brindle& green | ecological consultants

PRELIMINARY ECOLOGICAL APPRAISAL

Land off Fullwood Drive, Golcar
Report Reference: BG17.254
October 2017

Brindle & Green Ecological Consultants specialise in delivering high quality and affordable ecological surveys and reports-tailored for their suitability for informing planning applications.

Brindle & Green surveyors have the necessary experience, technical ability, qualifications and accreditations to meet the high demands increasingly enforced by Local Authorities and Natural England.

Projects are undertaken against the recognised guidelines for the species or habitats being studied. Brindle & Green reports are uniquely designed to provide the reader with the best possible understanding of our client's proposals and to ensure that the information requested by the Local Planning Authority is easily found and understood.

This report has been prepared in accordance with the CIEEM (2015) **Guidance on Ecological Report Writing.** Chartered Institute of Ecology and Environmental Management, Winchester and CIEEM (2013) Technical guidance series, **Guidelines for Preliminary Ecological Appraisal.** Chartered Institute of Ecology and Environmental Management, Winchester

www.brindlegreen.co.uk



Sheffield Office
Brindle & Green Limited
Horizon House
Whiting Street
Sheffield S8 9QR

Barnsley Office
Brindle & Green Limited
Sergeants House
36 Edderthorpe Lane
Barnsley S73 9AT

Head Office
Brindle & Green Limited
Unit 3 Silverhill Court
Radbourne
Derby DE6 4LY
Tel: 01332 224 213

London Office
Brindle & Green Limited
Nutter Lane
Wanstead
London E11 2HZ

Kent Office
Brindle & Green Limited
Sandy Lane
Sevenoaks
Kent TN13 3TP

brindle& green

DOES YOUR REPORT MAKE RECOMMENDATIONS FOR

FURTHER SURVEY WORK, MITIGATION, MONITORING OR ENHANCEMENT?

Our consultancy services include specialist species surveys, landscape and mitigation, including European Protected Species Development Licenses, on site supervision and monitoring.

Our contracting team deliver on site mitigation including exclusion fencing, badger sett construction and closure, tree climbing and soft landscaping.

For further information on consultancy or from our construction team please contact us on...

01332 224213

info@brindlegreen.co.uk

www.brindlegreen.co.uk

DID YOU KNOW BRINDLE & GREEN ALSO OFFER...

brindle& green ecological consultants

Our ecology team provide extended habitat, botanical and species survey including bat work. We also specialise in obtaining European Protected Species Licenses.

brindle& green arboriculture

Our arboriculture team deliver industry standard tree surveys, root impact assessment and tree protection plans.

brindle& green marine

Our marine team deliver shoreline surveys, marine mammal surveys, coral reef impact assessments and more within an ever diversifying division.

brindle& green environmental contractors

Our in house contracting team deliver GCN / Reptile fencing, badger sett exclusion and closure and habitat creation services.

brindle& green science

Our science team offer GCN eDNA analysis & sample training, Bat eDNA analysis and can now provide White Clawed Crayfish eDNA analysis too.

Document Control

Report	Name	Signature	Date
Prepared by	Zoe Dryden	REDACTED	25/09/2017
1st Check by	Lucinda Sweet	REDACTED	13/10/2017
2nd Check by	Neil Crofts	REDACTED	13/10/2017
Issued by (PDF)	Emily Major	REDACTED	13/10/2017
Rev1			

Liability

Brindle & Green has prepared this report for the sole use of:

Acumen Designers & Architects

The report is in accordance with the agreement under which our services were performed. No warranty, express or implied, is made as to the advice in this report or any other service provided by us. This report may not be relied upon by any other party except the person, company, agent or any third party for whom the report is intended without the prior written permission of Brindle & Green.

The content of this report is, at least in part, based upon information provided by others and on the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from any third party has not been independently verified by Brindle & Green unless otherwise stated in the report.

COPYRIGHT

© This report is the copyright of Brindle & Green. Unauthorised reproduction or usage by any person is prohibited.

Project Details

Project carried out by:

Brindle and Green

Unit 3, Silverhill Court
Radbourne
Derby.
DE6 4LY
Head Office: 01332 224213
Email: info@brindlegreen.co.uk
Website: www.brindlegreen.co.uk

Project carried out for:
Mr Hamish Gledhill

Acumen Designers & Architects

Headrow House
Old Leeds Road
Huddersfield
HD1 1SG
Tel: 01484 546000
Email: hamish@acumenarchitects.co.uk

Project site:

Land off Fullwood Drive

Golcar
Huddersfield
HD7 4JH

Grid Ref. SE 09599 15668

Contents

1 Summary 7
2 Introduction 9
3 Methodology 10
3.1 Desk Study 10
3.2 Surveyors 10
3.3 Survey Conditions 10
3.4 Extended Phase 1 Habitat Survey 11
3.5 Limitations 12
3.6 Report Lifespan 13
4 Site Context 14
5 Results 16
5.1 Desk Study 16
5.2 Habitats 16
5.2 Fauna 23
5.3.1 Breeding Birds 23
6 Evaluation 26
7 Recommendations 30
7.1 Habitats 30
7.2 Breeding Birds 30
7.3 Foraging & Commuting Bats 31
7.4 Badgers 32
7.5 Great Crested Newts 33
7.6 Reptiles 34
7.7 Invasive Weeds 34
Appendix 1. Phase 1 Habitat Plan 36
Appendix 2. Phase 1 Target Notes & Plant Species 37
Appendix 3. General References 39
Appendix 4. Legislation, Policy and Guidance 41
Appendix 5. Legislation, Guidance and Methodology in Relation to the Identified Constraints 42
Appendix 6. Current Layout & Proposed Plans 52
Appendix 7. Magic Data 53
Appendix 8. Ecological Data Search Information 56

1 Summary

1.1 Brindle & Green Ecological Consultants Ltd were commissioned by Acumen Designers and Architects to undertake a Preliminary Ecological Appraisal incorporating a Phase 1 Habitat Survey and Protected Species Assessment at an area of land off Fullwood Drive, Golcar. This report summarises the potential ecological constraints to the outline planning application for the development of eight residential dwellings. Proposed site plans are presented in Appendix 6 of this report. The survey was carried out on the 23rd August 2017.

1.2 The project area is approximately 0.4ha in extent and incorporates a mosaic of tall ruderal herbs, scrub and scattered trees, with areas of Schedule 9 invasive species recorded throughout the site. The site was assessed to have low ecological value, and site value in a regional context.

1.3 The habitats described within this report have the potential to support a number of protected and/or notable species and as such, further protected species surveys and mitigation have been recommended to inform the baseline ecological impacts associated with the proposed development of the site.
A full description of the recommendations can be found within Chapter 7, the table below is a summary of the ecological issues recommended for further consideration as a result of our initial investigations:

Ecological Consideration	Recommendations (e.g. further survey, mitigation)	Timing
Habitats	Construction of LEMP / EEMP to secure ecological enhancement and management within retained habitats. See Chapter 7 for details.	Pre-development
Breeding Birds	Vegetation removal to be undertaken outside nesting bird season. If this is not possible, alternative measures should be undertaken. See Chapter 7 for details.	Vegetation removal during October – February.
Foraging & Commuting Bats	Moderate value foraging and commuting recorded across the site. Where significant vegetation removal is proposed, further activity surveys should be carried out. See Chapter 7 for details.	April – October

Badgers	Badger survey to be undertaken during winter/spring.	December – May
Great Crested Newts	Site clearance should avoid hibernation period (October – February, inclusive). Sensitive working methods should be adopted during site clearance. See Section 7 for details.	March - September
Reptiles	Site clearance should avoid hibernation period (October – February, inclusive). Sensitive working methods should be adopted during site clearance. See Section 7 for details.	March - September
Invasive Species	Removal of invasive species from the site. See Section 7 for details.	All year round.

2 Introduction

2.1 The purpose of this assessment was to provide a Preliminary Ecological Appraisal of the site incorporating a Phase 1 Habitat Survey and Protected Species Assessment to establish the likelihood of the site supporting protected species. The survey provides detail on the need for any additional, more detailed protected species surveys, likely mitigation and any opportunities for enhancement.

2.2 The project area is approximately 0.4ha in extent and is located within the village of Golcar, within the western outskirts of the town of Huddersfield. Residential plots border the northern, southern and western site boundary, whilst the eastern boundary is bordered by a public footpath, which separates the site from similar habitats to the east. The site is the subject of an outline planning application for the development of eight residential dwellings. Proposed site plans are presented in Appendix 6 of this report.

2.3 The legislation relevant to protected species within the United Kingdom is summarised within Appendix 2.

2.4 Results and recommendations contained within this report have been prepared by an experienced ecologist and are therefore the view of Brindle & Green Limited. The survey is based on information provided by our client, the development proposals, results of the desk study, and our survey of the site. This report pertains to this information only.

3 Methodology

3.1 Desk Study

Table 1 below lists organisations and/or resources used as part of the desk study process. Data regarding any known statutory or non-statutory sites, in addition to any records for protected species, were requested from the following sources:

Table 1. Ecological Data Resources

Consultant	Requested Data	Search Radius	Date Requested
MAGIC Maps	National and International Site Designations Granted EPS Development Licences	2km	02/10/2017
Keystone Ecology	Land off Fullwood Drive, Golcar – Ecological Appraisal (January 2014)	N/A	N/A

An updated local records centre search was not requested by the client.

3.2 Surveyors

Survey carried out by Zoe Dryden BSc (Hons.), Ecologist.

The survey was supervised by Chris Needham MSc. MCIEEM who holds a Natural England Bat Licence (2015-10292-CLS-CLS) and Great Crested Newt Licence (2015-17910-CLS-CLS).

3.3 Survey Conditions

The survey was undertaken at 12:00pm on the 23rd August 2017.

The outside temperature was recorded as 18°C, with dry, sunny conditions, and 2/8 cloud cover.

3.4 Extended Phase 1 Habitat Survey

3.4.1 A Phase 1 habitat survey was undertaken following survey guidance (JNCC 2007) to establish the presence and distribution of habitat types within the site and potential ecological constraints to development. A Phase 1 Habitat Map was produced (Appendix 1) and where additional details were required Target Notes have been provided (Appendix 2). A plant species list (Appendix 2) summarising all plants identified on site was produced during the survey and all scientific nomenclature was produced according to Stace (2010).

3.4.2 This survey was extended to note the potential for habitats on site to support protected and/or notable species and for evidence of any such species. The habitats on site were assessed for their suitability to support protected species in relation to the habitat type found at the site. Any incidental sightings or field signs were noted at the time of survey. Where evidence of, or the confirmed presence of a protected species was identified, further species specific surveys may be recommended to ensure that the presence or otherwise of a legally protected species is fully considered prior to the determination of any planning approval or to guide an EPS development licence.

3.4.3 Hedgerows on site were assessed following the Hedgerow Survey Handbook (DEFRA 2007), and defined as species-rich if the structural species making up a surveyed 30m section of hedgerow included at least four native woody species. Results were compiled and assessed against qualifying criteria within the Hedgerow Regulations (1997) and also the UK Biodiversity Action Plan.

3.4.4 Legislation, guidance and methodology for species relevant to this site are presented in full within Appendix 3 of this report.

3.4.5 **Site Evaluation**

Following the ecological appraisal the site was classified into one of six groups (Table 2), to indicate whether the site is considered to hold ecological value on a local, national or international scale. *This evaluation is intended as a guide and only targeted survey work can establish the significance of protected species populations onsite*.

Table 2. Definitions of each of the six evaluation brackets, indicating the importance of each habitat type and an example of their possible habitat status. (Table constructed following The CIEEM EcIA Guidelines, Terrestrial, Freshwater and Coastal (2016) pages 16-17).

Evaluation Value	Comparable example
International	An internationally designated site or candidate site, including habitat or species included within Special Protection Areas (SPA) / Special Areas of Conservation (SAC), Ramsar Sites, listed under Annex 1 of the Habitats Directive.
National	Sites designated at UK level, e.g. Sites of Special Scientific Interest (SSSI), supporting species considered nationally threatened or rare. A regularly occurring regionally or county significant population/number of any nationally important species A feature identified as of critical importance within Section 41 of the NERC Act (2006).
Regional	Key Habitat type included within BAP. A regularly occurring, locally significant number of a regionally important species.
County	Designated sites, such as Sites of Biological Importance (SBIs) or viable habitat / species populations of value at a county level (LBAP).
District	District level designated sites, such as Local Wildlife Sites (LWS) or habitats / species populations of value at a district (Which have features qualifying for LWS status). Sites/features that are scarce within the district or which appreciably enrich the district habitat resource.
Local / Site	Habitats or species populations of value in a local (i.e. within ~ 5km of the site) context. Habitats of poor to moderate biological diversity e.g. established conifer plantations, species poor hedgerows and un-intensively managed grassland which supports species which are common to the local area and whose loss can be easily mitigated.

3.5 Limitations

3.5.1 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment. The protected and notable species assessment provides a preliminary view of the likelihood of these species occurring on site, based upon the suitability of the

habitats, known distribution of the species in the local area and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group.

3.5.2 Due to the overgrown nature of some vegetation, it was not possible to access all areas of the site, however this is not considered to be a significant constraint to the survey and it was still deemed possible to confidently assess habitats for their importance. Where species assessments have not been fully comprehensible, further species surveys have been recommended.

3.6 Report Lifespan

Given the transient nature of the subject we would consider the survey results contained to be accurate for 2 years.

4 Site Context

4.1 Site Description

4.1.1 The application site can be found at: Grid Ref. SE 09599 15668. The site is located within the south-western edge of the village of Golcar, within the western outskirts of the town of Huddersfield. The northern, southern and western site boundaries are surrounded by residential plots and the eastern end of Fullwood Drive reaches the northern end of the western boundary. The eastern boundary is bordered by a public footpath which separates the site from similar habitat to that on site.

4.1.2 The wider environment is dominated by residential development interspersed with agricultural land and woodland to the north and east, and agricultural land and woodland to the south and west. Mature residential gardens contain mature trees and hedgerows and the nearest woodland is close to the southern end of the eastern site boundary, making the site well connected the surrounding environment. A number of features located to the south-east of the site create barriers to terrestrial species dispersal; a railway line is located approximately 490m south-east of the application site at its closest point, from which it runs south-west and north-east. In addition, Huddersfield Narrow Canal, the River Colne and the A62 all run almost parallel to this railway, at distances of 620m, 650m and 880m, respectively, from the application site.

4.2 Zone of Influence

The zone of influence describes the geographic extent of potential impacts of a proposed development. The small scale of the redevelopment reduces the impact of the development on the wider area, however the suitability of the wider landscape to support foraging bats and birds, coupled with suitable commuting habitat increases the likelihood of these species being present on site. Although the site contains suitable habitats to support some protected species, nearby areas of woodland provide areas of equal, if not increased value to protected species, and provide major connectivity to the surrounding environment. Therefore, the habitats onsite are unlikely to contribute significantly to local wildlife corridors.



Figure 1. OS map of the project site and surrounding area.

Red line boundary depicts application site.

5 Results

5.1 Desk Study

5.1.1 Designated Sites

The site was subjected to a search for designated sites within a 2km radius of the site using data supplied by the online desk based resource MAGIC. A search of the online resource Magic Maps found no sites with Statutory designations within the 2km radius search. The closest designated site located to the application site is Gledholt Woods Local Nature Reserve (LNR), located over 3.3km north-east of the site.

5.1.2 Protected Species Assessment

Magic maps did not reveal any granted EPS licence within 2km of the site. The closest record was located just over 2km south of the site, referring to common pipistrelles and expiring in 2018.

5.2 Habitats

The habitat types recorded on site are summarised below, and the frequency and distribution of habitat types is displayed within a Phase 1 Habitat Survey Map (Appendix 1 and 2). Table 5 provides a list of habitat types present on site along with their inclusion (or otherwise) in National (NBAP) and/or Local Biodiversity Action Plans (LBAP).

(It should be noted that additional information is included within the text where a classification under Phase 1 survey methodology does not mirror habitat types considered to be conservation priorities).

Table 5. JNCC Habitat Types found on site and inclusion within UK BAP habitats.

Habitat Type	NBAP	LBAP	N/A
Scrub		✔	
Tall Ruderal Herbs			✔
Scattered Trees			✔
Bracken			✔
Non-native Hedgerow			✔
Running Water / Wet Ground			✔
Invasive Weeds			✔

5.2.1 Scrub

Scattered blackberry (*Rubus fruticosus*) was present throughout the site; occasional hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), dogwood (*Cornus sanguinea*), field-rose (*Rosa arvensis*) was scattered in places and a single record of *Cotoneaster sp*. was made. Two dense areas of scrub within the north-west corner and the centre of the site were also present, both of which consisted entirely of blackberry.

5.2.2 Tall Ruderal Herbs

The site was heavily dominated by dense tall ruderal herbs. Rosebay willowherb (*Chamerion angustifolium*) and common nettle (*Urtica dioica*) were the dominating species throughout the site, and cleavers (*Galium aparine*) was frequently found throughout the site.



Figure 2. Example of dense tall ruderal herbs with occasional scattered scrub which dominated the site.

5.2.3 Scattered Trees

Occasional, early-mature oak (*Quercus sp.*), ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*) were scattered within the centre of the site, at the western end of the northern boundary, and along the eastern boundary, forming a scattered treeline. A large stand of young trees of the same species, with the addition of wych elm (*Ulmus glabra*), was present within the south-east corner of the site. In addition, young or early-mature apple (*Malus sp.*), conifer (*Pinophyta sp.*), almond willow (*Salix triandra*) and osier (*Salix viminalis*) rarely occurred. The ground layer within the shaded areas of stands of trees included sapling holly (*Ilex aquifolium*), ivy (*Hedera helix*), bracken (*Pteridium sp.*) and herb robert (*Geranium robertianum*), however areas of bare ground did occur.



Figure 3. Example of young scattered trees located in the south-east corner of the site.

5.2.4 Bracken

A single patch of dominating bracken (*Pteridium sp.*) measuring approximately 50m^2 was located adjacent to the northern boundary of the site. Bracken was also occasionally found in shaded areas under stand of trees throughout the site.



Figure 4. Area dominated by bracken inside the northern site boundary.

5.2.5 Non-native Hedgerow

A short, managed section of *Pinophytus spp*. hedgerow lined the eastern end of the northern boundary. A short section of unmanaged garden privet (*Ligustrum ovalifolium*) also lined the northern end of the eastern site boundary. Although this may initially have been planted as a hedgerow, along with the scattered trees which line the eastern boundary, they had not been managed and had been allowed to develop into a scattered treeline.



Figure 5. Non-native managed hedgerow located at the eastern end of the northern site boundary.

5.2.6 **Running Water / Wet Ground**

An area of wet ground was recorded towards the centre of the site (Appendix 2, T4), created by a trickle of water running downslope, the source of which was unclear at the time of survey. The previous PEA report carried out by Keystone Ecology in January 2013 suggests that two pipes drained into the northern end of the site and that water was collected into a concrete walled pool to form an area of standing open water. However, neither pipes nor a concrete pool structure were located during this survey, and as a result, the minimal trickle of running water which was located towards the centre of the site had created a small area of wet ground under the shade of scattered trees. The species composition within this region did not differ from that surrounding it, and was dominated primarily by common nettle and bramble. Due to the application site having such a steep topography, the water appeared to be mostly draining away from the site, rather than collecting in pools, preventing a significant change in onsite habitats.



Figure 6. Area of damp ground towards the centre of the site.

5.2.7 **Invasive Weeds**

Japanese knotweed (*Fallopia japonica*), Indian balsam (*Impatiens glandulifera*), variegated yellow archangel (*Lamiastrum galeobdolon argentatum*) and montbretia (*Crocosmia x crocosmiiflora*) had established themselves onsite. Japanese knotweed and Indian balsam densely covered large regions in the southern end of the site and Indian balsam was also frequently scattered throughout the eastern half of the site and occasionally within the western half of the site. However, variegated yellow archangel and montbretia only occurred once each within the north-western corner of the site. All of the above species are listed on Part II of Schedule 9 of the wildlife and countryside Act 1981 (as amended) and as such any person who causes these species to grow or spread in the wild by dumping or other means is guilty of an offence.



Figure 7. Dense Indian balsam and Japanese knotweed located at the centre of the southern end of the site.

5.2 Fauna

5.3.1 **Breeding Birds**

Scrub and scattered trees on site contained suitable nesting bird habitat for a number of common bird species, and based on the amount of woodland within the local surroundings, it is possible that the site could support species of high conservation concern. Wood pigeon (*Columba palumbus*), jackdaw (*Corvus monedula*), jay (*Garrulus glandarius*) and magpie (*Pica pica*) were recorded on site.

5.3.2 **Roosting Bats**

Scattered trees onsite were assessed and categorised based upon Bat Conservation Trust guidance (see Appendix 5), with all scattered trees within the site boundary assessed to have negligible potential to support roosting bats. Despite some of the trees being early-mature in nature, they did not support suitable cracks, fissures or holes to support roosting bats.

5.3.3 **Foraging & Commuting Bats**

The site was dominated by tall ruderal herbs, with high levels of invasive weeds throughout, which provided good suitable foraging habitat for a limited portion of the year. These habitats were therefore awarded low-negligible suitability. The scattered trees and scrub onsite, particularly that which lined site boundaries, provided a higher value foraging and commuting habitat for bats all year round. However, the value of this habitat and its likelihood to support large numbers of bats, is reduced slightly when the site is compared with the expanses of woodland present within the local area, reducing the site's local value. The boundary trees and scrub, and the scattered trees across the site are considered to provide 'Low Suitability' foraging and commuting habitat for local bat populations due to the connectivity to the wider environment created by adjacent comparable habitats to those onsite, to the east, mature residential gardens to the north, south and west, and woodland to the south-east.

5.3.4 **Badgers** (*Meles meles*)

No evidence of badger setts, or activity such as mammal runs, snuffle holes and latrines were found during the ecological appraisal of the site, however due to then overgrown nature of the site, the ground vegetation was too dense to be properly assessed and it is possible that evidence may have been missed.

As the site provided some suitable foraging habitat for badgers in the form of scattered and dense scrub, it is possible that even if badgers are not residing onsite, they may visit the site on an intermittent basis for foraging purposes, particularly given the presence of woodland within close vicinity of the site.

5.3.5 **Great Crested Newts** (*Triturus cristatus*)

There were 2 ponds located within 500metres of the site (Figure 8). Neither of these ponds were able to be assessed for their suitability for great crested newts as they were both located on private land and could therefore not be accessed. All habitats onsite provided suitable refugia for the terrestrial phase of this species, although there was no suitable aquatic habitat located onsite. As both Ponds 1 and 2 are relatively isolated within the surrounding environment from further aquatic habitat, it is unlikely that either pond supports significant numbers of great crested newts. In addition, as both ponds are already surrounded by vegetative habitat of equal or higher value to that located on site, it is less likely that great crested newts, if present within either of these ponds, would utilise the application site for overwintering purposes.

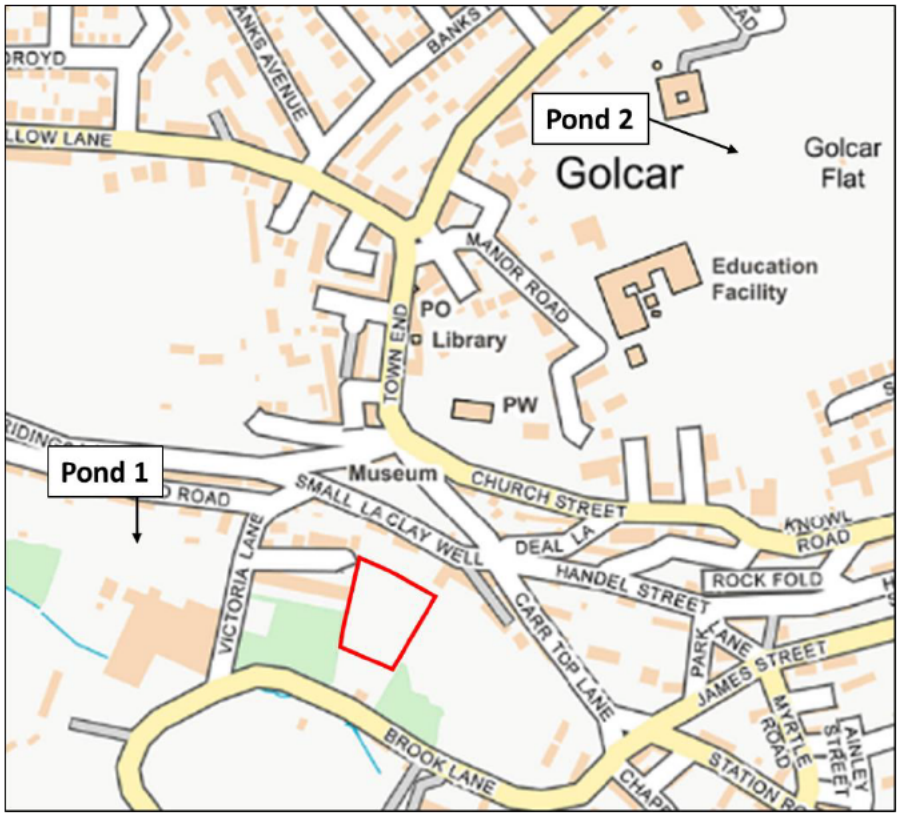


Figure 8. OS Map showing pond locations within a 500metre radius of the site. Grid references and further detail on their suitability for GCN are evaluated in Table 6.

Table 6. Pond locations and suitability for great crested newts.

Pond No.	Grid Ref.	Habitat Suitability Index Score	Distance from Site
1	SE 09408 15726	N/A – unable to access due to location on private land.	168m W
2	SE 09883 16051	N/A – unable to access due to location on private land.	434m NE

5.3.6 **Reptiles**

The site was relatively undisturbed and contained suitable refugia to support common reptile species, in the form of unmanaged tall ruderal herbs and scrub. However, no evidence of reptiles was recorded during the survey and the site was lacking a variable sward structure. As a result, basking habitat was limited to a small region of unmanaged grassland in the north-east corner of the site. The woodland, grazing pasture and residential gardens in the wider environment provide a large enough habitat expanse to support populations of common reptile species, suggesting that reptiles may be present in these regions. However, the small scale of the site is unlikely to support high numbers, or permanent populations, of reptiles, and is more likely to support occasional individuals on the edge of their habitat range.

6 Evaluation

6.1 Development Proposals

The site is the subject of an outline planning application for the development of eight residential dwellings. Proposed site plans are presented in Appendix 6 of this report.

6.2 Desk Study Impacts

Direct impacts on nearby designated sites as a result of the proposed development are considered unlikely as there were no statutory sites located within 2km of the application site. The closest site is positioned over 3.3km north-east of the site and although linear features could connect to this site, it is difficult to substantiate an effect from the development.

6.3 Habitats

6.3.1 The habitats on site have been evaluated as being of low ecological value in relation to local surroundings and a regional context. The site was dominated by tall ruderal herbs containing scattered scrub, trees and invasive weeds. There are no NBAP habitats onsite and the only LBAP habitat is the scrub, which was identified to densely cover only a very small area. This, combined with the significant distribution of invasive weeds, means that the site is not considered to be of local or national importance, botanically. As invasive weed removal will form part of the development, and additional native planting can be incorporated post development, the site has the potential to be botanically improved by the development. Chapter 7 provides recommendations of enhancement measures.

6.3.2 The presence of Schedule 9 invasive species including Japanese knotweed, Indian balsam, variegated yellow archangel and montbretia, requires treatment or removal prior to ground clearance. The recommendations (Section 7) of this report provide further guidance and advice on this subject.

6.4 **Breeding Birds**

6.4.1 All wild birds, their eggs and nests are protected under the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure, or take any wild bird whilst nesting, or take, damage or destroy the nest of any such bird while in use or being built. In addition, species listed on Schedule 1 of the Wildlife and Countryside Act 1981 or their dependant young are afforded additional protection from disturbance whilst they are at their nests.

6.4.2 The vegetation on site, primarily the scrub and scattered trees, provided suitable nesting habitat for a number of common bird species and has the potential to support birds of high conservation concern. Any clearance works proposed on site should be well-timed in order to prevent direct or indirect impacts on individual birds, their young, eggs and habitats. Chapter 7 sets out important guidance on measures to avoid impacts on this species group and measures to support its conservation status.

6.5 **Roosting Bats**

All bats in the United Kingdom and their habitats are fully protected under the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2010 (as amended). It is an offence to damage or destroy any bat roost, intentionally or recklessly obstruct a bat roost, deliberately, intentionally or recklessly disturb a bat or intentionally kill, injure or take any bat. None of the scattered trees on site were considered suitable to support roosting bats. Therefore, roosting bats are not deemed to be impacted by the development and are not considered further within this report.

6.6 **Foraging and Commuting Bats**

Features on site such as scattered treelines and scrub are considered to provide low suitability habitat to local bat populations, whilst the mix of tall ruderal herbs and invasive weeds provide low-negligible suitability habitat. Although design proposals suggest that the small patches of dense scrub will be removed from the centre of the site, a large proportion of the early-mature scattered trees which create linear boundary features will be retained, maintaining the connectivity along site boundaries for commuting bats. As a result, the removal of small numbers of young trees scattered through the centre of the site, and a small number of young and early-mature trees in the

north-east corner of the site, is not deemed to affect the commuting and foraging habits of local bat populations. Chapter 7 sets out important guidance on measures to avoid impacts on this species group and measures to support its conservation status.

6.7 **Badgers**

Under the Protection of Badgers Act 1992, in England and Wales it is an offence to wilfully kill, injure, disturb or take any badger, or intentionally or recklessly damage, destroy, or obstruct access to any part of a badger sett. There was no evidence such as setts, mammal runs, snuffle holes or latrines to suggest that badgers are residing onsite. Foraging habitat onsite may encourage locally residing badgers to utilise the site on an intermittent basis. Therefore, development works may have a direct impact on low numbers of individuals passing through the site. It is also possible that evidence may have been missed due to the overgrown nature of the site and that badgers may make regular use of the site. Without knowing the full extent of their dependence on the application site, mitigation to protect this species from disturbance or injury, and loss of habitat during ground clearance and construction cannot be formed. Chapter 7 sets out important guidance on measures to avoid impacts on this species and measures to support its conservation status.

6.8 **Great Crested Newts**

6.8.1 Great crested newts and their eggs, breeding sites and resting places are fully protected under the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2010 (as amended). Tall ruderal herbs and scrub provided suitable terrestrial habitat for local GCN populations. It is unlikely that great crested newts are present onsite due to the small number of ponds located within the local surroundings (Ponds 1 & 2, Figure 9), combined with the fact that both of these ponds are surrounded by suitable terrestrial habitat which is capable of supporting any newts which may be present, and the amount of residential development, separating Pond 2 from the application site and Pond 1. Although the likelihood of great crested newts being present on site is low, it cannot be ruled out due to the amount of undisturbed and unmanaged habitat within the site boundary.

6.8.2 Design proposals suggest that a large proportion of the tall ruderal herbs and scattered scrub will be removed to facilitate the development. There is therefore a low possibility that individual great crested newts could be directly injured or killed if appropriate measures are not put in place prior to ground clearance works. Chapter 7 provides important guidance on measures to avoid impacts on this species and measures to support its conservation status.

6.9 **Reptiles**

Reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) making it illegal to intentionally kill or injure reptiles. No evidence of reptiles was recorded during the survey and the site is deemed unlikely to support permanent populations or significant numbers of reptiles. However, it is possible that reptiles may be opportunistically present in low numbers onsite and as such could sustain injury or death during the initial pre-construction clearance of the site, if precautionary measures are not taken. Chapter 7 sets out important guidance on measures to avoid impacts on this species group and measures to support its conservation status.

7 Recommendations

As with all development sites; efforts should be made to support National and Local Biodiversity Action Plans, and seek opportunities to incorporate ecological enhancement schemes within the proposed development. Such site enhancements should be viewed positively in light of the NPPF (2012) which seeks biodiversity enhancements and net gain through the planning process.

The site should be the subject of the following mitigation measures and ecological enhancement:

7.1 Habitats

Habitats / Botanical	Timing
Recommendations	
A Landscape and Ecological Management Plan (LEMP) should be formulated to enhance and maintain retained habitats within the site ownership, in addition to enhancement within communal open space. The plan would to seek to retain a buffer between the woodland edge and residential gardens, while integrating scrub and grassland enhancement and management in these areas and public open spaces. Planting of native hedgerow species as boundary features of the application site, and between residential gardens should be encouraged where possible.	Secured as a condition of planning. Replanting to be carried out during and post development.

7.2 Breeding Birds

Breeding Birds	Timing
Recommendations	
Vegetation on site has been identified as being suitable for use by breeding birds. Given their protection, development must be sympathetic to the value of this habitat and potential impacts on breeding birds, their eggs, nests and young. The breeding bird season is generally accepted as being between March and September. Developers should consider and implement the options appropriate to their scheme; *a)* Undertake vegetation clearance between the months of October and February where possible.	Vegetation clearance should take place between October and February.

b) Any vegetation proposed for removal between the months of March and September should be subjected to a search for active birds' nests 24 hours prior to commencement of works. This should confirm whether all or some clearance is achievable. *c)* In addition to a pre-works check, the clearance of vegetation between the months of March and September should be supervised by a suitably experienced ecologist.	
Enhancement Prescriptions	
In light of the National Planning Policy Framework (NPPF) that seeks net biodiversity gain within developments the following enhancements are suggested: x1 – 1SP Sparrow terrace to be installed on the wall of the eastern or northern elevation of 50% of buildings proposed for development. Bird boxes should be installed under the direction of a suitably experienced ecologist to ensure ideal location and fitting is achieved. If trees are removed, additional planting should be considered within new residential plots.	

7.3 Foraging & Commuting Bats

Foraging & Commuting Bats	Timing
Recommendations	
The habitats on site are considered favourable for foraging and commuting bats. The boundary trees and scrub, and scattered trees throughout the site, were awarded low suitability. Development proposals on site should be considerate of this and should seek to retain and create connective habitats suitable for commuting and foraging bats which will, in turn, benefit a wider range of species. Linear features are widely recognised as being of most benefit to bats and should include protection of current boundary treelines and scrub, where possible. If the proportion of boundary features to be removed is increased from its current estimation, then these features should be subjected to further bat activity surveys to establish the significance of these commuting routes on site.	**If significant proportions of boundary tree and scrub habitat are proposed for removal only:** Transect /spot count/ timed search survey: One survey visit per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct **AND** Static automated surveys:

The tall ruderal herbs and invasive weeds are considered to provide low-negligible suitability habitat to foraging bats, due to their extensive coverage of the site. Design plans suggest that a significant proportion of this the tall ruderal herb habitat will be proposed for clearance to facilitate the development and the adequate removal of the invasive weeds onsite. Due to this habitat being considered suitable for use by foraging bats on an infrequent basis, replacement planting of higher value habitat, such as hedgerows, should be secured as compensatory habitat. *It should be noted that due to the high levels of Indian balsam scattered across the site, combined with the dense coverage of overgrown scrub and tall ruderal herbs, a certain amount of scrub/tall ruderal herb removal will be required in order to facilitate the appropriate clearance of this invasive weed. It would also be necessary to carry out invasive weed clearance and a certain amount of scrub/tall ruderal herb clearance prior to any bat activity surveys being carried out. This is for the purpose of health and safety, in order to facilitate movement of surveyors around the site, and to prevent the further spread of invasive species.* ***Lighting*** Without natural buffering, disturbance through artificial lighting has the potential to negatively impact any bat populations that depend upon established linear features. Development associated lighting should be positioned in a manner that is sympathetic to site boundaries, specifically the trees which line the eastern and southern site boundaries. That is to say that light spill-over should be prevented from encroaching into these areas.	One location per transect, over a five-night period, per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats.
Enhancement Prescriptions	
Planting of native hedgerow species around site boundaries should be encouraged to retain connective habitat around the site. 3m buffer zones surrounding vegetative boundary features should also be encouraged, to allow the establishment of further vegetation around boundary features.	During/post development.

7.4 Badgers

Badgers	Timing
Recommendations	

The site supported habitat types considered suitable for supporting badgers. Although no evidence of badgers was found onsite, it was not possible to fully assess the site due to the overgrown vegetative cover across the site. It is advised that the site is subjected to a full badger survey comprising two visits during the winter/spring to check for evidence of use by badgers.	Two visits between November and May
Enhancement Prescriptions	
Design proposals may require amendment following the results of further survey work.	

7.5 Great Crested Newts

Great Crested Newts (GCN)	Timing
Recommendations	
Dense tall ruderal herbs, scrub, invasive weeds and grassland on site provide suitable terrestrial habitat for GCN. Although no GCN or evidence of GCN presence was found during the survey, there is a low potential that GCN may be present on site. As a precaution, sensitive working methods should be adopted, in order to reduce the risk of killing or injury of GCN during construction down to negligible levels: Clearance works of any onsite habitat should be carried out by hand by a suitably experienced ecologist or a specialist ecological contractor and should be cleared in two stages. Vegetation should first be strimmed to a height of approximately 30cm, to ensure that any individuals can move into the surrounding habitat minimizing the risk of an adverse effect on this species, then vegetation can be cleared completely by hand, in order to make the ground unsuitable for this species. Any vegetation cuttings and brash piles etc. should be dismantled by hand and removed from site. Should great crested newts be found at any point during this process, all works should stop and the advice of a suitably qualified ecologist or Natural England should be sought.	March – September

7.6 Reptiles

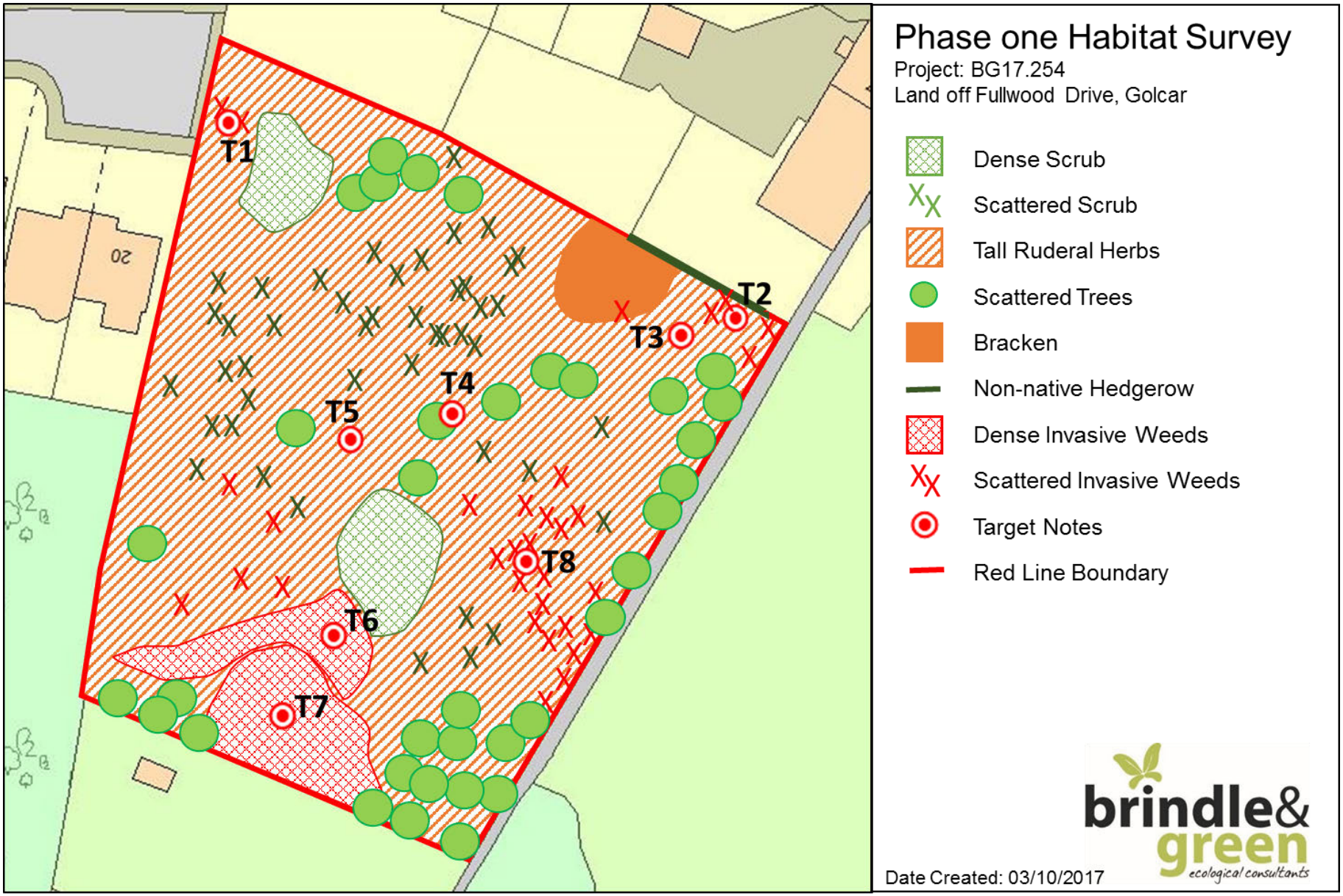
Reptiles	Timing
Recommendations	
Dense tall ruderal herbs, scrub and grassland on site provide suitable refugia for common species of reptiles. Although no reptiles or evidence of reptile presence was found during the survey, it is possible that small numbers of reptiles may occasionally utilise the site. As a precaution, sensitive working methods should be adopted, in order to reduce the risk of killing or injury of reptiles during construction down to negligible levels: Clearance works of any onsite habitat should be carried out by hand by a suitably experienced ecologist or a specialist ecological contractor and should be cleared in two stages. Vegetation should first be strimmed to a height of approximately 30cm, to ensure that any individuals can move into the surrounding habitat minimizing the risk of an adverse effect on reptiles, then vegetation can be cleared completely by hand, to make the ground unsuitable for this species group. Any vegetation cuttings and brash piles etc. should be dismantled by hand and removed from site. Should reptiles be found, individuals should be moved to comparable habitat, outside of the area to be directly affected.	March - September
Enhancement Prescriptions	
Planting of native hedgerows as boundary features between residential plots should be encouraged and retaining a 3m buffer zone around current vegetative boundary features to promote structural diversity of hedgerow margins and retain connective features across the site.	Post construction

7.7 Invasive Weeds

Invasive Species	Timing
Recommendations	
Japanese knotweed, Indian balsam, variegated yellow archangel and montbretia have established themselves on site. These invasive plants are classified as noxious weeds under Part II of Schedule 9 of the Wildlife and	All year round.

Countryside act 1981 and any person who causes these species to grow or spread in the wild by dumping or other means is guilty of an offence. It is important that all Japanese knotweed, Indian balsam, variegated yellow archangel and montbretia is treated prior any further works on site, to prevent transgression via machinery into a new area causing the species to spread. Manual removal of plants may be achievable however there is a greater chance of reoccurrence because below ground rhizomes can be missed. Manual removal would require all topsoil within 7metres of the plant stems (to a depth of 3metres) being removed and disposed of within an appropriate waste landfill. Specialist contractors can advise further and undertake chemical or manual treatment.	

Appendix 1. Phase 1 Habitat Plan



Appendix 2. Phase 1 Target Notes & Plant Species

Target Note Number	Description
T1	Small patch of variegated yellow archangel.
T2	Occasional Indian balsam recorded within this corner of the site.
T3	Unmanaged grassland containing perennial rye-grass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), annual meadow-grass (*Poa annua*) and tufted hair-grass (*Deschampsia cespitosa*). The sward comprised a 1:1 ratio of grasses to creeping buttercup (*Rannunculus repens*). Occasional white clover (*Trifolium repens*) was also present.
T4	Area of wet ground as per section 5.2.9.
T5	Unmanaged grassland containing perennial rye-grass, Yorkshire fog, annual meadow-grass and tufted hair-grass, with frequent creeping buttercup.
T6	Dense Indian balsam recorded within this marked region of the site.
T7	Dense Japanese knotweed recorded within this marked region of the site.
T8	Scattered Indian balsam throughout the central region of the eastern half of the site.

Plant Species List with DAFOR Scale

Scientific nomenclature follows Stace (2010) for vascular plant species and common names follow BSBI List of British & Irish Vascular Plants and Stoneworts.

Please note that this plant species list was generated as part of a Phase 1 Habitat survey, and does not constitute a full botanical survey.

Abundance was estimated using the DAFOR scale as follows: D = dominant, A = abundant, F = frequent, O = occasional, R = rare, LF = locally frequent

Common Name	Scientific Name	Estimated Abundance (DAFOR)
Almond Willow	*Salix triandra*	R
Annual Meadow Grass	*Poa annua*	F
Apple	*Malus sp.*	R
Ash	*Fraxinus excelsior*	O
Blackberry	*Rubus fruitcosus*	D
Blackthorn	*Prunus spinosa*	O
Bracken	*Pteridium sp.*	O
Broadleaved Dock	*Rumex obtusifolius*	O
Buddleia	*Buddleja sp.*	O
Cleavers	*Galium aparine*	F
Common Mallow	*Malva neglecta*	O
Common Nettle	*Urtica dioica*	D

Conifer	*Pinophyta spp.*	R
Cotoneaster	*Cotoneaster sp.*	R
Creeping Buttercup	*Rannunculus repens*	O
Curled Dock	*Rumex crispus*	O
Dandelion	*Taraxacum agg.*	O
Dogwood	*Cornus sanguinea*	O
Elder	*Sambucus nigra*	O
Field Bindweed	*Convolvulus arvensis*	A
Field-rose	*Rosa arvensis*	O
Flowering Currant	*Ribes sanguineum*	O
Garden Privet	*Ligustrum Ovalifolium*	O
Garlic Mustard	*Alliaria petiolata*	O
Groundsel	*Senecio vulgaris*	O
Hairy Bittercress	*Cardamine hirsuta*	O
Hawthorn	*Crataegus monogyna*	O
Herb Robert	*Geranium robertianum*	F
Hogweed	*Heracleum sphondylium*	O
Holly	*Ilex aquifolium*	O
Indian Balsam	*Impatiens glandulifera*	A
Ivy	*Hedera helix*	F
Japanese Knotweed	*Fallopia japonica*	A
Montbretia	*Crocosmia x crocosmiiflora*	R
Oak sp.	*Quercus sp.*	O
Osier	*Salix viminalis*	R
Pear	*Pyrus sp.*	R
Perennial Rye-grass	*Lolium perenne*	F
Ragwort	*Jacobaea vulgaris*	O
Raspberry	*Rubus sp.*	R
Rhubarb	*Rheum sp.*	R
Rosebay Willowherb	*Chamerion angustifolium*	D
Soft Rush	*Juncus effusus*	O
Sycamore	*Acer pseudoplatanus*	O
Tufted Hair-grass	*Deschampsia cespitosa*	O
Variegated Yellow Archangel	*Lamiastrum galeobdolon argentatum*	R
White Clover	*Trifolium repens*	F
Wood Avens	*Geum urbanum*	F
Wych Elm	*Ulmus glabra*	O
Yorkshire Fog	*Holcus lanatus*	F

Appendix 3. General References

Bat Conservation Trust's '*Good Practice Survey Guidelines*' (Rev 2012).

Bell, S. McGillivary, D. (2006) *Environmental Law*. 6 h ed. Oxford University Press.

Bright PW, Morris PA and Mitchell-Jones A (2006) *Dormouse Conservation Handbook 2nd Edition*. English Nature, Peterborough.

Byron, H (2000) *Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes*. The RSPB, WWF-UK, English Nature and the Wildlife Trusts, Sandy.

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

Defra (2007) Hedgerow Survey Handbook; A standard procedure for local surveys in the UK. Defra, London.

Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods: Breeding Bird Survey* (pages 389-393). RSPB.

Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*.

Joint Nature Conservation Committee (JNCC) *Handbook for Phase 1 habitat survey* (2003). JNCC.

Langton T, Beckett C and Foster J (2001) Great Crested Newt Conservation Handbook. Froglife, Halesworth.

Mitchell-Jones A.J. McLeish, A.P. (2004) *Bat Workers Manual* (3rd Edition). Joint Nature Conservation Committee.

Mitchell-Jones A.J. *Bat Mitigation Guidelines* 2004. English Nature.

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

Rodwell, J.S. Joint Nature Conservation Committee (JNCC). National Vegetation Classification: Users' handbook (2006). JNCC.

Shawyer, C. R. (2011). Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

Strachan R. MoorHouse T, and Gelling M (2011) *Water Vole Conservation Handbook*.(3rd Edition) Wildlife Conservation Research Unit.

Rose, F. (2006). The Wild Flower Key (Revised edition). Penguin books ltd, London

Stace, C. (2010). Field Flora of the British Isles. Cambridge University Press

Sutherland, W.J. (1996) *Ecological Census Techniques*. Cambridge University Press.

Treweek, J. (1999) *Ecological Impact Assessment*. Blackwell Science.

Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings, A Technical Guide for New Build*. Riba Publishing.

Appendix 4. Legislation, Policy and Guidance

Articles of British wildlife and countryside legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to. The articles of legislation are:

- The Wildlife and Countryside Act 1981 (as amended)
- The Conservation of Habitats and Species Regulations 2010 (as amended)
- Department for Communities and Local Government. National Planning Policy Framework. March 2012
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC
- National Parks and Access to the Countryside Act 1949
- The Protection of Badgers Act 1992
- Land Drainage Act 1991
- The Countryside and Rights of Way Act 2000
- The Natural Environment and Rural Communities Act 2006
- The United Kingdom Biodiversity Action Plan 2006
- Hedgerow Regulations 1997
- Town and Country Planning Act 1990
- Local Biodiversity Action Plan (LBAP).

Appendix 5. Legislation, Guidance and Methodology in Relation to the Identified Constraints

Legislation, Guidance and Methodology

Birds
All nesting birds are protected under the Wildlife and Countryside Act 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition, for species listed on Schedule 1 of the Wildlife and Countryside Act 1981 it is an offence to intentionally or recklessly cause disturbance at, on or near an 'active' nest.

The bird breeding season is typically accepted to start in February and continue through until August, however breeding birds can be found all year round depending on the given species and climatic conditions.

A sites habitat composition, locality, association to designated sites as well as current usage and management are all considered in the decision as to whether further bird related surveys are required. In addition, surveys may be recommended based on incidental bird records collected during a Preliminary Ecological Appraisal, species identified within an ecological data search or target species listed within a local biodiversity action plan.

Bird surveys are carried out in accordance with:
Gilbert G, Gibbons DW, Evans J. (1998) *Bird Monitoring Methods*. RSPB.

Survey Timing
Breeding Bird surveys (BBS): Four visits, evenly spaced between mid-April and mid-June. The standard BBS methodology may require amendment based on climate and weather conditions, the complexity of habitats within a site, the perceived ecological interest of a site and the extent of the survey area.

Wintering Bird surveys (WBS): Four visits, evenly spaced between October and February. The standard WBS methodology may require amendment based on climate and weather conditions, the complexity of habitats within a site, the perceived ecological interest of a site and the extent of the survey area.

Species Specific Surveys: Certain species owing to their migration patterns, habitat requirements, nocturnal habits and other ecological behaviours should be surveyed as per their given methodologies stated within Gilbert, G. et al (1998).

Roosting Bats
All bats in the United Kingdom and their habitats are fully protected under the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations 2010 (as amended).

It is an offence to damage or destroy any bat roost, intentionally or recklessly obstruct a bat roost, deliberately, intentionally or recklessly disturb a bat or intentionally kill, injure or take any bat.
Areas of concern; can be encountered in many types of structure and care should therefore be taken when undertaking maintenance or demolition of suitable structures and trees.

Site assessments of buildings, commuting and foraging habitat and trees are undertaken in accordance with:

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

Preliminary Ecological Surveys look for evidence of bat presence such as feeding remains, bat droppings, roosting individuals and staining around potential access points.

The suitability of site features were also assessed because absence of bat evidence, is not confirmation of a negative result. Within buildings these features include suitable enclosed spaces such as slipped or missing roof tiles, gaps and cracks in brickwork, enclosed roof voids, accessibility into wall spaces, gaps along ridge rafters, joints in roof beams and the presence of suitable soffits and fascias.

Within tree features searched for include; natural holes, woodpecker holes, cracks/splits in major limbs, loose bark, hollows, and dense cover of ivy over the tree.

If evidence is found, or a building supports features conducive to supporting roosting bats then further presence / absence bat surveys and/or roost characterisation surveys are recommended.

Survey Timing:
Preliminary Ecological Appraisals can be undertaken throughout the year.

Presence /absence surveys and roost characterisation surveys are undertaken during the bat activity season between **May and September** (Specific timings are relative to the suitability of a structure for supporting protected species and weather dependent)

Bat Activity Transect surveys are carried out between **April and October (**weather dependent)

Hibernation surveys are carried out from **November to March**.

Guideline for assessing the suitability of a structure to support roosting habitat (Buildings and Trees), amended from Collins, J (2016).

Category	Description of roosting habitat	Number of presence / absence surveys required
No Potential	The structure or tree is wholly unsuitable for a bat roost.	None

Negligible Potential	Suitable cavities may exist but these are open to wind, rain or disturbance.	None
Low Potential	This category describes a structure with one or more potential roost sites that could be used by individual bats opportunistically and that are less than ideal in some way. For example, the feature may be subject to intermittent disturbance, and does not provide enough shelter, conditions* space and/or suitable surrounding habitat (e.g. unlikely to support a maternity or hibernation roost). This category described a tree of sufficient size and age to support rooting bats, but with no features observed from the ground, or the features only have a limited potential to support roosting bats.	One survey between May and August Trees – No further surveys required
Moderate Potential	This category describes a structure or tree considered to have one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions* and surrounding habitat but are unlikely to support a roost of high conservation status (With regard to roost type only – assessments are made irrespective of species conservation status, which is established after presence is confirmed) Features considered to have adequate potential would include cavities of appropriate dimensions that are generally free from disturbance and free from fluctuations in the weather.	Two surveys between May and September (with at least one survey undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be ideally undertaken at least two weeks apart.
High Potential	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.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn. The surveys should ideally be undertaken at least two weeks apart.

Confirmed	This category is where positive evidence of bats has been recorded. For example, bats are found; bat droppings may be present at a suitable location for roosting bats; existing bat records may be associated with the structure.	Three surveys between May and September (with at least two surveys undertaken between May and August) One Dusk emergence and One Dawn re-entry survey to be undertaken. The third survey can be either Dusk or Dawn. The surveys should be undertaken at least two weeks apart.

(in this context conditions refers to the level of disturbance, light, height above ground, temperature, and humidity etc)*

If bats are discovered emerging or re-entering any structure, the survey schedule should be appropriately adjusted to increase the survey effort so that sufficient information for roost characterisation can be collected to advise the planning application or EPS development license.

Foraging and Commuting bats

Habitat features on site were assessed for their suitability to support foraging and commuting bat populations. This assessment was independent from the suitability of the site to support roosting bats, and provides information on the likeness of bat foraging activity within the local environment, and the dependence of individuals on these features for commuting to alternative roosting sites, foraging and migration.

Potential suitability of foraging and commuting habitat within an application boundary. Features should be assessed following this guide and professional judgement. Adapted from Collins J (2016)

Category	Description of commuting and foraging habitat	Survey effort to establish the value of commuting and foraging habitat**
Negligible Potential	Negligible habitat features on site likely to be used by commuting or foraging bats	None
Low Potential	Habitat which could be used by low numbers of commuting bats such as an isolated gappy hedgerow, or an unvegetated stream unconnected to suitable habitat in the wider environment. Suitable, yet isolated habitat that could be used by foraging bats such as individual trees, or a patch of scrub.	**Transect /spot count/ timed search survey:** One survey visit per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats **AND**

		Static automated surveys: One location per transect, over a five-night period, per season: Spring- April/ May Summer- June/July/ Aug Autumn – Sept/ Oct In weather conditions conducive to finding bats *Further survey may be required if surveys reveal higher activity than predicted from habitat alone*
Moderate Potential	Continuous habitat connected to the wider landscape that could be used by commuting bats, notably tree lines, hedgerows or linked back gardens. Habitat that is connected to the wider landscape which could be used by bats for foraging such as trees, open water, scrub or grassland.	**Transect /spot count/ timed search survey** One survey visit per month (April to October) In weather conditions conducive to finding bats At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. **AND** **Static automated surveys:** Two locations per transect, over a five-night period, per month (April to October) In weather conditions conducive to finding bats
High Potential	Continuous, High-quality habitat that is well connected to the wider landscape which is considered to be highly conducive to commuting bats including river valleys, stream, hedgerows, 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,	Transect /spot count/ timed search survey Up to two survey visit per month (April to October) In weather conditions conducive to finding bats At least one survey should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period.

	tree lined watercourses, and grazed parkland. Site is close to and connected to known roosts.	**AND** **Static automated surveys:** Three locations per transect, over a five-night period, per month (April to October) In weather conditions conducive to finding bats

*(** This is only a guide for survey effort required, the complexity of the site and the proposed disturbance / loss of features will determine the extent of works required on a site by site basis).*

Badgers (*Meles meles*)
Badgers are protected under the Protection of Badgers Act 1992. It is illegal to wilfully kill, injure, disturb or take any badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy, or obstruct access to any part of a badger sett.

Site assessments are undertaken in accordance with:
Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*.

Badgers can be found along the side of arable fields but as their main diet is earthworms they are more commonly found where there is a patchwork of undisturbed grassland areas where an abundant supply of earthworms can be found. Consequently badgers are more common in areas that are used for grazing farm animals. Other features to be aware of when assessing the likelihood of badgers are suitable hedgerows, woodland and bankings where badgers are able to excavate setts. Also badgers prefer well drained areas and are less common where the water table is relatively high over large areas.
If these types of suitable features are found in or around the project site then badger surveys are recommended.

Survey Timing
Badger surveys can be carried out throughout the year.

Amphibians

The great crested newt (*Triturus cristatus*) and atterjack toad (*Bufo calamita*), are fully protected under Schedule 5 of the wildlife and countryside Act 1981. The legislation protects these amphibians and their place of shelter or protection which may extend 500 metres from the breeding pond.

Great Crested Newt (*Triturus cristatus*)

The great crested newt (*Triturus cristatus*), is fully protected under Schedule 5 of the wildlife and countryside Act 1981 (As amended) and the Habitat regulations 2010, making it an offence to intentionally or recklessly kill, injure, disturb or take

great crested newts, intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection.

The legislation protects these amphibians and their place of shelter or protection which may extend 500 metres from the breeding pond. Sites should be considered suitable to support great crested newts if distribution and historical records suggest newts may be present, there is a pond within 500 metres of the development and the development site includes refuges (eg log piles or rubble), grassland, scrub, woodland or hedgerows.

Great crested newt site assessments are undertaken in accordance with:
English Nature. (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough. and
Langton T, Beckett C and Foster J (2001) Great Crested Newt Conservation Handbook. Froglife, Halesworth.

When searching for ponds, Brindle & Green apply a total of 4 sources to establish their location; reducing the likelihood of ponds being missed (where one mapping tool may not be 100% accurate). The following sources are used:

OS MAPPING VIA PRO MAP
GOOGLE EARTH PRO
GOOGLE MAPS
OS MAP VIEWER
ON SITE WALKOVER

Great crested newts (GCNs) are found in non-flowing water bodies that are free from high pollution levels, do not contain fish large fish (that can eat GCN eggs and larvae) and have adequate aquatic vegetation or dead leaves for GCNs to lay their eggs on. GCNs can be found foraging or hibernating within the terrestrial habitat linked to their breeding ponds. The surrounding habitat is therefore assessed for its suitability to accommodate GCN.

Habitat Suitability Index (HSI)

The waterbodies identified for survey were initially assessed via GCN Habitat Suitability Index (HSI) score for each of the waterbodies (Oldham et al, 2000).

The HSI is scored between 0 and 1 and can be interpreted as follows:

- <0.5 = poor
- 0.5 – 0.59 = below average
- 0.6 – 0.69 = average
- 0.7 – 0.79 = good
- >0.8 = excellent

Survey Timing:
Mid-March to Mid-June.

Presence/absence surveys of ponds

Undertake at least 4 visits between mid-March and mid-June with at least 2 visits in peak season (usually mid-April to mid-May). Using three methods per visit (preferably torch survey, bottle trapping and egg searching)

Population size class assessments in ponds

Undertake at least 6 visits (if you found newts during the first 4 presence/absence visits) between mid-March and mid-June with at least 3 visits in peak season (usually mid-April to mid-May)
Use torch surveys and bottle trapping on each visit.

Survey adult newts in spring to estimate whether the population is small, medium or large (You can combine results from multiple ponds if the newts regularly move between them, but only for counts you got on the same visit).

The maximum adult count per pond per night, peak counts per pond overall and total site count can be used to calculated the class population:

small - maximum counts up to 10
medium - maximum counts between 11 and 100
large - maximum counts over 100

Reptiles

Two species of reptile, the Sand Lizard (*Lacerta agilis*) and Smooth Snake (*Coronella austriaca*) and their habitats, are fully protected under Schedule 5, Section 9 of the Wildlife and Countryside Act 1981. All other native British reptiles are protected against intentional killing and injury.

British reptiles are found in exposed undisturbed areas. For example, areas without cultivation with differing areas of grassland sward length. Suitable areas include abandoned sand quarries, fallow farmland land, heathland, post-industrial land, railway corridors etc. Grass snake (*Natrix natrix*) are often found in areas of tall vegetation near water bodies.
Common lizard and slow worm favour areas of longer grassland with opportunities to bask in more open areas. Slow worm favour grassland, hedgerows, woodland borders (as do adder) and rural gardens, all of which are present on or near the site. Grass snake can be found near ponds.

If these types of suitable features are found then reptile surveys are recommended.

Edgar P, Foster J and Baker J (2010) Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

Gent T and Gibson S (2003) Herpetofauna Workers Manual. JNCC, Peterborough.

Survey Timing.
Surveys can only under taken during suitable weather conditions (Between March and September) when temperatures are between 9º C and 18º C. Consequently, the best time of year to survey is spring and autumn.

Invasive non-native weeds

Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*) are examples of invasive non-native weeds classified under Part II of Schedule 9 of the Wildlife and Countryside act 1981. Any person who causes these species to grow or spread in the wild by dumping or other means is guilty of an offence. The plant and the soil these species are found growing in are classified as waste material and should be treated as such.

A simple walk over survey of the site to determine if these species are present was carried out during the Preliminary Ecological Appraisal. A full list of Schedule 9 species can be found at http://www.plantlife.org.uk/our_work/campaigns/inns/invasive_non-native_plants_and_the_law/schedule9_england_wales/

Botanical Value

There are 60 plant species listed in Schedule 8 of the Wildlife and Countryside Act 1981 where it is an offence to intentionally pick or uproot or destroy any of these plant species.

During the Preliminary Ecological Appraisal notes are taken of areas that could contain rare or local important plant species/communities. Such areas could include mature woodland, calcareous sites, undisturbed areas such as ridge and furrow pasture or even semi-improved areas that have a varied sward length.

If habitat such as these are found on the project area during the Preliminary Ecological Appraisal then a full botanical survey will be recommended.

Survey Timing
Woodland during April.
Open areas from May to July.

Rodwell, J.S. Joint Nature Conservation Committee (JNCC). National Vegetation Classification: Users' handbook (2006). JNCC.

Ecological Enhancement

In March 2012 the Department for Communities and Local Government published the National Planning Policy Framework. This sets out planning policies on protection of biodiversity through the planning system. The document states - *opportunities to incorporate biodiversity in and around developments should be encouraged.*
Usually when reviewing how ecological enhancements can be implemented the Local Biodiversity Action Plan for the area is considered.

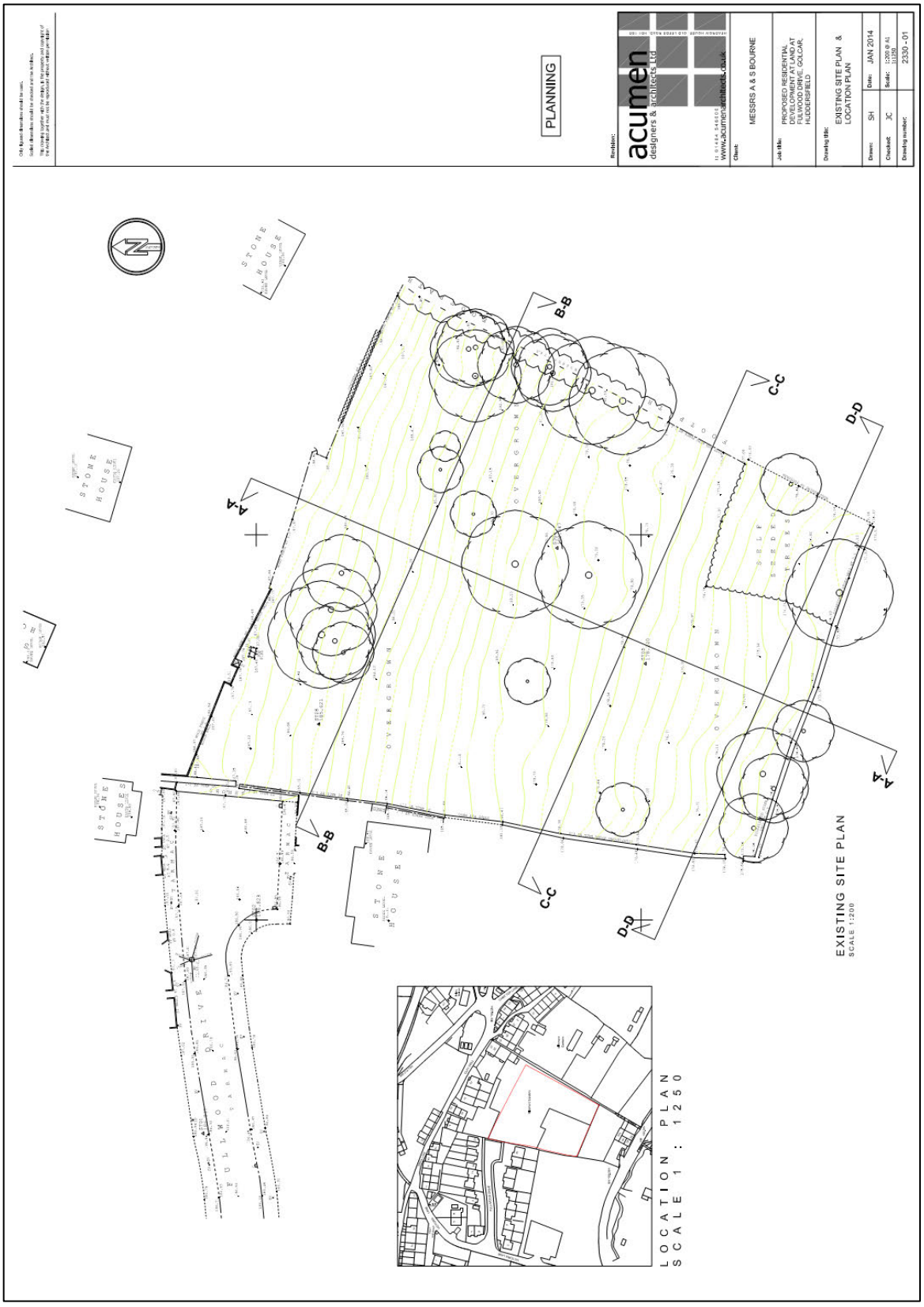
For new buildings guidance such as in the following will be used:
Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings, A Technical Guide for New Build*. Riba Publishing.

Designated Protected Areas

Designated areas are Sites of Special Scientific Interest (SSSI) while others have been designated as having European protection status. Local authorities can also designate areas for nature conservation and in doing so may impose local authority byelaws to support local nature conservation objectives.
European designated status includes Special Protection Areas (SPAs) that preserve areas for birds and Special Areas of Conservation (SACs) which provides protection for habitats and the species which these habitats supports. Laws stipulate that SSSIs, SPAs and SACs have to be maintained in a 'favourable condition' which requires efforts to preventing any potential impacts to these sites.

Information of Designated Protected Areas is received through Ecological Data Searches and Magic Map searches.

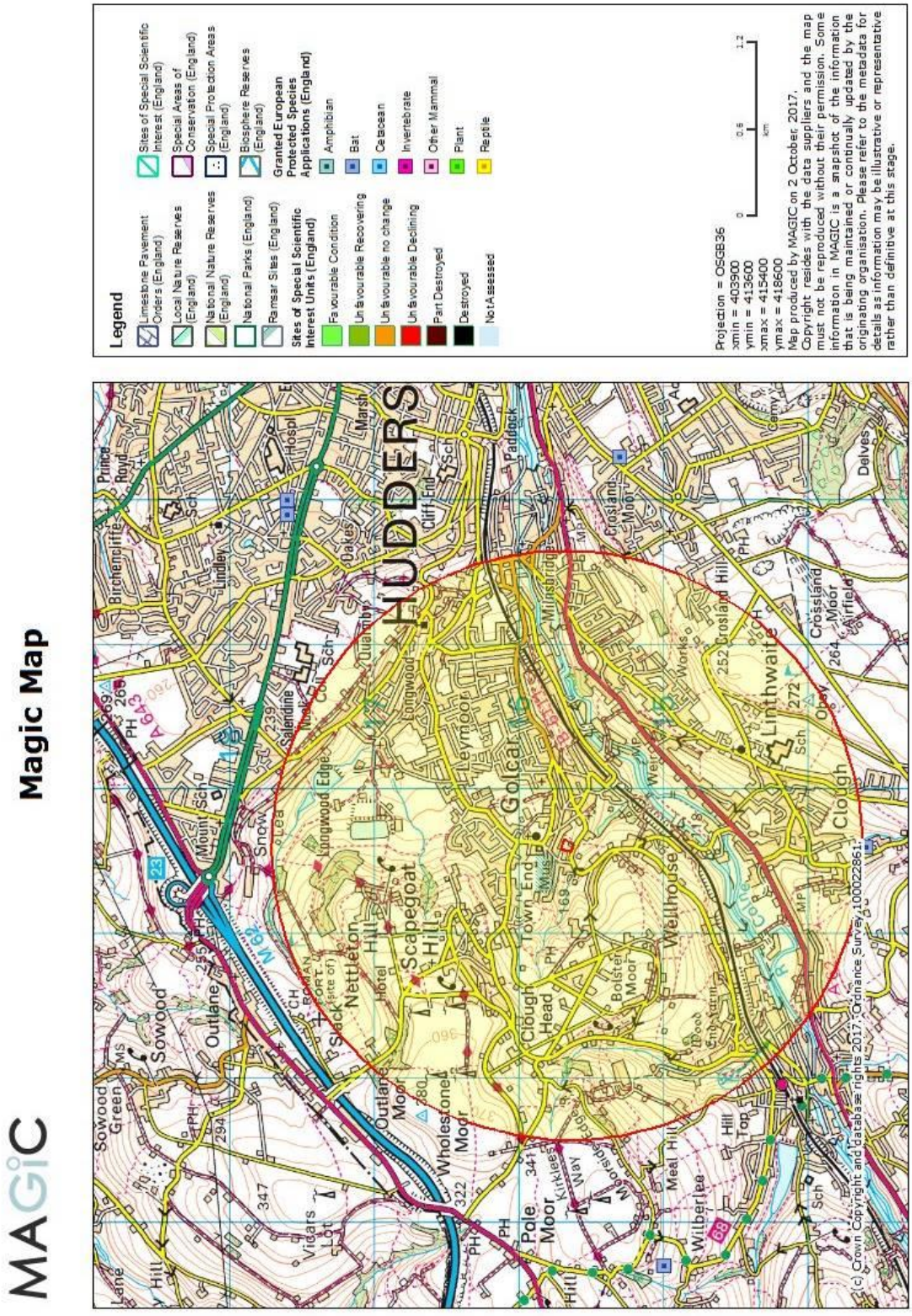
Appendix 6. Current Layout & Proposed Plans



PLANNING
acumen
designers & architects ltd
MESSRS A & S BOURNE
PROPOSED RESIDENTIAL DEVELOPMENT AT LAND AT FULLWOOD DRIVE, GOLCAR, HUDDERSFIELD
PROPOSED SITE PLAN
Drawn: SH
Date: JAN 2014
Checked: JC
Scale: 1:200 @ A1
Drawing number: 2330 - 03C
PROPOSED SITE PLAN
SCALE 1:200
FULLWOOD DRIVE
STONE HOUSES
PLOT 01
PLOT 02
PLOT 03
PLOT 04
PLOT 05
PLOT 06
PLOT 07
PLOT 08
A-A
B-B
C-C
D-D
E-E

Appendix 7. Magic Data

Two kilometre radius search of the project site.



02/10/2017

Site Check Report Report generated on Mon Oct 02 2017
You selected the location: Centroid Grid Ref: SE096156
The following features have been found in your search area:

Granted European Protected Species Applications (England)
No Features found

Areas of Outstanding Natural Beauty (England)
No Features found

Limestone Pavement Orders (England)
No Features found

Local Nature Reserves (England) - points
No Features found

Local Nature Reserves (England)
No Features found

National Nature Reserves (England) - points
No Features found

National Nature Reserves (England)
No Features found

National Parks (England)
No Features found

Ramsar Sites (England) - points
No Features found

Ramsar Sites (England)
No Features found

Sites of Special Scientific Interest Units (England) - points
No Features found

Sites of Special Scientific Interest Units (England)
No Features found

Sites of Special Scientific Interest (England) - points
No Features found

Sites of Special Scientific Interest (England)
No Features found

Special Areas of Conservation (England) - points
No Features found

Special Areas of Conservation (England)
No Features found

Special Protection Areas (England) - points
No Features found

Special Protection Areas (England)
No Features found

Biosphere Reserves (England) - points
No Features found

Biosphere Reserves (England)
No Features found

1/1

Appendix 8. Ecological Data Search Information

A data search was not requested for this site.