

BAT SURVEY & REPORT

**at
18 Maple Grove
Fixby
Huddersfield
West Yorkshire
HD2 2FG**

**Client:
Stonehouse & Co Ltd**

**Client Address:
5 Throstle Bank
Halifax
HX2 7DB**

**Client Contact:
07745 806369 (Tel)**

**JCA Ref:
16421/AWe**

**Date of Report:
26/10/20**



Quality Assurance

JCA ref.	Version	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
		Date	Name	Date	Name	Date	Name	Date	Name
16421/AWe	Planning Application	23/10/20	Adam West	12/10/20	Adam West	23/10/20	Adam West	26/10/20	Joe Earnshaw

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct*.

Risk Assessment Completed	
Bio-security Procedure Completed	
Lone Worker Procedure Completed	



Summary

A report is required at **18 Maple Grove, Fixby** to assess the site's potential for supporting bat species, in the form of roosting sites, foraging habitat and/or commuting routes. The aim of this report is to investigate the potential impact that the proposed development may have on the local/national bat population.

The development proposed on this site is the creation of a two-storey extension to the rear of the property and a first-floor extension above the existing garage.

All bat species and their roosts in the UK are protected under European and UK law. The main item of legislation protecting UK bats is the Conservation of Habitats and Species (Amendment) (EU Exit) 2019. In addition to this, bats and their roosts are also protected in England and Wales under the Wildlife and Countryside Act 1981 (as amended) and The Countryside and Rights of Way Act 2000.

A desktop study was undertaken on 23/10/20 in order to obtain any bat records that may be present within a 2km radius of the site and any nature conservation designations within the 2km radius of the site boundary.

The site was surveyed on 12/10/20 by Adam West. A thorough site assessment was undertaken in accordance with the Bat Conservation Trust's (BCT) '*Bat Surveys - Good Practice Guidelines*', the Joint Nature Conservation Committee's (JNCC) '*Bat Workers Manual*' (3rd Edition) and Natural England's '*Bat Mitigation Guidelines*'.

Recommendations:

- Three bat surveys are required, consisting of one dusk emergence survey, one dawn re-entry survey and a third survey which may be carried out at dusk or dawn. The surveys must be carried out between May and September in suitable weather conditions and with a minimum of 14 days between each survey.



Contents

Summary	3
Contents	4
1. Introduction and Terms of Reference	6
1.1 Purpose of the Report	6
1.2 Terms of Reference	6
1.1 Scope of the Report.....	6
1.2 Details of Proposed Development.....	6
1.3 Site Description	6
1.4 Legislative Context	7
2. Methodology.....	9
2.1 Desktop Study Methodology	9
2.2 Scoping Survey Methodology.....	9
3. Results	12
3.1 Desktop Study Results	12
3.2 Scoping Survey Results	15
4. Discussion and Analysis of Results	16
4.1 Bat Records and Nature Conservation Designations.....	16
4.2 Scoping Survey	16
5. Recommendations.....	17
6. References.....	18
Appendix 1: Site Plan.....	20
Appendix 2: Proposed Development Plan	22
Appendix 3: Photographic Evidence	24
Appendix 4: Bat Survey Calendar.....	25
Appendix 5: Glossary.....	26



Appendix 6: Author Qualifications 27



1. Introduction and Terms of Reference

1.1 Purpose of the Report

- 1.1.1 A report is required at **18 Maple Grove, Fixby** to assess the site's potential for supporting bat species, in the form of roosting sites, foraging habitat and/or commuting routes.
- 1.1.2 The aim of this report is to investigate the potential impact that the proposed development may have on the local/national bat population.

1.2 Terms of Reference

- 1.2.1 I am instructed by **Stonehouse & Co Ltd** to visit the site and prepare my findings in a report.
- 1.2.2 For this purpose, I have been supplied with architectural plans (drawing: P03), and brief details of the proposal. See Appendix 2 for proposed development plans.

1.1 Scope of the Report

- 1.1.1 This report is compiled in accordance with the Bat Conservation Trust's (BCT) '*Bat Surveys - Good Practice Guidelines*', the Joint Nature Conservation Committee's (JNCC) '*Bat Workers Manual*' (3rd Edition) and Natural England's '*Bat Mitigation Guidelines*'.
- 1.1.2 The results and recommendations contained within this report are considered to be valid for a period of 18. After this period, an update to the report and re-assessment of the site may be required in order to inform ecological constraints to any developments proposed, and/or to accompany a planning submission. If the proposed development changes significantly or land use alter substantially, updates may be required in advance of the expiry period of the report.

1.2 Details of Proposed Development

- 1.2.1 The development proposed on this site is the creation of a two-storey extension to the rear of the property and a first-floor extension above the existing garage.

1.3 Site Description

- 1.3.1 **18 Maple Grove, Fixby** is situated approximately 3km north of Huddersfield town centre, at grid reference: SE 14267 20071.



1.3.2 The site consists of a single, two-storey residential building and gardens to the front and rear.

1.3.3 The site is surrounded predominantly by residential development, with a large tract of woodland present to the north and east of the site.

Figure 1: Google Maps image of **18 Maple Grove, Fixby** showing the survey site in relation to the surrounding landscape and habitats. Red line indicates site boundary.



Google map image © 2020

1.4 Legislative Context

1.4.1 In the UK, all species of bats and their roosts are fully protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, with additional protection offered under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- Deliberately or recklessly capture, injure or kill a bat.



- Deliberately or recklessly disturb a bat in a way that would affect its ability to survive, breed or rear young (or hibernate or migrate in England, Wales and Northern Ireland) or (significantly in England, Wales and Scotland) affect the local distribution or abundance of the species.
- Damage or destroy a roost (this is an 'absolute' offence).
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.
- Intentionally or recklessly disturb a bat at a roost.
- Intentionally or recklessly obstruct access to a roost.

1.4.2 If it is discovered that development may impact upon bat roosts (thus leading to an offence being committed) a **Mitigation Plan** should be devised, and a **Bat Mitigation Licence** applied for from the relevant government department (i.e. Natural England). Gaining a licence will depend on many variables, such as the bat species present, roost type, roost size and its local/regional/national importance.



2. Methodology

2.1 Desktop Study Methodology

- 2.1.1 A desktop study has been undertaken in order to obtain any relevant records of bats within a 2km radius of the site from West Yorkshire Ecology Service (WYES).
- 2.1.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website was used to locate any designated sites, both statutory and non-statutory, such as; Local Nature Reserves (LNRs), Ramsar Sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) that may be present within 2km of the survey site.

2.2 Scoping Survey Methodology

- 2.2.1 The site was surveyed by Adam West (Natural England Level 2 bat survey class licence registration number **2016-24724-CLS-CLS**) for foraging, commuting and roosting potential. A detailed search of the building on site was conducted during daylight hours in order to identify potential bat roosting sites and look for evidence of bat activity and photographic evidence was taken (please refer to **Appendix 2**).
- 2.2.2 All surveys are conducted by experienced surveyors using the following equipment to ensure an accurate assessment; a printed site map, camera, 1 million candlelight torch, binoculars, ladders and a duet heterodyne bat detector.
- 2.2.3 Signs that bats have previously or are currently using a potential roost site include:
- Scratch marks, urine and oil stains around holes in buildings or trees.
 - Droppings, carcasses and/or food remains found around the site.
 - Bats observed flying in/out of a hole in a building or tree.
 - Bats heard 'chattering' within a potential roost site, especially on warm summer days.
- 2.2.4 During the bat scoping survey conducted on 11th August 2020 the building on site was subject to an external and internal survey to establish the suitability of the structure to support roosting bats in accordance with Collins (2016). The criteria for assigning a roost suitability category are presented in Table 1 below:



Table 1: Guidelines used for assessing the bat roosting suitability of a site (taken from Collins, 2016).

Roosting Suitability	Potential Roosting Features (PRFs) Present
Negligible	No visible features on the site likely to be used by roosting bats. No signs of bats found during the initial assessment.
Low	A structure with one or more potential roosting opportunities that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough shelter, protection, surrounding habitats, or the appropriate conditions to be used on a regular basis by larger numbers of bats e.g. unlikely to support hibernation or maternity roosts. A tree of sufficient size and age to contain features suitable for bat roosting, but with no features seen from the ground. No signs of bat use found during the initial assessment.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The feature(s) are unlikely to support a roost of high conservation status. Signs (potential signs) of bat use found during the initial assessment.
High	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The features have the potential to support large colonies of bats (e.g. maternity or hibernation) for long periods of time. Signs of bat use present.

2.2.1 The category of roosting suitability assigned to a feature is used to determine what further survey effort is required to ascertain the presence/likely absence of bats within that feature, as shown in **Table 2** below:

Table 2: Recommended minimum number of survey visits for presence/likely absence surveys (taken from Collins, 2016).

Negligible roost suitability	Low roost suitability	Moderate roost suitability	High roost suitability
No further survey required	One survey visit. One dusk emergence or dawn re-entry survey (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.

2.2.2 **Limitations:** It must be highlighted that the absence of any signs of bat presence (droppings, feeding remains, etc.) is not proof that the site is not being used by bats. Weathering and other factors will often remove any signs of bat activity, especially when present on the exterior of a building or a tree. Many bat species will have several roost sites which they regularly move between and therefore an absence during a survey visit does not exclude their presence at a later date.



- 2.2.3 The site was surveyed in appropriate weather conditions with good visibility.
- 2.2.4 Owing to restrictions in place during the on-going Covid-19 pandemic, JCA staff do not enter occupied buildings that have not been certified 'Covid-safe'. As a result, no internal inspection of the building on site was conducted. This is not considered to pose a significant constraint on the validity of the survey's findings as all potential access points for bats were visible during the external inspection.
- 2.2.5 There were no perceived limitations that would significantly impact on the conclusions and recommendations given within this report.



3. Results

3.1 Desktop Study Results

3.1.1 **Local Data Centre Records:** West Yorkshire Ecology Service (WYES) has been commissioned to provide the records held for bat species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation bat species are absent from the search area. Please see **Table 3** below for a summary of the bat records from the last ten years obtained from the WYES. **Table 4** summarises all bat roost records within 2km of the site received from WYES.

Table 3: Summary of bat records from the last ten years held by WYES within 2km of the site.

Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
Unidentified bat of the genus <i>Myotis</i>	<i>Myotis</i> sp.	x	x	x	✓	Eight field records made in 2017 and 2018.
Natterer's bat	<i>Myotis nattereri</i>	x	x	x	✓	Single record of foraging made in 2018.
Unidentified bat of the genus <i>Nyctalus</i>	<i>Nyctalus</i> sp.	x	x	x	✓	Nine field records made in 2018 and 2019.
Leisler's bat	<i>Nyctalus leisleri</i>	x	x	x	✓	Nine field records made in 2016 and 2017.
Noctule	<i>Nyctalus noctula</i>	x	✓	✓	✓	31 field records between 2011 and 2019.
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	x	✓	✓	✓	66 field records between 2011 and 2019.
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	x	✓	x	✓	12 field records between 2017 and 2019.
Brown long-eared bat	<i>Plecotus auritus</i>	x	x	x	✓	Five field records made in 2018.
Unidentified Vesper bat species	<i>Vespertilionidae</i>	x	x	x	✓	Two field records made in 2017 and 2018.



Table 4: Summary of bat roost records held by WYES within 2km of the site.

Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
Noctule	<i>Nyctalus noctula</i>	x	x	✓	x	One record dated 2012 of a hibernation roost 530m east of the site.
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	x	✓	✓	✓	14 roosts recorded between 2006 and 2018. The closest roost is 205m SW of the site.
Unidentified bat of the genus <i>Pipistrellus</i>	<i>Pipistrellus</i> sp.	x	x	x	✓	One roost exclusion recorded 1846m south west of the site in 2006.
Vesper bat species	<i>Vespertilionidae</i> sp.	x	✓	✓	✓	Nine roosts recorded between 2000 and 2007. In 2005 a roost of 52 bats was recorded in maternity season 100m to the east. The closest recorded roost is 50m to the south west.

3.1.2 **Nature Conservation Designations:** Nature designations are split into two types; those that confer some form of statutory protection, and other designations.

3.1.3 There are no statutory designated sites within 2km of the site. The closest such site is Elland Bypass Cutting Site of Special Scientific Interest (SSSI) 2.3km to the west.

3.1.4 The non-statutory designated sites present within 2km of the site are summarised in **Table 5** below:

Table 5: Non-statutorily designated sites with 2km of the site.

Site Name	Designation	Distance from Site	Description
Grimescar Wood	LWS	1.4km SW	This replanted ancient woodland is relatively uniform throughout with some variation between the proportions of beech, sycamore and sessile oak, the main canopy species. The most impressive feature of this woodland is the carpet of native bluebell which covers most of the site in such a dominant layer that most other ground flora species are excluded.



			The bluebell is over 40% of the cover for an estimated 70% of the site.
Bradley Park Woods	LWS	1.5km NE	Bradley Wood is an area of plantation ancient woodland which lies to the north of Bradley Park Golf Course golf course, bisected by the M62. The canopy is dominated locally by mature oak. The shrub layer is well developed and diverse with locally abundant <i>Prunus padus</i> .
Sir John Ramsden Canal	LWS	1.65km NW	No description available. The site was designated as an open water habitat with good public access and high wildlife value.
Key: LWS: Local Wildlife Site			



3.2 Scoping Survey Results

3.2.1 Habitats and Features Present

The site contains a single building which is in use as a residential dwelling. Lawned gardens are present to the north and south of the building, with a small number of scattered trees present.

3.2.2 Building Assessment

The building is a two-storey, stone clad house with adjoining single storey garage and kitchen extension on the eastern elevation. The roofs of the house and garage are pitched with concrete tiles. The kitchen extension is flat roofed and felted.

Potential roost features (PRF): Gaps are present in three locations around the house where soffit boxes do not sit flush with exterior walls and the resulting gaps have not been sealed. These locations are on the eastern wall of the garage, the western wall of the house and the south wall adjacent to the bay window. In addition, the soffit box on the north west corner of the house was found to have a hole in the underside. All of these features provide access points through which bats may enter to roost.

Signs of Bat Use: No evidence of bat presence was observed during the survey.

3.2.3 Tree Assessment

No trees are to be removed or impacted upon by the proposed development. The trees on site have not been surveyed for bat roosting potential as they will not be affected by the proposed development. Should the current development plans change and the revised plans require the removal (or maintenance) of any trees on site then a scoping survey will be required on these trees prior to removal or maintenance in order to determine the bat roosting potential of these trees.



4. Discussion and Analysis of Results

4.1 Bat Records and Nature Conservation Designations

- 4.1.1 Nine species of bat have been recorded within 2km of the site, with noctule, soprano pipistrelle and common pipistrelle being recorded within 500m. Three roosts were recorded within 500m of the site, including a likely maternity roost 100m east of the site and a likely day roost 50m to the south west. Habitat connectivity between these roosts and the site is favourable to commuting bats. As bats are known to utilise numerous roosts within a core area, and regularly switch between roosts, the proximity of these roosts to the site suggest bats may be roosting at the site.
- 4.1.2 The designated sites identified within the desktop study are at considerable distances from the site with major roads, urban sprawl and agricultural fields between them and the site. The distances and degree of habitat fragmentation involved make the site relatively isolated from the designated sites. Therefore, no impacts to any designated site predicted as a result of the proposed development.
- 4.1.3 The proposed development will therefore have a potential impact on roosting provision for bat species.

4.2 Scoping Survey

- 4.2.1 A number of features were identified on site in which bats may roost. Please refer to **Section 3.2 and Appendix 1** for further details.
- 4.2.2 Based on the proximity of roost records, the type of PRFs present and the proximity of high quality bat foraging habitat, this site is considered to have **high** potential for supporting roosting bat species. Please see **Tables 1 and 2** above for the guidelines used for assessing the roosting potential of a site. Please note these guidelines are applied using the professional judgement of the licenced bat worker undertaking the assessment.



5. Recommendations

5.1.1 The following must be undertaken:

- Three bat surveys are required, consisting of one dusk emergence survey, one dawn re-entry survey and a third survey which may be carried out at dusk or dawn. The surveys must be carried out between May and September in suitable weather conditions and with a minimum of 14 days between each survey.



6. References

Bat Mitigation Guidelines (Jan. 2004). A. J. Mitchell-Jones. English Nature.

Bat Survey Guidelines: Good Practice Guidelines (2007). Bat Conservation Trust (BCT).

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

Websites:

Bat Conservation Trust (BCT). <<http://www.bats.org.uk/>>

Google Maps. <<http://maps.google.co.uk/>>

Multiple-Agency Geographic Information for the Countryside (MAGIC). <<http://www.magic.gov.uk/>>

National Biodiversity Network (NBN) Gateway. <data.nbn.org.uk>

Natural England. <<http://www.naturalengland.org.uk/>>

Nature on the Map. Natural England. <www.natureonthemap.org.uk>

Relevant Legislation:

Wildlife and Countryside Act 1981 <<http://jncc.defra.gov.uk/page-3614>>

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019
<<https://www.legislation.gov.uk/ukxi/2017/1012/contents/made>>

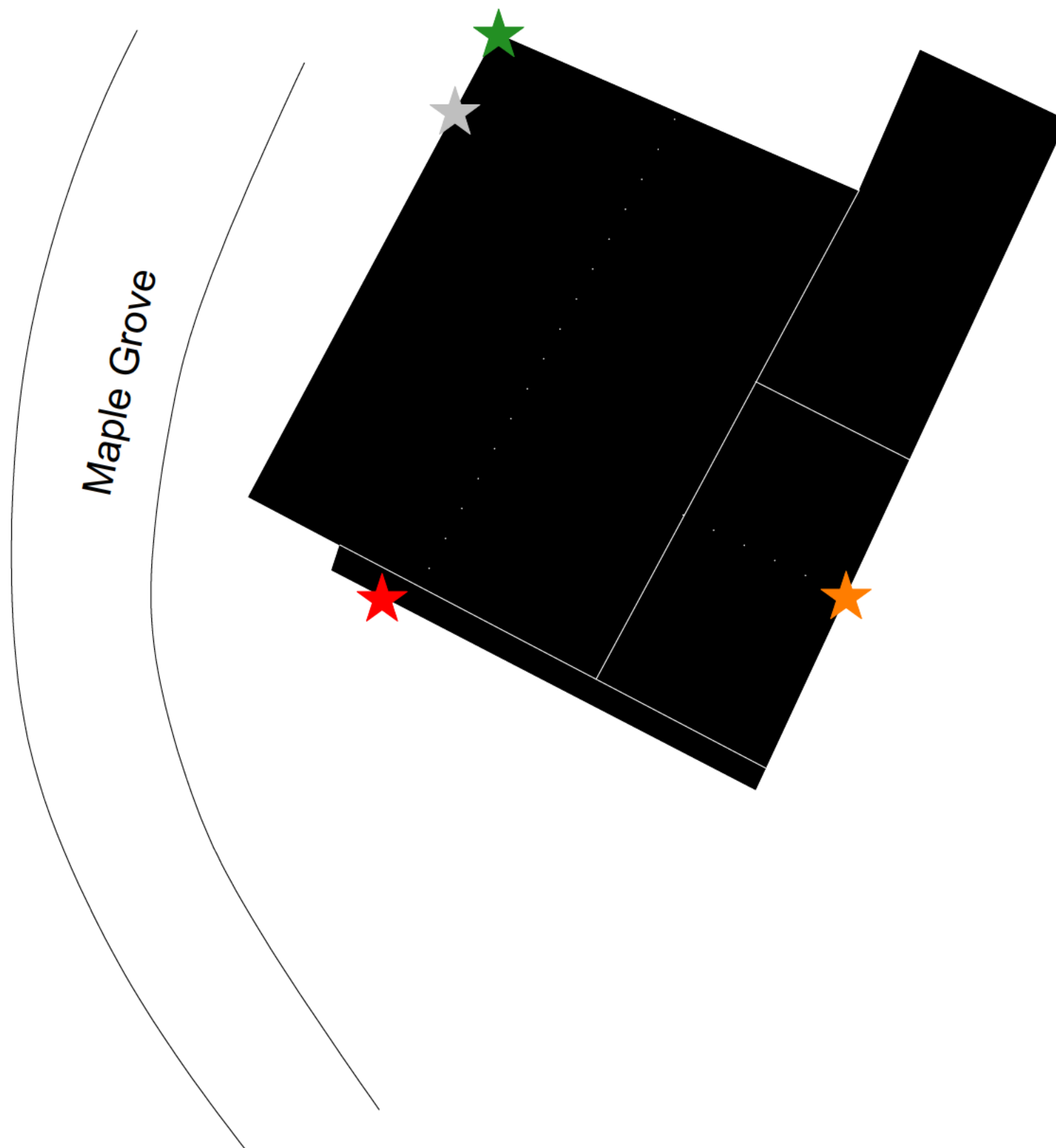
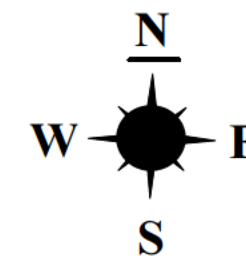
Countryside and Rights of Way Act 2000
<http://www.legislation.gov.uk/ukpga/2000/37/pdfs/ukpga_20000037_en.pdf?view=interweave>



Appendices

Appendix 1: Bat Roost Potential Map





Appendix 1: Bat Roosting Potential Map

Address: 18 Maple Grove
Fixby, Huddersfield,
HD2 2FG
Job Ref: 16421

NOT TO SCALE

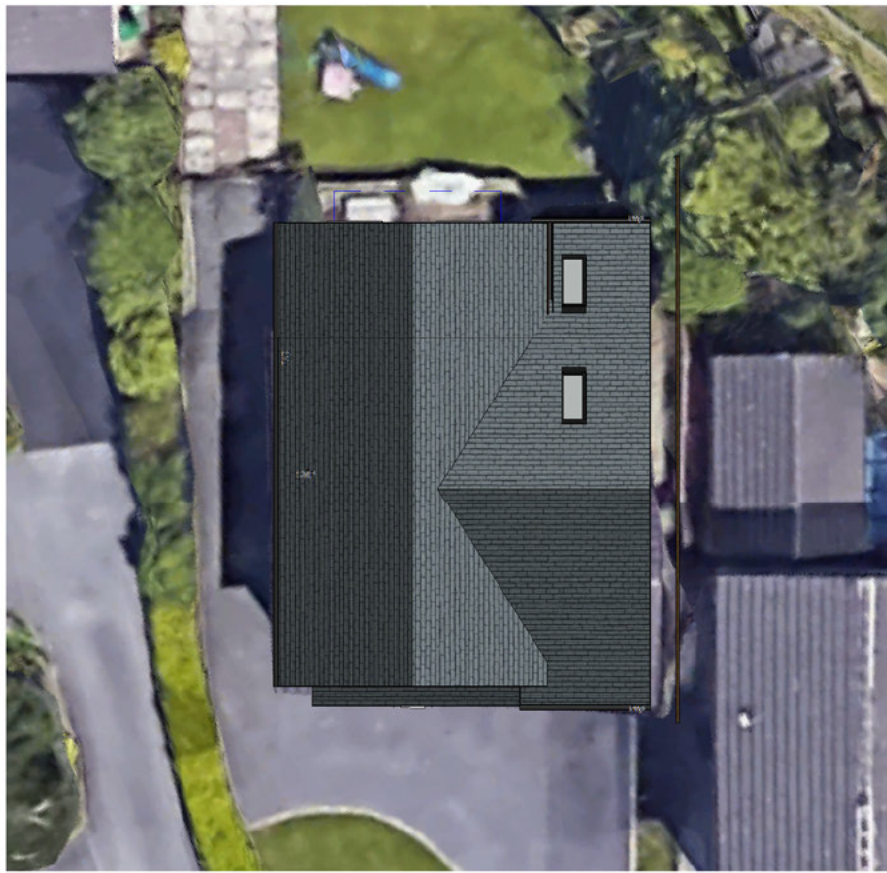
KEY	
	Buildings
	Access point to house roof
	Access point into soffit box
	Access point into garage roof
	Access point into roof void

JCA Limited

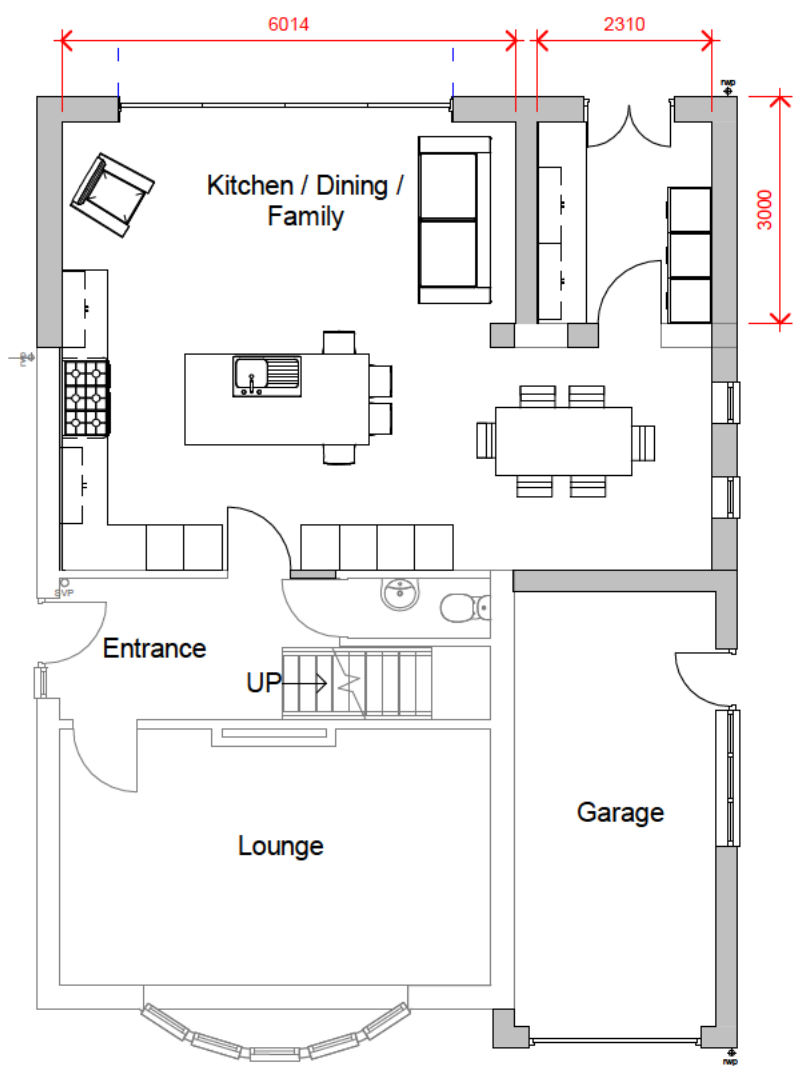
Arboricultural & Ecological Consultants

Appendix 2: Proposed Development Plan

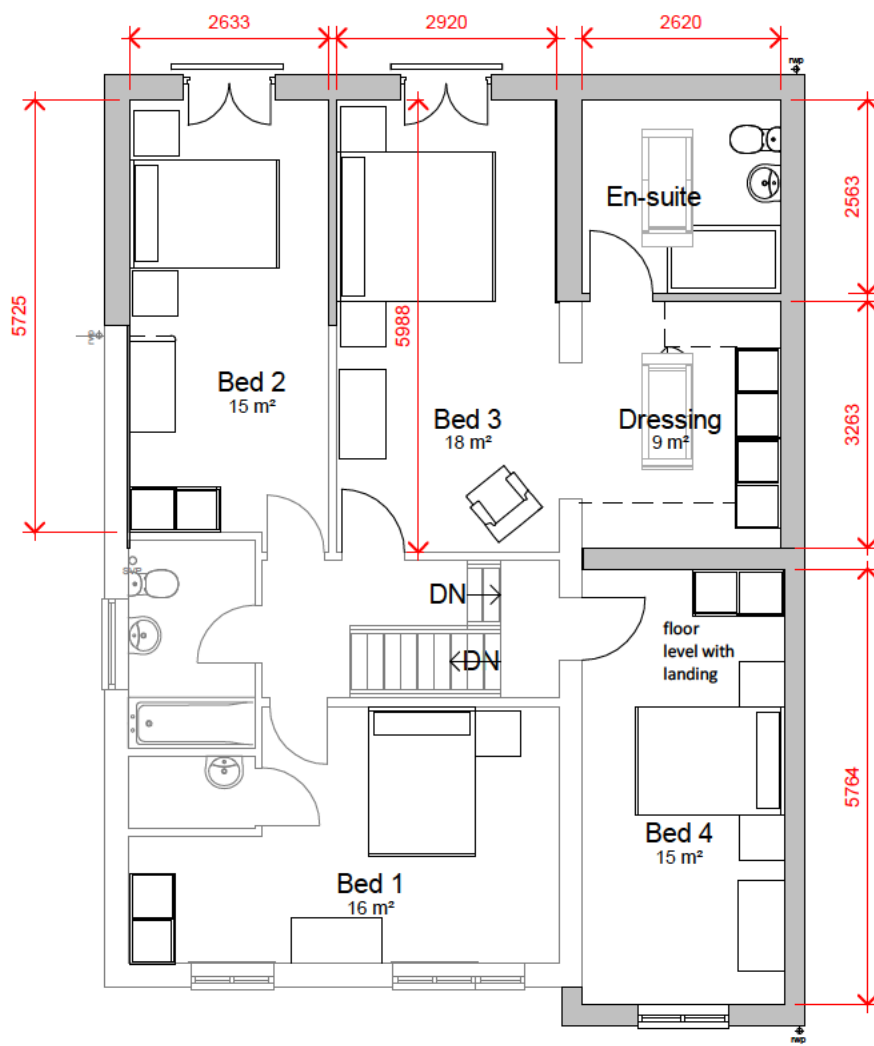




00 Site Plan - Proposed
1 : 200



02b GF Proposed
1 : 100



03b FF Proposed
1 : 100

NOTES

- Do not scale from this drawing.
- Due to the nature of the project (existing property) dimensions may vary on site to those shown.
- The contractor and any specialist designers are responsible for checking all dimensions, tolerances etc before works commence or any materials are ordered / manufactured.
- Any discrepancies to be referred to the designer.
- Refer to structural engineers drawings for all structural elements. Structural elements denoted on this drawing are for information only.
- All dimensions are structural i.e. before plaster or other finishes unless stated otherwise.
- This drawing is copyright of Stonehouse Architectural Ltd and must not be reproduced without authorisation.

STONEHOUSE & CO
ARCHITECTURAL DESIGN

T: 07745 906369
E: ben@stonehouseatd.com
W: www.stonehouseandco.co.uk

No.	Description	Date

PURPOSE OF ISSUE

PROJECT
Maple Grove, Fixby

SHEET
Proposed Sheet 1

CLIENT
Mr & Mrs Kang

Date 06.07.20	Project number J20-066	Scale (@ A3) As indicated
Drawn by bl	DRAWING NUMBER P03	REV

Appendix 3: Photographic Evidence



Photo 1: Front of the house viewed from the south.



Photo 2: Rear of the house viewed from the north.



Photo 3: Hole in the underside of the soffit.



Photo 4: Gap in soffit next to bay window.



Photo 5: One of a number of gaps present between the soffit and garage gable wall.



Photo 6: One of a number of gaps present between the soffit and house wall on the west aspect.



Appendix 4: Bat Survey Calendar

Figure 1: Survey timings calendar (taken from BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary ecological appraisal – fieldwork												
Preliminary roost assessment – structures ^a												
Emergence/re-entry survey for maternity or summer roosts ^b												
Emergence/re-entry ^c survey for transitional roosts ^b												
Emergence survey for mating roosts ^b												
Hibernation survey – structures ^a												
Preliminary ground level roost assessment – trees ^d												
Potential roost feature (PRF) inspection survey – trees												
Ground level bat activity survey – transects and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey												
Back-tracking survey												
Trapping survey ^e												
Radio tagging and tracking survey ^e												

= optimal period
 = sub-optimal period

= weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October surveys are not acceptable in Scotland.

^a Not including trees



Appendix 5: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.



Appendix 6: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking

F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.

Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites

BSc (Hons), HND (Arboriculture).

Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Ecology

Adam West, Senior Ecologist

BSc (Hons) Animal and Wildlife Management.

Adam joined JCA to lead the expanding ecology department. Having returned to education as a mature student, Adam studied Countryside Management for two years before undertaking a Bachelor's degree, for which he was awarded First Class Honours. Adam has many years' experience in ecological consultancy, working on projects ranging from individual planning applications to national infrastructure projects. Adam holds a Natural England Level 1 great crested newt survey class licence, a Natural England Level 2 bat survey class licence (and the Scottish and Welsh equivalents) and a CSCS card.

Joe Earnshaw, Graduate Ecologist

BSc (Hons), MSc Biodiversity and Conservation, Qualifying CIEEM member.

Joe joined the ecology department of JCA in 2018 after taking part in JCA's student training programme. He initially obtained a bachelor's degree in animal management from Askham Bryan College, York. He has since furthered his education and brings to the company an MSc in Biodiversity and Conservation from the University of Leeds. Joe has expertise in aquatic invasive species identification and control.



The information and advice which we have prepared and provided is true, and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed



.....
Adam West
23/10/20

Proofread by



.....
Joe Earnshaw *Qualifying CIEEM Member*
26/10/2020

For and on behalf of **JCA Ltd**

Registered Office:

Unit 80
Bowers Mill
Branch Road
Barkisland
Halifax
HX4 0AD

Tel. 01422 376335
Fax. 01422 376232
Email: jon@jcaac.com
Web : www.jcaac.com





ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

ARBORICULTURAL SERVICES

Guidance for Architects & Developers

- British Standard 5837 Surveys
- Arboricultural Implications Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control



HEAD QUARTERS

Unit 80 Bowers Mill,
Branch Road,
Barkisland
Halifax, HX4 0AD

Company Reg No: 05005041
VAT No: 686 4674 78

