APPENDIX 2.

SF 2788 | LAND OFF LEEDS RD, HARROGATE

ECOLOGICAL REVIEW

APRIL 2018

SMEEDEN FOREMAN

Landscape Architects ■ Urban Designers ■ Ecologists ■ Arboriculturists

Document check sheet

Job Title: Land off Leeds Rd, Harrogate			Job Number: SF 2788	
Document title: Ecological Review				
Issue	Date	Prepared by	Checked by	Approved by
Original	16.04.2018	MG	CW	MS

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1.0 INTRODUCTION

1.1.1 Smeeden Foreman Limited has been commissioned by Arrowsmith Associates LLP to undertake an ecological review of a proposed development site on land to the east of Leeds Rd, Harrogate (central grid reference SE 314 524).

1.1.2 This report will provide a review of ecological implications of the development of this site for residential purposes. This will be based on the following information detailed within an ecological assessment compiled by Whitcher Wildlife Limited (refer to *170448 Leeds Road, Harrogate Extended Phase 1 Habitat Survey 28th June 2017*) and ground truthing of the site and habitats of interest from nearby public rights of way where possible.

- Proximity of the site to statutory and non-statutory designated sites;
- Proximity to existing records for protected species;
- Site habitat appraisal and potential of the site to support protected species/species of conservation concern;

1.1.3 A review of the above information will be made to identify any features or sites of ecological interest which may be affected by the development proposals. Where potential impacts or protected species are identified the requirements for detailed habitat and species-specific surveys will be outlined and the potential impacts discussed.

1.1.4 This report has been commissioned to form part of an objection to the allocation of the site for residential development.

2.0 SITE DESCRIPTION

2.1.1 The proposed development site lies to the southern edge of the town of Harrogate, with Leeds Road (A61) running parallel to the western boundary of the site. Crimple Beck (or River Crimple) flows adjacent to the southern site boundary. The site itself predominantly comprises pasture fields and woodland with surrounding habitats including further agricultural fields to the east, south and west. Woodland belts, a disused and existing railway line are also present beyond the site to the east and south-east.

2.1.2 For the purposes of this report, the surveyed area (land ownership boundary) and the application site boundary are both highlighted within Figure 01 below.

Figure 01: Aerial photo showing land ownership boundary in blue and planning application boundary in red.

2.1.3 Habitats within the application site itself were identified by Whitcher Wildlife Limited following a Phase 1 habitat survey, comprising semi-natural broadleaved woodland, semi-natural plantation woodland, scattered trees, semi-improved grassland, dense scrub, dry ditches, buildings and bare ground. Defunct hedgerows, fencing and walls form the majority of the area boundaries. Additional habitats are included within the land ownership boundary including tall ruderal vegetation, with running water (Crimple Beck) forming the southern boundary.

3.0 POTENTIAL ECOLOGICAL IMPACTS

3.1 Habitat

3.1.1 The phase 1 habitat survey undertaken by Whitcher Wildlife Limited (31st May 2017) identified habitats on site which have been reviewed and discussed in further detail below.

Woodland

3.1.2 Two types of semi-natural woodland were identified on site during the Phase 1 habitat survey: semi-natural broadleaf and semi-natural plantation woodland. Following a site visit by Smeeden Foreman April 2018) the area of woodland highlighted as grey poplar plantation woodland (refer to target note T5 Appendix V of the ecological report) was identified as aspen woodland which is a self-suckering species.

3.1.3 The broadleaved woodland to the north of site comprises native species with both mature and semi-mature trees. Bluebell *Hyacinthoides non-scripta* and greater stitchwort *Stellaria holostea* were identified within the ground flora of the broadleaved woodland, both species are typically associated with ancient woodland indicator species. Another species which can be indicative of ancient woodland habitat was also identified following a site visit by Smeeden Foreman Ltd in April 2018: dog's mercury *Mercurialis perennis*.

3.1.4 Lowland mixed deciduous woodland is classed as a UK Biodiversity Action Plan priority habitat and the Harrogate LBAP includes an individual action plan for all woodland.

3.1.5 The proposals layout indicates the removal of the aspen woodland central to the site and trees on the outer edge of the broadleaf woodland in order to facilitate the development.

3.1.6 Given the presence of ancient woodland indicator species, it is recommended a more thorough survey of the woodland is undertaken and a woodland management plan created to ensure increased recreational pressure from adjacent housing does not impact upon the habitat.

3.1.7 A more detailed botanical survey of the woodland areas on site following the National Vegetation Classification survey (NVC) guidelines would enable the surveyor to further classify habitat types within the site and to determine whether the woodland fulfils the specific criteria for SINC status within the North Yorkshire area[1]. SINCS (Sites of Nature Conservation) are areas identified and selected locally for their wildlife value. The designation is non-statutory but is recognition of a site's significance with many SINCs being of county and often regional importance for wildlife. Examples range from field ponds, streams and reed beds, to ancient woodlands, flower-rich meadows and hedgerows. This designation is used by local authorities to allow the ecological value of a site to be considered within the planning system. The woodland to the north of the site covers an area of approximately 1 hectare with good connectivity to wildlife corridors and bluebell present within its ground flora. These factors may qualify this woodland for SINC status under Wd5 guidelines with bluebell woodlands considered to be an internationally important habitat within North Yorkshire[1]. Further survey should be undertaken to verify establish whether the woodland would qualify.

3.1.8 The development layout proposed housing in close proximity to the woodland on site, with gardens backing directly onto the southern woodland edge. Indirect impacts such as antisocial behaviour, fly-tipping and potential recreational use would lead to the degradation of this habitat. The LBAP identifies value to all woodland within the Harrogate District, particularly those consisting of predominantly native species which may have some ancient characteristics.

3.1.9 Photographs

Image 01: Woodland to the north of site adjacent to public right of way.

Image 02: Aspen woodland south of the public right of way.

Image 03: Eastern edge of broadleaf woodland

Image 04: Dog's mercury on woodland floor

Grassland

3.1.10 A large proportion of the site comprises fields of semi-improved grassland. The species list compiled by Whitcher Wildlife Ltd. includes pignut *Conopodium majus*, a species considered to be an indicator of ancient meadows. A National Vegetation Classification survey (NVC) would enable the surveyor to further classify habitat types within the site. It is therefore recommended a detailed botanical survey is carried out within the appropriate survey season (June-July) to further assess the conservation value of this habitat.

3.1.11 Photographs

Image 05: Semi-improved grassland adjacent to Crimple Beck.

Image 06: Established hedgerow with mature trees to east of site.

Hedgerows

3.1.12 Linear hedgerow features are present to the east of site, forming the eastern boundaries of two pasture fields.

3.1.13 Hedgerows are a priority habitat within the UK BAP and may qualify as 'important' under the Hedgerow Regulations 1997[8]. Although not species rich they maybe of an age to be considered ancient, as described in the York LBAP. They are generally in good condition being dense and bushy, providing foraging and commuting habitat for a range of wildlife species including bats and farmland birds (see section 4.4). Any development should retain the hedgerows to maintain biodiversity and ensure that their function as wildlife corridors is not compromised by lighting or severance required for access and infrastructure.

3.1.14 Mature trees in association with these hedgerows provide habitat for nesting birds with some trees considered to be of a sufficient size and age to support barn owl (refer to section 3.2.21 of this review).

3.2 Protected and Priority Species

3.2.1 The Extended Phase 1 Habitat Survey undertaken by Whitcher Wildlife Limited (31st May 2017) identified protected species which may be impacted by the development proposals. Their findings have been reviewed and discussed in the following sections.

Bats

3.2.2 Buildings – Site survey identified a total of four buildings (B1-B4) to the north-western corner of site, these were confirmed to either be in use for storage purposes or for housing livestock (refer to section 3.3.12). The building assessment within the report found no evidence of bats using the buildings and the buildings were described as having "no opportunities for roosting bats". Detailed photographs provided of the buildings are limited, however, given the potential for small crevice-dwelling bats to utilise small gaps/cracks which may not be immediately obvious from the ground, the potential for bats to use the buildings as a day/transitional roost cannot be discounted completely, particularly within Building 1, a two-storey stone built structure with internal access to loft timbers. A visit to site by Smeeden Foreman Ltd. noted a low number of gaps beneath tiles and slipped/broken tiles as well as boarded up windows which may provide opportunities for bats to roost within this building. Although Buildings 1 and 2 are modern, certain species of bat such as common pipistrelle are opportunistic in nature and can readily occupy suitable roost sites within modern structures [2]. The timber built stable building (Building 3) also provides potential roost features with direct access inside the structures evident. Bats may use timber structures due to the insulating properties of

wood and a felt roof will also increase the thermal capacity of the roof, potentially providing suitable conditions for roosting. It is rare to fully discount bats from using a building, particularly as individuals often leave no visible signs of their presence. A building assessed as having low bat potential*, for example, would require a single bat activity survey within the bat active season (May-August) to further inform an application.

3.2.3 A **retaining wall** below Leeds Rd provides some potential for roosting bats, as highlighted within the ecological report (section 4.9). Should the wall be affected as a result of the development, for maintenance purposes or otherwise, further survey for bats will be necessary. This may include an endoscopic inspection by a licenced ecologist to determine whether bat roosts will be impacted by the works.

3.2.4 In addition to the above, the large number of bat records for the area and abundance of suitable and varied foraging habitat in the immediate vicinity of the buildings increases the chances of the buildings/retaining wall being used.

3.2.5 **Trees** – A number of mature and dead trees were identified on site during the survey, these trees may contain potential roost features (PRFs) as highlighted in section 4.8. Removal or pruning of these trees could cause direct loss of bat roosts or disturbance where trees are in close proximity to publicly accessed areas as a result of increased human activity and development lighting. To avoid impacts on roosting bats, further survey will be necessary to confirm absence of bat roosts. This may involve an aerial climb and inspect survey by ecologists to identify features not necessarily visible from the ground.

3.2.6 **Transect surveys** – Bat foraging and commuting habitat was identified across the site resulting in two bat activity transect surveys being undertaken by Whitcher Wildlife Limited, 30th May and 16th June 2017. The habitat on site is considered to be of high-quality commuting and foraging habitat as defined within the accepted guidance for bat surveys (Bat Survey Good Practice Guidelines produced by the Bat Conservation Trust, 2016[3])**. It is therefore recommended activity surveys should be undertaken throughout the bat active season to determine more accurate usage of the site by bats throughout spring, summer and autumn months, including the use of automated detectors. This level of survey effort would involve at least one transect survey per month from April through to October.

* A structure can be identified as having low, moderate or high potential to support roosting bats. A building with low potential is described within the guidelines as having "one or more potential roost sites that could be used by individual bats opportunistically."

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

Great crested newts

3.2.7 The ecological report identified 6 ponds within 500m of the site (*refer to section 3.4.5*). These ponds were not surveyed by Whitcher Wildlife Ltd. due to their locations being within private land. All 6 ponds were discounted as potential breeding habitat due to ponds being located within private gardens or being severed from the site by Crimple Beck. Two ponds in closest proximity to the proposals site are situated adjacent to public rights of way and were subjected to a Habitat Suitability Index Assessment (HSI)[4] in April 2018 by Smeeden Foreman Ltd., as detailed within Appendix 1.

3.2.8 Pond 1 is located approximately 70m south of the proposed site boundary. A visit by Smeeden Foreman Ltd. in April 2018 found this pond to be located within the corner of an arable field with a moderate amount of bulrush present. A large amount of both old

and freshly laid frogspawn was also identified. Crimple Beck was assessed as providing an amphibian barrier between the site and the pond (*refer to section 3.4.5.1*). a small bridge was noted across Crimple Beck 70m immediately north of Pond 1 in addition to a second

bridge further west of the site, both of which may provide a means of access to the site. It is also considered the meandering nature of Crimple Beck may allow amphibians to be carried downstream and the opposite shore of the beck i.e. onto site, particularly as the beck is only 1-2m wide in places.

3.2.9 An extra pond (Pond 1a) was identified by Smeeden Foreman Ltd. in April 2018 within an unobstructed 60m of the north-eastern site boundary (refer to **Figure 01** below).

3.2.10 Following the HSI assessment, both ponds were scored as being of 'good' suitability for breeding great crested newts based on factors such as their proximity to numerous ponds within 1km and the abundance of suitable terrestrial habitat present. The ecological report referred to the habitat on site as being of low value to great crested newt due to its comprising mostly large grazing fields (*refer to section 4.7*). Amphibians including great crested newts, can utilise a variety of habitats, including woodland, hedgerows and semi-improved grassland, all of which are present within the proposals site.

Figure 01: Pond locations within 500m of the site boundary. Ponds 1 and 1a scored "good" suitability for supporting great crested newts.

3.2.11 On this basis, the presence of great crested newt within the proposals site during their terrestrial phase cannot be reasonably discounted and development proposals have the potential to impact upon great crested newt habitat. There are also numerous records for this species within 2km of the site as shown by the results from the desktop consultation carried out by Whitcher Wildlife Ltd., with the most recent records dating from 2015 approximately 600m from site. It is therefore recommended that environmental DNA surveys or presence/absence surveys of the ponds on and within 500m of the site are undertaken where possible. Surveys can be carried out between 15th April – 30th June for eDNA testing and March to June inclusive for population surveys.

3.2.12 Photographs


Image 01: Pond 1 70m south of site


Image 02: Frogspawn identified in Pond 1


Image 03: Pond 1 view looking west


Image 04: Flooded pond habitat adjacent to Pond 1


Image 05: Pond 1a 60m north-east of site


Image 05: Pond 1a view looking north-west


Image 06: Grassland/marsh vegetation


Image 07: Small bridge onto site across Crimple Beck

Otter

3.2.13 The ecological report stated the potential for otter *Lutra lutra* to pass through Crimple Beck (*refer to section 3.4.3*) but due to the lack of records and no field signs found, impact upon this species was discounted as works were not considered to affect the beck. Smeeden Foreman Ltd. identified prints and spraint consistent with otter beneath Almsford Bridge in April 2018, approximately 40m south-west of site. It is recommended a more thorough otter survey is undertaken to determine the potential for holts or resting places (couches) which may be subjected to disturbance as a result of the development. Proposals for the site indicate the access road for the development will fall within 10-20m of Crimple Beck at its closest point. A footpath and bridleway has also been proposed in association with this vehicular access road increasing recreational pressure in close vicinity of the watercourse, potentially impacting upon otter using the beck.

3.2.14 Photographs

Image 08: Prints consistent with otter beneath Almsford Bridge

Image 09: Otter spraint, partly washed away.

Badger

3.2.15 The ecological report found no badger setts or field signs with the survey area (*section 3.4.1*). Badger prints were identified approximately 40m south-west of site in association with other animal prints beneath Almsford Bridge in April 2018. Given habitat suitable for this species is present on and adjacent to site, it is anticipated this species may access the site for commuting and foraging purposes. Further survey will be necessary prior to works taking place to ensure badger setts are not present and will not be impacted upon as a result of the development.

3.2.16 Precautionary working methods are also recommended to be adopted during construction works, which will include the covering or providing a means of to any trenches and capping any open pipework at the end of each working day, to prevent accidental harm to badger or other mammals which may access the site.

3.2.17 Photographs

Image 10: Prints consistent with badger found beneath Almsford Bridge

Water vole and white-clawed crayfish

3.2.18 Crimple Beck was highlighted within the ecological report as supporting habitat of low quality for water vole *Arvicola terrestris* and recent records of the invasive American signal crayfish *Pacifastacus leniusculus* would reduce the likelihood of white-clawed crayfish *Austropotamobius pallipes* being present (*refer to sections 3.4.2 and 3.4.4 respectively*). The water vole survey methodology used by Whitcher Wildlife Ltd makes reference to the now outdated water vole guidance from 2011[5]. An updating survey for water vole will be necessary in accordance with the 2016 version of the accepted guidance. The 2016 guidance states a requirement for two visits within the appropriate survey seasons to fully assess the potential presence/absence of this species.This survey would include an early (mid-April – June) and late season visit (July – September)[6].

Reptiles

3.2.19 The site/survey area was identified within the ecological report as comprising low potential habitat for reptiles due to lack of refugia and basking sites (*refer to section 3.4.11*). The large proportion of grassland with woodland, hedgerows and dry ditch on site in addition to pond habitat within 70m of the site boundary to the north, east and south provide suitable potential habitat for grass snake *Natrix natrix*. A photograph taken by Whitcher Wildlife Ltd. in May 2018 also features manure piles (*refer to section 3.3.14.2*) which may be used as breeding habitat by this species.

3.2.20 No records are present for reptiles within 2km of the site but reptiles are an under-recorded animal group. Although the grassland on site is grazed, the connecting landscape features such as woodland and hedgerows have the potential to provide cover for the passage of grass snake. Although the likelihood of grass snake occurring on site is low, the lack of records alone are not enough to reasonably discount the presence of reptiles, particularly grass snake, on the site. Further survey within the appropriate survey season (April – May or September) may be necessary to assess the potential impact of the development upon this species.

Schedule 1 bird species

3.2.21 Habitat on/adjacent to site may be utilised by barn owl and kingfisher, both species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Records for kingfisher and barn owl are known to occur widely across the Harrogate district (anecdotal evidence) with records present of both species within 3km of the site (records

within the public domain on Bird Track, a record mapping service provided by British Trust for Ornithology[7]).

3.2.22 Mature trees should be checked for barn owl occupation to rule out the potential loss of breeding sites or increased risk of disturbance in the vicinity of a potential breeding site. The grassland on site may also provide foraging habitat for barn owl although this is considered less likely given the quality of the grassland and its proximity to woodland belts.

3.2.23 The banks of Crimple Beck were described as shallow (*section 3.4.2* of the ecological report) and may offer breeding opportunities for kingfisher

3.2.24 Further survey for these species is recommended to ensure potential impacts as a result of the development are avoided. The installation of barn owl box(es) is also recommended in appropriate locations as advised by a suitably qualified ecologist.

Breeding birds

3.2.25 Vegetation on site was identified as being of value to breeding birds (refer to *section 4.12* of the ecological report). Established woodland, hedgerows, trees, pasture fields, field margins, buildings and the retaining wall on site all provide breeding opportunities for birds during the core nesting period March – August inclusive. The breeding season may start before this or extend beyond this period depending on seasonal weather conditions.

3.2.26 All nesting birds are afforded protection under the Wildlife and Countryside Act 1981 (*as amended*) with additional protection against disturbance given to those on Schedule 1 (see section 3.2.21-24 above).

3.2.27 The habitats on site are likely to be used by a wide range of UKBAP and UK Red/Amber Listed species including house sparrow, dunnock, bullfinch, starling, song thrush, mistle thrush and spotted flycatcher. Bird records for the area are included within the ecological report as provided by North and East Yorkshire Ecological Data Centre. These records are limited however, four bird species of conservation concern have been recorded within a 2km radius of the site; house martin, swift and mallard. The site may provide breeding habitat for mallard being in close proximity to a watercourse. A breeding bird survey is therefore recommended to be undertaken within the appropriate survey season (early April – late June) to determine the species using habitats on and immediately adjacent to site and assess potential impacts upon these species as a result of the development.

3.2.28 Sections of woodland/trees and hedgerow are proposed for removal on site. The removal of this habitat and any other vegetation on site should be removed outside of the breeding bird season (March to August inclusive) or subsequent to a checking survey by an appropriately qualified ecologist to establish that no active nests are present. If nesting birds are identified works should cease in proximity to the nest until the young birds have fledged.

Other notable species

3.2.29 No records were provided within the ecological report however, the site is considered to provide suitable habitat for hedgehog *Erinaceus europaeus*. Hedgehog is a priority BAP species due to its recent decline in numbers thought to be due to habitat loss. Aims to help halt the decline encourage conservation of hedgerow system and woodland near arable fields, non-intensive farming, smaller field size, decrease fragmentation of farmland and encourage garden habitats to be managed appropriately. They require cover and a source of insect rich prey including gardens, hedgerows, woodlands, grasslands and parkland.

3.2.30 On completion of the development on-site habitat may be potentially more suitable for hedgehog but with increased risk of injury from traffic and predation from domestic pets

(cats/dogs). The overall effects for this species may therefore be negatively impacted as a result of the development.

3.3 Invasive Non-native Species

3.3.1 The ecological report highlighted the presence of recent records for American signal crayfish within Crimple Beck (refer to *section 3.4.4*). This species is a non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (*as amended*). It is an offence to release or allow the escape of this species into the wild. It is understood the beck is to remain unaffected by the proposals, however if this is subject to change or this species is encountered on site, a suitably qualified ecologist will need to be contacted before further action is undertaken.

3.3.2 Himalayan balsam *Impatiens glandulifera* was recorded throughout the survey area, refer to recommendations made by Whitcher Wildlife Ltd within *section 4.16 and 5.7*.

3.4 Nature Conservation Designated Sites

3.4.1 The ecological report confirms there are no designated sites within the survey area (refer to *section 4.1*). There are, however, two Local Nature Reserves within 2km of the proposals site: Rossett Nature Reserve (LNR)[#] located approximately 1.6km north-west of site and Hookstone Wood (LNR) 1.7km north-east. Rossett Nature Reserve is considered to be sufficiently severed from the site due to residential housing. Hookstone Wood is an unobstructed 1.7km from the site boundaries with connecting habitats including fields and small areas of woodland. Mixed native woodland within the site complements habitat within Hookstone Wood, however impacts upon this LNR are considered unlikely given the distance between Hookstone Wood and the proposals site.

3.4.2 The site lies within an Impact Risk Zone (IRZ) of Birkham Wood Special Site of Scientific Interest SSSI[##] which lies 4.7km north-east of the site boundary. The relevant Natural England dataset indicates that the nature and scale of the proposed development is unlikely to impact upon this SSSI.

3.4.3 No direct impacts upon these sites are anticipated, however, there is the potential for indirect impacts due to the presence of complimentary habitats, the scale of the development proposals, potential for fragmentation and increased recreational use which may be significant for some of the sites.

[#]Local Nature Reserves are designated by local authorities under the National Parks and Access to the Countryside Act 1949. They cover sites of local significance in terms of their nature conservation value and can contribute to opportunities for public education and enjoyment of wildlife. Local Authorities are required to consult English Nature regarding such designation and the criteria for site selection is published by them in 'Local Nature Reserves in England'.

[##]SSSIs provide statutory protection for sites considered to be of national importance for their wildlife and natural heritage value, following evaluation against published guidelines. They were originally designated by English Nature under the National Park and Access to the Countryside Act 1949 and re-notified under the Wildlife and Countryside Act 1981. Improved provisions for their protection and management were introduced in the Countryside and Rights of Way Act 2000.

3.4.4 Non-statutorily designated sites outside of the site such as Sites of Importance for Nature Conservation (SINCs) were not considered with the ecological report. The local plan for the Harrogate District identifies two non-statutory sites within 2km of the proposals site: Rossett Nature Reserve approximately 1.6km north-west of the site and the closest being Sandy Bank Wood approx. 600m south-west of the site.

3.4.5 Habitats within the site itself may qualify for SINC status. The woodland on site has the potential to meet SINC qualifying criteria[1] as discussed within section 3.1 of this review.

3.5 Biodiversity Action Plans

3.5.1 The UK Biodiversity Action Plan (UK BAP) identifies priority species and habitats which are those considered to be the most threatened and therefore most in need of conservation action. The lists were updated in 2007 to include 1150 species and 65 habitats.

3.5.2 The Phase 1 habitat survey undertaken by Whitcher Wildlife Ltd. reported two linear hedgerow features with associated trees to the eastern boundaries of fields on site which fulfils the criteria for UKBAP priority habitat being over 20m long and containing at least one native UK woody species. Lowland mixed deciduous woodland is also present on site, another UKBAP habitat.

3.5.3 Habitats on site support bat species as determined from transect surveys undertaken. Species identified using the site include noctule bat *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and *Myotis* bat species.

3.5.4 Habitat types for which action plans have been prepared for the Harrogate Biodiversity Action Plan (BAP) include:

- Blanket bog
- Upland heathland
- Moorland edge
- **Woodland**
- Lowland wood pasture, parkland and veteran trees
- Upland calcareous grassland and Calaminarian grassland
- Magnesian limestone grassland
- **Lowland meadows and floodplain grassland**
- Fens
- Reedbeds
- Standing water
- Flowing water
- Arable farmland (now field margins)
- **Hedgerows**
- Gardens and urban wildspace

3.5.5 Habitats highlighted in bold are present within the proposals site. Flowing water is present immediately adjacent to the southern site boundary.

3.5.6 The LBAP for Harrogate has afforded priority plans for the following species which occur/have the potential to occur on site: all local bat species, otter, water vole and great crested newt. As discussed within section 3.2 of this ecological review, the site provides the following:

- suitable potential roosting habitat for bats – further survey required;
- foraging and commuting habitat for bats – further survey required;

- potential terrestrial habitat for great crested newts –further survey required;
- likely access for commuting otter using Crimple Beck immediately adjacent to site – further survey required;
- potential habitat for water vole – further survey required;
- habitats suitable for breeding birds – further survey required.

3.6 Plans and Policy

3.6.1 The development of the site for housing would cause the loss of farmland including possible UK BAP habitats and has the potential to adversely affect a number of UK and European protected and priority species as well as locally designated sites. The allocation of the site could therefore be contrary to national and local planning policy.

4.0 SUMMARY

4.1.1 This report forms an ecological review of a site on land to the east of Leeds Rd, Harrogate (central grid reference SE 313 524), commissioned to inform an objection to the site proposals for residential development. The report discusses findings reported by Whitcher Wildlife Ltd. with additional reference to map data and a site visit following public rights of way to provide a review of the ecological implications of the proposed development.

4.1.2 The proposals site lies to the south of Harrogate and comprises pasture fields and woodland with Crimple Beck running parallel with the southern site boundary. Surrounding habitats within the wider countryside include more agricultural fields to the east, south and west. Woodland belts, a disused and existing railway line are also present beyond the site to the east and south-east.

4.1.3 Two statutorily designated sites are located within 2km of the proposals site, with an SSSI at 4.7km. No direct impacts are anticipated, however, there is the potential for indirect impacts due to the presence of complimentary habitats, the scale of the development proposals, potential for fragmentation and increased recreational use. The site lies within an Impact Risk Zone of Birkham Wood SSSI but due to the nature and scale of the development the relevant Natural England dataset indicates impacts upon the SSSI are unlikely.

4.1.4 No SINC sites within the site but it is recommended the woodland habitat on site is subject to further survey against selection criteria.

4.1.5 The site predominantly comprises agricultural fields, established woodland, hedgerows with mature trees and buildings. The proposed development has the potential to cause the direct loss of a large proportion of these habitats and indirect impacts which would lead to the degradation of adjacent habitats and loss of connectivity. These habitats include both UK and Harrogate LBAP habitats;

- Woodland: Native broadleaf woodland on site with ground flora species typically associated with ancient woodland. Further botanical/woodland surveys required;
- Grassland: Large fields of semi-improved grassland on site may contain species indicative of ancient meadows following initial phase 1 habitat survey. Further botanical survey required;
- Hedgerows: Native linear hedgerow features on site which may qualify as 'important' under the Hedgerow Regulations 1997 due to age and characteristics. Further survey required.

Refer to section 3.1 for further information on the above.

4.1.6 The proposed allocation site has the potential to support a range of protected and priority species, which would be affected by the development as follows:

- Bats: Hedgerows, grassland and woodland habitat provide commuting corridors and foraging areas for bats which would suffer direct loss or reduction in value if the site were developed. Mature trees and buildings have the potential to support roosting bats which may be subject to direct loss or disturbance. Further survey required;
- Great crested newt: The site includes potential terrestrial habitat for GCN and the site is within the accepted range of potential breeding habitat indicating that presence of this species is possible. The proposals could cause loss of habitat and fragmentation as well as direct impact on individuals. Further survey required;

- Badger: The site and the surrounding countryside provide suitable habitat for badger. Evidence of badger was noted 40m from the site following a visit to site by Smeeden Foreman Ltd. in April 2018. The proposals could cause the direct loss of foraging habitat, disrupt movement to access alternative habitat and increase potential fatalities. Setts within adjacent habitats may also be subject to disturbance. Further survey required;
- Otter: Habitat on site within the immediate vicinity of Crimple Beck to the south of site may be used by commuting and foraging otter. Field signs consistent with otter were identified by Smeeden Foreman Ltd. within 40m of the site. The proposals have the potential to cause loss, degradation and fragmentation of this habitat and increased disturbance. Further survey required;
- Reptiles: Terrestrial habitats on site may be used by grass snake and other reptiles for breeding, basking and foraging purposes. Further survey required;
- Schedule 1 bird species: On site habitat has the potential to be used by these species for foraging and may support nesting and roosting sites. The development may cause the direct loss of foraging habitat and potential roost/nest sites, fragmentation and disturbance. Further survey required;
- Breeding birds: The sites contains suitable habitat for a range of bird species including species of conservation concern with suitable foraging and nesting habitat on and within the immediate vicinity of the site. The development will cause direct loss of nesting and foraging habitat and fragmentation, disturbance and degradation of adjacent habitat. Further survey required;
- Hedgehog: The majority of on-site habitat provides suitable habitat for hedgehog. The overall impact will potentially be negative within the new development given the introduced risks of traffic collisions and predation from domestic pets.

Refer to section 3.2 for further information on the above.

4.1.7 An invasive non-native species was identified during the Phase 1 habitat survey undertaken by Whitcher Wildlife Ltd. Himalayan Balsam was found to occur across the proposals site and the appropriate removal/treatment of the area carried out to an agreed method statement will be necessary to avoid the illegal spread of this species.

Refer to section 3.3 for further information on invasive species.

4.1.8 The development of the site for housing would cause the loss of farmland including UK BAP habitats and has the potential to adversely affect a number of UK and European protected and priority species as well as locally designated sites. The development of the site could therefore be contrary to national and local planning policy.

5.0 REFERENCES

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APPENDIX 01: Habitat Suitability Index Survey (HSI) – Great crested newt

Methodology

Two of the seven ponds located within 500m of the site were assessed using the Habitat Suitability Index (HSI) survey methodology to consider their suitability for great crested newts and the requirement for further assessment and appropriate mitigation in regards to the proposed development. Refer to ***Figure 01*** (section 3.1.10 within this review) for pond locations in relation to the proposals site.

The HSI survey is a method produced by Oldham *et al.* (2000) to assess the suitability of ponds for great crested newts by quantifying ten factors (suitability indices) which can affect great crested newt occurrence, such as the presence of fish and wildfowl, shading, coverage of aquatic vegetation, etc. and provides a score which can indicate the suitability of a pond to support breeding great crested newts. The HSI is calculated as a geometric mean of the ten suitability indices using the formula below:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

The score can range from 0 to 1, 0 indicating low suitability and 1 indicating a high suitability. The HSI has been adapted by the National Amphibian and Reptile Recording Scheme (NARRS) who have categorised the suitability of a pond to support great crested newts by the HSI obtained, which is as follows:

Table 01a: HS1 scoring system

HSI Score	*Pond Suitability*
<0.5	Poor
0.5-0.59	Below average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Results

The results of the HSI survey are detailed in the table below:

Table 02a: Habitat Suitability Index Survey

	Pond 1		Pond 1a	
SI_1 Location	A	*1*	A	*1*
SI_2 Pond area#	300m^2	*0.4*	750 m^2	*0.98*
SI_3 Pond drying	Sometimes dries	*0.5*	Sometimes dries	*0.5*
SI_4 Water quality	Moderate	*0.67*	Moderate	*0.67*
SI_5 Perimeter Shade*	20%	*1*	65%	*0.8*
SI_6 Fowl	Absent	*1*	Absent	*1*
SI_7 Fish	Absent	*1*	Absent	*1*
SI_8 Ponds within 1km	9	*0.9*	11	*0.97*
SI_9 Terrestrial habitat (within 250m)	Moderate	*0.67*	Moderate	*0.67*
SI_{10} Macrophytes*	30%	*0.6*	0%	*0.3*

HSI Score	*0.74* GOOD	*0.74* GOOD

Estimate. At the time of survey, heavy rain will have influenced fluctuating water levels in the area.
* Estimate due to the time of year.