt population, (b) the footprint contains particularly favourable habitat, especially if it constitutes the majority available locally, (c) the development would have a substantial negative effect on that habitat, and (d) there is an absence of dispersal barriers."*

2.1.4 Given that in this instance, not all of the conditions listed above are applicable to the site, it is considered that survey of ponds within 500m of the site boundary is not required, and that survey of ponds within 250m[2], where accessible, represents an adequate survey effort.

2.1.5 Where access was available, identified ponds were subject to a HSI assessment. The HSI is used to assess the likely suitability of water bodies to support Great Crested Newt. The HSI is a score

[1] Amphibian & Reptile Groups of the UK (2010) ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index
[2] 250m is the typical maximum migratory range of this species, see English Nature (2004) '*An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt* Triturus cristatus'. English Nature Research Report 576

derived from ten component factors that are each scored separately according to the standard method. These are (see below):

- *SI1 Location.* The location of the water body within Great Britain;
- *SI2 Pond area.* The size of the water body;
- *SI3 Permanence.* How often the water body dries out;
- *SI4 Water Quality.* The water quality, based primarily on invertebrate diversity;
- *SI5 Shade.* The percentage of the perimeter of the water body that is shaded;
- *SI6 Fowl.* The presence or absence of water fowl;
- *SI7 Fish.* The presence or absence of fish;
- *SI8 Pond Count.* The number of water bodies within 1km of the surveyed water body (not counting those on the far side of major barriers such as roads);
- *SI9 Terrestrial.* The quality of terrestrial habitat surrounding the water body; and
- *SI10 Macrophytes.* The percentage cover of the surface area of the water body by macrophytes (aquatic plants).

2.1.6 The overall HSI is then determined by combining scores for the above criteria into an equation devised by Oldham *et al*. (2000)[3]. The HSI score corresponds with a measure of the suitability of the water body to support Great Crested Newt of either 'poor', 'below average', 'average', 'good' or 'excellent'. For each category of suitability the proportion of ponds which are anticipated to support Great Crested Newt[1] is shown in Table 2.1 below.

Table 2.1. HSI Pond Predicted Presence.

Pond Category	Proportion of ponds anticipated to support GCN
Poor	3%
Below Average	20%
Average	55%
Good	75%
Excellent	93%

2.1.7 Following the HSI assessment water samples were taken for eDNA analysis to investigate the presence/absence of Great Crested Newt within off-site pond, P1. Water samples were collected on 25 June 2025 following the procedure outlined in the methods manual prepared for DEFRA by Biggs et al. (2014)[4]. The survey fell within the acceptable seasonal window set out by Natural England (15 April to 30 June inclusive) . Samples were collected by suitably trained Aspect Ecology staff. The water samples were sent for laboratory analysis which was conducted by Cellmark in accordance with the procedure set out by Biggs et al. (2014).

3 Results

3.1.1 Four waterbodies were identified within 250m of the site boundary (see Plan 6976/ECO4).

[3] Oldham RS, Keeble J, Swan MJS & Jeffcote M (2000) *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus).* Herpetological Journal 10 (4), 143-155

[4] Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. and Dunn F. (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA*. Freshwater Habitats Trust, Oxford.

3.1.2 Of the four ponds, **P1** was accessible and **P2** could be viewed from vantage points allowing for a precautionary HSI assessment to be undertaken. Access was not possible to survey ponds **P3** and **P4**. The survey was undertaken outside the optimal season such that some aquatic vegetation may not have been visible. Therefore, a precautionary approach was taken, supported by aerial photography, to enable an adequate assessment of the ponds to be made. The eDNA survey of pond **P1** was undertaken in June 2025 within the acceptable survey window.

3.1.3 HSI scores were calculated for each assessed pond, to initially investigate their likely suitability to support Great Crested Newt. The results are set out in Table 3.1 overleaf.

Table 3.1. HSI assessment results.

Pond	Suitability Indices										HSI Score	Suitability
	SI 1 Location	**SI 2** Pond Area	**SI 3** Pond Drying	**SI 4** Water Quality	**SI 5** Shade	**SI 6** Water Fowl	**SI 7** Fish	**SI 8** Ponds	**SI 9** Terrestrial Habitat	**SI 10** Macrophytes		
Offsite Ponds												
P1	1	0.12	0.9	0.67	0.4	0.67	0.33	0.84	0.67	0.31	**0.51**	*Below average*
P2	1	0.3	0.5	0.67	1	0.67	1	0.69	1	0.85	**0.72**	*Good*

3.1.4 Pond **P1** was both found to be of 'below average' suitability to support Great Crested Newt, while **P2** was precautionarily assessed to be of 'good' suitability.

3.1.5 The eDNA analysis of the samples collected from pond P1 recorded a negative result indicating absence of Great Crested Newt.

3.1.6 Pond **P1** is located approximately 70m north of the closest part of the red line boundary, which relates to the proposed creation of a drainage ditch and swale, and approximately 300m east of the main developable area of the site (Plan 6976/BNG2). The pond is surrounded to the north, south and west by arable, with permanent pasture and a small copse of woodland bounding the pond to the east. Pond 2 appears to be used, or to have been used, as a fishing pond as evidence of fishing platforms was recorded.

3.1.7 **P2** is located on the opposite side of Houlton Way road to the site, approximately 110m from the boundary to the proposed drainage swale, and 195m to the main developable footprint (Plan 6976/ECO4). **P2** appears to have been created in 2019, as a sustainable drainage feature for the construction of Houlton Way road, from a review of historic aerial photography and online resources. **P2** is bound by Houlton Way road to the north, Oxford Canal to the south and grassland to the east and west, and is considered separated from the application site by physical barriers.

3.1.8 Access was not possible to ponds **P3** and **P4.** However, from reviewing aerial photography both ponds appear to be connected to the disused railway which passes the south-west of the site approximately 50m from the site boundary. The disused railway provides a traversable habitat corridor for Great Crested Newt to the site from **P3** and **P4** approximately 230m and 250m in length respectively.

4 Assessment

4.1.1 All ponds lie off-site and will not be directly affected by the proposals.

4.1.2 **P1** has been assessed as being of below average suitability to support great crested newts, and returned a negative eDNA result as such it is highly unlikely to support great crested newt. **P1** is separated from the proposed drainage swale by approximately 70m of arable land, and whilst there are no direct connections between **P1** and the site via hedgerows, there is no physical barrier to potential dispersal by amphibians. Arable land is intrinsically of low suitability to Great Crested Newt due to pesticide treatments and the consequent low levels of invertebrate prey present. Higher suitability foraging habitat is available to the east of **P1** in the form of permanent pasture and the woodland copse. Following the eDNA analysis of this pond Great Crested Newts are considered to be absent from P1.

4.1.3 Houlton Way forms a major dispersal barrier between pond **P2** and the site. **P2** is surrounded by grassland which provides suitable habitat for Great Crested Newt. However, the pond is comparatively isolated within the landscape and being comparatively recently created (2019) reduces the chances that it has naturally been colonised by Great Crested Newt. Should great crested newts be present within P2, it is considered that the road will form a significant physical barrier to dispersal, and there is a negligible risk that they would be present within the application site, located more than 100m to the north at its closest point.

4.1.4 **P3** and **P4** are separated from the site by dispersal barriers in the form of Rugby Road and the residential development between these ponds and the site, with regard to straight line distance. Whilst the disused railway does provide a vegetated corridor by which Great Crested Newt could potentially access the site from ponds **P3** and **P4**, it is considered highly unlikely that this would occur. The disused railway provides highly suitable terrestrial habitat for Great Crested Newt, comprising tussocky grassland and scrub, whilst the intensively farmed arable field habitat provided by the site offers very limited potential for foraging or shelter.

4.1.5 A study by Langton and Beckett (1995)[5] reported that 95% of Great Crested Newt stay within approximately 160m of their breeding pond. A separate study undertaken by Jehle (2000)[6] used radio tracking to monitor Great Crested Newt and reported that 95% stayed within 63m of their breeding pond. P1 lies approximately 140m from the application site at its closest point, where a drainage swale is proposed to be excavated through the arable field, and approximately 300m from the main construction footprint (Plan 6976/BNG2). P2 is physically separated from the site by a significant barrier to dispersal. P3 lies approximately 240m from the site boundary and P4 approximately 250m from the site boundary. Consequently, any great crested newt travelling from P3 and P4 would have to traverse through approximately 240m of optimal habitat in order to gain access to suboptimal habitat.

4.1.6 As such, due to the higher quality habitats present within close proximity to each pond, the poor suitability of the site, the distance of the three waterbodies that may potentially support Great Crested Newt from the site, it is assessed to be highly unlikely that any Great Crested Newt are present on-site.

4.1.7 Whilst no ponds are proposed within the application site, post-completion the site would support sizeable areas of grassland, scrub planting, wet grassland and improved hedgerows

[5] Langton T. E. S and Beckett C. L (1995) *Home range size of Scottish amphibians and reptiles* .Scottish Natural Heritage Review No. 53.

[6] Jehle R (2000) *The terrestrial summer habitat of radio-tracked great crested newts (Triturus cristatus) and marbled newts (T. marmoratus).* Herpetological Journal 10, 137-142

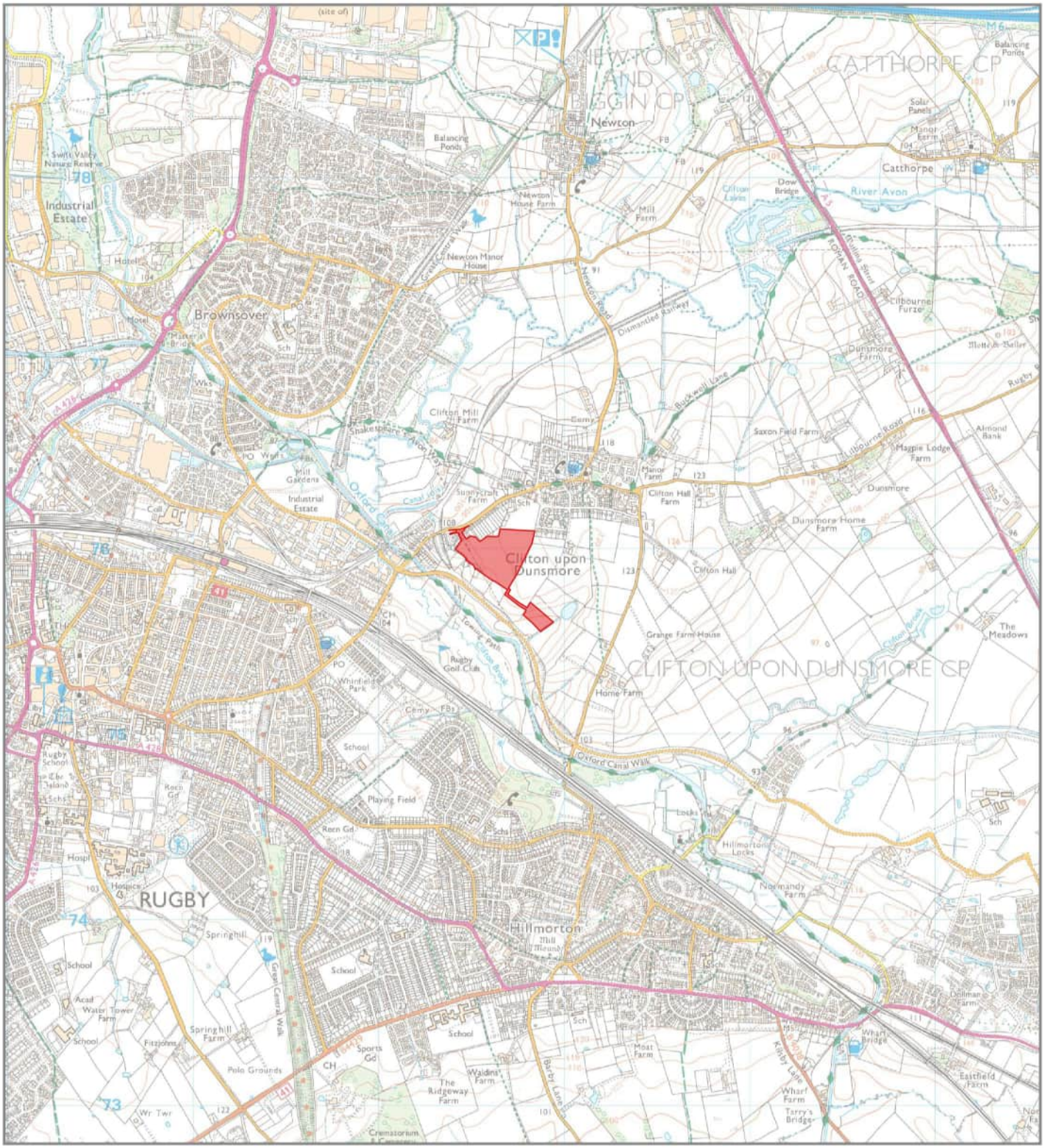
which would provide improved terrestrial habitat for a wide range of species. Such habitat improvements would also benefit amphibians, should any be present in the future.

Plans

Plan 6976/ECO1	Site Location
Plan 6976/ECO4	Pond Plan
Appendix 6976/BNG2	Post Construction Habitat Plan

Plan 6976/ECO1:

Site Location



Key:

Site Location

aspect ecology
APEM Group

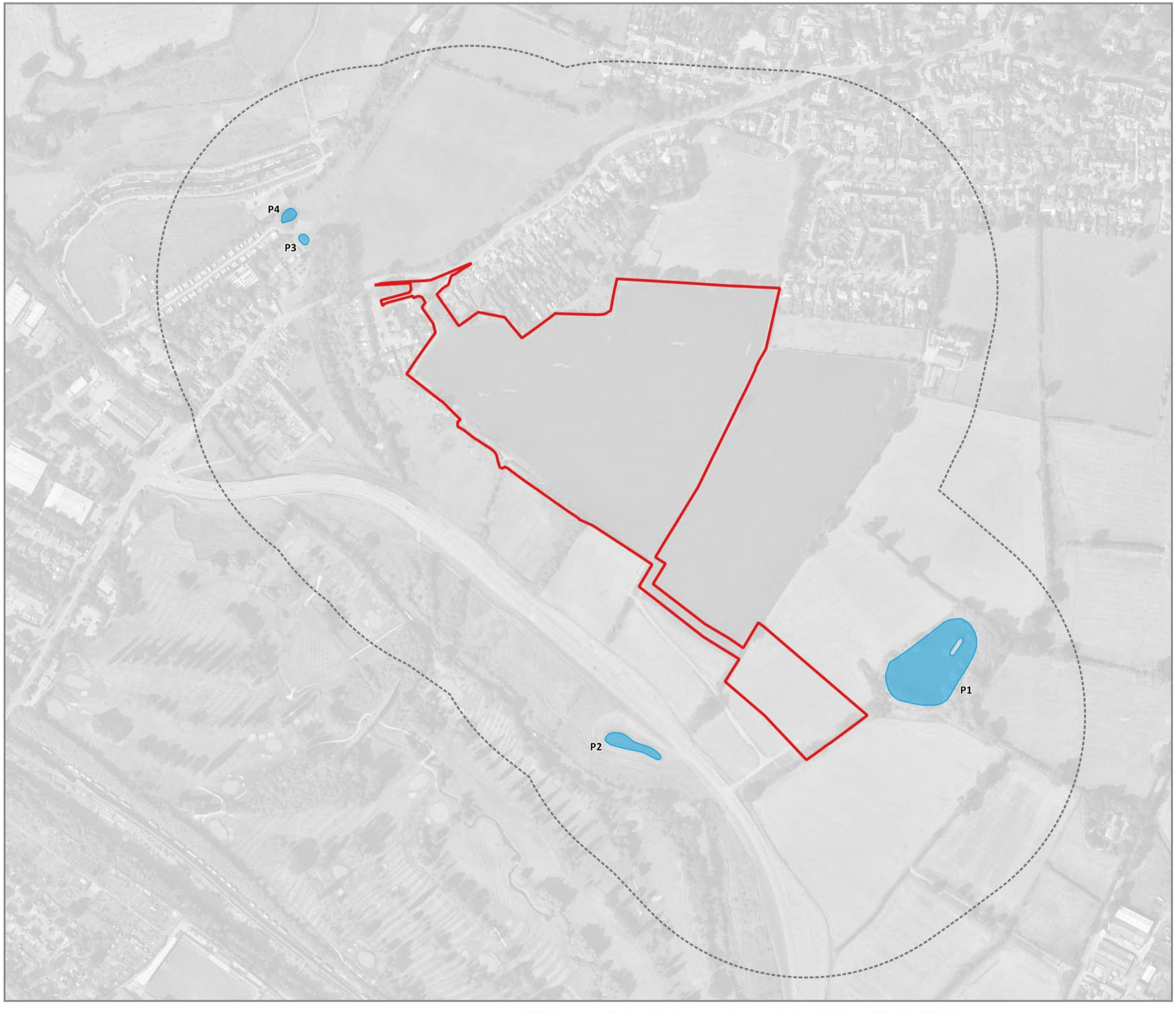
Aspect Ecology Limited · West Court · Hardwick Business Park
Noral Way · Banbury · Oxfordshire · OX16 2AF
01295 279721 · info@aspect-ecology.com · www.aspect-ecology.com

Clifton upon Dunsmore	PROJECT
Site Location	TITLE
6976/ECO1	DRAWING NO.
C/JP	REV
August 2025	DATE
JP/OG	QC

P:\Project\Aspect Ecology Projects\ECO 6950\10006976\Graphics\GIS\6976 ECO 1 3.dgz

Plan 6976/ECO4:

Pond Plan



Key:

- Site Boundary
- 250m Site Buffer
- Pond

aspect ecology
APEM Group

Aspect Ecology Limited - West Court - Hardwick Business Park
Noral Way - Banbury - Oxfordshire - OX16 2AF
01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Clifton upon Dunsmore	PROJECT
Pond Plan	TITLE
6976/ECO4	DRAWING NO.
C/JP	REV
August 2025	DATE
OG/JP	QC

P:\Project\Aspect Ecology Projects\ECO 6950\10\6976\Graphics\QGIS\6976 ECO 1 3.qgz

Appendix 6976/BNG2:

Post Construction Habitat Plan

Key:

- Site Boundary
- Proposed Artificial unvegetated, unsealed surface (0.0075ha)
- Proposed Developed land; development area (2.8475ha)
- Proposed Developed land; sealed surface: Hardstanding (1.6800ha)
- Proposed Mixed scrub (0.1400ha)
- Proposed Modified grassland (1.3800ha)
- Proposed Other neutral grassland - Moderate Condition (1.6975ha)
- Retained Cereal crops (1.2775ha)
- Proposed Other neutral grassland (wet) (0.4350ha)
- Retained Line of trees (0.185km)
- Retained Native hedgerow - Good Condition (0.385km)
- Retained Native hedgerow - Moderate Condition (0.13km)
- Retained Non-native and ornamental hedgerow (0.075km)
- Enhanced Native hedgerow - Good Condition (0.3km)

0 30 60 90 120 m

aspect ecology
APEM Group
Aspect Ecology Limited - West Court - Hardwick Business Park
Noral Way - Banbury - Oxfordshire - OX16 2AF
01295 279721 - info@aspect-ecology.com - www.aspect-ecology.com

Clifton upon Dunsmore	PROJECT
Post-development Habitat Mapping	TITLE
6976/BNG2	DRAWING NO.
I/AM	REV
August 2025	DATE
OG/AM	QC

ecology • landscape planning • arboriculture

aspect ecology APEM Group

Aspect Ecology Ltd
West Court
Hardwick Business Park
Noral Way
Banbury
Oxfordshire OX16 2AF

T: 01295 279721
E: info@aspect-ecology.com
W: www.aspect-ecology.com