



Ecological Impact Assessment

Four Acres, Wiswell

June 2015

Control sheet

Project No & Title: BOW0017/602 Four Acres, Wiswell – Ecological Impact Assessment

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Date of Issue: 5th June 2015 **Status:** Final

Version No: 1

Revisions: 0

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Executive Summary

Bowland Ecology Ltd was commissioned to undertake an extended Phase 1 habitat survey of land to the north of Wiswell, Lancashire.

The site is located within a rural setting with several small villages and farms in the vicinity. The habitats present currently consists of semi-improved grassland, scattered mature trees and hedgerows.

Surveys and desk study information relating to the site identify the following key issues to consider:

- Presence of Himalayan balsam;
- Presence of nesting bird habitat; and
- Potential presence of bats in buildings and trees.

Proposals for the site should take account of the key ecological interest listed above. This is likely to require:

- Construction mitigation techniques to take into account presence of Himalayan balsam;
- Construction mitigation techniques to take into account potential presence of bats; and,
- Construction mitigation techniques to take account of the presence of nesting bird habitat.

1. Introduction

- 1.1 Bowland Ecology Ltd was commissioned by Valerie Stanworth to undertake an extended Phase 1 habitat survey for the development of a cattery, stables and outdoor riding arena.
- 1.2 The site is situated within a rural setting comprising of fields, farms and semi improved grassland and is located to the north of the village of Wiswell, Lancashire NGR: SD 74690 37737.
- 1.3 The purpose of the survey was to: 1) identify and map all habitats occurring within the survey area, 2) identify the presence of (or potential for) wildlife interests with particular reference to the need for further surveys and legal requirements, and 3) provide an ecological assessment, identify potential impacts and provide recommendations pertaining to the proposed development.
- 1.4 This report includes a description of survey methods and results; provides recommendations for further survey; and outlines proposals to provide protection, mitigation and enhancements for biodiversity and protected species.
- 1.5 The locations of target notes as listed in Appendix A are shown on the Extended Phase 1 Habitat Plan (Appendix B). This report should be read in conjunction with the Phase 1 Habitat Plan and a full list of species scientific names in Appendix C.

2. Methodology

- 2.1 The desk study, extended Phase 1 habitat survey and appraisal follow the Guidelines for Preliminary Ecological Appraisal (GPEA) (CIEEM, 2013) and are in line with the British Standard 'Biodiversity – Code of practice for planning and development' (BS42020:2013).

Desk Study

- 2.2 The aim of the desk study was to identify the presence of statutory wildlife sites and non-statutory wildlife sites within the area.
- 2.3 Online resources were also searched for records of protected species. The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<http://magic.gov.uk/>) was reviewed for information on locally, nationally and internationally designated sites of nature conservation importance (statutory sites only) on or within 1500 m of the site boundary. Natural Environment and Rural Communities (NERC) Act Section 41 lists of Habitats and Species of Principal Importance for the Conservation of Biodiversity.
- 2.4 Aerial photographs were reviewed online at <http://maps.google.co.uk/maps>, to help identify any continuous habitat and any other notable habitats within the surrounding area.

Extended Phase 1 Habitat Survey

- 2.5 An extended Phase 1 habitat survey was undertaken and included all land within the site boundary plus a buffer zone of 1500 m. All features of ecological significance were target noted and the location of target notes are shown in Appendix A. A colour coded map of the habitats on site is produced, with corresponding target notes of ecologically interesting features (Appendix B).
- 2.6 The survey was carried out by suitably experienced ecologist Claire Wilson MSc, BSc, ACIEEM on the 29th May 2015. The weather was sunny and mild with a light breeze and occasional scattered showers.
- 2.7 This survey methodology records information on the habitats together with any evidence of and potential for legally protected and notable fauna, in particular:
- potential roosting sites for bats within buildings and trees (identification of suitable cracks and crevices – survey undertaken externally and from ground only);

Table 1: Potential tree roost, assessment criteria (Hundt L 2012)

Tree category	Description
Known or confirmed roost	Known or confirmed roost.
Category 1*	Trees with multiple, highly suitable features capable of supporting larger roosts.
Category 1	Trees with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats.

Category 2	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.
Category 3	Trees with no potential to support bats.

- assessing the suitability of habitats for other notable and protected species such as nesting birds (including any active or disused nests), reptiles, water vole, otter, white-clawed crayfish, badger, invertebrates;
 - checking for the most common invasive plant species subject to strict legal control including: Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron, and Himalayan balsam; and,
 - assessing the suitability of the habitat for amphibians and for the protected great crested newts. Ponds on site and within 0.25 km (access permitting) will be subject to a habitat suitability index (HSI) (Oldham *et al.* 2000) assessment for great crested newt.
- 2.8 The Habitat Suitability Index (HSI) for the great crested newt was developed by Oldham *et al.* (2000). The HSI is a numerical index, between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors known to affect this species.
- 2.9 The HSI is a geometric mean of the following ten suitability indices: $HSI = (SI^1 - \text{Geographic Location} \times SI^2 - \text{Pond area} \times SI^3 - \text{Pond permanence} \times SI^4 - \text{Water quality} \times SI^5 - \text{Shading} \times SI^6 - \text{Presence of water fowl} \times SI^7 - \text{Presence of fish} \times SI^8 - \text{Pond density in area} \times SI^9 - \text{Terrestrial Habitat Quality} \times SI^{10} - \text{Macrophyte cover in pond})^{1/10}$.
- 2.10 The HSI for great crested newts is a measure of habitat suitability. It is not a substitute for amphibian surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to conclude that any particular pond with a high score will support newts, or that any pond with a low score will not do so.
- Survey Limitations
- 2.11 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The timing of the survey was within the optimum period and has therefore produced a complete list of plants and animals on site.
- 2.12 The list of invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) is extensive and these plants are found in a range of different habitats, including aquatic habitats. The extended Phase 1 habitat survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present on the site which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants.
- 2.13 An assessment of effects on ecological features has been made using the available design and survey information and the professional judgement of the ecologist. This includes a consideration of the relevant legislation and

planning guidance. If there are changes to the proposals, such as a change to the proposed design or to the construction method and programme, the assessment would need to be reviewed.

3. Results

Desk Study

- 3.1 There is one statutory designated site located within 1500 m of the site.
- Light Clough Site of Special Scientific Interest (SSSI) located approximately 320 m east of the site. It is designated for its geological features.
- 3.2 There are three non-statutory designated wildlife sites on or within 1500 m of the site.
- Spring wood Biological Heritage Site (BHS) located approximately 1210 m south it is a mature woodland with diverse spring ground flora.
 - The Rough BHS located approximately 1350 m east of the site of the site, designated for its variety of upland habitats including; dry dwarf shrub heath, acid grassland and mire communities.
 - Barrow brook field BHS located approximately 1380 m west of the site. It is a small area of species-rich neutral grassland.

Protected Species and Habitats Records

- 3.3 LERN provided records of legally protected species and NERC Act 2006 Section 41 species on or within 1500 m of the site, therefore these species may be present if suitable habitats are found on site;
- Mammals; brown hare, water vole, pipistrelle species,
 - Amphibians; great crested newt, common toad;
 - Birds; song thrush, linnet, marsh tit, starling, bullfinch, cuckoo, dunnock, grey partridge, house martin, house sparrow, lapwing, reed bunting, skylark, spotted flycatcher;
 - Flowering plants; lesser butterfly orchid;
 - Fish; European eel.
- 3.4 Online resources¹ displayed a number of additional NERC Act Section 41 species records for the grid squares SD73 therefore these species could potentially be present if suitable habitats are found on site;
- Reptiles; common lizard;
 - Amphibians; great crested newt; common toad;
 - Birds; wood warbler, curlew, grey partridge, grasshopper warbler, ring ouzel, house sparrow, cuckoo, spotted flycatcher, yellowhammer, lapwing, tree sparrow, reed bunting, tree pipit, tree sparrow,
 - Plants; cornflower;
 - Invertebrates; wall, small heath;
 - Fish; Atlantic salmon, brown trout, sea trout, European eel;
 - Terrestrial mammals; European otter, soprano pipistrelle, red squirrel western European hedgehog, brown hare.
- 3.5 Based on a review of aerial photographs and OS maps there are no ponds located within 250 m of the site. The closest pond is located approximately 585 m north east of the site. The site is connected to the pond by a network of mature hedgerows and ditches. However, due to the ponds distance from the

¹ Data courtesy of the NBN Gateway with thanks to all the data contributors. The NBN and its data contributors bear no responsibility for the further analysis or interpretation of this material, data and/or information.

site and that it is a coarse fishing lake it is not considered further within this report.

Extended Phase 1 Habitat Survey

- 3.6 Target notes summarising key interest features for wildlife recorded during the extended Phase 1 survey are included in Appendix A. The Phase 1 habitat plan of the site presented in Appendix B includes locations of the target notes.

Habitats

Species poor semi-improved grassland

- 3.7 Species poor semi-improved grassland (TN1) is the dominant habitat on site and comprises of broad-leaved dock, perennial rye grass, yorkshire fog, common sorrel, creeping buttercup, meadow buttercup, lesser celandine and meadow foxtail. The sward is short due to intensive grazing by horses.

Amenity Grassland

- 3.8 Amenity grassland (TN19) comprising Yorkshire fog, perennial rye grass, creeping buttercup and lesser celandine is located directly adjacent to the track leading to the stable building.

Hedgerows

- 3.9 Hedgerow 1 (HR1) is a mature species rich roadside hedgerow with five mature trees located along its. It is approximately 2 m in height and 1 m wide and dense from the canopy to the ground. It is approximately 115 m with no gaps except for a field gate at the northern side. Species present include; hazel, blackthorn rose, hawthorn, sycamore, holly, ash, elder and English elm. Where the hedgerow lies directly adjacent to a residential property at the southern edge laylandii have been planted at the back of the hedgerow. The ground flora is moderately diverse and comprises; dog's mercury, creeping buttercup, common hogweed, forget-me-not, nettle, ivy, cleavers, herb Robert, honeysuckle, pendulous sedge, red campion, lords and ladies and wood avens.
- 3.10 Evaluation of the hedgerow under HEGS methodology identifies the hedgerow as 2 -, which is considered to be a hedgerow with increased species diversity and of a higher ecological value.
- 3.11 Hedgerow 2 (HR2) is a mature species poor roadside hedgerow which acts as a garden boundary to the eastern side of Four Acres. The dominant species within the hedgerow is holly, however, some garden escapees are beginning to establish. It is short, approximately 15 m. It is approximately 2 m high and 1 m wide and dense from the canopy to the ground.
- 3.12 Evaluation of the hedgerow under HEGS methodology identifies the hedgerow as 4 -, which is considered to be a low quality, species poor hedgerow of low ecological value.

Scattered trees

- 3.13 Mature trees are a prominent feature along the field boundaries at TN's 2, 13 and 14. Species include oak, ash, sycamore, alder and wych elm.

- 3.14 A single standing deadwood is present at TN6.

Scattered/dense scrub

- 3.15 Scattered scrub is located along the field boundaries at TN's 2, 13 and 14. The field boundaries are mature and remnants of old hedgerows that have been unmanaged and subsequently succeeded to scrub. Species present include; hazel, hawthorn, holly, elder and bramble. The ground flora is moderately diverse with dog's mercury, lesser celandine, lords and ladies, herb Robert, common hogweed, cleavers, tufted hair grass, creeping thistle, Yorkshire fog. English bluebells are present at TN14.
- 3.16 The scrub along the field boundary at TN2 is scattered with numerous gaps present. Five hawthorn saplings have been planted along the field boundary at TN14 to infill the single gap that is present.
- 3.17 A small area of dense scrub comprising of hazel, rose and blackthorn with ground flora comprising of English bluebells, dog's mercury and dense bramble is located at TN21.

Watercourses

- 3.18 A narrow (width approximately 0.1 m) wet ditch is located at TN5. The banks are shallow, poached by horses, densely shaded by mature trees and scrub, it has recently been dredged and there is limited water flowing from east to west.
- 3.19 A second wet ditch (width approximately 0.2 m), similar to that at TN5 is located at TN12, directly adjacent to a footpath outside of the site boundary.

Introduced shrub

- 3.20 Himalayan balsam is present beneath the mature trees and scrub at TN15. It is located at the southern side of the fence on the adjacent land holding.

Other habitat

- 3.21 Bare earth and piles of rubble from building works are located at TN22.

Fauna

Bats

- 3.22 The hedgerows, scattered mature trees and scrub along the site boundaries provide potential roosting, foraging and commuting habitat for bats.
- 3.23 The mature trees at TN's 4, 6, 7, 9, 10, 11, 16 and 18 have a variety of features suitable for use by roosting bats. These features include; cracks, splits and cavities in the main trunk and canopy limbs, flaking bark, and ivy cladding.
- 3.24 The stable building at TN20 comprises of red brick walls with occasional gaps in the mortar, with an unlined, pitched fibre cement roof. A recently installed PVC window and boarded up barn door are located on the western elevation of the building. The building is open to the internal space and draughty. Wooden windows are present on the eastern elevations. No evidence of roosting bats in the form of droppings, grease and scratch marks, urine stains or sighting was observed during the survey.

Birds

- 3.25 The hedgerows, scrub and scattered trees provide nesting and foraging habitat for a number of bird species.

- 3.26 Five swallow nests are present within the stable building at TN20. They were not in use at the time of survey, and the landowner advised during the survey that they have not been used in the previous two years.

Otter

- 3.27 The watercourses at TN's 5 and 12 were assessed for their potential to support otter. No holts, lay-ups or couches were recorded during the survey and the ditches are unsuitable for otter as they are narrow, shallow and have low flow. Due to the lack of field signs, sub-optimal habitat otters are not considered further within this report.

Water vole

- 3.28 The watercourses at TN's 5 and 12 were assessed for their potential to support water vole. No field signs in the form of latrines, feeding stations, burrows, or sightings were recorded during the survey and the ditches are unsuitable for water vole as they are narrow, shallow, densely shaded and have low flow. Due to the lack of field signs, negligible habitat and lack of local records water vole are not considered further within this report.

Herptiles

- 3.29 The piles of rubble at TN22 provide potential refugia for a range of amphibians and reptiles.
- 3.30 The habitat on site is relatively suboptimal for reptiles, the topography is fairly flat, sward length is short due to intensive horse grazing and large areas of homogenous vegetation are present.
- 3.31 There are no ponds within the site, the ditches are not considered suitable for amphibians due to the continuous flow of water. The majority of terrestrial habitats within the site are largely suboptimal due to the short sward height however, the hedgerows could provide suitable habitat for amphibian species particularly newt species during the terrestrial phase. The large distance between the site and potentially suitable breeding habitat reduces the suitability of the hedgerows to support amphibians. It is therefore considered unlikely that amphibians would be present on site.

Badger

- 3.32 No evidence of badger was found during the survey. Due to absence on site and lack of local records this species not considered further within this report.

Other species

- 3.33 No evidence of suitable habitat for any other protected species was identified at the time of survey.

4. Evaluation and Assessment of Potential Impacts

Scheme Proposal

- 4.1 The site is being investigated for its potential as a location for a cattery, stables and outdoor riding arena.

Designated Sites

- 4.2 No statutory or non-statutory designated sites will be directly or indirectly impacted by the proposed development due to the small scale of works, and distance from the site, therefore they are not they are not considered further within this report.

Habitats

- 4.3 The habitats identified on site to be directly impacted by the proposed development include species poor semi-improved grassland. This habitat is locally common and of limited ecological value.

- 4.4 The proposed development impacts on hedgerows 1 and 2, both of which are graded as 2 - and 4 - respectively under the HEGS methodology. A 1.5 m section of hedgerow 1 will be cut back to accommodate visibility splay. Hedgerows are a Section 41 NERC habitat, and whilst they are common in the wider landscape they support a variety of species and provide habitat connectivity within the landscape. Therefore loss of this habitat will have a small scale, negative ecological impact.

Bats

- 4.5 The hedgerows, scattered trees and scrub adjacent to the site provide foraging and commuting habitat for bats.

- 4.6 The proposed development has the potential to impact on the mature ash at TN3. No suitable roosting features were observed during the survey but the limbs impacted by the development are high in the canopy and have the potential to have features suitable for use by roosting bats.

- 4.7 The stable building (TN20) provides low potential to support roosting bats. The proposed development involves the conversion of this building into a cattery, with proposals to include a new pitched roof. Should roosting bats be present, construction works could lead to the loss of roosts and disturbance to species.

Birds

- 4.8 Scattered trees, scrub and hedgerows are considered to provide suitable habitat for nesting birds. Vegetation clearance is required at TN21 and the end sections of hedgerow 1 and 2 will need to be removed to allow visibility splay onto the main road, because of this nesting bird habitat will be directly impacted.

- 4.9 Works to replace the roof of the stable building (TN20) would result in the loss of five, currently disused swallow nests.

Herptiles

- 4.10 The rubble piles at TN22 provide potential habitat for a range of amphibians and reptiles. The desk study returned records for great crested newt, common toad and common lizard. However, due to the absence of ponds within 250 m

of the site and the poor quality habitat within and around the site no further surveys in respect of these species are currently required.

Invasive Species

- 4.11 Invasive species present directly adjacent to the site include Himalayan balsam which is listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended). This makes it illegal to plant or otherwise cause them to grow in the wild. Therefore, works being carried out within close proximity of these plants could lead to an offence.

5. Recommendations

Habitats

- 5.1 Suitable mitigation for the loss of scrub (TN21) and hedgerows (1 and 2) should be implemented within the proposed development site. Specifically the replanting of new trees that are native species and of local provenance at a ratio of 2:1, to offset the loss of these ecological features. Species may include; hawthorn, blackthorn, rowan, hazel, holly and wild cherry. Improving the connectivity of the existing mature field boundaries at TN's 2 and 13 by infilling gaps along the boundary with native species of local provenance should be implemented.
- 5.2 Future management of the hedgerows should be completed to maintain and improve their connectivity to habitats within the wider landscape which will further enhance the ecological value of the site.

Bats

- 5.3 No evidence of use by bats was observed within the stable, the building was assessed as offering low potential for roosting bats with limited suitable features, as such emergence surveys are not considered appropriate at this site.
- 5.4 The survey did not find any evidence of bat use within the stable building; however, due to the mobile nature of bats their potential presence cannot be discounted. Therefore in terms of the refurbishment programme it is advised that the following is observed:
- When removing the roof contractors to undertake visual checks for the possible presence of bats.
 - All contractors should be made aware of the potential of encountering bats in buildings during works. If any bats are found during the works, activities should cease in that area and the scheme ecologist or Natural England should be contacted immediately (Appendix E). If the bat is considered to be in imminent danger it should be placed in a ventilated box and moved to a safe location. Gloves must be worn when handling bats.
- 5.5 Bats are highly mobile and can colonise buildings at any time, therefore a procedure should be in place should bats be found during works. Should bats be found or suspected at any time during construction activities then, as a legal requirement, work in that area should cease immediately until further advice has been sought from Natural England and/or a suitably qualified ecologist/licensed bat worker. Natural England or their agents in the Lancashire area will be able to locate a licensed bat worker to remove any bats present which might be harmed during the works.
- 5.6 The mature ash at TN3 is a Category 2 tree, and as such is not subject to further survey. Any works to the tree, including soft felling or pruning of limbs should be completed using reasonable avoidance measures under the supervision of a suitably qualified ecologist (Hundt. L 2012).
- 5.7 It is not anticipated that the proposed development will impact upon the mature trees at TN's 4, 7, 9, and 18. However, if the design plans change and the trees are to be impacted then further surveys will be required which would likely include a visual/climbing inspection with the use of an endoscope. The

results of these surveys will advise if any further survey will be required in the form of emergence/dawn re-entry survey (s) along with possible licensing.

Birds

- 5.8 Tree, hedgerow and scrub removal works are required to accommodate the proposed development. These works should take place outside the breeding bird season which runs from late February until September, in order to prevent any impacts upon nesting birds.
- 5.9 Scrub, hedgerow and tree clearance that must be carried out within the bird breeding season will be subject to a pre-clearance bird survey carried out by a suitably experienced ecologist. No works will be carried out within 7 m of an identified nest until the young have fledged and are no longer returning to the nest site. Works will only be undertaken once a suitably qualified ecologist has declared the nest to be no longer in use.
- 5.10 Mitigation for the loss of breeding bird habitat should include the planting of native species of trees and shrubs (see para 5.1).
- 5.11 Swallow nesting sites will be lost as part of the proposed development, it is therefore recommended that at least five artificial swallow nests are installed within two months of the completion of works to compensate for the loss of habitat. These should be installed within an outbuilding or beneath a roof line on the wall of buildings but not above a window or doorway. Access for birds should always be available (via open window, skylight, and gaps above door). Details of suitable artificial nests are outlined in Appendix D.
- Invasive Species**
- 5.12 To minimise the the spread of Himalayan balsam it is advised that all construction staff be made aware of the location of the stand of Himalayan balsam (TN15) and avoid disturbance of flowering / seeding plants.
- Re-survey of the site**
- 5.13 If no works are undertaken on site within 12 months of this survey or if any changes to the proposals are made, a further ecological survey may be necessary (because of the mobility of animals and the potential for colonisation of the site).

6. References

CIEEM (2013); *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management. Winchester, CIEEM.

Hundt L (2012) *Bat Surveys: Good Practice Guidelines*, 2nd edition, Bat Conservation Trust.

JNCC (2010); *Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint)*. Joint Nature Conservation Committee, Peterborough.

