



Preliminary Ecological Appraisal



**Land off High Street
Kingsley, Staffordshire.
ST10 2AE**

March 2022

- **Notice to readers**

This report has been prepared by Charnia Ecology with all reasonable skill, care and diligence, within the terms of the contract with the client. The actions of the surveyor on site and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management (www.ieem.org.uk).

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Client:
Mr. John Matthews Creative Interiors 6 Portland Road Longton Stoke on Trent ST31EW
Application area:
Land off High Street, Kingsley, Staffordshire. ST10 2AE NGR: SK011469
Issue No:
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Author:
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- **Surveyor capability**

Ecological assessment and report preparation have been conducted by a qualified ecologist and member of the Royal Society of Biology (AMRSB). The ecologist holds a First-Class Honours degree in Conservation Biology, and a Vice Chancellors award for academic excellence. He has undertaken protected species surveys for over ten years, and is actively involved in scoping, presence/absence surveys, and Natural England licence applications with regard to planning and the law. The actions of the surveyor on site and during the production of written reports are undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management (CIEEM).

Non-technical summary

1. A revised Preliminary Ecological Appraisal (PEA) was conducted on behalf of Mr. John Matthews in relation to a proposed development on a plot of land off High Street, Kingsley, Staffordshire, ST10 2AE White Lodge Field. The site was initially assessed by Charnia Ecology on 4th November 2014, and reassessed on March 16th 2022.
2. Considered as being a small-scale development (ca. 0.4ha), the proposed application intends to build a single, new residential dwelling with associated hard standing and landscaped gardens. This will include a degree of levelling-off the grassland land area, and removal of selected immature sycamore trees along the east boundary to accommodate the proposed structure. Access onto site will utilise the existing hard-standing track, gained via the main A52 road to the south of the site.

Designated sites

3. The application area falls within a SSSI Impact Risk Zone, albeit based on a small-scale development, no impact to any designated conservation sites in the surrounding area is predicted under the proposed scheme.

Flora

4. The dominant habitat community recorded onsite was that of species-poor, semi-improved grassland, with existing hard-standing and discontinuous hedgerow and scattered scrub to selected boundaries.
5. The grassland area would appear to have undergone recent clearance and partial excavation since 2014, with exposed bare ground present in the central region. The habitat(s) onsite were not however considered as being unique within the context of the surrounding landscape during 2014 survey, and of low conservation value overall.
6. No major impact to any species of flora and/or vegetation communities currently supported by legislative protection is considered. Negligible fragmentation and loss of spatial connectivity to terrestrial habitats in the wider landscape is considered.
7. There are no Tree Preservation Orders (TPO's) onsite. No invasive species were recorded during the assessment, and no further recommendations are given. Location of any additional drainage and soakaways should ideally be contained within the proposed development area boundary where possible, otherwise, further ecological assessment may be necessary.

Fauna

8. In absence of mitigation, no impact to terrestrial based, protected amphibians; bats; invertebrates; reptiles; water vole & otter is predicted under the proposed scheme.
9. The proposed application provides limited Valuable Ecological Receptors (VERs) for wildlife in general, other than individual nesting, passerine birds, which are considered as being both common and widespread, and potentially small mammals and general amphibians around the eastern hedgerow boundary.

10. Nesting birds may occur within the eastern hedgerow boundary and trees during the bird breeding season (March to August inclusive). Should any active bird nests be found during works, then these should be left undisturbed until offspring have fully fledged. If necessary, and exclusion work zone of 5m should be adopted to reduce disturbance and minimize potential displacement of nesting birds.

Biodiversity Net Gains

11. Given the limited core size of the extant land parcel (ca. 0.3ha) and its existing value (being of low distinctiveness and in poor condition with bare ground), the proposed development will result in only minor Net loss of biodiversity,
12. At this juncture, a number of biodiversity enhancement recommendations are provided within this report, with regard to creation of a small amenity garden lawn to the rear of the new dwelling (ca. 160m²) [Section 21-24], a proposed newly planted vegetation / hedgerow buffer on the northern boundary (adjacent to footpath), and installation of bat, bird and insect boxes on site [Section 25-27]. There is limited scope to provide any additional biodiversity enhancements onsite, with no land available to off-set should the LPA deem necessary.
13. The use of any additional artificial lighting post-development should follow the protocols outlined in the Institute for Lighting Engineers document "Guidance for the Reduction of Obtrusive Lighting" (2005) [GN01:2011] and also the Bat Conservation Trust's "Artificial Lighting and Wildlife Interim Guidance" [See Section 102-105].



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1. INTRODUCTION

1. A revised Preliminary Ecological Appraisal (PEA) was conducted on behalf of Mr. John Matthews in relation to a proposed development on a plot of land off High Street, Kingsley, Staffordshire, ST10 2AE White Lodge Field. The site was initially assessed by Charnia Ecology in 2014.
2. The aims and objectives of this report is to provide a revised baseline audit and assessment of vegetation communities and habitats onsite, and to inform of any potential changes / impacts concerning protected flora and fauna, in-order that proposed works complies to current National Planning Policy Framework (NPPF) and UK Legislation.
3. A daytime walkover survey of the proposed site was conducted on 16th March 2022 by an experienced ecologist. This report is written in accordance to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Practice



Figure 1. Location of proposed development area (red star) in context to the wider landscape (source:OS Maps).

• ***Site description***

4. The land proposed for development is located in the village of Kingsley off the A52 Stoke-on-Trent to Ashbourne Road. The proposed planning application considers the development of a residential dwelling on a small plot of disturbed, species-poor semi-improved grassland located immediately off the main High Street of Kingsley village. The land sits between existing residential dwellings to the east and west, and includes an existing access track.
5. The gross land-holding to boundaries can be considered relatively small, being ca. 0.0924 ha in overall size. The main area proposed for a new dwelling equates to ca. 0.0558 ha which currently slopes on an east to west hade, which was found to be partially dug out since last being surveyed in 2014.

6. In context to the wider landscape the application area is set within a linear village conurbation of residential dwellings which in-turn, is surrounded by an open landscape of agricultural farmland, hedgerows and continuous blocks of ancient woodland.
7. The village settlement lies in a topography of dissected sandstone uplands and sits within a slight hollow with slopes to the south west and north east. Localised geology of coal measures and millstone grit has created a landform that gently undulates with some steep slopes. Non-calcareous stagnogley poorly drained soils create acid loamy and clayey pedology, supporting wet heath and rough grasses. The River Churnet is located ca.650, north-east and Caldon Canal ca. 80m north. A small stream flows NW to SE through centre of settlement.

- **Proposed works**

8. The proposed application intends to build a single, new residential dwelling with associated hard standing and landscaped gardens.

2. METHODOLOGY

9. In-order to identify likely significant ecological impacts upon fauna and flora within the zones of influence of the proposed development, assessment has been based on qualitative and quantitative information of baseline information gathered from 1) desk-based study and 2) Extended phase 1 baseline survey and evaluation of the ecological features.

- **Desk Study**

10. A desk-based study was undertaken to examine the development site in context to the wider landscape and changes of temporal stability that may increase the sites importance to nature conservation. Web bases resources, such as Multi-agency Geographic Information for the Countryside (MAGIC) (source: www.magic.gov.uk), Natural England (source: www.naturalengland.org.uk); National Biodiversity Network (NBN) (source: www.nbn.org.uk); UK BAP (source: www.data.nbn.org.uk), Google Earth and Ordinance survey (source: www.ordnancesurvey.co.uk) were used.
11. In order to compile background information on the site and immediate surroundings, local records regarding existing designated sites, Special Areas of Conservation (SAC), habitats, and protected and notable species within a 1km radius were requested from Staffordshire Ecological Records (SER).
12. Staffordshire Biodiversity Action Plan (BAP) was consulted to determine priority species of national or county conservation importance. The UK Biodiversity Action Plan (UK BAP) was set out to identify habitats and species on a national and regional scale that merit special consideration for protection, enhancement and expansion through all appropriate mechanisms to contribute to the conservation of global biodiversity.
13. A formal data search was requested from Staffordshire Ecological Records (SER) within a 1km radius of the application area, to further substantiate methodology and ascertain the following information:

- Extent of Sites of Biological Importance* (SBIs) and Biodiversity Alert Sites* (BASs) in the area in question.
 - A list of SBIs / BASs and other statutory and non-statutory sites of biological or geological importance, together with a list of woodlands listed on the Natural England Ancient Woodlands Inventory.
 - An annotated list of protected species within the search area, covering European and UK protected species and species occurring on the UK Biodiversity Action Plan (BAP) (short list) and Staffordshire BAP.
14. Additionally, MAGIC (Multi-Agency Geographic Information for the Countryside, 2010) was used to establish whether any of the following are present:
- Statutory site designations on or within 1 km of the site.
 - Statutory sites designated for bats within 5 km of the site.

• **Valuation of Ecological Features**

15. The value of areas of habitat and plant communities has been measured against published criteria where available. Biodiversity Action Plans (BAPs) have been searched to identify whether action has been taken to protect all areas of a particular habitat and to identify current factors causing the loss and decline of particular habitats. The presence of injurious and legally controlled weeds has also been considered.
16. When assigning a level of value to a species, its distribution and status (including a consideration of trends based on available historic records) has been considered. Other factors influencing the value of a species are legal protection, rarity and Species Action Plans (SAPs). Guidance, where it is available, for the identification of populations of sufficient size for them to be of national or international importance has also been considered. Habitats were mapped based on the extended Phase 1 habitat survey guidelines (JNCC 2010), and target noted where relevant.

• **Nomenclature**

17. The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. Vascular plants and charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2011), with all other flora and fauna following the Nameserver facility of the National Biodiversity Network Species Dictionary (<http://www.nhm.ac.uk/nbn/>), which is managed by the Natural History Museum.

• **Field survey**

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Phase 1 & NVC – Sub optimal survey			Phase 1 & NVC –Optimal survey period						Phase 1 & NVC – Sub optimal survey		

18. Whilst Preliminary Ecological Appraisal (PEA) surveys can be conducted all year round, the optimum time for undertaking such surveys is between April and September, due to seasonal cessation of vegetation.

19. Scoping of baseline conditions on-site is considered a crucial stage of ecological impact evaluation (Wood *et al.* 2006) to ensure the widest possible input to the definition and refinement of the Terms of Reference (TOR). Baseline ecological assessment of the Valued Ecological Receptors (VER) and Zones of Influence (Zoi) were determined, using a combination of desk-based study and field survey consistent with current standard methodologies.
20. All field surveys were carried out by an experienced ecologist to Natural England protected species guidelines, Institute of Ecology and Environmental Management (CIEEM) guidance on survey methodology (CIEEM 2005) and BS 5837 standard (trees) (ODPM 2000). Assessment of habitats types was carried out in accordance with Joint Nature Conservation Committee (JNCC, 2003) survey methodology.

FLORA

21. The observable higher plant species in each habitat type within the site, and their abundance, were recorded using the DAFOR scale: **D** [Dominant]; **A** [Abundant]; **F** [Frequent]; **O** [Occasional]; **R** [Rare].
22. Each habitat has been colour coded in accordance to survey methodology and shown in the Extended Phase 1 Habitat Map. Baseline target notes (TN) have been assigned alongside the description of compartments and habitats.

FAUNA

- **Amphibians / Great crested newt** *(protected status EPS, WCA, UKBAP, LBAP)*

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Hibernation		Peak surveying period for adults / terrestrial & egg survey (April-May = Optimal) Larvae searches (mid-May = Optimal)				Habitat and larvae survey (Sub-optimal)		Habitat survey (Sub-optimal)		Hibernation	

23. Great Crested Newt (GCN) *Triturus cristatus* is a protected species under the Wildlife and Countryside Act 1981 (as amended) (Natural Habitats Regulations 1994). Great crested newt is a priority UKBAP species and targets are given to maintain geographical range and viability of existing *T. cristatus*.
24. Under current legislation, it is illegal to Intentionally kill, injure, or capture great crested newts or their young; (this includes the eggs of great crested newts). Furthermore, it is illegal to intentionally or recklessly damage, destroy or obstruct access to areas used by great crested newts for shelter.
25. Based on the scale of the development, any water-bodies located in a 250m radius were assessed (where accessible) on their suitability of supporting newt populations using the Habitat Suitability Index HSI (Oldham *et al.* 2000) and calculator (Crawshaw, 2015).

HSI Pond suitability Index score rating	
< 0.5 = poor	0.67 – 0.79 = good
0.5 – 0.59 = below average	>0.8 = excellent
0.6 – 0.69 = average	

Table 1. Habitat Suitability Index HSI (Oldham *et al.* 2000).

26. Common frogs are listed in Annex V of the Habitats Directive, and common frogs, common toads and smooth newts are listed under Schedule 5 of the WCA 1981 (as amended) and protected under section 9(5) only.

(protected status WCA)

(protected status EPS, WCA, UKBAP, LBAP)

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Inspection of Hibernation roosts- semi optimal survey			Limited activity-sub optimal	Summer roost emergence & re-entry surveys - Optimal survey period					Limited activity -sub optimal	Hibernation roosts - semi optimal survey	
Internal roost surveys are possible / Trees are best surveyed during Winter											

31. All species of bats are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats etc.) Regulations 1994 and the Countryside and Rights of Way Act 2000.]
32. This legislation makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

33. Bats are considered as being an indicator species of biodiversity and ecosystem quality. If bats are found to be present on the application area, then a European Protected Species (EPS) development license issued by Natural England (NE) may be required prior to any development. If required, further presence/absence survey should be undertaken and a mitigation strategy be implemented with Natural England and the Local Planning Authority.
34. Unlike many smaller mammals, bats have low fecundity with a long and complex life cycle which is played out over a large spatial landscape. Bats need different roosting conditions at different times of the year and they will often move around to find a roost that meets their needs i.e. hibernacula, maternity, bachelor, satellite roosts and feeding perches. Bats are highly social animals and loss of a single habitat alone can have a serious impact on populations.
35. Potential Roost assessment is based on the location of trees/structures in the surrounding landscape. For example; an immature tree species in an area of high-level disturbance is likely to provide few opportunities for roosting bats. Conversely, a mature tree forming part of a continuous, linear habitat would have high potential for commuting and roosting bats.

• **Birds**

(protected status WCA, UKBAP, LBAP)

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Winter species (Optimal)		Breeding birds / Migrant species (Optimal)		Breeding birds (Optimal)		Low activity (Sub-optimal)		Migrant species (Optimal)		Winter birds (Optimal)	

36. All common wild birds are protected under The Wildlife and Countryside Act 1981 (and as amended). Under this legislation it is an offence to:
- Kill, injure or take any wild bird.
 - Take, damage or destroy the nest of any wild bird while it is in use or being built.
 - Take or destroy the egg of any wild bird.
37. In addition to statutory protection, some species are classified according to their status on Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK; and whether they have been identified as UKBAP Priority Species and /or Staffordshire LBAPs.
38. A bird scoping survey was undertaken to identify the presence and distribution of birds on the site, evaluate the importance of local bird populations and the conservation importance of the site in context to the wider landscape.

• **Reptiles**

(protected status WCA)

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Hibernation		Peak surveying period (Optimal)				Reduced / Low activity (Sub-optimal)		Peak survey (Optimal)	Low activity (Sub-optimal)	Hibernation	

39. Grass snake *Natrix natrix*, adder *Vipera berus*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* are partially protected via their listing on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
40. The habitats on site were assessed for their variance in structure, the availability of basking sites, breeding, foraging and hibernacula potential as outlined in the Herpetofauna Workers Manual (Gent and Gibson 1998).

• **Otter and Water vole**

(protected status EPS, WCA, UKBAP, LBAP)

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Otter	Limited by vegetation cover and weather conditions rather than seasons											
Water vole	Low activity Initial habitat		Habitat and field signs / activity surveys May be limited by vegetation cover and weather								Initial habitat Low activity	

41. Otter *Lutra lutra* and Water Vole *Arvicola amphibious* are both listed in Schedule 5 of The Wildlife and Countryside Act 1981 and as such receive protection under Section 9 of this Act. This has been amended several times, most recently by the Countryside and Rights of Way Act 2000, which added 'or recklessly' to Section 9(4) (a) and (b).
42. In summary, it is a criminal offence to:
- intentionally kill, injure or take a wild Water Vole or Otter;
 - be in possession of, or control, any live or dead wild Water Vole or Otter or part of, or anything derived from a wild Water Vole or Otter;
 - intentionally or recklessly damage, destroy or obstruct access to any place that a wild Water Vole or Otter uses for shelter or protection;
 - intentionally or recklessly disturb any wild Water Vole or Otter whilst it is occupying a structure or place that it uses for shelter or protection;
 - transport for sale or exchange, or offer for sale or exchange a live or dead Water Vole or Otter or any part of a Water Vole or Otter.
43. Water Vole is the subject of a Priority Species Action Plan under the UK Biodiversity Action Plan (UKBAP), due to significant declines in recent decades. These declines largely result from habitat loss and degradation, population fragmentation and predation by American Mink *Neovison vison*.

3. LEGISLATION

44. The United Kingdom Biodiversity Action Plan (BAP) 1994 sets out a strategy for implementing the Convention on Biological Diversity, which was signed by the United Kingdom at the Rio de Janeiro Earth Summit in 1992. The published report contains action plans for the United Kingdom's most threatened species and habitat plans for the most vulnerable areas.
45. The Local BAP sets out the county's part in the UK biodiversity planning process, in the form of local habitat and species action plans. Local BAPs are intended to focus resources, to conserve and enhance biodiversity, by taking account of national and local priorities.
46. Schedule 1 Part 1 of The Wildlife and Countryside Act 1981 (and amendments) lists birds protected by special penalties at all times. It prohibits intentional killing/injuring, taking, possessing, disturbing and selling (including parts and derivatives, eggs, nests, etc. As applicable) as well as damaging, destroying or disturbing nests in current use or dependent young, etc.
47. Schedule 5 of The Wildlife and Countryside Act 1981 (and amendments) prohibits deliberate killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing any structure or place of refuge of listed fauna, such as dormouse, otter and bat species.

48. The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is illegal to kill, disturb, destroy eggs, breeding sites or resting places, to pick, collect, take cuttings, uproot or destroy in the wild as well as keep, transport, sell/exchange and offer for sale/exchange species listed.
49. The Countryside and Rights of Way Act 2000 increases the protection given by The Wildlife and Countryside Act 1981 (and amendments). The offence to intentionally damage any structure or place that a wild animal listed in Schedule 5 of the Act uses for shelter or protection or deliberately disturbing any such animal while in such a structure or place is extended so that the offence also covers reckless damage / disturbance. The CRoW Act places a duty on Ministers and Government Departments to have regard for the purpose of conserving biological diversity in accordance with the Convention on Biological Diversity.
50. The Natural Environment and Rural Communities Act 2006, as well as creating Natural England, gives all public authorities the duty to have regard for conserving biodiversity within the commission of their duties. This includes a duty to restore and enhance as well as maintain biodiversity. The act also strengthens protection for Sites of Special Scientific Interest (SSSI) and makes authorities liable for allowing damage to such sites or their features.

- **Planning Policy**

51. As defined in Planning Policy Statement 9 (ODPM, 2005) (now superseded by the National Planning Policy Framework (NPPF, 2012 revised 2018), Biodiversity and Geological Conservation sites of biodiversity conservation value and protected species are material considerations in the planning process. In March 2012, the National Planning Policy Framework (NPPF) was published and replaces the previous detailed Planning Policy Statement 9 (PPS9) although the guidance document 'Planning for Biodiversity and Geological Conservation: A Guide to Good Practice' ODPM 06/2005 has not been replaced by the Framework.
52. The NPPF promotes plan-making and decision-taking with a presumption in favour of sustainable development. In terms of biodiversity, sustainable development should not only achieve no net loss of biodiversity but incorporate proposals that achieve net gains for nature alongside the other social and economic needs of society.
53. Protected sites and species are a material consideration in determining planning applications, therefore all information relating to protected sites and species must be submitted with planning submissions for determination of the whole application. The NPPF promotes the approval of plans where applications can demonstrate that they are in accordance with up-to-date Local Plans and have addressed material considerations. Part of the NPPF core strategy aims to ensure "development where appropriate produces a net gain in biodiversity, and ensuring that any unavoidable impacts are appropriately mitigated for".

4. RESULTS

• **Designated sites**

54. The settlement of Kingsley is contained by Area Green Belt 64 Potteries and Churnet Valley & Special Landscape and as part of the Staffordshire Moorlands Core Strategy, 2014; The Churnet Valley Master Plan, 2014. There are a number of Statutory designated conservation sites and non-statutory Local Wildlife Sites (LWS), Sites of Biological Interest (SBI's) and Retained Biodiversity Alert Site (BAS) including UK BAP habitats located within a 1-2km radius.

Table 2. STATUTORY DESIGNATIONS		
SK031479	Harston Wood	SSSI
SK002489	Churnet Valley	SSSI
SK002489	Churnet Valley	SSSI
SK002489	Churnet Valley	SSSI
SK002489	Churnet Valley	SSSI
SK023469	Froghall Meadow and Pastures	SSSI
SK023469	Froghall Meadow and Pastures	SSSI
SK023469	Froghall Meadow and Pastures	SSSI
SK023469	Froghall Meadow and Pastures	SSSI
SK037461	Whiston Eaves	SSSI
SK037461	Whiston Eaves	SSSI
SK031479	Harston Wood	SSSI

Table 3. NON-STATUTORY DESIGNATIONS			
SK009478	Hazlescraze (east of)	LWS	A well-grown holly hedge on the north side of the road.
SK015461	Adams Hollow	Retained BAS	A very narrow stream valley, for most of its length the banks of the stream are wooded. At the north-western end the trees are more or less confined to a single line beside the stream and near the access track across the stream are rather intermittent.
SK014475	Bank Sprink	Retained BAS	A woodland of mainly deciduous trees that form the canopy. However, by far the most abundant is sycamore; areas of the wood contain either silver birch, beech or scots-pine, whilst larch, ash and oak are only minor components of this woodland layer.
SK016477	Coldley Banks	LWS	Small marsh near to River Churnet.
SK017491	Newhouse Wood (part of)	LWS	A small linear ash woodland is on a steep slope with a stream running centrally through. There are lesser contributions from pedunculate oak and silver birch; sycamore provides a localized stand.
SK025458	Gorse Wood	LWS	Wooded valley with sycamore and oak.
SK029456	Lockwood Pasture	LWS	Species rich meadow adjacent to River Churnet. Apparently fertilized at some time, lush growth of grasses. Wet flushes thought to be at same site, but perhaps in field to south (SK 029 456).
SK026465	Whiston Bridge (west of)	LWS	Deciduous woodland at the top of the slope, grazed by cattle.
SK027460	Kingsley Holt (east of)	LWS	A small beech woodland with two streams running through, with a field to the south that contains neutral grassland.
SK027471	Froghall Bridge (east of)	LWS	A complex of several Ancient Woodlands together with two semi-improved neutral fields and a small area of unimproved grassland.
SK027475	Harston Hill, Froghall Wharf	LWS	A steep moderately grazed meadow with scattered scrub around the edge. A wet flush occurs on the southern side of the meadow.
SK028479	Fernylee Farm (south of)	LWS	A gently sloping field with some terracing of the slope. The field exhibits banding and variation in the quality of the grassland, with the slopes holding high quality and species rich habitat.
SK022487	Massey's Wood (south-west of)	LWS	Species-rich semi-improved neutral grassland with some floral interest, together with a small area of marshy grassland in a hollow at the bottom of the field. The field is currently grazed by cattle.
SK026480	Fox Wood	LWS	A mixed broad-leaved woodland dominated by birch with occasional oak, ash and a single yew. Alder occurs in the damper regions. Additionally, there is an area of semi-improved neutral grassland, with a rank sward - Yorkshire-fog and rye-grass dominate.
SK026481	Fox Wood (north of)	LWS	An area of birch woodland on the steepest part of the slope in the centre of the site, with some areas of bracken in the lowest-lying part of the field. On the edge, on wetter soils is a marshy grassland community.
SK029489	Whieldon's Wood	LWS	An area of mixed broadleaved woodland with planted larch of various ages. Two coppiced examples of small-leaved lime were noted on the stream bank.
SK022493	Mosey Moor Wood (north of)	LWS	An Ancient Woodland Inventory (AWI) site on a steep sided valley containing a good assemblage of ancient woodland indicator species and a man-made pool.
SK033456	Jackson Wood	LWS	A Lowland Mixed Deciduous Ancient Woodland, south-east has a mixed canopy of pedunculate oak and silver birch with ash and sycamore. The central block is secondary

			woodland of dense leggy birch with occasional oak and a stand of sycamore.
SK036454	Little Eaves Farm (south-west of)	LWS	A variety of habitats including wet woodland, acidic grassland, unimproved neutral grassland and marshy grassland. The site is steeply sloping in parts. Most of the botanical interest is to be found in these sloping agriculturally unimproved areas.
SK030463	Tank Wood	LWS	Birch woodland with oak, sycamore and ash.
SK037461	Ashbourne Hey	LWS	A selection of semi-natural habitats of ecological significance due to their increasingly scarcity within the County. Of particular note are broad-leaved woodland, wet woodland, unimproved pasture and traditionally managed hay meadows.
SK036472	Whistonbrook	LWS	A small field enclosed by dry stone walls with a diverse sward which is composed of a mix of grasses including common bent, sheep's fescue and some quaking grass with a range of broad-leaved herbs.
SK037482	Foxt Banks	LWS	A damp grassland with scattered scrub and mature trees.
SK030494	Park Farm (south of)	LWS	Gently sloping fields on the upper reaches of the Churnet Valley dominated by semi-improved neutral grassland with some semi-improved acidic grassland. In parts the sward is to be representative of species rich MG5 grassland.
SK041471	Whiston Hall	LWS	A Golf course with dry heath/acid grassland mosaic and acid grassland. Part of the site was a former quarry and sandstone outcrops are a remnant of this.
SK041480	Oldridge Farm (south-east of)	LWS	A narrow linear strip of terraced slopes, which support an assemblage of species indicative of semi-improved acidic grassland. Small pockets of vegetation perhaps classifiable as dwarf shrub/acid grassland are scattered throughout.

55. Subsequently the small-scale development falls within a SSSI Impact Risk Zone, albeit no impact to designated sites is predicted under the proposed scheme.
56. A number of sites also occur within a 1-2km radius that are listed under the Staffordshire Ancient Woodland Inventory:

Table 4. AWI SITES		
SK0352845922	Ashbourne hey	Ancient & Semi-Natural Woodland
SK0369446293	Ashbourne hey	Ancient & Semi-Natural Woodland
SK0338045625	Ashbourne hey	Ancient Replanted Woodland
SK0149747653	Bank sprink	Ancient & Semi-Natural Woodland
SK0044249028	Crowgutter and Booth`s woods	Ancient & Semi-Natural Woodland
SK0336947808	Harston Wood	Ancient & Semi-Natural Woodland
SK0066048117	Hazles Wood	Ancient & Semi-Natural Woodland
SK0275445417	Lock Wood and Lockwood waste	Ancient & Semi-Natural Woodland
SK0234049305	Moseymoor Wood	Ancient & Semi-Natural Woodland
SK0251047634	Moseymoor Wood	Ancient & Semi-Natural Woodland
SK0242447857	Moseymoor Wood	Ancient & Semi-Natural Woodland
SK0303348904	Moseymoor Wood	Ancient & Semi-Natural Woodland
SK0249047556	Moseymoor Wood	Ancient Replanted Woodland
SK0249647694	Moseymoor Wood	Ancient Replanted Woodland
SK0241948096	Moseymoor Wood	Ancient Replanted Woodland
SK0236648547	Moseymoor Wood	Ancient Replanted Woodland
SK0272148504	Moseymoor Wood	Ancient Replanted Woodland
SK0196247780	Ruelow Wood	Ancient & Semi-Natural Woodland
SK0169847896	Ruelow Wood	Ancient & Semi-Natural Woodland
SK0191147781	Ruelow Wood	Ancient & Semi-Natural Woodland
SK0157348381	Ruelow Wood	Ancient & Semi-Natural Woodland
SK0157248703	Ruelow Wood	Ancient & Semi-Natural Woodland
SK0163747869	Ruelow Wood	Ancient Replanted Woodland
SK0191947799	Ruelow Wood	Ancient Replanted Woodland
SK0163548250	Ruelow Wood	Ancient Replanted Woodland
SK0406848404	Shirley Hollow	Ancient & Semi-Natural Woodland
SK0275847205	Straight Hills Wood	Ancient & Semi-Natural Woodland

FLORA



Figure 2. Proposed development area and boundary (red).

57. Staffordshire Ecological data show fourteen records of Common Bluebell *Hyacinthoides non-scripta* recorded in a 1km radius and was noted as adjacent to a public footpath against the northern boundary to the site. This species is protected through general provisions in the Wildlife and Countryside 1981, which make it illegal to intentionally uproot a wild plant.

Table 5. PROTECTED FLORA RECORDED IN A 2KM RADIUS		
Bluebell <i>Hyacinthoides non-scripta</i>		
Froghall Meadow and Pastures (1196m)	Hazles Wood (1430m)	Waste Wood (1278m)
Churnet Valley: Booth's Wood (1707m)	Bank Sprink (670m)	Lockwood Hollow (1430m)
Banks Lane: Hazlescros (921m)	Newhouse Wood (1991m)	Gorsey Wood, Churnet Valley (1738m)
Riddings Farm Meadows (1305m)	Adams Hollow (893m)	Whiston Bridge (west of) (1548m)
Blundred Banks, Froghall (1200m)	Banktop Wood (1548m)	Foxt Wood (1856m)
Hag Wood, Churnet Valley (1742m)	Ochre Wood (1595m)	Froghall Wharf (1794m)
Straighthills Wood (1721m)	Tank Wood (1987m)	Churnet Valley SSSI (2407m)

- ***(B6) Semi-improved lowland grassland + bare ground***

58. The dominant habitat community recorded onsite in 2014 was that of species-poor semi-improved grassland sloping from east to west (ca. 92m² in coverage), with little to no sward evident. The area was dominated by scrub vegetation, comprising chiefly of bramble *Rubus fruticosus* with a short section of hawthorn hedgerow *Crataegus monogyna* present along the NE boundary.
59. Occasional species of Dandelion *Taraxacum officinale*, Broad-leaved Dock *Rumex obtusifolius*, Common nettle *Urtica dioica*, Greater Plantain *Plantago major*, ground ivy *Hedera helix*, Prickly sowthistle *Sonchus asper*, Herb Robert *Geranium robertianum*; thistle; Genus *Cirsium*; Ribwort plantain *Plantago lanceolata* L.; and White Clover *Trifolium repens* were noted around margins.

60. Since being surveyed in 2014, the site has been subject to some preliminary clearance and earth excavations, and considered as being of relatively low conservation and core size value. No significant impact to notable vegetation communities of conservation concern was considered in 2014 and 2022.

The proposed application as recorded in 2014



Figure 3. Looking north-east across grassland area



Figure 4. Looking north-west across grassland area.



Figure 5. Looking south-west across grassland area.



Figure 6. Looking south-east across grassland area.

The proposed application area revisited in March 2022



Figure 7. Looking north-east.



Figure 8. Looking south-east.

• (J2) Boundaries

61. The site is bordered by species-poor hedgerows and scattered scrub along the eastern slope boundary with pioneering Sycamore saplings *Acer pseudoplatanus*, Hawthorn *C. monogyna*, Blackthorn *Prunus spinosa* and Bramble *R. fruticosus* present.

63. The hedgerow was seen to be non-continuous and gappy, with a general thickness of 1.5m, and maintained to height of up to 1m. The boundary to the north is open, and immediately abuts onto a public footpath running east to west.



Figure 9. Footpath adjacent to northern boundary.

64. Whilst the survey period was considered to be sub-optimal, based on field survey assessment of regional habitats and local biological data records, revised 2022 assessment corroborates with that of 2014 findings, whereby the habitats onsite are not considered as being unique within context to the wider landscape, being considered common and species poor overall.
65. The strip of hedgerow can be considered the most ecologically valuable habitat onsite providing low to moderate potential for nesting Passerine birds, that utilize scrubland areas. The hedgerow is discontinuous and provides low potential as a wildlife corridor and refugia for terrestrial species.

FAUNA

• ***Amphibians***

NEGLECTABLE IMPACT PREDICTED

66. SER data provide four records of Great Crested Newt in two ponds ca. 950m east of the proposed development area, at Alfa Aggregates Works, Kingsley between 2006 and 2008. Other than a small stream channel of Kingsley Brook to the south-west, there are no water-bodies situated within a 500m radius of the proposed development footprint.
67. The site is considered as being of low ecological value for GCN overall, with negligible habitat and refugia potential recorded. Furthermore, the application area does not intervene between any surrounding water-bodies and migration corridors for the metapopulation ecology of this species. The presence of GCN in the impact zone is considered unlikely and no further survey recommendations are considered for this species.
-

70. **Bats****NEGLECTABLE IMPACT PREDICTED**

Pre-survey data show 11 out of the 17 British bat species are recorded within the region and are listed in the Biodiversity Steering Group Report Volume 2 (Action Plans). Seven of these resident UK bat species are currently given UK BAP (2007) status. SER provide four records of UKBAP bat species (including Leisler's bat), and four/five non-UK BAP bat species within a 2km radius of the site (see also Appendix):

UKBAP	Common name	Species	Recorded within <1km
☒	Brown long-eared bat	<i>Plecotus auritus</i>	☒
☒	Barbastelle bat	<i>Barbastella barbastellus</i>	☒
☒	Bechstein's bat	<i>Myotis bechsteinii</i>	☒
☒	Noctule	<i>Nyctalus noctula</i>	☒
☒	Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>	☒
☒	Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	☒
	Leisler's bat	<i>Nyctalus leisleri</i>	
☒	Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	

Table 6. UKBAP Bat species recorded in 2km radius.

71. SER data show a further four/five bat species that are not currently given UK BAP consideration present within a 1km radius of the site.

Non-UK BAP	Common name	Species	Recorded within 2km
☒	Natterer's bat	<i>Myotis Nattereri</i>	☒
☒	Daubenton's bat	<i>Myotis daubentonii</i>	☒
☒	Whiskered/ brandt bat	<i>Myotis mystacinus/brandtii</i>	☒
☒	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	☒

Table 7. Non UKBAP Bat species recorded in 2km radius.

72. SER provide no evidence of any notable bat roosts of conservation concern within the proposed application area itself, or within the immediate zone of Impact of the development. SER data shows a number of recent, historic records of roosting bats at the former Bolton's Copper Works ca. 1.2km due north-east (prior to its demolition). This included large breeding colonies of common pipistrelle (N183 / 2014), and smaller colonies of brown long-eared bat (N37 / 2014), noctule (N22 / 2014) Roosting Leisler's bat (N2 / 2014) were also recorded onsite.
73. There are no structures present within the proposed application area considered suitable for roosting bats, or within the zone of influence of the development. A number of semi-mature / mature trees were inspected in the former quarry open-cast wood area bordering the northern boundary, with no evidence of suitable roosting features recorded.
74. Whilst the land may be transiently used by foraging and commuting bats, it is considered that there is more preferable habitat in the wider landscape. There is some potential that neighbouring buildings may provide suitable features for roosting bats. Conversely and due to the scale of the proposed development (i.e. a single, residential dwelling), no long-term impact to potential bat roosts within the zone of influence is considered, and no further recommendations are made.

• **Birds**

NEGLEGIBLE TO LOW IMPACT PREDICTED

75. SER data provide 42 records of protected bird species within a 1-2km radius of the application area, all of which are classified according to their status on Red, Amber and Green listed Birds of Conservation Concern (BoCC) in the UK (See Appendix). Breeding Barn owl are recorded within a 2km radius of the site.
76. SER data provide no notable records of any species of concern within the zone of development itself. A moderate level of bird activity was recorded to the north-east off site, and included Blackbird *Turdus merula*; Songthrush *Turdus philomelos*; Goldfinch *Carduelis carduelis*; Long-tailed tit *Aegithalos caudatus*; Blue tit *Cyanistes caeruleus*; Wren *Troglodytes troglodytes* and Robin *Erithacus rubecula*.
77. Evidence of nesting Carrion Crow *Corvus corone* was recorded in mature trees just outside the eastern boundary in the former open-cast stone working and wooded area; although not considered as being within the zone of impact. There is also sufficient ground-storey vegetation within this woodland copse that may provide potential nesting habitat for scrubland bird species.
78. The application area however was deemed as providing negligible to low potential for nesting birds overall, with no mature trees present onsite, and lack of ground vegetation. The discontinuous hedgerow on the northern boundary is considered as offering some potential for nesting passerine birds, although no evidence was recorded.
79. No evidence of Schedule 1 listed birds species (incl. Barn Owl) was recorded onsite. Due to the scale of the development, no impact to protected bird species is considered, and no further recommendations are made.

<i>Acanthis cabaret</i>	Lesser Redpoll	<i>C. ridibundus</i>	Black-headed Gull
<i>Alauda arvensis</i>	Sky Lark	<i>Columba oenas</i>	Stock Dove
<i>Numenius arquata</i>	Eurasian Curlew	<i>Delichon urbicum</i>	House Martin
<i>Passer domesticus</i>	House Sparrow *	<i>Emberiza schoeniclus</i>	Reed Bunting
<i>Passer montanus</i>	Eurasian Tree Sparrow	<i>Circus aeruginosus</i>	Marsh Harrier
<i>Pluvialis apricaria</i>	Golden Plover	<i>Falco tinnunculus</i>	Kestrel
<i>Emberiza calandra</i>	Corn Bunting	<i>Anas crecca</i>	Teal
<i>Cuculus canorus</i>	Cuckoo	<i>Anser anser</i>	Greylag Goose
<i>Emberiza citrinella</i>	Yellowhammer	<i>Anas platyrhynchos</i>	Mallard
<i>Anthus trivialis</i>	Tree Pipit	<i>Cygnus cygnus</i>	Whooper swan
<i>C. coccythraustes</i>	Hawfinch	<i>Cinclus cinclus</i>	Dipper
<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker	<i>Tringa ochropus</i>	Green Sandpiper
<i>Falco columbarius</i>	Merlin	<i>Delichon urbicum</i>	House Martin
<i>Ficedula hypoleuca</i>	Pied flycatcher	<i>Phylloscopus trochilus</i>	Willow Warbler
<i>Linaria cannabina</i>	Linnet	<i>Prunella modularis</i>	Dunnock
<i>Muscicapa striata</i>	Spotted Flycatcher	<i>Pyrrhula pyrrhula</i>	Common Bullfinch
<i>Poecile montana</i>	Willow Tit	<i>Pandion haliaetus</i>	Osprey
<i>Poecile palustris</i>	Marsh Tit	<i>Sterna hirundo</i>	Common Tern
<i>Sturnus vulgaris</i>	Common Starling	<i>Haematopus ostralegus</i>	Oystercatcher
<i>Phylloscopus sibilatrix</i>	Wood Warbler	<i>Perdix perdix</i>	Grey Partridge
<i>Turdus iliacus</i>	Redwing	<i>Milvus milvus</i>	Red Kite
<i>Turdus philomelos</i>	Song Thrush	<i>Falco subbuteo</i>	Eurasian Hobby
<i>Turdus viscivorus</i>	Mistle Thrush	<i>Charadrius dubius</i>	Little Ringed Plover
<i>Motacilla cinerea</i>	Grey Wagtail	<i>Egretta garzetta</i>	Little Egret
<i>Motacilla flava</i>	Yellow Wagtail	<i>Fringilla montifringilla</i>	Brambling *
<i>Accipiter gentilis</i>	Goshawk	<i>Strix aluco</i>	Tawny owl
<i>Alcedo atthis</i>	Kingfisher	<i>Tyto alba</i>	Barn owl
<i>Numenius arquata</i>	Curlew	<i>Buteo buteo</i>	Buzzard
<i>Scolopax rusticola</i>	Woodcock	<i>Cyanistes caeruleus</i>	Blue tit
<i>Upupa epops</i>	Hoopoe (rare passage migrant)	<i>Parus major</i>	Great tit
<i>Turdus pilaris</i>	Fieldfare	<i>Acrocephalus schoenobaenus</i>	Sedge warbler

<i>Vanellus vanellus</i>	Northern Lapwing		<i>Ardea cinerea</i>	Grey Heron	
<i>Phoenicurus phoenicurus</i>	Redstart		<i>Ardea cinerea</i>	Grey Heron	
<i>Anthus pratensis</i>	Meadow Pipit		<i>Branta canadensis</i>	Canada Goose (introduced)	

Table 8. Birds of Conservation Concern (BoCC) recorded in 2km radius

80. Low moderate levels of individual bird activity which are considered as being common and widespread were recorded around site during the daytime walkover survey:

<i>Prunella modularis</i>	Dunnock		<i>Erithacus rubecula</i>	Robin	
<i>Turdus merula</i>	Blackbird		<i>Carduelis carduelis</i>	Goldfinch	
<i>Parus major</i>	Great tit		<i>Pica pica</i>	Magpie	

Table 9. Birds recorded onsite during daytime walkover (March 2022).

• Invertebrates

NEGLECTABLE IMPACT PREDICTED

81. The application area is considered as being limited value for any assemblages of invertebrates of principal conservation (i.e. UKBAP and LBAP moths and butterflies). No further survey recommendations for invertebrates are considered.
82. **Otter & water vole** **NEGLECTABLE IMPACT PREDICTED**
SER data provides seven historic records of individual sightings of Water vole within a 2km radius, with two individual sightings within the immediate vicinity along Caldon canal and Froghall wharf (1999-2003) but have not been recorded in recent times (potentially attributable to the presence of non-native American Mink known to occur with the immediate area).
83. No breeding populations of water vole are recorded in the immediate area, although Cecilly Brook ca. 1.9km west near Cheadle, is known to be one of the most important breeding sites for water voles in the county.
84. Otter is recorded ca.1km east in the River Churnet with possible breeding holts noted near to the the former Thomas Bolton's copper works site.
85. As both Water vole and Otter favour similar riparian habitat type, the land proposed for development is not considered suitable for these species. No evidence of either species was recorded on site, and no further survey recommendations are considered

• Reptiles

NEGLECTABLE IMPACT PREDICTED

86. SER data provide sixteen historic records of Grass snake *Natrix natrix* within a 2km search radius of the application area (1892-2006), with good populations located ca. 650m at Froghall Canal basin and former Thomas Bolton's site in the Churnet Valley (GR:SK005485). There are two records of Adder *Vipera berus* just within a 2km radius of the site at 'Far Kingsley Banks', Consall Country Park (GR:SJ998482) during 2002 and 2007. Local residents have noted slow worm in the Froghall basin area ca. 1km due NE, but have not been recorded in recent times.
87. The application area has limited core value for reptiles both before and after recent clearance/disturbance, providing negligible refugia and habitat suitable for reptiles overall. The wooded area immediately adjacent to the open northern boundary does however provide reasonable good refugia for reptiles, although there are no immediate water conduits close-by, with homogeneous, agricultural farmland to the north boundary, thus decreasing migration potential onto site.
88. No further survey recommendations for reptiles are considered.

- **Other species of note**

89. Considered Priority Species of principle conservation concern under the UK Post-2010 Biodiversity Framework, the following fauna have also been recorded within a 2km radius

- **West European hedgehog**

NEGLIBLE IMPACT PREDICTED

90. SER provide twelve records of European hedgehog *Erinaceus europaeus* between 2002-2018 in a 2km radius with the closest sightings ca. 70m from the proposed application area. This species is also protected under the Wildlife and Countryside Act 1981, Schedule 6 Section 11(1), which prevents this species being killed or taken by certain methods. The proposed development area provides limited potential for this species.

- **Brown Hare**

NEGLIBLE IMPACT PREDICTED

91. Brown hare *Lepus europaeus* is recorded within a 1km of the proposed application. It is an introduced, but naturalised species. Protected in the UK under the Wildlife and Countryside Act, 1981 and considered a Priority Species of concern under the UK Post-2010 Biodiversity Framework. The proposed development area provides limited potential for this species.

5. IMPACTS & MITIGATION

- **Survey constraints**

92. The Phase 1 walkover survey was conducted during a sub-optimal time in March 2022, although the report is considered as being robust and representative of baseline vegetation and habitat communities onsite.

- **Designated Nature Conservation sites**

NEGLIBLE IMPACT PREDICTED

93. Based on a small-scale development, no impact to any designated conservation sites in the surrounding area is predicted.

- **Protected habitats**

NEGLIBLE IMPACT PREDICTED

94. The proposed development will result in ca. of <0.03ha of land-uptake. Habitats on site do not qualify as a UK BAP Broad habitat(s), and are not considered as being unique within the context of the wider landscape, being relatively species poor and of low distinctiveness; being dominated by perennial ryegrass and patchy scrub / injurious weeds (thistles, dock and plantain species) and disturbed bare ground. Negligible fragmentation and loss of spatial connectivity to terrestrial habitats in the wider landscape is considered.

14. There are no Tree Preservation Orders (TPO's) onsite.

- **Valued Ecological Receptors**

95. The proposed application provides limited Valuable Ecological Receptors (VERs) for wildlife in general, other than individual nesting, passerine birds, which are considered as being both common and widespread, and potentially small mammals and general amphibians around the eastern hedgerow boundary.

- **Protected species**

96. Nesting birds may occur within the eastern hedgerow boundary and trees during the bird breeding season (March to August inclusive). Should any active bird nests be found during works, then these should be left undisturbed until offspring have fully fledged. If necessary, an exclusion work zone of 5m should be adopted to reduce disturbance and minimize potential displacement of nesting birds.

- **Invasive Non-Native Species (INNS)**

97. No evidence of Invasive Non-Native Species (INNS) were recorded on the proposed application area.

- **Drainage / soakaways**

98. Location of any additional drainage and soakaways should ideally be contained within the proposed development area boundary where possible. Otherwise, further ecological assessment may be necessary. Soakaways should be designed in accordance with the BRE Digest 365 whilst ensuring the suitability of the sub strata and porosity.

- **Biodiversity Net Gains**

99. After identified potential impacts have been avoided, mitigated and compensated for in accordance with the mitigation hierarchy - "Biodiversity Net Gains" is an additional requirement, of the National Planning Policy Framework (NPPF, 2019 [paragraph 109 and 175]) whereby, sustainable developments should aim to increase overall biodiversity and net gains onsite for nature.

100. The proposed scheme should promote the following aims and objectives:

- **Objective 1:**

To achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with biodiversity (Defra website, 2012).

- **Objective 2:**

To maintain, protect and enhance the existing nature conservation value of retained features and associated species.

- **Objective 3:**

To create new habitats to compensate for loss of, and impacts to, existing habitats, to maximise the site's biodiversity potential through appropriate management practices.

- **Objective 4:**

To outline any other additional mitigation requirements / Reasonable Avoidance Measures (RAMs) for protected species where necessary.

- **Site habitat creation / retention**

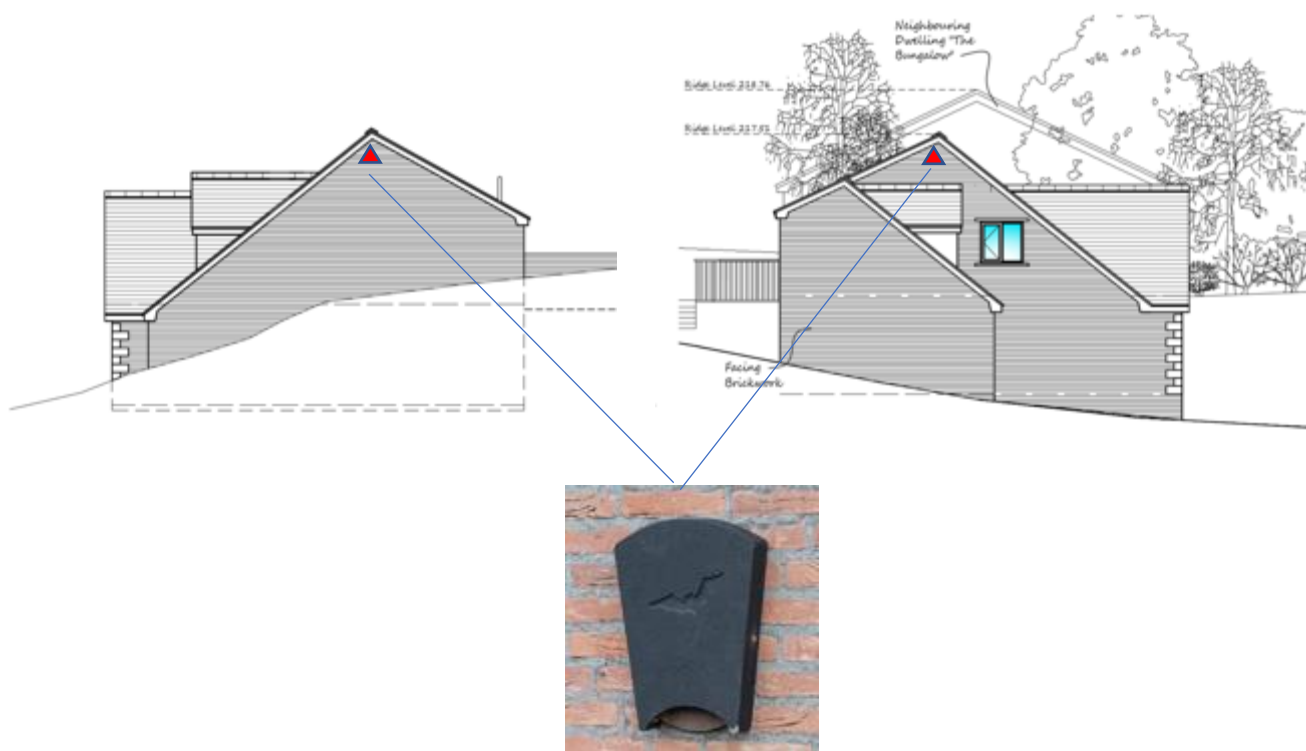
15. The proposed development will result in minor Net loss of biodiversity, given the limited core size of the extant land parcel (ca. 0.3ha) and its existing value, being of low distinctiveness and in poor condition with bare ground. A short section of hawthorn hedgerow on the eastern boundary is also proposed for removal. Given the small parcel of land proposed for a new dwelling, there is limited scope to provide additional biodiversity enhancements onsite, with no land available to off-set should the LPA deem necessary.

16. At this juncture, a number of biodiversity enhancement recommendations are recommended regarding creation of a small amenity garden lawn to the rear of the new dwelling (ca. 160m²). It is recommended that landscaping should consider additional ground cover, and so low-growing shrubs and native, herbaceous plants cover should be favoured.
- Species such as bugle, ivy and periwinkle could be used for this purpose, or ornamental species such as lady's mantle, elephant's ears or perennial geraniums may also be suitable. Ivy (*Hedera helix*) provides evergreen shelter for nesting birds and hibernating insects, nectar for pollinators, berries for birds and leaves for caterpillars.
17. A newly planted, linear, vegetation / hedgerow buffer strip is proposed along the northern boundary (adjacent to footpath), and should comprise of mixed native, woody species with an emphasis on species bearing nectar, berries, fruit and nuts, to enhance the foraging opportunities of local wild fauna including small mammals, birds and invertebrates.
18. Recommended composition of planted buffer hedgerow: 40% Hawthorn, 30% Hazel, 15% Blackthorn and the remainder will be made up of a mix of, Honeysuckle, Holly, Dog Rose and Dogwood (see below):

Table 10. Native hedgerow species composition	Size (cm)	Percentage	Comments
Hawthorn (<i>Crataegus monogyna</i>)	60/90	40%	All shrubs to be planted as bareroot stock unless otherwise specified. Stock is to be planted in double staggered rows, 250mm and 350mm linear separation (ca. 5no. per metre). All plants to be planted with a slow release organic fertilizer to a N.P.K ratio of 4.5-2.0-7.7 + 0.8%mg (vitax or similar approved), and backfilled with a mixture of excavated top soil to BS 3822:2007 “Multipurpose” or better at a minimum depth of 300-450mm.
Hazel (<i>Corylus avellane</i>)	60/90	30%	
Holly (<i>ilex aquifolium</i>)	60/90	5%	
Honeysuckle (<i>Lonicera periclymenum</i>)	60/90	5%	
Dog Rose (<i>Rosa canina</i>)	60/90	5%	
Dogwood (<i>Cornus sanguinea</i>)	60/90	5%	
Blackthorn (<i>Prunus spinosa</i>)	60/90	10%	
- Plants to be spaced in a double row, at 300mm staggered centres in both directions; - Newly planted hedgerows to be protected with clear spirals / netting until established; - Planted areas to be periodically forked through to keep soil loose and aerated; - Watering as required to maintain healthy growth (a minimum 24 watering's recommended); - Any plants found within this period to be damaged, diseased, dead, removed or otherwise fail to establish should be replaced during the next suitable season; - Thick mulch or matting to be used to prevent weed encroachment until established. - Once established, shrubs can be cut-back to 45-60 cm (18-25 in) above the ground to encourage bushy growth. - Hedges must not be pruned until late winter or early spring, so wildlife can take advantage of the insects and fruits provided during the winter months. Leaf litter should be allowed to accumulate at the base of hedges to provide habitat for a variety of invertebrates, and provide additional nutrients for wildflowers. - The native hedgerow should take 3-5 years to establish, enabling plants to spread roots sufficiently enough to become stabilized.			

19. No plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 should be planted during the landscaping of this development. For further details of Schedule 9 plants visit the Defra website: www.defra.gov.uk/wildlife-pets/non-native.

20. It is recommended that the development further incorporates a number of bat, bird and insect boxes where possible, to increase prospects for local biodiversity.
21. Due to the absence of any notable trees within the proposed application area, it is recommended that 4no. general passerine finch bird nesting boxes and 2no. '1SP Schwegler Sparrow Terrace' box are installed onto either external walls of the new dwelling, or onto >3.5m tall, stand-alone timber posts sited against the eastern boundary, being sheltered from strong winds and exposed to the sun for part of the day / sited onto non-illuminated areas. Additional bird feeders within the amenity garden area should also be encouraged.
 - o Further information with regard to sourcing and sighting of nest boxes can be found at: <https://www.rspb.org.uk/birds-and-wildlife/advice/how-you-can-help-birds/nestboxes/nestboxes-for-small-birds/making-and-placing-a-bird-box/>
22. Similarly, it is recommended that 2No. Beaumaris Woodstone Bat Box (Midi size) are installed at height on opposing NE and SW facing apex points of the new build, as illustrated below:



Link:

[https://www.nhbs.com/4?q=&hPP=60&idx=titles&p=0&fR\[doc_s\]\[0\]=false&fR\[hide\]\[0\]=false&fR\[live\]\[0\]=true&fR\[shops.id\]\[0\]=4&hFR\[subjects_equipment.lv1\]\[0\]=Bat%20Boxes%20%3E%20Woodcrete%20%26%20WoodStone%20Bat%20Boxes](https://www.nhbs.com/4?q=&hPP=60&idx=titles&p=0&fR[doc_s][0]=false&fR[hide][0]=false&fR[live][0]=true&fR[shops.id][0]=4&hFR[subjects_equipment.lv1][0]=Bat%20Boxes%20%3E%20Woodcrete%20%26%20WoodStone%20Bat%20Boxes)

23. Any timber fencing erected around site boundaries should provide permeability for hedgehogs and other small mammals by way of gaps between gravel boards.

• ***Accumulative effects***

101. Indirect impacts borne through accumulative effects (e.g. Increased artificial lighting / disturbance), has potential to impact on the surrounding semi-rural area of low district brightness. Light-pollution can impede and severe the movement of both volant and terrestrial based animals.

102. Incorporation of any artificial post development lighting should therefore be considered at an early stage to minimise disturbance and sky-glow across the site. Any additional lighting should follow protocols outlined in the Institute for Lighting Engineers document "*Guidance for the Reduction of Obtrusive Lighting*" (2005) [GN01:2011], and also the Bat Conservation Trust's "*Artificial Lighting and Wildlife Interim Guidance: Recommendations to Help Minimise the Impact of Artificial Lighting*" (2014) [GN8/18].
103. The proposed application area intrinsically falls under a rural setting (ILP Environmental Zone E2);

Table 11. Environmental Zones			
Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc.
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night- time activity

Table 12. Obtrusive Light Limitations for Exterior Lighting Installations – General Observers						
Environmental Zone	Sky Glow ULR [Max %] (1)	Light Intrusion (into Windows) Ev [lux] (2)		Luminaire Intensity I [candelas] (3)		Building Luminance Pre-curfew (4)
		Pre- curfew	Post- curfew	Pre- curfew	Pre- curfew	Post- curfew
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25
E0	0	0	0	0	0	0

ULR = Upward Light Ratio of the Installation is the maximum permitted percentage of luminaire flux that goes directly into the sky.

Ev = Vertical Illuminance in Lux - measured flat on the glazing at the centre of the window.

I = Light Intensity in Candelas (cd)

L = Luminance in Candelas per Square Metre (cd/m²)

Curfew = the time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23.00hrs is suggested.

* = Permitted only from Public road lighting installations

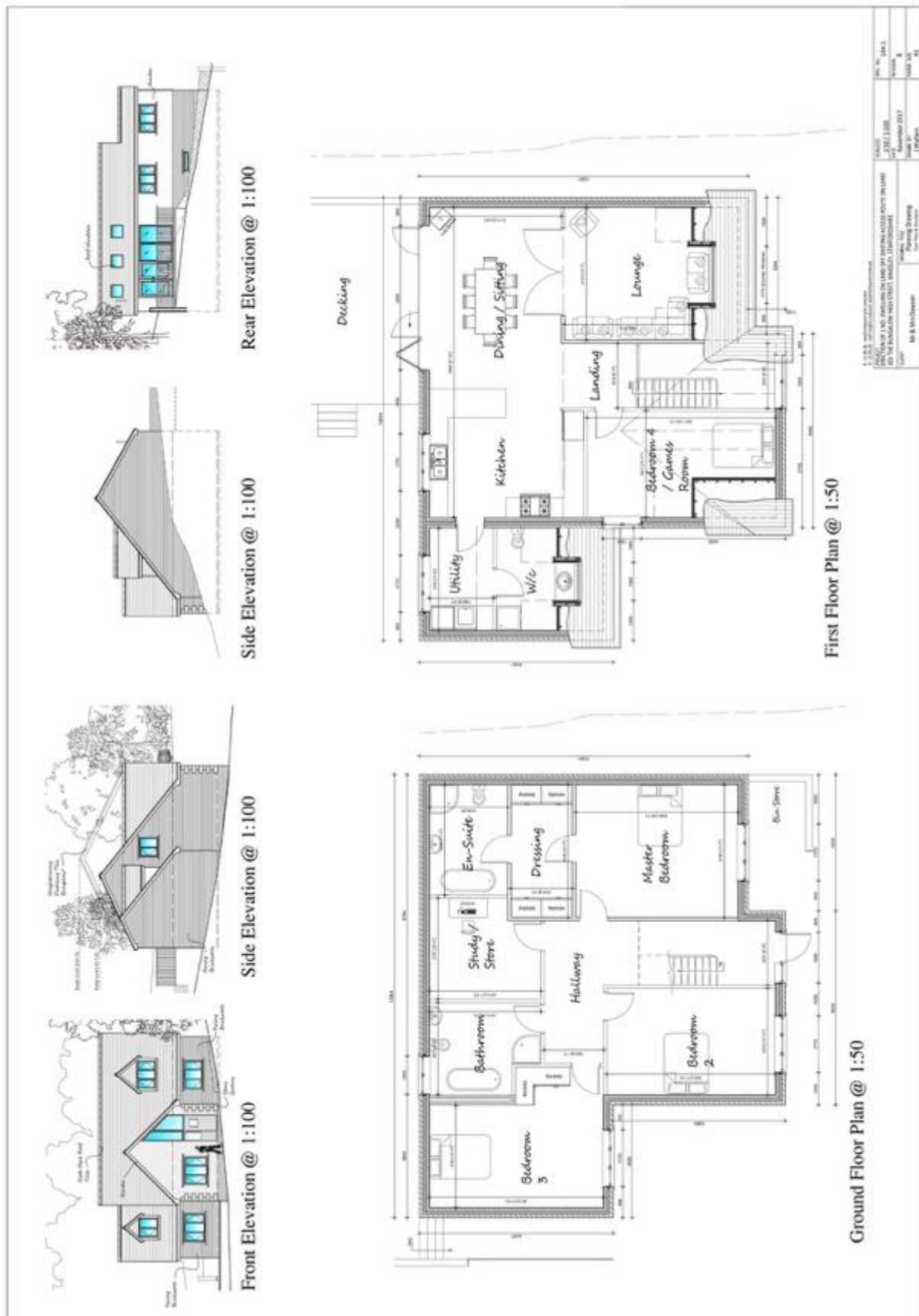
104. In general, minimal use of low energy LED lighting or low-pressure sodium lamps (SOX) is recommended where necessary. Lighting should be fitted with hoods to direct the light below the horizontal plane to minimize light-spill onto adjacent habitats and sky-glow. Any security lighting should be less than 200 lumens (150 watts) and placed on a timer setting and faced down to reduce sky glow. Height of any columns around the development should not exceed eight metres.
105. Should the LPA require more information regarding specific units quantifying to biodiversity net loss / net gain, then it may be necessary to undertake an additional Biodiversity Impact Assessment (BIA) of the site [using DEFRA Biodiversity Metric (V3.0) calculator].

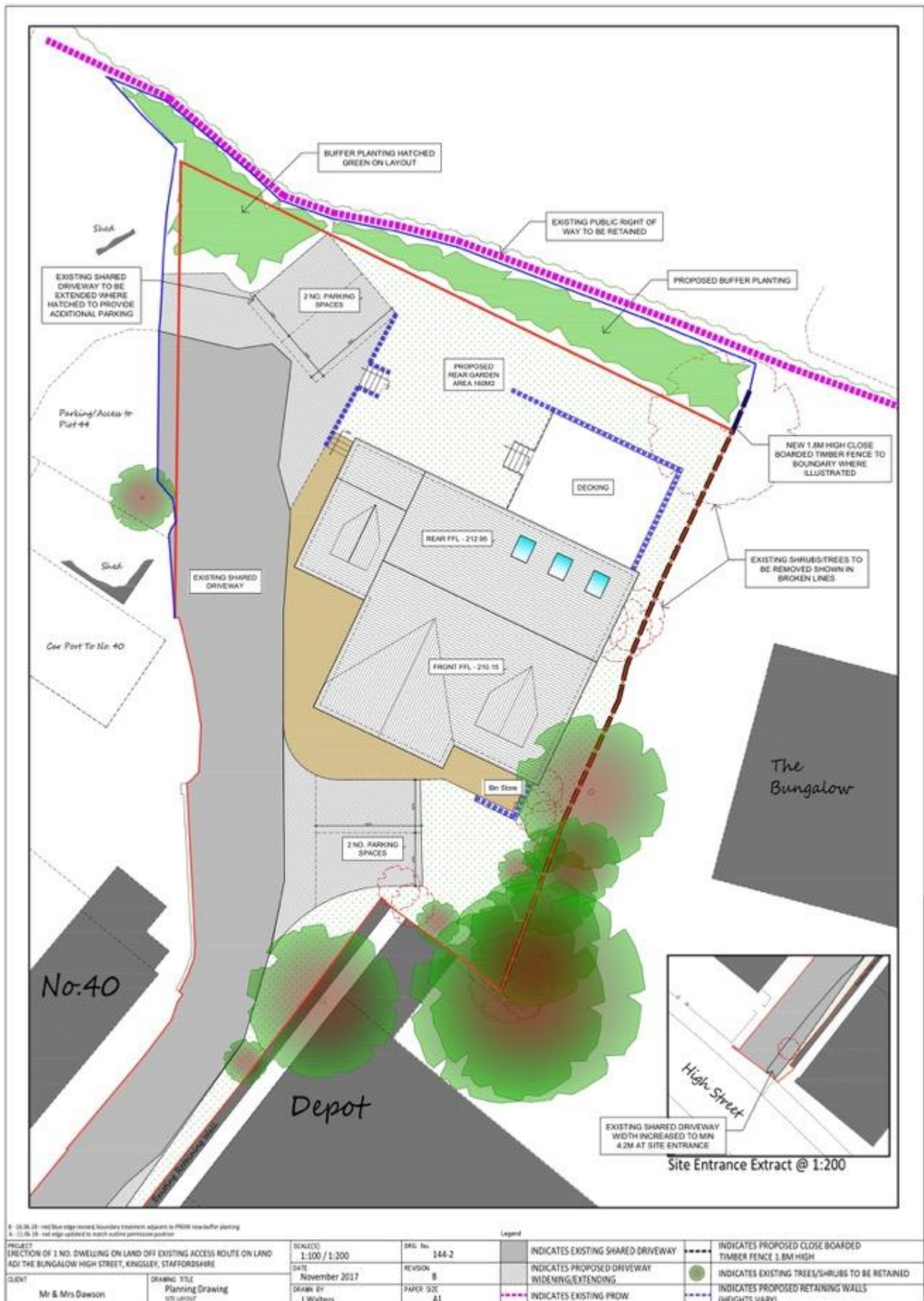
6. REFERENCES

- Bat Conservation Trust (2016). Bat Surveys – Good Practice Guidelines. 3rd Edition. Bat Conservation Trust: London.
- BSBI (2011). BSBI 2007 List. [Online]. Available at: <http://www.bsbi.org.uk/html/database.html>
- Chanin P (2003a) Ecology of the European Otter. Conserving Natura 2000 Rivers, Ecology Series No. 10. English Nature, Peterborough.
- Chanin P (2003b) Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough.
- Countryside and Rights of Way Act 2000, (c.37), London: HMSO.
- English Nature (2004) *Reptiles: guidelines for developers*. Peterborough, UK.
- Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.
- Froglife (1999) *Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.
- Institute of Ecology and Environmental Management (2007). Guidelines for Ecological Impact Assessment in the United Kingdom. [Online]. Available at: <http://www.ieem.net/ecia/>
- Joint Nature Conservation Committee (2007) Handbook for Phase I Habitat Survey – a Technique for Environmental Audit. JNCC: London.
- Kruuk H. (2008) Otters: ecology, behaviour and conservation. Oxford University Press.
- Multi-Agency Geographical Information for the Countryside (2010). MAGIC. [Online].
- Natural Environment and Rural Communities Act 2006 (c.16), London: HMSO.
- Office of the Deputy Prime Minister. (2005) Planning Policy Statement 9: Biodiversity and Geological Conservation. The Stationery Office, Norwich.
- Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook 3rd Ed. Environment Agency, English Nature, WildCRU. Oxford, UK.
- The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007, SI 2007/1843, London: HMSO.
- The Conservation of Habitats and Species Regulations 2010, SI 2010/490.
- The Protection of Badgers Act 1992 (c.51), London: HMSO.
- UK BAP (2008) Priority Habitat Descriptions [Online]. Available at: <http://www.ukbap.org.uk/library/UKBAPPriorityHabitatDescriptionsfinalAllhabitats20081022.pdf>
- Wildlife and Countryside Act 1981 (and amendments) (c.69), London: HMSO.

7. APPENDIX

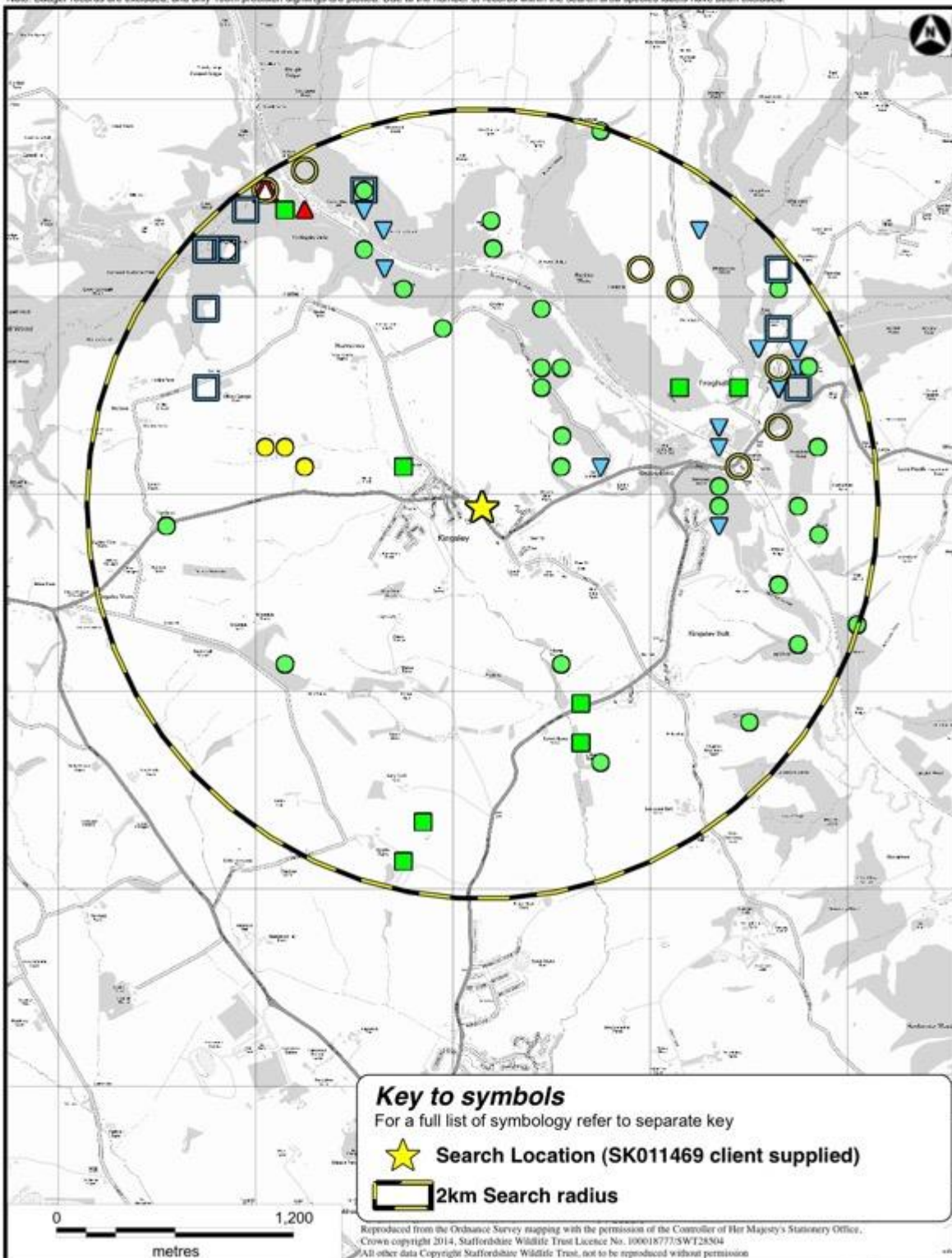
- **Maps & forms:**

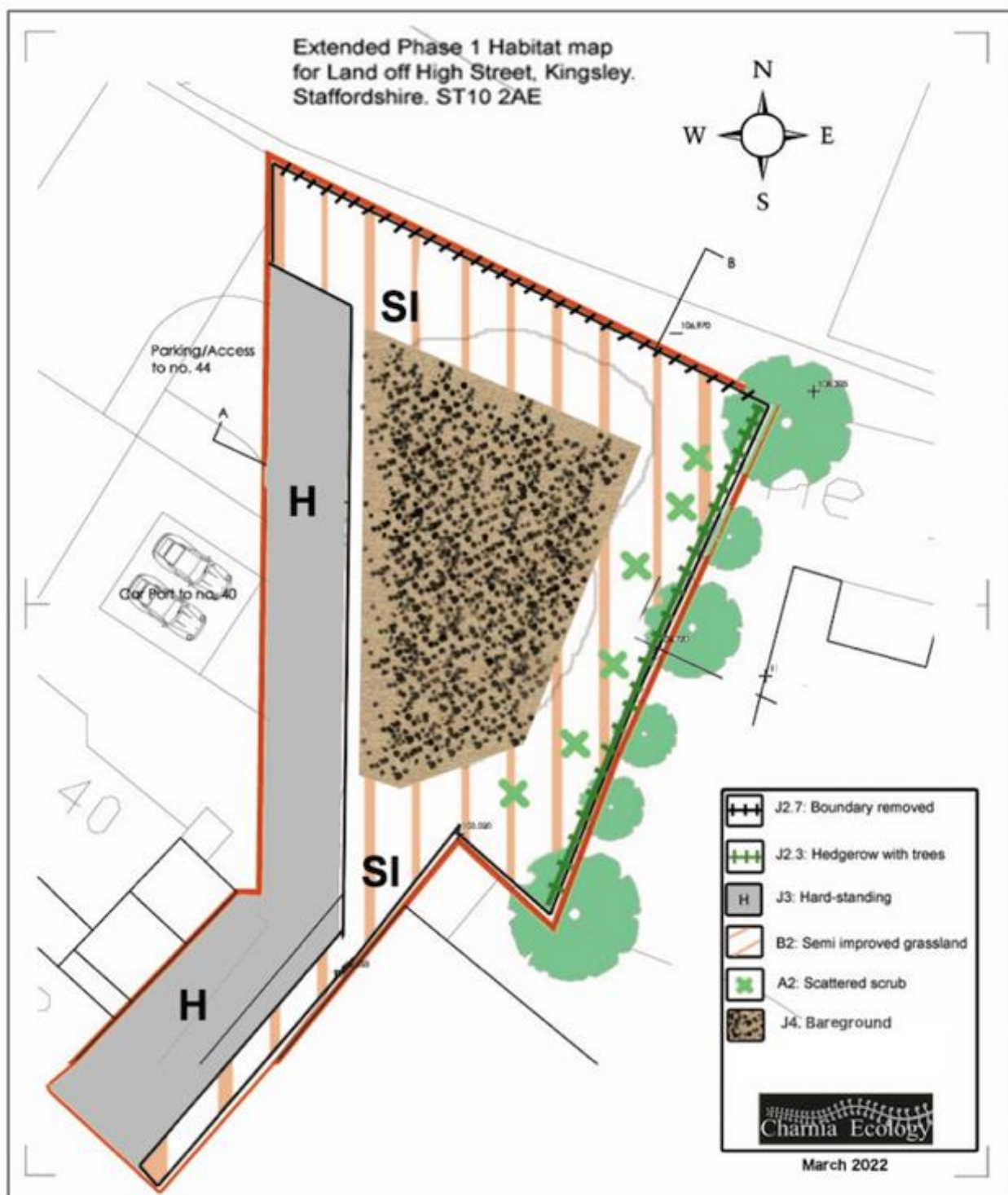




Staffordshire Ecological RecordThe Wolseley Centre, Wolseley Bridge, Stafford, ST17 0WT Tel: 01889 880100 Fax: 01880 880101
Email: info@staffs-ecology.org.uk**SER/14/505****Protected Species
within 2km of Land at Kingsley (SK011469)**

Note: Badger records are excluded, and only 100m precision sightings are plotted. Due to the number of records within the search area species labels have been excluded.





List of records for European and UK protected bat species in a 2km radius of ST10 2AE.							
Scientific Name	Common Name	Location Detail	Grid Ref.	Date	Abundance	Record Type	Dist. from Centre of Site (m)
Chiroptera	Bats	Froghall Basin	SK027476	1977	1 Count of Adult	field record	275
Chiroptera	Bats	Froghall Basin	SK027477	1996	1 Count	Not specified	353
Myotis	unidentified Myotis bat	Boultons Factories	SK024473	2014	3 Count	Breeding (possible)	148
Myotis	unidentified Myotis bat	Boultons Factories	SK024473	2014	34 Count	Breeding (possible)	148
<i>Myotis brandtii</i>	Brandt's Bat	Kiln 6	SK026475	2008	1 Count of Roosting	Not specified	134
<i>Myotis daubentonii</i>	Daubenton's Bat	Boultons Factories	SK024473	2014	50 Count	Breeding (possible)	148
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2002	1 Count of Adult	field record	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2002	1 Count of Male	caught	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2001	2 Count of Male	trapped in mist net	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2000	4 Count of Male	caught	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2002	1 Count of Male	trapped in mist net	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2001	1 Count of Female; 1 Count of Juvenile Male; 2 Count of Male	trapped in mist net	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	1998	1 Count of Adult	trapped in mist net	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2002	1 Count of Adult	field record	134
<i>Myotis daubentonii</i>	Daubenton's Bat	Kiln 6	SK026475	2002	1 Count of Roosting	field record	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2001	4 Count of Male	trapped in mist net	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2000	1 Count of Female	caught	134
<i>Myotis daubentonii</i>	Daubenton's Bat		SK026475	2000	4 Count of Male	caught	134
<i>Myotis nattereri</i>	Natterer's Bat	Froghall Retaining Wall	SK019471	2012		Breeding (possible)	675
<i>Myotis nattereri</i>	Natterer's Bat		SK0247	2010	1 Count of Adult	Not specified	70
<i>Myotis nattereri</i>	Natterer's Bat		SK0247	2014	1 Count of Adult	Not specified	70
<i>Myotis nattereri</i>	Natterer's Bat	Kiln No.4	SK026475	2003	1 Count of Roosting	field record	134
<i>Myotis nattereri</i>	Natterer's Bat	Kiln No.6	SK026475	2003	1 Count of Roosting	field record	134
<i>Myotis nattereri</i>	Natterer's Bat	Kiln 1	SK026475	2007	1 Count of Roosting	Not specified	134
<i>Myotis nattereri</i>	Natterer's Bat		SK026475	2001	2 Count of Male; 6 Count of Female	caught	134
<i>Myotis nattereri</i>	Natterer's Bat		SK026475	2001	1 Count of Male	caught	134
<i>Myotis nattereri</i>	Natterer's Bat	Kiln 4	SK026475	2002	12 Count of Roosting	field record	134
<i>Myotis nattereri</i>	Natterer's Bat	kiln 1	SK026475	2014	1 Count of Adult	Hibernating	134
<i>Myotis nattereri</i>	Natterer's Bat	kiln 6	SK026475	2014	1 Count of Adult	Hibernating	134
<i>Myotis nattereri</i>	Natterer's Bat	Kiln No.6, Froghall Lime Kilns	SK026475	2005	1 Count of Adult	Not specified	134
<i>Myotis nattereri</i>	Natterer's Bat	Kiln 6	SK026475	2008	7 Count of Roosting	Not specified	134
<i>Myotis nattereri</i>	Natterer's Bat		SK026475	2001	1 Count of Adult	field record	134
<i>Nyctalus leisleri</i>	Lesser Noctule	Boultons Factories	SK024473	2014	2 Count	Breeding (possible)	148
<i>Nyctalus noctula</i>	Noctule Bat	Boultons Factories	SK024473	2014	22 Count	Breeding (possible)	148
<i>Pipistrellus pipistrellus sensu lato</i>	Pipistrelle	Kingsley Banks, Cheadle	SK017471	1991	2 Count of In Flight	field record	858
<i>Pipistrellus pipistrellus sensu lato</i>	Pipistrelle	Froghall*	SK023472	1996	Present Count of Male	caught	289
<i>Pipistrellus pipistrellus sensu lato</i>	Pipistrelle	Froghall	SK0247	2002	1 Count of Adult	Not specified	70
<i>Pipistrellus pipistrellus sensu lato</i>	Pipistrelle	Froghall*	SK0247	1996	1 Count of Adult; 1 Count of Juvenile	Maternity roost	70
<i>Pipistrellus pipistrellus sensu lato</i>	Pipistrelle	Froghall*	SK0247	1996	1 Count of Juvenile Male	Not specified	70
<i>Pipistrellus pipistrellus sensu stricto</i>	Common Pipistrelle	Froghall Retaining Wall	SK019471	2012		Breeding (possible)	675
<i>Pipistrellus pipistrellus sensu stricto</i>	Common Pipistrelle	Boultons Factories	SK024473	2014	183 Count	Breeding (possible)	148
<i>Pipistrellus pipistrellus sensu stricto</i>	Common Pipistrelle	Ranger Centre Toilet Block, FW	SK027476	2004	24 Count of Adult	Maternity roost	275
<i>Plecotus auritus</i>	Brown Long-eared Bat	Boultons Factories	SK024473	2014	37 Count	Breeding (possible)	148
<i>Plecotus auritus</i>	Brown Long-eared Bat		SK0247	2010	1 Count of Adult	Not specified	70

<i>Plecotus auritus</i>	Brown Long-eared Bat		SK0247	2014	1 Count of Adult	Not specified	70
<i>Plecotus auritus</i>	Brown Long-eared Bat		SK025477	2013	1 Count of Adult	Not specified	294
<i>Plecotus auritus</i>	Brown Long-eared Bat	Kiln No.6	SK026475	2003	2 Count of Roosting	field record	134
<i>Plecotus auritus</i>	Brown Long-eared Bat		SK026475	2002	1 Count of Male	caught	134
<i>Plecotus auritus</i>	Brown Long-eared Bat		SK026475	2001	2 Count of Male	trapped in mist net	134
<i>Plecotus auritus</i>	Brown Long-eared Bat	Kiln No.6	SK026475	2003	3 Count of Roosting	field record	134
<i>Plecotus auritus</i>	Brown Long-eared Bat		SK026475	2001	1 Count of Male	trapped in mist net	134
<i>Plecotus auritus</i>	Brown Long-eared Bat	kiln 6	SK026475	2014	1 Count of Adult	Hibernating	134
<i>Plecotus auritus</i>	Brown Long-eared Bat		SK026475	2001	1 Count of Male	trapped in mist net	134

Policy guidelines

PAS 2010	The published 'PAS 2010' 'Planning to halt the loss of biodiversity' which is the government's new policy aimed at all authorities and developers involved in the planning process in the UK to halt biodiversity decline by 2010 and deliver net biodiversity gains as part of the green infrastructure provisions.
National Planning Policy Framework, Section 11:	The recently published framework in 2012, replaces the previous Planning Policy Statement 9. Section 11: Conserving and enhancing the natural environment, reaffirms the Government's commitment to maintaining protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife, aims to improve the quality of the natural environment, and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.
Article 10 of the EC Habitats Directive:	The published Article requires government to develop features such as 'stepping stones' on the landscape, such as clusters of ponds, tracts of rough grassland or scrubland and vegetated railway line embankments.
Wildlife and Countryside Act 1981:	All species of bat are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000. This legislation makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.
Conservation of Habitats and Species Regulations (2010)	The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is an offence to possess, sell or offer, or transport for sale any European species of bat or any part derived from such a species. These Regulations also remove the 'incidental result defence'. In other words, it is no longer a defence to show that the killing, capture or disturbance of a species covered by the Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of a lawful activity. Natural England can grant European Protected Species (EPS) licences in respect of development to permit activities that would otherwise be unlawful.
Natural Environment and Rural Communities Act (2006)	Under Section 40 of the Natural Environment and Rural Communities Act (2006), public bodies, including Local and Regional Planning Authorities, have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is known as The England Biodiversity List, all of which make up the UK BAP Priority Species. Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority to maintain, restore and enhance species and habitats.
Bird legislation	Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs and nestlings. Some rarer species, such as barn owls, are afforded extra protection.

Table A. Policy guidelines.

Protected species survey calendar

8. CONDITIONS & DISCLAIMERS



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