



George Lane, Read

Preliminary Ecological Appraisal

December 2020

Control sheet

 www.bowlandecology.co.uk	2 York Street, Clitheroe, Lancashire, BB7 2DL. 01200 446777	Unit 2, Dye Works, New Lanark, ML11 9DB. 01555 438880
Job number:	BOW17.1216	
Title:	George Lane, Read – Preliminary Ecological Appraisal	
Client:	Readstone Construction Ltd	
Prepared by:	Jodie Marks, <i>Ecologist</i>	
Checked by:	Dr Ed Mountford, <i>Associate Principal Ecologist</i>	
Date of Issue:	21 st December 2020	
Version:	1	
Revisions:	0	
Status:	FINAL	
This report is prepared by Bowland Ecology Ltd for the sole and exclusive use of Readstone Construction Ltd in response to their particular instructions. No liability is accepted for any costs, claims or losses arising from the use of this report or any part thereof for any purpose other than that for which it was specifically prepared or by any party other than Readstone Construction Ltd. This report has been prepared by an ecological specialist and does not purport to provide legal advice. You may wish to take separate legal advice.		
in accordance ent's Code of opinions. ital and Health hat has been		

Contents

Executive Summary	1
1. Introduction	2
2. Methodology	3
3. Results	5
4. Evaluation of Habitats and Assessment of Potential Impacts	8
5. Recommendations	10
6. References	13
Appendix A - Summary of Relevant Legal Information	14
Appendix B - Bat Roost Potential Criteria (Collins, 2016)	16
Appendix C - Target Notes	17
Appendix D - Phase 1 Habitat plan	19
Appendix E - Suggested Species for Tree and Shrub Planting	20

Executive Summary

Bowland Ecology Ltd was commissioned by Readstone Construction Ltd to undertake an ecological appraisal of an area of land off George Lane, Read (NGR: SD 76422 34846) in December 2020.

Key ecological features, potential impacts, further survey requirements and outline mitigation measures are summarised in the following table.

Ecological Feature	Potential Impact	Further surveys if affected	Outline Mitigation
Hedgerow HPI	Direct impact through removal of hedgerow	N	Retention of entire hedgerow, where this is not possible suitable mitigation needs to be designed (see 5.2)
Bats	Risk of impacting roosting/foraging and commuting bats	Y (possible)	Tree climbing/emergence surveys if mature oak trees to be directly or indirectly impacted. Mitigation measures including; • Fencing to protect trees from machinery ingress • Use of root protection areas (RPA) • Dust reduction measures
			Any lighting on site should be designed in accordance with the appropriate guidance
			Adoption of hedgerow mitigation measures and further habitat enhancements (see 5.11)
Other mammals	Direct impacts Loss of habitat	N	Make contractors aware of possible presence of small mammals. Remove debris and cover excavations at night.
Birds	Direct impacts Loss of habitat	N	Works to hedgerows, scrub or overhanging trees undertaken outside of nesting season (March – August inclusive) or pre-clearance nesting bird check by an ecologist required. Adoption of hedgerow mitigation measures and further habitat enhancements (see 5.11)
Amphibians	Direct impacts Loss of terrestrial habitat	N	Implementation of Reasonable Avoidance Measures (RAMs).

1. Introduction

- 1.1 Bowland Ecology Ltd was commissioned by Readstone Construction Ltd to undertake a preliminary ecological appraisal of an area of land off George Lane, Read (NGR: SD 76422 34846). The appraisal was based on surveys undertaken on land that is subject to proposals for the development of a single residential dwelling.
- 1.2 The site is located within the village of Read, Lancashire. The immediate surrounding habitats comprise residential properties to the north, east and south with a grazed field and associated tree lines and woodland to the west.
- 1.3 The purpose of the survey and appraisal were 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 (Appendix A), and 3) provide an ecological assessment, identify potential impacts, and provide recommendations pertaining to the proposal.
- 1.4 This report includes a description of survey methods, a summary description of habitats and fauna and outlines recommendations to provide protection and enhancements for biodiversity and protected species.

2. Methodology

- 2.1 This appraisal is based on a desk study and an extended Phase 1 Habitat survey. It follows the CIEEM Guidelines for Preliminary Ecological Appraisal and the CIEEM Guidelines for Ecological Report Writing (CIEEM, 2017 a, b), and is in line with the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development'.

Desk Study

- 2.2 The aim of the desk study was to identify the presence of statutory and non-statutory wildlife sites within the area and any legally protected species or Habitats and Species of Principal Importance (HPI and SPI) for the conservation of biodiversity (Section 41 NERC Act, 2006).
- 2.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<https://magic.defra.gov.uk/>) was reviewed for information on locally, nationally and internationally designated sites of nature conservation importance (statutory sites only) on or within 1 km of the site boundary.
- 2.4 Local records on and within 1 km of the site were obtained following a data search with Lancashire Environment Record Network (LERN)¹.
- 2.5 Ordnance Survey (OS) maps and aerial photographs (<http://maps.google.co.uk/maps>) were reviewed to help identify any continuous habitat and any other notable habitats within the surrounding area, together with any ponds within 0.25 km of the site.
- 2.6 Natural England's great crested newt (*Triturus cristatus*) licensing method statement template (Form WML-A14-2 (version November 2017) advises that, for developments resulting in permanent or temporary habitat loss at distances over 0.25 km from the nearest pond, careful consideration should be given to whether a survey is appropriate. Although the species may use suitable terrestrial habitat up to 0.5 km from a breeding pond, in this instance a 0.25 km search radius was considered appropriate due to the likely small scale of the project (single residential dwelling) and low suitability of habitats on site for great crested newt.

Extended Phase 1 Habitat Survey

- 2.7 The extended Phase 1 habitat survey followed standard methodology (JNCC, 2010 and CIEEM, 2017b). All habitats on site were recorded and all features of ecological significance were target noted.
- 2.8 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). An assessment of suitability was undertaken according to the Bat Conservation Trust's Good Practice Guidelines 3rd Edition (Collins, 2016; Appendix B);
 - Assessing the suitability of habitats for other notable and protected species such as nesting birds (including any active or disused nests), reptiles, water vole (*Arvicola amphibius*), otter (*Lutra lutra*), white-clawed crayfish (*Austropotamobius pallipes*), badger (*Meles meles*) and invertebrates;

¹ Records from 2000 onwards are included within the report.

- Checking for the most common invasive plant species subject to strict legal control including Japanese knotweed (*Fallopia japonica*), giant knotweed (*F. sachalinensis*), hybrid knotweed (*F. x bohemica*), giant hogweed (*Heracleum mantegazzianum*), rhododendron (*R. ponticum*, *R. ponticum* x *R. maximum* and *R. luteum*) and Himalayan balsam (*Impatiens glandulifera*);
- assessing the suitability of the habitat for amphibians and for the protected great crested newts.

2.9 The survey was carried out by Jodie Marks MSc, BSc (Hons) on the 10th December 2020. The weather was dry (approximately 8°C), 75% cloud cover and no breeze (Beaufort Scale No. 0).

Survey Limitations

- 2.10 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. Therefore, the survey of the study area has not produced a complete list of plants and animals.
- 2.11 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.
- 2.12 The timing of the survey was outside the optimum period; however, the entire site was accessible and there was sufficient information to confidently recognise the type of habitats present. Therefore, a valid assessment of the habitats present and their potential to support legally protected species was undertaken.
- 2.13 Neither of the ornamental ponds within 0.25 km of the site, which are situated within residential gardens, could be accessed at the time of survey.

3. Results

Statutory and Non-Statutory Wildlife Sites and nearby Habitats of Principal Importance

- 3.1 There are no statutory designated wildlife sites within 1 km of the site.
- 3.2 The site falls within the Impact Risk Zone for the Cockwood Gorge Site of Special Scientific Interest (SSSI) and Light Clough (SSSI). However, the proposed works do not fall into any of the categories that require consultation with Natural England. Therefore, no further consideration regarding the Impact Risk Zones is required.
- 3.3 There are two non-statutory Biological Heritage sites (BHS) within 1 km of the site;
 - Read Heights Pasture (BHS) is located 0.63 km north east of the site and is designated for its species-rich, semi natural acidic grassland and heathland. Dominant species include sweet vernal grass (*Anthoxanthum odoratum*), crested dogs tail (*Cynosurus cristatus*) and wavy hair grass (*Deschampsia flexuosa*).
 - Bridge Heywood (BHS) is located 0.65 km south west of the site comprising semi-natural ancient woodland.
- 3.4 The search of Multi-Agency Geographical Information for the Countryside identified over 45 areas of broadleaved woodland HPI, the closest of which is located approximately 0.13 km north west of the site. One area of good quality semi-improved grassland was located 0.63 km north east of the site within Read Heights Pasture (BHS).
- 3.5 Habitat connectivity from the site to the HPIs include roadside habitats (verges and hedgerows) and field/garden boundaries.
- 3.6 No ponds are situated within the site boundary. Based on a review of aerial photographs and OS maps there are two ornamental ponds within 0.25 km of the site located approximately 0.12 km and 0.18 km north west of the site boundary. Both are situated within residential gardens and could not be accessed at the time of survey.

Extended Phase 1 Habitat Survey

- 3.7 Target notes summarising key interest features for wildlife recorded during the extended Phase 1 Habitat survey are included in Appendix C. The Phase 1 Habitat plan of the site is presented in Appendix D and includes the locations of the target notes. Plant species nomenclature follows Stace (2010).

Habitats

Improved grassland (TN1)

- 3.8 The majority of the site comprises a heavily grazed improved field. Species present include Yorkshire fog (*Holcus lanatus*), perennial ryegrass (*Lolium perenne*), creeping buttercup (*Ranunculus repens*) and chickweed (*Stellaria media*), with occasional nettle (*Urtica dioica*). To the south east of the site, the grassland is damper in nature and poached, with soft rush (*Juncus effusus*) present.

Hedgerow (HPI) (TN2)

- 3.9 A small, species rich hedgerow is present on the eastern boundary, adjacent to George Lane. The hedgerow measures approximately 1.5 m high, 1 m in width and 18 m in length, with a stone wall running adjacent for approximately half the hedgerows length. Canopy species include blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), sycamore (*Acer Pseudoplatanus*), holly (*Ilex aquifolium*) and rose sp (*Rosa*). Ground

- 3.10 flora comprises ivy (*Hedera*), bramble (*Rubus fruticosus*), nettle and St John's Wort (*Hypericum perforatum*). Although the hedgerow is less than 20 m in length and is therefore not covered by the Hedgerow Regulations 1997, it is composed predominately of native woody species, is likely to be of considerable age, and is considered to be of sufficient ecological value to qualify as a HPI.

Scattered Scrub (TN6)

- 3.11 An area of elder (*Sambucus nigra*) is adjacent to the stone wall.

Other habitats

- 3.12 A barbed wire fence surrounds the site at the north, east and southern boundaries with a small, decaying tree stump present at TN 5.

Habitats within surrounding area

Mature beech trees (TN3)

- 3.13 Six mature beech trees (*Fagus sylvatica*) with limbs overhanging the developmental area are present within the residential garden at the site's southern boundary. Two squirrel dreys and a single bird box are present in the trees.

Mature oak trees (TN4)

- 3.14 A group of four mature oak trees (*Quercus* sp.) are adjacent to the site's western boundary and will not be impacted by works.

Species

Bats

- 3.15 The data search returned two records for bat activity within 1km of the site. One common pipistrelle (*Pipistrellus pipistrellus*) from 2013, located approximately 0.73 km east of the site and one potential common pipistrelle roost, from 2010, located approximately 1 km north west of the site. The lack of further records of bats suggests they are under recorded within the area.
- 3.16 The search of the Multi Agency Geographical Information Centre (www.magic.gov.uk) identified one expired European Protected Species Licence for common pipistrelle (*Pipistrellus pipistrellus*) and whiskered (*Myotis mystacinus*) bats within the search area. The licence was located approximately 0.1 km to the north-west and was valid from 20/08/2015 until 30/04/2016.
- 3.17 The site is in close proximity to four mature oak trees at TN 4 that have the potential to support a bat roost.
- 3.18 The hedgerow and scrub provide suitable foraging and commuting habitat for bat species, which show a preference for utilising 'edge' habitats. Such species include common pipistrelle and whiskered (*Myotis mystacinus*) bats, which are flexible in their foraging habitat. The grassland is considered to provide suitable foraging habitat for noctule (*Nyctalus noctula*) bats, which show a preference for feeding in 'open' habitats.

Other mammals

- 3.19 The hedgerow and scrub provide potential refuge for hedgehog, a SPI (Species of principle importance) and other small mammals. It is likely that hedgehog is common in the area due to the presence of residential properties which provides ample foraging and nesting habitat for the species

Birds

- 3.20 The data search returned six records of SPI bird species within 1 km of the site, including curlew (*Numenius arquata*), common starling (*Sturnus vulgaris*) and wood warbler (*Phylloscopus sibilatrix*). The hedgerow, scrub and limbs of the adjacent mature beech trees provide nesting and foraging habitat for tree nesting birds. The amenity

grassland provides a foraging resource for birds such as starlings and potentially raptors and owls; however, the intensive grazing of the grassland renders it unsuitable for ground-nesting bird species.

Reptiles

- 3.21 The site does provide some habitats that may be considered potentially suitable for reptiles such as common lizard, for example the stone wall and hedgerow. However, no records for reptiles were returned by the data search. Furthermore, the surrounding farmed landscape and close proximity of a road, suggest it is highly unlikely reptile species will utilise the site. These species will therefore not be considered further.

Amphibians

- 3.22 The two ornamental ponds located within 0.25 km of the site could not be accessed at the time of survey. Google earth records show that the closest pond, located 0.12 km north west of the site, is of recent construction, excavated within the last 15 years. The data search returned no records for amphibians within the 1 km search area. The hedgerow and scrub provide good quality terrestrial habitat for GCN and other amphibian species.

Other species

- 3.23 There was no evidence of badgers or further protected species within, or adjacent to, the site at the time of survey.

4. Evaluation of Habitats and Assessment of Potential Impacts

Scheme Proposal

- 4.1 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 (see Appendix A) and planning guidance. If there are changes to the proposals, the assessment would need to be reviewed. The proposed development includes the development of a single residential dwelling with associated garden; full details of the proposed development are not currently available.

Designated Sites & Habitats of Principal Importance (HPI)

- 4.2 It is anticipated that there will be no direct impacts to designated sites due to their distance from the site (over 0.63 km) and the relatively small footprint of works. Therefore, they are not considered further.
- 4.3 It is anticipated that the proposed works will not directly impact the deciduous woodland HPI due to its distance from the development boundary (0.13 km) and the contained nature of works. Impacts to remaining HPI's from the proposed development are considered to be negligible, therefore are not considered further within this report.
- 4.4 A detailed working methodology is not currently available; however it seems likely that the proposed works will impact the hedgerow (HPI) along the eastern boundary. The hedgerow is species rich and therefore considered to be of ecological value. Hedgerows provide structure in the landscape, habitat connectivity and create habitat for a variety of species. Therefore, loss and/or a reduction of this habitat has the potential to result in a negative ecological impact, a reduction in the biodiversity value of the area and fragmentation of habitats in the area.

Habitats

- 4.5 Development of the site will result in the loss of improved grassland within the field. This habitat is locally common and of limited ecological value.
- 4.6 The proposals are unlikely to involve works that will directly impact mature trees. However, indirect impacts include potential pollution incidents and potential impacts within trees root protection areas (RPA). Unmitigated works in close proximity to these habitats could cause a significant negative ecological impact.

Fauna

Bats

- 4.7 It is not anticipated that works will directly impact mature trees, however there are four oak trees with bat roost potential within close proximity to the proposed works (TN4). Disturbance through noise or artificial lighting within close proximity to these trees has the potential to impact roosting bats which would constitute an offence (see Appendix A).
- 4.8 The hedgerow and scrub provide foraging and commuting opportunities for bats. Loss or reduction of the hedgerow has the potential to impact upon foraging and commuting bats in absence of mitigation. Any additional lighting required as a result of the

development also has the potential to negatively impact foraging and commuting bats in the area.

Other mammals

- 4.9 Removal of the hedgerow and scrub has the potential to impact small mammals including European hedgehog (*Erinaceus europaeus*), which are potentially hibernating/sheltering in this habitat. Therefore, removal of the feature may cause disturbance and/or direct harm to any small mammals present during the works if undertaken without due care and attention.

Birds

- 4.10 Removal of the improved grassland has the potential to reduce the availability of foraging habitat for raptors and owls. However, due to the small footprint of the works, and alternative suitable habitat to the west and south of the site, it is considered that impacts to raptors and owls from the works is likely to be low.
- 4.11 Removal of the hedgerow, scrub and limbs of the adjacent mature beech trees could impact nesting birds if works are undertaken within the nesting bird season (March to August inclusive) and/or without due care and attention, which would constitute an offence (see Appendix A). The removal of this habitat will also result in the loss of suitable bird nesting and foraging habitat.

Amphibians

- 4.12 Impacts to the hedgerow and scrub has the potential to impact amphibians that may be sheltering in this habitat if works are undertaken without due care and attention. Clearance of this habitat may also result in the loss of refuge habitat for the species.
- 4.13 It is considered that the risks of encountering GCN are low as: 1) there are no records of GCN or common amphibians within the 1km search area; 2) the two ponds within 0.25 km of the site are ornamental with the nearest pond being recently excavated (within last 15 years); and 3) the relatively small amount of suitable terrestrial habitat to be impacted. However, encountering individual GCN within suitable terrestrial habitats (namely hedgerow) cannot be entirely ruled out.

5. Recommendations

- 5.1 This section provides the required measures to mitigate potential impacts of the proposed development. A key element of the National Planning Policy Framework is to minimise impacts to biodiversity and provide enhancements. Paragraph 109 states that *'The planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible'*. It also states in Paragraph 118 that *'when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by encouraging opportunities to incorporate biodiversity in and around developments'*. This section also therefore includes suggested enhancement measures. The following recommendations are designed to comply with legal requirements and national and local planning policy.

Habitats

- 5.2 It is recommended that the hedgerow HPI is retained and not impacted by the proposed works. If the hedgerow is to be impacted, appropriate mitigation measures will be required. Options include temporary removal and reinstatement or replanting of removed sections with suitable native species saplings of local provenance. Suitable species are given in Appendix G. In addition, further lengths of native species hedgerow could be established elsewhere. New planting should aim to link in to surrounding hedgerows and woody habitat with the creation of a new hedgerow along the western boundary.
- 5.3 The following measures will be undertaken to mitigate the potential impacts to the four mature oak trees:
- Protective fencing will be installed prior to works commencing to protect the trees from any machinery ingress, or storage of machinery or materials;
 - It is advised that a Root Protection Area (RPA²) of the tree is marked off prior to works, and no works will be undertaken within the designated RPA; and
 - Dust reduction measures; Maintaining high standards of housekeeping, using dust barriers, dampening down working areas in dry periods, adhering to all relevant guidance on the protection of ground water and soils and using covered wagons and skips.

Fauna

Bats

- 5.4 See paragraph 5.2 on hedgerow mitigation to ensure the continuation of foraging and commuting opportunities for bats within the area is maintained. Nectar rich shrub and tree species should be planted within the new garden and along the western site boundary which will attract insects and provide additional foraging habitat for bats.
- 5.5 No artificial lighting should be utilised outside of daylight hours. Any new lighting schemes during the construction phase should be designed in accordance with the appropriate guidance (Stone, 2013) to minimise the impacts on foraging bats likely to be utilising the surrounding habitats. This document includes (but not limited to) measures such as:
- Use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps;
 - Lighting should be directed to where it is needed and light spillage avoided, particularly avoided along the west and southern boundaries.

² British Standard 5837 Trees in relation to design, demolition and construction – recommendations, RPA is calculated by multiplying the diameter of the tree at breast height in metres by 12, but is capped as an area with a radius of 15m.

- 5.6 Further surveys (aerial inspection or emergence / re-entry) will be required should works to, or within close proximity of, any of the four mature oak trees adjacent to the western site boundary assessed as having bat roost potential.

Other mammals

- 5.7 It is recommended that contractors are made aware of the likely potential presence of small mammals, including hedgehog on site. Vegetation clearance will be undertaken with care to avoid disturbance to sheltering/hibernating mammals. Any debris from works will not be left on site and any holes, trenches or trial pits associated with works will be covered overnight or fitted with egress boards to prevent animals becoming trapped. Any small mammals found within the works area during construction will be carefully relocated to a sheltered location with plenty of vegetation cover, in an area off site which will remain undisturbed.

Birds

- 5.8 No works to the hedgerow, scrub and overhanging adjacent beech trees should be carried out during the breeding bird season (March to August inclusive) to avoid impacts on nesting birds.
- 5.9 Any works to the aforementioned habitats that must be carried out within the breeding bird season will be subject to a pre-clearance bird survey carried out by a suitably experienced ecologist. No works will be carried out within 5 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 scheme ecologist has declared the nest to be no longer in use.

Amphibians

- 5.10 From results showing no GCN within 1 km of the site and the ornamental nature and recent excavation of the closest pond within 0.25 km, it is considered unlikely that GCN are present within the working area. However, the presence of GCN cannot be entirely ruled out and it is recommended that contractors are made aware of the potential presence of this species and other amphibians on site. Based on the current understanding of the proposed works, it is considered that Reasonable Avoidance Measures (RAMS) are appropriate to mitigate for the low risk to GCN and therefore reduce to a negligible level:
- Hand search for amphibians, including GCN, prior to any hedgerow removal by a suitably qualified ecologist;
 - Any brash/log/rubble piles should be dismantled by hand and be taken out of the working area for use to create habitat piles in suitable locations outside of the proposed works location;
 - Any excavations should be backfilled, covered over, or a means of escape provided (e.g. plank) at the end of each day in order to prevent amphibians becoming stranded within trenches;
 - All works, stockpiling of materials or storage of machinery must be contained within sub-optimal habitat (hard standing); and
 - In the event that any GCN are encountered during the works, all works must cease immediately and the ecologist contacted for further advice. Any GCN should be moved by a suitably qualified ecologist to a suitable location outside the works location.

Enhancement measures

- 5.11 As designs for the site develop an ecologist can provide site specific advice on ways to provide enhancements, in addition to mitigation, to improve the wildlife value of the final development and contribute towards a net gain in biodiversity. Simple examples of

enhancement measures which could be considered and designed into the proposals include (but are not limited to):

- Installation of additional wildlife boxes (bird and bat) on suitable trees close to the site;
- Additional plantings within the new development (preferably on the western site boundary) would provide foraging habitat for a variety of species, and therefore have the potential to increase the biodiversity value of the site. Native, nectar rich plants that attract insects would be recommended as they would enhance foraging opportunities for bats in the local area;
- Additional planting of trees and shrubs will also provide terrestrial habitat for amphibians and arisings from vegetation removal can be retained and used to create hibernacula;
- Provision of artificial or natural hedgehog boxes located in a quiet, undisturbed area with ground covering vegetation, preferably against a hedgerow, wall or fence. For example, three or four logs may be arranged to leave an appropriate sized hole for a hedgehog to nest in (big enough for the hedgehog and its nest) and covered with masses of twigs and leaves. Retaining wood piles attracts invertebrates and fungi, providing a good local food source for hedgehogs and possible nesting sites (materials from site works could be used for this purpose).

Re-survey of the Site

- 5.12 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

British Standards Institution (2013) BS 42020:2013 Biodiversity – Code of practice for planning and development. British Standards Institution, London.

British Standards Publication. 2015. BS8596:2015. Surveying for bats in trees and woodland – Guide. BSI standards Limited

BTHK, 2018. Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals. Pelagic publishing, Exeter.

CIEEM (2017a) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017b) Guidelines for Preliminary Ecological Appraisal 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Institute of Lighting Professionals (2018) Bats and artificial lighting in the UK. The Bat Conservation Trust, London.

JNCC (1993 revised 2010) Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint). Joint Nature Conservation Committee, Peterborough.

Natural England. 2004. *Bat Mitigation Guidelines*.

Stace, C. (2010) New Flora of the British Isles. Third Edition. Cambridge University Press, Cambridge.

Stone, E. L. (2013) Bats and Lighting: Overview of current evidence and mitigation guidance

Appendix A - Summary of Relevant Legal Information³

Species	Legislation	Offences	Notes on licensing procedures and further advice
Species that are protected by European and national legislation			
Bats <i>European protected species</i>	Conservation of Habitats and Species Regulations 2017 Reg 41 Wildlife and Countryside Act 1981 (as amended) ⁴ S.9	Deliberately ¹ capture, injure or kill a bat; Deliberate disturbance ² of bats; Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present. Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	An NE licence in respect of development is required in England. <i>European Protected Species: Mitigation Licensing- How to get a licence</i> (NE 2010) <i>Bat Mitigation Guidelines</i> (English Nature 2004) <i>Bat Workers Manual</i> (JNCC 2004) Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Birds	Conservation of Habitats and Species (Amendment) Regulations 2017 Wildlife and Countryside Act 1981 (as amended) ⁴ S.1	• N/A Intentionally kill, injure or take any wild bird; Intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; Intentionally take or destroy the nest or eggs of any wild bird. Schedule 1 species: Special penalties are liable for these offences involving birds on Schedule 1.	Authorities are required to take steps to ensure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat. This includes activities in relation to town and country planning functions. No licences are available to disturb any birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety.
Rabbits, foxes and other wild mammals. For BAP species and Species of Principal Importance, see below	Wildlife and Countryside Act 1981 (as amended) ⁴ S.9 Wild Mammals (Protection) Act 1996	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place. Intentionally inflict unnecessary suffering to any wild mammal.	Licences issued for science (survey), education and conservation by NE. Natural England provides guidance in relation to rabbits (Technical Information note TIN003, Rabbits- management options for preventing damage, July 2007) and foxes (which are also protected under the Wildlife and Countryside Act 1981 from live baits and decoys, see Species Information notes SIN003 (2011), <i>Urban foxes</i> and SIN004 (2011) <i>The red fox in rural areas</i> as well as other wild mammals. Lawful and humane pest control of these species is permitted.
Great crested newt	Conservation of Habitats and Species Regulations 2010	• Deliberately ¹ capture, injure or kill a great crested newt; • Deliberate disturbance ² of a great crested newt;	Licences issued for development by NE. https://www.gov.uk/great-crested-newts-protection-surveys-and-licences

³ This report provides guidance of potential offences as part of the impact assessment. This report does not provide detailed legal advice and for full details of potential offences against protected species the relevant acts should be consulted in their original forms i.e. The Wildlife and Countryside Act, 1981, as amended, The Countryside and Rights of Way Act 2000, The Natural Environment and Rural Communities Act, 2006 and The Conservation of Habitats and Species Regulations 2010.

Species	Legislation	Offences	Notes on licensing procedures and further advice
European protected species	Reg 41	- Deliberately take or destroy its eggs; - Damage or destroy a breeding site or resting place used by a great crested newt.	European Protected Species: Mitigation Licensing - How to get a licence (NE 2010) Great Crested Newt Mitigation Guidelines (English Nature 2001)
	Wildlife and Countryside Act 1981 (as amended) ¹ S.9	Intentionally or recklessly ³ obstruct access to any structure or place used for shelter or protection or disturb a great crested newt in such a place.	Licences issued for science (survey), education and conservation by NE.

¹Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing ²Deliberate 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 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. Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2010 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided. Thus deliberate disturbance that does not result in either (a) or (b) above would be classed as a lower level of disturbance. ³The term 'reckless' is defined by the case of Regina versus Caldwell 1982. The prosecution has to show that a person deliberately took an unacceptable risk, or failed to notice or consider an obvious risk. ⁴ The Wildlife and Countryside Act (1981) has been updated by various amendments, including the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006. A full list of amendments can be found at <http://mcc.delta.gov.uk/page-1377>.

Habitats & Species	Legislation (England & Wales)	Guidance
Species and Habitats of Principal Importance for the Conservation of Biodiversity	Natural Environment & Rural Communities Act 2006 S.40 (which superseded S.74 of the Countryside & Rights of Way Act 2000).	S.40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England. Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretaries of State for England and Wales, in consultation with NE, are referred to in S.41 of the NERC Act for England. The list of habitats and species was updated in 2008: England: http://www.ukbap-reporting.org.uk/news/details.asp?x=45 The habitats and species listed are not necessarily of higher biodiversity value, but they may be in decline. Habitat Action Plans and Species Action Plans are written for them or are in preparation, to guide their conservation. Ecological impact assessments should include an assessment of the likely impacts to these habitats and species.

Appendix B - Bat Roost Potential Criteria (Collins, 2016)

Suitability	Description of Roosting Habitat	Commuting & Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitats to be used on a regular basis or by a larger number of bats (i.e. unlikely to be suitable maternity or hibernation). A tree of sufficient size and age to contain potential roosting features but with none seen from the ground, or feature seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging, such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis, and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	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 and connected to known roosts.

Appendix C - Target Notes

Target Note	Details	Photo
TN1	The majority of the site comprises a heavily grazed improved field. Species present include Yorkshire fog (<i>Holcus lanatus</i>), perennial rye grass (<i>Lolium perenne</i>), creeping buttercup (<i>Ranunculus</i>) and chickweed (<i>Stellaria media</i>), with occasional nettle (<i>Urtica dioica</i>). To the south east of the site, the grassland is damper in nature with soft rush (<i>Juncus effusus</i>) present.	
TN2	A species rich, hedgerow is present on the eastern boundary, adjacent to George Lane. The hedgerow measures approximately 1.5 m high and 1 m in width with a stone wall running adjacent for approximately half the hedgerows length. Canopy species include blackthorn (<i>Prunus spinosa</i>), hawthorn (<i>Crataegus monogyna</i>), elder (<i>Sambucus nigra</i>), sycamore (<i>Acer Pseudoplatanus</i>), holly (<i>Ilex aquifolium</i>) and rose sp (<i>Rosa</i>). Ground flora comprises ivy (<i>Hedera</i>), bramble (<i>Rubus fruticosus</i>), nettle and St Johns Wort (<i>Hypericum perforatum</i>).	
TN3	Six mature beech trees (<i>Fagus sylvatica</i>) with over hanging limbs are present within the residential garden adjacent to the site's southern boundary. Two squirrel dreys and a single bird box are present on the trees.	
TN4	A group of four mature oak trees (<i>Quercus</i> sp.) are adjacent to the site's western boundary and will not be impacted by works.	
TN5	A small, decaying tree stump is present within the improved grassland.	

Target Note	Details	Photo
TN6	Elder (<i>Sambucus nigra</i>) scrub adjacent to the stone wall.	

Appendix D - Phase 1 Habitat plan



Appendix E - Suggested Species for Tree and Shrub Planting

Tree and shrub planting mix						
Scientific name	Common name	Location / Landscape Type		Local Conditions		
		County Wide	Lowlands Below 75m	Soil	Hydrology	
				Neutral	Damp	Dry
<i>Betula pendula</i>	Silver Birch		*	*		*
<i>Betula pubescens</i>	Downy Birch		*	*	*	
<i>Corylus avellana</i>	Hazel		*	*		*
<i>Crataegus monogyna</i>	Hawthorn	*	*	*		*
<i>Ilex aquifolium</i>	Holly	*	*	*		*
<i>Malus sylvestris</i>	Crab Apple		*	*		*
<i>Prunus avium</i>	Wild Cherry		*	*		*
<i>Prunus padus</i>	Bird Cherry			*		*
<i>Prunus spinosa</i>	Blackthorn		*	*		*
<i>Quercus petraea</i>	Sessile Oak					*
<i>Quercus robur</i>	Pedunculate Oak		*	*		*
<i>Rosa arvensis</i>	Field Rose		*	*		*
<i>Rosa canina</i> agg.	Dog Rose		*	*		*
<i>Salix caprea</i>	Goat Willow		*	*	*	
<i>Salix cinerea</i>	Grey Willow		*	*	*	
<i>Sambucus nigra</i>	Elder		*	*		*
<i>Sorbus aucuparia</i>	Rowan	*	*	*		*
<i>Viburnum opulus</i>	Guelder-rose		*	*	*	

