



Muttonhole Road

Preliminary Ecological Appraisal Report

Prepared for: Cogeo Planning & Environmental Services Ltd.

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Contents

1	Executive summary	1
2	Introduction.....	2
2.1	Background	2
2.2	Description of Proposals	2
2.3	Survey Scope	2
2.4	Report Structure	2
2.5	Staff	3
3	Methods.....	4
3.1	Desk Study	4
3.2	Field Study	4
3.2.1	Study Area.....	4
3.2.2	Phase 1 Habitats	4
3.2.3	UKHab Habitats.....	4
3.2.4	Biodiversity Net Gain	4
3.2.5	Condition Assessment	4
3.2.6	Badgers	5
3.2.7	Pine Marten	5
3.2.8	Red Squirrel	5
3.2.9	Bats	5
3.2.10	Otters	5
3.2.11	Water Vole.....	6
3.2.12	Beaver	6
3.2.13	Birds	6
3.2.14	Amphibians.....	6
3.2.15	Reptiles	6
3.2.16	Non-Native Species	6
3.2.17	Terrestrial Invertebrates	6
3.2.18	Fish and Fish Habitats	7
3.3	Study Limitations	7
4	Desk Study Results	8
4.1.1	International Sites.....	8
4.1.2	National Sites	8
4.1.3	Local Sites	8
4.1.4	Ancient Woodland Inventory Sites	8
4.2	Protected and Notable Species.....	9
4.2.1	Flora	9
4.2.2	Mammals	9
4.2.3	Birds	10
4.2.4	Amphibians.....	10

4.2.5	Reptiles	10
4.2.6	Non-Native Species	10
4.2.7	Terrestrial Invertebrates	11
4.2.8	Fish.....	11
5	Field Study Results	12
5.1	Phase 1 Habitats	12
5.1.1	A.1.1.1 Broadleaved semi-natural woodland	12
5.1.2	A.1.3.2. Mixed plantation woodland	13
5.1.3	A.2.1. Dense continuous scrub	14
5.1.4	A.2.2. Scattered scrub.....	14
5.1.5	B.2.2. Semi-improved neutral grassland	15
5.1.6	J.2.1.2 Intact species-poor hedgerow	16
5.1.7	J.2.3.2. Species-poor hedgerow with trees.....	16
5.1.8	J.4. Bare ground.....	17
5.2	UKHab Habitats	17
5.2.1	G4 – Modified Grassland	17
5.2.2	H2a6 – Other Native Hedgerow	17
5.2.3	H2a6:1170 – Other Native Hedgerow with Trees	17
5.2.4	H3d – Bramble Scrub	17
5.2.5	H3e – Gorse Scrub.....	17
5.2.6	H3h:10 – Mixed Scrub – Scattered	18
5.2.7	H3j:10 – Willow Scrub – Scattered.....	18
5.2.8	W1g7 – Other Broadleaved Woodland Types	18
5.2.9	W1h5 – Other Woodland – Mixed – Mainly Broadleaved	18
5.2.10	U1b6 – Other Developed Land	18
5.3	Condition Assessment	18
5.3.1	Grassland	18
5.3.2	Scrub	18
5.3.3	Woodland	18
5.3.4	Hedgerow	19
5.4	Flora	19
5.5	Badgers	19
5.6	Pine Marten	20
5.7	Red Squirrel	20
5.8	Bats	20
5.9	Otters.....	22
5.10	Water Vole.....	23
5.11	Beaver	23
5.12	Birds	23
5.13	Amphibians.....	24

5.14	Reptiles	24
5.15	Non-Native Species	24
5.16	Terrestrial Invertebrates	24
5.17	Fish and Fish Habitats	25
6	Requirements and Recommendations for Project Progression	26
7	Recommendation for General Biodiversity Enhancement	32
	Appendices	33

1 Executive summary

- EP Ecology was commissioned by Cogeo Planning & Environmental Services Ltd. to conduct a preliminary ecological appraisal to accompany a planning application for the construction of a battery electrical storage site with associated access and infrastructure at Muttonhole Road, Hamilton, South Lanarkshire.
- The proposed site area was surveyed for habitats and their likelihood to support protected and notable species, including (but not limited to) signs of badgers, water vole, INNS, and pine marten as well as nesting birds and squirrel dreys. This included accessible habitats within 50m of the site boundaries.
- One ancient woodland inventory site may be affected directly by works and several designated sites may be indirectly affected by the proposed works.
- Careful pollution prevention and control in line with the Guidelines for Pollution Prevention is advised to mitigate the risk of this.
- The requirement for Habitats Regulations Appraisal should be established owing to potential likely significant effects on the Waukenwae Moss Special Area of Conservation.
- Limited signs of any protected species were found over the course of the survey. Standard mitigation to avoid mammal entrapment is required.
- Bird nests are present and could be a continual consideration for the development, and it is advised that removal of any rank and over-grown vegetation as well as shrubs or trees as required, occur outwith the bird nesting season (April to August inclusive), or pre-works checks for bird nests be conducted.
- No non-native species were observed but background data suggests they are present in the wider area and may colonise the site as works disrupt the existing habitat.
- The general habitat is expected to be of moderate value to local bat populations (primarily as a commuting area) and it is recommended that the linear features be preserved. There are a number of bat potential roosting features within trees present within the development area that should be surveyed to determine likely effects on bat species from the proposed works.
- General recommendations to improve the sites value for biodiversity are also made, including installation of hedgehog boxes, bat and bird boxes, and invertebrate hotels/log piles.

2 Introduction

2.1 Background

EP Ecology was commissioned by Cogeo Planning & Environmental Services Ltd. (hereafter “the Client”) to conduct a Preliminary Ecological Appraisal (PEA) at the site of Muttonhole Road in Hamilton, South Lanarkshire council (approximate central grid reference NS 68438 53538). A preliminary ecological appraisal was required to identify the likely key ecological constraints and opportunities for the project and highlight mitigation or further data collection requirements for progression with the proposals.

This report sets out the baseline ecological conditions including a classification of the habitats present within the Site and notes on their likelihood to support protected or notable species. An assessment of the proposed activities on Site is made with reference to their potential impacts on designated sites and protected or notable species and habitats with identification of the mandatory requirements and recommendations for further consideration for progression with the proposals.

2.2 Description of Proposals

EP Ecology understands that the proposals issued by the Client include clearance and construction of a battery storage site with associated infrastructure and access route.

2.3 Survey Scope

This survey has been undertaken with consideration of the Guidelines for Preliminary Ecological Appraisal¹. The scope of the survey was to establish a baseline of ecological information and ascertain whether the proposed activities have the potential to affect any designated sites or protected and/or notable species and habitats. Therefore, the following were undertaken:

- A desk-based study to collect information on designated sites and records of protected and/or notable species within 2km of the Site;
- An extended Phase 1 habitat survey field visit undertaken during daylight hours to record the broad habitat types present on site together with any key floral species as well as an assessment of these habitats for their potential to support protected and notable species, and any evidence of protected or notable species was noted; and
- An assessment of the proposed activities in relation to the baseline ecological information to determine the likelihood of ecological constraints to these proposals together with identification of the mandatory requirements for progression, and recommendations for ecological and biodiversity enhancement associated with the proposed activities.

2.4 Report Structure

This report sets out the methods used to establish the baseline ecological information (**Section 3**), the results of the desk and field study (**Sections 4 and 5**), the requirements and recommendations for progression with the project (**Section 6**), recommendations for biodiversity enhancement alongside this project (**Section 7**) and is accompanied by a figure showing the location of designated sites (**Appendix A, Figure 1**), phase 1 habitat figure (**Appendix A, Figure 2**), preliminary roost assessment figure (**Appendix A, Figure 3**), Target notes (**Appendix B**), notes from the bat preliminary roost assessment (**Appendix C**) and a summary of relevant policy and legislature (**Appendix F**).

This report has been amended to include an UKHAB habitat classifications (Section 5), UKHAB habitat figure (Appendix A, Figure 4), condition assessments (Section 5, Appendix D) and Biodiversity Net Gain metric calculation (Appendix E).

¹ CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal (2nd Edition)*. CIEEM, Winchester. 23pp.

2.5 Staff

The study was conducted by EP Assistant Ecologist Christopher Smart. Chris has 4 years' experience as an Ecological Clerk of Works as part of a large infrastructure project and a years' experience as an assistant ecologist providing preliminary ecological appraisals.

This report has been reviewed and approved by EP Ecology Director, Erik Paterson. Erik is an experienced ecological consultant with over 11 years' experience in the sector. He has worked on dozens of projects from small-scale single dwellinghouse modifications through large industrial developments to multi-million-pound road schemes across Scotland. Erik is a Chartered Ecologist and full member of CIEEM and holds NatureScot licenses for great crested newt survey, bat survey (including hibernacula and harp trapping), and holds a NatureScot bat low impact licence.

3 Methods

3.1 Desk Study

The desk study element included map-based searches for designated sites and database queries for protected and/or notable fauna and flora within a 2 km search radius of the Site. The following resources were used for information gathering:

- National Biodiversity Network²; and
- Scotland's Environment Webmap³.

3.2 Field Study

The field study was conducted on 4 September 2023. The prevalent weather conditions were dry, sunny and clear with an approximate temperature of 22°C.

A second visit was made on 1 February 2024 to conduct a condition assessment for the purposes of the Biodiversity Net Gain metrics. The conditions were initially overcast with light rain but became cloudy and clear relatively quickly after arriving.

3.2.1 Study Area

The study area for this project was taken to be the entirety of the site and to a buffer of 50m in accessible land.

3.2.2 Phase 1 Habitats

Phase 1 habitat surveys are a standard methodology for recording and mapping broad habitat types of an area. Phase 1 habitats were recorded within the study area taking cognisance of the JNCC guidelines⁴ along with an indication of the floral assemblage and structure, condition, and extent of each broad habitat type.

3.2.3 UKHab Habitats

UKHab habitat surveys are a modern standardised methodology for recording and mapping habitat types in an area⁵. It is specifically constructed with the intention to be used with Biodiversity Net Gain calculations within the U.K. The UKHab habitats can be 'translated' from Phase 1 habitats or recorded in situ.

3.2.4 Biodiversity Net Gain

Biodiversity Net Gain⁶ metric calculations assign numerical value to a habitat area using the UKHab definitions. Once coupled with the development plans, the metric can calculate the ecological value lost as a result of development and indicate how much remediation is required to attain a 10% Biodiversity Net Gain. A 10% biodiversity net gain has become a national standard within planning authorities to decide whether permission is granted as part of the updated National Planning Framework 4⁷.

3.2.5 Condition Assessment

Condition assessments use standardised measurements, such as species density per m² and average hedgerow width, to determine the quality of a habitat parcel. This information is used with the habitat surveys and areas to generate the numerical value of a habitat parcel through the Biodiversity Net Gain metric calculator.

² <https://nbnatlas.org/>

³ <https://map.environment.gov.scot/sewebmap/>

⁴ JNCC. (2010). *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. 3rd Edition*. JNCC, Peterborough. 80pp.

⁵ UKHab Ltd. (2023). *UK Habitat Classification Version 2.0* (at <https://www.ukhab.org>)

⁶ <https://www.gov.uk/guidance/biodiversity-metric-calculate-the-biodiversity-net-gain-of-a-project-or-development>

⁷ <https://www.gov.scot/publications/national-planning-framework-4/>

3.2.6 Badgers

Signs of badger (e.g. latrines, push-throughs, paths, and setts) were sought within the site and to a buffer of 50m with notes taken on the apparent regularity and recency of use and classified in line with best practice guidelines⁸.

3.2.7 Pine Marten

Notation of any field signs including scat, sightings, and possible dens within the site in line with current best practice guidance⁹;

3.2.8 Red Squirrel

Notation of any feeding signs, sightings, or potential dreys within the site in line with current best practice guidance¹⁰;

3.2.9 Bats

Structures, natural features, and trees within the study area were assessed for their bat roosting potential as per the current BCT guidelines¹¹. Areas and broad habitats which presented opportunities to support roosting, foraging, and commuting bats were also noted.

Table 3.1. Bat roost suitability categories for trees and structures (adapted from BCT best practice guidance).

Suitability	Description
Negligible	No habitat features on site capable of being used by roosting bats.
Low	<p>A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contact potential roosting features but with none seen from the ground or features observed with only very limited roosting potential.</p>
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.

3.2.10 Otters

Watercourses within the study area were surveyed for signs of otter (e.g. spraint, anal jelly, sign heaps, and resting places). Notes were taken on the apparent age and regularity of use of each sign in line with standard guidance¹².

⁸ Scottish Badgers. (2018). *Surveying for Badgers: Good Practice Guidelines*. Version 1.

⁹ Birks, J.D.S., Billion, S., Cresswell, W.J. & Dean, W. (eds.) (2012) *UK BAP Mammals: Interim guidance for Survey Methodologies, Impact Assessment, and Mitigation*. The Mammal Society, 96pp.

¹⁰ Gurnell, J., Lurz, P., McDonald, R., & Pepper, H. (2009). *Practical techniques for surveying and monitoring squirrels*. The Forestry Commission, 12pp.

¹¹ Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)*. Bat Conservation Trust, London. 100pp.

¹² Chanin, P. (2003). *Monitoring the Otter Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10. English Nature, Peterborough.

3.2.11 Water Vole

Any watercourses within the study area were assessed for their suitability to support water voles (by looking at the bank structure, vegetation height and composition, and water availability) and any evidence of voles was recorded in line with best practice guidelines¹³.

3.2.12 Beaver

Recording of evidence of beaver (dams, burrows, and foraging signs) along watercourses within the site in line with currently adopted best-practice guidance¹⁴.

3.2.13 Birds

Bird species and nests present within the site were recorded during the site visit. Notes were taken on the suitability of habitats present for nesting bird species also (e.g. by noting presence and perceived disturbance levels of semi-natural habitats including hedgerows, woodlands, and heath/grasslands etc.)

3.2.14 Amphibians

Ponds (defined as standing water bodies between 1m² and 20,000m² in area expected to hold water for at least four months of the year¹⁵) were recorded and assessed for their suitability to support great crested newts (GCN; *Triturus cristatus*) using the Habitat Suitability Index scoring system developed by Oldham *et al.*¹⁶ as amended by ARG UK¹⁷ and O'Brien *et al.*¹⁸. Ponds were subsequently graded as "poor", "below average", "average", "good" or "excellent" quality in line with the ARG UK guidance note. General notes on the suitability of terrestrial habitats are also taken and in combination with the HSI scoring system can be used as a proxy to identify the likely presence of both GCN and widespread amphibian species.

3.2.15 Reptiles

Broad habitats within the study area were assessed for their suitability to support populations of reptiles by looking at various features (e.g. aspect, potential hibernacula, patch size, and habitat structure or naturalness) in line with best practice guidance¹⁹. Evidence of reptiles (e.g. sightings or presence of sloughs) was also recorded.

3.2.16 Non-Native Species

The most damaging invasive non-native species *Rhododendron ponticum*, Japanese knotweed *Reynoutria japonica*, giant hogweed *Heracleum mantegazzianum*, and Himalayan balsam *Impatiens glandulifera* were specifically sought within the site. However, evidence of any other non-native species (e.g. grey squirrel *Sciurus carolinensis* or giant rhubarb *Gunnera manicata*), where observed, were recorded as points within the study area.

3.2.17 Terrestrial Invertebrates

Broad habitats within the study area were assessed for their likelihood to support terrestrial invertebrates of conservation note. There is little available guidance on this and so generally, habitats which are atypical within a local, regional, or national context are considered likely to support invertebrate communities of conservation priority, as are: Semi-natural broadleaved woodland, semi-

¹³ Dean, M., Strachan, R., Gow, D., & Andrews, R. (2016). *The Water Vole Mitigation handbook (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. 59pp.

¹⁴ Campbell, R.D., Harrington, A., Ross, A. & Harrington, L. (2012). *Distribution, population assessment and activities of beavers in Tayside*. Scottish Natural Heritage Commissioned Report No. 540.

¹⁵ Biggs, J. Williams, P., Whitfield, M., Nicolet, P., & Weatherby, A. (2005). 15 years of pond assessment in Britain: results and lessons learned from the work of Pond Conservation. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 15: 693-714.

¹⁶ Oldham, R.S., Keeble, J., Swan, M.J.S., & Jeffcote, M. (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*, 10(4): 143-155.

¹⁷ ARGUK. (2010). *ARGUK Advice Note 5: Great Crested Newt Habitat Suitability Index*. Amphibian and Reptile Groups of the United Kingdom.

¹⁸ O'Brien, D. Hall, J., Miró, A., & Wilkinson, J. (2017). Testing the validity of a commonly-used habitat suitability index at the edge of a species' range: great crested newt *Triturus cristatus* in Scotland. *Amphibia-Reptilia*, 38: 265-273.

¹⁹ Edgar, P., Foster, J., & Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth. 77pp.

natural coniferous woodland, flower-rich grasslands, peatlands, wetlands, and open mosaic habitats on previously developed land in line with expert recommendations²⁰.

3.2.18 Fish and Fish Habitats

A basic assessment of any water courses within the study area for their accessibility for fish (e.g. through identification of downstream barriers to fish movement) was combined with an assessment of the watercourse for signs of pollutants and presence of three key features which can affect a watercourses suitability for fish: The presence of cover (e.g. vegetation, fallen trees or overhanging banks); the depth of water; and the substrate where it can be seen.

3.3 Study Limitations

To determine presence or likely absence of protected and notable species, often repeated survey visits or survey visits at particular times of the year are required. The purpose of a Preliminary Ecological Appraisal is to provide an assessment of the potential for such species as a “snapshot”. Consequently, further targeted surveys may be required to determine the presence or likely absence of protected and notable species and the requirement for this are detailed within **Section 5** of this report.

The survey was undertaken in September which is within the recommended Phase 1 Habitat survey season of April-September. During this season, flora are in a period of growth and their identification is simpler, as such most key species are likely to have been identified. However, dense leaf growth on trees can render assessment for bat roosting potential more challenging, and late-season, tall vegetative growth can render signs of badger, water vole, and otter harder to find. However, with the types of habitats present within the site, the time of year is not considered a significant limitation to the survey effort for this Preliminary Ecological Appraisal.

The northern woodland areas towards the burn was attempted for survey but ultimately could not be finished due to safety concerns with how steep the incline was. Given that the footprint of the development is concentrated in the southwestern/western half of the field, it is unlikely that the works will have a direct effect on the woodlands/bank of the burn.

Similarly, it was impossible to survey the burn for signs of species such as Otter/Water vole.

Access within the buffer areas was unknown and so the survey was limited to the red line boundary of the development area for which access was known to be permitted. As such the surrounding buffer areas were surveyed from a distance and a full floral composition will be lacking. This is unlikely to affect the classification of the habitats.

The second visit took place in February which is outwith the optimum time period to assess habitat conditions with respect to species diversity as many plant species become dormant over winter. The time of year will have had less of an impact on condition assessments for hedgerows and woodlands as many of their metrics refer to physical boundaries or widths of plants. As this report had access to pictures from the original survey visit, it is unlikely that the time of year will have had a significant effect on the condition assessments.

The details included within this report remain valid for a period of 18 months²¹ from the date of issue. If works have not commenced by the end of this period, a repeat assessment may be required.

²⁰ Cathrine, C. (2020). *How to Consider Invertebrates in Ecology Projects*. CIEEM Webinar, 04 November 2020.

²¹ CIEEM. (2019). *Advice Note on the Lifespan of Ecological Reports & Surveys*. CIEEM, Hampshire.

4 Desk Study Results

4.1.1 International Sites

International Sites are those sites which are designated in the UK under the international legislature (See **Appendix E**). They include: Special Protection Areas (SPAs), Potential Special Protection Areas (pSPAs), Special Areas of Conservation (SACs), Candidate Special Areas of Conservation (cSAC) and Wetlands of International Importance (Ramsar Sites). These sites are afforded the highest levels of protection in the UK.

There is one identified International Site within a 2km search buffer of the Site as shown in **Table 4.1** and **Appendix A, Figure 1**.

Table 4.1. Identified International Sites within a 2km search buffer of the Site.

Site Name	Designation	Features (if known)	Distance & Direction
Waukenwae Moss	SAC	Active raised bog	1.75km S

4.1.2 National Sites

National sites are those sites designated for biological interest in the UK under National legislature (See **Appendix E**). They include: Sites of Special Scientific Interest (SSSIs), Marine Protected Areas (MPAs) and National Nature Reserves (NNRs).

There are two identified National Sites within a 2km search buffer of the Site as shown in **Table 4.2** and **Appendix A, Figure 1**.

Table 4.2. Identified National Sites within a 2km search buffer of the Site.

Site Name	Designation	Features (if known)	Distance & Direction
Blantyre Muir	SSSI	Raised bog	1.72km SW
Waukenwae Moss	SSSI	Raised bog	1.75km S

4.1.3 Local Sites

Locally designated sites include those sites which the local government have designated for wildlife or biodiversity conservation. These include: Local Nature Reserves (LNRs), Sites of Importance for Nature Conservation (SINCs), and Local Nature Conservation Sites (LNCSs).

There are no identified Local Sites within a 2km search buffer of the Site.

4.1.4 Ancient Woodland Inventory Sites

The Ancient Woodland Inventory of Scotland is a list of woodland sites which are currently wooded and have been continually wooded since at least 1750 and consists of three categories “ancient woodland of semi-natural origin” which are woodlands shown as semi-natural on the Roy maps (1750) or first edition OS maps (1860) and continuously wooded until the present day, “long-established woodlands of plantation origin” which are woodlands shown as plantation on the Roy or OS maps and continuously wooded to the present day, and “other woodlands on Roy maps” which are not shown as woodlands on the OS maps, but are shown as woodland on the Roy maps and likely have only had a short break in continuity of woodland.

There are eleven woodlands on the Ancient Woodland Inventory within a 2km search radius of the Site as shown in **Table 4.3** and **Appendix A, Figure 1**.

Table 4.3. Ancient Woodland Sites within a 2km search radius of the Site.

Site Name (if Known)	Type	Area	Distance & Direction
	Ancient (of semi-natural origin)	6.15 hectares	0km NE
	Long-Established (of plantation origin)	4.04 hectares	0.32km N
	Ancient (of semi-natural origin)	1.99 hectares	0.68km NE
	Ancient (of semi-natural origin)	14.99 hectares	0.89km E
	Ancient (of semi-natural origin)	5.06 hectares	1.04km NE
	Long-Established (of plantation origin)	1.3 hectares	1.09km E
	Long-Established (of plantation origin)	3.24 hectares	1.38km W
	Ancient (of semi-natural origin)	5.86 hectares	1.57km N
	Ancient (of semi-natural origin)	5.78 hectares	1.76km E
	Ancient (of semi-natural origin)	2.11 hectares	1.79km N
	Ancient (of semi-natural origin)	10.91 hectares	1.95km NE

The most pressing concern would be the ancient woodland inventory site along the northern fringe of the development area. The development proposals are generally based on the other side of the field from this woodland, but the proximity of this site will require close attention to ensure that dust mobilisation is kept to a minimum. The woodland is also downslope from the proposed development footprint and pollution prevention protocols will have to be stringent to ensure no run-off or spills manage to make their way to the woodland. The development may have to also consider water run-off from rain as part of their pollution prevention guidelines as topsoil replaced by concrete can vastly increase the amount of water making its way down the slope. The Sites of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) are close enough to be a potential concern from particulates such as dust mobilised during the development but are otherwise isolated from the development by being upslope. Caution is advised as raised bogs are such sensitive, isolated systems that even relatively small events can drastically affect the ecosystems. The protections put in place to safeguard the ancient woodland should also protect the SSSI's and SAC near the site. Requirements and recommendations relating to these sites are covered further in **Section 6** of this report.

4.2 Protected and Notable Species

Records were received from within 2km search buffer of the Site. These records were then delimited to include only protected or notable species recorded since the year 2000 inclusive²².

4.2.1 Flora

All wild flora (plants and fungi) in Scotland are protected against intentional or reckless uprooting without the permission of the owner or occupier of the land on which it grows. Other species are listed in Schedule 8 of the Wildlife & Countryside Act 1981 which offers them additional protections, only three species are offered full protection as European Protected Species. Many species are of conservation concern and are listed on national or regional biodiversity lists also.

No records of protected and notable flora were located within the data search.

4.2.2 Mammals

Several mammal species in Scotland are offered full protection as European Protected Species by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) including all species of bat. Furthermore, many Scottish mammals are offered protection by the Wildlife & Countryside Act, with Badgers offered legislative protection by the Protection of Badgers Act 1992²³.

Records of protected and notable mammal species are presented within **Table 4.4**.

²² Absence of presence records of any protected and notable flora and fauna should not be taken as evidence of absence of such flora and fauna.

²³ Badger records are treated as confidential by the data provider and as such are supplied to consultants without spatial reference.

Table 4.4. Protected and notable mammal records received from within 2km of the Site.

Species Common	Species Latin	Designations	No. Records
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	EPS, WCA-Sch5, UKBAP, SBL	6
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	EPS, WCA-Sch5	6

4.2.3 Birds

All wild birds as well as their occupied nests and eggs are protected by the Wildlife & Countryside Act 1981 (as amended). Those species listed on Schedule 1 of the Wildlife & Countryside Act are offered additional levels of protection. Additionally, birds listed as “amber” or “red” on the Birds of Conservation Concern 4²⁴ list are those considered to be most at risk in the UK. Records of protected and notable bird species are presented within **Table 4.5**.

Table 4.5. Protected and notable bird records received from within 2km of the Site.

Species Common	Species Latin	Designations	No. Records
Common Grasshopper Warbler	<i>Locustella naevia</i>	UKBAP, SBL, Red	4
Reed Bunting	<i>Emberiza schoeniclus</i>	UKBAP, SBL, Amber	3
Northern Lapwing	<i>Vanellus vanellus</i>	UKBAP, SBL, Red	2
Siskin	<i>Spinus spinus</i>	SBL	1
Lesser Redpoll	<i>Acanthis cabaret</i>	UKBAP, SBL, Red	1

4.2.4 Amphibians

Widespread amphibian species in Scotland are offered protection from sale by Schedule 5 of the Wildlife & Countryside Act. Only the great crested newt (*Triturus cristatus*) and natterjack toad (*Epidalea calamita*) are offered full protection in Scotland as European Protected Species.

No records of protected and notable amphibian species were located within the background data search.

4.2.5 Reptiles

All reptiles are protected in Scotland by Schedule 5 of the Wildlife & Countryside Act 1981 which protects them against intentional or reckless killing and injury.

No records of protected and notable reptile species were located within the data search.

4.2.6 Non-Native Species

The principal legislature in Scotland which governs non-native species is the Wildlife & Countryside Act (1981). However, the Wildlife and Natural Environment (Scotland) Act 2011 no longer lists specific species to which the legislature applies, instead noting that any species which occurs in the wild Scotland “outside of their native range” is a non-native species and thus it is an offence to release or allow to be released such a plant or animal in to the wild.

Records of non-native species are presented within **Table 4.6**.

Table 4.6. Non-native species records received from within 2km of the Site.

Species Common	Species Latin	Designations	No. Records
Grey Squirrel	<i>Sciurus carolinensis</i>	INNS	9
Japanese Knotweed	<i>Fallopia japonica</i>	INNS	3

²⁴ Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D., & Gregory, R. (2015). Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands, and Isle of Man. *British Birds*, 108: 708-746.

Species Common	Species Latin	Designations	No. Records
Rhododendron	<i>Rhododendron ponticum</i>	INNS	1

4.2.7 Terrestrial Invertebrates

A number of terrestrial invertebrates are offered full or partial protection by Schedule 5 of the Wildlife & Countryside Act 1981 whilst others are conservation priority species on national or regional lists.

No records of protected and notable terrestrial invertebrate species were located within the data search.

4.2.8 Fish

Five fish species in Scotland receive full or partial protection under Schedule 5 of the Wildlife & Countryside Act 1981, others are listed as priority species of conservation concern on regional or national lists.

No records of protected and notable fish species were found within the background data search.

5 Field Study Results

5.1 Phase 1 Habitats

Phase 1 Habitats are spatially plotted in relation to the site within **Appendix A, Figure 2**.

5.1.1 A.1.1.1 Broadleaved semi-natural woodland

The northeastern corner of the development area and further into the buffer area could be described as broadleaved semi-natural woodland. The canopy layer is composed of beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), willow (*Salix* spp.), alder (*Alnus glutinosa*) and rowan (*Sorbus aucuparia*) with the composition tending slightly in favour of beech. The scrub layer is composed of beech saplings, willow saplings, hawthorn (*Crataegus monogyna*), bramble (*Rubus fruticosus*) and dog rose (*Rosa canina*) with bramble being much more frequent than the others and tending towards the margins of the habitat. The ground layer is composed frequently of cocksfoot (*Dactylis glomerata*), bramble, very young ash and young hawthorn. Wood horsetail (*Equisetum sylvaticum*), tufted hairgrass (*Deschampsia cespitosa*), dog rose and wood avens (*Geum urbanum*) are more occasional within the habitat. Male fern (*Dryopteris filix-mas*) can be found rarely and relatively spread out throughout the habitat. **Images 1 and 2** depict examples of the broadleaved woodland found within the development area.



Image 1. Broadleaved semi-natural woodland



Image 2. Broadleaved semi-natural woodland

5.1.2 A.1.3.2. Mixed plantation woodland

Bordering the western and eastern edges of the development area are fringed by mixed plantation woodlands. The canopies are composed almost exclusively of mature beech trees with the occasional Scot's pine (*Pinus sylvestris*). The scrub layers are very sparse, composed of the occasional bramble, hawthorn and beech sapling. Rarely, additions of dog rose and honeysuckle (*Lonicera periclymenum*) could be found along the edges of the habitat. The ground layer was abundant in cocksfoot grass with frequent additions of tufted hairgrass, bramble and rosebay willowherb (*Chamaenerion angustifolium*). Dog rose, early dog-violet (*Viola reichenbachiana*), rough meadow-grass (*Poa trivialis*), smallflower hairy willowherb (*Epilobium parviflorum*), broadleaved plantain (*Plantago major*), common knapweed (*Centaurea nigra*) and spear thistle (*Cirsium vulgare*) were found occasionally within the habitats. Marsh thistle (*Cirsium palustre*), lady fern (*Athyrium filix-femina*), broadleaved dock (*Rumex obtusifolius*), devil's-bit scabious (*Succisa pratensis*), broom (*Cytisus scoparius*), stinging nettles (*Urtica dioica*), soft rush (*Juncus effusus*) and wild angelica (*Angelica sylvestris*). The marsh thistle, devil's-bit scabious and soft rush were focused on the northern end of the western woodland where the ground layer was noticeably marshy. Examples of the mixed plantation woodlands are shown in **images 3 and 4**.



Image 3. Western mixed plantation woodland in the background

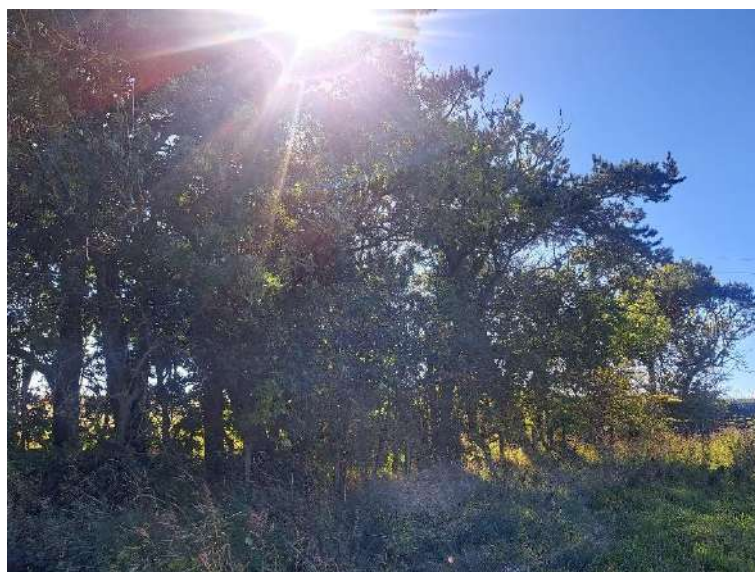


Image 4. Eastern mixed plantation woodland.

5.1.3 A.2.1. Dense continuous scrub

Two pockets of dense continuous scrub can be found within the development area along the northern edge and eastern edge. In both cases bramble was the dominant species within the habitat. Stinging nettles, meadowsweet (*Filipendula ulmaria*), hawthorn and spear thistle were found more occasionally with the spear thistle tending to the eastern scrub habitat and meadowsweet tending to the northern scrub habitat. Young ash, rosebay willowherb, gorse and dog rose could be found more rarely within these habitats. **Images 5 and 6** show examples of the eastern and northern dense continuous scrub habitats.



Image 5. Eastern dense continuous scrub



Image 6. Northern dense continuous scrub>

5.1.4 A.2.2. Scattered scrub

A large swathe of the northern buffer area is covered by scattered scrub. Species present comprised a number of willow species. Tufted hairgrass seemed to be frequent within the habitat along with tall herbaceous species such as rosebay willowherb. Stinging nettles and broadleaved dock could be found more occasionally and tended towards the southern margin of the habitat where it transitions to grassland. Scattered scrub habitat found in the buffer area is depicted below in **image 7**.



Image 7. Scattered scrub habitat with a broad transition area in the foreground.

5.1.5 B.2.2. Semi-improved neutral grassland

The main field containing the development area, along with the fields surrounding, could be described as semi-improved neutral grassland. Cocksfoot was dominant in the grassland with Yorkshire fog (*Holcus lanatus*) and creeping buttercup (*Ranunculus repens*) being abundant alongside. Broadleaved dock, tufted hairgrass and stinging nettles were frequent with stinging nettles tending towards the edges of the field. Broadleaved plantain, ribwort plantain (*Plantago lanceolata*), meadow buttercup (*Ranunculus acris*), spear thistle, cow parsley (*Anthriscus sylvestris*), poison hemlock (*Conium maculatum*) and soft rush were found occasionally with soft rush tending to clump together in pockets towards the north/northeast. Perennial ryegrass (*Lolium perenne*), meadow foxtail (*Alopecurus pratensis*), creeping bent (*Agrostis stolonifera*), bramble, sheep sorrel (*Rumex acetosella*), hogweed (*Heracleum sphondylium*), smallflower hairy willowherb, rosebay willowherb, common knapweed, red raspberry (*Rubus idaeus*), meadow vetchling (*Lathyrus pratensis*), harebell (*Campanula rotundifolia*) and ragwort (*Jacobaea vulgaris*). **Image 8** shows an example of the semi-improved neutral grassland found within the development area.



Image 8. Semi-improved neutral grassland

5.1.6 J.2.1.2 Intact species-poor hedgerow

The southern and eastern boundary of the development area, as well as bordering either side of the road running along the southern edge of the development area, is composed of an intact species-poor hedgerow. The hedgerows are dominated by hawthorn with the rare addition of beech shrub, bramble and dog rose. The borders of the hedgerow are frequently colonised by stinging nettles, spear thistle and cocksfoot grasses. **Image 9** shows an example of the intact hedgerow along the southern edge of the development area.



Image 9. Intact species-poor hedgerow (left) along the southern edge of the development area.

5.1.7 J.2.3.2. Species-poor hedgerow with trees

Part of the eastern boundary of the development area is marked by a species-poor hedgerow with trees. The hedgerow is again dominated by hawthorn, with the rare addition of beech shrub and bramble. The hedgerow is dotted with a few ash and beech trees and has a margin frequent with spear thistle and cocksfoot grass. The margin also contains soft rush, stinging nettles and tufted hairgrass rarely. An example of the species-poor hedgerow with trees is shown in **image 10**.



Image 10. Species-poor hedgerow with trees (right) along the eastern border of the development area.

5.1.8 J.4. Bare ground

Bare ground took the form of sealed roads along the southern edge of the development area and a sealed concrete access track along the western edge of the development area. **Image 11** shows an example of the sealed concrete access track along the western edge of the development area.



Image 11. Sealed concrete access track.

Hedgerows, even species-poor hedgerows, are considered UK Biodiversity Action Plan Priority Habitats. This report would suggest that the development expend all efforts to retain the existing hedgerows and, given the location of the development and nearby access track, should be able to do so.

5.2 UKHab Habitats

UKHab Habitats are spatially plotted in relation to the site within **Appendix A, Figure 4**.

5.2.1 G4 – Modified Grassland

The semi-improved neutral grassland cannot be differentiated further than the UKHab classification of Modified Grassland. The Site and field to the east appear to have been left without further management for a period of time but have not yet developed characteristics of other types of grassland.

5.2.2 H2a6 – Other Native Hedgerow

The hedgerow within this report is defined as Other Native Hedgerow within the UKHab classification.

5.2.3 H2a6:1170 – Other Native Hedgerow with Trees

UKHab classifications use secondary codes to give further texture to broader habitats. In this case the secondary code 1170 to define a hedgerow with trees.

5.2.4 H3d – Bramble Scrub

The dense continuous scrub can be further differentiated within UKHab classifications with the easternmost dense scrub being classed as Bramble Scrub. Bramble dominates the scrub habitat with stinging nettles and spear thistle being found more occasionally around the periphery of the habitat. Young ash trees, hawthorn and rosebay willowherb could be seen rarely with the woody species tending to the east of the small habitat and the rosebay willowherb tending to the general periphery.

5.2.5 H3e – Gorse Scrub

The dense continuous scrub can be further differentiated within UKHab classifications with the more central dense scrub being classed as Gorse Scrub. The habitat was abundant in gorse with the

occasional meadowsweet, stinging nettles and spear thistle found within the scrub. Dog rose, rosebay willowherb and bramble could be found rarely within the habitat with the bramble being limited to openings within the gorse scrub.

5.2.6 H3h:10 – Mixed Scrub – Scattered

The areas of scattered scrub within the Phase 1 habitat descriptions can be further differentiated into Mixed Scrub – Scattered with the secondary code 10. This area of mixed scrub was inaccessible during the surveys but several tree species could be seen at varying stages of growth. It is likely that this area of scrub is the early successional expansion of the broadleaved woodland to its east and would be expected to hold the same species.

5.2.7 H3j:10 – Willow Scrub – Scattered

Willow Scrub – Scattered is the second habitat type that the phase 1 habitat can be further differentiated to. The habitat was inaccessible during the surveys but multiple stands of young willow of largely the same growth stage were observed from afar.

5.2.8 W1g7 – Other Broadleaved Woodland Types

UKHab definitions would place this woodland parcel as Other Broadleaved Woodland Types as it does not cleanly fit into the pre-defined broadleaved woodland descriptions. This is not unusual as the pre-defined woodland habitats are relatively specific descriptions of extremely valuable woodland habitat characteristic of specific locations within the U.K.

5.2.9 W1h5 – Other Woodland – Mixed – Mainly Broadleaved

Both the eastern and western mixed plantations would be defined as Other Woodland – Mixed – Mainly Broadleaved under UKHab definitions.

5.2.10 U1b6 – Other Developed Land

The UKHab classification for sealed roads and pavements would be Other Developed Land.

5.3 **Condition Assessment**

The biodiversity net gain metric uses a standardised condition assessment to modify the value of a given habitat parcel. The condition assessment describes features of habitat parcels which can be scored against surveyed habitats on whether they have the particular feature. The presence of multiple features indicating that the habitat parcel being surveyed is either “moderate” or “good” habitat. It must be noted that some features are a requirement for obtaining a good condition score regardless of how many other features the habitat parcel may have, this is explained in the full assessment with **Appendix D**.

5.3.1 Grassland

For the purposes of this report, the grassland parcels surveyed were all defined as low distinctiveness which should be expected for any recently used agricultural land. The grassland contained within the Site (habitat parcel reference 2 within the assessment) was scored as good condition due to the variety of species present within the habitat. The surrounding grasslands (other fields) were scored poor as their species compositions were less varied, with the species variety being a requirement of scoring moderate or above on the assessment.

5.3.2 Scrub

The scrub parcels were defined as poor with the exception of the mixed scrub habitat parcel adjacent to the broadleaved woodland (referred to as habitat parcel reference 7 within the assessment) which scored as good condition. This is not surprising as the mixed scrub habitat parcel is likely the early successional stages of the broadleaved woodland as it spreads west. The other scrub habitats were too singular in both species composition and age structure to score well.

5.3.3 Woodland

The woodland condition assessment is much more varied in features and creates a much wider scoring band for the habitats. The mixed plantation woodland on the western edge of the Site (habitat parcel reference 1 on the condition assessment) scored moderate, the mixed plantation woodland on the

eastern boundary of the Site (habitat parcel reference 6 on the condition assessment) scored poor and the broadleaved semi-natural woodland (habitat parcel reference 4 on the condition assessment) along the northern edge of the site scored good.

5.3.4 Hedgerow

Six hedgerow parcels are contained within the surveyed area with all hedgerows scoring good on the condition assessment. No hedgerow failed an entire functional group (each similarly coloured pair of features) although there was some variance in which specific features each hedgerow failed. Despite some of the features being failed, no hedgerow failed more than two features. The hedgerows bounding the Site to the south and east are referred to as hedgerows 1 and 2 on the assessment.

5.4 Flora

There was no notable species of plants located during the survey. The surrounding areas are currently used as rough grazing pasture and it is not normally expected to find communities of note within these habitats. The development area itself appears to be currently left to rest and shows no recent signs of grazing by livestock. It is unlikely for communities of note to arise within the development area but if the habitat is left to mature, some notable communities may colonise. Works must be mindful of notable communities colonising as they continue development, especially if there are significant delays between sections of work. Recommendations to consider floral communities, should they arise, are presented within **Section 6** of this report.

5.5 Badgers

No signs of badgers (*Meles meles*) were found over the course of the survey although the development area does include a large field. The development area is rural and there is a large unbroken range of open agricultural land surrounding the development area which could be expected to provide ample territory for badger. A number of mammal paths (**Images 12 and 13**) could be founding crossing through the site and under site boundaries such as hedgerows or stock fences but these can be attributed to any mammals tracking through the site, not just badger. With this in mind, this report expects that there are no badger setts present on the accessible land for the development area but it is highly likely that badger are crossing the land to access the wider landscape or forage. As badgers are expected to only pass through the site requirements and recommendations to consider badger are presented within **Section 6** of this report.



Image 12. Mammal track leading underneath the southern hedgerow.



Image 13. Mammal track leading under stock fence on the eastern boundary.

5.6 Pine Marten

No field signs for pine marten (*Martes martes*) were found during the survey but the site is within the expected distribution range. The site and surrounding habitats are expected to have minimal value to pine marten due to the limited woodland habitats to the east and west of the development area. The woodland to the north of the development area would theoretically hold some value to pine marten. Background data seems to indicate that pine marten are locally absent but, as parts of the habitat could be valuable for pine marten, the development should remain vigilant for signs as works progress. The good practice and recommendations given in **Section 6** of this report apply to a number of mammals including pine marten, should evidence be found at a later date.

5.7 Red Squirrel

No field signs for red squirrel (*Sciurus vulgaris*) were found during the survey and the site is outwith the known distribution range. As red squirrel are not expected to be a constraint during this development they are not considered further in this report.

5.8 Bats

The development area likely holds limited value as a foraging space although it must be highlighted that the treelines are expected to be used as foraging spaces. Much more valuable foraging space is present to the north of the site alongside the Earnock Burn and the scattered scrub habitats. The development area will likely hold much greater value as a commuting space. The hedgerows, acting as linear features, allow navigation from east/west and north/south. The treeline to the west is of particular concern due to the volume of bat features and proximity to the development footprint.

A number of trees, almost exclusively beech, contain features which could support roosting bats. Almost all of the trees were identified within the western woodland space but, considering the northern woodland was not able to be fully surveyed, it is possible further trees have been missed.

Details of preliminary roost assessment results are in **Table 5.1** below, with full notes in **Appendix C** and requirement and recommendations in **Section 6**.

Table 5.1. Preliminary Roost Assessment results for trees within the site.

TN	Description / Potential Roosting Features	Evidence of bats?	Roost Potential
1	Mature beech, with the following features:	None	Low (summer)

TN	Description / Potential Roosting Features	Evidence of bats?	Roost Potential
	<ul style="list-style-type: none"> • Knothole with cavity. 		Low (winter)
2	Mature beech, with the following features: <ul style="list-style-type: none"> • Weld with possible cavity; and • Branch fracture with rot and possible cavity. 	None	Low (summer) Low (winter)
3	Mature beech, with the following features: <ul style="list-style-type: none"> • Small knothole with upward facing cavity. 	None	Low (summer) Low (winter)
4	Mature beech, with the following features: <ul style="list-style-type: none"> • Small knothole with rot and cavity; • Knothole with cavity; and • Branch fracture with rot and possible cavity. 	None	Moderate (summer) Moderate (winter)
5	Mature beech, with the following features: <ul style="list-style-type: none"> • Old branch fracture with rot and upward facing cavity. 	None	Low (summer) Low (winter)
6	Mature beech, with the following features: <ul style="list-style-type: none"> • Small knothole with rot and cavity; and • Old branch fracture exposing inner wood with rot and possible cavity. 	None	Moderate (summer) Moderate (winter)
7	Overmature beech, with the following features: <ul style="list-style-type: none"> • Weld where the main trunks meet; • Knothole with rot and cavity; and • Branch fracture with rot and cavity. 	None	Moderate (summer) Moderate (winter)
8	Mature beech, with the following features: <ul style="list-style-type: none"> • Branch fracture with rot and upward facing cavity; and • Knothole with rot and cavity. 	None	Low (summer) Low (winter)
9	Dead monolith, with the following features: <ul style="list-style-type: none"> • Small knothole with rot and possible cavity. 	None	Low (summer) Low (winter)
10	Mature beech, with the following features: <ul style="list-style-type: none"> • Small knothole with rot and cavity; and • Branch fracture with rot and upward facing cavity. 	None	Low (summer) Low (winter)
11	Mature beech, with the following features: <ul style="list-style-type: none"> • Old branch fracture with rot and cavity leading up main trunk; and • Branch fracture with rot and upward facing cavity. 	None	Moderate (summer) Moderate (winter)
12	Mature beech, with the following features: <ul style="list-style-type: none"> • Large knothole with cavity leading towards base and smaller cavity leading up main trunk. 	None	Moderate (summer) Moderate (winter)
13	Mature beech, with the following features: <ul style="list-style-type: none"> • Branch fracture with possible small cavity. 	None	Low (summer) Low (winter)
14	Beech with swing, with the following features: <ul style="list-style-type: none"> • Branch fracture with rot and upward facing cavity. 	None	Low (summer) Low (winter)
15	Overmature beech, with the following features: <ul style="list-style-type: none"> • Small knothole with cavity. 	None	Low (summer) Low (winter)
16	Mature beech, with the following features: <ul style="list-style-type: none"> • Branch fracture with possible rot and upward facing cavity. 	None	Low (summer) Low (winter)

TN	Description / Potential Roosting Features	Evidence of bats?	Roost Potential
17	Mature beech, with the following features: <ul style="list-style-type: none"> • Knothole with cavity. 	None	Low (summer) Low (winter)
18	Mature beech, with the following features: <ul style="list-style-type: none"> • Knotholes with rot and cavity. 	None	Low (summer) Low (winter)
19	Mature beech, with the following features: <ul style="list-style-type: none"> • Large knothole with rot and upward facing cavity; • Branch fracture with rot and possible cavity; and • Large branch fracture with multiple rot holes and possible interconnected cavities. 	None	Moderate (summer) Moderate (winter)
20	Mature beech, with the following features: <ul style="list-style-type: none"> • Knotholes with cavities; • Branch fractures with rot and cavity; and • Large branch fracture with damaged limb section with rot holes and possible interconnected cavities. 	None	Moderate (summer) Moderate (winter)
21	Mature beech, with the following features: <ul style="list-style-type: none"> • Knotholes with upward facing cavities. 	None	Low (summer) Low (winter)
22	Mature Scot's pine, with the following features: <ul style="list-style-type: none"> • Long twisting branch fracture creating multiple gaps and possible upward facing central cavity. 	None	Low (summer) Low (winter)
23	Mature Scot's pine, with the following features: <ul style="list-style-type: none"> • Branch fracture has created long exposed area for rot; • Signs of rot and cavity in inner wood at top of the fracture; and • Possible small cavity at base of branch. 	None	Moderate (summer) Moderate (winter)
24	Mature Scot's pine, with the following features: <ul style="list-style-type: none"> • Branch fracture with possible rot and cavity. 	None	Low (summer) Low (winter)
25	Dead monolith, with the following features: <ul style="list-style-type: none"> • Large fracture of main trunk leaving rot and upward facing cavity; • Small downward facing cavities in elongated fracture; • Branch fracture with rot and cavity; • Loose bark; and • Numerous rot holes possibly leading to interconnected cavities. 	None	Moderate (summer) Moderate (winter)
26	Dead monolith, with the following features: <ul style="list-style-type: none"> • Loose bark; and • Branch fracture with rot and cavity. 	None	Low (summer) Low (winter)
27	Dead monolith, with the following features: <ul style="list-style-type: none"> • Branch fracture with rot and cavity. 	None	Low (summer) Low (winter)
28	Mature beech, with the following features: <ul style="list-style-type: none"> • Knothole with rot and cavity. 	None	Low (summer) Low (winter)
29	Overmature beech, with the following features: <ul style="list-style-type: none"> • Large knothole with rot and possible cavity. 	None	Low (summer) Low (winter)

5.9 Otters

No signs of otter (*Lutra lutra*) were found over the course of the survey and the background data search suggests they may be locally absent. As otter are not expected to be a constraint during the development they are not considered further in this report.

5.10 Water Vole

No signs of water vole (*Arvicola amphibius*) were located over the course of the survey and the background data search suggests they may be locally absent. As such water vole are not expected to be a concern on this project and are not considered further in this report.

5.11 Beaver

No signs of beaver (*Castor fiber*) were located over the course of the survey and the area is far outside the known distribution within the U.K. As such beavers are not expected to be a concern on this project and are not considered further in this report.

5.12 Birds

Bird activity was relatively low, in line with expectations for the end of the breeding season. Activity that was present remained relatively consistent throughout the survey. Goldfinch (*Carduelis carduelis*) were often seen foraging amongst the hedgerows and a blackbird (*Turdus merula*) was observed fleeing from a hedgerow as the surveyor passed by. Herring gulls (*Larus argentatus*), carrion crows (*Corvus corone*) and jackdaw (*Corvus monedula*) were observed flying over the development area. The rest of the birds noted were identified from song or from alarm calls whilst surveying the site, indicating that the development area is used for foraging and likely also for nesting. A single nest (**Image 14**) was observed within a hollow created by a branch fracture and there are likely more which were missed within the hedgerows and other woodland habitats.



Image 14. Nest within the hollow of a beech tree.

The bird species noted during the survey visit and their conservation designations are presented within **Table 5.2.** with requirements and recommendations in **Section 6.**

Table 5.2. Bird species observed within the Site during the PEA survey.

Species common	Species Latin	Designations
Herring Gull	<i>Larus argentatus</i>	SBL, Red
Meadow Pipit	<i>Anthus pratensis</i>	Amber
Wren	<i>Troglodytes troglodytes</i>	Amber
Great Tit	<i>Parus major</i>	
Blue Tit	<i>Cyanistes caeruleus</i>	
Goldfinch	<i>Carduelis carduelis</i>	

Species common	Species Latin	Designations
Carrion Crow	<i>Corvus corone</i>	
Common Blackbird	<i>Turdus merula</i>	
Common Chaffinch	<i>Fringilla coelebs</i>	
Common Buzzard	<i>Buteo buteo</i>	
Jackdaw	<i>Corvus monedula</i>	

5.13 Amphibians

No definitive signs of amphibians were found during the survey and the Earnock Burn was unable to be surveyed due to the steepness of the banks. The prevalence of soft rush within the site may indicate some areas get boggy, which could be exploited by a population of common U.K species if the boggy conditions persist long enough. There was an area of notably wetland like habitat outwith the range of the survey, which could yield habitats within development area be used for foraging/hibernation by a population associated with the wetland habitat. The site is outwith the currently understood range of Great Crested Newt (*Triturus cristatus*). It is expected that common U.K species such as Common Frog (*Rana temporaria*) and Common Toad (*Bufo bufo*) would be present within the site and thus, good practice recommendations to safeguard amphibians are presented within **Section 6** of this report.

5.14 Reptiles

No signs of reptiles were noted during the survey and the development area is a north facing aspect, making it inhospitable for reptiles. The habitat could be useful for foraging and may see reptiles forage within the spaces but not necessarily use the area for burrows/basking. Due to the possible presence of reptiles, good practice recommendations to safeguard reptiles are presented within **Section 6** of this report.

5.15 Non-Native Species

No non-native species were noted during the survey however background data search results indicate the presence of Japanese knotweed (*Fallopia japonica*), rhododendron (*Rhododendron ponticum*) and grey squirrel (*Sciurus carolinensis*) with 2km of the development area. Grey squirrel are likely associated with the northern woodland habitat and could even be present within the western woodland despite how isolated it is. Japanese knotweed would be expected to be found along the banks of the Earnock Burn but has been found significant distances from water courses. Rhododendron is likely garden escapees associated with, or nearby, private houses. Although no specimen were found it is incredibly easy for these species to colonise new areas, especially during progress of developments and so **Section 6** of this report outlines requirements for control of invasive species and recommendations if invasive species are found on the site prior to and during work.

5.16 Terrestrial Invertebrates

Although no notable terrestrial invertebrates were recorded during the survey, habitats adjacent to the site boundaries are likely to provide suitable opportunities for communities of note. These however are unlikely to be lost as a direct result of works.

The invertebrate species noted during the survey and their conservation designations are shown in **Table 5.3**.

Table 5.3. Terrestrial invertebrates observed within the site during the PEA survey.

Species common	Species Latin	Designations
Common hawk	<i>Aeshna juncea</i>	
Peacock butterfly	<i>Aglais io</i>	

5.17 Fish and Fish Habitats

No signs of fish were found during the survey because the Earnock Burn was unable to be surveyed due to the steepness of the banks. Background data suggests that the burn will not have significant fish populations but, regardless, **Section 6** of this report contains recommendations to control pollution of aquatic and semi-aquatic habitats.

6 Requirements and Recommendations for Project Progression

Table 6.1 includes all identified requirements and recommendations for progression with this project based on the data collected during the survey. Where there is any doubt about the practicality of the mitigative elements presented below, advice should be sought from a suitably qualified ecologist.

Table 6.1. Requirements and Recommendations for mitigating effects on identified ecological receptors.

Ecological Receptor	Impacts	Mandatory Requirements	Recommendations
Internationally Designated Sites	Direct or indirect negative effects on international sites during the construction and operational phase of the project resulting in decline of features.	<p>As one international Site (Waukenwae Moss SAC) is within 2km of the site, it may be a mandatory requirement that the impacts on this site be assessed via a Habitats Regulations Appraisal (HRA) undertaken by the competent authority (South Lanarkshire Council) or an agent operating at their discretion.</p> <p>The HRA, if determined as a requirement, must identify likely significant effects of the proposals on the features of the international sites and identify key mitigative and compensation elements that should be enacted during the construction and operational phases of any proposed project.</p>	It is recommended that the requirement for HRA be established with South Lanarkshire Council as early as possible, and that it is agreed whom should undertake the HRA for this project such that it be commissioned and completed in a timely manner.
Nationally Designated Sites	Direct or indirect negative effects on national sites during the construction and operational phase of the project resulting in decline of features.	<p>As two national sites (Waukenwae Moss SSSI and Blantyre Muir SSSI) are within 2km of the site, it is a mandatory requirement that the impacts on these sites be negated.</p> <p>As the ecological features of the SSSI are primarily raised bog habitat, it is a mandatory requirement that effects to watercourses be negated (via adherence to the guidelines for Pollution prevention²⁵), that loss of semi-natural habitats present within the site be minimised as far as possible, and that measures be engineered into the construction process which negates the</p>	It is recommended that consultation with a suitably qualified ecologist, the planning authority, and any engineering contractor be commissioned to engineer a suitable plan which would ensure that effects to national sites during the construction and operational phases of this project can be negated.

²⁵ <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/>

Ecological Receptor	Impacts	Mandatory Requirements	Recommendations
		mobilisation of soils and airborne pollutants such as dust.	
Ancient Woodland Inventory Sites		Due to the proximity of an Ancient Woodland Inventory site to the development and the potential for downstream events within the Earnock burn it is a mandatory requirement that effects to watercourses be negated (via adherence to the guidelines for Pollution prevention ²⁶), that loss of semi-natural habitats present within the site be minimised as far as possible, and that measures be engineered into the construction process which negates the mobilisation of soils and airborne pollutants such as dust.	It is recommended that consultation with a suitably qualified ecologist, the planning authority, and any engineering contractor be commissioned to engineer a suitable plan which would ensure that effects to national sites during the construction and operational phases of this project can be negated
UKBAP / SBL Priority Habitats	Damage or degradation to UKBAP Priority habitats within and adjacent to the site during the construction and operational phases of the project.	It is a mandatory requirement that the Guidelines for Pollution Prevention ²⁷ be adhered to at all times during these and ongoing works. In particular, those relating to the storage of machinery and chemicals (GPP2, PP7, GPP8, GPP13 & GPP26), and works near water (GPP5) should be adhered to.	It is recommended that all soil stripping be completed by-hand and, where possible, that all vegetation removed be re-instated at the completion of groundworks. It is recommended that the hedgerows within the site boundaries are retained, where possible, and that connected hedgerows disrupted by clearing are re-connected by transplanting or replanting.
Flora	Damage to floral communities, loss of floral character, and escape of garden varieties of flora during construction and operational phases of the proposals.		It is recommended that any landscaping and planting for the site use only native floral species of local provenance so as to prevent the establishment of non-native flora within the local area, and to keep the site with the general ecological character of the surrounding ecosystems.

²⁶ <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/>

²⁷ <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/>

Ecological Receptor	Impacts	Mandatory Requirements	Recommendations
Protected Mammal Species (e.g. Badger, pine marten, red squirrel, otter, and beaver)	Entrapment of protected terrestrial mammals within open excavations or stored equipment and machinery resulting in death.	<p>There is the possibility that protected mammal species (notably badger) may pass through the site when dispersing throughout the wider landscape. Consequently, it is a mandatory requirement that any open excavations which are created as part of the works should be provided with a slope of no greater than 45° which will ensure that any mammals which become entrapped whilst moving through the landscape are able to escape. Where mammal entrapment occurs, all works should stop and the advice of a suitably qualified ecologist should be sought immediately.</p> <p>Prior to the commencement of works each day, stored equipment (e.g. pipes or machinery) must be checked prior to their use or the starting of machinery. This is to ensure that any protected terrestrial mammals who may be using them for shelter are not entrapped. Where mammals are noted within stored material or machinery, a suitably qualified ecologist should be contacted to advise.</p>	<p>It is further recommend that any floral species introduced be introduced using seed collected from similar habitats locally and introduced gradually so as to establish a natural balance of floral species within this habitat, and so as not to cause damage to the habitats within the site.</p> <p>It is recommended that any open excavation is not left open-topped and be covered over overnight by wooden panelling or equivalent and that any materials stored on site (e.g. barrels or pipes) be stored within sealed containers to minimise risk of mammal use or entrapment.</p>
Bats	Loss or degradation of commuting and foraging habitat due to spill of artificial lighting.		It is recommended that, during lighting design for the proposed development, any exterior lighting be avoided or be low-level, motion-sensitive or alternatively able to be switched on and off, and be directional to minimise the light spill into semi-natural habitats. Artificial lighting is harmful to wildlife by altering circadian rhythms and altering the availability and spatial spread of resources.

Ecological Receptor	Impacts	Mandatory Requirements	Recommendations
			Guidance on artificial lighting design which would be bat and wildlife friendly is available from the Bat Conservation Trust ²⁸ .
	Damage to- or loss of- commuting and foraging habitats through vegetation clearance.		It is recommended that, wherever possible, existing trees be retained within the plot. However, we appreciate that root protection zones may make this an unviable option and so suggest that the use of standards/heavy standards in the landscaping regime would help to retain the value within the site for commuting and foraging bats. Wherever possible, these should form linear stands of trees in unlit areas and should comprise native species to encourage invertebrate diversity within the plot thus benefiting bats. Furthermore, the use of native ground flora and shrubs in the planting regime will encourage invertebrates and thus bats.
	Damage to-, disturbance of-, or destruction of- bat roosts.	<p>As a number of potential bat roost features were located within trees in the development area, it is a mandatory requirement to identify whether these structures are commonly in use as bat roosts. This should comprise a combination of survey methodologies such as:</p> <ul style="list-style-type: none"> • Emergence surveys which should be completed in line with the most recent edition of the Bat Survey Guidelines for Professional Ecologists published by the Bat Conservation trust (e.g. start 15 minutes prior to sunset and finish no earlier than 90 minutes after sunset in appropriate weather conditions with acoustic bat detectors recording echolocation and night 	

²⁸ <https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?mtime=20181113114229>

Ecological Receptor	Impacts	Mandatory Requirements	Recommendations
		<p>vision assisted with the use of night-vision cameras); or</p> <ul style="list-style-type: none"> Engagement of suitably qualified tree climbers with a bat licence to undertake aerial inspections of trees onsite for their roosting potential. 	
Birds	Destruction of active birds nests.	As active birds nests are protected by law from destruction, it is a mandatory requirement that measures be put in place to safeguard nesting birds during building demolition and vegetation clearance as part of these proposals. If the works programme cannot be amended to facilitate works outside of the nesting bird season, it is suggested that a pre-works check for nesting birds be undertaken no more than 48 hours prior to works. If active nests were found, there would be no other option but to delay works until nests have fledged chicks which could be a period of up to ten weeks.	It is recommended that vegetation clearance or building repair or demolition works be completed outwith the nesting bird season (e.g. outwith March to August inclusive). This reduces the risks of damaging or destroying active birds nests.
Amphibians	Reckless killing or injury during works.		It is recommended that a search of vegetation for amphibians be made prior to the commencement of digging. Where identified, amphibians should be moved out of the way of the works area.
Reptiles	Reckless killing and injury of reptiles during works on site.	It is a mandatory requirement that reptiles be safeguarded from intentional or reckless killing or injury during works within the site.	<p>It is recommended that a search of vegetation for reptiles be made prior to the commencement of digging. Where identified, reptiles should be moved out of the way of the works area.</p> <p>Adders should not be touched and, if located, works should be delayed until these have left the site of their own accord.</p>
Non-native Species	The spread of invasive weeds outside of the site	It is a mandatory requirement that invasive species (rhododendron and Japanese knotweed)	It is recommended that engagement of a specialist invasive weed control contractor be

Ecological Receptor	Impacts	Mandatory Requirements	Recommendations
	through movement of contaminated soils.	not be allowed to- or caused to- spread during the ongoing works.	engaged to undertake a complete survey and then eradication works of the invasive species within the site. The invasive weed contractor should advise further as to when works can proceed within this area of the site.
Fish and Fish Habitats	Pollution of watercourses through the spillage of oils or mobilisation of soils and other debris.	It is a mandatory requirement that the Guidelines for Pollution Prevention ²⁹ be adhered to at all times during these and ongoing works. In particular, those relating to the storage of machinery and chemicals (GPP2, PP7, GPP8, GPP13 & GPP26), and works near water (GPP5) should be adhered to.	

²⁹ <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/>

7 Recommendation for General Biodiversity Enhancement

This section includes all identified recommendations for Biodiversity Enhancement during progression with this project based on the data collected. Where there is any doubt about the practicality of the recommendations presented below, advice should be sought from a suitably qualified ecologist.

Ecological Receptor	Suggested Enhancement
Hedgehog (<i>Erinaceus europaeus</i>)	Installation of hedgehog boxes within the landscaping would encourage uptake of the site by hedgehogs. These boxes should be in a quiet area not subject to human or vehicular traffic, should face away from the prevailing wind conditions and be out of direct sunlight. A siting beneath existing or freshly planted shrubs would suffice. The boxes should include an opening of approximately 13cm x 13cm in diameter and should include an internal “baffle” with a sharp turn to prevent access from predatory species such as foxes or cats. Uptake of these boxes can be further increased by ensuring that there are suitable gaps (of 13 x 13cm) beneath any fencing instated around the development.
Bats and Birds	Installation of bat and bird boxes within the landscaping of the site would increase their suitability for these species. For birds, a mix of box sizes and type in line with RSPB guidance would increase the value for nesting species. For bats, it is recommended that woodcrete boxes which are “self-cleaning” (e.g. which are open at the bottom to allow droppings to fall free from the box and subsequently not require regular cleaning by a licensed bat worker) would enhance the site for bat species. Guidance on the type and siting of bat boxes is available from the bat Conservation Trust ³⁰ .
Amphibians, reptiles, and Invertebrates	Log piles / Hibernacula could be instated within the site which would provide suitable habitat for amphibians as well as for invertebrate species including saprophytic species such as beetle larvae. These should be instated within a sunny spot and within landscaping measures. Where possible, log piles should seek not to be too tightly piled to ensure there are gaps or varying sizes to create a number of different microclimates which would suit a wider variety of species. These may need to be regularly replaced.
Invertebrates	Insect Hotels including solitary bee houses could be instated within the new landscaping, in a sunny area next to suitable invertebrate foraging (e.g. wildflower planting). This would serve to increase the available habitat for invertebrate species and would in turn benefit the wider ecosystem through provision of additional ecological functions and through increased food resource for predatory species.






³⁰ <https://www.bats.org.uk/our-work/buildings-planning-and-development/bat-boxes>

Appendix A: Figures

Figure 1: Designated Sites.



Key

-  Site Boundary
-  2Km Buffer
-  Ancient Woodland
-  Special Area of Conservation
-  Sites of Special Scientific Interest

Title:

Figure 1: Designated Sites

Project:

Muttonhole Road

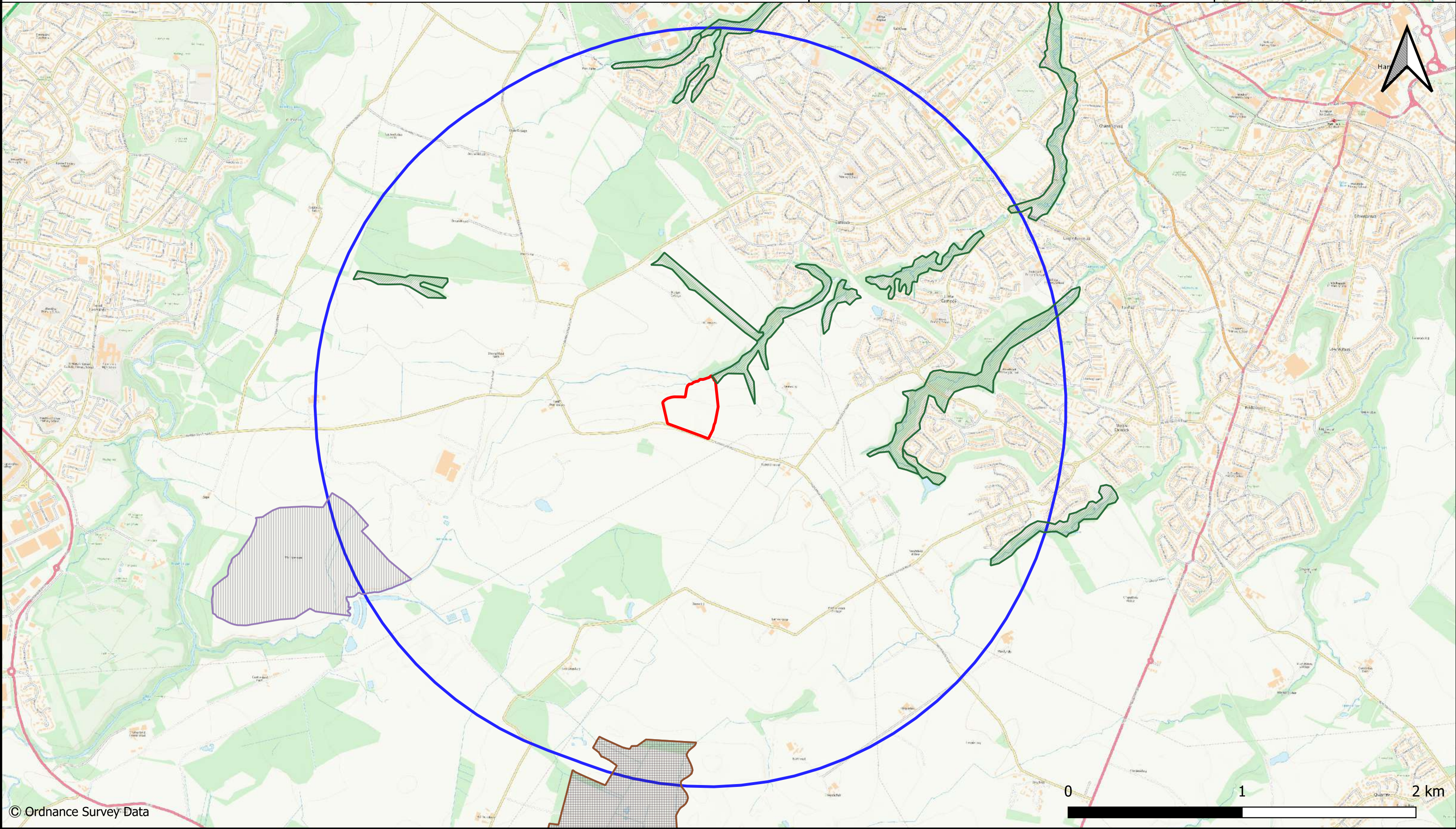
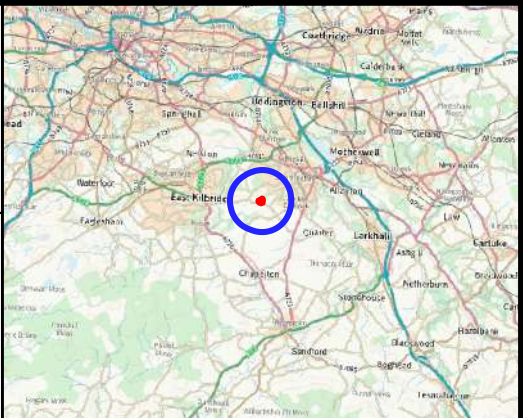


Figure 2: Phase 1 Habitat Survey Results.



Key

- Target Notes
- 50m Buffer
- Site Boundary

Habitats:

- Broad-leaved Woodland Semi-natural
- Mixed Woodland Plantation
- Dense Scrub

- Scattered Scrub
- Neutral Grassland Semi-improved
- Bare Ground
- Not Accessed

Linear Features:

- Intact Hedgerow

Title:

Figure 2: Phase 1 Habitat
Survey Results

Project:

Muttonhole Road

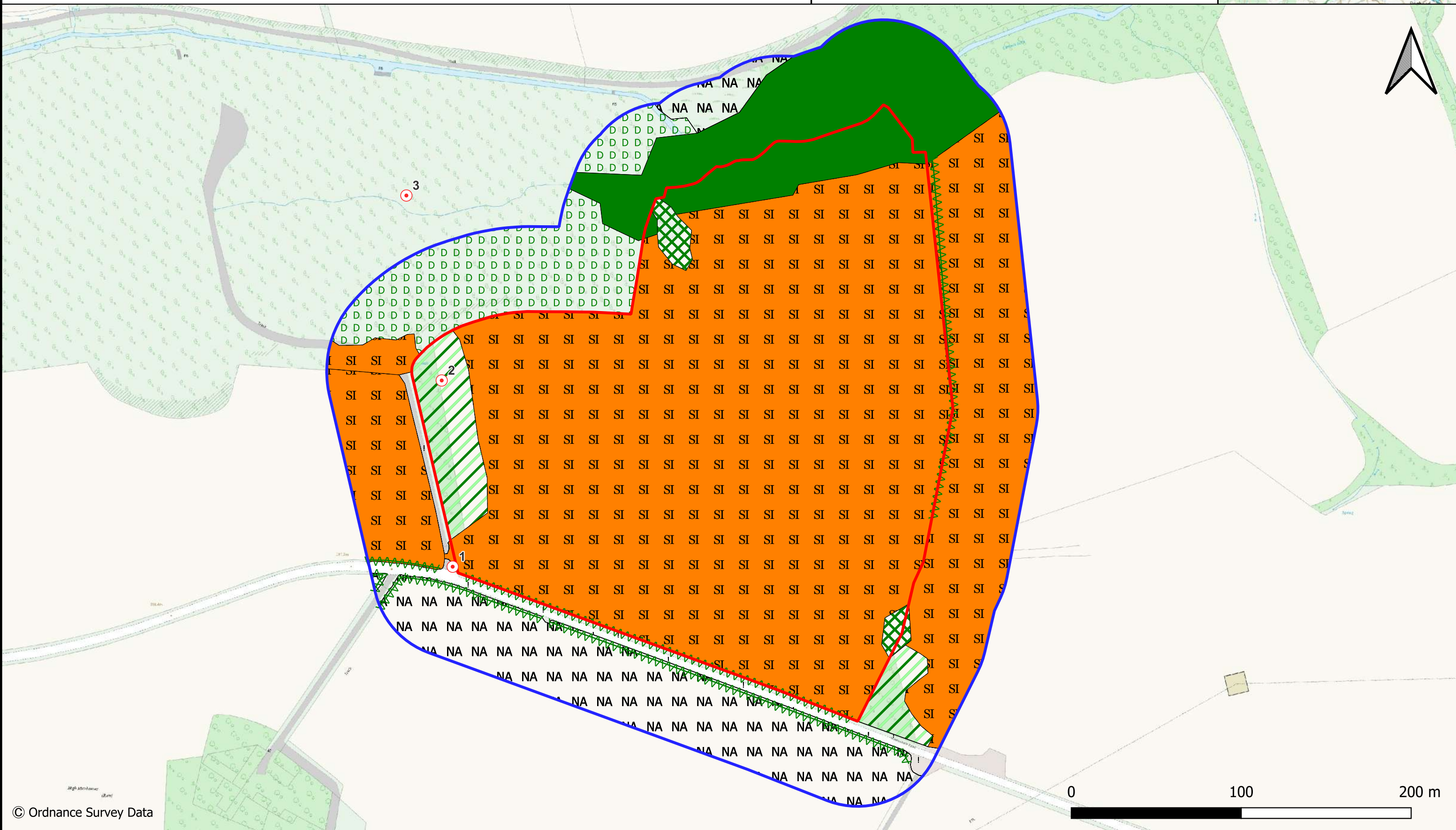
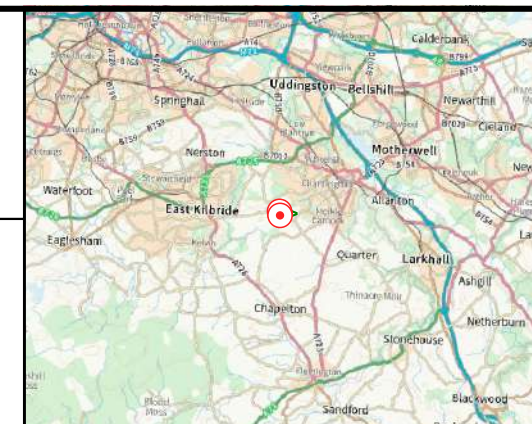


Figure 3: Preliminary Roost Assessment Results.



Key

- Site Boundry
- 50m Buffer

Roost Potential (Trees):

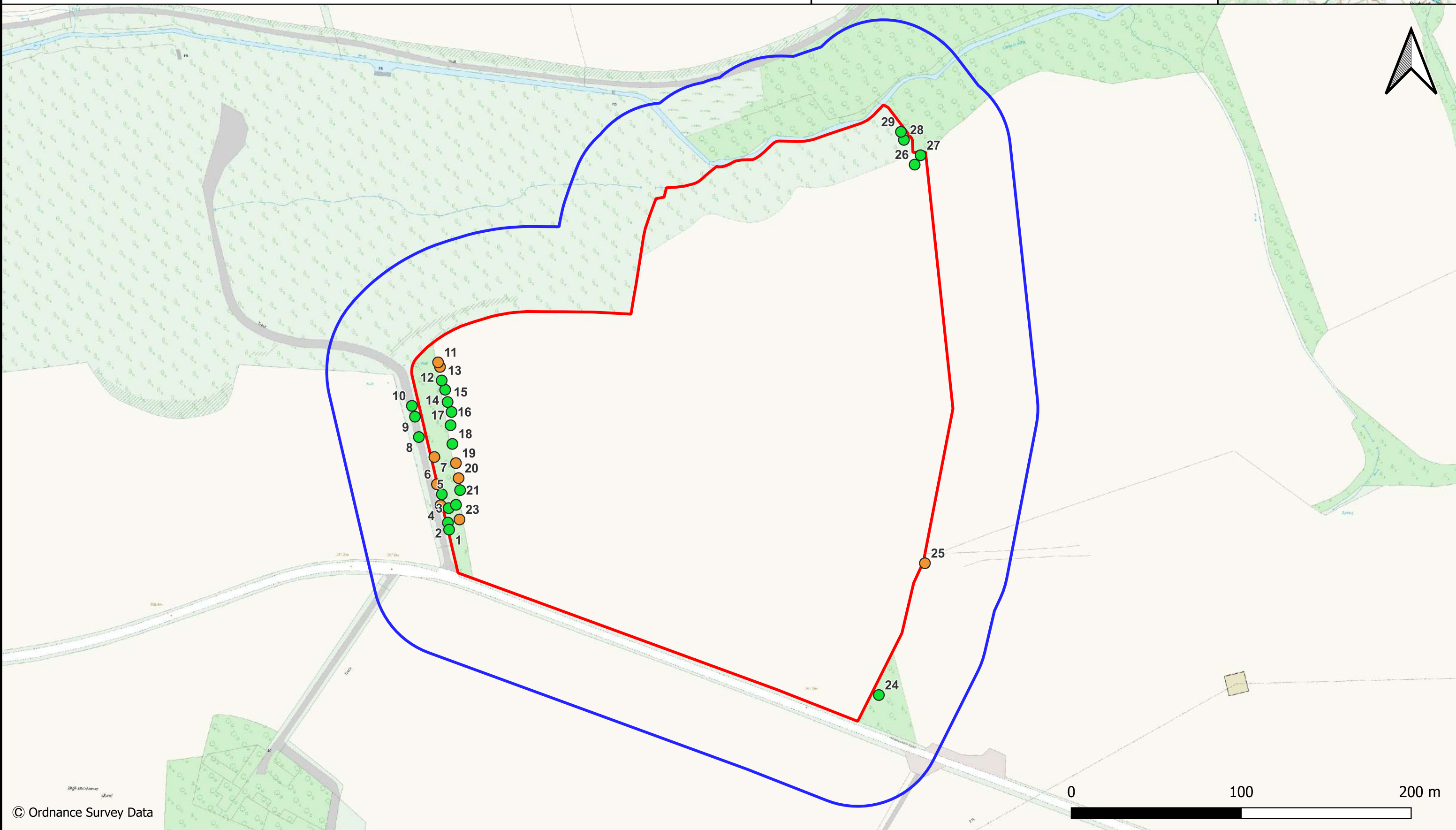
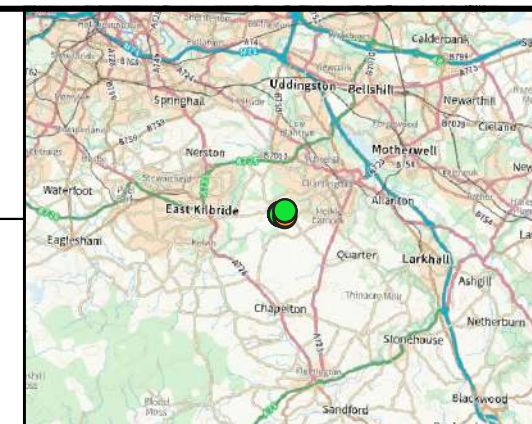
- Low
- Moderate

Title:

Figure 3: Preliminary
Roost Assessment Results

Project:

Muttonhole Road



Appendix B: Target Notes

NGR	TN	Note
NS6838253460	1	Fly tipping
NS6837553569	2	Bird nest in mature beech
NS6835553678	3	Inaccessible but signs of a wetland/pond habitat

Appendix C: PRA Field Survey

Ref	Features	Evidence of bats?	Roost potential
Tree 1	Southeast aspect at 7m. Knothole with cavity	No	Low (summer) Low (winter)
Tree 2-1	North aspect at 2m. Weld with possible cavity	No	Low (summer) Low (winter)
Tree 2-2	East aspect at 4m. Branch fracture with rot and possible cavity		Low (summer) Low (winter)
Tree 3	East aspect at 3.5m. Small knothole with upward facing cavity	No	Low (summer) Low (winter)
Tree 4-1	South aspect at 4m. Small knothole with rot and cavity	No	Moderate (summer) Moderate (winter)
Tree 4-2	East aspect at 5m. Knothole with cavity	No	Moderate (summer) Moderate (winter)
Tree 4-3	East aspect at 6m. Branch fracture with rot and possible cavity	No	Low (summer) Low (winter)
Tree 5-1	West aspect at 1.5m. Old branch fracture with rot and upward facing cavity	No	Low (summer) Low (winter)
Tree 5-2	East aspect at 3m. Old branch fracture with rot and upward facing cavity	No	Low (summer) Low (winter)
Tree 6-1	South aspect at 6m. Small knothole with rot and cavity	No	Moderate (summer) Moderate (winter)
Tree 6-2	East aspect at 7m. Old branch fracture exposing inner wood with rot and possible cavity	No	Low (summer) Low (winter)
Tree 7-1	North aspect at 2.5 to 5m. Weld where to main trunks meet	No	Moderate (summer) Moderate (winter)
Tree 7-2	East aspect at 6m. Knothole with rot and cavity	No	Moderate (summer) Moderate (winter)
Tree 7-3	East aspect at 10m. Branch fracture with rot and cavity	No	Moderate (summer) Moderate (winter)
Tree 7-4	North aspect at 8m. Branch fracture with rot and cavity	No	Moderate (summer) Moderate (winter)
Tree 8-1	Northwest aspect at 5m. Branch fracture with rot and upward facing cavity	No	Low (summer) Low (winter)
Tree 8-2	North aspect at 6m. Knothole with rot and cavity	No	Low (summer) Low (winter)

Ref	Features	Evidence of bats?	Roost potential
Tree 8-3	Southwest aspect at 2m. Small knothole with rot and possible cavity.	No	Low (summer) Low (winter)
Tree 9	North aspect at 4 and 4.5m. Small knothole with rot and possible cavity	No	Low (summer) Low (winter)
Tree 10-1	West aspect at 5m. Small knothole with rot and cavity	No	Low (summer) Low (winter)
Tree 10-2	West aspect at 5.5 and 6m. Branch fracture with rot and upward facing cavity	No	Low (summer) Low (winter)
Tree 10-3	East aspect at 5m. Small knothole with rot and possible cavity.	No	Low (summer) Low (winter)
Tree 11-1	Northeast aspect at 4m. Old branch fracture with rot and cavity leading up main trunk	No	Moderate (summer) Moderate (winter)
Tree 11-2	Northwest aspect at 4m. Branch fracture with rot and upward facing cavity		Low (summer) Low (winter)
Tree 12-1	East aspect at 2m. Large knothole with cavity leading towards base and smaller cavity leading up main trunk.	No	Moderate (summer) Moderate (winter)
Tree 12-2	East aspect at 2m. Small cavity leading up main trunk	No	Moderate (summer) Moderate (winter)
Tree 13	East aspect at 3.5m. Branch fracture with possible small cavity leading up into trunk.	No	Low (summer) Low (winter)
Tree 14	South aspect at 5m. Branch fracture with rot and upward facing cavity	No	Low (summer) Low (winter)
Tree 15	Northeast aspect at 8m. Small knothole with cavity	No	Low (summer) Low (winter)
Tree 16	Northeast aspect at 7m. Branch fracture with possible rot and upward facing cavity	No	Low (summer) Low (winter)
Tree 17-1	Southwest aspect at 3m. Knothole with cavity	No	Low (summer) Low (winter)
Tree 17-2	East aspect at 7m. Small knothole with cavity.	No	Low (summer) Low (winter)

Ref	Features	Evidence of bats?	Roost potential
Tree 18	Southwest aspect at 10 and 11m. Knotholes with rot and cavity	No	Low (summer)
			Low (winter)
Tree 19-1	North aspect at 2m. Large knothole with rot and upward facing cavity	No	Moderate (summer)
			Moderate (winter)
Tree 19-2	Northwest aspect at 5m. Branch fracture with rot and possible cavity	No	Moderate (summer)
			Moderate (winter)
Tree 19-3	Northwest aspect at 6m. Large branch fracture with multiple rot holes and possible interconnected cavities	No	Moderate (summer)
			Moderate (winter)
Tree 19-4	North aspect at 8m. Branch fracture with possible rot and cavity.	No	Low (summer)
			Low (winter)
Tree 19-5	East aspect at 7m. Branch fracture with rot and cavity.	No	Low (summer)
			Low (winter)
Tree 20-1	Northwest aspect at 4m. Small knothole with cavities	No	Low (summer)
			Low (winter)
Tree 20-2	South aspect at 5 and 6m. Knotholes with cavity.	No	Low (summer)
			Low (winter)
Tree 20-3	South aspect at 7m. Branch fractures with rot and cavity	No	Low (summer)
			Low (winter)
Tree 20-4	East aspect at 4m. Small knothole with cavity.		Low (summer)
			Low (winter)
Tree 20-5	East aspect at 9m. Large branch fracture with damaged limb section with rot holes and possible interconnected cavities	No	Moderate (summer)
			Moderate (winter)
Tree 21	Northeast aspect at 4m. Two large knotholes with upward facing cavities	No	Low (summer)
			Low (winter)
Tree 22	South aspect at 5m. Long twisting branch fracture creating multiple gaps and possible upward facing central cavity	No	Low (summer)
			Low (winter)
Tree 23-1	Southwest aspect at 3 to 5m. Branch fracture has created long exposed area for rot	No	Moderate (summer)
			Moderate (winter)
Tree 23-2	Southwest aspect at 3 to 5m. Signs of rot and	No	Moderate (summer)
			Moderate (winter)

Ref	Features	Evidence of bats?	Roost potential
	cavity in inner wood at top of the fracture		
Tree 23-3	Southwest aspect at 3m. Possible small cavity at base of branch	No	Moderate (summer) Moderate (winter)
Tree 24	West aspect at 5m. Branch fracture with possible rot and cavity	No	Low (summer) Low (winter)
Tree 25-1	South aspect at 5m. Large fracture of main trunk leaving rot and upward facing	No	Moderate (summer) Moderate (winter)
Tree 25-2	South aspect at 5m. Small downward facing cavities in elongated fracture	No	Low (summer) Low (winter)
Tree 25-3	South aspect at 5m. Branch fracture with rot and cavity	No	Low (summer) Low (winter)
Tree 25-4	West aspect at 3m. Loose bark	No	Low (summer) Low (winter)
Tree 25-5	North aspect at 4m. Numerous rot holes possibly leading to interconnected cavities	No	Moderate (summer) Moderate (winter)
Tree 26-1	South aspect at 4m. Loose bark	No	Low (summer) Low (winter)
Tree 26-2	West aspect at 5m. Branch fracture with rot and cavity	No	Low (summer) Low (winter)
Tree 27	South aspect at 3m. Branch fracture with rot and cavity	No	Low (summer) Low (winter)
Tree 28	West aspect at 2.5m. Knothole with rot and cavity	No	Low (summer) Low (winter)
Tree 29	North aspect at 5m. Large knothole with rot and possible cavity	No	Low (summer) Low (winter)



Image 1. PRA ref Tree 1. Small knothole with cavity



Image 2. PRA ref Tree 2-1. Weld with possible cavity.



Image 3. PRA ref Tree 2-2. Branch fracture with rot and possible cavity.

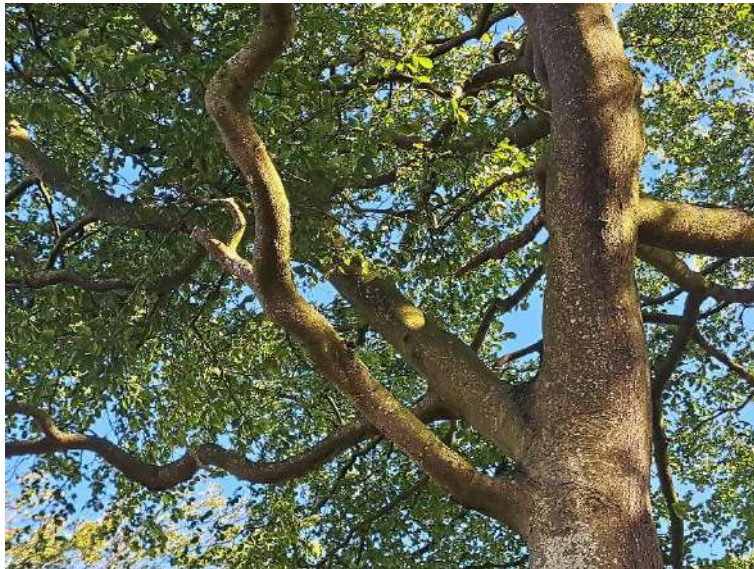


Image 4. PRA ref Tree 3. Small knothole with upward facing cavity.



Image 5. PRA ref Tree 4-1 and 4-2. Knotholes with cavity.



Image 6. PRA ref Tree 4-3. Branch fracture with rot and possible cavity.



Image 7. PRA ref Tree 5-1. Old branch fracture with upward facing cavity.



Image 8. PRA ref Tree 5-2. Branch fracture with rot and upward facing cavity.



Image 9. PRA ref Tree 6-1. Small knothole with rot and cavity.



Image 10. PRA ref Tree 6-2. Branch fracture exposing inner wood with possible rot and cavity.



Image 11. PRA ref Tree 7-1. Weld where two trunks meet.



Image 12. PRA ref Tree 7-2. Knot hole with rot and cavity.



Image 13. PRA ref Tree 7-3. Branch fracture with rot and cavity.



Image 14. PRA ref Tree 7-4. Branch fracture with rot and cavity.



Image 15. PRA ref Tree 8-1. Branch fracture with rot and upward facing cavity.



Image 16. PRA ref Tree 8-2. Knothole with rot and cavity.



Image 17. PRA ref Tree 8-3. Small knothole with rot and possible cavity.



Image 18. PRA ref Tree 9. Small knotholes with rot and possible cavity.



Image 19. PRA ref Tree 10-1. Small knothole with rot and cavity.



Image 20. PRA ref Tree 10-2. Branch fractures with rot and upward facing cavities.



Image 21. PRA ref Tree 10-3. Small knothole with rot and possible cavity.



Image 22. PRA ref Tree 11-1. Old branch fracture with rot and cavity leading up trunk.



Image 23. PRA ref Tree 11-2. Branch fracture with rot and upward facing cavity.



Image 24. PRA ref Tree 12-1 and 12-2. Large knothole with cavity leading to base and small cavity leading up main trunk.



Image 25. PRA ref Tree 13. Branch fracture with possible small cavity leading up into trunk.



Image 26. PRA ref Tree 14. Branch fracture with rot and upward facing cavity.



Image 27. PRA ref Tree 15. Small knothole with cavity.



Image 28. PRA ref Tree 16. Branch fracture with rot and cavity.



Image 29. PRA ref Tree 17-1. Knothole with cavity.



Image 30. PRA ref Tree 17-2. Small knothole with rot and cavity.



Image 31. PRA ref Tree 18. Knotholes with rot and cavity.



Image 32. PRA ref Tree 19-1. Large knothole with rot and upward facing cavity.



Image 33. PRA ref Tree 19-2. Branch fracture with rot and possible cavity.



Image 34. PRA ref Tree 19-3. Large branch fracture with rot holes and possible large cavity.



Image 35. PRA ref Tree 19-4. Branch fracture with rot and possible cavity.



Image 36. PRA ref Tree 19-5. Branch fracture with rot and cavity.



Image 37. PRA ref Tree 20-1. Small knothole with cavity.



Image 38. PRA ref Tree 20-2. Knotholes with cavity.



Image 39. PRA ref Tree 20-3. Branch fracture with rot and cavity.



Image 40. PRA ref Tree 20-4. Small knothole with cavity



Image 41. PRA ref Tree 20-5. Large branch fracture and damaged limb section with visible rot holes and possible multiple cavities.



Image 42. PRA ref Tree 21. Two large upward facing knotholes.



Image 43. PRA ref Tree 22. Long twisting branch fracture with multiple gaps.



Image 44. PRA ref Tree 23-1, 23-2 and 23-3. Elongated branch fracture with signs of rot and inner cavity with access at top and possible access from the base of the fracture as well.



Image 45. PRA ref Tree 24. Branch fracture with rot and possible cavity.



Image 46. PRA ref Tree 25-1. Large fracture of main trunk leaving rot and upward facing cavity.



Image 47. PRA ref Tree 25-2. Branch fracture with rot and possible cavity.



Image 48. PRA ref Tree 25-3. Loose bark.



Image 49. PRA ref Tree 25-4. Numerous rot holes leading to possible cavities which may be connected as larger cavity.



Image 50. PRA ref Tree 26-1. Loose bark.



Image 51. PRA ref Tree 26-2. Branch fracture with rot and cavity.



Image 52. PRA ref Tree 27. Branch fracture with rot and cavity.



Image 53. PRA ref Tree 28. Knothole with rot and cavity.

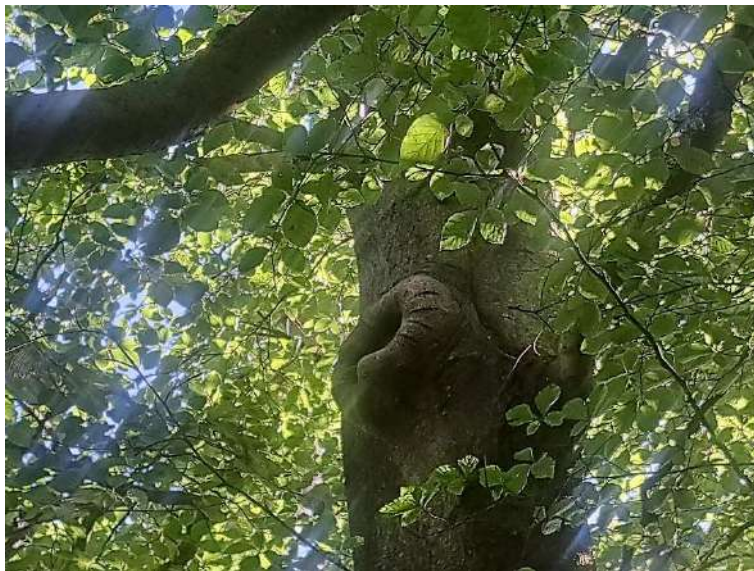


Image 54. PRA ref Tree 29. Large knothole with rot and possible cavity.

Appendix D: Legislation

European Union (Withdrawal Agreement) Act (2020)

The European Union Withdrawal Act sets out the legislative procedure that the UK will follow until a withdrawal agreement with the European Council has been reached. In respect of protected species and Sites, the legislation as set out below remains enacted as it stands until amended.

Bern Convention (1982)

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the Convention and regulate the exploitation of species listed in Appendix 3. The regulation imposes legal obligations on participating countries to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the EC Birds Directive (1979) and the EC Habitats Directive (1992). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985, Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species (Amendment) Regulations 2012 in England, and Wales, and via the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland. In Scotland, the Habitats Directive is transposed by The Conservation (Natural Habitats &c.) Regulations 1994, see below for details.

Birds Directive

The EC Directive on the Conservation of Wild Birds (79/409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

The Conservation (Natural Habitats, &c.) Regulations (1994) as amended in Scotland (EPS)

The Habitats Regulations 1994 (as amended in Scotland) implement the species protection requirements of the European Directive 92/43/EEC on the conservation of natural habitats (the Habitats Directive) in Scotland on land and inshore waters (0-12 nautical miles). Following a European Court of Justice ruling against the UK Member State in 2005, there have been several amendments to the Regulations which apply only to Scotland (made in 2004, 2007, 2008(a) and 2008(b)).

This regulation makes it an offence to disturb European Protected Species deliberately or recklessly. Their places of shelter are fully protected, and it is an offence to damage, destroy or obstruct access to or otherwise deny the animal use of a breeding site or resting place, whether deliberate or not. It is also an offence to disturb in a manner that is likely to significantly affect the local distribution or abundance of the species; impair its ability to survive, breed or reproduce or rear its young.

Wildlife and Countryside Act (EU Exit) (1981) and Nature Conservation (Scotland) Act (2004) (WCA-Sch*)

The Wildlife and Countryside Act (1981) is the main piece of legislation pertaining to biodiversity in the UK and forms the basis for most of the other wildlife and biodiversity legislation that has come into being over recent years. In Scotland, it was updated in 2004 by the Nature Conservation (Scotland) Act. The W&C Act makes it an offence to intentionally:

- kill, injure, or take any wild animal or bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built;
- take or destroy an egg of any wild bird;

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;
- interfere with places used for shelter or protection by a wild animal;
- intentionally disturb animals occupying such places;
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

A provision is made within the Act for the granting of licences that allow above actions to be made legal in certain situations. Finally, the Act makes it an offence to intentionally:

- pick, uproot or destroy any wild plant listed in Schedule 8; or any seed or spore attached to any such wild plant unless authorised;
- uproot any wild plant not included in Schedule 8,
- sell, offer, or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Part 14 of the Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9.

The Nature Conservation (Scotland) Act (2004) strengthens the above legislation by including reckless” acts, which means that in Scotland, not knowing about the above is not a permissible defence for committing an illegal act. This Act also strengthens the designated sites legislation by enhancing the protection for SSSIs and puts a Biodiversity Duty on every public body.

Nature Conservation (Scotland) Act 2004

The Act places duties on public bodies in relation to the conservation of biodiversity, increases protection for SSSI, amends legislation on Nature Conservation Orders, provides for Land Management Orders for SSSIs and associated land, strengthens wildlife enforcement legislation, and requires the

preparation of a Scottish Fossil Code and a Scottish Marine Wildlife Watching Code. It also amends the legislation for protected species, introducing new conditions to the 'incidental results of a lawful operation' defence for all wild birds and certain species of animal and plant.

The Act places a duty on every public body to further the conservation of biodiversity consistent with the proper exercise of their functions.

It also requires Scottish Ministers to designate one or more strategies for the conservation of biodiversity as the Scottish Biodiversity Strategy, and to publish lists of species of flora and fauna and habitats of principal importance.

Wildlife and Natural Environment (Scotland) Act 2011

This Act has brought in new provisions governing the introduction of non-native species in Scotland. Non-native species (those plants and animals which have found their way to a new habitat through human activity) can be harmful to our environment. Some non-native species may become invasive, damaging, or displacing native species.

The Protection of Badgers Act (1992)

The Protection of Badgers Act 1992 (as amended by the Nature Conservation (Scotland) Act 2004) comprehensively protects badgers and their setts. Offences under the act include killing, injuring, or taking a badger, or to damage, destroy or obstruct setts or to disturb badgers in a sett. Licences are available for specific purposes, including development, to allow some of these actions to be carried out legally.

Scottish Biodiversity List (SBL)

The Scottish Biodiversity List is a list of animals, plants, and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. The Scottish Biodiversity List was published in 2005 to satisfy the requirement under Section C Appendix C - Legislation 2(4) of The Nature Conservation (Scotland) Act 2004.

The purpose of the list is to help public bodies carry out their Biodiversity Duty by identifying the species and habitats which are the highest priority for biodiversity conservation in Scotland. The Scottish Biodiversity List has been updated to take account of changes to the UKBAP priorities list.