

Radcliffe Moor Road, Little Lever, Bury BL2 6QG

ECOLOGICAL SURVEY AND ASSESSMENT

September 2021

[ERAP (Consultant Ecologists) Ltd ref: 2021-216]

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Document Control

Survey Type:	Surveyors¹	Survey Date(s)
Phase 1 Habitat survey	Catie Haworth B.Sc. (Hons) M.Sc. Graduate Ecologist; and Brian Robinson B.Sc. MCIEEM Senior Ecologist	28 th July 2021
Great crested newt presence / absence survey	Amy Sharples B.Sc. (Hons) M.Sc. ACIEEM Senior Ecologist; and Luke Atherton B.Sc. (Hons) M.Sc. Graduate Ecologist	30 th June 2021
Reporting	Personnel	Date
Author	Catie Haworth B.Sc. (Hons) M.Sc. Graduate Ecologist	1 st September 2021
Signature(s)		
Checked	Brian Robinson B.Sc. (Hons) MCIEEM Senior Ecologist	7 th September 2021
Revised and issued	Catie Haworth B.Sc. (Hons) M.Sc. Graduate Ecologist	8 th September 2021
Updated	Catie Haworth B.Sc. (Hons) M.Sc. Graduate Ecologist	16 th September 2021
Report issued to	Westchurch Homes Ltd	
Version Number	2: Version 1 updated to reference final site layout.	
	3: Version 2 updated to amend the site address.	

¹ Licence reference numbers
Great crested newt
Amy Sharples Natural England Class Survey Licence (Level 2) Registration Number 2015-16679-CLS-CLS

SUMMARY

- i. This ecological survey and assessment presents the ecological, biodiversity and nature conservation status of land at Radcliffe Moor Road, Little Lever. The assessment was requested in connection with proposals to develop the site to a sports ground comprising four football pitches, facilities and car parking.
- ii. This report presents the results of a desktop study and data search, extended Phase 1 Habitat Survey and great crested newt presence / absence survey carried out in June and July 2021. The scope of survey undertaken is appropriate to identify potential ecological constraints, the remit of mitigation required and opportunities for biodiversity associated with the development proposals.
- iii. The site comprises two fields of poor semi-improved grassland with boundary hedgerows and a tree line.
- iv. The site will have no adverse effect on statutory designated sites for nature conservation. The site lies adjacent (at its southern boundary) to Bradley Fold Site of Biological Importance (SBI), a non-statutory site for nature conservation; measures to protect the SBI and its associated features of interest are presented at **Section 5.0**. Provided these measures are adhered to it is considered that the proposals will have no adverse effect on the SBI or any other non-statutory designated sites for nature conservation.
- v. The site contains only common and widespread plant species; none of the habitats present are representative of semi-natural habitat. Hedgerows 1 to 7 are Priority Habitat; no other habitats within the site are Priority Habitat. With the exception of Hedgerow 3, none of the hedgerows qualify as 'important' in accordance with *The Hedgerows Regulations 1997* wildlife and landscape criteria. The hedgerows and tree line are of 'local' importance in terms of their geographical context as they provide habitat connectivity, structural diversity and opportunities for nesting birds and foraging and commuting bats. The proposals provide an opportunity to retain and protect the hedgerows and the tree line, with the exception of Hedgerow 2; where loss of hedgerow is unavoidable compensatory hedgerow planting is recommended, and details of these recommendations are presented at **Section 5.2**.
- vi. Invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), namely Indian Balsam and Japanese Knotweed, were detected at the western and northern site boundaries. The proposals will secure an opportunity to achieve the control and long-term management of these species, refer to **Section 5.3**.
- vii. Habitats at the site are suitable for use by foraging and commuting bats; retention and protection of habitats suitable for foraging and commuting bats can be accommodated and measures to enhance the site for roosting bats are presented at **Section 5.4**.
- viii. The hedgerows and tree line provide suitable habitat for nesting and foraging passerine (perching) bird species, including Priority Species. Mandatory actions to protect nesting birds during site clearance and measures to provide opportunities for nesting birds are described at **Section 5.5**.
- ix. There are no ponds within the site. The site lies within 100 metres of five ponds (Ponds 1 to 5). Owing to the negative great crested newt eDNA result at Pond 5, the use of Ponds 1, 3 and 4 as fishing lodges (and therefore typically unsuitable for use by breeding great crested newt), the conditions at Pond 2 and the condition of the terrestrial habitats at the site it is concluded that harm to individual great crested newt and adverse effects on the favourable conservation status of great crested newt is reasonably unlikely in consideration of the proposals. The presence of common toad is reported and, as such, a Reasonable Avoidance Measures Method Statement is presented at **Section 5.8**. These measures will protect other wildlife that are associated with the site, such as common toad and hedgehog (both Priority Species). Additionally, measures to enhance the site for wildlife, including amphibians, through the incorporation of an undeveloped buffer and enhancement of the boundary features are presented at **Section 5.6**.
- x. No other protected species have been detected.
- xi. The recommendations in **Section 5.0** outline all the mandatory measures and additional actions to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.
- xii. The proposals will secure an opportunity to implement beneficial measures such as habitat management and habitat creation that will safeguard habitats for wildlife such as common toad, birds and bats, with the aim of providing a net gain in biodiversity in accordance with the principles of the NPPF.
- xiii. It is concluded that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy.

1.0 INTRODUCTION

1.1 Background and Rationale

- 1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Westchurch Homes Ltd to carry out an ecological assessment of land at Radcliffe Moor Road, Little Lever, Bury, BL2 6QG (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 7565 0891. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).
- 1.1.2 The assessment was requested in connection with a planning application to develop the site into sports facilities comprising four football pitches, facilities and car parking. The proposals do not comprise the installation of floodlights at the pitches.

1.2 Scope of Works

- 1.2.1 The scope of ecological works undertaken in June and July 2021 comprised:
- A desktop study and data search for known ecological information at the site and the local area;
 - An Extended Phase 1 Habitat Survey and assessment;
 - Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
 - Survey and assessment of all habitats for relevant statutorily protected species¹ and other wildlife including badger (*Meles meles*), great crested newt (*Triturus cristatus*), bird species and reptiles;
 - A preliminary survey of the trees for their suitability for use by roosting bats;
 - The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and
 - The identification of any further surveys or precautionary actions that may be required prior to the commencement of any construction activities.

2.0 METHOD OF SURVEY

2.1 Desktop Study and Data Search

- 2.1.1 The following sources of information and ecological records were consulted:
- MAGiC: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;
 - Greater Manchester Local Records Centre (GMLRC); and
 - Greater Manchester Biodiversity Action Plan (BAP).

¹ In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development. In this instance, there are no watercourses within or adjacent to the site; therefore the presence of water vole (*Arvicola amphibius*) and otter (*Lutra lutra*) can be reasonably discounted, for example.

2.2 Vegetation and Habitats

- 2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Catie Haworth B.Sc. (Hons) M.Sc. and Brian Robinson B.Sc. (Hons) MCIEEM on 28th July 2021. The weather was overcast with one 15-minute heavy rain-shower at 11am, a light breeze (Beaufort scale 2) and 14°C at 10am.
- 2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area at a scale of 1:3000 (refer to **Figure 2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.
- 2.2.3 On site habitat mapping was assisted via use of GPS technology and *Proposed Development at Bury New Road, Little Lever, Westchurch Homes Ltd, Topographical Survey, WC0045 / T00* (RJP Surveying Consultants Ltd, 2010) as a base plan.
- 2.2.4 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.
- 2.2.5 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.
- 2.2.6 Habitats within the site were assessed in accordance with the UK Habitats Classification / UKHab (Butcher, et al., 2020). The UKHab has been designed to function at two scales: fine scale (25m² or 5 metres length) and large scale (400m² or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m² is appropriate.
- 2.2.7 Hedgerows were assessed in accordance with *The Hedgerows Regulations 1997* wildlife and landscape Criteria (H.M.S.O., 1997).
- 2.2.8 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).
- 2.2.9 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Animal Life

Badger

- 2.3.1 The survey area for badger covered the site (as annotated on **Figures 1 and 2**) and extended to accessible land within a radius of 50 metres from the site boundary, where access was possible.
- 2.3.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).
- 2.3.3 The following signs of badger activity were searched for:
 - a. Setts entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
 - b. Large spoil heaps outside sett entrances;

- c. Bedding outside sett entrances;
- d. Badger footprints;
- e. Badger paths;
- f. Latrines;
- g. Badger hairs on fences or bushes;
- h. Scratching posts; and
- i. Signs of digging for food.

2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat Species

Daylight Survey: Trees

- 2.3.5 A preliminary assessment of the trees within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.
- 2.3.6 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

- 2.3.7 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

Habitat Assessment for Commuting / Foraging Bats

- 2.3.8 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented at **Table 2.1**, below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

Suitability	Commuting Habitat	Foraging Habitat
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Bird Species

- 2.3.9 Bird species observed and heard during the survey were recorded.
- 2.3.10 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

Great Crested Newt

Desktop Search for Ponds

- 2.3.11 In accordance with current Natural England guidance (Natural England, 2020) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. The potential of the proposed development to impact upon any great crested newt population(s) whose breeding ponds are within 500 metres must be considered.
- 2.3.12 The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the presence of seven ponds, as detailed in **Table 2.2**, below.

Table 2.2: Ponds within 500 metres of the Site

Pond Reference	OS Grid Reference	Distance from Site Boundary	Location (refer to Figure 1)
1	SD 75571 08775	5 metres	A fishing lodge adjacent to the south-western site boundary
2	SD 75558 08684	70 metres	A pond within Bradley Fold SBI to the south-west
3	SD 75662 08690	10 metres	A fishing lodge to the south of the site
4	SD 75751 08701	5 metres	A fishing lodge adjacent to the southern boundary
5	SD 75439 08979	85 metres	A field pond to the west of the site
6	SD 75522 09440	330 metres	North of the site, opposite Bury New Road and existing development
7	SD 75329 09523	475 metres	North of the site, opposite Bury New Road and existing development

Consideration of Requirement for Further Survey

- 2.3.13 The requirement for further survey at each pond was then assessed using the following criteria:
- Presence of dispersal barriers to great crested newt movements between ponds and the site, as detected during the walkover survey;
 - Distance of ponds from the site, and the potential influence of the proposed development of the site on any populations of great crested newt (if present at ponds), using the Natural England rapid risk assessment tool; and
 - Presence of other ponds which may form metapopulations and/or alter the influence of the site on ponds at greater distances.

Presence of Dispersal Barriers

- 2.3.14 Bury New Road (A58) lies adjacent to the northern site boundary and has residential and commercial properties along its length. The road and existing development associated with Bury New Road is considered to be a significant barrier to dispersal between the site and ponds to the north (Ponds 6 and 7).

2.3.15 No other significant barriers to dispersal are present between the site and the nearby ponds.

Consideration of Distance of Ponds from Site and Relative Size of Site

2.3.16 To inform the requirement for further surveys, the Natural England Rapid Risk Assessment tool from GCN *Method Statement WML-A14-2 (Version April 2020)* (Natural England, 2020) has been completed, as presented at **Table 2.3**, below.

2.3.17 The tool has been completed based on the distances of the ponds from the site, and the size of the development site (6.3 ha). The rapid risk assessment tool assumes that great crested newt are present.

Table 2.3: Rapid Risk Assessment Result

Component	Likely Effect	Notional Offence Probability Score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	>1 ha lost or damaged	0.9
Land 100-250m from any breeding pond(s)	5 – 10 ha lost or damaged	0.5
Land >250m from any breeding pond(s)	5 – 10 ha lost or damaged	0.3
Individual great crested newts	No effect	0
	Maximum:	0.9
Rapid risk assessment result:	RED: OFFENCE HIGHLY LIKELY	

2.3.18 Owing to the size of the development site and the close proximity of the site to the ponds (all of which lie within 100 metres of the site), a result of ‘Red: Offence Highly Likely’ is returned; all ponds apart from those which lie across significant dispersal barriers must be considered further with respect to great crested newt. Habitat Suitability Index Assessments were therefore completed at Ponds 1 to 5.

Habitat Suitability Index Assessment

2.3.19 All ponds were assessed using the Habitat Suitability Index (HSI) (Oldham, et al., 2000) by Catie Haworth and Brian Robinson. The ponds were examined with reference to the HSI scoring criteria, which are: **SI₁**: Geographical location; **SI₂**: Pond area; **SI₃**: Pond drying; **SI₄**: Water quality (as indicated by the diversity of aquatic plants and invertebrates); **SI₅**: Shade; **SI₆**: Waterfowl; **SI₇**: Fish; **SI₈**: Abundance of other ponds within a one kilometre radius; **SI₉**: Quality of terrestrial habitat; and **SI₁₀**: Macrophyte cover (i.e. aquatic and emergent plants). The survey was conducted in accordance with *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom* (ARG UK, 2010).

2.3.20 The assessment followed guidance in relation to interpreting HSI scores following the categorical scale shown at **Table 2.4**, below.

Table 2.4: Pond Habitat Suitability Index Categories

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

Assessment of Terrestrial Habitat

2.3.21 An assessment of the terrestrial habitat within the site for great crested newts was conducted, as informed by the *Great Crested Newt Mitigation Guidelines* (English Nature, 2001) and the *Great Crested Newt Conservation Handbook* (Langton, et al., 2001).

2.3.22 Habitats present within the site were assessed for their value to support foraging, sheltering and hibernating great crested newt. Favourable habitats can comprise rough grassland, scrubland, woodland and sites with underground crevices or cracks, such as mammal holes, voids in tree stumps or banks, and refugia such as rock piles or dead wood.

Great Crested Newt Environmental DNA (eDNA) Presence / Absence Survey

- 2.3.23 Environmental DNA (eDNA) analysis can detect the presence or absence of great crested newt from pond water samples. Pond water samples were collected at Pond 5 on 30th June 2021 by Amy Sharples and Luke Atherton under the licence of Amy Sharples. All surveyors have extensive experience of great crested newt surveys.
- 2.3.24 The surveys were carried out in accordance with the sampling protocol presented in *Appendix 5: Technical Advice Note for field and laboratory sampling of Great Crested Newt (Triturus cristatus) environmental DNA* (DEFRA, 2014) that accompanies Defra's research project and are outlined below:
- 20 x 30 millilitre samples were taken from around the entire perimeter of the pond. Areas most likely to be used by great crested newt were targeted, without entering the water (where possible);
 - Prior to taking the sample the water column was gently mixed at each sampling location. Care was taken to avoid disturbing the sediment on the base of the pond;
 - Once all 20 samples were taken 15 millilitres of the total sample were pipetted into each of the six sampling tubes containing ethanol, ensuring the water in the sample bag was mixed prior to and whilst taking each of the 15 millilitre samples; and
 - The six sampling tubes were shaken to mix the sample and preservative.
- 2.3.25 At all times the surveyor ensured the sampling equipment avoided risk of contamination by not placing the ladle or pipet on the ground or otherwise contaminated surfaces and by changing gloves between the initial sampling and the pipetting stages of the method.
- 2.3.26 The equipment was purchased from SureScreen Scientifics and the collected samples were returned to them for qPCR laboratory analysis.
- 2.3.27 For the reasons outlined in **Section 2.4**, it was not possible to collect samples and carry out a great crested newt eDNA presence / absence survey at Pond 2. Owing to the presence of fish and operation of Ponds 1, 3 and 4 as fishing lodges no further survey for great crested newt was carried out at these three ponds².

Reptile Species

- 2.3.28 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined in **Table 2.5**, below.

Table 2.5: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

Other Wildlife

- 2.3.29 Evidence of other wildlife (including Priority Species) observed whilst on site (but for which specific surveys were not made) was recorded and has been included in this report where it is considered of relevance to the planning application.

² Great crested newt tadpoles tend to swim in open water making them more vulnerable to predation by fish than other newt tadpoles, particularly before the toxins in their skin develop.

2.4 Survey and Reporting Limitations

- 2.4.1 The whole site was accessible.
- 2.4.2 The poor semi-improved grassland was recently mown to a short sward at the time of surveying, however, the surveyors are experienced in surveying plant species and it has been possible to reliably identify the habitats and principal plant species present.
- 2.4.3 An eDNA survey at Pond 2 was unobtainable owing to the unsafe conditions at the pond margins (i.e. the presence of dense scrub vegetation on all sides, steep banks at the northern edge and waterlogged ground surrounding the pond). However, due to the HSI assessment of Pond 2 (including the known presence of fish at the pond) and the suitability of terrestrial habitats for amphibians at the site, it is considered that sufficient assessment has been carried out to assess the likely risks to great crested newt as a result of the development.
- 2.4.4 One heavy rain-shower was experienced during the survey; this is not considered a significant survey limitation owing to its short duration (15 minutes) and the suitably dry weather throughout the rest of the survey.
- 2.4.5 No other survey limitations were experienced.
- 2.4.6 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC and Google Earth.

2.5 Evaluation Methods

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977) and *Guidelines for the Selection of Biological SSSIs* (Bainbridge, et al., 2013). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).
- 2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2021) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Greater Manchester Biodiversity Action Plans has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study and Data Search

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

- 3.1.1 The site has no statutory designation for nature conservation.
- 3.1.2 Tonge River Section Site of Special Scientific Interest (SSSI) is situated 2.7 kilometres to the north-west of the site and is designated for its reported considerable sedimentological and palaeogeographical interest.
- 3.1.3 Nob End SSSI, located 2.2 kilometres to the south of the site, is designated for its artificial limestone grasslands which have colonised alkali industrial waste deposits. Natural limestone grassland does not occur in Greater Manchester and therefore many of the plant species present are rare in the county.
- 3.1.4 Ashclough SSSI, located 2.3 kilometres to the south of the site, is a site of national importance for interpreting the Coal Measure palaeogeography of Great Britain.
- 3.1.5 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for the above designated sites. The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2021):

Airports, helipads and other aviation proposals;

Planning applications for quarries, including new proposals, Review of Minerals Permissions, extensions, variations to conditions etc. Oil and gas exploration / extraction; and

Livestock and poultry units with floorspace greater than 500m², slurry lagoons greater than 750m² and manure stores greater than 3500 tonnes.

- 3.1.6 The presence of the SSSI Impact Risk Zone and the statutory designated sites present in the wider area is considered further at **Section 4.2** below.

Non-statutory Designated Sites for Nature Conservation

- 3.1.7 The site has no non-statutory designation for nature conservation.
- 3.1.8 Bradley Fold Site of Biological Importance (SBI) lies adjacent to the southern site boundary. A further eleven SBIs lie within 2 kilometres of the site. The nearby SBIs are summarised in the table below.

Table 3.1: Non-statutory Designated Sites within 2 kilometres of the Site

Site of Biological Importance	Distance and Direction from Site (OS Central Grid Reference)	Reasons for Designation
Bradley Fold	Adjacent to the southern site boundary (SD 75595 08638)	A series of four small lodges, between which is a mixture of scrub, acid grassland and neutral grassland. Lodges are a Greater Manchester Biodiversity Habitat. Breeding frogs and smooth newts have been recorded together with toads and palmate newts.
Wetlands and Meadows near Coggra Field	500 metres to the east of the site (SD 76591 08670)	A substantial area of marsh and field ponds, with at least 16 waterbodies in total. The waterbodies support amphibians, including great crested newt and aquatic invertebrates. The site is also of interest for birds.
Darcy Lever Marsh	1.1 kilometres to the west of the site (SD 74393 08445)	Notified for ponds, marsh habitat and amphibians.

Site of Biological Importance	Distance and Direction from Site (OS Central Grid Reference)	Reasons for Designation
Ainsworth Lodge	1.1 kilometres to the east of the site (SD 76975 09328)	Ponds and small lodges and amphibians.
Darcy Lever Gravel Pit	1.5 kilometres to the south-west (SD 74230 07785)	Ponds, aquatic invertebrates, amphibians and dragonflies.
Leverhulme Park	1.6 kilometres to the west (SD 73641 08644)	Plantation woodland and grassland habitats.
Ponds of Cockey Moor Road	1.6 kilometres to the north-east (SD 76669 10515)	Ponds.
Seven Acres	1.7 kilometres to the north-west (SD 73750 09901)	Woodland, grassland, ponds and small lodges and butterflies.
Starling Road Reservoir	1.7 kilometres to the north-east (SD 77338 09829)	Ponds and small lodges, grassland.
Manchester, Bolton and Bury Canal (West)	1.8 kilometres to the south-west (SD 75358 06575)	Canal habitat.
Manchester, Bolton and Bury Canal (East)	2 kilometres to the south-east (SD 77954 07518)	Ponds and canal habitats.

3.1.9 The presence of the SBIs is considered further at **Section 4.2**.

Priority Habitats Inventory and Soilscape Information

3.1.10 The Priority Habitats Inventory³ was checked via MAGiC map and no Priority Habitats are noted at the site. The site lies within the National Habitat Network All Habitats Combined Network Enhancement Zone.

3.1.11 In accordance with *Soilscape (England)* as presented on MAGiC Map (National Soil Resources Institute, 2005), the site supports 'slowly permeable seasonally wet acid loamy and clayey soils', and the characteristic semi-natural habitats associated with the soils comprise 'seasonally wet pastures and woodlands mainly but not exclusively on the upland fringe'.

Protected and Notable Species

3.1.12 GMLRC hold the following records within the site⁴:

- Common pipistrelle (*Pipistrellus pipistrellus*): EPS, WCAs5 and GMBAP. Two records of activity at the site dated 2005 and 2006;
- Daubenton's bat (*Myotis daubentonii*): EPS, WCAs5 and GMBAP. One record of activity at the site dated 2006;
- Kingfisher (*Alcedo atthis*): WCAs1. Observed adjacent to Bradley Fold SBI and associated lodges between 2001 and 2007; and
- Willow tit (*Poecile montanus*): PS and GMBAP. Observed foraging on one occasion and heard calling on another (not observed), both records from 2011.

3.1.13 Records of protected and notable species for a 1 kilometre radius of the site are summarised at **Table 3.2** below.

³ A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

⁴ Refer to Table 3.2 for Key to Designation Codes.

Table 3.2: Records of Protected Species Within a 1 Kilometre Radius of the Site

Taxon Group	Species Name and Designations ¹ and Notes
Amphibians	Great crested newt (<i>Triturus cristatus</i>): EPS, PS, WCAs5 & GMBAP. Approx. 25 records within 1 kilometre, the closest of which is located at the Wetlands and Meadows near Coggra Field SBI, 600 metres to the east of the site, on the opposite side of Radcliffe Moor Road and existing development. Common toad (<i>Bufo bufo</i>): PS. 3 records, the closest of which is associated with Pond 2, 100 metres to the south-west of the site.
Birds	WCAs1 Common scoter (<i>Melanitta nigra</i>), hobby (<i>Falco subbuteo</i>), kingfisher and peregrine (<i>Falco peregrinus</i>). PS & GMBAP Willow tit. PS Bullfinch (<i>Pyrrhula pyrrhula</i>), curlew (<i>Numenius arquata</i>), dunnoek (<i>Prunella modularis</i>), house sparrow (<i>Passer domesticus</i>), lapwing (<i>Vanellus vanellus</i>), reed bunting (<i>Emberiza schoeniclus</i>), song thrush (<i>Turdus philomelos</i>), spotted flycatcher (<i>Muscicapa striata</i>), starling (<i>Sturnus vulgaris</i>).
Invertebrates (moths)	PS Cinnabar (<i>Tyria jacobaeae</i>).
Flowering plants	Floating Water-plantain (<i>Luronium natans</i>): WCAs8. 1 record associated with the Wetlands and Meadows near Coggra Fold SBI, 1 kilometre to the east of the site.
Reptiles	Slow worm (<i>Anguis fragilis</i>): WCAs and PS. 1 record 1.2 kilometres to the south-west.
Terrestrial mammals	Bat species (Order <i>Chiroptera</i>): EPS, WCAs1 & GMBAP. 2 records, the closest of which is 1.1 kilometres to the north-west. Brown hare (<i>Lepus europaeus</i>): PS & GMBAP. 1 record, located 900 metres to the south-east of the site. Common pipistrelle (<i>Pipistrellus pipistrellus</i>): EPS, WCAs5 and GMBAP. 4 records of roosts and 19 records of activity, the closest of which is within the site and is a record of activity. Daubenton's bat (<i>Myotis daubentonii</i>): EPS, WCAs5 and GMBAP. 4 records, the closest of which lies within the site. Hedgehog (<i>Erinaceus europaeus</i>): PS. 6 records, the closest of which is located 500 metres to the south of the site. Noctule (<i>Nyctalus noctula</i>): EPS, WCAs5, PS and GMBAP. 1 record located 250 metres to the south of the site. Pipistrelle species (<i>Pipistrellus</i> sp.): EPS, WCAs5 and GMBAP. 5 records of roosts and 6 records of activity, the closest of which is a roost located 100 metres to the west of the site. Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>): EPS, WCAs5, PS and GMBAP. 2 records, both associated with the fishing lodges immediately south of the site.
¹Key to Designation Codes: EPS = European Protected Species under the <i>Conservation of Habitats and Species Regulations 2017</i>. WCAs1 = Species receives full protection under Schedule 1 of the <i>Wildlife and Countryside Act 1981</i> (as amended). WCAs5 = Species receives full protection under Schedule 5 of the <i>Wildlife and Countryside Act 1981</i> (as amended). WCAs8 = Species receives full protection under Schedule 8 of the <i>Wildlife and Countryside Act 1981</i> (as amended). PS = Priority Species listed under Section 41 of the NERC Act 2006. GMBAP = Species listed on the Greater Manchester Biodiversity Action Plan.	

3.1.14 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

3.2 Vegetation and Habitats

General Description

3.2.1 The approximately 6.3 hectare site is situated in a suburban setting on the northern fringe of Little Lever, Bury. The site supports two fields of poor semi-improved grassland with boundary hedgerows and young trees.

3.2.2 The northern site boundary is defined by Bury New Road, beyond which residential and commercial properties are situated. The eastern boundary is defined by Radcliffe Moor Road, beyond which are fields of poor semi-improved grassland. The southern site boundary is defined by a tree line, beyond which is Bradley Fold SBI which comprises three fishing lodges and a pond (Ponds 1 to 4). The western boundary meets a field of horse grazed semi-improved grassland.

3.2.3 A Phase 1 Habitat Survey map is appended at **Figure 2**, and can be referred to for all habitat descriptions. Photographs are appended at **Table 8.1**.

Poor Semi-improved Grassland

3.2.4 Refer to **Photo 1**. The poor semi-improved grassland was recently mown to a short sward at the time of surveying.

3.2.5 The vegetation is characterised by constant and abundant Yorkshire-fog (*Holcus lanatus*) and Cock's-foot (*Dactylis glomerata*), frequent Perennial Rye-grass (*Lolium perenne*), False Oat-grass (*Arrhenatherum elatius*), occasional Meadow Foxtail (*Alopecurus pratensis*), Common Couch (*Elymus repens*), Crested Dog's-tail (*Cynosurus cristatus*) and Common Bent (*Agrostis capillaris*). Forb species present include occasional Creeping Buttercup (*Ranunculus repens*), Dandelion (*Taraxacum officinale* agg.), Meadow Buttercup (*Ranunculus acris*) and Common Sorrel (*Rumex acetosa*).

3.2.6 A species list for the poor semi-improved grassland is appended at **Table 8.2**.

3.2.7 Refer to **Photo 2**. The margins of the poor semi-improved grassland, which had not been recently mown, support frequent Perennial Rye-grass and Yorkshire-fog, frequent and locally abundant Bramble (*Rubus fruticosus* agg.), Common Nettle (*Urtica dioica*), Rosebay Willowherb (*Chamerion angustifolium*), Cleavers (*Galium aparine*), Great Willowherb (*Epilobium hirsutum*), Soft Rush (*Juncus effusus*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and locally abundant Meadow Vetchling (*Lathyrus pratensis*).

3.2.8 Japanese Knotweed is constant and abundant at the northern site boundary.

3.2.9 A species list for the unmanaged field margins is appended at **Table 8.3**.

3.2.10 An area of poorly drained ground is present at the southern end of the poor semi-improved grassland and supports locally abundant Reed Canary-grass (*Phalaris arundinacea*), Yorkshire-fog, False Oat-grass, Soft Rush, Broad-leaved Willowherb (*Epilobium montanum*) and Field Horsetail (*Equisetum arvense*), very locally abundant Bulrush (*Typha latifolia*) and occasional Tufted Hair-grass (*Deschampsia cespitosa*), Hard Rush (*Juncus inflexus*), Elder (*Sambucus nigra*) and Wild Angelica (*Angelica sylvestris*).

3.2.11 The poor semi-improved grassland shares affinities with MG7 *Lolium perenne* leys grassland communities of the NVC (Rodwell, 1992) and the MG6 *Lolium perenne* – *Cynosurus cristatus* grassland community of the NVC (Rodwell, 1992), although the presence of coarser grasses within the sward indicate that areas may be infrequently managed and hold affinities with the MG1 *Arrhenatherum elatius* grassland (Rodwell, 1992). The poor semi-improved grassland is described by the UKHab as g4 modified grassland with the following secondary code: 64 mown.

Hedgerows

Hedgerow 1

3.2.12 Refer to **Photo 3**. The woody species are characterised by constant and abundant Hawthorn (*Crataegus monogyna*), occasional and locally abundant Holly (*Ilex aquifolium*), occasional Elder (*Sambucus nigra*), very locally frequent Hazel (*Corylus avellana*) and rare Dog-rose (*Rosa canina*) and Sycamore (*Acer pseudoplatanus*).

3.2.13 The ground flora is characterised by constant and frequent Yorkshire-fog, constant, frequent and locally abundant Common Couch, Common Nettle and False Oat-grass, occasional and locally abundant Indian Balsam, occasional and locally frequent Bramble, Cleavers and Meadow Foxtail and occasional Cow Parsley (*Anthriscus sylvestris*) and Hogweed (*Heracleum sphondylium*).

- 3.2.14 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years) and 81 flailed hedgerow.

Hedgerow 2

- 3.2.15 Refer to **Photo 4**. The woody species are characterised by constant and frequent and locally abundant Hawthorn, occasional and locally abundant Elder and very locally frequent Flowering Currant (*Ribes sanguineum*) and Holly.
- 3.2.16 The ground flora is characterised by constant and frequent Bramble, Common Couch, Common Nettle, False Oat-grass and Yorkshire-fog, occasional and locally abundant Indian Balsam, occasional and locally frequent Cleavers, occasional Cow Parsley and Hogweed and locally abundant Creeping Thistle (*Cirsium arvense*).
- 3.2.17 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years) and 81 flailed hedgerow.

Hedgerow 3

- 3.2.18 Refer to **Photo 5**. The woody species are characterised by constant and frequent Hawthorn, occasional and locally abundant Holly, occasional and locally frequent Elder, very locally frequent Blackthorn (*Prunus spinosa*) and Hazel and rare Ash (*Fraxinus excelsior*), Guelder-rose (*Viburnum opulus*) and Sycamore.
- 3.2.19 The ground flora is characterised by constant and frequent Bramble, Common Couch, Common Nettle, False Oat-grass and Yorkshire-fog, occasional and locally abundant Cleavers, occasional Common Ragwort (*Senecio jacobaea*) and Cow Parsley, locally abundant Indian Balsam and very locally frequent Creeping Thistle, Rosebay Willowherb and Timothy (*Phleum pratense*).
- 3.2.20 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years).

Hedgerow 4

- 3.2.21 Refer to **Photo 6**. The woody species are characterised by constant and frequent Hawthorn, occasional and locally frequent Elder, locally frequent Holly and rare Wild Cherry (*Prunus avium*).
- 3.2.22 The ground flora is characterised by constant and frequent Cleavers and Common Nettle, occasional and locally frequent Bramble, Cock's-foot, Hogweed and Meadow Foxtail, occasional Cow Parsley, Ivy and Yorkshire-fog, locally abundant Great Willowherb and very locally frequent False Oat-grass.
- 3.2.23 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years).

Hedgerow 5

- 3.2.24 Refer to **Photo 7**. The woody species are characterised by constant and abundant Hawthorn.
- 3.2.25 The ground flora is characterised by constant and frequent Bramble, False Oat-grass and Indian Balsam, occasional and locally abundant Common Nettle, locally abundant Hedge Bindweed (*Calystegia sepium*), locally frequent Rosebay Willowherb and rare Broad Buckler-fern (*Dryopteris dilatata*).
- 3.2.26 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years) and 81 flailed hedgerow.

Hedgerow 6

- 3.2.27 Refer to **Photo 8**. The woody species are characterised by constant and abundant Hawthorn and locally abundant Elder.

3.2.28 The ground flora is characterised by constant and frequent Bramble and False Oat-grass, frequent and locally abundant Cleavers, frequent Common Nettle, locally abundant Hedge Bindweed, Indian Balsam and Rosebay Willowherb and locally frequent Great Willowherb.

3.2.29 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years) and 81 flailed hedgerow.

Hedgerow 7

3.2.30 Refer to **Photo 9**. The woody species are characterised by constant and abundant Hawthorn, locally abundant Ash, Elder and Goat Willow (*Salix caprea*) and rare Hazel.

3.2.31 The ground flora is characterised by constant and frequent Bramble, Common Nettle, False Oat-grass and Yorkshire-fog, occasional and locally frequent Common Bird's-foot-trefoil (*Lotus corniculatus*) and Common Couch, occasional and very locally frequent Cock's-foot, occasional Great Willowherb and Hogweed and locally frequent Creeping Thistle.

3.2.32 The habitat is described by the UKHab as h2a hedgerow (Priority Habitat) with the following secondary codes: 76 recent management (i.e. within 3 years) and 81 flailed hedgerow.

3.2.33 Species lists for Hedgerows 1 to 7 are presented at **Tables 8.4** and **8.5**, and the hedgerows assessments are presented at **Tables 8.6** to **8.7**.

Tree Line at Southern Boundary

3.2.34 Refer to **Photo 10**. A line of young to semi-mature trees is present at the eastern end of the southern site boundary.

3.2.35 The canopy vegetation is characterised by constant and abundant Grey Willow (*Salix cinerea*) and locally abundant Italian Alder (*Alnus cordata*).

3.2.36 The ground flora is characterised by constant and frequent Reed Canary-grass and Soft-rush, occasional and very locally frequent Common Couch, occasional Common Bird's-foot-trefoil, Tufted Hair-grass and Yorkshire-fog, locally frequent Creeping Buttercup and Field Horsetail and very locally frequent Common Knapweed (*Centaurea nigra*).

3.2.37 The habitat is described by the UKHab as w1g6 line of trees. A plant species list for the line of trees is presented at **Table 8.8**.

Invasive Plant Species

3.2.38 As illustrated on **Figure 2**, stands of Japanese Knotweed are present along the northern site boundary, and Indian Balsam is extensive along the western and northern site boundaries. These species are listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended); it is an offence to spread or cause their spread in the wild. This is considered further at **Section 4.3** below.

3.3 Animal Life

Badger

3.3.1 No evidence or signs of badger was detected within the surveyed area. No badger records are present for the site or surrounding 1 kilometres. The presence of badger at the site can be reasonably discounted.

Bat Species

Trees

3.3.2 No trees support any features suitable for use by roosting bats. No mature trees are present within the site. The trees present are young to semi-mature and do not support features such as knotholes, cavities or lifted bark. The presence of roosting bats at the site can be reasonably discounted.

Habitat Assessment for Commuting and Foraging Bats

- 3.3.3 The tree line and hedgerows along the field margins are suitable for use by foraging bats, particularly edge feeding species such as common pipistrelle. The poor semi-improved grassland fields are unlikely to provide an abundance or diversity of invertebrate prey, however they may contribute to a wider foraging network for species that forage over wide areas, such as noctule.
- 3.3.4 The fishing lodges and associated scrub vegetation immediately to the south of the site provide suitable habitat for foraging bats, and are likely to provide a diversity and abundance of invertebrate prey. The lodges would be suitable for species associated with foraging over water bodies such as Daubenton's bats, as demonstrated by the data search.

Bird Species

- 3.3.5 Birds detected in the site in July 2021 are listed in **Table 3.3**, below.

Table 3.3: Bird Species Detected on 28th July 2021

Scientific Name	Common Name	BOCC Status ¹
<i>Carduelis carduelis</i>	Goldfinch	Green
<i>Chloris chloris</i>	Greenfinch	Green
<i>Chroicocephalus ridibundus</i>	Black-headed gull	Amber
<i>Columba palumbus</i>	Wood pigeon	Green
<i>Corvus corone</i>	Carrion crow	Green
<i>Passer domesticus</i>	House sparrow	Red
<i>Pica pica</i>	Maggie	Green
<i>Streptopelia decaocto</i>	Collared dove	Green
<i>Turdus merula</i>	Blackbird	Green

¹BOCC: Birds of Conservation Concern (Eaton, et al., 2015)
Species highlighted in grey are Priority Species.

- 3.3.6 The tree line and hedgerows are suitable for use by nesting passerine (i.e. perching) species, including those detected within the site during the survey, including house sparrow, a Priority Species. This is considered further at **Section 4.4**, below.
- 3.3.7 No ground nesting bird species were observed at the site during the visits in June and July 2021. The fields are considered unsuitable for use by ground nesting species such as lapwing and curlew, owing to their management, relatively small size and proximity to sources of disturbance such as the busy main roads at the northern and eastern boundaries.

Great Crested Newt and other Amphibians

- 3.3.8 A Habitat Suitability Index (HSI) assessment of Ponds 1 to 5 was conducted and the results are given at **Table 3.4**, below. The full HSI assessments are appended at **Table 8.9**; photographs of Ponds 1 to 5 are presented at **Photos 11 to 15**.

Table 3.4: Habitat Suitability Index Assessment for Ponds 1 to 5

Pond Reference	OS Grid Reference	Distance from Site Boundary	HSI Assessment
Pond 1	SD 75571 08775	5 metres	Poor
Pond 2	SD 75558 08684	70 metres	Average
Pond 3	SD 75662 08690	10 metres	Poor
Pond 4	SD 75751 08701	5 metres	Poor
Pond 5	SD 75439 08979	85 metres	Average

- 3.3.9 Ponds 1, 3 and 4 are fishing lodges used by Radcliffe Angling Society. The ponds are actively fished and are reportedly well-stocked. Owing to the presence of fish at the lodges, and the unfavourably low abundance of macrophytes in the lodges resulting in HSI scores of 'Poor', it is considered that Ponds 1, 3

and 4 are highly unlikely to support breeding great crested newt. It is therefore not considered necessary to consider further Ponds 1, 3 and 4 with respect to great crested newt.

- 3.3.10 The HSI assessment scores for Pond 2 and 5 are 'average'. Further consideration of Ponds 2 and 5 is considered necessary with respect to great crested newt.

Pond 5

- 3.3.11 A negative result for great crested newt eDNA was returned for Pond 5, the SureScreen Scientifics report is appended at **Section 9.0**.

Pond 2

- 3.3.12 It is recognised that Pond 2 is not used by Radcliffe Angling Society and is therefore not actively stocked with fish, however the presence of fish was detected during the HSI assessment. To provide further assessment in relation to this application, in consideration of the assumption of great crested newt presence at Pond 2, the Natural England Rapid Risk Assessment tool from *GCN Method Statement WML-A14-2 (Version April 2020)* (Natural England, 2020) has been completed, as presented below.
- 3.3.13 The tool has been completed based on the distances of the pond from the site, and the size of the development site (6.3 ha). Approximately 0.16 hectares of the site lies within 100 metres of Pond 2 and 3.54 hectares lies within 250 metres of Pond 2; the remaining 2.5 hectares lies within 500 metres of the pond. The rapid risk assessment tool assumes that great crested newt are present.

Table 3.5: Rapid Risk Assessment Result

Component	Likely Effect	Notional Offence Probability Score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.5
Land 100-250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.4
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.5
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

Assessment of Terrestrial Habitat

- 3.3.14 The site supports managed, semi-improved grassland that was mown to a short sward at the time of surveying. The poor semi-improved grassland occupies 5.86 hectares of the site and, at the time of the survey, supported suboptimal habitat for sheltering great crested newt. The site supports limited habitat for sheltering great crested newt, comprising the hedgerows and tall ruderal herb vegetation at the site margins; no suitable habitats such as debris or log piles are present. Habitats of greater suitability for terrestrial amphibians (including great crested newt) are present to the west of Pond 2, within the Blackshaw Brook corridor, and comprise woodland, scrub and unmanaged acid and neutral grassland.
- 3.3.15 The site does not connect Pond 2 (or Ponds 1, 3, 4 and 5) to suitable terrestrial habitat or to further ponds to the north or east, owing to the presence of dispersal barriers at the northern and eastern site margins (Bury New Road and Radcliffe Moor Road); the site is unlikely to form part of a wider network of terrestrial habitat for great crested newt in the wider landscape.

Reptiles

- 3.3.16 The regularly disturbed and heavily managed habitats within the site provide poor quality habitat for sheltering, basking and hibernating reptiles. There are no piles of garden waste or other suitable debris for use by sheltering or hibernating reptiles, and the site supports no favourable habitat for basking reptiles. The species-poor habitats within the site are reasonably unlikely to support a large populations or a variety of invertebrate prey.

- 3.3.17 The site is not adjacent or linked to any areas of favourable habitat for reptile species. The presence of reptiles within the site is reasonably discounted.

Other Wildlife

- 3.3.18 Bradley Fold SBI, adjacent to the southern site boundary, is noted to support common toad, a Priority Species, and the site supports suitable habitats for foraging hedgehog, a Priority Species; consideration of common toad and hedgehog is presented further at **Section 4.4**.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

- 4.1.1 In accordance with *Proposed New Facility on Land at Radcliffe Moor Road, Bolton, Site Layout Plan . Drawing No. 2102-GTA-00-00-DR-A-1002* (Good and Tillotson Chartered Architects, 2021), hereafter the 'proposals plan', it is proposed to develop the site to a sports ground comprising four football pitches, facilities and car parking. Importantly, the proposals do not comprise the installation of floodlights at the pitches.
- 4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site are evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

4.2 Designated Sites for Nature Conservation

- 4.2.1 The site is sufficiently distant from nearby statutory designated sites that it is reasonable to conclude that there are no likely risks to statutory designated sites as a result of the proposed development.
- 4.2.2 The site lies adjacent to Bradley Fold SBI, which is designated for its lodges, a Greater Manchester Biodiversity Habitat. In the absence of protective measures, the adjacent SBI is likely to be affected by the proposals during the construction and operational phases of the development, for example, increased pollution (light, hydrological run-off, and construction litter and debris). Measures to protect the adjacent SBI from impacts as a result of the proposed development are presented at **Section 5.2**. It is considered that provided these measures are adhered to during the construction and operational phases of the proposed development then adverse impacts to the SBI can be avoided.
- 4.2.3 Owing to the distance between the site and the further SBIs in the wider area, and the absence of hydrological or terrestrial connectivity between the sites and further SBIs, direct and indirect adverse effects on these non-statutory designated sites for nature conservation as a result of development are reasonably discounted.

4.3 Vegetation and Habitats

- 4.3.1 The site contains only common and widespread plant species. None of the habitats within the site are of significant interest in terms of their plant species composition. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present.
- 4.3.2 Hedgerows 1 to 7 are Priority Habitat, and hedgerow 3 is 'important' in accordance with *The Hedgerows Regulations 1997 wildlife and landscape criteria*. Hedgerows 1 to 7 and the tree line at the southern boundary are of 'local' value in terms of their importance in a geographical context⁵ as they support habitats of value to nesting birds and foraging birds and bats, and will contribute as wildlife links across the wider

⁵ In relation to its geographic context, using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system/Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

area. In accordance with the proposals (Good and Tillotson Chartered Architects, 2021), Hedgerows 1, and 3 to 7 and the tree line will be retained. Hedgerow 2 will be lost to accommodate the proposals. Recommendations to protect the retain the hedgerows and tree line, measures to compensate for the loss of Hedgerow 2 and recommendations to enhance the boundary hedgerows are presented at **Section 5.2** and **5.6**.

- 4.3.3 The area of semi-improved grassland is not considered to hold any importance in its geographical context, although the value of the unmanaged margins for wildlife is recognised and this habitat will be retained at the site.
- 4.3.4 Japanese Knotweed and Indian Balsam, both invasive species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), have been detected within the site. Guidance on the management of these species is presented at **Section 5.3**.

4.4 Protected Species and Other Wildlife

Bats

- 4.4.1 Habitats within and adjacent to the site, namely the hedgerows, tree line and the lodges to the south of the site, are suitable for foraging and commuting bats. Recommendations relating to the retention and protection of features suitable for use by foraging and commuting bats, and features to enhance habitats for roosting bats at the site are presented at **Section 5.4**.

Birds

- 4.4.2 The hedgerows and tree line provide favourable foraging and nesting habitat for the species of birds detected within the site and the wider area via the records search (including house sparrow, a Priority Species). Consideration of birds (including protection of breeding birds and recommended enhancements for Priority Species) are presented at **Section 5.5** of this report.

Great Crested Newt

- 4.4.3 It is considered that the following points, as listed below, are in combination sufficient to consider that harm to individual great crested newt and adverse effects on the favourable conservation status of great crested newt is reasonably unlikely in consideration of the proposals:
 - a. Pond 5 is connected terrestrially to Pond 2 via suitable terrestrial habitats (unmanaged grassland, scrub and woodland along the Blackshaw Brook corridor) providing suitable conditions for great crested newt, if present, to move between Ponds 2 and 5, however Pond 5 was negative for great crested newt eDNA in June 2021;
 - b. Pond 2 lies within the Bradley Fold SBI, for which the citation does not include great crested newt as a reason for its designation, however the SBI is notified for supporting common toad (*Bufo bufo*), common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helveticus*);
 - c. There are no reported great crested newt records for Ponds 1 to 5, Bradley Fold SBI or the land surrounding the site (within an unobstructed 1 kilometre) via the data search⁶;
 - d. Although not used by Radcliffe Angling Society as an active fishing pond, fish are present at Pond 2, creating suboptimal conditions for great crested newt to breed successfully;
 - e. The site does not terrestrially connect Pond 2 to further suitable habitats, owing to the presence of dispersal barriers; and
 - f. Suitable terrestrial habitats are present to the west of Pond 2, therefore, if present, great crested newt are more likely to use terrestrial habitats off-site than the currently suboptimal habitats within the site.

⁶ All great crested newt records within 1 kilometre of the site are associated with Wetlands and Meadows near Coggra Fold SBI, which lies across significant barriers to dispersal from Ponds 1 to 5 and the site. It is recognised that absence of a record does not equate to absence of the species, however, in this instance the assessment is supported by the results of the record search in combination with other field survey and historical evidence.

- 4.4.4 It is therefore considered that the application of Reasonable Avoidance Measures for the protection of all amphibian species are appropriate, refer to **Section 5.8**. It is considered that the proposals provide an opportunity to improve the habitats available within the site boundary for use by foraging and sheltering amphibians through a sympathetic scheme.

Other Wildlife

- 4.4.5 Habitats at the site are suitable for foraging, sheltering and commuting hedgehog and common toad; measures to protect small mammals and amphibians during the construction phase and measures to enhance the site for wildlife, including for hedgehog and amphibians are presented at **Sections 5.6** and **5.8**.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 These recommendations aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.
- 5.1.2 In accordance with Chapter 15, paragraph 180(d) of the NPPF:
- 'opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.*
- 5.1.3 Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified.
- 5.1.4 All recommendations are appropriate to the geographical area, the habitats in the wider area, the wildlife present in the local area (and likely to use the site post-construction) and take into consideration the end use of the site.

5.2 Protection of Bradley Fold SBI and Existing Vegetation / Habitats

Protection of Bradley Fold SBI

- 5.2.1 It is recommended that an undeveloped buffer (of a minimum 10 metres width) is accommodated between the development area and Bradley Fold SBI; this is achieved by the proposals plan.
- 5.2.2 In the absence of updated guidance, the following Pollution Prevention Guidelines (PPG) will be adhered to at any works near the lodges at Bradley Fold SBI (Ponds 2, 3 and 4):
- PPG1: Basic good environmental practices (Environment Agency, 2013);
 - PPG5: Works in, near or over watercourses (Environment Agency, 2014);
 - PPG6: Construction and demolition sites (Environment Agency, 2012); and
 - PPG7: Operating refuelling sites (Environment Agency, 2011).

Protection of Hedgerows and Trees

- 5.2.3 The proposals plan incorporates the retention of the tree line and Hedgerows 1 and 3 to 7; Hedgerow 2 will be lost to accommodate the proposals. Compensatory hedgerow planting of an equal or greater length to the length lost is recommended. Suitable native species to be used for hedgerow planting are presented at **Table 5.1** below.
- 5.2.4 During the construction phase, temporary protective demarcation fencing will be used to protect the hedgerows and trees to be retained. The fencing must extend outside the canopy of the retained trees and

must remain in position until all areas have been developed to ensure protection is provided throughout the construction phase.

- 5.2.5 The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Lighting

- 5.2.6 Although the proposals do not comprise the installation of floodlights at the pitches, the facilities and car park areas may be lit. Paragraph 185(c) in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:

'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Construction Phase

- 5.2.7 Any lighting to be used at the site during construction should be directional and screened where possible, this specification should be included within a Construction Environment Management Plan (CEMP), or similar.

Development Lighting Design

- 5.2.8 The lighting scheme to be implemented at the developed site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over Bradley Fold SBI and adjacent habitats, including Ponds 1 to 4, the retained hedgerows and tree lines, areas of ecological enhancement and any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.
- 5.2.9 The lighting scheme will be designed with reference to current guidance, namely:
- Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
 - Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

5.3 Invasive Plant Species

- 5.3.1 It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause the spread of Japanese Knotweed and Indian Balsam in the wild. It is recommended that a specialist contractor is employed for the eradication/control of Japanese Knotweed and Indian Balsam at the site, and that this is completed under a suitable Invasive Species Management Plan.

5.4 Bats

Enhancing Habitats for Roosting Bats

- 5.4.1 It is recommended that the development incorporates the installation of two bat access panels at the new clubhouse and maintenance buildings.
- 5.4.2 The bat access panels should be sited at least 4 metres above ground level, ideally facing or close to areas of landscape planting or existing linear features. The access panels should not be positioned over windows or doorways where bat droppings may become a nuisance. Once the development layout has been finalised, an ecologist should advise on appropriate positions for the bat access panels. Suitable bat access panels are available from NHBS Ecology (www.nhbs.com) or Wild Care (www.wildcare.co.uk) and are presented at **Insert 1**, below:



Insert 1: Examples of integrated bat access panels and an externally mounted box⁷

5.5 Birds

Protection

- 5.5.1 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive (Natural England, 2015).
- 5.5.2 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

Enhancing Habitats for Nesting Birds

House Sparrow

- 5.5.3 House sparrows are associated with suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, estimated as halving in rural areas, and dropping by 60% in towns and cities since the mid-1970's (RSPB, 2018).
- 5.5.4 The installation of two house sparrow terrace nest boxes is recommended at the proposed clubhouse. The boxes will not be positioned over windows or doorways where droppings may become a nuisance. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. An example of a suitable house sparrow bird box is given below at **Insert 2**:



Insert 2: Schwegler 1SP House Sparrow Nesting Terrace

⁷ Left to right: IBstock Enclosed Bat Box 'c' (left); Habibat Bat Access Panels (centre left and centre right) and Greenwood's Ecohabitat's two crevice bat box (right). Products with a brick face are illustrated, however the Habibat bat access panels can be supplied unfaced to enable the addition of matching material.

- 5.5.5 Such bird boxes are available from the NHBS (www.nhbs.com) or Wild Care (www.wildcare.co.uk). ERAP (Consultant Ecologists) Ltd will advise on the siting of bird boxes.

5.6 Habitat Enhancement and Management of Retained Habitats

Habitat Enhancement: Southern Site Boundary

- 5.6.1 An undeveloped buffer between the development area and Bradley Fold SBI can be accommodated in accordance with the proposals plan. It is recommended that the undeveloped buffer retains the existing hedgerows, tree line and marshy grassland vegetation and includes additional, marginal areas of grassland that are managed for biodiversity (for example, seeding with meadow grassland seed mixture and reduced mowing intensity).
- 5.6.2 Creation of deadwood piles and debris piles (hibernacula) within the undeveloped buffer and around the southern site boundary and marshy grassland should be accommodated to provide habitats for wildlife such as invertebrates, sheltering hedgehog and amphibians, including common toad.
- 5.6.3 Fencing proposed at the southern site boundary should be permeable to small mammals and amphibians to allow movement between the site, the SBI and adjacent habitats.

Enhancement and Management of the Retained Habitats

- 5.6.4 It is recommended that the tree line at the southern site boundary is enhanced by planting of native woody species to fill any gaps and enhance its value as a wildlife corridor (refer to **Table 5.1** for suitable woody species). It is recommended that the retained hedgerows and tree line are brought into active management for biodiversity and to promote the longevity of the habitat. A Habitat Management Plan would be prepared to include the following:
- Specification of the removal/control and safe disposal of invasive species such as Indian Balsam etc.
 - Creation of dead wood habitat piles for colonisation by amphibians, invertebrates, fungi and small mammals including common toad and hedgehog (both Priority Species); and
 - Appropriate rotational management to ensure that areas of longer grass is retained for invertebrates and the hedgerows form dense, bushy habitats favourable for nesting birds and are encouraged to provide berries for foraging birds.

5.7 Landscape Planting

- 5.7.1 It is recommended that the landscape planting and compensatory hedgerow planting within the site is composed from native species and species known to be of value for the attraction of wildlife.
- 5.7.2 It is recommended that trees which support blossom and fruit which will attract insects are incorporated into the landscape planting. Suitable species are presented at **Table 5.1**, below.

Table 5.1: Suitable Native Species for Tree, Shrub and Hedgerow Planting

Scientific Name	Common Name	Scientific Name	Common Name
<i>Acer campestre</i>	Field Maple	<i>Prunus spinosa</i>	Blackthorn
<i>Corylus avellana</i>	Hazel	<i>Rosa arvensis</i>	Field Rose
<i>Crataegus monogyna</i>	Hawthorn	<i>Rosa canina</i>	Dog-rose
<i>Ilex aquifolium</i>	Holly	<i>Sambucus nigra</i>	Elder
<i>Malus sylvestris</i>	Crab Apple	<i>Sorbus aucuparia</i>	Rowan
<i>Prunus avium</i>	Wild Cherry	<i>Ulmus glabra</i>	Wych Elm
<i>Prunus padus</i>	Bird Cherry	<i>Viburnum opulus</i>	Guelder Rose

- 5.7.3 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species known to be attractive to invertebrates should be used.

5.7.4 Planting schemes that include flowering species such as *Viburnum*, *Ceanothus*, *Hebe*, *Lavandula*, *Lonicera*, *Potentilla*, *Rosmarinus* and *Vinca* can maximise opportunities for feeding invertebrates and for the attraction of foraging bats and birds.

5.7.5 For further plants suitable for the attraction of pollinators please refer to the *Perfect for Pollinators Plant List* (Royal Horticultural Society, 2012). It is recommended that the selection of plant species at the site ensures that a variety of flowering species are available throughout the year.

5.8 Reasonable Avoidance Measures (RAMs) Method Statement for the Amphibians and Hedgehog

5.8.1 It is recommended that the following Reasonable Avoidance Measures (RAMs) Method Statement for the protection of wildlife, including common toad and hedgehog, are adopted during the construction phase of the proposed development. The following RAMs are only applicable if the habitats at the site remain as described in the report; if conditions at the site change then an updated assessment / survey will be necessary to assess the risk of development on wildlife, including great crested newt, if present. A draft Method Statement is presented below:

- a. All personnel must be made aware of the RAMs Method Statement;
- b. Prior to any soil strip, vegetation will be strimmed to a height of no less than 0.15 metres and all arisings removed;
- c. During construction, any holes, trenches or other pits which amphibians or small mammals could fall into will be covered overnight or have sloped banks or ramps to allow escape;
- d. The use of chemicals, such as fertilisers and herbicides, harmful to amphibians and other wildlife should be avoided wherever possible;
- e. Materials will be stored away from the south-western site boundary (and nearby ponds) to prevent amphibians potentially using stored materials for shelter;
- f. In the event of the discovery of great crested newt whilst any site clearance or construction operations are in progress, then all works in the area must cease and ERAP (Consultant Ecologists) Ltd (01772 750502) must be contacted immediately for further assistance;
- g. No site contractors must handle a great crested newt; and
- h. If any other wildlife (such as common toad, common frog, palmate newt, smooth newt, or hedgehog) is detected, it must be carefully picked up, placed into a clean bucket and moved to an area of suitable habitat beyond the development area (such as with Bradley Fold SBI or adjacent vegetation).

6.0 CONCLUSION

6.1 This ecological assessment has demonstrated that a development of the site to sports facilities is feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.

6.2 It is possible to implement reasonable actions for the protection and long-term conservation of fauna such as nesting birds and commuting/foraging bats, and to enhance features for wildlife such as common toad and hedgehog.

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8.0 APPENDIX 1: TABLES AND FIGURES

Table 8.1: Photographs

	
Photo 1: Poor semi-improved grassland	Photo 2: Unmanaged edges of tall ruderal herbs (southern boundary)
	
Photo 3: Hedgerow 1	Photo 4: Poor semi-improved grassland and Hedgerow 2
	
Photo 5: Hedgerow 3	Photo 6: Hedgerow 4 (background, left)



Photo 7: Hedgerow 5



Photo 8: Hedgerow 6



Photo 9: Hedgerow 7



Photo 10: Tree line at southern boundary



Photo 11: Pond 1



Photo 12: Pond 2



Photo 13: Pond 3



Photo 14: Pond 4



Photo 15: Pond 5

Table 8.2: Plant Species List for Poor Semi-improved Grassland

Scientific Name	Common Name	DAFOR ¹	Cover
<i>Agrostis capillaris</i>	Common Bent	O	<1%
<i>Alopecurus pratensis</i>	Meadow Foxtail	O	<1%
<i>Anthriscus sylvestris</i>	Cow Parsley	O	<1%
<i>Arrhenatherum elatius</i>	False Oat-grass	F	10%
<i>Calystegia sepium</i>	Hedge Bindweed	LF	<1%
<i>Cardamine flexuosa</i>	Wavy Bitter-cress	O	<1%
<i>Cynosurus cristatus</i>	Crested Dog's-tail	O	<1%
<i>Dactylis glomerata</i>	Cock's-foot	A*	20%
<i>Elytrigia repens</i>	Common Couch	O	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	A*	40%
<i>Juncus effusus</i>	Soft-rush	LF	<1%
<i>Juncus inflexus</i>	Hard Rush	VLF	<1%
<i>Lathyrus pratensis</i>	Meadow Vetchling	LA	<1%
<i>Lolium perenne</i>	Perennial Rye-grass	F	20%
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	LF	<1%
<i>Ranunculus acris</i>	Meadow Buttercup	O	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	O	<1%
<i>Rumex acetosa</i>	Common Sorrel	O	<1%
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O	<1%
<i>Taraxacum officinale</i> agg.	Dandelion	O	<1%
<i>Trifolium pratense</i>	Red Clover	O/LF	<1%
<i>Trifolium repens</i>	White Clover	O/LF	<1%

¹**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.3: Plant Species List Unmanaged Field Margins

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Alnus cordata</i>	Italian Alder	O	<1%
<i>Salix caprea</i>	Goat Willow	O	<1%
<i>Sambucus nigra</i>	Elder	O/LF	<1%
Herb Species			
<i>Agrostis capillaris</i>	Common Bent	O/LF	1%
<i>Agrostis stolonifera</i>	Creeping Bent	O	1%
<i>Alopecurus pratensis</i>	Meadow Foxtail	O	<1%
<i>Anthriscus sylvestris</i>	Cow Parsley	O	<1%
<i>Arrhenatherum elatius</i>	False Oat-grass	O/LA	5%
<i>Calystegia sepium</i>	Hedge Bindweed	O	<1%
<i>Centaurea nigra</i>	Common Knapweed	VLF	<1%
<i>Chamerion angustifolium</i>	Rosebay Willowherb	F/LA	10%
<i>Cirsium arvense</i>	Creeping Thistle	O/LF	<1%
<i>Dactylis glomerata</i>	Cock's-foot	O	2%
<i>Dryopteris dilatata</i>	Broad Buckler-fern	O	<1%
<i>Epilobium hirsutum</i>	Great Willowherb	O/VLA	<1%
<i>Epilobium montanum</i>	Broad-leaved Willowherb	O/VLA	<1%
<i>Equisetum arvense</i>	Field Horsetail	O/LF	<1%
<i>Fallopia japonica</i>	Japanese Knotweed	VLA	<1%
<i>Festuca rubra</i>	Red Fescue	O	<1%
<i>Galium aparine</i>	Cleavers	F/LA	5%
<i>Heracleum sphondylium</i>	Hogweed	O	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	F	10%
<i>Iris pseudacorus</i>	Yellow Iris	VLA	<1%
<i>Juncus effusus</i>	Soft-rush	F/LA	5%
<i>Lathyrus pratensis</i>	Meadow Vetchling	LA	1%
<i>Lolium perenne</i>	Perennial Rye-grass	F	10%
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	F/LA	2%
<i>Phalaris arundinacea</i>	Reed Canary-grass	O/VLF	<1%
<i>Ranunculus acris</i>	Meadow Buttercup	O/LF	<1%
<i>Rubus fruticosus</i> agg.	Bramble	F/LA	25%
<i>Rumex crispus</i>	Curled Dock	O	<1%
<i>Urtica dioica</i>	Common Nettle	F/LA	25%
<i>Vicia cracca</i>	Tufted Vetch	O/VLA	<1%
<i>Vicia sativa</i>	Common Vetch	O/VLA	<1%
¹ Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 8.4: Plant Species List for Hedgerows 1 to 4

Scientific Name	Common Name	Hedgerow 1		Hedgerow 2		Hedgerow 3		Hedgerow 4	
		DAFOR	% Cover	DAFOR	% Cover	DAFOR	% Cover	DAFOR	% Cover
Woody Species									
Acer pseudoplatanus	Sycamore	R	<1%	-	-	R	<1%	-	-
Corylus avellana	Hazel	VLF	<1%	-	-	VLF	<1%	-	-
Crataegus monogyna	Hawthorn	A*	90%	F/LA*	60%	F*	70%	F*	70%
Fraxinus excelsior	Ash	-	-	-	-	R	<1%	-	-
Ilex aquifolium	Holly	O/LA	5%	VLF	<1%	O/LA	5%	LF	5%
Prunus avium	Wild Cherry	-	-	-	-	-	-	R	<1%
Prunus spinosa	Blackthorn	-	-	-	-	VLF	<1%	-	-
Ribes sanguineum	Flowering Currant	-	-	VLF	<1%	-	-	-	-
Rosa canina	Dog-rose	R	<1%	-	-	-	-	-	-
Sambucus nigra	Elder	O	10%	O/LA	10%	O/LF	20%	O/LF	10%
Viburnum opulus	Guelder-rose	-	-	-	-	R	<1%	-	-
Herb Species									
Agrostis capillaris	Common Bent	-	-	R	<1%	-	-	-	-
Alopecurus pratensis	Meadow Foxtail	O/LF	<1%	VLF	<1%	-	-	O/LF	<1%
Anthriscus sylvestris	Cow Parsley	O	<1%	O	<1%	O	<1%	O	<1%
Arrhenatherum elatius	False Oat-grass	F/LA*	5%	F*	10%	F*	10%	VLF	10%
Calystegia sepium	Hedge Bindweed	LA	<1%	-	-	-	-	-	-
Chamerion angustifolium	Rosebay Willowherb	-	-	VLF	<1%	VLF	<1%	-	-
Cirsium arvense	Creeping Thistle	VLF	<1%	LA	<1%	VLF	<1%	-	-
Dactylis glomerata	Cock's-foot	LF	<1%	-	-	-	-	O/LF	<1%
Dryopteris dilatata	Broad Buckler-fern	-	-	R	<1%	-	-	-	-
Elytrigia repens	Common Couch	F/LA*	10%	F*	5%	F*	10%	R	<1%
Epilobium hirsutum	Great Willowherb	LA	<1%	-	-	-	-	LA	<1%
Galium aparine	Cleavers	O/LF	<1%	O/LF	<1%	O/LA	<1%	F*	<1%
Hedera helix	Ivy	-	-	-	-	-	-	O	<1%
Heracleum sphondylium	Hogweed	O	<1%	O	<1%	R	<1%	O/LF	<1%
Holcus lanatus	Yorkshire-fog	F*	10%	F*	5%	F*	5%	O	<1%
Impatiens glandulifera	Indian Balsam	O/LA	5%	O/LA	5%	LA	<1%	-	-
Juncus effusus	Soft-rush	R	<1%	-	-	-	-	-	-
Phleum pratense	Timothy	-	-	-	-	VLF	<1%	-	-
Rubus fruticosus agg.	Bramble	O/LF	5%	F*	20%	F*	10%	O/LF	10%
Senecio jacobaea	Common Ragwort	-	-	-	-	O	<1%	-	-
Urtica dioica	Common Nettle	F/LA*	10%	F*	10%	F*	10%	F*	20%

¹Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.

Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997* wildlife and landscape criteria assessment.

Table 8.5: Plant Species List for Hedgerows 5 to 7

Scientific Name	Common Name	Hedgerow 5		Hedgerow 6		Hedgerow 7	
		DAFOR	% Cover	DAFOR	% Cover	DAFOR	% Cover
Woody Species							
<i>Corylus avellana</i>	Hazel	-	-	-	-	R	<1%
<i>Crataegus monogyna</i>	Hawthorn	A*	80%	A*	80%	A*	90%
<i>Fraxinus excelsior</i>	Ash	-	-	-	-	LA	<1%
<i>Salix caprea</i>	Goat Willow	-	-	-	-	LA	1%
<i>Salix cinerea</i>	Grey Willow	-	-	-	-	-	-
<i>Sambucus nigra</i>	Elder	-	-	LA	<1%	LA	1%
Herb Species							
<i>Anthriscus sylvestris</i>	Cow Parsley	-	-	-	-	R	<1%
<i>Arrhenatherum elatius</i>	False Oat-grass	F*	20%	F*	10%	F*	10%
<i>Calystegia sepium</i>	Hedge Bindweed	LA	<1%	LA	<1%	VLF	<1%
<i>Chamerion angustifolium</i>	Rosebay Willowherb	LF	<1%	LA	5%	R	<1%
<i>Cirsium arvense</i>	Creeping Thistle	-	-	-	-	LF	<1%
<i>Dactylis glomerata</i>	Cock's-foot	-	-	-	-	O/VLF	<1%
<i>Dryopteris dilatata</i>	Broad Buckler-fern	R	<1%	-	-	-	-
<i>Elytrigia repens</i>	Common Couch	-	-	-	-	O/LF	<1%
<i>Epilobium hirsutum</i>	Great Willowherb	-	-	LF	<1%	O	<1%
<i>Galium aparine</i>	Cleavers	-	-	F/LA	5%	-	-
<i>Heracleum sphondylium</i>	Hogweed	-	-	-	-	O	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	-	-	-	-	F*	5%
<i>Impatiens glandulifera</i>	Indian Balsam	F*	<1%	LA	<1%	-	-
<i>Juncus effusus</i>	Soft-rush	-	-	-	-	VLF	<1%
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	-	-	-	-	O/LF	<1%
<i>Rubus fruticosus</i> agg.	Bramble	F*	10%	F*	10%	F*	10%
<i>Urtica dioica</i>	Common Nettle	O/LA	<1%	F	10%	F*	10%
<i>Vicia cracca</i>	Tufted Vetch	-	-	-	-	R	<1%

¹Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.

Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997* wildlife and landscape criteria assessment.

Table 8.6: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997* for Hedgerows 1 to 4

	Hedgerow Name	Hedgerow 1			Hedgerow 2			Hedgerow 3			Hedgerow 4		
Description	Height x width (metres)	3x3			1.2x1			5x3			5x3		
	Length (metres)	250			175			95			110		
	Continuity	95%			80%			95%			100%		
	Management	Flailed on sides			Flailed			Flailed at northern edge			Flailed at eastern edge		
Woody Species	Section number ¹	1	2	3	1	2	3	1	2	3	1	2	3
	Qualifying woody species	3	3	2	2	2	-	5	-	-	3	2	
	Average Number	3			2			5			3		
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			No			No		
	(b) Gaps which in agg. do not exceed 10%	Yes			No			Yes			Yes		
	(c)-(e) 1 standard tree per 50m	No (1)			No (0)			Yes (2)			No (1)		
	(f) At least 3 woodland species within 1m	No (0)			No (1)			No (0)			No (0)		
	(g) Ditch along at least ½ its length	No			No			No			No		
	(h) Connections scoring 4 points or more	No (3)			No (2)			Yes (4)			Yes (5)		
	(i) Parallel hedge within 15m	No			No			No			No		
	Total Features	1			0			3			2		
Hedgerow Importance	Criteria for Hedgerow Importance 1	No			No			No			No		
	Criteria for Hedgerow Importance 2:	No			No			No			No		
	Criteria for Hedgerow Importance 3:	No			No			Yes			No		
Hedgerow Important Criteria	Criteria for Hedgerow Importance 1: Hedgerow contains species listed as: (1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of <i>Wildlife and Countryside Act 1981</i> (as amended); (2) Declining breeders in ‘Red Data Birds of Britain’; and / or (3) Categorised as ‘endangered’, ‘extinct’ or ‘vulnerable’												
	Criteria for Hedgerow Importance 2: Hedgerow includes: (i) At least 7 woody species (on average); (ii) At least 6 woody species (on average) and at least 3 features; (iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or; (iv) At least 5 woody species (on average), and has 4 features Criteria for Hedgerow Importance 3: Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).												

Table 8.7: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997* for Hedgerows 5 to 7

	Hedgerow Name	Hedgerow 5			Hedgerow 6			Hedgerow 7		
Description	Height x width (metres)	3x2			3x2			3 to 4 x 5		
	Length (metres)	10			20			325		
	Continuity	100%			100%			95%		
	Management	Flailed on each side			Flailed on each side			Flailed on each side		
Woody Species	Section number ¹	1	2	3	1	2	3	1	2	3
	Qualifying woody species	1	-	-	1	-	-	2	1	2
	Average Number	1			1			2		
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			No		
	(b) Gaps which in agg. do not exceed 10%	Yes			Yes			Yes		
	(c)-(e) 1 standard tree per 50m	No (0)			No (0)			No (0)		
	(f) At least 3 woodland species within 1m	No (1)			No (0)			No (0)		
	(g) Ditch along at least ½ its length	No			No			No		
	(h) Connections scoring 4 points or more	No (0)			No (0)			Yes (4)		
	(i) Parallel hedge within 15m	No			No			Yes		
	Total Features	1			1			4		
Hedgerow Importance	Criteria for Hedgerow Importance 1	No			No			No		
	Criteria for Hedgerow Importance 2:	No			No			No		
	Criteria for Hedgerow Importance 3:	No			No			No		
Hedgerow Important Criteria	Criteria for Hedgerow Importance 1: Hedgerow contains species listed as: (1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of <i>Wildlife and Countryside Act 1981</i> (as amended); (2) Declining breeders in ‘Red Data Birds of Britain’; and / or (3) Categorised as ‘endangered’, ‘extinct’ or ‘vulnerable’									
	Criteria for Hedgerow Importance 2: Hedgerow includes: (v) At least 7 woody species (on average); (vi) At least 6 woody species (on average) and at least 3 features; (vii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or; (viii) At least 5 woody species (on average), and has 4 features									
	Criteria for Hedgerow Importance 3: Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).									

Table 8.8: Plant Species List for Tree Line

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Alnus cordata</i>	Italian Alder	LA	30%
<i>Salix cinerea</i>	Grey Willow	A*	70%
Herb Species			
<i>Centaurea nigra</i>	Common Knapweed	VLF	<1%
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	O	<1%
<i>Elytrigia repens</i>	Common Couch	O/VLF	<1%
<i>Epilobium hirsutum</i>	Great Willowherb	R	<1%
<i>Equisetum arvense</i>	Field Horsetail	LF	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	O	<1%
<i>Juncus effusus</i>	Soft-rush	F*	20%
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	O	<1%
<i>Phalaris arundinacea</i>	Reed Canary-grass	F*	10%
<i>Ranunculus repens</i>	Creeping Buttercup	LF	<1%
¹ Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 8.9: Results of HSI Assessment at Ponds 1 to 5

	Pond 1		Pond 2		Pond 3		Pond 4		Pond 5	
Suitability Index Criteria	Description	Score ¹	Description	Score ¹	Description	Score ¹	Description	Score ¹	Description	Score ¹
SI ₁ Geographical Location	Optimal	1	Optimal	1	Optimal	1	Optimal	1	Optimal	1
SI ₂ Pond area	15000	N/A	2250	N/A	3500	N/A	3300	N/A	50	0.05
SI ₃ Pond drying	Never dries	0.9	Never dries	0.9	Never dries	0.9	Never dries	0.9	Sometimes dries	0.5
SI ₄ Water quality	Good	1	Good	1	Good	1	Good	1	Moderate	0.67
SI ₅ Shade	0%	1	50%	1	50%	1	25%	1	0%	1
SI ₆ Fowl	Minor	0.67	Minor	0.67	Minor	0.67	Minor	0.67	Absent	1
SI ₇ Fish	Major	0.01	Minor	0.33	Major	0.01	Major	0.01	Absent	1
SI ₈ Abundance of other ponds ²	2.23	0.83	2.23	0.83	2.23	0.83	2.23	0.83	2.23	0.83
SI ₉ Quality of terrestrial habitat	Moderate	0.67	Moderate	0.67	Moderate	0.67	Moderate	0.67	Moderate	0.67
SI ₁₀ Macrophyte cover	0%	0.3	0%	0.3	2%	0.3	0%	0.3	90%	0.9
Assessment result:	Poor	0.46	Average	0.68	Poor	0.46	Poor	0.46	Average	0.62

¹Calculated by (SI₁ x SI₂ x SI₃ x SI₄ x SI₅ x SI₆ x SI₇ x SI₈ x SI₉ x SI₁₀)^{1/10}

²Ponds within an unobstructed one kilometre radius divided by 3.14 (the number given above is the number of ponds before division by 3.14)

Figure 1: Aerial Image of to Show Site, Surrounding Habitats, Ponds within 500 metres and Nearby Designated Sites

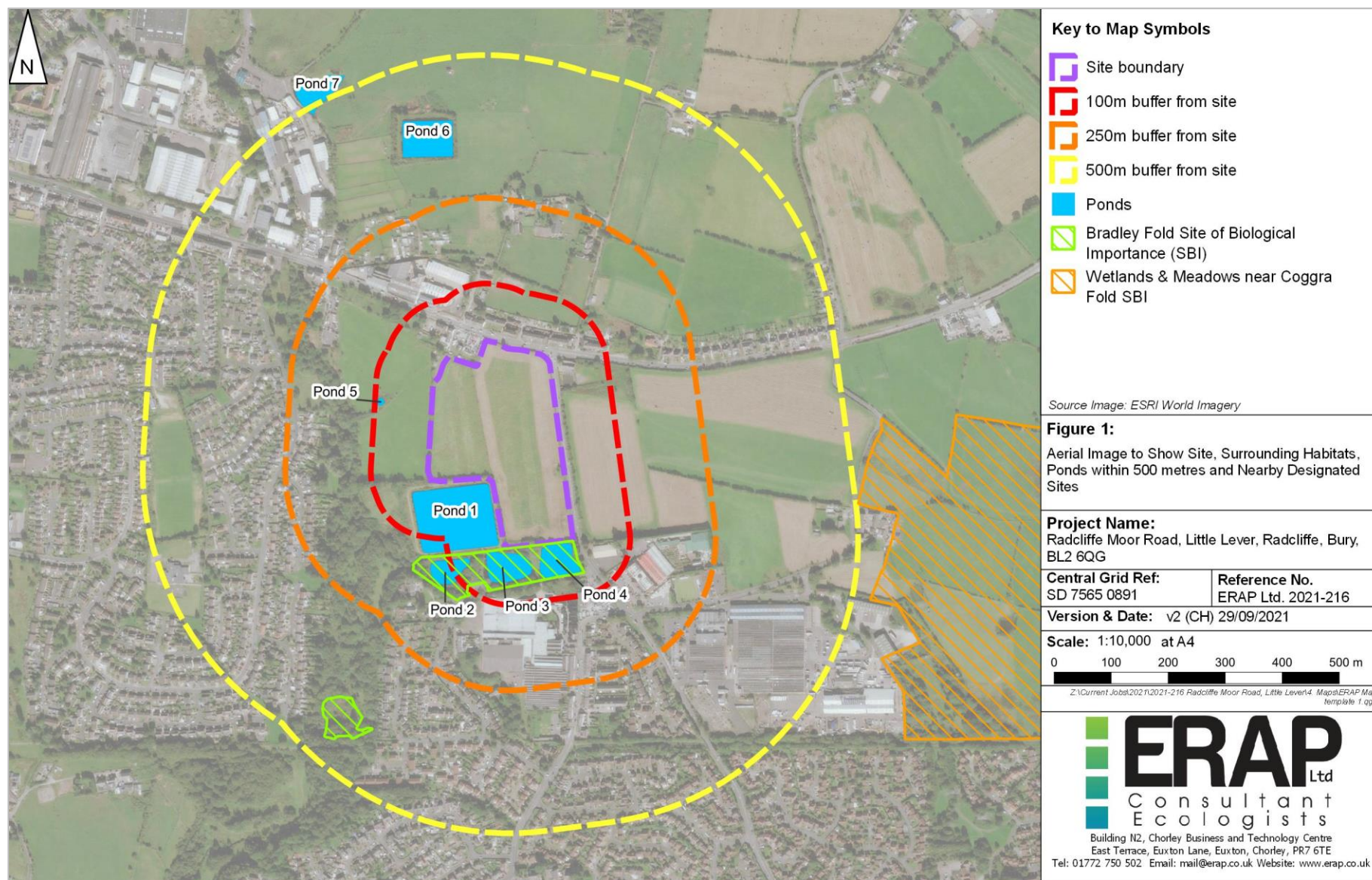
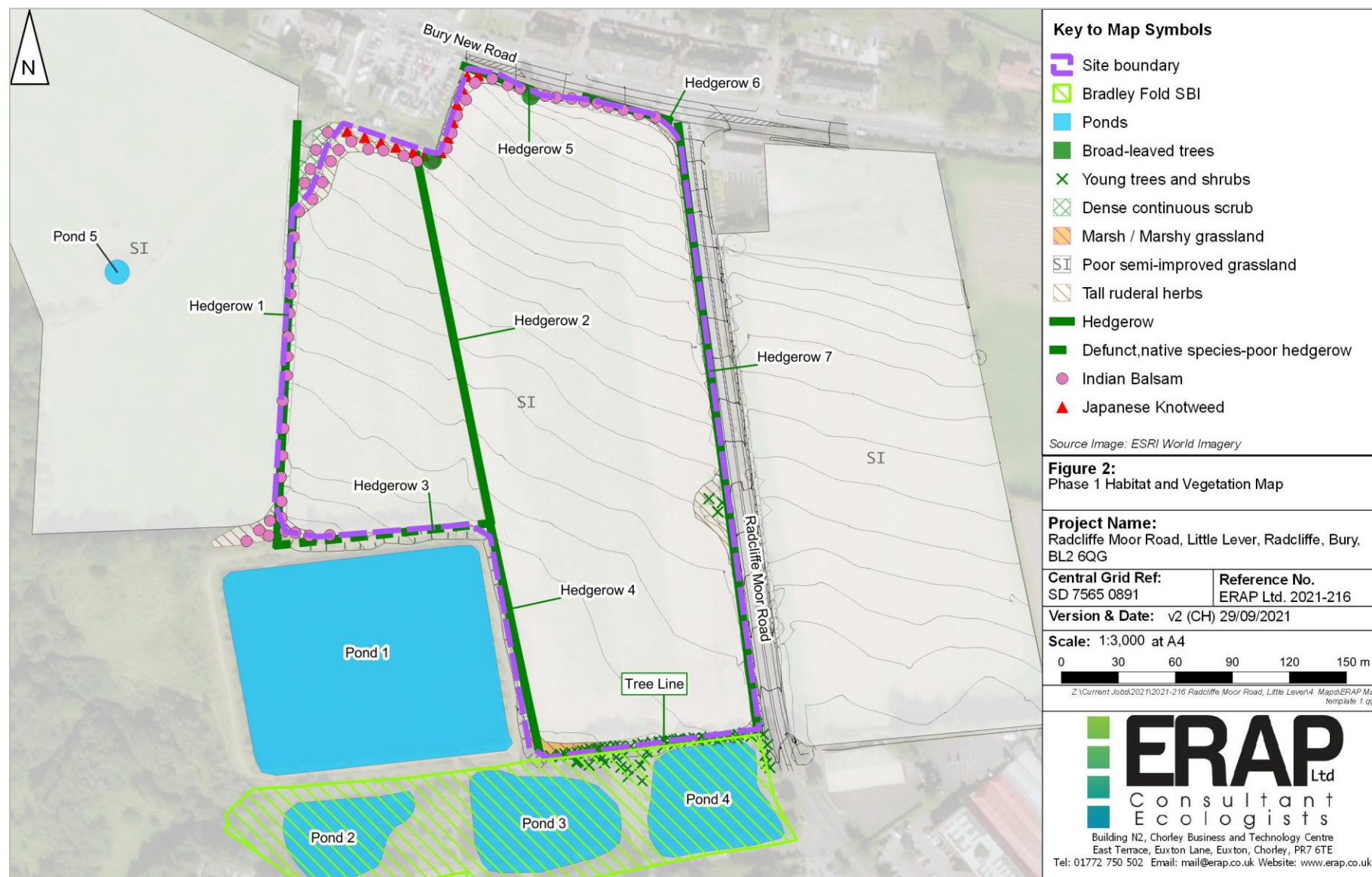


Figure 2: Phase 1 Habitat and Vegetation Map



9.0 APPENDIX 2: SURESCREEN SCIENTIFICS REPORT



Folio No: E11626
 Report No: 1
 Purchase Order: 2021-216
 Client: ERAP LTD
 Contact: Luke Atherton

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 05/07/2021
Date Reported: 16/07/2021
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
6945	BURY NEW ROAD, LITTLE LEVER	SD 75440 08975	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Jennifer Higginbottom

Approved by: Jennifer Higginbottom



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METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

SIC:	Sample Integrity Check [Pass/Fail] When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
DC:	Degradation Check [Pass/Fail] Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
IC:	Inhibition Check [Pass/Fail] The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
Result:	Presence of GCN eDNA [Positive/Negative/Inconclusive] Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location. Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence. Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



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