



BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED

ENVIRONMENTAL PLANNING

Avant Homes
Moorthorpe Way, Sheffield

Ecological Impact Assessment

Avant Homes
Moorthorpe Way, Sheffield

Ecological Impact Assessment

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EXECUTIVE SUMMARY

BWB Consulting (BWB) was instructed by the Avant Homes to carry out an Ecological Impact Assessment on Moorthorpe Way, Sheffield. The findings are summarised in the table below.

Feature	Effect	Significance of Effect without Mitigation	Mitigation Required	Significance of Residual Impacts after Mitigation
Owlthorpe LWS, Westfield Plantation LWS and Woodland	Disturbance	Moderate at County level	1.5m buffer zone, appropriately planted, good lighting scheme, temporary fencing, litter bins	Minor at County level
Owlthorpe LWS, Westfield Plantation LWS and Woodland	Loss of connectivity	Moderate at County level	1.5m buffer zone, appropriately planted, good lighting scheme	Negligible
Bats	Disturbance	Minor at Local level	Good lighting design	Negligible
Bats	Habitat loss	Negligible	1.5m buffer zone and good lighting design	Negligible
Birds	Direct harm to nesting birds	Minor at Local	Timing of work	Negligible
Birds	Habitat loss	Moderate at Local level	Appropriate planting within buffer zone, incorporation of trees and scrub, nest boxes	Minor at Within Site
Common toad	Direct harm during construction	Minor at Within Site level	Appropriate toolbox talk and removal of any animals from Site	Negligible
Mammals	Habitat loss	Minor at Local level	1.5m buffer zone, hedgehog highways	Minor at Within Site
Mammals	Direct harm during construction	Minor at Local level	Good working practices	Negligible

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1. INTRODUCTION

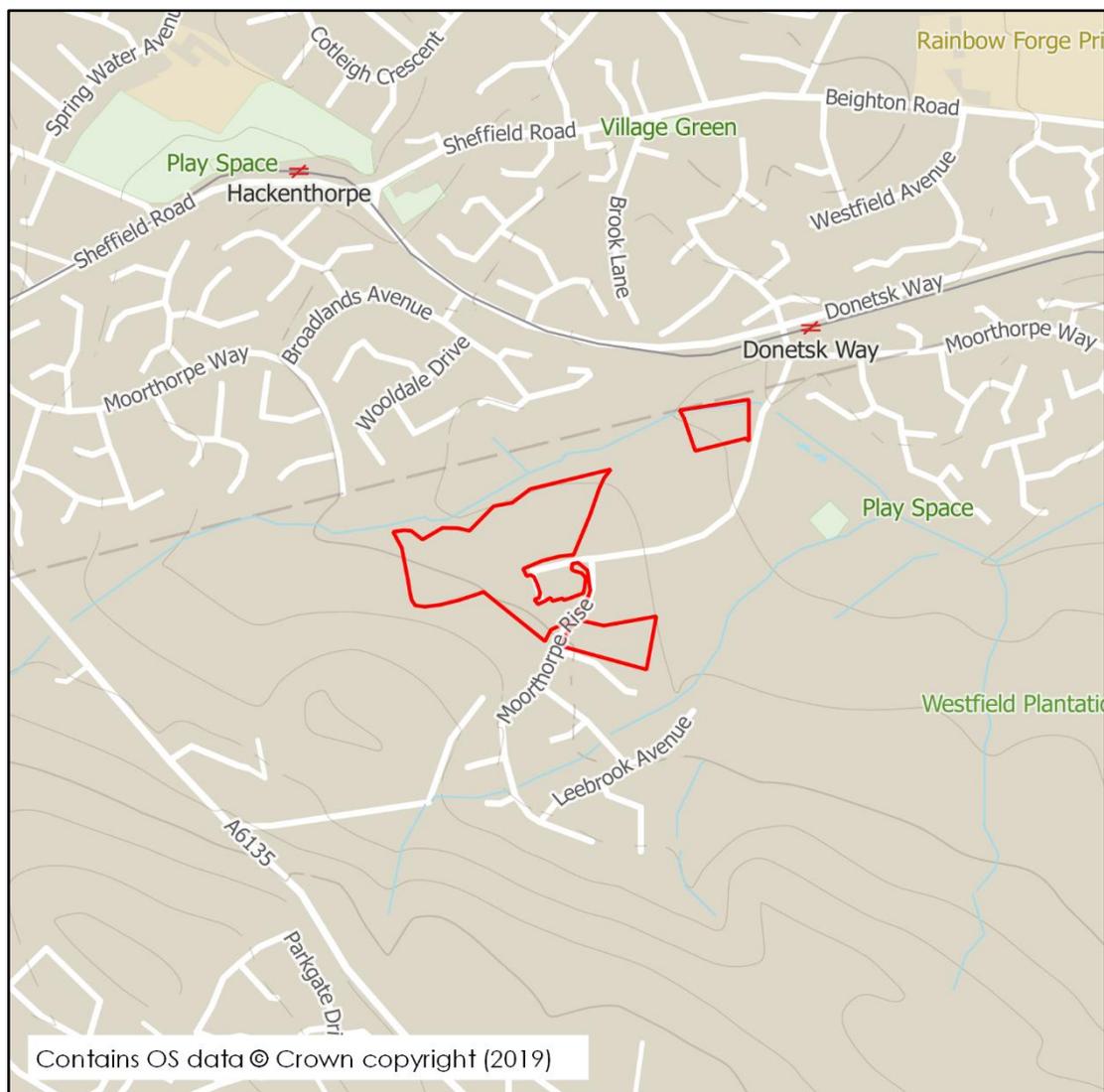
Instruction

- 1.1 BWB Consulting Ltd (BWB) was instructed by Avant Homes (the Client) to carry out an Ecological Impact Assessment on land at Moorthorpe Way, Sheffield (the Site). This report has been produced to inform a planning application for residential development.

Site Setting

- 1.2 The Site is located off Moorthorpe Way and Moorthorpe Rise to the south-west of Owlthorpe in Sheffield: Central Grid Reference SK 4156 8261. The location of the Site is shown in **Figure 1**.

Figure 1: Location Plan



Aims

- 1.3 The primary purpose of this assessment is to provide an overview of the potential ecological impacts arising from the proposed development, any mitigation, compensation or enhancement and to make an assessment of the residual impacts.

Scope of Works

- 1.4 This ecological impact assessment was informed by a desk-based study and a number of Site surveys. The approach follows best practice published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019) and the British Standards Institution (BSI, 2013). Further details are provided later in this report.

Legislation and Planning Policy

- 1.5 The following legislation relates to species and habitats that could potentially occur in association with the Site:
- The Conservation of Habitats and Species Regulations 2019;
 - The Wildlife and Countryside Act 1981 (as amended);
 - The Countryside and Rights of Way (CROW) Act 2000;
 - Natural Environment and Rural Communities (NERC) Act 2006;
 - The Protection of Badgers Act 1992;
 - Wild Mammals (Protection) Act 1996; and
 - The Hedgerow Regulations 1997.
- 1.6 Further information on the legislation relevant to this Site is provided in **Appendix 1**.
- 1.7 Consideration has also been given in this report to relevant National and Local Planning Policy as summarised below.
- 1.8 The National Planning Policy Framework (NPPF) guides Local Planning Authorities (LPAs) when developing their planning policies and considering planning applications affecting protected habitats, sites and species.
- 1.9 In respect of the natural environment, the NPPF states that:
- 1.10 “Planning policies and decisions should contribute to and enhance the natural and local environment by:
- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and

other benefits of the best and most versatile agricultural land, and of trees and woodland;

- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

1.11 Through the NPPF and Section 40 of the NERC Act, LPAs have a duty to consider habitats and species listed as being of principal importance for nature conservation in England on Section 41 (S41) of the Act when considering a planning application. In addition, the biodiversity duty of local planning authorities also covers species and habitats listed in local biodiversity action plans.

1.12 Additionally, the current adopted Sheffield Local Plan (comprising the Sheffield Core Strategy (2009) and 'saved' policies from the Sheffield Unitary Development Plan (1998)) provides the following policies with respect to open spaces and the natural environment:

GE11: Nature Conservation and Development

1.13 *The natural environment will be protected and enhanced. The design, siting and landscaping of development should respect and promote nature conservation and include measures to reduce any potentially harmful effects of development on natural features of value.*

GE13: Areas of Natural History Interest and Local Nature Sites

1.14 *Development which would damage Areas of Natural History Interest will normally not be permitted. Development affecting Local Nature Sites should, wherever possible, be sited and designed so as to protect and enhance the most important features of natural history interest.*

1.15 *Where development would decrease the nature conservation value of an Area of Natural History or Local Nature Site, that decrease must be kept to a minimum and compensated for by creation or enhancement of wildlife habitats elsewhere within the site or local area.*

GE15: Trees and Woodland

1.16 *Trees and woodland will be encouraged and protected by:*

- a) Planting, managing and establishing trees and woodland, particularly in the South Yorkshire Forest; and*
- b) Requiring developers to retain mature trees, copses and hedgerows, wherever possible, and replace any trees which are lost; and*
- c) Not permitting development which would damage existing mature and ancient woodlands.*

2. METHODS

Scope of the Assessment

- 2.1 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 10km around the Site for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site);
 - 2km around the Site for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR)); and
 - 2km around the Site for sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINC)/Wildlife Sites and species records (e.g. protected, UK BAP or notable species)).
- 2.2 The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the Site boundaries.
- 2.3 Although there were no hydrological links between the surveyed Site and off-site habitats, habitat linkages were considered when assessing the ecological features.
- 2.4 All areas of the Site were accessible and all habitats could be included within the assessment. Given the suburban nature of the Site, features identified of value greater than within the Site only were considered to merit further assessment.

Preliminary Ecological Appraisal

- 2.5 A Preliminary Ecological Appraisal was undertaken in February 2019, comprising a desk study and an Extended Phase 1 Habitat Survey.
- 2.6 A summary of the results, relevant to this assessment, are provided within this document, but a separate Preliminary Ecological Appraisal report was produced and should be consulted if further information is required.

Bat Activity Survey

- 2.7 The Preliminary Ecological Appraisal identified habitats on the Site that could potentially provide foraging and commuting habitat for bats.
- 2.8 Bat activity transects and static monitoring were therefore recommended for spring, summer and autumn.
- 2.9 **Table 1** shows the details for the surveys carried out.

Table 1: Bat Survey Details

Survey Date	Time of Survey	Sunset/Sunrise	Weather Conditions	Personnel
SPRING 23/04/2019	20.20 – 21.50	20.20	Temp: 11.1°C – 8.3°C Dry 30% cloud cover Survey conducted after period of unseasonably hot weather	Sarah Stone and Chris Grocock
SUMMER 10/07/2019	21.31 – 23.01	21.31	Temp: 18°C Dry 50% cloud cover	Chris Grocock and Richard Robinson
AUTUMN 03/09/2019	19.51 – 21.24	19.51	Temp: 18°C Dry 100% cloud cover	Sarah Stone and Chris Grocock

- 2.10 Surveys were carried out by a pair of surveyors, utilising either an EM Touch detector, or an Anabat Express detector with heterodyne Batbox Duet.
- 2.11 At least one of the surveyors on each occasion was registered to use a Natural England Class Licence to survey for bats (Sarah Stone Registration No. 2015-11997-CLS-CLS; Chris Grocock Registration No. 2016-24827-CLS-CLS).
- 2.12 Surveyors walked a pre-defined route, commencing at dusk and continuing for 1.5 hours. Stopping points were included at key locations, with each stopping point lasting for 5 minutes.
- 2.13 Surveyors recorded any bats heard and the calls were subsequently analysed using AnaLook software to determine the species present.
- 2.14 **Table 2** below shows the details of the static monitoring. An Anabat Express detector was left out for a minimum of five days during each of the survey seasons, in line with standard guidelines.
- 2.15 The detector was attached to a tree in the centre of the Site, in an area considered likely to provide optimal bat foraging habitat.

Table 2: Static Monitoring

Season	Survey Dates
SPRING	19/05/2019 – 29/05/2019
SUMMER	24/07/2019 – 31/07/2019
AUTUMN	03/09/2019 – 15/09/2019

Botanical Survey

- 2.16 A botanical survey was carried out on 4th June 2019. This is at an optimal time for surveys of this nature, when the majority of floral species will be visible.
- 2.17 The survey was carried out by Toby Fisher CEnv MCIEEM during suitable weather conditions: dry, 16°C, calm (Beaufort (Bft) 1), cloud 100% with good visibility.
- 2.18 The survey involved recording all plant species present and creating a full plant species list for the full site area and categorising the abundance of each species across the site using the DAFOR scale¹.
- 2.19 Nomenclature for vascular plant species follows Stace (2019).

Breeding Bird Survey

- 2.20 A total of three breeding bird surveys were undertaken at the Site during April and May 2019.
- 2.21 Surveys were led by Gemma Longman ACIEEM, with assistance from Ben McLean MCIEEM and Joe Bamforth.
- 2.22 The surveys followed the standard Common Bird Census (CBC) method (Gilbert *et al.* 1998). During each visit, all bird observations were recorded on 1:10,000 scale maps using standard British Trust for Ornithology (BTO) notation, including information on behaviour and evidence of breeding. The survey transect route involved walking along field boundaries within the Site to enable visual and audible coverage of all the landforms within the Site and land immediately adjacent to the Site – all field/Site boundaries were walked during each of the surveys.
- 2.23 The breeding bird surveys were undertaken between the main bird breeding season of March – August.
- 2.24 The data collected was subject to territory mapping analysis in order to determine the number and distribution of breeding birds within the area. In addition, birds were classified as **non-breeding, possible, probable, confirmed** breeding, dependent on the activity recorded. A description for defining each breeding classification is provided in **Table 3**.
- 2.25 In relation to the development proposals, particular attention was focussed on the following bird groups and activity:
- Bird species of principal importance / Birds of Conservation Concern (BoCC) Red List Species (Eaton *et al* 2015)
 - Birds listed on Local Biodiversity Action Plans
- 2.26 All surveys were undertaken in suitable weather conditions. The survey conditions are presented in **Table 4**. The surveys were undertaken during the optimal season for

¹ D = dominant; A = abundant; F = frequent; O = occasional; R = rare; L = locally; V = very.

breeding bird surveys and were spaced at least two weeks apart. There were no significant survey limitations.

Table 3: Description for Defining Each Breeding Classification

Breeding Likelihood	Activity Recorded
Non-breeding	Passage flight only
	Bird on migration
	Non-breeding males
Possible breeding	Observed in suitable nesting habitat
	Singing male
Probable breeding	Pair in suitable nesting habitat
	Permanent territory (defended over at least one week or, a number of males singing all in the same area)
	Visiting probable nest site
	Agitated behaviour
	Brood patch of incubating bird (from bird in hand)
	Nest building or excavating a nest hole
Confirmed breeding	Distraction display or injury feigning
	Used nest or eggshells found from this season
	Recently fledged young or downy young
	Adults entering or leaving nest site in circumstances indicating occupied nest
	Adult carrying faecal sac or food for young
	Nest containing eggs
	Nest with young seen or heard

Table 4: Breeding Bird Survey Details

Survey Date	Time of Survey	Weather Conditions	Visibility	Survey Constraints
05/04/2019	08.00 – 10.15	Dry, wind Bft 2, cloud 70%, 9°C	Very good	None
26/04/2019	08.30 – 10.35	Dry, wind Bft 0, cloud 100%, 10°C	Excellent	None
17/05/2019	07.45 – 09.40	Dry, wind Bft 1, cloud 90%, 10°C	Excellent	None

Reptile Survey

2.27 A reptile survey was carried out in line with Froglife Advice Sheet 10 (1999).

2.28 A total of 47 artificial refuges, comprising roofing felt cut into 0.5m² tiles, were positioned in suitable habitat around the site in March 2019. The number of tiles is higher than the number recommended in the guidance (5-10 per hectare) to take account of the high levels of public access at the Site and the potential for refuges to be moved or go missing during the survey.

- 2.29 The refuges were left to bed-in and were then checked on seven subsequent occasions during suitable weather conditions in April and May. **Table 5** below details the survey visits.
- 2.30 Whilst checking the refuges, surveyors also scanned suitable habitat and any natural refuges for the presence of reptile species.
- 2.31 Upon completion of the survey visits, artificial refuges were removed from the Site.

Table 5: Reptile Survey Details

Survey Date	Time of Survey	Weather Conditions
10/04/2019	16.00	Temp: 10.5°C; Dry; 0 Cloud cover
26/04/2019	08.30	Temp: 9°C – 13.5°C; Dry; 100% Cloud cover
29/04/2019	15.00	Temp: 13°C; Dry; 75% Cloud cover
20/05/2019	15.30	Temp: 8°C; Dry; 75% Cloud cover
21/05/2019	09.00	Temp: 13°C; Dry; 0 Cloud cover
23/05/2019	08.50	Temp: 15 - 21°C; Dry; 0 Cloud cover
30/05/2019	08.30	Temp: 18°C; Dry; 40% Cloud cover

Assessment

- 2.32 The Ecological Impact Assessment has been undertaken following guidelines provided by CIEEM (CIEEM, 2019).
- 2.33 In order to assess the significance of effects, Important Ecological Features that could potentially be affected by the development have been identified and described and the potential effects quantified using a range of parameters (e.g. extent, magnitude and duration).
- 2.34 For the purposes of this assessment, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity) (CIEEM, 2019).
- 2.35 Only where significant effects are predicted have mitigation measures been proposed, although it should be noted that a number of precautionary measures have been included and these are detailed within this document for completeness.
- 2.36 The potential for mitigation and enhancement measures were then considered to avoid, reduce or compensate for any significant adverse effects, where possible.
- 2.37 The current guidelines identify various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include:
- naturalness;
 - animal or plant species, sub-species or varieties that are rare or uncommon, either internationally, nationally or more locally, including those that may be seasonally transient;

- ecosystems and their component parts, which provide the habitats required by important species, populations and/or assemblages;
- endemic species or locally distinct sub-populations of a species;
- habitats that are rare or uncommon;
- habitats that are effectively irreplaceable;
- habitat diversity;
- size of habitat or species population;
- habitat connectivity and/or synergistic associations;
- habitats and species in decline;
- rich assemblages of plants and animals;
- large populations of species or concentrations of species considered uncommon or threatened in a wider context;
- plant communities (and their associated animals) that are considered to be typical of valued natural / semi-natural vegetation types, including examples of naturally species-poor communities; and
- species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.

Significance Criteria

2.38 Current guidelines propose the following frame of reference for defining geographic context, which should be adapted to suit local circumstances:

- International and European;
- National;
- Regional;
- Metropolitan, County, vice-county or other local authority-wide area; and
- Local
- Within Site only.

3. BASELINE CONDITIONS

Designated Sites

- 3.1 There are no internationally designated sites within 10km of the proposed development Site and no nationally designated sites within 2km. However, the Site does fall within a SSSI Risk Zone and “residential developments of 50 or more houses outside of existing settlement/urban areas” are highlighted as a risk category, for which the Local Planning Authority will be expected to consult with Natural England over the likelihood of impacts.
- 3.2 Owlthorpe Local Wildlife Site (LWS) occurs immediately adjacent to the proposed development Site and Westfield Plantation occurs in close proximity. A map showing the LWS in the vicinity is provided in **Appendix 2**. The survey work conducted has been designed to assess the potential for impacts to species associated with these LWS.
- 3.3 The woodland surrounding Ochre Dike is considered of significant importance by the LPA.

Habitats and Botanical Species

- 3.4 The Site comprised a mosaic of habitats, with rank grassland, patches of dense scrub, dense bracken, broadleaved trees, a hedgerow and a watercourse entirely covered by dense scrub.
- 3.5 A full list of the botanical species recorded during the botanical survey is provided in **Appendix 3**.
- 3.6 No rare or scarce plant species were recorded and the grassland was categorised as poor semi-improved grassland, due to the relatively low plant species diversity.

Bats

Spring

- 3.7 The spring bat activity transect (Transect 1) recorded three common pipistrelle *Pipistrellus pipistrellus* bat passes, one soprano pipistrelle *Pipistrellus pygmaeus* and one unidentified pipistrelle *Pipistrellus* sp. bat pass. This would be considered a low level of bat activity.
- 3.8 Four out of the five calls were recorded close to the woodland edge along the Site's northern boundary.
- 3.9 The results of the bat activity transects are included in **Appendix 4**.
- 3.10 The spring static monitoring was dominated by common pipistrelle bat calls, with soprano pipistrelle the next most frequently recorded. *Myotis* sp., noctule *Nyctalus noctule* and leisler's *Nyctalus leisleri* bats were also recorded.

- 3.11 Calls were typically recorded in the hour immediately following sunset and the hour immediately prior to sunrise. This suggests that bats roost close by and commute across the Site from their roosts to their foraging grounds.
- 3.12 There were a low number of calls, typically less than 60 passes per night, suggesting this is not a key site for bat activity at this time.

Summer

- 3.13 During the summer bat activity transect (Transect 2) a total of 19 common pipistrelle bat passes were recorded. These were spread across the Site and did not appear to be associated with linear features such as the woodland edge. No other species were recorded.
- 3.14 The summer static monitoring displayed a similar pattern to the spring records, with common pipistrelle the most common species. The number of calls per night was variable, with zero bat passes on some nights and over 100 passes on others. Calls were also spread through the night, with a less obvious cluster close to sunset and sunrise.
- 3.15 The pattern of activity recorded during the summer implies that bats were foraging closer to home and flying more frequently between their roosts and foraging sites or moving foraging sites more regularly. This could be due to the need to feed young at the roost, or be young bats foraging close to their roosts.
- 3.16 The number of passes recorded per night would still be considered low in relation to key bat foraging sites.

Autumn

- 3.17 During the autumn bat activity transect (Transect 3), a total of four common pipistrelle bat passes were recorded and a total of five *Nyctalus* sp. passes. Similarly to the summer transect, the calls were recorded across the Site and did not show a particular association with the northern woodland edge.
- 3.18 The static monitoring recorded during autumn included common pipistrelle, soprano pipistrelle, *Myotis* sp., Leisler's and noctule bats, as previously.
- 3.19 The number of passes per night was notably lower, with a maximum of 78 passes on one night. The calls were spread throughout the night but there were clusters within 30 minutes of sunset and within two hours of dawn, suggesting bats roost close by.
- 3.20 There were a lot of noise files recorded during the autumn static monitoring, likely reflecting more gusty wind conditions.

Breeding Birds

- 3.21 Twenty-two bird species were recorded during the surveys.

- 3.22 This included four species listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance for the Conservation of Biodiversity in England: dunnock *Prunella modularis*, bullfinch *Pyrrhula pyrrhula*, house sparrow *Passer domesticus* and song thrush *Turdus philomelos*. All of these species were potentially breeding on or adjacent to the Site.
- 3.23 In addition, three species which are Red listed as Birds of Conservation Concern (BoCC) (Eaton *et al* 2015) were recorded: song thrush, mistle thrush *Turdus viscivorus* and house sparrow; and three Amber list species: dunnock, bullfinch and willow warbler *Phylloscopus trochilus*. Of these, song thrush (2-3 pairs), dunnock (1-2 pairs), bullfinch (1 pair) and willow warbler (1 pair) breed within the Site. House sparrow appears in houses outside the Site's south-eastern boundary and use the Site for foraging.
- 3.24 Overall, the Site supports a moderate assemblage of suburban garden and woodland bird species. No rare or specially protected species were observed.
- 3.25 The key observations from each survey are provided in **Table 6** below. The survey results are shown on a map in **Appendix 5**. The grey shaded boxes in the table signify birds recorded within the Site or Site boundary. The current conservation status of each species is indicated by the colour code in column three, with Red = greatest concern; Amber = moderate concern; and Green = least concern.

Table 6: Breeding Bird Survey Results

Ref.	Species	Status ⁴	05.04.2019	26.04.2019	17.05.19	Notes
C.	Carrion crow <i>Corvus corone</i>	Green	Grey	Grey	Grey	Grey
M.	Mistle thrush <i>Turdus viscivorus</i>	BaCC Red List / S41 NERC Act	Grey	White	White	Possibly breeds off site
ST	Song thrush <i>Turdus philomelos</i>	BaCC Red List / S41 NERC Act	White	Grey	Grey	2-3 pairs breed within/adjacent to the site
CC	Chiffchaff <i>Phylloscopus collybita</i>	Green	Grey	Grey	Grey	3-4 pairs breed within the site
WP	Woodpigeon	Green	Grey	Grey	Grey	Several pairs breed

Ref.	Species	Status ⁴	05.04.2019	26.04.2019	17.05.19	Notes
	<i>Columba palumbus</i>					within the site
MG	Magpie <i>Pica pica</i>				Nest	Several pairs breed within/adjacent to the site
J.	Jay <i>Garrulus glandarius</i>					1 pair probably breeding in woodland to north of site
BT	Blue tit <i>Cyanistes caeruleus</i>					Several pairs breed within the site
GT	Great tit <i>Parus major</i>			Nest		Several pairs breed within the site
LT	Long tailed tit <i>Aegithalos caudatus</i>			Nest building	Nest	Several pairs breed within the site
WH	Whitethroat <i>Sylvia communis</i>				Nest building	1-2 pairs breeding on site
BC	Blackcap <i>Sylvia atricapilla</i>			Nest		Several pairs breed within the site
BF	Bullfinch <i>Pyrrhula pyrrhula</i>	BoCC Amber List /				One pair probably breeding in south

Ref.	Species	Status ⁴	05.04.2019	26.04.2019	17.05.19	Notes
		S41 NERC Act				eastern part of the site
WR	Wren <i>Troglodytes troglodytes</i>					Several pairs breed within the site
B.	Blackbird <i>Turdus merula</i>				Nest	Several pairs breed within the site
R.	Robin <i>Erithacus rubecula</i>					Several pairs breed within the site
D.	Dunnock <i>Prunella modularis</i>	BoCC Amber List / S41 NERC Act				1-2 pairs breed within/adjacent to the site
HS	House sparrow <i>Passer domesticus</i>	BoCC Red List / S41 NERC Act				2-3 pairs breed adjacent to the site
GO	Goldfinch <i>Carduelis carduelis</i>					Several pairs breed within/adjacent to the site
TC	Treecreeper <i>Certhia familiaris</i>					Probable breeding in woodland outside the north

Ref.	Species	Status ⁴	05.04.2019	26.04.2019	17.05.19	Notes
						boundary of site
WW	Willow warbler <i>Phylloscopus trochilus</i>	BoCC Amber List				1 pair breed within the site
CH	Chaffinch <i>Fringilla coelebs</i>					Several pairs breed within the site

Notable Bird Species

House sparrow

- 3.26 House sparrow were recorded within the Site on all survey visits with a maximum count of five individuals recorded on 17th May. House sparrow appeared in houses outside the Site's south-eastern boundary and used the Site for foraging purposes.

Dunnock

- 3.27 Dunnock were recorded within or immediately adjacent to the Site on each survey visit, with a maximum count of four individuals recorded on 5th April (just outside southern and northern boundary within woodland and scrub, although occasional sightings of individuals within the Site boundary were recorded). Breeding activity on Site was considered probable.

Willow warbler

- 3.28 Willow warbler was recorded on each survey visit. An individual was recorded singing within a willow *Salix* sp. tree within the boundary of the Site towards the east (north of GP surgery) on 26th April and 17th May. Breeding activity was considered probable.

Mistle thrush

- 3.29 Mistle thrush was recorded during the survey on a single occasion. An individual was recorded just outside the western boundary of the Site. Breeding activity on Site was considered possible.

Song thrush

- 3.30 Song thrush was recorded on 26th April and 17th May within the woodland outside the north and south-west boundary of the Site. Contemporary contact of two birds was recorded from one bird within the woodland outside the north boundary to another bird

within the northern boundary of the Site, indicating separate territories. Breeding activity on Site was considered probable.

Bullfinch

- 3.31 Bullfinch was recorded on each survey visit. An individual was recorded just outside the south-western boundary on 5th April and within the woodland outside the south-western boundary on 26th April. On 17th May, an individual was recorded within the Site boundary, west of the GP surgery. Breeding activity was considered probable.

Other birds

- 3.32 Other birds observed during the surveys with confirmed/probable breeding within or directly adjacent to the Site included blue tit, great tit, long-tailed tit, black cap, chaffinch, goldfinch, whitethroat, wren, blackbird, robin, woodpigeon, rook, magpie, chiffchaff and jay. Non-breeding birds within the Site included carrion crow.

Reptiles

- 3.33 No reptiles were recorded during the surveys.
- 3.34 These species are therefore considered unlikely to be present within the Site.

Other Species

- 3.35 The Site was considered unlikely to be used by great crested newt *Triturus cristatus*, although common toad, which are listed as a Priority Species (NERC, 2006) could be present.
- 3.36 Although no evidence of badger *Meles meles* has been recorded during the survey work, this species could cross the Site and new setts could be dug in the future.
- 3.37 The water course was entirely shaded within dense scrub and was therefore considered unlikely to offer potential to water vole *Arvicola amphibius*, otter *Lutra lutra* or white-clawed crayfish *Austropotamobius pallipes*; furthermore there are no records of these species within the last ten years.
- 3.38 A rare assemblage of invertebrates was considered unlikely but rare and notable species exist in the surroundings and could utilise the Site.
- 3.39 Hedgehogs *Erinaceus europaeus* may also cross the Site.

4. NATURE CONSERVATION EVALUATION

- 4.1 The valuation of the nature conservation interest of the ecological features present on the Site and whether or not they are subject to detailed impact assessment is summarised in **Table 7**.

Table 7: Nature Conservation Evaluation

Receptor	Important Ecological Feature	Value of Receptor or Value of Site to Receptor	Potential for Impact	Subject to Detailed Assessment
Non-statutory Designations				
Owlthorpe LWS and Westfield Plantation LWS	Yes – non-statutory designated sites.	County	Yes – due to proximity to development and connectivity	Yes
Habitats				
Poor semi-improved grassland	No - the grassland did not support a rare or diverse botanical assemblage.	Local	Yes – direct habitat loss	No – low ecological value
Hedgerow	Yes – Priority Habitat	Local	No – to be retained	No
Woodland	Yes – the woodland surrounding Ochre Dyke is considered of importance by the LPA.	County	Yes – indirect impacts	Yes
Species				
Bats	Yes – legally protected under the Conservation of Habitats and Species Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended).	Local	Yes - Potential increased disturbance, through lighting, of bats foraging	Yes
Breeding Birds	Yes - listed as Priority Species under the Natural Environment and Rural Communities (NERC) Act 2006 and Red List Species were recorded within the Site.	Local	Yes – direct habitat loss and increased disturbance	Yes
Reptiles	Yes – legally protected under the Wildlife and Countryside Act 1981 (as amended).	Not applicable	No – highly unlikely to be present	No

Receptor	Important Ecological Feature	Value of Receptor or Value of Site to Receptor	Potential for Impact	Subject to Detailed Assessment
Common toad	Yes - listed as Priority Species under the Natural Environment and Rural Communities (NERC) Act 2006.	Local	Yes – could be injured during Site clearance	Yes
Badger	Yes – protected under Protection of Badgers Act 1992.	Local	Yes – possibility of injury/harm during construction phase	Yes
Invertebrates	No – although rare or scarce species recorded in vicinity.	Local	No – species present in surroundings and considerable amounts of habitat will be retained in proximity	No
Hedgehog	Yes - listed as Priority Species under the Natural Environment and Rural Communities (NERC) Act 2006.	Local	Potential for habitat loss and harm during construction phase	Yes

4.2 Therefore, the ecological receptors which are taken forward for further assessment are as follows:

- Owlthorpe and Westfield Plantation LWS;
- Woodland surrounding Ochre Dyke;
- Bats;
- Breeding birds;
- Common toad;
- Badgers; and
- Hedgehogs.

4.3 The Site also falls within the Risk Zone for a number of SSSIs. Residential developments of 50 or more houses outside of the existing settlement/urban areas are highlighted as a risk category, for which the LPA will be expected to consult with Natural England over the likelihood of impacts. It is outside the scope of this document to confirm whether or not this development fits this description and this aspect has not therefore been covered further.

5. ASSESSMENT OF EFFECTS

Owlthorpe LWS and Westfield Plantation LWS

- 5.1 Owlthorpe LWS is listed as containing semi-natural woodland, bracken, other tall herbs, improved grassland, scrub and ancient/species-rich hedgerows. A number of botanical species of local importance have been recorded at the LWS, as well as a considerable assemblage of invertebrates, nationally and locally important bird and bat species.
- 5.2 The LWS is located immediately to the north and west of the proposed development Site. Westfield Plantation LWS lies in close proximity and is connected to the Site through woodland. It supports a similar species assemblage, particularly bats and birds.
- 5.3 As a result of the survey work carried out in relation to the proposed development, it is considered that the habitat loss associated with this development would be unlikely to have a significant impact on species associated with the LWS, due to their absence or low numbers during the survey work.
- 5.4 The primary impacts would be increased disturbance and loss of connectivity.
- 5.5 Without mitigation, the increased disturbance and loss of connectivity would be considered a moderate impact at the County level.

Woodland

- 5.6 Although direct impacts to the woodland are not anticipated, due to a stand-off between the proposed development and the woodland edge, it is possible that increased lighting along the woodland edge could result in increased disturbance.
- 5.7 This would be considered a minor impact at the County level.
- 5.8 The woodland is well used by walkers and increased recreational pressure is considered likely to be negligible.

Bats

- 5.9 No impacts to roosting bats are envisaged as a result of the removal of vegetation.
- 5.10 The survey results suggest the Site does not form a key part of bats' foraging or commuting routes, although it is crossed by a variety of species. The species were common in the surrounding habitat and no species of specific conservation concern were recorded. The calls recorded do not suggest key features that were used regularly by bats, with calls recorded across the Site.
- 5.11 The main impact is therefore likely to be the installation of new lighting associated with the construction and operational phases of the new development, which could disrupt bats crossing the Site.
- 5.12 This would be considered a minor impact at a Local level.

Birds

- 5.13 The survey results revealed a moderate population of birds at the Site, with a small number of notable species recorded.
- 5.14 The proposed development, without mitigation, would result in the loss of habitat used by those species breeding on Site, as well as increased disturbance for those species breeding immediately adjacent to the Site.
- 5.15 Given the existing habitats that immediately surround the Site and within the wider area, the number of birds affected locally is considered likely to be small when contrasted with their relative abundance locally.
- 5.16 Many of the species recorded during the survey, including house sparrow (considered a notable species), show an active association with residential areas, where suitable breeding and foraging resources are present.
- 5.17 Overall, impacts to breeding birds, without mitigation, would be considered a minor impact at a Local level.

Common Toad

- 5.18 Garden ponds may be present in the vicinity that could support common toad and other common amphibians.
- 5.19 There is the potential for direct harm to these animals during Site clearance. This would be considered a minor impact at a Within Site level.

Badgers and Hedgehogs

- 5.20 No evidence of badger or hedgehog was recorded during the surveys, although their occasional passage through the Site cannot be ruled out.
- 5.21 Habitat clearance, demolition and construction works have the potential to result in direct harm to mammal species, due to them becoming trapped or injured in open excavations.
- 5.22 This would be considered a minor impact at a Local level.
- 5.23 The proposals will also result in the loss of habitat suitable for foraging by both badger and hedgehog.
- 5.24 This would be considered a minor impact at a Local level.
- 5.25 Although considered unlikely, badgers can dig new setts at any time and could use the Site for sett building in the future. Damage to any sett as part of development works would be in contravention of the legislation but the level of impact would be dependent upon the status of the sett.

Cumulative Effects

- 5.26 A search of the online planning portal did not find any other planning applications likely to impact upon the same habitats, either directly or through connectivity, as this application.
- 5.27 The applications within the Owlthorpe locality are dominated by small-scale residential improvements or construction schemes.
- 5.28 Similarly, the species using this application Site would be unlikely to be associated with other application sites in the vicinity.
- 5.29 Cumulative impacts are not therefore anticipated.

6. MITIGATION MEASURES

Owlthorpe LWS, Westfield Plantation LWS and Woodland

- 6.1 During the construction phase, temporary fencing must be erected to prevent any transgression of materials, machinery or personnel into these adjacent habitats (Owlthorpe LWS and the woodland), as this could result in direct damage to the habitat present.
- 6.2 In order to minimise additional disturbance to these adjacent habitats, the lighting strategy must be designed to follow current best practice guidelines (Bats and Artificial Lighting in the U.K., 2018) and must ensure that light pollution onto the adjacent habitats is minimised.
- 6.3 The developer should also consider the addition of litter bins around the development perimeters to encourage those accessing the surrounding habitats to dispose of litter appropriately.
- 6.4 It is understood that a 15m buffer zone between the woodland and the development will be maintained. This area offers an opportunity to maintain connectivity with habitats around the Site and the developer should seek to create a variety of habitats within this area, to encourage species from the LWS and woodland to access the wider habitats.
- 6.5 Specifically, this should include habitats and botanical species suitable for invertebrates, such as those with a high nectar yield and a diverse structure. Native species should be planted in this area and species recorded within the LWS could be used to maintain connectivity.
- 6.6 Assuming that the above measures can be adhered to, habitat connectivity will be retained and additional disturbance will be reduced. The residual impact would be categorised as a minor impact at a County level.

Bats

- 6.7 The retention of a 15m buffer zone from the woodland and sensitive lighting scheme will minimise disturbance to bats and ensure a flight path is retained within the development.
- 6.8 The developer should also incorporate bat boxes into the scheme. A minimum of 6x habitat integrated bat boxes should be incorporated into residential properties at the Site perimeters.
- 6.9 Boxes should be sited close to the eaves, with a clear, visible flight path to the entrance. Properties along the southern and western Site boundaries should be chosen and boxes must not be directly lit.
- 6.10 With the above mitigation measures, impacts to bats would be considered negligible.

Birds

- 6.11 Native tree and scrub species should be incorporated into the development and botanical species providing seeds and/or berries should also be included, particularly within the woodland buffer zone. This will ensure a continued foraging resource for bird species.
- 6.12 Opportunities for nesting birds should be incorporated into the final masterplan. The following boxes are recommended:
- Minimum of 4x integrated house sparrow boxes;
 - Minimum of 4x integrated starling boxes;
 - Minimum of 4x integrated swift/house martin boxes;
 - Minimum of 6x open-fronted bird boxes, attached to retained trees//bushes at the perimeters; and
 - Minimum of 6x hole-entrance boxes, attached to retained trees/bushes at the perimeters.
- 6.13 House sparrow, starlings, swifts and house martins will readily use nest boxes placed high up under the eaves. Since these birds nest in loose colonies, two or three can be sited spaced out on the same side of the house. Unless there are trees or buildings that shade the box during the day, boxes should be sited to face north and east, thus avoiding the strongest sunlight and the wettest winds. Birds should have a clear flight-path to box entrances and the entrance hole should be clear. Boxes should be installed around the Site perimeters, predominantly north, east and west.
- 6.14 As all species receive legal protection during nesting, it is advised to complete any vegetation clearance outside of the breeding bird season of March to August (inclusive). Due to the dense scrub in some parts of the Site, vegetation clearance during the bird breeding season would be classified as high risk, due to the likely presence of nests in these areas. An ecologist would need to conduct a nesting bird check immediately prior to any works and it is likely that nests would be located, such that clearance would need to be stopped until all chicks had fledged.
- 6.15 Contractors should remain vigilant during vegetation clearance at any time of year, as some species do nest year-round. Any active nests would need to remain unaffected until all chicks had fledged.
- 6.16 If the above measures are adhered to, the residual impacts would be categorised as a minor impact at the Within Site level.

Common Toad

- 6.17 Any common toad, or other common amphibians, found during the construction work should be removed, carefully and by hand, to adjacent habitats that will remain unaffected by the proposed works.
- 6.18 All contractors should be made aware of the potential presence of common amphibians during a toolbox talk prior to the onset of construction.

6.19 Impacts to common toad would therefore be considered negligible.

Badgers and Hedgehogs

- 6.20 General good working practices, with regards to capping off pipes and leaving a ramp or sloping end in any trenches, should be adhered to at all times during the construction. This should prevent mammals, such as badgers and hedgehogs, from becoming stuck overnight.
- 6.21 All contractors should be made aware of the potential presence of badger and hedgehogs during a toolbox talk prior to the onset of construction.
- 6.22 In the unlikely event that any mammal entrance holes are found during Site clearance, work must stop whilst the ecologist is contacted for further advice.
- 6.23 The woodland buffer zone will ensure some habitat suitable for commuting and foraging by these species is retained at the Site and retain connectivity between habitats in the surrounding landscape.
- 6.24 In line with recent government guidance, 'hedgehog highways' should be incorporated into the scheme. This allows hedgehogs to pass between gardens, with a small hole created at the base of fences. This can prove vital for this species to seek food and find nesting sites.
- 6.25 Although there will be a net loss of habitat available for these species, the above mitigation will ensure they can persist in the local landscape and residual impacts would therefore be considered minor at the Within Site.

7. RESIDUAL IMPACTS

7.1 If the mitigation recommendations detailed above are adhered to, it is considered that the scheme will result in negligible ecological impacts, as summarised in **Table 8** below.

Table 8: Summary

Feature	Effect	Significance of Effect without Mitigation	Mitigation Required	Significance of Residual Impacts after Mitigation
Owlthorpe LWS, Westfield Plantation LWS and Woodland	Disturbance	Moderate at County level	15m buffer zone, appropriately planted, good lighting scheme, temporary fencing, litter bins	Minor at County level
Owlthorpe LWS, Westfield Plantation LWS and Woodland	Loss of connectivity	Moderate at County level	15m buffer zone, appropriately planted, good lighting scheme	Negligible
Bats	Disturbance	Minor at Local level	Good lighting design	Negligible
Bats	Habitat loss	Negligible	15m buffer zone and good lighting design	Negligible
Birds	Direct harm to nesting birds	Minor at Local	Timing of work	Negligible
Birds	Habitat loss	Moderate at Local level	Appropriate planting within buffer zone, incorporation of trees and scrub, nest boxes	Minor at Within Site
Common toad	Direct harm during construction	Minor at Within Site level	Appropriate toolbox talk and removal of any animals from Site	Negligible
Mammals	Habitat loss	Minor at Local level	15m buffer zone, hedgehog highways	Minor at Within Site
Mammals	Direct harm during construction	Minor at Local level	Good working practices	Negligible

8. COMPENSATION AND ENHANCEMENT

8.1 Current planning guidance advises that developments should be seeking to achieve Biodiversity Net Gain. The development must consider the following points towards this aim:

- Maximising green space;
- Use of native botanical species in landscaping scheme;
- Variety of structures and functions of habitats within landscaping scheme;
- Incorporation of opportunities for wildlife, such as additional bat and bird boxes, insect hotels and hedgehog houses.

9. REFERENCES

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- 9.6 Chartered Institute of Ecology and Environmental Management (2017) Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester.
- 9.7 Collins J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust, London.
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- 9.11 Joint Nature Conservation Committee (2010) *Handbook for Phase 1 Habitat Survey: a technique for environmental audit*. JNCC, Peterborough.
- 9.12 Ministry of Housing, Communities and Local Government (July 2019) *National Planning Policy Framework*. ISBN: 978-1-4098-5302-2.
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APPENDICES

APPENDIX 1: Relevant Legislation

European Protected Species

All British bat species, great crested newt, hazel dormice and otters are fully protected through The Conservation of Habitats and Species Regulations 2019 (as amended) as a European Protected Species (EPS). They also receive some protection through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Under the legislation, it is an offence to deliberately capture, injure or kill these species. It is an offence to damage or destroy a breeding site or resting place of these species while it is occupying a structure or place which it uses for shelter or protection; or obstruct access to any structure or place which it uses for that purpose.

It is also an offence to deliberately disturb these species. Disturbance of animals includes in particular any disturbance which is likely (a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or (b) to affect significantly the local distribution or abundance of the species to which they belong.

The 'appropriate authority' (Natural England in England) has powers to issue licences for various purposes including - (a) scientific or educational purposes... and (b) preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment. The appropriate authority shall not grant a licence under this regulation unless they are satisfied - (a) that there is no satisfactory alternative, and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range. It is an offence for any person authorised by virtue of a licence to which this paragraph applies to contravene or fail to comply with any condition which the licence requires him to comply with.

Nesting Birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs. Bird species listed in Schedule 1 of the 1981 Act, receive further protection which makes it an offence to intentionally or recklessly disturb these species while building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird.

Badgers

The Protection of Badgers Act 1992 was introduced in recognition of the additional threats that badgers face from illegal badger digging and baiting. Under the Act, it is an offence inter alia to:

- Wilfully kill, injure or take a badger, or to attempt to do so;
- Cruelly ill-treat a badger; or
- Intentionally or recklessly interfere with a badger sett by:

- damaging a sett or any part of one;
- destroying a sett;
- obstructing access to or any entrance of a sett;
- causing a dog to enter a sett; or
- disturbing a badger when it is occupying a sett.

Reptiles

Four species of reptile, the adder *Vipera berus*, grass snake *Natrix helvetica*, slow worm *Anguis fragilis* and common lizard *Lacerta vivipara* are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) as well as being listed on the UK Post-2010 Biodiversity Framework (formerly UK BAP).

In net effect, it is an offence to deliberately capture, injure or kill common lizard, adder, grass snake or slow worms.

Two reptiles, the sand lizard *Lacerta agilis* and the smooth snake *Coronella austriaca*, are European Protected Species under The Conservation of Habitats and Species Regulations 2019 (as amended). They are also listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are protected by Parts 4(b), 4(c) and 5 of Section 9 of that Act.

APPENDIX 2: Local Wildlife Site Map

Statutory and Non Statutory Local Wildlife Sites Within the Search Area

Owlthorpe



Key

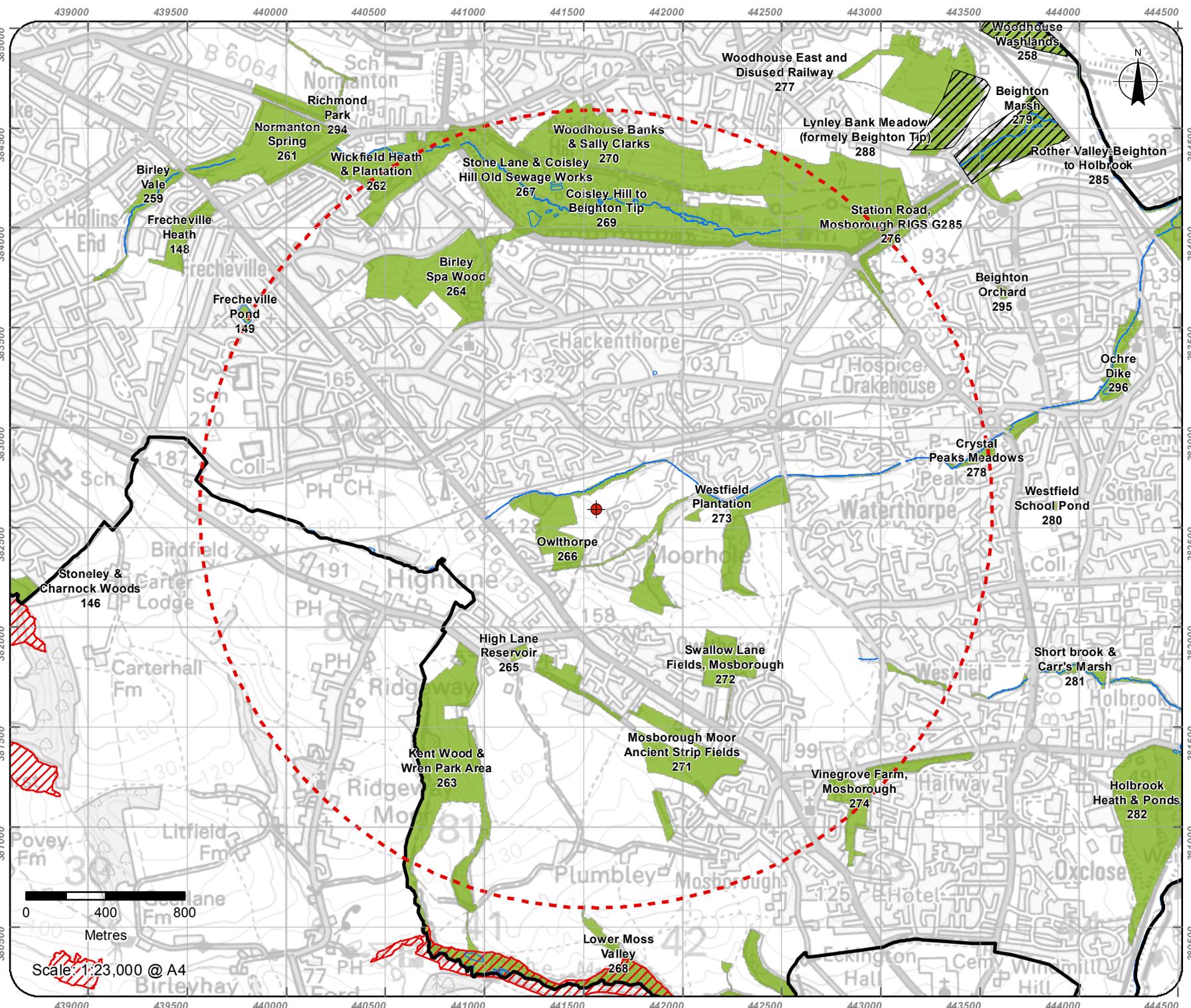
-  Centre of Search Area
-  Sheffield City Boundary
-  Watercourse
-  SWT Nature Reserve
-  SSSI
-  LNR Natural England
-  Local Wildlife Sites
-  2km Radius




Map Created - 06 Feb 2019




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APPENDIX 3: Botanical Species List

Scientific name	Common name	Abundance (DAFOR ²)
<i>Graminoids (grasses, sedges and rushes)</i>		
<i>Agrostis capillaris</i>	Common bent	F
<i>Agrostis stolonifera</i>	Creeping bent	F
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass	R
<i>Arrhenatherum elatius</i>	False oat-grass	LD
<i>Bromus hordeaceus</i>	Smooth brome	R
<i>Carex nigra</i>	Common sedge	R
<i>Cynosurus cristatus</i>	Crested dog's-tail	R
<i>Dactylis glomerata</i>	Cock's-foot	A
<i>Deschampsia caespitosa</i>	Tufted hair-grass	R
<i>Festuca arundinacea</i>	Tall fescue	R
<i>Festuca rubra</i>	Red fescue	F
<i>Holcus lanatus</i>	Yorkshire fog	F
<i>Juncus conglomeratus</i>	Compact rush	R
<i>Lolium perenne</i>	Perennial rye-grass	F
<i>Poa annua</i>	Annual meadow-grass	F
<i>Poa nemoralis</i>	Wood meadow-grass	R
<i>Poa pratensis</i>	Smooth meadow-grass	F-A
<i>Herbs</i>		
<i>Anthriscus sylvestris</i>	Cow parsley	F
<i>Artemisia vulgaris</i>	Mugwort	R
<i>Bellis perennis</i>	Daisy	R
<i>Calystegia sepium</i>	Hedge bindweed	R
<i>Centaurea nigra</i>	Hardheads	R
<i>Cerastium fontanum</i>	Common mouse-ear	O
<i>Chamerion angustifolium</i>	Rosebay willowherb	R
<i>Cirsium arvense</i>	Creeping thistle	F
<i>Crepis vesicaria</i>	Beaked hawk's-beard	R
<i>Crocsmia x crocosmiiflora</i>	Montbretia	R (Schedule 9 WCA)
<i>Dipsacus fullonum</i>	Wild teasel	R
<i>Epilobium hirsutum</i>	Great willowherb	F
<i>Epilobium montanum</i>	Broad-leaved willowherb	R
<i>Equistem arvense</i>	Field horsetail	R
<i>Euphorbia peplus</i>	Petty spurge	R
<i>Gallium aparine</i>	Cleavers	O
<i>Geranium molle</i>	Dove's-foot crane's-bill	R
<i>Geum urbanum</i>	Wood avens	R
<i>Hedera helix</i>	Ivy	R
<i>Heracleum sphondylium</i>	Hogweed	O - LA
<i>Hypochaeris radicata</i>	Common cat's-ear	R
<i>Lathyrus pratensis</i>	Meadow vetchling	R

² D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare; V = Very; L = Locally.

<i>Leucanthemum vulgare</i>	Oxeye daisy	R
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil	R
<i>Lotus pedunculatus</i>	Greater bird's-foot-trefoil	R
<i>Lupinus polyphyllus</i>	Garden lupin	R
<i>Matricaria discoidea</i>	Pineapple weed	R
<i>Medicago lupulina</i>	Black medick	R
<i>Odontites vernus</i>	Red bartsia	F
<i>Oxalis articulata</i>	Pink-sorrel	R
<i>Pilosella aurantiaca</i>	Fox and cubs	R
<i>Plantago lanceolata</i>	Ribwort plantain	F
<i>Plantago major</i>	Greater plantain	VLF
<i>Polygonum aviculare</i>	Knotgrass	R
<i>Potentilla reptans</i>	Creeping cinquefoil	R
<i>Ranunculus acris</i>	Meadow buttercup	R
<i>Ranunculus repens</i>	Creeping buttercup	F
<i>Raphanus raphanistrum</i>	Wild radish	R
<i>Rosa canina</i>	Dog rose	R
<i>Rumex crispus</i>	Curled dock	R
<i>Rumex obtusifolius</i>	Broad-leaved dock	R
<i>Rumex sanguineus</i>	Wood dock	R
<i>Senecio erucifolius</i>	Hoary ragwort	R
<i>Senecio jacobaea</i>	Common ragwort	O
<i>Silene dioica</i>	Red campion	R
<i>Sonchus asper</i>	Prickly sow-thistle	R
<i>Taraxacum officinale</i> agg.	Dandelion	O
<i>Tragopogon pratensis</i>	Goat's-beard	R
<i>Trifolium dubium</i>	Lesser trefoil	R
<i>Trifolium pratense</i>	Red clover	R
<i>Trifolium repens</i>	White clover	O
<i>Tussilago farfara</i>	Colt's-foot	R
<i>Urtica dioica</i>	Common nettle	O
<i>Vicia cracca</i>	Tufted vetch	R
<i>Vicia hirsuta</i>	Hairy tare	F
<i>Vicia sativa</i>	Common vetch	F
Ferns		
<i>Pteridium aquilinum</i>	Bracken	VLA
<i>Dryopteris filix-mas</i>	Male fern	R
Trees / Shrubs		
<i>Acer psuedoplatanus</i>	Sycamore	R
<i>Aesculus hippocastanum</i>	Horse chestnut	R
<i>Alnus glutinosa</i>	Alder	R – LA
<i>Betula pendula</i>	Silver birch	R
<i>Cornus sanguinea</i>	Dog wood	R
<i>Crataegus monogyna</i>	Hawthorn	O
<i>Fraxinus excelsior</i>	Ash	F
<i>Malus domestica</i>	Apple	R
<i>Prunus avium</i>	Wild cherry	R

<i>Quercus robur</i>	Pedunculate oak	F
<i>Quercus x rosacea</i>	Oak hybrid	R
<i>Rosa canina</i>	Dog-rose	O
<i>Rubus fruticosus agg.</i>	Bramble	A – LD
<i>Salix caprea</i>	Goat willow	F
<i>Salix cinerea</i>	Grey willow	R
<i>Salix fragilis</i>	Crack willow	R
<i>Sambucus nigra</i>	Elder	R
<i>Sorbus aucuparia</i>	Rowan	R
<i>Sorbus intermedia</i>	Swedish Whitebeam	R

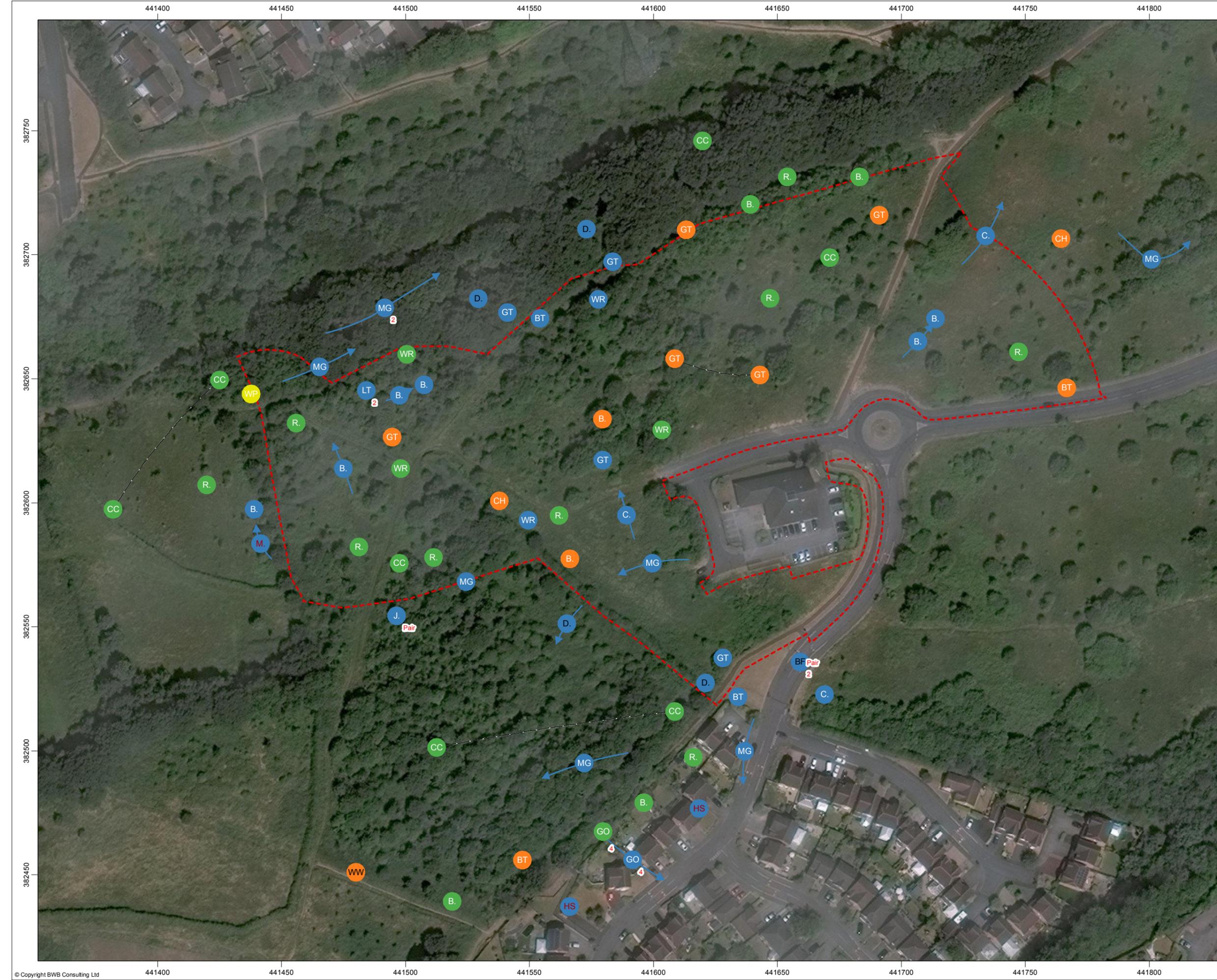
APPENDIX 4: Bat Activity Transects







APPENDIX 5: Breeding Bird Survey Result



Notes

- Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
- This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Key Plan

Legend

- Site boundary
- Bird sighting
- Bird singing
- Bird calling
- Bird - on occupied nest
- Birds - in song at same time

Additional Information

Letter codes within each circle refer to the corresponding BTO reference code and coloured according to their status:

Red Status = Red, Amber Status = Black, Green/No Status = White

Where more than one bird is observed then the size of the flock is indicated in red text alongside the record. Also pair = pair, material = bird seen with nest material.

Red listed species	Green listed species
HS - House Sparrow	B. - Blackbird
M. - Mistle Thrush	BC - Blackcap
ST - Song Thrush	BT - Blue Tit
	C. - Carrion Crow
Amber listed species	CC - Chiffchaff
BF - Bullfinch	CH - Chaffinch
D. - Dunnock	CT - Coal Tit
WW - Willow Warbler	GO - Goldfinch
	GT - Great Tit
	J. - Jay
	LT - Long-tailed Tit
	MG - Magpie
	R. - Robin
	TC - Treecreeper
	WH - Whitethroat
	WP - Wood Pigeon
	WR - Wren

Weather:
Wind 2 (Bft), Cloud cover 70%, Temp 9°C

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Imagery Source - IGN, DoBH, OS, Esri, HERE, Garmin, INCREMENT P, USGS, MET/NASA, NGA | Earthstar Geographics, CNES/Airbus DS

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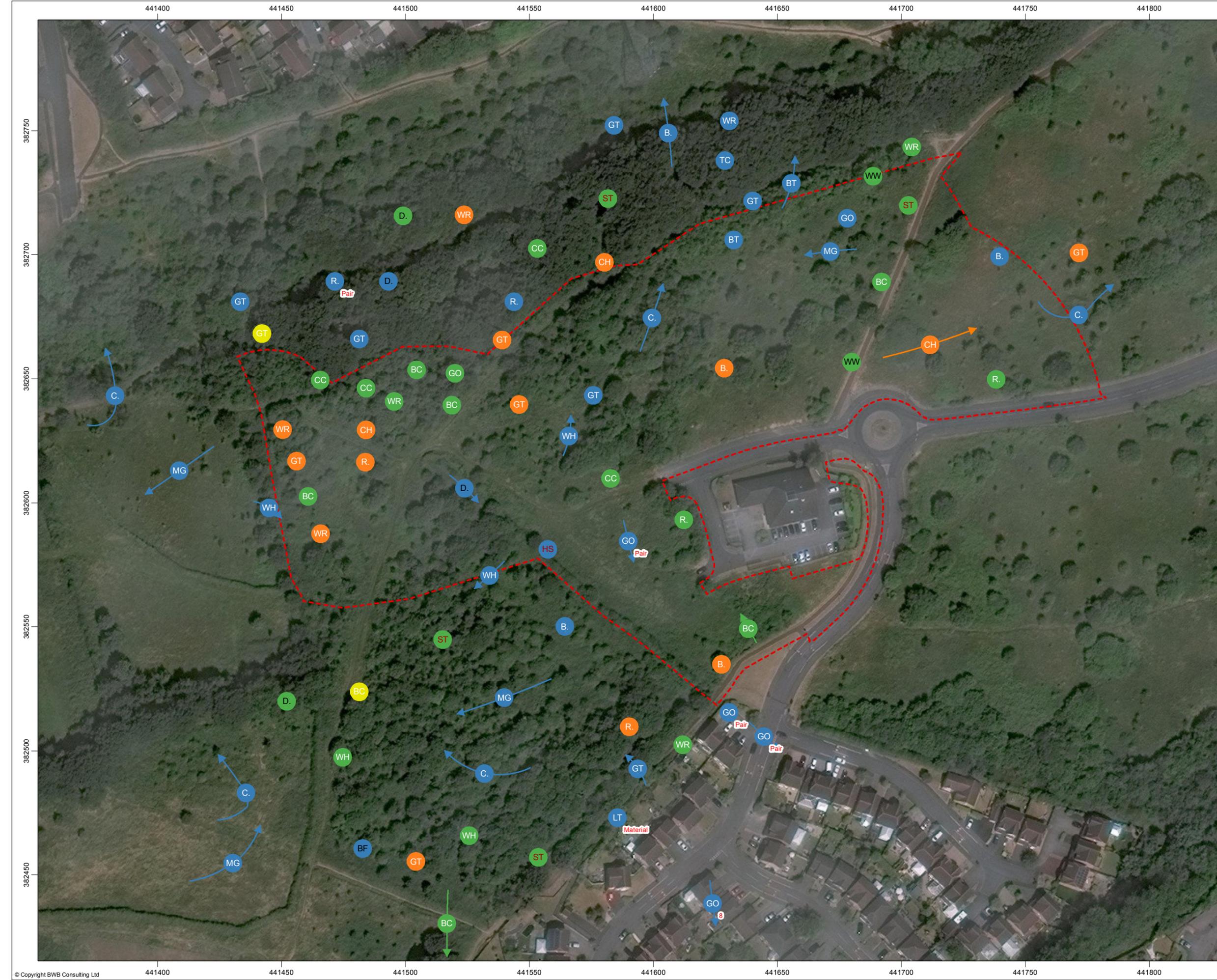
Nottingham | 0115 924 1100
London | 020 7234 9122
Manchester | 0161 233 4260
Birmingham | 0121 233 3322
Leeds | 0113 233 8000

Client
AVANT HOMES (YORKSHIRE) LTD

Project Title
MOORTHORPE WAY, SHEFFIELD

Drawing Title
BREEDING BIRD SURVEY, VISIT 1 - 05/04/2019 (08:00 - 10:15)

Drawn: Mark Parnell	Reviewed: G. Longman
BWB Ref: LDP2266	Date: 10.06.19 Scale@A3: 1:1,400



Notes

- Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
- This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Key Plan

Legend

- Site boundary
- Bird sighting
- Bird singing
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- Bird - on occupied nest
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	LT - Long-tailed Tit
	MG - Magpie
	R. - Robin
	TC - Treecreeper
	WH - Whitethroat
	WP - Wood Pigeon
	WR - Wren

Weather:
Wind 1 (Bft), Cloud cover 90%, Temp 9°C

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Imagery Source - IGN, DoBH, OS, Esri, HERE, Garmin, INCREMENT P, USGS, MET/NASA, NGA | Earthstar Geographics, CNES/Airbus DS

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Client
AVANT HOMES (YORKSHIRE) LTD

Project Title
MOORTHORPE WAY, SHEFFIELD

Drawing Title
BREEDING BIRD SURVEY, VISIT 2 - 26/04/2019 (08:30 - 10:35)

Drawn: Mark Parnell	Reviewed: G. Longman
BWB Ref: LDP2266	Date: 10.06.19 Scale@A3: 1:1,400



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