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Acorn Lodge, Pindar Oaks, Barnsley

EXTENDED PHASE 1 HABITAT SURVEY AUGUST 2017

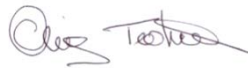
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Notes.	This report contains sensitive information concerning protected species and caution should be exercised when copying and distributing to third parties.	

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1.0 EXECUTIVE SUMMARY

- 1.1 In August 2017, Wold Ecology was commissioned by CAS Behavioural Health to undertake an Extended Phase 1 Habitat Survey at Pindar Oaks, Barnsley (national grid reference SE 35331 05215) in South Yorkshire.
- 1.2 In order to accomplish the brief, a desk top study, external consultation and an extended Phase 1 field survey was undertaken by Wold Ecology staff.
- 1.3 The habitats within the Application Site comprise scrub, interspersed with several scattered trees in an area of sub-urban housing. There are no statutory or non-statutory sites within the site boundary.
- 1.4 The proposed development involves site clearance and the erection of a 20-bedroom brain injury unit.
- 1.5 The surrounding habitat is potentially important and the proposed development may impact upon mobile species. Consequently, the extended phase 1 assessment also targeted the following species relevant to the Application Site and proposed development:
 - Bats
 - Great crested newts
 - Badger
 - Birds
 - Reptiles
 - Hedgehogs
- 1.6 The extended phase 1 survey and ecological assessment concludes that the proposed development is unlikely to impact upon any European protected species or associated habitats. However, the report recommends several measures which should be adopted to ensure potential adverse impacts to wildlife are avoided:
 - **Wold Ecology does not recommend any further specific bird surveys. However, any trees, shrubs and dense vegetation to be removed should be cleared outside of the bird nesting season (i.e. clearance should be undertaken between September and February inclusive) or be carefully checked by an ecologist to confirm no active nests are present - prior to removal during the summer period. If nesting birds are found during the watching brief, works will need to stop until the young have fledged.**
- 1.7 The data collected to support the output of this report is valid for 18 months. This report is valid until **September 2018**. After this time, additional surveys need to be undertaken to confirm that the status of the site, for European protected species, has not changed.
- 1.8 Species list within this report may be forwarded to the local biodiversity records centre to be included on their national database. No personal information will be sent. Please contact Wold Ecology if you do not wish the species accounts and grid references to be shared.

2.0 INTRODUCTION

- 2.1 In August 2017, Wold Ecology was commissioned by CAS Behavioural Health to undertake an Extended Phase 1 Habitat Survey at Pindar Oaks, Barnsley (national grid reference SE 35331 05215) in South Yorkshire.
- 2.2 An ecological assessment is a requirement of the Local Authority Planning Department, as part of the planning application process. This is specified in the following legislation:
- National Planning Policy Framework (NPPF): Biodiversity and Geological Conservation – national planning policy relation to biodiversity. NPPF Biodiversity and Geological Conservation gives further direction with respect to biodiversity conservation and land use change/development. NPPF states that not only should existing biodiversity be conserved but importantly that habitats supporting such species should be enhanced or restored where possible. The policies contained within NPPF may be material to decisions on individual planning applications.
- 2.3 In addition, an ecological assessment is also required so that the local authority comply with the Habitats and Species Regulations 2010 and to have regard to the purpose of conserving biodiversity in the exercise of their functions (Natural Environment and Rural Communities (NERC) Act 2006).
- 2.4 Planning authorities must determine whether the proposed development meets the requirements of Article 16 of the EC Habitats Directive before planning permission is granted (where there is a reasonable likelihood of European Protected Species being present). Therefore, during its consideration of a planning application, where the presence of a European protected species is a material consideration, the planning authority must satisfy itself that the proposed development meets three tests as set out in the Directive.
- 2.5 The Local Authority must be satisfied that the proposed development must meet a purpose of:
- a) 'Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'.
- In addition, the authority must be satisfied that:
- (b) 'That there is no satisfactory alternative'
 - (c) 'That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.
- 2.6 **Case Law - Woolley v Cheshire East Borough, 5th June 2009.**
- 2.6.1 The ruling states that if it is clear or perhaps very likely that the requirements of the Directive cannot be met because there is a satisfactory alternative or because there are no conceivable 'other imperative reasons of over-riding public interest' then the authority should act on that and refuse permission.'
- 2.6.2 In addition, the judgement also clarified that it was not sufficient for planning authorities to claim that they had discharged their duties by imposing a condition on a consent that requires the developer to obtain a licence from Natural England. Natural England considers it essential that appropriate survey information supports

a planning application prior to the determination. Natural England does not regard the conditioning of surveys to a planning consent as an appropriate use of conditions.

- 2.7 In order to fulfil the brief, the following has been undertaken:
- A desktop study and consultation.
 - Field survey including accessible adjacent land up to 1km.
 - An Extended Phase 1 Habitat Assessment.
- 2.8 This report describes the findings of the field survey and desktop study whilst identifying further surveys to ensure that a comprehensive study is undertaken.

3.0 COMPANY PROFILE

- 3.1 Wold Ecology Ltd was established in 2006 and is a professional company whose staff is experienced in providing a bespoke service for environmental management and ecological assessments. Wold Ecology employs several experienced and qualified associates to undertake specialist survey work. Professional service is of primary importance and Wold Ecology only employs staff who can demonstrate knowledge and expertise to an exceptional standard.
- 3.2 Wold Ecology provides a wide range of specialised advice aimed at integrating business with nature. We specialise in ecological surveys, land management planning and site assessments, these include:
- **European Protected Species Surveys**
Bats, Birds, Great Crested Newts, Water Vole, Badger, Crayfish and Fungi surveys. Phase 1 and Phase 2 NVC Habitat Surveys, Landscape Character Assessment, Environmental Impact Assessments.
 - **European Protected Species Licenses**
Bat Licenses - Chris Toohie is one of 139 Natural England Registered Consultant (December 2016) who can hold a Natural England Bat Low Impact Class License.
Great crested newt development license holders. Implementation of licenses (amphibian fencing, destructive searches, watching briefs and post development monitoring).
 - **Arboricultural Surveys.**
Arboricultural Impact Assessments, Root Protection Zones and CAD drawings.
 - **Ecological Construction Method Statements and Ecological Enhancements Plans.**
 - **Ecological Clerk of Works.**
- 3.3 Wold Ecology is committed to working towards the conservation of our natural heritage. Wold Ecology support The Wolds Barn Owl Study Group, Driffield Millennium Green, Cornfield Project (Ryedale Folk Museum), Butterfly Conservation and RSPB projects with volunteer staff time and financial resources. Wold Ecology has adopted an important site for nature conservation on Flamborough Head.
- 3.4 Wold Ecology is an Associate Member of the RSPB, a Bat Conservation Trust Benefactor and Corporate Member of the Yorkshire Wildlife Trust.
- 3.5 Surveyor Profile – Chris Toohie M Sc., MCIEEM.
- 3.5.1 Job title: Director.
- 3.5.1.1 Expertise.
- Bat surveys, bats and wind turbine assessments, writing and implementing bat development licenses, bat sound analysis and monitoring - Natural England Bat Low Impact Class License Registered Consultant
 - Phase 1 habitat field surveys and ecological appraisals including Building Research Establishment Environmental Assessment Method (BREEAM) assessments.
 - Great crested newt and reptile surveys.

- Management planning, woodland and orchard management and community environmental projects including funding applications.
- 3.5.2 Qualifications.
- M Sc. Arboriculture and Community Forest Management.
 - HND Countryside Management.
 - Great Crested Newt License – 2016-19412-CLS-CLS (held concurrently since 2009).
 - Bat Handling License – RC027 and 2015-12688-CLS-CLS (held concurrently since 2009).
- 3.5.3 Professional Membership.
- Member of the Chartered Institute of Ecology and Environmental Management (held concurrently since 2007).
- 3.6 A detailed surveyor profile is included in Appendix 5.
- 3.7 Chris Toohie M Sc. MCIEEM meets the criteria for a suitably qualified ecologist by:
- Holding a Master’s degree in Community Forestry and Arboriculture;
 - Being employed as a practising ecologist since 1995, with over 15 years’ relevant experience (within the last five years) and;
 - Being a full member of the Institute of Ecology and Environmental Management (this makes him subject to peer review and bound by a professional code of conduct).
- 3.8 Surveyor Profile – Daniel Lombard B Sc., MCIEEM.
- 3.8.1 Job title: Senior Field Ecologist.
- 3.8.2 Expertise.
- Phase 1 habitat field surveys and biodiversity assessments including BREEAM assessments.
 - Bat surveys, bat ecology, bats and wind turbine assessments, bat sound analysis and monitoring.
 - Great crested newt and reptile surveys.
 - Mammal surveys including water vole, otter and badger.
 - Ornithological surveys.
 - Invertebrates studies, principally Lepidoptera, Odonata, Coleoptera and Diptera plus habitat management/creation for these groups.
 - Management planning, pond and wetland management.
- 3.8.3 Qualifications.
- B Sc. Environmental Science.
 - Great Crested Newt License – 2015-17182-CLS-CLS
 - Bat License – 2015-11490-CLS-CLS
 - Bird Ringing C Licence – C/6298
- 3.8.4 Professional Membership.
- Member of the Chartered Institute of Ecology and Environmental Management.

- 3.9 A detailed surveyor profile is included in Appendix 5.
- 3.10 Daniel Lombard meets the criteria for a suitably qualified ecologist by:
- Holding a Bachelor of Science degree (hons) in Environmental Science;
 - Being employed as a practising ecologist since 2007, with over 10 years' relevant experience and;
 - Being a full member of the Institute of Ecology and Environmental Management (this makes him subject to peer review and bound by a professional code of conduct).
- 3.11 Chris Toohie M Sc. MCIEEM has read and reviewed the report and confirms that it:
- Represents sound industry practice
 - Reports and recommends correctly, truthfully, and objectively
 - Is appropriate, given the local site conditions and scope of works proposed
 - Avoids invalid, biased, and exaggerated statements

4.0 SURVEY METHODOLOGY

- 4.1 A Phase 1 Habitat Survey was undertaken on 29th August 2017. During the site visit, the whole of the Application Site and accessible neighbouring land was examined in detail.

Survey	Date	Time		Wind Speed	Wind Direction	Temperature		Rainfall	Cloud Cover
		Start	Finish			Start	Finish		
Field	29/08/2017	16.00	17.00	5mph	SW	17°C	17°C	None	100%

- 4.2 The habitats within the Application Site were mapped (see Appendix 2) according to the techniques described in the publication *Handbook for Phase 1 Habitat Survey* (JNCC 2010).
- 4.3 Target notes (if applicable) provide descriptions of the main habitats found on the site, including information about species composition, habitat structure, evidence of management, habitats too small to map and transitional or mosaic habitats.
- 4.4 Sufficient detail on the composition of the vegetation was obtained from the Phase 1 Habitat Survey, which enabled it to be successfully characterised and assessed.
- 4.5 During the site visit, notes were made of features of potential value to other groups such as birds, mammals, amphibians, reptiles or invertebrates, paying particular attention to species protected by law:

Species/Group	Indicative habitat	Field signs (in addition to sightings)
Bats	Roosts - Trees, buildings, bridges, caves etc. Foraging areas - e.g. Parkland, waterbodies, wetlands, woodland, hedgerows Commuting routes - Linear features (e.g. hedgerows, water courses, tree lines).	Potential roost sites: Droppings, urine splashes, staining and feeding remains.
Badger	Habitat mosaic in rural and many urban habitats	Excavations and tracks, sett entrances, latrines, hairs, well-worn paths, prints, scratch marks on trees
Otter	Rivers, streams, canals, ponds, lakes, ditches, drains and coastal areas.	Holts (or dens), prints, spraints, slide marks into watercourses and feeding signs.
Water Vole	Rivers, streams, canals, ponds, lakes, ditches, drains and marshes.	Burrow entrances, prints, distinctive latrine areas and feeding signs.
Birds	Habitat mosaic	Nests, droppings below nest sites (especially in buildings of trees); tree holes
Reptiles	Habitat mosaic	Sloughed skins
Great Crested Newt	Ponds within 500 m of suitable habitat within the site boundary. Habitat Suitability Index (HSI assessment)	Egg wraps and animals (depending on time of year)

5.0 LIMITATION OF FIELD SURVEY

- 5.1 Whilst the majority of the Application Site was examined at the macro scale, many species will have been overlooked at the micro level because it is not the purpose of a phase 1 habitat survey to classify all taxa occurring in the Application Site. In addition, whilst the actual timing of the survey was adequate to classify the habitat types, there is undoubtedly a strong seasonal element to the presence of species within the site and species occurring outside of the survey period will have been missed.
- 5.2 This report will serve to indicate the possible value of the site in nature conservation terms based upon the survey and desk top data gathered. As with any survey of this kind, it cannot be a definitive description of the site and its associated habitats and species.
- 5.3 Access was only granted within the Application Site and land owned by the client; neighbouring land was only studied from vantage points, maps and aerial photography and it is possible that habitats important to the ecology of the Application Site may not have been recorded fully.
- 5.4 However, a phase 1 habitat survey of this nature, supported by a thorough desk top survey, is sufficient to make a number of general assumptions about the ecology of the site.

6.0 SURVEY RESULTS

6.1 General description

6.1.1 The Application Site is located on the southern edge of Barnsley, in an urban location. The wider Acorn Lodge site is approximately 1.5ha although the proposed building location (Application Site) is less than 0.5ha; it is immediately surrounded by residential dwellings, a care centre and urban infrastructure. Habitats within the wider area of the Application Site include a cemetery, plantation and semi-natural woodland habitats. The Application Site is surrounded by a small mesh security fencing and brick walls in excess of 2m which prevents dispersal opportunities into the grounds.

6.1.2 Habitats within 2km are dominated by urban habitats including residential dwellings, commercial unit's industrial areas with scattered green belts in the form of river valleys and occasional pastoral agricultural land. Woodland cover in the locality is limited and occurs as small shelterbelts and plantations adjacent to watercourses. Habitat connectivity from the Application Site is poor, with the Application Site not connected to any ecologically valuable habitat; the urban nature of the Application Site also restricts terrestrial dispersal opportunities.

6.1.3 A summary of the surrounding habitat is (radius of < 2km from the site):

- Buildings – farm buildings and residential properties
- Hedgerow
- Mature trees and woodland
- Dearne Valley Park
- Arable
- Mature private gardens
- Ponds and watercourses
- River Dearne
- Grazed pasture

6.2 Desktop Study.

6.2.1 Natural England, Barnsley Biological Records Centre (BBRC), National Biodiversity Network (NBN) and www.magic.gov.uk were consulted in order to obtain any ecological information that they hold of relevance to the Application Site.

6.2.2 The desk top study identifies land parcels of nature conservation value within 2 km locality of Application Site. Relevant extracts from associated documentation are highlighted below. The following data resources were searched:

- Sites of Special Scientific Interest (SSSI)
- Special Protection Areas (SPA)
- National Parks
- National Reserves
- Special Areas of Conservation (SAC)
- Ramsar sites
- Areas of Outstanding Natural Beauty (AONB)
- Local Nature Reserves (LNR)
- Local wildlife sites (LWS)

- Natural England Habitat Inventories
- Natural Area documentation
- European protected species records
- UK Biodiversity Action Plan habitats and species records
- Local Biodiversity Action Plan habitats and species records
- Notable species records

6.2.3 Statutory sites

6.2.3.1 There are no statutory sites within 2 km of the Application Site.

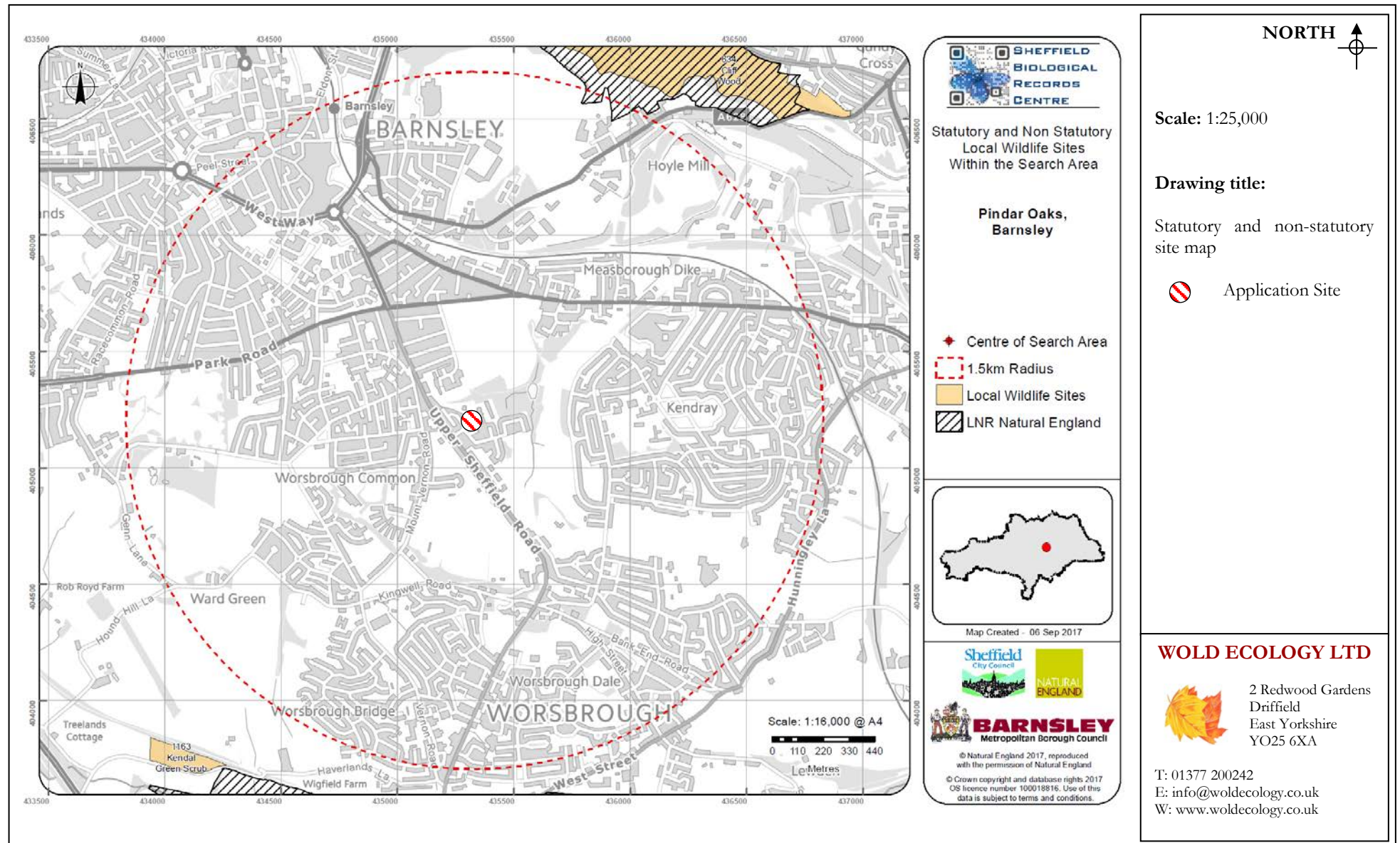
6.2.4 Local Wildlife Sites (LWS).

6.2.4.1 There are no non-statutory sites within 2 km of the Application Site.

6.2.5 Natural England Habitat Inventories

6.2.5.1 All the Natural England Habitat Inventories were searched, including the woodland inventory and grassland inventory. No areas of notable habitat from the Habitat Inventories list were found within 2 km of the Application Site.

Figure 1.



6.3 Natural Character Areas

- 6.3.1 National Character Areas (NCAs) divide England into 159 distinct natural areas. Each is defined by a unique combination of landscape, biodiversity, geodiversity and cultural and economic activity. Their boundaries follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment. As part of its responsibilities in delivering the Natural Environment White Paper, Biodiversity 2020 and the European Landscape Convention, Natural England is revising its National Character Area profiles to make environmental evidence and information easily available to a wider audience.
- 6.3.2 NCA profiles are guidance documents which will help to achieve a more sustainable future for individuals and communities. The profiles include a description of the key ecosystem services provided in each character area and how these benefit people, wildlife and the economy. They identify potential opportunities for positive environmental change and provide the best available information and evidence as a context for local decision making and action.
- 6.3.3 The Application Site lies within Natural Character Area 38 Nottinghamshire, Derbyshire and Yorkshire Coalfield and is summarised below:
 - 6.3.3.1 The Nottinghamshire, Derbyshire and Yorkshire Coalfield is an area that has seen great change over the past few centuries. The impact of widespread industrialisation and development on the landscape and settlement pattern within the National Character Area (NCA) is clear, influencing the visual and ecological landscape. The geological deposits of coal and iron, along with the water supply, brought mass industrialisation to the area to exploit these resources. A generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Over half of the NCA (64 per cent) is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for development and changes in land use. Very little of the NCA is designated for geology or nature conservation, but instead the landscape is dotted with many pockets and patches of habitat where species find refuge. This is often on land that was once worked for minerals or occupied by major industry, and as these enterprises have declined the land they once dominated has opened up with opportunities to create a new landscape which will continue to provide a strong sense of place for local populations.
 - 6.3.3.2 The large populations of the towns and cities within the NCA mean that there will be opportunities to better engage people with the natural and historical environment, creating new access and recreational openings that deliver a better quality of life while also helping people and wildlife to adapt to a changing climate.
 - 6.3.3.3 The NCA is an important area nationally for history, especially in relation to industrialisation and the story of its impact on the landscape. Opportunities should be taken to restore and maintain historical features in the landscape and to explore how they can be interpreted and used to educate and engage people with the landscape.
 - 6.3.3.4 Rivers and waterways are an important feature in the landscape, often linking rural and urban areas and increasingly providing green corridors and tranquil settings for

both people and wildlife. The source of the water is outside the NCA, as is the case for a number of ecosystem services, and the large population means that the area is a key user of ecosystem services (such as water) that are provided by surrounding NCAs. A key challenge will be to improve links between this NCA and others in order to get a better understanding of the delivery of ecosystem services and how they can be improved.

6.3.3.5 The following Statements of Environmental Opportunities (SEO) are relevant to the Application Site:

- **SEO 1:** Restore and enhance existing areas and create new landscapes through the inclusion of woodland and networks of green infrastructure to raise the overall quality of design and location of new developments. Regeneration and restoration of industrial sites should seek to create green infrastructure that links fragments of the natural environment, leading to a functioning network for wildlife and access and recreational amenities for people.
- **SEO 3:** Conserve, enhance and expand areas and corridors of semi-natural habitat such as grasslands and woodlands to create a functioning ecological network that links the fragmented patches of habitats through urban and sustainably farmed environments, thus assisting species and habitat adaptation to climate change, reducing soil erosion and diffuse pollution.

6.4 European Protected Species records

6.4.1 Badger

- Badger *Meles meles* is recorded in the surrounding 1km radius (source – BBRC and NBN Atlas 2017).

6.4.2 Bats

- Currently, there is no pre-existing information on bats at the site.
- Data for the surrounding 5km radius shows records of Leisler's bat *Myotis leisleri*, noctule *Nyctalus noctula*, Daubenton's bat *Myotis daubentonii*, whiskered bat *Myotis mystacinus*, Natterer's bat *Myotis nattereri*, brown long-eared bat *Plecotus auritus*, Soprano pipistrelle *Pipistrellus pygmaeus* and common pipistrelle *Pipistrellus pipistrellus* (source – BBRC and NBN Atlas 2017).
- There are no known Natural England development licenses relating to bats within 1km of the Application Site (source – www.magic.gov.uk).

6.4.3 Great crested newts

- Great crested newt *Triturus cristatus* is historically recorded within Barnsley (1971) (source – NBN Atlas 2017).
- BBRC (2017) hold no records of great crested newts within 2km of the Application Site.
- There are no great crested newt Natural England development Licenses within 1km of the Application Site (source – www.magic.gov.uk).

6.4.4 Water vole

- Water vole *Arvicola amphibious* has been recorded within Barnsley with no specific location given (source – NBN Atlas 2017).

- 6.4.5 Otter
- Otter *Lutra lutra* has been recorded within Barnsley with no specific location given, wider records occur along the River Dearne (source – NBN Atlas 2017).
- 6.4.6 Reptiles
- Grass snake *Natrix natrix*, adder *Vipera berus*, common lizard *Zootoca vivipara* and slow *Anguis fragilis* are recorded within the surrounding 5km radius (source – NBN Atlas 2017).

6.4.7 Phase 1 Field Survey Results

6.4.7.1 The following habitat types were recorded within the Application Site:

Phase 1 Habitat Classification	Reference Code
Scrub scattered	A2.2
Scattered trees (Broad-leaved)	A3.1
Fence	J2.4
Bare ground	J4

6.4.7.2 Scattered scrub

6.4.7.2.1 The Application Site is dominated by this habitat type which has arisen through a lack of disturbance/self-regeneration and include a mixture of pioneer scrub species. The scrub seldom achieves a closed canopy and remains relatively open, consequently this leads to a dense understory which still receives full sunlight which is of value to nesting birds and invertebrates.

6.4.7.2.2 Woody species composition is dominated by goat willow *Salix caprea*, osier *Salix viminalis*, butterfly bush *Buddleja davidii*, silver birch *Betula pendula* and sycamore *Acer pseudoplatanus* regen. The understorey is heavily dominated by bramble *Rubus fruticosus*, especially in the northern half of the site and around the sites edges. More open areas comprise a community dominated by common ragwort *Jacobaea vulgaris*, oxford ragwort *Senecio squalidus*, black medic *Medicago lupulina*, false oat grass *Arrhenatherum elatius*, stinging nettle *Urtica dioica*, creeping thistle *Cirsium arvense*, rosebay willowherb *Chamerion angustifolium*, herb Robert *Geranium robertianum*, shining cranesbill *Geranium lucidum*, creeping buttercup *Ranunculus repens*, annual meadow grass *Poa annua*, ground ivy *Glechoma hederacea*, wall barley *Hordeum murinum*, prickly sow thistle *Sonchus asper*, common hogweed *Heracleum sphondylium*, upright hedge parsley *Torilis japonica*, ribwort plantain *Plantago lanceolata*, red clover *Trifolium pratense*, great willowherb *Epilobium hirsutum*, American willowherb *Epilobium ciliatum*, curled dock *Rumex crispus*, red fescue *Festuca rubra*, mugwort *Artemisia vulgaris*, wild carrot *Daucus carota*, black medic *Medicago lupulina*, bristly ox-tongue *Helminthotheca echioides* and cats-ear *Hypochaeris radicata*.

6.4.7.3 Scattered Trees

6.4.7.3.1 Scattered trees primarily occur along the northern boundary of the site and comprise a small number of sycamore trees. These are all below 80 years of age and appear to be in a relatively good state of health. None of these trees support standing deadwood or support damage, gaps, cracks and holes within their

structures. These trees all appear to have been self-seeded and arisen through a lack of management.

6.4.7.4 Fence

- 6.4.7.4.1 A diversity of fencing types occurs around the periphery of the Application Site, these have all been erected as either boundary or security fencing. These comprise of a metal mesh fence associated with the basketball court which is greater than 4 metres in height; a close mesh steel security fence in excess of two metres and high and brick walls adjacent to gardens which is also in excess of 3m in height. These fences are of limited ecological significance although they act as an impenetrable barrier to larger vertebrates.

6.4.7.5 Bare ground

- 6.4.7.5.1 Bare ground habitats consist of a building base and the basketball court which comprise concrete, tarmac and paving stones. These habitats are of little ecological value, although are beginning to become colonised by pioneer species including groundsel *Senecio vulgaris*, storks-bill *Erodium cicutarium* and black medic *Medicago lupulina*.

6.4.8 The following species were recorded during the field survey:

- Blackbird *Turdus merula*
- Robin *Erithacus rubecula*
- Wren *Troglodytes troglodytes*
- Great tit *Parus major*
- Starling *Sturnus vulgaris*
- Chaffinch *Fringilla coelebs*
- Goldfinch *Carduelis carduelis*
- Woodpigeon *Columba palumbus*
- Pied wagtail *Motacilla alba*
- Dunnock *Prunella modularis*
- Banded snail *Cepaea nemoralis*
- Garden snail *Cornu aspersum*
- Black slug *Arion ater*
- 7-Spot ladybird *Coccinella septempunctata*
- Painted lady *Vanessa cardui*
- Red admiral *Vanessa atalanta*

6.4.9 The surrounding habitat is potentially important and the development area may impact upon mobile species. Consequently, the extended phase 1 assessment targeted the following species relevant to the Application Site and proposed development:

- Bats
- Great crested newt
- Badger
- Reptiles
- Birds
- Hedgehog

6.5 Bats

6.5.1 The bat survey involved an initial walkover of the Application Site to assess the overall habitat quality for bats. This included the identification of key potential foraging habitat and potential flight corridors. This survey also targeted any potential or actual roost sites and evidence of actual bat use i.e. droppings, feeding signs.

6.5.2 Trees were assessed for features associated with arboreal bat species, in this region predominantly Daubenton's bat, Natterer's bat, noctule, common pipistrelle, soprano pipistrelle and brown long-eared. Such features typically consist of:

- Woodpecker holes
- Trunk and bough splits
- Tear outs
- Flush cuts
- Frost damage
- Wounds
- Cankers
- Dense ivy growth
- Areas of butt rot
- Dry knot holes
- Impact shatters
- Dense epicormic growth.

6.5.3 Conclusions

6.5.3.1 No potential roost sites exist within the Application Site, predominantly due to an absence of buildings and the lack of suitable features within the trees. The wider area supports several woodland habitats, mature gardens and grasslands which offer alternate foraging and commuting habitat for bats. The Application Site habitats are not extensive and are similar to surrounding mature private gardens and consequently, the Application Site is not considered integral to the favourable population status of local bat populations. The site is urban and well lit, consequently, it is sub optimum for foraging and commuting bats and is not considered integral to the favourable population status of local bat populations.

6.5.4 **Wold Ecology does not recommend any further surveys for bats.**

6.6 Great crested newt.

6.6.1 No records of great crested newt occur within 1km of the Application Site, the only record dates back to 1971. A historic record occurs 330 metres to the west of the Application Site although the validity of this record is not known as no ponds can be observed within or around the suggested area.

6.6.2 The entire Application Site was assessed for its potential to support great crested newts, whilst conducting a walkover survey. In addition, aerial photographs, maps and physical searches of the surrounding landscape gave an impression of how the Application Site is connected ponds within the locality and potentially great crested newt populations.

6.6.3 Refuge search.

6.6.3.1 Amphibians can take refuge under logs, bark and stones whilst in terrestrial habitat. All available features within the Application Site were turned over to search for the presence of amphibians. This method is not an effective method of presence/absence; however, it can be used as a general indication of amphibians within an area. Despite the time of year amphibians are occasionally found outside of hibernacula in such situations, especially during mild damp weather such as that prior and during the field survey.

6.6.4 Results.

6.6.4.1 One pond was observed during the walkover survey (see figure 3).

6.6.4.2 A habitat suitability index and habitat assessment was completed on the accessible ponds. The assessment combined Phase 1 Habitat Survey (JNCC 1990), Great Crested Newt Mitigation Guidelines (English Nature 2001) and Evaluating the Suitability of Habitat for the Great Crested Newt (R. S. Oldham, J. Keeble, M. J. S. Swan and M. Jeffcote, undated) methodology. This evaluation included:

- Physical description of the pond including surrounding habitat
- Location
- Pond area
- Pond drying
- Water quality
- Shade
- Fowl
- Fish
- Other ponds within 1 km
- Terrestrial habitat
- Macrophytes (emergent and submerged vegetation cover).

6.6.4.3 Habitat Suitability Index (HSI) evaluation.

6.6.4.3.1 The likely presence of great crested newts in ponds can be predicted by examining aquatic habitat features such as the presence of fish, waterfowl and water quality. This data is used to calculate a habitat suitability index (Oldham *et. al.* 2000). The HSI is represented by a number from 0 to 1, the higher the number the more likely the pond is to be occupied by great crested newt.

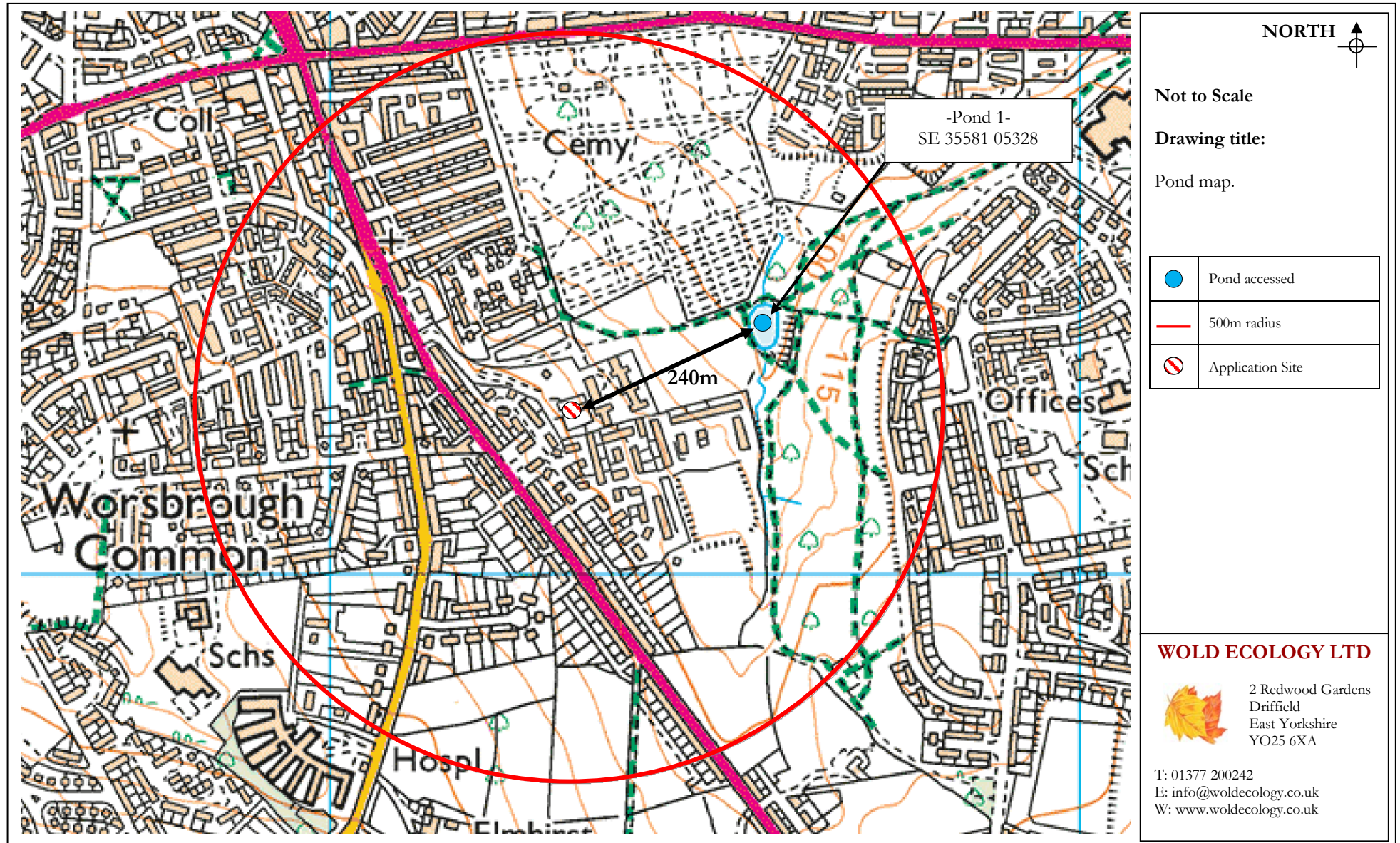
6.6.4.3.2 The HSI system is not sufficiently precise to allow the conclusion that any high score will support great crested newts, or that a pond with a low score will not do so.

6.6.4.3.3 Full details of the HSI scoring can be viewed in Appendix 7.

6.6.4.3.4 HSI Scoring

Pond	HSI Score (tenth root of total)	Suitability
1	0.42	Poor

Figure 3.



- 6.6.4.4 Pond 1 was assessed and a large number of stickleback were observed in the shallow waters, the turbid water also suggested carp and the presence of other fish species. High density of stocked fish, which predate great crested newt larvae, eggs and adults. The London Essex and Hertfordshire Amphibian and Reptile Trust state that ‘Despite the natural protection of a poisonous secretion which makes the adults unpalatable to most predators, the larvae are highly vulnerable to fish predation. Entire colonies can be impacted upon by the introduction of fish’.
- 6.6.4.5 Due to the presence of fish and the poor HHS, it is unlikely that pond 1 now supports great crested newts.
- 6.6.4.6 The wider habitat is largely well drained except for garden ponds associated with the nearby housing estate. Garden ponds are typically sub-optimum great crested newt habitat and have reduced potential for great crested newt; they are not considered to be of any significance to the species. Key attributes to the decreased probability of great crested newts being present within garden ponds are:
- Presence of fish.
 - Decrease macrophyte growth due to fish disturbance and foraging and decreased water turbidity.
 - Increased water turbidity due to fish disturbance and associated high nitrate input.
 - Fish likely to predate large numbers of the invertebrates important for great crested newt reproduction and adult diet.
 - Poor vegetation structure, creating cold micro-climate and lack of sunlight penetration.
- 6.6.4.7 The surrounding urban landscape significantly hampers great crested newt dispersal into the area, without the aid of humans. Great crested newts tend not to occur within areas of urban land unless it is directly adjoined to a breeding pond, unlike in the Application Site. Urban land is open, well drained with limited refugia leading to a significant risk of predation. Roads, kerbs, walls and buildings result in poor migration habitat.
- 6.6.4.8 Conclusions
- 6.6.4.8.1 Whilst great crested newts are known to move considerable distances from their breeding ponds, the vast majority of great crested newt will remain much closer to their breeding ponds (NE 2001). The quality of terrestrial habitat near to a known breeding pond is an important factor in determining how far they will disperse. Where good quality terrestrial habitat is found close to the breeding ponds, great crested newts are unlikely to travel large distances, whereas poor quality habitat close to the ponds may force them to travel greater distance to find suitable terrestrial foraging habitat.
- 6.6.4.8.2 This analysis is to a large degree supported by the conclusions of English Nature (EN) Research Note 576 (2004), an assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*, which notes that:
- “The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to*

avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate."

- 6.6.4.8.3 Given the distances between the proposed development area and the nearest pond (240m), the optimum woodland habitat adjacent to pond 1 and fragmentation, it has been assessed that great crested newts are unlikely to be encountered during stripping of vegetation from the Application Site and building operations.
- 6.6.4.9 Whilst it is not always possible to demonstrate site absence from a single scoping survey, with the evidence collected from a habitat survey, the likelihood of the presence of great crested newts in the Application Site is decreased. Key attributes to the reduced probability of great crested newts being present are:
- There is no current knowledge of great crested newts within the Application Site.
 - No suitable ponds exist within the Application Site.
 - Currently, the Application Site is essentially an "island" within a wider area of drained urban land and hard standing dominated by sub-optimum habitat
 - Urban housing, surrounding road networks, walls and curbs limit great crested newt dispersal to and from the site in the wider area.
 - No recent records of great crested newt exist within 1km of the Application Site.
 - There are no ponds within 240m of the Application Site
- 6.6.4.10 **In conclusion, Wold Ecology does not recommend any further great crested newt survey work.**

6.7 Reptiles

- 6.7.1 The desktop study identified grass snake, adder, common lizard, slow worm as the only reptile species which is found within the wider area. Reptiles are moderately localised in South Yorkshire.
- 6.7.2 Results
- 6.7.2.1 No direct observations or field signs of reptiles was recorded on site. It is unlikely to observe reptiles on phase 1 surveys without appropriate survey methodology, especially where populations are small or sparse. A full walkover was undertaken to assess the sites potential to support reptiles.
- 6.7.2.2 The Application Site is considered to be unsuitable for reptiles for the following reasons:
- Reptiles thermoregulate in sheltered locations, predominantly in close proximity to cover such as rank or shrubby vegetation, large rocks, walls and tree stumps in which they can quickly escape. The Application Site primarily consists of open exposed habitat, with limited and largely insufficient thicker marginal vegetation, reducing the sites value for thermoregulating reptiles.
 - Reptiles are typically not very wide-ranging species, instead staying in optimum habitat. Such optimum habitat does not occur within or around the Application Site reducing the likelihood of animals passing through the site.
 - This past management is likely to have resulted in the site being sub-optimum for a long-time period, reducing the likelihood of viable populations

persisting.

- The open nature of the Application Site leaves reptiles open to predation from key predators including crows, kestrels, hedgehogs, domestic cats and foxes.
- The site is small, surrounded by disturbed land and fragmented from optimum reptile habitat in the wider area by walls, roads and buildings.

6.7.3 **Wold Ecology does not recommend any further reptile surveys.**

6.8 **Birds**

6.8.1 All bird species recorded by either sight, song or call were noted, in addition particular attention was given to key species of conservation concern and which habitat within the Application Site they were recorded using. All active (and disused) nests, territorial, breeding and foraging birds were recorded in further detail to analyse how breeding birds use the Application Site.

6.8.2 The following survey followed guidance and methods recommended within *Bird Monitoring Methods, a manual of techniques for key UK species* Gilbert et.al RSPB 1998, *Common Standards Monitoring Guidance for Birds* JNCC 2004 and *Survey Techniques Leaflet* 8.

6.8.3 **Schedule 1 Listed Birds**

6.8.3.1 Wold Ecology assessed the site for schedule 1 listed species recorded in Yorkshire, which have the potential to breed within the Application Site and/or surrounding adjacent local area, or breed elsewhere whilst using the Application Site to forage or roost.

6.8.3.2 **The Application Site is of low value to schedule 1 listed species. This is primarily due to the small size and disturbed nature of the Application Site and its surrounding area, lack of suitable or extensive habitats in the locality and adjacent trees with no features to support nesting Schedule 1 listed species.**

6.8.4 None-schedule 1 birds

6.8.4.1 Breeding birds

6.8.4.1.1 Impacts related to breeding birds are essentially related to the temporary loss of habitat which is utilised by breeding species. Related to this is the risk that birds could be nesting within impacted habitats at the time that construction work is programmed to start. Of relevance to this project are small passerine species, particularly those associated with the trees and scrub.

6.8.4.2 Wintering Birds

6.8.4.2.1 The Application Site is not considered to be valuable to wintering birds like wildfowl and waders. The Application Site is too enclosed and is bounded by housing and roads causing regular disturbance, reducing the value of the habitat for these species groups, nor is it in close proximity to suitable aquatic habitats and offers an insufficient food source. The only impact typically of any relevance to wintering birds are those associated with the temporary loss of food sources. This

is principally associated with the loss of sections of trees and scrub which provide a potential source of food to a range of wintering species. However, these habitats are abundant within the wider area and are not thought to be of significant importance to birds.

6.8.5 Wold Ecology does not recommend any further bird surveys.

6.9 Badgers

6.9.1 All features of potential value to badgers are surveyed; including areas of woodland (including plantation), small copses, hedgerows, embankments and rock outcrops. Well-worn animal paths and footpaths were inspected for badger footprints and links to setts.

6.9.2 The surveyor observations included any areas where there were noticeable changes in the topography providing sloping ground into which the badgers could excavate setts. The following field signs will indicate the presence of badgers:

- Badger setts and associated soil excavation
- Badger latrines and dung pits
- Badger prints
- Badger hairs
- Badger paths
- Evidence of badger foraging activity

6.9.3 Results.

6.9.3.1 No main setts, annexe setts, subsidiary setts or outlier setts were located within 50 metres of the development area boundaries or within the Application Site. Badgers have a preference for excavating setts on well drained calcareous grits and upper chalks rather than middle chalks and clays, although exceptions to this rule occur where no similar geology is present. Suitable habitat outside of the Application Site was also extensively searched.

6.9.3.2 No evidence of badger activity was noted within the Application Site. With no feeding signs, footpaths, tracks, push throughs or hair recorded. The Application Sites does not appear to be of significant value to badgers in its current state, subsequently the proposed development is considered negligible to the local population.

6.9.3.3 Much of the Application Sites base consists of hard standing, or vegetation growing on previous hard standing reducing burrowing potential. The site also has severely limited access due to steel mesh security fencing adjacent to hard standing and this significantly prohibits access. The perimeter of the whole site was walked in search of any push throughs or digging and none were found.

6.9.3.4 A key consideration in relation to badgers is with respect to the temporary severance of regularly used paths and associated habitat and the possible disturbance or, in a worst-case scenario, damage to a badger sett. In relation to setts, the level of significance would be greatest in relation to impacts to large and permanently occupied setts. Since the Application Site currently has no evidence of any badger setts, it is only the risk of severance of well used dispersal routes which is likely to have an impact. None of which were observed within the Application Site.

6.9.4 **No further surveys or mitigation are required for badgers.**

6.10 Hedgehog

6.10.1 Legislation

6.10.1.1 Although the Hedgehog *Erinaceus europaeus* only receives partial protection under the Wildlife and Countryside Act 1981 (as amended), its numbers have declined dramatically over the past two decades, resulting in the suggested proposal of upgrade to a higher level of protected status. The British population has declined by 25% over the past 10 years. The reasons for the decline are thought to be complex but include the loss of hedgerows and permanent grasslands as well as agricultural intensification.

6.10.2 Survey Methodology

6.10.2.1 All features of potential value to hedgehogs are surveyed; including areas of thick vegetation, outbuildings, lawns, grassland, scrub, woodland and hedge bases. Evidence of breeding nests, hibernation nests and loafing nests were searched for in areas of suitable cover.

6.10.2.2 Well-worn animal paths, pool edges and footpaths were inspected for hedgehog footprints. Open areas were inspected for hedgehog droppings, particularly amenity grassland. Additionally, the surrounding road system was surveyed for road casualties.

6.10.2.3 The following field signs will indicate the presence of hedgehogs:

- Nests within dense vegetation
- Hedgehog droppings
- Hedgehog prints
- Road casualties.

6.10.3 Results.

6.10.3.1 No active or unused hedgehog nests were found within the Application Site. Most of the Application Site is too open to support nesting behaviour, although the scrub bases offer suitable habitat.

7.0 EVALUATION OF SURVEY RESULTS

7.1 Overall Approach to Assessment.

- 7.1.1 The overall approach to assessment followed in this report can be summarised as: A baseline identification of the nature conservation interest within the ecological Application Site by establishing levels of interest for ecological features measured against definable criteria.

7.2 Evaluation Criteria.

- 7.2.1 The thorough evaluation of the ecological importance of a site is essential in order to assess the significance of the ecological assessment
- 7.2.2 The evaluation criteria are given in detail in Appendix 6. Their aim is to consider the habitats, communities and species present on site in relation to the following:
- The legislative framework (e.g. the Wildlife and Countryside Act 1981, Habitats and Species Regulations 2010 and the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC) for the presence of protected species and habitats).
 - Nature conservation designations, including national site designations (Sites of Special Scientific Interest, National Nature Reserves etc.), local designations (Sites of Importance for Nature Conservation, Local Nature Reserves, County Wildlife Sites etc.).
 - Accepted criteria for species rarity and declining populations, and rarity of habitat types or communities, including species and habitats identified in the British Red Data Books, national biodiversity action plan, and species and habitats identified in regional or local biodiversity action plans where available.
 - Accepted criteria for overall site evaluation (including rarity, diversity, naturalness, historical factors and issues relating to landscape ecology).

7.3 Evaluation of Survey Results.

- 7.3.1 The field survey work did not identify the presence of any habitats or plant species considered rare in the United Kingdom.

Rarity is defined in this report as:

Rare—species not recorded in more than 100, 10 x 10 km grid-squares in the British Isles.

Very Rare—species not found in more than 15 different 10 x 10 km grid-squares in the British Isles.

7.4 Habitats

7.4.1 Biodiversity Action Plans (BAP) and Species and Habitats of Principal Importance for the Conservation of Biological Diversity

- 7.4.1.1 In 1995, 'Biodiversity: The UK Steering Group Report' was published, which aimed to conserve and enhance biological diversity within the UK, including action plans for 38 key habitats and for 402 of our most threatened species. These plans describe the status of each habitat and species, outline the threats they face, set targets and objectives for their management, and propose actions necessary to achieve recovery. The Biodiversity Action Plans (BAP) have recently been updated, new ones added and others removed, so there are now 1,149 species and 65 habitats that have been listed as priorities for conservation action. A list of these UK BAP species and habitats can be found at <http://www.ukbap.org.uk/NewPriorityList.aspx>.
- 7.4.1.2 In addition, there are approximately 150 Local Biodiversity Action Plans (LBAP), normally at county level. These plans usually include actions to address the needs of the UK priority habitats and species in the local area, together with a range of other plans for habitats and species that are of local importance or interest.
- 7.4.1.3 None of the following BAP Habitats are recorded on site.

UK BAP broad habitat.	UK BAP priority habitat.	Habitat present within the Application Site.
Rivers and Streams	Rivers	N
Standing Open Waters and Canals	Oligotrophic and Dystrophic Lakes	N
	Ponds	N
	Mesotrophic Lakes	N
	Eutrophic Standing Waters	N
	Aquifer Fed Naturally Fluctuating Water Bodies	N
Arable and Horticultural	Arable Field Margins	N
Boundary and Linear Features	Hedgerows	N
Broadleaved, Mixed and Yew Woodland	Traditional Orchards	N
	Wood-Pasture and Parkland	N
	Upland Oakwood	N
	Lowland Beech and Yew Woodland	N
	Upland Mixed Ashwoods	N
	Wet Woodland	N
	Lowland Mixed Deciduous Woodland	N
Coniferous Woodland	Upland Birchwoods	N
Acid Grassland	Native Pine Woodlands	N
Calcareous Grassland	Lowland Dry Acid Grassland	N
	Lowland Calcareous Grassland	N
Neutral Grassland	Upland Calcareous Grassland	N
	Lowland Meadows	N
Improved Grassland	Upland Hay Meadows	N
Dwarf Shrub Heath	Coastal and Floodplain Grazing Marsh	N
	Lowland Heathland	N
Fen, Marsh and Swamp	Upland Heathland	N
	Upland Flushes, Fens and Swamps	N
	Purple Moor Grass and Rush Pastures	N
	Lowland Fens	N
Bogs	Reedbeds	N
	Lowland Raised Bog	N
	Blanket Bog	N

Montane Habitats	Mountain Heaths and Willow Scrub	N
Inland Rock	Inland Rock Outcrop and Scree Habitats	N
	Calaminarian Grasslands	N
	Open Mosaic Habitats on Previously Developed Land	N
	Limestone Pavements	N
Supralittoral Rock	Maritime Cliff and Slopes	N
Supralittoral Sediment	Coastal Vegetated Shingle	N
	Machair	N
	Coastal Sand Dunes	N
Marine Habitats		N

7.4.2 Trees

- 7.4.2.1 Any trees to be retained should be protected by barriers erected following guidelines given in BS5837:2012 “Trees in Relation to Construction”. English Nature (2000) recommends that ‘an exclusion zone of 15 times the diameter of the tree at breast height is created’. This will protect the roots from compaction and physical damage whilst protecting the tree from fertilizers and chemical applications. The latter can have a detrimental effect on the trees relationship with lichens and mycorrhizal fungi. Root protection zones should be free of plant, storage of building sundries and excavation works should be limited where possible; this will help preserve the life of the trees.

7.5 Species

7.5.1 Bats

- 7.5.1.1 Legal obligations towards bats are generally concerned with roost protection. All developments, known to contain bat roosts, require a licence from Natural England. Under Section 9 of the Wildlife and Countryside Act (1981), it is an offence for anyone without a licence to kill, injure, disturb, catch, handle, possess or exchange a bat intentionally. It is also illegal for anyone without a licence to intentionally damage or obstruct access to any place that a bat uses for shelter or protection.
- 7.5.1.2 It is good practice, where bats may come into contact with roof timbers, to carry out timber treatment using Permethryn type chemicals on the Natural England list of approved safe chemicals. New pre-treated timbers i.e. tanalised timber will be allowed to dry thoroughly before use, if applicable. A list of Natural England approved paints and timber treatments is available at http://www.naturalengland.org.uk/Images/Bat%20roost%20timber%20treatment_tcm6-10167.pdf.
- 7.5.1.3 Specially designed bat boxes can be located on site. Schwegler Bat Boxes are recommended and well tested boxes. The following bat boxes provide additional roost habitats and are available from Wold Ecology:
- Bat Tube (**1FR** and **2FR**) system. The tube is designed to meet behavioural requirements of the types of bats that roost in buildings i.e. pipistrelle spp. This design can be installed flush to external walls and beneath a rendered surface.
- 7.5.1.4 The majority of these boxes are self-cleaning as they are designed so that the

droppings fall out of the entrance. This reduces the possibility of smell during the summer months. For more information on designs and installation of bat boxes see: www.schwegler-natur.de and www.bct.org.uk.

- 7.5.1.5 Wold Ecology recommends that at least 2 bat boxes are sited on the new building on site. Bat boxes should be erected on south, east or west elevations; 3-5 metres above ground level or close to roof lines.
- 7.5.1.6 Lighting
 - 7.5.1.6.1 Lighting has a detrimental effect on bat activity; many bats will actually avoid areas that are well lit. Lighting can cause habitat fragmentation by preventing bats from commuting between roosts and foraging grounds (A.J Mitchell-Jones 2004).
 - 7.5.1.6.2 The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.
 - 7.5.1.6.3 Luminaire and light spill accessories - Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only.
 - 7.5.1.6.4 If applicable, the height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. Aim for lighting column of 5m or less, hooded and cowed to prevent light spill, for main lighting columns
 - 7.5.1.6.5 Security lighting power, it is rarely necessary to use a lamp of greater than 2000 lumens (150 W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats. Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed. If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'. The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any bats' roost access points or flight paths from the roost. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats as well as people and other wildlife.
 - 7.5.1.6.6 At this site, lights will **not** be mounted where they will shine directly on to bat boxes or the surrounding trees used by foraging and commuting bats.
- 7.5.1.7 Habitat enhancements
 - 7.5.1.7.1 Freshwater, woodland, grassland, urban gardens, trees and amenity green space are suitable foraging habitats for bats whilst linear habitats such as hedgerows and streams are particularly important commuting routes between roosts and foraging

ground. It is recommended that the natural landscape remains largely unchanged and as many mature trees are retained on the site to continue to provide cover and feeding grounds. Landscaped areas can provide good foraging grounds for bats. Areas can be improved by growing night-scented flowers and other flowers favoured by insects. More information on suitable planting to encourage bats obtained from The Bat Conservation Trust (www.bats.org). Suitable species include:

- Foxglove *Digitalis purpurea*
- Cowslip *Primula veris*
- Red campion *Silene dioica*
- Marjoram *Origanum vulgare*
- Ox-eye daisy *Leucanthemum vulgare*
- Red clover *Trifolium pratense*
- Evening primrose *Oenothera biennis*.
- Honeysuckle *Lonicera periclymenum*.
- Wild Clematis *Clematis virginiana*

7.5.2 Birds

7.5.2.1 It is concluded that the study site is a good habitat for woodland edge and urban bird species with various designations. There is nesting potential for a range of bird families such as finches, tits, sparrows, thrushes and chats. Several simple management prescriptions can improve the site for breeding bird species.

7.5.2.2 Birds are afforded various levels of protection and levels of conservation status on a species by species basis. The most significant general legislation for British birds lies within Part 1 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation, it is an offence to, kill, injure or take any wild bird, take, damage or destroy the nest of any wild bird while that nest is in use or being built, take or destroy an egg of any wild bird.

7.5.2.3 Planning consent for a development does not provide a defence against prosecution under this act.

7.5.2.4 Any trees, shrubs and vegetation to be removed should be cleared outside of the bird nesting season (i.e. clearance should be undertaken between mid-September and early February inclusive) or be carefully checked* by an ecologist to confirm no active nests are present - prior to removal during the summer period. If nesting birds are found during the watching brief, works will need to stop until the young have fledged. Since a number of nests are active, work will need to wait until fledging has occurred, then trees should be removed immediately to avoid other nests being created.

* Thick and overgrown hedgerows are often difficult to inspect fully and removal of a hedge during the spring/summer period is not recommended.

7.5.2.5 In order to increase nesting opportunities for birds, it is recommended that 4 Schwegler bird boxes are erected throughout the site. A summary of recommended bird boxes is listed below:

Name	Description	Number
Schwegler Nest Box 1B	Entrance hole 32 mm.	2

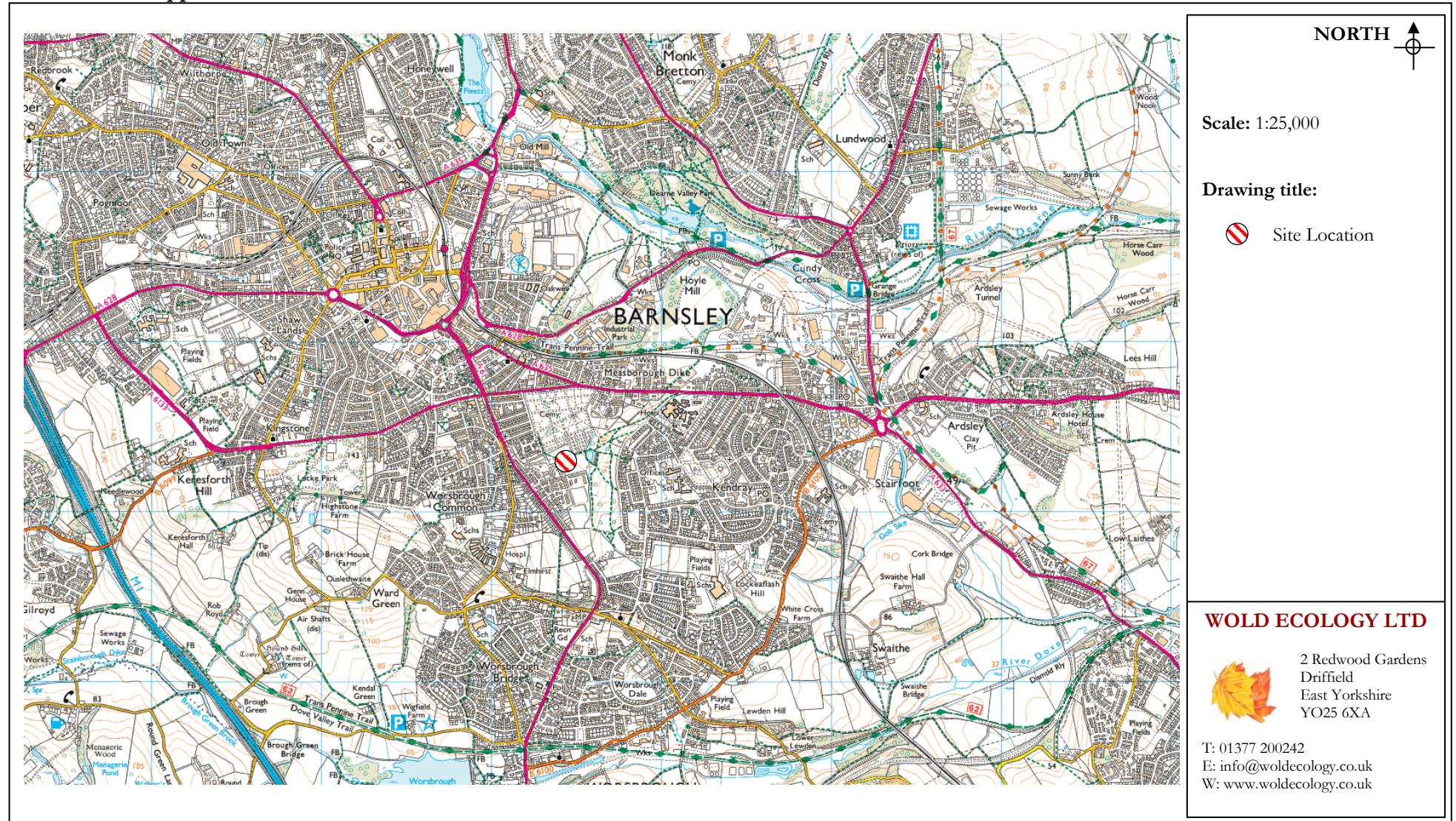
- 7.5.2.6 Boxes should be attached to trees using wire where possible, it is important that nails are not used as they damage the tree, get pushed out as the tree grows and can damage chainsaw blades and cause injury if the tree is felled.
- 7.5.2.7 Boxes should be placed so that the entrance does not face the prevailing wind, rain and strong sunlight. The sector from north to south east should be used, with south facing boxes positioned in more shaded areas. Boxes should be positioned away from the damp side of the tree trunk, usually told by algae, lichen and moss growth. Boxes should also be angled downwards to stop rain blowing into them.
- 7.5.2.8 Many species will use boxes at a wide variety of heights however to give the box protection in areas with a lot of human or mammalian predator activity they should be placed approximately 3-4 metres above ground level. A clear flight path should be available to and from the nest box.
- 7.5.2.9 Boxes should be placed at a density of approximately 10 per hectare within woodland like that on the site. This will help ensure that competition is not too great for more timid species such as marsh tits and coal tits. Metal plates should be fitted to the front of the boxes to stop grey squirrels and brown rats enlarging the entrance holes and predating the nestlings and eggs.
- 7.5.3 Hedgehogs**
- 7.5.3.1 Care must be taken whilst carrying out vegetation clearance, or strimming. A thorough check of the vegetation prior to removal will help ensure that no hedgehogs are injured or killed during development works. Sleeping hedgehogs frequently suffer severe injuries from strimmers.
- 7.5.3.2 Avoid setting fire to piles of vegetation unless they have been turned, checked or moved immediately prior to burning. Hedgehogs often get killed or injured in fires during vegetation removal and during early November.

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9.0 APPENDICES

9.1 Appendix 1



9.2 Appendix 2



9.3 Appendix 3 – Summary of desktop study

Organisation.	Response Summary.	Date.
Natural England.	Local designations.	September 2017
Natural England.	UKBAP species and habitats within 2 km of the Application Site.	September 2017
Barnsley Biological Records Centre	Species lists within 2 km of the Application Site.	September 2017
National Biodiversity Network.	Species lists within 2 km of the Application Site.	September 2017
www.magic.gov.uk	European Protected species licenses within 2km of the Application Site.	September 2017

9.4 Appendix 4 - Protected Species Legislation

The following provides background to the current legislation in England - for full details reference should be made to the relevant legislation. A number of wild animals are classified as Protected Species as they are protected by various pieces of legislation. The most commonly encountered Protected Species of animal are listed in the table below. This table summarises which sections of legislation each species is protected by and the legislative text is provided on the following pages.

Legislation	Schedule 5 Wildlife and Countryside Act 1981 (As amended) Part 1							EPS	PBA
	S1 (1)	S1 (4 & 5)	S9 (1)	S9 (2)	S9 (4)(a)	S9 (4)(b)	S9 (5)		
Adder <i>Vipera berus</i>			✓*				✓		
Common lizard <i>Zootoca vivipara</i>			✓*				✓		
Grass snake <i>Natrix natrix</i>			✓*				✓		
Slow worm <i>Anguis fragilis</i>			✓*				✓		
Smooth snake <i>Coronella austriaca</i>			✓	✓	✓	✓	✓	✓	
Sand lizard <i>Lacerta agilis</i>			✓	✓	✓	✓	✓	✓	
Great Crested Newt <i>Triturus cristatus</i>			✓	✓	✓	✓	✓	✓	
Natterjack Toad <i>Epidalea calamita</i>			✓	✓	✓	✓	✓	✓	
All UK bats Chiroptera			✓	✓	✓	✓	✓	✓	
Water vole <i>Arvicola amphibious</i>			✓	✓	✓	✓	✓		
Otter <i>Lutra lutra</i>			✓	✓	✓	✓	✓	✓	
Dormouse <i>Musccardinus avellanarius</i>			✓	✓	✓	✓	✓	✓	
Badger <i>Meles meles</i>									✓
Red Squirrel <i>Sciurus vulgaris</i>			✓	✓	✓	✓	✓		

Pine Marten <i>Martes martes</i>			✓	✓	✓	✓	✓		
Scottish Wildcat <i>Felis silvestris</i>			✓	✓	✓	✓	✓	✓	
White-clawed crayfish <i>Austropotamobius pallipes</i>			✓				✓		
All Nesting birds	✓								
Specific Nesting birds i.e. Barn Owl, Black Redstart	✓	✓							

S = Section

() = Paragraph

EPS = European Protected Species i.e. listed under Regulation 40 of the Conservation (Natural Habitats &c.) Regulations 2010

PBA = Protection of Badgers Act 1992

* = Only part of this section

Legislative Text

Wildlife and Countryside Act 1981 (as amended)

Since its original enactment, the Wildlife and Countryside Act has been subject to many changes (notably via Schedule 12 of the Countryside and Rights of Way Act 2000). These have in particular affected penalties and enforcement. Offences under section 9 of the Act are now 'arrestable'. Enforcement is usually by the Police and less frequently by Natural England. However, section 25(2) of Wildlife and Countryside Act also states that a local authority may institute proceedings. Prosecutions can result in a level five fine (currently £5000) for each offence (and the Act is specific that killing/injuring of each individual animal can constitute a separate offence), the forfeiture of any equipment, etc., used to perpetrate that offence and (under the Countryside and Rights of Way Act 2000) up to six months' imprisonment.

The Wildlife and Countryside Act 1981 (as amended), transposes into domestic law the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention). It is an offense under the various sections of Part 1 of the Act to -

S.1 (1) intentionally kill, injure, or take any wild bird or their eggs or nests.

S.1 (4) intentionally or recklessly kill, injure, or take any wild bird listed on Schedule 1 of the Act, or their eggs or nests (special penalties apply if convicted) (For a full list of Schedule 1 bird species see the full text of the Wildlife and Countryside Act 1981 [as amended])

S.1(5) (a) disturb any wild bird listed on Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or

(b) disturb dependent young of such a bird

S.9 (1) intentionally or recklessly kill, injure or take any wild animal included in Schedule 5 (certain reptiles are only protected from killing and injuring);

S.9 (2) be in possession or control of any live or dead wild animal included in Schedule 5 or any part or derivative;

S.9 (4) (a) intentionally or recklessly damage or destroy, or obstruct access to, any structure or place used by a Schedule 5 animal for shelter or protection;

S.9 (4) (b) disturb any such animal while it is occupying such a structure or place which it uses for that purpose

S.9 (5) (a) sell, offer for sale, possess or transport any live or dead wild animal included in Schedule 5 for the purpose of sale or any part or derivative;

S.9 (5) (b) advertise for buying or selling such things.

European Protected Species (EPS)

EPS and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats & Species Regulations, 2010. These Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.

A person who—

- (a) deliberately captures, injures or kills any wild animal of a European protected species,
- (b) deliberately disturbs wild animals of any such species,
- (c) deliberately takes or destroys the eggs of such an animal, or
- (d) damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

For the purposes of paragraph (b), disturbance of animals includes in particular any disturbance which is likely—

- (a) to impair their ability—
 - (i) to survive, to breed or reproduce, or to rear or nurture their young, or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- (b) to affect significantly the local distribution or abundance of the species to which they belong.

(However, please note that the existing offences under the Wildlife and Countryside Act, which cover obstruction of places used for shelter or protection (for example, a bat roost), disturbance and sale, still apply to EPS.)

These actions can be made lawful through the granting of licenses by the appropriate authorities, e.g. Natural England. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on the wild population of the species concerned.

Protection of Badgers Act 1992 (PBA)

The main legislation protecting badgers is the Protection of Badgers Act 1992. This Act consolidates all previous legislation including the Badgers Act 1973 (as amended) and the Badgers (Further Protection) Act 1991. Under the 1992 Act it is an offence to:

- destroy a sett
- interfere with a badger sett by damaging a sett or any part thereof
- obstruct access to a sett
- disturb a badger while occupying a sett
- wilfully kill, injure, take or attempt to kill, injure or take a badger;
- dig for a badger
- possess a dead badger or any part of a badger
- cruelly ill-treat a badger
- use badger tongs in the course of killing, taking or attempting to kill a badger

- sell or offer for sale or control any live badger
- mark, tag or ring a badger
- cause a dog to enter a sett

The 1992 Act defines a badger sett as: “any structure or place which displays signs indicating current use by a badger”. Since development operations may take place over a protracted period, Natural England recommends that licences be sought for developments that may affect seasonally-used setts as well as main setts. Natural England considers a good guide to be that if a sett has shown signs of occupation within the past twelve months it is considered active.

The Protection of Badgers Act 1992 allows for licences to be issued for a number of purposes, including development under the Town and Country Planning Act 1990 and to prevent serious damage to property. Licences to interfere with badger setts or disturb badgers for development are issued by the Government’s statutory nature conservation agencies, e.g. Natural England.

9.5 **Appendix 5 - Staff Profiles**

Surveyor Profile – Chris Toohie M Sc., MCIEEM.

Job title: Director.

Career Summary.

- Chris has worked in the environmental sector for all of his working life. He is an experienced and competent site manager with well-developed organisational skills and a proven ability to deal with a variety of situations in pressurised and challenging environments. As the former site manager of Millington Wood Site of Special Scientific Interest (SSSI), Beverley Parks Millennium Orchard Local Nature Reserve and three reserves on the Flamborough Head Heritage Coast/SSSI, Chris has gained an understanding of the functioning of local government and the skills to operate within such structures and multicultural environments. Chris completed over 14 years within local authority countryside services.
- Chris has also instigated accreditation from the Forest Stewardship Council at all East Riding of Yorkshire Council owned woodlands. As group manager, Chris ensures compliance with the UK Woodland Assurance Standard and demonstrates that the woodlands are managed in a socially, economically and environmentally sustainable manner.
- Chris is currently heavily involved in local projects and has volunteered his time and resources to benefit local conservation projects that include The Wolds Barn Owl Study Group, North Cliff Marsh Flamborough and apple conservation. As a trustee of Driffeld’s Millennium Green, Chris has allocated his own time and financial resources to enhance the ecological value of the site.
- Chris is an excellent communicator and his enthusiasm for his work has enabled the successful deliverance of numerous conservation schemes. Chris has been instrumental in raising over £100,000 for environmental and community projects since 2005. These have included grants from Natural England, landfill tax credits and Heritage Lottery funding.

Project Experience in last 5 years.

- Chris has undertaken over 750 bat activity surveys since 2006 including writing and implementing Natural England bat development licenses. Successful projects have included the conservation of maternity roosts at Low Catton, Watton, Harwood Dale, Woodhall Spa and Myton on Swale.
- Phase 1 surveys and biodiversity assessments have included National Nature Reserves, SSSI's, local wildlife sites and urban sites; specifically, Chris has undertaken ecological surveys at Raincliffe Wood SSSI, sections of Hadrian's Wall and numerous English Heritage Castles. Reports have also meet BREEAM/CODE criteria, when applicable.
- Contracts have included Natural England, English Heritage, East Riding of Yorkshire Council, Scarborough Borough Council, NPS London, Hull City Council, Gateway, Riverside Housing, IMS Windpower, Kier London Ltd, NHS, Castle Howard Estates, Stroma and Pell Frischman.

Surveyor Profile – Daniel Lombard B Sc. (Hons), MCIEEM.

Job title: Ecologist.

Career Summary.

- Daniel has spent all his working life in the environmental sector. He is an experienced and competent field ecologist with proven skills in species identification across a range of biota and an in-depth appreciation of many aspects of biodiversity, ecology and biology.
- Upon leaving University Daniel volunteered with a range of conservation organisations including The Wildlife Trust, North York Moors National Park, BTO and RSPB.
- He briefly operated as a freelance ecologist before starting full time at Wold Ecology.
- Daniel is currently involved in a number of local projects in which he has volunteered his time and resources. He is a member of Filey Bird Observatory and acts as the recorder for both Dragonflies and Butterflies within the group.
- He acts as an ecologist giving free advice to the Yorkshire branch of Butterfly Conservation including habitat management plans and field surveys. He also contributes to the BTO bird ringing scheme, helping in the scientific study birds.
- Daniel also contributes to national invertebrate, bird, fungi and mammal recording schemes.

Project Experience in last 5 years.

- Daniel has undertaken over 300 bat activity surveys since 2010 including dawn and dusk surveys at a range of sites across England.
- Daniel specialises in reptile, amphibian, bird and mammal surveys and has undertaken a wide range of surveys for species including otter, water vole, badger, adder, grass snake, common lizard, slow worm and great crested newt. This includes writing and contributing towards mitigation strategies and habitat enhancements where appropriate. He has also contributed to white clawed crayfish surveys.
- Daniel has undertaken a large number of Phase 1 surveys, EIA assessments and biodiversity assessments as well as both BREEAM and CODE reports.
- Daniel has undertaken and helped supervise a seabird surveys on the North Yorkshire coastline at an internationally important seabird colony on the

behalf of Natural England and the Environment Agency. This has involved dealing with a variety of conflicting stakeholders to mitigate against potential adverse impacts to the colony.

9.6 Appendix 6 – Identification of Legal and Planning Policy Issues in England

Scope of Assessment

The first step is to identify any biodiversity features found on the site that are subject to legal or policy controls, as follows:

Designated Sites

The location of the site is compared to the distribution of sites with a statutory or non-statutory nature conservation designation using information derived from the desk study. Consideration is given to designated sites that could be affected directly or indirectly by the proposed development.

Habitats outside Designated Sites

The habitats known to occur on the site are compared to those which receive some protection, in law or policy, outside of designated sites i.e. hedgerows, uncultivated land and semi-natural areas, habitats listed as Priorities in the UKBAP, habitats listed as Habitats of Principal Importance for the Conservation of Biodiversity by the Secretary of State and habitats listed as requiring action in the Local Biodiversity Action Plan.

Ancient Woodland

The ancient woodland inventory is checked to determine whether any known ancient woodland occurs either on the site or nearby.

Protected Species

The species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in nature conservation legislation i.e. the Wildlife and Countryside Act 1981, as amended, and the Habitats and Species Regulations 2010, as amended.

In addition, the species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in animal welfare legislation, i.e. the Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.

Biodiversity Action Plan Priority Species

The species known to occur on the site are compared with those listed as Priorities in the UKBAP, Species of Principal Importance for the Conservation of Biodiversity by the Secretary of State or requiring action in the Local Biodiversity Action Plan.

Other Species of Conservation Concern

The species known to occur on the site are compared with other nature conservation listings, such as red data books.

Invasive Plant Species

The species of plant present on the site are compared with those listed by government agencies as invasive non-natives, with particular attention given to those listed in the Wildlife and Countryside Act.

Review of Legislation and Policy

If any of the above are found to occur on or near the site and are likely to be affected by the development in any way, the relevant legislation and planning policy (including national, regional, county and borough policies) are examined to determine whether the proposed development is compliant.

Ecological Enhancement

Planning policy generally requires new developments to be enhanced for biodiversity. The existing proposals are considered to determine whether biodiversity enhancements are offered and whether they are adequate to meet the policy requirements. Again, national, regional, county and borough policies are considered.

Identification of Potential Further Ecological Issues

Further ecological issues are those which cannot be resolved during the desk study and extended Phase 1 habitat survey for any reason, including the following:

- The development is near a designated site and consultation with the relevant regulator is required to determine whether further assessment is required;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and specialist survey techniques are required for their detection;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and the extended Phase 1 habitat survey was not undertaken at a suitable time of year for their detection;
- A protected species/species of conservation concern was found on or near the site but further information on population size or distribution is required to resolve any legal and planning policy issues (such as obtaining licences).

Discussion of issues raised by 3rd parties, e.g. reports of protected species from the site by local people, may also be discussed under this heading.

The desk study is used as a guide to the protected species/species of conservation in the local area, however, the list is not taken to be exhaustive and it is borne in mind that some species may no longer occur in the locality.

No attempt is made to evaluate the importance of the site for species not yet confirmed to be on or near the site, nor to discuss the implications for the development if the species were to be found on the site.

9.7 Appendix 7 - HSI Scoring.

9.7.1 The HSI for great crested newts is a measure of habitat suitability but is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores (The Herpetological Conservation Trust, 2008).

9.7.2 The HSI is a geometric mean of ten suitability indices (SI):
$$\text{HSI} = (\text{SI1} \times \text{SI2} \times \text{SI3} \times \text{SI4} \times \text{SI5} \times \text{SI6} \times \text{SI7} \times \text{SI8} \times \text{SI9} \times \text{SI10})^{1/10}$$

- The ten suitability indices are scored for a pond, in the field and from map work.
- The ten field scores are then converted to SI scores, on a scale from 0.01 to 1 (0.01 instead of 0, because multiplying by 0 reduces all other SI scores to 0).
- The ten SI scores are then multiplied together.
- The tenth root of this number is then calculated $(X)^{1/10}$

9.7.3 The field scores were collected by Chris Toohie and Dan Lombard. Some of the field scores are categorical, some are numerical. The numerical field scores are converted to SI scores by reading off the values from graphs produced by Oldham *et al.* (2000). Full details of the HSI rationale and guidance can be obtained from the Herpetological Conservation Trust.

9.7.4 HSI Results

Geographical location – SI 1

All ponds are located in Zone A

Pond 1 = 1.0

Pond area – SI 2

The approximate size of the pond is shown in brackets.

Pond 1 (1,800 m²) = 0.8

Pond drying – SI 3

Pond 1 (Never dries) = 0.9

Water quality – SI 4

Pond 1 (Moderate) = 0.67

Shade – SI 5

Pond 1 (30%) = 1.0

Fowl – SI 6

Pond 1 (Minor) = 0.67

Fish – SI 7

Pond 1 (Major) = 0.01

Ponds within 1 km – SI 8

Pond 1 (0) = 0.1

Terrestrial habitat – SI 9

Pond 1 (Good) = 1.0

Macrophytes – **SI 10**
Pond 1 (20%) = 0.5

Summary of HSI scoring.											
SI	1	2	3	4	5	6	7	8	9	10	Total
Pond 1	1.0	0.8	0.9	0.67	1.0	0.67	0.01	0.1	1.0	0.5	0.000161604

- 9.7.5 Each SI score is multiplied together to give a total. The tenth root of this number is then calculated, consequently, the calculated HSI for a pond should score between 0 and 1.