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Ecological Consultants
Environmental and Rural Chartered Surveyors

Ecological Appraisal

Land off Blackburn Road, Longridge

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PROFESSIONAL RESPONSIBILITY

This report has been commissioned and the actions of the surveyor have been made in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management. (www.cieem.org.uk) and the Royal Institution of Chartered Surveyors (www.rics.org.uk)

ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.
If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

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Author	Matthew Thomas	Date	7th October 2016
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1. EXECUTIVE SUMMARY

1.1.1 Envirotech NW Ltd were commissioned by PSA Design to carry out an Ecological Appraisal of land off Blackburn Road, Longridge. It is proposed that the site will be developed.

1.1.2 A data search and desk study of the site and an area within 2km of the site were undertaken to establish the presence of protected species and notable habitats.

1.1.3 The site was then visited by a licenced ecologist from Envirotech NW Ltd on the 6th October 2016. A full botanical survey of the site was initially undertaken and this was followed by surveys to establish the presence or absence of bats, amphibians, nesting birds, brown hares and badgers at the site or in proximity such that they may be affected by the proposed development.

1.1.4 The plant species assemblages recorded at the site are all common in the local area and of considered of low ecological value.

1.1.5 The pond on site and those in proximity to the site are considered to be of low quality and unlikely to support breeding populations of great crested newts.

1.1.6 None of the hedgerows around the site perimeter were considered important under the Hedgerow Regulations (1997).

1.1.7 Birds are likely to utilise scrub on site for nesting between March and September. Any vegetation clearance should therefore be undertaken outside of this period.

1.1.8 No other notable or protected species were recorded on the site.

2. INTRODUCTION

2.1 Background

2.1.1 In September 2016 Envirotech NW Ltd were commissioned by PSA Design to carry out an Ecological Appraisal of land off Blackburn Road, Longridge, central grid reference SD 61740 37180 (Figure 1). A site investigation was undertaken and a report compiled which includes recommendations for any future actions and or mitigation required.

2.1.2 The survey was requested in connection with the proposed development of the site.

Figure 1 *Site location at SD 61740 37180 outlined red.*

2.2 Objectives

2.2.1 The main objectives of the study were:

- The completion of a Phase 1 Habitat Survey including the preparation of a vegetation and habitat map of the site and the immediate surrounding area.
- The survey and assessment of all habitats for statutorily protected species.
- An evaluation of the ecological significance of the site.
- The identification of any potential development constraints and the specification of the scope of mitigation and enhancement required in accordance with wildlife legislation, planning policy and other relevant guidance, and;
- The identification of any further surveys or precautionary assessments that may be required prior to the commencement of any development activities.

3. METHODOLOGY AND SOURCES OF INFORMATION

3.1 Data Search

3.1.1 The Biological Records centre for Lancashire "LERN", the Envirotech dataset, and the Multi-Agency Geographic Information for the Countryside (MAGIC) were searched to establish the presence of any records of statutorily protected, notable or rare species, and any designated sites of international, national, regional or local importance within a 2km radius of the site boundary.

3.1.2 The Envirotech dataset is compiled from extensive field surveys from the period 2004-present, as well as records obtained from third parties during this time.

3.1.3 Google Earth and Google Street View were consulted to establish the presence of any features of ecological importance within the local area.

3.2 Vegetation and Habitats

3.2.1 A vegetation and habitat map was produced for the site and the immediate surrounding area. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC 2003).

3.2.2 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the Wildlife and Countryside Act (1981) and indicators of important and uncommon plant communities. All plant nomenclature follows Stace (1991).

3.2.3 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the Wildlife and Countryside Act (1981), namely Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) on terrestrial habitat and aquatic species such as floating pennywort (*Hydrocotyle ranunculoides*), water Hyacinth (*Eichhornia crassipes*) and New Zealand pygmyweed (*Crassula helmsii*).

3.2.4 The survey was also informed by questioning the landowner/site agent to ascertain the recent history of the site.

3.3 Timing and Personnel

3.3.1 The site and surrounding land was visited on the 6th October 2016.

3.3.2 During the visit, weather conditions were suitable for the survey types undertaken being warm and dry in mid autumn.

- (MT) Mr Matthew Thomas BSc (Hons), Grad CIEEM
  Natural England Bat Class Licence (Level 2)
  Natural England Barn Owl Licence
  Natural England Great Crested Newt Licence (Level 1)

4. SPECIES SURVEY METHODOLOGY

4.1 Amphibian

4.1.1 Great crested newts (*Triturus cristatus*) are listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats) Regulations (2010) and Schedule 5 of the Wildlife & Countryside Act (1981).

4.1.2 The great crested newt baseline survey involved a pond screening assessment to determine the presence and suitability of ponds located within the study area using a Habitat Suitability Index.

4.1.3 Water-bodies located within or adjacent to the study area were identified and where access was possible were assessed for their potential to support great crested newts. The criteria used in the assessment are based on those contained in the Herpetofauna Workers Manual and Oldham et al, 2000, and in applying these criteria a precautionary approach was adopted. The pond assessment was undertaken in order to determine which water-bodies, based on their potential to support great crested newts, should be subject to presence/absence surveys.

4.1.4 Following the criteria developed by Oldham et al (2000), the HSI tool developed for use with great crested newts and forming part of Natural England's EPS Licensing process was used to determine the suitability of ponds for great crested newts. The HSI was developed as a tool to aid fieldworkers to give ponds and their surrounding habitat a numerical score in terms of their suitability for great crested newts.

4.1.5 Terrestrial refuge searches were undertaken around the site alongside the botanical survey on 6th October 2016.

4.1.6 There is a single pond on site, two ponds just outside the site boundary and three further ponds at a 320m, 330m and 280m. All ponds were viewed and HSI scores compiled.

4.2 Badger

4.2.1 Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act (1992). This legislation arises from animal welfare issues (rather than on the basis of nature conservation grounds) and protects badgers from being killed, injured or disturbed whilst occupying a sett. The main issue on proposed development sites tends to be the potential disturbance of badgers in their setts as a result of construction operations. Natural England recommends that the use of heavy machinery in proximity of a sett entrance should be avoided, with a 'disturbance free-zone' being established. The degree of disturbance attributed to construction activity is a function of the background level of activity badgers are accustomed to and that which will be attributed to a proposed activity. The "disturbance free zone" is therefore site specific.

4.2.2 The survey for badgers comprised an assessment of all suitable habitat within and outside the study area boundary (where this was possible) for indications of use by badgers.

4.2.3 Signs of badgers which were searched for included:

- Setts - 'D' shaped entrances at least 25cms wide and wider than they are high with large spoil mounds
- Discarded bedding at sett entrances (this includes grass and leaves)
- Scratching posts on shrubs and trees close to a sett entrance
- The presence of badger hairs which are coarse, up to 100mm long with a long black section and a white tip
- Dung pit latrines and footprints
- Habitual runs through vegetation and beneath fences
- Hedgehog carcases

4.3 Bats

4.3.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981), and are included on Schedule 2 of the Conservation (of Natural Habitats) Regulations (2010), as European Protected Species. Taken together, these pieces of legislation make it an offence to:

- Intentionally or recklessly kill, injure or capture bats;
- Deliberately or recklessly disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts.

4.3.2 The Bat Conservation Trust (Hundt (2012)) and Collins, J. (ed) (2016) issued guidelines on bat survey methodology, a key feature of their recommendation is for the undertaking of a pre-survey assessment – an initial desk-study and a walkover assessment of the survey area and its surrounding area to identify the relative value of the habitats present for bats and likely commuting routes. This is to be followed by a survey program that is appropriate to the likely level of bat activity within the survey area to be determined by and based on the experience of the surveyor.

4.3.3 The potential value of the survey area for foraging bats was assessed through consideration of two main factors: professional knowledge of bat ecology and foraging behaviour in combination with the geographical location, topography and habitats present within the survey area and surrounds. This resulted in the production of a map showing habitat quality both on and adjacent to the site.

4.3.4 The survey area has small hedgerows within it and linear routes on its boundary. The main site however comprises an area which is open, exposed and structurally poor, it has a very low potential for use by bats.

4.3.5 All trees on site and the site boundary were assessed in accordance with Collins, J. (ed) (2016).

4.4 Birds

4.4.1 All breeding birds, other than pest species, are protected under the Wildlife and Countryside Act of 1981 when building a nest, rearing young or sitting on eggs. Some bird species, such as barn owl (*Tyto alba*), are protected when near an active nest site. Several birds are listed as UK and or County BAP species.

4.4.2 The poor quality habitat suggested a low potential for breeding bird species of interest.

4.4.3 Bird species and behaviour was noted during the other field surveys. All areas are covered equally, in order to avoid the subjective survey of better quality 'bird habitat'. All birds displaying breeding behaviour were recorded.

4.5 Brown Hare

4.5.1 The brown hare (*Lepus europaeus*) is a UK BAP species.

4.5.2 The survey method involved walking boundaries and surveying with binoculars. The survey was conducted at a suitable distance to ensure that the hares were not disturbed. Generally, surveys were undertaken throughout the early afternoon and evening when hares are thought to be most active and feeding.

4.5.3 There present the number of brown hares in each field or hedgerow was recorded, together with the nature and use of the field, climatic conditions and time of day. The presence of forms and faeces where present were also recorded.

4.6 Invertebrates

4.6.1 A general assessment was made of the study area's suitability for supporting invertebrates during the phase 1 survey. The study area's lack of habitat diversity, species-poor composition and uniformity of vegetation structure (i.e., lack of variation in height and microtopography) resulted in our belief that a low diversity of invertebrates would be likely to occur across the site.

4.6.2 The presence of invertebrates was noted during the other surveys which were undertaken. The extent of sampling was limited in that it could be confirmed that no priority or BAP species would be likely to be affected by the proposal.

4.7 Reptiles

4.7.1 All native reptiles are protected in Britain under the Wildlife and Countryside Act of 1981. It is an offence to intentionally kill, injure, sell or advertise to sell any of the six native species.

4.7.2 The survey for these species was based on assessing the habitat type and suitability of the site. This comprised an assessment of satellite imagery for the site and surrounding area as well as comparison of the results from the records searches with habitat types. The general habitat at the site was evaluated in terms of its suitability to reptiles for foraging or breeding.

4.7.3 Reptile surveys comprising visual encounter surveys were undertaken. Habitat at the site was not considered sufficiently suitable for a full presence/ absence survey to be warranted.

4.8 Survey limitations

4.8.1 No significant survey limitations were encountered.

5. RESULTS

5.1 Data Search

5.1.1 Envirotech and LERN hold no records of protected or notable species for the site. There are however records of protected or notable species within 2km. These are discussed in the relevant sections below.

5.1.2 The nearest non-statutory site is 50m to the North of the site being Spade Mill Reservoir Biological Heritage Site (BHS), Figure 3.

5.1.3 The nearest statutory protected site is the Red Scar and Tun Brook Woods SSSI, SAC 4km to the South-west (Figure 4).

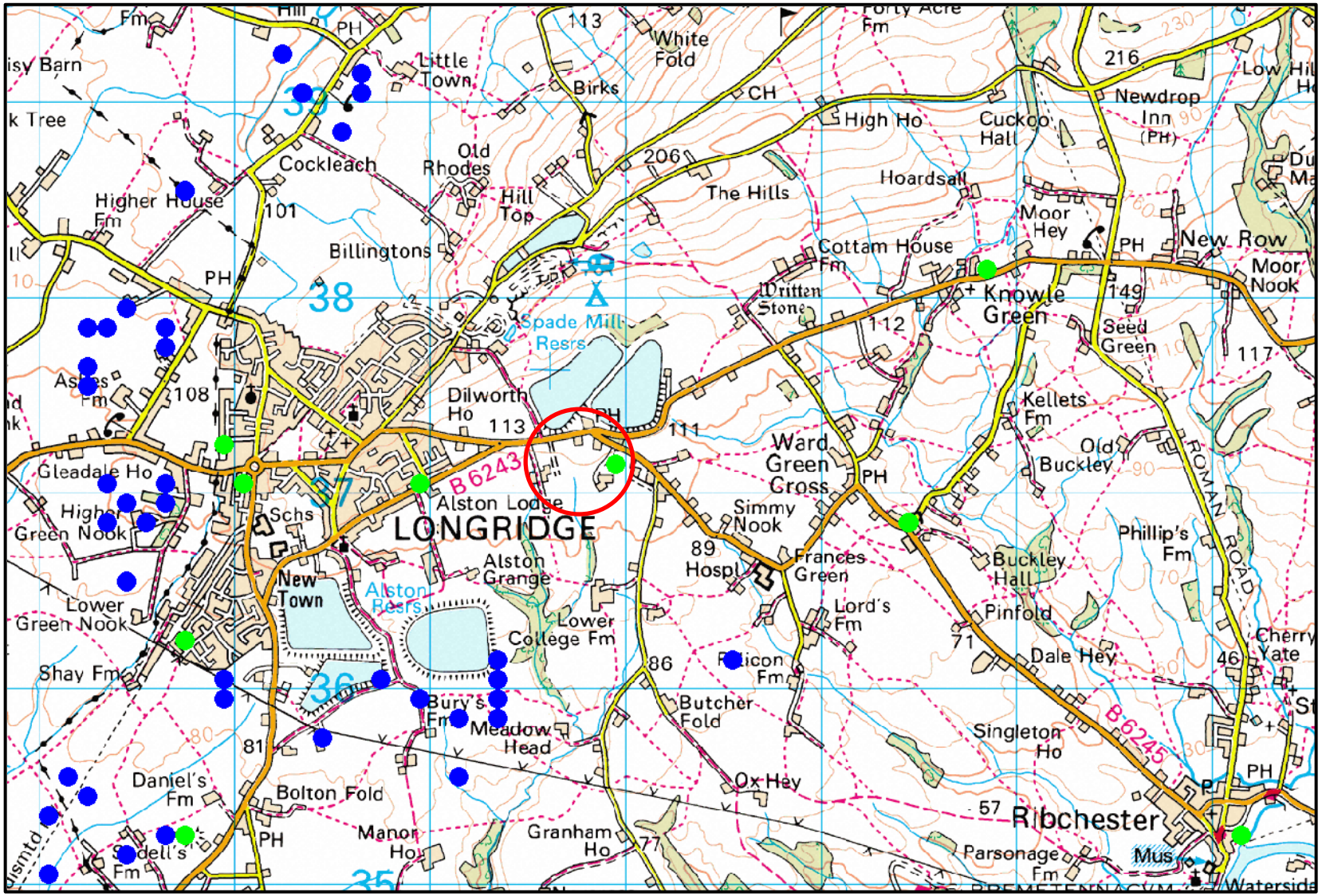

Figure 2 *Notable species records where blue indicates amphibians and green indicates bat records. The site location is circled red.*

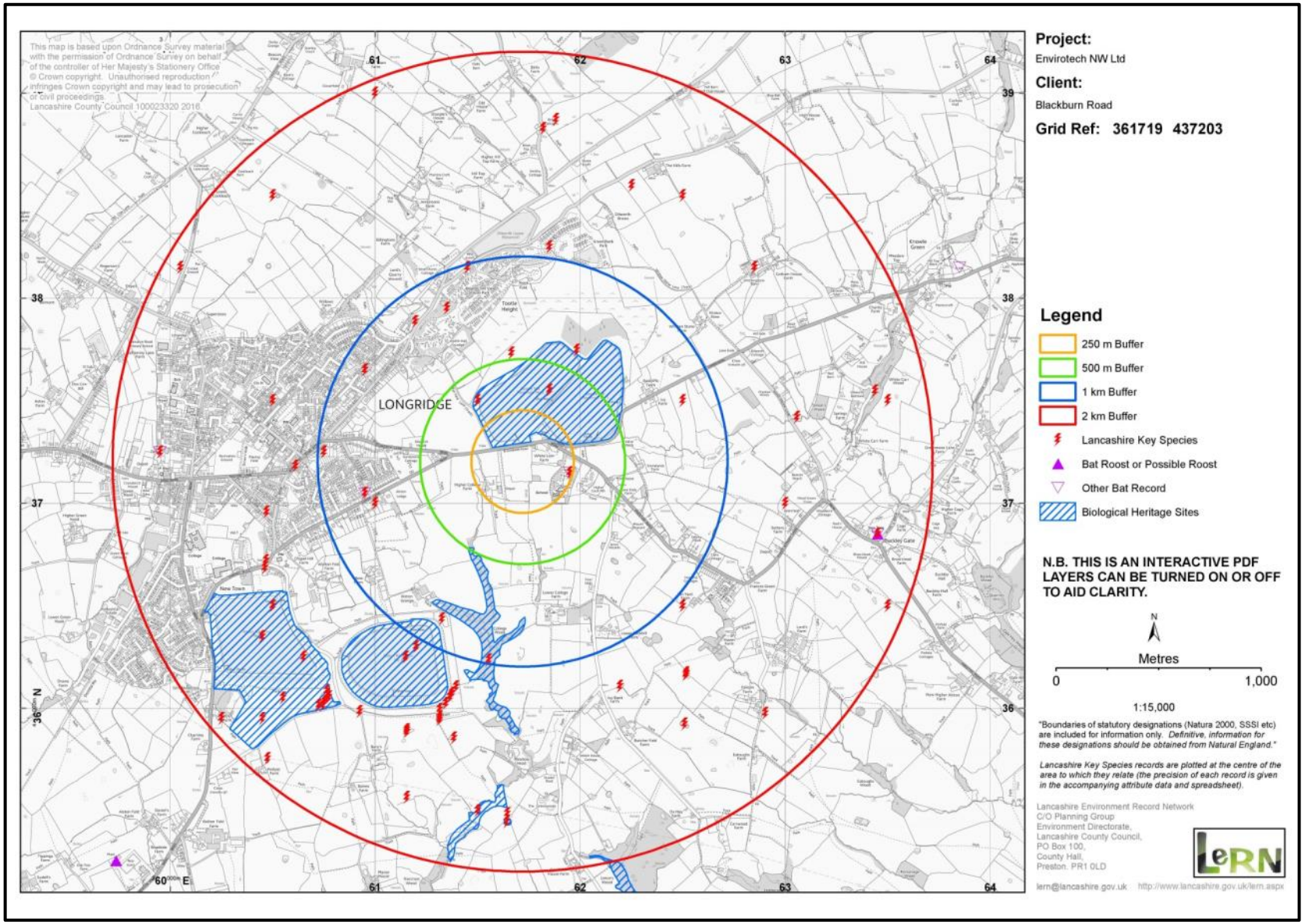

Figure 3 *Non-statutory sites 2km buffer*.

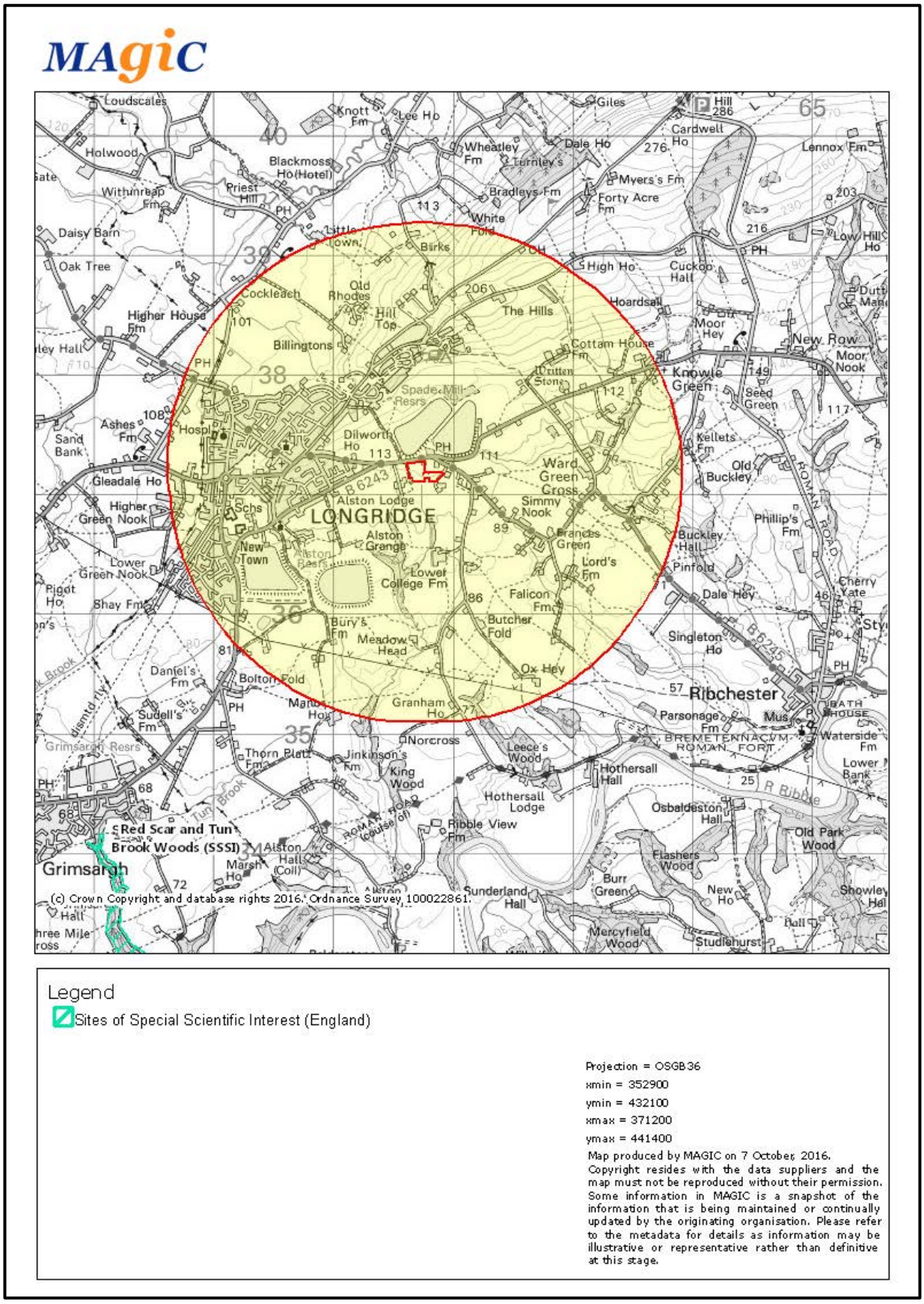

Figure 4 *Statutory designated sites 2km buffer.*

6. PHASE 1 SURVEY RESULTS

6.1 Habitat Results

6.1.1 The site comprises improved grassland and poor semi-improved grassland fences and hedges on its boundary. There is a school to the East, road and reservoir to the North, industrial buildings and farmland to the West and further improved grassland to the South.

6.1.2 See Figure 5 for the Phase 1 Habitat Plan and Table 1 for the descriptive Botanical and Faunal Target Notes, hereafter referred to as BTN and FTN.

Target Note	Description	Comment
BTN1	Intact hedge – species poor	Intact hedge of hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), holly (*Ilex aquifolium*), ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), elder (*Sambucus nigra*) and dog Rose (*Rosa canina*). There is a mature English oak (*Quercus robur*) within the hedge. The understory is sparse, but for nettle (*Urtica dioica*) and hogweed (*Heracleum sphondylium*).
BTN2	Improved grassland	A species poor grassland comprising perennial ryegrass (*Lolium perenne*), crested dogs tail (*Cynosurus cristatus*), Yorkshire fog (*Holcus lanatus*) and cocksfoot (*Dactylis glomerata*) around the periphery of the field and occasional brome (*Bromus* sp.). meadow buttercup (*Rannunculus acris*) and white clover (*Trifolium repens*) are present within the sward.
BTN3	Intact hedge – species poor	A species poor hedge primarily hawthorn, but with ash, blackthorn and oak. Foxglove (*Digitalis purpurea*), bramble (*Rubus fruticosus* agg.) and nettle grow at the base of the hedge.
BTN4	Poor semi-improved grassland	A species poor grassland comprising perennial ryegrass, crested dogs tail, Yorkshire fog and cocksfoot. This grassland differs from the improved grassland adjacent (BTN2) by the frequent thistle (*Cirsium arvense*) and nettle. Soft rush (*Juncus effusus*) becomes increasing common towards the East of the site where the field becomes more waterlogged.
BTN5	Broadleaved parkland/scattered trees	Alder (*Alnus glutinosa*), Scots pine (*Pinus sylvestris*) and a chestnut tree tower over two ephemeral ponds Outside but immediate adjacent to the Southern site boundary.
BTN6	Defunct hedge – species poor	A gappy hawthorn hedge, with occasional blackthorn and elder. There is a large, standing dead oak. The hedge is not stock proof, has large gaps and does not have a clear understory.
BTN7	Intact hedge – species poor	A very short but dense stretch of hawthorn and blackthorn hedge.
BTN8	Other habitat	Domestic, commercial and industrial properties surround the site to the North, west and East.
BTN9	Other habitat	There are two reservoirs to the North of the site, both designated Biological Heritage Sites.
BTN10	Introduced shrub	Japanese knotweed grows along the North boundary hedge, within the site. Japanese knotweed grows at the base of the hedge for around 15m.

BTN11	Intact hedge – species poor	An intact hedge with holly, hawthorn, ash saplings, oak saplings, blackthorn and elder.
FTN1	Pond 1	Pond sheltered by hawthorn hedge and Mature oak tree to the South. Some 20 mallard (*Anas platyrhynchos*) were present on the pond during the site survey. The pond has been subject to heavy poaching by cattle.
FTN2	Running water	A drainage ditch runs outside the boundary of the site. The water in the ditch is shallow, appears to be ephemeral and has negligible potential for use by any protected species.
FTN3	Pond 2&3	Two shaded and ephemeral ponds occur amongst the mature trees at the South, but outside the site boundary. These were assessed for their potential to be used by amphibians.
FTN4	Log and rubble piles	There are large log and rubble piles outside the site boundary to the South of the site. this potential refugia was searched for evidence of amphibians and reptiles.

Table 1 *Details of Botanical and Faunal Target Notes.*


Key
Site Boundary
Botanical Target Note
Faunal Target Note
SI
Poor semi-improved grassland
I
Improved grassland
Introduced shrub
Other habitat
Hardstanding
Standing water
Intact hedge - species-poor
Defunct hedge - species-poor
Running water
Broadleaved Parkland /scattered trees
Coniferous Parkland /scattered trees
Fence
envirotech
Figure 5
Results* of Extended Phase 1 Habitat Survey
SCALE: NTS
REV 01
N
*Habitats outside the site boundary are indicative only and have been mapped from within the site boundary or from publicly accessible land

	**BTN1 A view East along the hedge on the North of the site boundary.**
	**A mature oak tree is present in the hedge (BTN1) on the North site boundary.**
	**The grassland covering much of the site is improved (BTN2) and as such, species poor.**

	**A hedge and fence separates the site from the domestic house and gardens to the East (BTN11).**
	**A species poor hedge at the North of the East section of the site (BTN3).**
	**BTN4** **The poor semi-improved grassland becomes more sodden to the East of the site.**

	**There is a drainage ditch outside of the South boundary of the site. This drainage ditch appears to hold water ephemerally and offers negligible opportunities for notable or protected species (FTN2). The defunct hedge is visible beyond (BTN6).**
	**FTN1** **There is a pond within the boundary of the site. This pond is significantly poached by cattle and shaded by the trees to the South. Some 20 mallard were present on the pond at the time of the site survey.**
	**FTN3 There are two ponds present in the shade of the tall trees just outside the site boundary to the South. Again these ponds are significantly poached by cattle and appear to be ephemeral.**

	**FTN4** **There are large log and refuse piles to the South of the site but outside the site boundary. This area was searched for signs of the presence of reptiles or amphibians.**

Table 2 *Photographs of target noted and other notable features.*

6.2 Vegetation

6.2.1 Details of the plant species found on site are included in the target notes. Species recorded are all commonly occurring and undoubtedly occur elsewhere in similar habitats in the local area.

6.2.2 The improved grassland and poor semi-improved grassland on site has very low species diversity and ecological value. It offers negligible opportunities to other wildlife.

6.2.3 The intact hedges bounding the site to the North are species poor and contain a low diversity of woody plant species but all hedgerows are a UK BAP habitat. The understories of these hedges are notably poor.

6.2.4 The defunct species poor hedgerow at the South of the site also has a low ecological value. It has no understory and has been significantly impacted by livestock grazing. Should these need to be lost, transplanting them is unlikely to be of ecological benefit. New hedge planting would be suitable compensation for their loss.

6.2.5 None of the hedgerows are classified as important under the Hedgerow Regulations (1997) (See Appendix 1).

6.2.6 There are a variety of trees on the site including mature examples of oak. These trees offer opportunities for a variety of other species and help vary the topography of the site.

6.2.7 Japanese knotweed is present along the North boundary of the site, inside of the site boundary. This will need to be dealt with by a competent contractor to remove it and prevent its spread and resurgence.

6.2.8 There is no evidence of giant hogweed or Himalayan balsam on the site. No other invasive or notable weed species listed on Schedule 9 (Section 14) of the Wildlife and Countryside Act (1981) (as amended) was identified within the site or adjacent land.

6.3 Amphibian

6.3.1 There are 69 records of two species of amphibian within 2km of the site. 65 of these records are for great crested newt. Four records are for common newt (*Lissotriton vulgaris*).

6.3.2 There is a pond on site, two ponds adjacent but outside of the site boundary, to the South, and three ponds at 320m, 330m and 280m South of the site (Figure 6). HSI scores have been compiled for these ponds.

6.3.3 The majority of the site has negligible value to any amphibian species using these ponds for breeding. Improved and semi-improved grassland habitats offer negligible foraging opportunities to these species. The commuting and refuge opportunities offered by these habitats is also negligible.

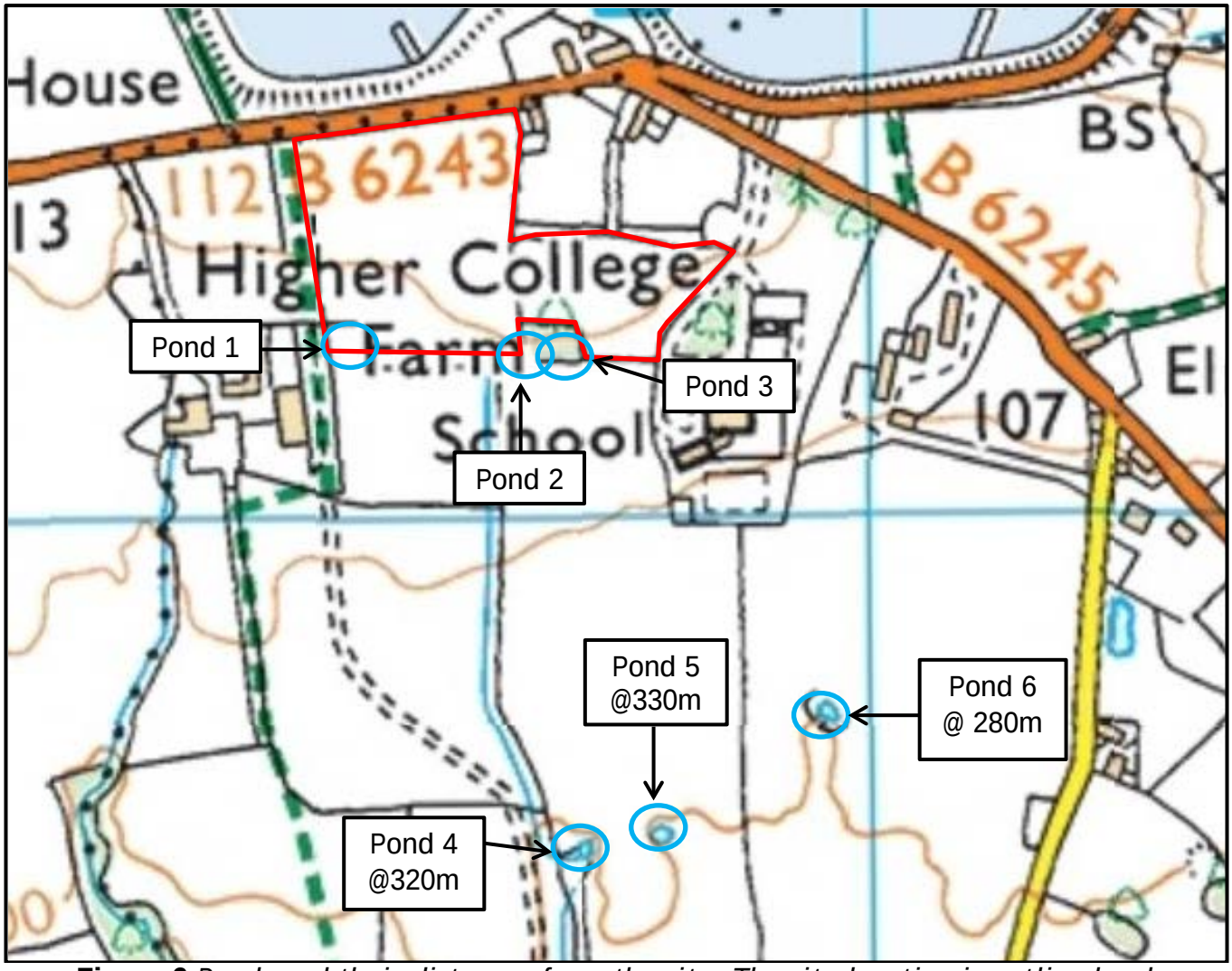

Figure 6 *Ponds and their distances from the site. The site location is outlined red.*

Index	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6
Location	1	1	1	1	1	1
Pond area	0.2	0.2	0.2	0.2	0.2	0.2
Pond drying	1	0.1	0.1	0.5	0.1	0.1
Water quality	0.01	0.01	0.01	0.01	0.01	0.01
Shade	1	0.2	0.2	0.2	1	0.2
Fowl	0.01	0.67	0.67	0.67	0.01	0.67
Fish	1	1	1	1	1	1
Ponds	1	1	1	1	1	1
Terrestrial habitat	0.33	0.33	0.33	0.33	0.33	0.33
Macrophytes	0.33	0.33	0.33	0.33	0.33	0.33
HSI	**0.27**	**0.28**	**0.28**	**0.33**	**0.22**	**0.29**

Table 3 *Habitat Suitability Index of the ponds on and adjacent to the site.*

6.3.4 All of the ponds scored low HSI scores. Their geographical location, the presence of large numbers of waterfowl, lack of significant foraging opportunities and low water quality all contributed to this. Scores of 0.5 or less are considered to be 'poor' for great crested newts.

6.3.5 Terrestrial refuge searches of the nearby log and rubble piles did not locate any great crested newts or any other amphibians.

6.3.6 The majority of the records for great crested newts within 2km of the site occur more than 1km South of the site, where habitats are of significantly greater quality these and other amphibian species.

6.3.7 It is not considered that the improved and semi-improved grassland habitats that make up the core of the development site are of significance to great crested newts or any other amphibian species.

6.4 Badger

6.4.1 There are no records of badgers within 2km of the site.

6.4.2 Badger setts do no occur on site or within 30m of its boundaries.

6.4.3 There were no indications of badger activity found on site, such as feeding activity, latrines or runs.

6.4.4 The proposed development will not impact on any existing badger runs or setts. The porosity of the surrounding fields to the passage of badgers will not be affected.

6.5 Bats

6.5.1 There are 25 records of at least two species of bat within 2km of the site.

6.5.2 The foraging habitat of the majority of the site for bats is poor quality. The grassland is likely to offer negligible foraging opportunities for the majority of the year. Bats may forage over the pond on site and along the hedgerows (Figure 7).

6.5.3 There are high quality foraging habitats in close proximity to the site, although these are poorly connected with the site. The site does not lie on a high quality commuting route.

6.5.4 There are no buildings on site for which bats could utilise for roosting or hibernating, these opportunities are therefore limited to the trees. All trees on site were assessed in accordance with Collins ed. (2016) and assigned a risk category. All of the trees on site were category 2 (low) or category 3 (negligible) risk (Figure 8). No indications of roosting or highly suitable roost sites were located within the trees. All of the trees could be adequately inspected. Risk categories from Hundt (2012) and the requirement for mitigation for each tree category are shown on Figure 9.

6.5.5 We consider bats are highly unlikely to rely on the site for feeding but are highly likely to occur in the local area. Roosting by bats is unlikely to occur on the site.

6.5.6 Precautionary mitigation would be appropriate in respect of ensuring the foraging habitat on site is at least improved for use by bats during development.


Key
Site Boundary
High Value
Medium Value
Low Value
envirotech
Figure 7
Assessment of Potential
Foraging Habitat* Quality for Bats
SCALE: NTS
REV 01
*Habitats outside the site boundary are indicative only
and have been mapped from within the site boundary or from publicly accessible land


Key
Site Boundary
Category 3 (negligible)
Category 2 (low)
Oak
Ash
Ash
Oak
Sycamore
Oak
Sycamore
Ash
N
envirotech
Figure 8
Tree Risk Categories
for Potential Bat Roosts
SCALE: 1cm = xxM
REV 01
*Habitats outside the site boundary are indicative only
and have been mapped from within the site boundary or from publicly accessible land

Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
Known or confirmed roost	Follow SNCO guidance and these guidelines wherever possible, to establish the extent to which bats use the site. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above		The tree can be felled only under EPS licence following the installation of equivalent habitats as a replacement.
Category 1* Trees with multiple, highly suitable features capable of supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence. ***A consultant ecologist is required***	Avoid disturbance to trees, where possible. Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures[3] such as 'soft felling' to minimise the risk of harm to individual bats.
Category 1 Trees with definite bat potential, supporting fewer suitable features that category 1* trees or with potential for use by single bats	Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. ***A consultant ecologist required***	Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.	Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings
Category 2 Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	None. ***A consultant ecologist is unlikely to be required***	Avoid disturbance to trees, where possible. No further surveys.	Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.
Category 3 Trees with no potential to support bats	None. ***A consultant ecologist is not required unless new evidence is found***	None.	No mitigation for bats required.

Figure 9 *Tree risk categories from Hundt (2012).*

6.7 Birds

6.7.1 There are numerous records of birds within 2km of the site. Woodpigeon (*Columba palumbus*), grey wagtail (*Motacilla cinerea*), mallard and wren (*Troglodytes troglodytes*) were noted on site during the survey.

6.7.2 The intact hedgerows offer potential habitat for feeding and nesting birds. The poor semi-improved and improved grassland habitats have a low potential for use by ground nesting birds as the grassland is grazed and as such is usually short. Trampling risks are also very high within this area of the site.

6.7.3 The gappy defunct hedge within the site has insufficient density to be of high value to nesting birds.

6.7.4 There were no rot holes or cracks in the trees within the site boundary which would support tree hole nesting species such as woodpeckers or owls.

6.7.5 Overall the habitats on site were considered to be of poor quality to foraging and nesting birds.

6.8 Brown Hare

6.8.1 Brown hare are a UK BAP priority species. There are no records of brown hares within 2km of the site.

6.8.2 No indication of brown hares was recorded on the site.

6.8.3 The site boundary has some potential for brown hares to create forms but use of the site is likely to be limited due to its open and exposed nature and regular human presence.

6.8.4 A risk assessment of the site in respect of its future potential for and value to brown hares could be adequately made. We consider the risk to brown hares is very low.

6.9 Invertebrates

6.9.1 Numerous notable invertebrates have been recorded within 2km of the site.

6.9.2 There is little deadwood on site to provide an important resource for invertebrates in the local area.

6.9.3 The plant species assemblages found on site are not notable for their invertebrate interest.

6.9.4 The pond on site was considered to have low water quality and is unlikely to offer significant opportunities to notable invertebrates.

6.9.5 Given the poor quality habitats contained within the site in comparison to the wider area, it is not considered that this site is of any local significance for invertebrates.

6.10 Reptiles

6.10.1 There are 2 records for reptiles within 2km of the site. These records are both for slow worm (*Anguis fragilis*).

6.10.2 The majority of the site has a very low value to reptiles being devoid of significant ground cover. There are no areas of the core development area which would be particularly favourable to reptiles.

6.10.3 No indication of reptiles was recorded at the site. The terrestrial refuge search of the log and refuse piles adjacent to the site did not locate any reptiles. A large proportion of the refuse was corrugate metal sheets, which is particularly attractive to reptiles as refugia.

6.10.4 The site does not offer significant opportunities for reptiles, lacking both a notable invertebrate presence and the likely presence of amphibians as forage.

6.11 Other

6.11.1 The boundary hedgerows are species poor and provide little potential for use by hedgehog (*Erinaceus europaeus*). Fragmentation of habitat locally and existing land use do not provide optimal conditions for the free passage of this species across the site and slugs and snails are likely to occur only at very low numbers.

6.11.2 The site may be crossed by species such as fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) are known to occur locally.

6.11.3 The boundary hedgerows may provide suitable habitat for small mammals such as field vole (*Microtus agrestis*) but these areas are small and the sites value to small mammals is limited.

6.11.4 The ponds and drainage ditch on and adjacent to site were not suitable for use by mammals adapted to an aquatic lifestyle, such as water vole (*Arvicola amphibious*) or otter (*Lutra lutra*). There was no evidence to suggest these species had been present on site.

6.12 Statutory and Non-Statutory Sites

Direct Impacts:

6.12.1 There are no statutory or non-statutory sites which are connected to the site such that site development would directly affect the dispersal of species between them or directly impact upon their integrity.

6.12.2 The habitats on site do not represent or are linked to those found in any of the statutory or non-statutory sites locally.

Indirect Impacts:

6.12.3 There are no statutory or non-statutory sites which are connected to the site such that site development would indirectly affect the dispersal of species between them or indirectly impact upon their integrity.

7. MITIGATION/RECOMMENDATIONS

7.1 Compensatory planting and habitat enhancement

7.1.1 The roots of trees on the site and its boundaries should be adequately protected during work in accordance with industry standards. Semi-mature and Mature or all trees should as far as possible be retained in the scheme.

7.1.2 The landscaping scheme should utilise plants which are native and wildlife friendly. In particular night flowering species would be beneficial to bats. Wildflower seed could be used to plant verges to enhance the ecological value of the site and continuity between the site and the wider area.

7.1.3 Hedgerows around the site should be retained or improved where possible. Any lengths of intact hedgerow to be removed to facilitate development should be transplanted and or replanted in order that there is no net negative impact on this BAP habitat due to development. The roots of hedgerow plants/trees should be adequately protected during development from compaction/ground disturbance.

7.1.4 If the defunct species poor hedges are removed, transplantation of them is not considered to be of significant ecological benefit as there are no notable species assemblages associated with them, replanting of linear lines of trees/ shrubs would be more beneficial.

7.2 Amphibians

7.2.1 There is no requirement for specific mitigation for these species. There was little evidence to suggest amphibians breed in significant numbers on or near the site. However, as a precautionary measure, in the unlikely event that any signs of any amphibian activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.2.2 Consider the use of SUDS on site to provide new aquatic habitat during development. Such areas would be best placed in public open space where connectivity to the site boundaries and wider area is improved.

7.2.3 The pond on site could be improved for amphibians by planting shrubbery around its border and stacking wood from cut or felled trees nearby. Native aquatic plant species could be introduced, cattle poaching is likely to stop as a result of development which will improve water quality.

7.2.4 Clean surface and roof water could be channelled into the pond to ensure water within it remains clean.

7.2.5 In order to further minimise impacts on amphibians the following points should also be followed.

- All work must take place during daylight hours as amphibians are more likely to be commuting over night and this will ensure the risk to any amphibians commuting through the site will be minimised.

- During the development, measures should be put in place to discourage amphibians from using the development area, the creation of any piles of earth, materials and rubble which could form potential artificial hibernacula and refuge should be avoided at all times. It is recommended that any spoil or rubble will be removed immediately to skips, or on hard standing or short grass. This will ensure that no potential amphibian hibernation or resting sites are created.

- The storage of all loose materials must be palletised or similar so they are off the ground whenever possible.

- Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than of 45 degrees in angle. Ideally, any holes should be securely covered. This will ensure amphibians are not trapped during work.

- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling. Back filling should be completed immediately after any excavations, ideally back filling as an on-going process to the work in hand.

7.3 Badger

7.3.1 Badger setts are not known to occur within 2km of the site. No setts will be disturbed by work but in order to minimise impacts on badgers passing over the site the following points should also be followed.

- All work must take place during daylight hours as badgers are more likely to be commuting over the site at night and this will ensure the risk to any badgers passing through the site will be minimised.

- Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than of 45 degrees in angle. Ideally, any holes should be securely covered. This will ensure badgers are not trapped during work.

- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling. Back filling should be completed immediately after any excavations, ideally back filling as an on-going process to the work in hand.

- Boundary fences/walls should incorporate gaps at their base to facilitate the passage of badgers across the site.

7.4 Bats

7.4.1 Work at night should be restricted, new planting within the site should enhance structural diversity and light spill onto the boundary and pond should be minimised.

7.4.2 New roosting provision for crevice dwelling bats could be incorporated into the buildings on site or bat boxes could be erected in retained trees.

7.4.3 Any category 2 trees to be felled should be re-inspected for bats to confirm they remain absent.

7.4.4 Overall it is considered there is more than sufficient scope for mitigation and compensation at the site such that there will be no adverse impact on the favourable conservation status of bats affected by the proposal.

7.5 Birds

7.5.1 Nesting by birds within the development area is considered unlikely to occur. Birds are likely to nest within hedges on the periphery of the site.

7.5.2 Any vegetation to be trimmed or cleared should be checked for nesting birds before it is removed. Ideally vegetation clearance should occur outside the bird nesting period March- September. If vegetation clearance is to occur in the March-September period a check for nesting birds should be conducted first by a suitably qualified individual.

7.5.3 New planting within the site and the retention of trees and shrubs on the site boundary will maintain the ecological functionality of the site for breeding birds.

7.5.4 Artificial bird nesting sites for swallow could be incorporated into the new buildings under the eaves in suitable locations.

7.5.5 If nesting birds are found at the site all site works shall cease and further ecological advice shall be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6 Brown Hares

7.6.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any brown hare activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for badgers are also applicable to this species.

7.7 Invertebrates

7.7.1 Landscaping should include native or wildlife friendly species including night flowering plants.

7.7.2 Contaminants should not be allowed to enter the soils or water courses on site during work. To this effect, spill kits should be provided on site. Re-fuelling of all plant and machinery should be undertaken away from open drains and water courses. Drip trays should be used under static machinery.

7.8 Reptiles

7.8.1 There is no requirement for specific mitigation for these species. However, as a precautionary measure, in the unlikely event that any signs of any reptile activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.8.2 Dense scrub and woodland on the edge of the development site should be retained such that it is in proximity to open areas of ground which will also be suitable for basking.

7.8.3 The points in respect of not leaving open trenches without means of escape detailed for badgers are also applicable to these species.

8. CONCLUSION

8.1.1 Ecological surveys, site appraisals and impact assessments were carried out with respect of land off Blackburn Road, Longridge. It is proposed the site will be developed.

8.1.2 Bats, nesting birds, reptiles and amphibians are known to occur in the local area, there was however no conclusive evidence of any specifically protected species regularly occurring on the site or the surrounding areas which would be negatively affected by site development following the mitigation proposed.

8.1.3 The vegetation to be cleared has a low ecological significance in the local area; much of the site is improved and poor semi-improved grassland.

8.1.4 The protection of trees on the site boundary and landscaping will promote structural diversity in both the canopy and at ground level and will encourage a wider variety of wildlife to use the site than already occurs.

8.1.5 Contractors will be observant for protected species and all nesting birds. Should any species be found during construction, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

8.1.6 I certify this report has been compiled in accordance with the code of professional conduct for the Chartered Institute of Ecology and Environmental Management and The Royal Institute of Chartered Surveyors and reflects my objective opinion of the facts found in relation to the instruction received and information available based upon the methodology, assumptions and constraints detailed within this report.

8 REFERENCES

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Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155.

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9 APPENDIX


Key
Site Boundary
Hedgerow
1
2
3
4
N
envirotech
Hedgerow Regulations Assessment
SCALE: NTS
REV 01

Feature / Hedge	Length 20m +	Hedge is not bounding the curtilage of dwelling	Hedge established more than 30years	Hedge boundary of protected or common land or land used for agriculture or forestry	ARCHAEOLOGY AND HISTORY	Archaeological feature which is included in the schedule of monuments	Situated wholly or partly within an archaeological site	Boundary of a pre-1600 AD estate	Integral part of a field system	Protected species records	FEATURES	Bank or wall	Gaps less than 10%	Standard trees	Ditch	Parallel hedge	Footpath/ Bridleway	Connection points	Woody species	Average ground flora species	HEDGE CLASSIFIED AS IMPORTANT
1	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	Yes	No	No	No	2	6	0	**No**
2	Yes	No	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	2	3	0	**No**
3	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	Yes	No	0	2	0	**No**
4	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	2	2	0	**No**
	No = Automatic failure					Yes = Automatic pass						7 woody species or 6 woody species + 3 features or 5 woody species + 4 features or highway + 4 woody species and 2 features									

* Historic and archaeological records have not been checked for this site.