

Sackup Lane, Darton
Ecological Impact Assessment
19th December 2024



Prepared by:

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Site Name Sackup Lane, Darton	Site Address 269, Sackup Lane, Darton, Barnsley, S75 5AX
Local Authority Barnsley Metropolitan Borough Council	Grid Reference SE 32260 10840
Surveyor Robert Bell MCIEEM	Dates of Survey 29 th August 2024
Soilscape Freely draining slightly acid loamy soils	Designation of Site None
UK Habitat Classification habitats on Site Habitats: g4 – modified grassland, u1b5 – buildings, u1b6 – other developed land, h2b – non-native & ornamental hedgerow Secondary codes: 32 - scattered trees, 33 – line of trees, 108 – frequently mown, 847 – introduced scrub	
Protected/Notable Species, Constraints on Site Nesting birds, invasive plant species (hedgehog rose, wall cotoneaster, rhododendron and montbretia)	

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1. Summary

- 1.1.1 This Ecological Impact Assessment (EcIA) of 269 Sackup Lane, Darton was commissioned by the architect Francis Collumbine, on behalf of the client Eric Swift, on 19th August 2024.
- 1.1.2 The survey was commissioned to inform a planning application to demolish the existing dwelling in order to clear land for the construction of five new dwellings.
- 1.1.3 No impacts upon designated sites are anticipated due to the nature and scale of the development. All habitats and species present were considered to be of no greater than Site level importance.
- 1.1.4 The likely unmitigated impacts of the development were considered to comprise:
- The net loss of 148 m² of vegetated garden (comprising a mix of modified grassland, introduced shrub and non-native hedgerow).
 - The loss of one large tree and 11 medium trees, together with other small trees.
 - Damage to the root systems of existing hedgerow plants and trees as a result of construction works.
 - A small loss of foraging habitat for hedgehogs, bats, birds, and invertebrates.
 - The potential exclusion of hedgehogs from new gardens.
 - The loss of bird nesting habitat and the potential removal of active birds' nests. Active bird nests are legally protected from destruction.
 - Increased lighting affecting nocturnal species such as hedgehogs, bats, nocturnal invertebrates and some birds.
 - The potential spread of invasive plant species (hedgehog rose, wall cotoneaster, rhododendron and montbretia), and other biosecurity risks as a result of bringing in plants, seeds and soil for landscaping.
- 1.1.5 The following mitigation, compensation and enhancements are details:
- Implementation of root protection zones for retained trees and shrubs.
 - The removal of vegetation and demolition of buildings outside the nesting bird season (March-August), or following a check for active nests by an ecologist.
 - Removal of existing specimens of invasive plant species.
 - Development of a wildlife friendly landscaping scheme for gardens, to include some tree planting. Plants to be sourced from UK nurseries and imported soil to meet appropriate British Standards. Peat free compost to be used.
 - The inclusion of hedgehog holes between gardens and bat boxes and swift bricks within each new dwelling on the development.
 - The use of bat safe roofing membranes.
 - Lighting restrictions to protect nocturnal species.
- 1.1.6 The proposed development is expected to result in a biodiversity net loss of 1.25 Habitat Units (an 81.69 % net loss). As a result, it is proposed to purchase Habitat Units appropriate to deliver a 10 % net gain from a third party landbank (i.e. Environment Bank).
- 1.1.7 The results of this survey and report are considered to be valid for a period of 24 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey

2. Introduction

- 2.1.1 This Ecological Impact Assessment (EcIA) of 269 Sackup Lane, Darton was commissioned by the architect Francis Collumbine, on behalf of the client Eric Swift, on 19th August 2024.
- 2.1.2 The survey was commissioned to inform a planning application to demolish the existing dwelling in order to clear land for the construction of five new dwellings. The outline proposals are shown in Appendix 1.
- 2.1.3 A planning permission to construct 39 new dwellings on the arable field immediately adjoining the northwest boundary of the site (Application Ref.: 2024/0698) was under consideration by Barnsley Metropolitan Borough Council at the time this report was written.
- 2.1.4 The purpose of this report is to present the findings of a UK Habitat Classification survey together with determining the potential for, or presence of, protected and notable species. An appended map of the site shows the habitats present. Where impacts can be confidently determined, recommendations in relation to avoiding, mitigating and compensating for these impacts are included in this report, together with biodiversity enhancement recommendations. Proposed scheme impacts have also been calculated using The Statutory Biodiversity Metric (Natural England, 2023).
- 2.1.5 Key legislation relating to designated sites, protected species, and habitats is detailed in Appendix 2. The implications of legislation are detailed in the body of the report where applicable.

3. Site Description

- 3.1.1 The 0.21 ha application site comprised a detached domestic dwelling with a large associated garden, accessed from Sackup Lane via a driveway in the eastern corner of the site. The site's southeast boundary with Sackup Lane comprised a treeline mainly composed of copper beech *Fagus sylvatica purpurea* trees, with other scattered trees on site including a mature weeping willow *Salix babylonica* in the site's western corner. The majority of the site comprised a regularly mown lawn, with substantial ornamental beds along the southeast side of the site. Two small open fronted storage buildings were present in the site's northern corner.
- 3.1.2 Residential housing was present to the northeast and southwest of the site, as well as on the opposite side of Sackup Lane. An arable field was present beyond an ornamental hedge on the site's northeast boundary. The site was located on the edge of a suburban area with the wider area mainly comprising residential housing and mixed farmland, with some woodland blocks.
- 3.1.3 The site falls within National Character Area (NCA) 38: The Nottinghamshire, Derbyshire and Yorkshire Coalfield. This NCA comprises a generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Over half of the NCA is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for development and changes in land use. The landscape is dotted with many pockets and patches of habitat

where species find refuge. This is often on land that was once worked for minerals or occupied by major industry.

- 3.1.4 The naturally occurring soils in the area comprise freely draining slightly acid loamy soils.

Figure 1. The site location, as indicated by red line



4. Methodology

4.1 Data Consultation

4.1.1 Barnsley Biological Records Centre and South Yorkshire Bat Group were contacted to request the following information for locations within a 1.5 km radius of the site:

- Protected and notable species records.
- The boundaries of non-statutory designated sites of nature conservation interest.

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside website was undertaken to determine the following:

- The boundaries of statutory designated sites of nature conservation interest.
- The locations of historic European Protected Species licences granted by Natural England.
- The presence of great crested newt *Triturus cristatus* records included in either the Class Survey Licence Returns or 2017-2019 Pond Surveys datasets.

4.2 Field Survey

UK Habitat Classification Survey

4.2.1 The site was surveyed on 29th August 2024 using the UK Habitat Classification survey methodology (UKHab Ltd., 2023) by Robert Bell (MCIEEM; Bat Survey Class licence WML-A34-Level 4, 2016-25236-CLS-CLS).

4.2.2 Robert Bell is a competent botanist with more than 16 years' experience of undertaking botanical surveys including appraisals of Local Wildlife Sites (LWSs) in Barnsley.

4.2.3 The surveyor methodically covered the site, searching for notable, rare or scarce plant species and evidence of protected species including bats and species of nature conservation importance (including a search of suitable features for signs of bats). Features of interest are presented on the UK Habitat Classification plan, using Secondary Codes and Target Notes.

4.2.4 Aerial photographs (Google Earth, Bing Mapping, and ESRI imagery) and Ordnance Survey mapping were studied to consider the wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This is particularly useful for identifying wildlife corridors and ponds.

4.2.5 Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were recorded. Any priority species and habitats included on the Local Biodiversity Action Plan (LBAP) were also noted if present.

Nocturnal Survey

4.2.6 A single dusk emergence survey of the house (B1, Appendix 3) on 29th August 2024 by Robert Bell (RB) and Amanda Murphy (AM)(QualCIEEM; Bat Survey Class licence WML-A34-Level 2, 2016-25236-CLS-CLS). Both surveyors were equipped with Wildlife Acoustics EM Touch bat detectors and iPad/iPod recorders together with two Canon XA10 infra-red video cameras and a Guide TK612 thermal camera. The dusk

emergence survey was undertaken in compliance with relevant Bat Survey Guidelines (Collins 2023), continuing from 15 minutes prior to sunset until 1.5 hours after sunset. The arrangement of surveyors and cameras during the nocturnal survey is shown in Figure 2.

Figure 2. Nocturnal survey plan



4.3 Method of Assessment

- 4.3.1 In line with CIEEM guidelines (CIEEM, 2017) the survey results were used to identify any ecological constraints to the proposed development, any further surveys, and any mitigation measures likely to be required. Opportunities for ecological enhancement measures were also included where possible.
- 4.3.2 The value and sensitivity of ecological features present on site were determined based on the guidance provided within 'Guidelines on Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2018). Individual ecological receptors (habitats and species that could be affected by the development) were assigned a geographic level of importance for nature conservation. The highest level is international, decreasing through national, regional, county, local and lastly site importance.

4.4 Biodiversity Calculation

- 4.4.1 The Statutory Biodiversity Metric (Defra, 2023) was used to calculate the ecological impact of this scheme within the context of the blue line boundary site. This metric uses habitat as a proxy for wider biodiversity with different habitat types scored according to their relative biodiversity value. This value is then adjusted depending on the condition and location of the habitat, to calculate 'biodiversity units'. The Statutory Biodiversity Metric incorporates similar but separate calculations for habitats that

require a different method of measurement such as hedgerows, lines of trees, rivers, streams and street trees. Calculations are undertaken in a purpose designed spreadsheet, which provides the main output of the process.

4.5 Survey Limitations

4.5.1 No limitations to an effective UK Habitat Classification survey were encountered.

5. Ecological Baseline

5.1 Data Consultation

- 5.1.1 The locations of statutory and non-statutory designated sites are shown in Appendix 4. Designated sites present within 1.5 km of the site are detailed in Table 1.

Table 1. Designated sites

Designation	Name	Interest	Distance and direction to site
Local Wildlife Sites	Mapplewell Tip	Naturally vegetated spoil heap with an affinity with lowland heath	1.02 km south

- 5.1.2 Husband Wood comprises the nearest area of ancient woodland and was present 450 m northwest of the site.

- 5.1.3 No ancient woodland is present within 1.5 km of the site.

5.2 Habitats

- 5.2.1 The arrangement of site habitats is shown on the UK Habitat plan in Appendix 4, whilst a full list of plant species recorded is provided in Appendix 5.

- 5.2.2 Site habitats are not considered to be of greater than site level importance to nature conservation.

- 5.2.3 A detailed description of the site and adjacent habitats and the site's potential to support protected and notable species is provided below.

g4 – modified grassland

- 5.2.4 The largest single habitat on the site comprised areas of regularly mown modified grassland/ lawn, present mainly to the northwest and southwest of the dwelling, but also between formal beds to the southeast of the property (Plates 1-4).

- 5.2.5 Grass species present within the lawn included abundant perennial rye grass *Lolium perenne*, frequently occurring red fescue *Festuca rubra*, and occasional Yorkshire fog *Holcus lanatus*. Herb species present comprised frequently occurring white clover *Trifolium repens* and creeping buttercup *Ranunculus repens*, together with locally frequent selfheal *Prunella vulgaris* and broadleaf plantain *Plantago major*. Common dog violet *Viola riviniana* was occasionally present in the lawn. An average of 5 species per m² square was recorded.

- 5.2.6 The modified grassland was considered to be in poor condition (Defra, 2023). This area of grassland comprised less than 6 species per m², with an even sward height, a lack of bare ground (<1 %) and an invasive non-native plant species present immediately adjacent (montbretia).

Plate 1. Looking southeast from north corner of site



Plate 2. Looking east from western corner of site



Plate 3. Looking north from southern corner of site



Plate 4. Areas of lawn to southeast of dwelling (B1)



Plate 5. Western corner of dwelling



Plate 6. Northeast elevation of dwelling



Plate 7. Southwest elevation of B2 & B3



u1b5 – buildings

- 5.2.7 The main dwelling (B1, Appendix 3) was located centrally in the site and comprised a two-story brick-built detached house and attached garage, constructed in the mid-20th Century (Plates 1, 2, 3, 5 & 6). The main dwelling had a T-shaped multi-pitched roof covered with pantiles. The roof had a southeast gable with coping, whilst the southeast and northeastern ends of the building had a hipped roof. A tall brick chimney was present on the northwest elevation and the main roof had plastic soffits and gutters. A uPVC framed conservatory with a pitched and hipped aggregate tile covered roof was present on the southwest elevation, with a flat roofed garage on the southeast elevation. Windows across the dwelling were mainly wood-framed and double-glazed.
- 5.2.8 In the northern corner of the site was B2, which comprised an open-fronted timber-framed wood store with a gently sloping corrugated metal sheet covered roof (Plate 7). Building 3 comprised a pre-fabricated wooden shed with a felt covered roof and single pane window (Plate 7).

Plate 8. Other developed land in eastern corner of site



u1b6 – developed land

- 5.2.9 A driveway accessed the site from its eastern corner and extended into parking areas to the southeast of the main dwelling (B1) (Plates 6 & 7). Areas of patio were also present to the dwelling's southwest and northwest, with slab covered paths through the garden to the southeast of the dwelling (Plate 4).

Plate 9. Hedge 1



Plate 10. Hedge 2



h2b – non-native and ornamental hedgerow

- 5.2.10 Hedge 1 (see H1, Appendix 3), on the northeast boundary, comprised a mix of ornamental shrubs c.1.5 m high x 1.5 m wide and was composed of hedgehog rose *Rosa rugosa*, wall cotoneaster *Cotoneaster horizontalis*, berberis *Berberis spp.*, silver birch *Betula pendula*, snowberry *Symphoricarpos albus*, sycamore *Acer pseudoplatanus* and holly *Ilex aquifolium*.
- 5.2.11 Hedge 2 was present growing along the northwest boundary and was approximately 1.5 m tall x 1 m wide. Cypress *Cupressus spp.* hedging was dominant, together with rarely occurring garden privet *Ligustrum ovalifolium* and blackthorn *Prunus spinosa*.
- 5.2.12 This habitat is assigned a default condition within The Statutory Biodiversity Metric (Defra, 2023).

32 – scattered trees

- 5.2.13 Single trees were present to the southeast and north of the dwelling, however the majority of trees comprised either a part of the boundary line-of-trees present along Sackup Lane, or were growing at the southwest end of the site (Plates 1, 2 & 4).
- 5.2.14 Tree species growing on site, outside the line of trees, comprised frequently occurring horse chestnut *Aesculus hippocastanum*, cypress *Cupressus spp.* and holly *Ilex aquifolium*, together with rowan *Sorbus aucuparia* and weeping willow. The only large tree on site comprised the weeping willow in the western corner of the garden (Plate 2).
- 5.2.15 Trees were assessed against the Condition Assessment Criteria detailed in The Statutory Biodiversity Metric (Defra, 2023), with the results of these assessments detailed in Appendix 6. For the purposes of assessment using The Statutory Biodiversity Metric, those copper beech trees within the line of trees on the southeast boundary, that were medium sized or larger, were mapped and considered individual trees and they are included in Appendix 6.

33 – line of trees

- 5.2.16 A line of medium sized trees comprising abundant copper beech, together with occasional rowan, cypress, wild cherry *Prunus avium* and holly, was present on the site's southeast boundary (Plate 11).
- 5.2.17 For the purposes of assessment using The Statutory Biodiversity Metric, those copper beech trees within the line of trees on the southeast boundary, that were medium sized or larger, were mapped and considered individual trees and they are included in Appendix 6. This was considered the most sensible approach as small trees in garden settings are not to be input into The Statutory Biodiversity Metric (Defra, 2023)

Plate 11. Line of trees, viewed from opposite side of Sackup Lane



847 – introduced scrub

- 5.2.18 Ornamental beds were present to the northeast and southeast of the dwelling (Plates 1, 4 & 8). Species present within these beds included a wide variety of mainly non-native species, including lilac *Syringa vulgaris*, hebe *Veronica spp.*, cypress *Cupressus spp.*, yew *Taxus baccata*, fuschia *Fuchsia spp.*, Californian lilac *Ceanothus spp.*, soapwort *Saponaria officinalis*, snowberry *Symphoricarpos albus*, Japanese laurel *Aucuba japonica*, rhododendron *Rhododendron ponticum*, elder *Sambucus nigra*, hydrangea *Hydrangea spp.*, bramble *Rubus fruticosus agg.*, buddleia *Buddleja davidii*, red valerian *Centranthus ruber*, montbretia *Crocasmia × crocosmiiflora* and rowan *Sorbus aucuparia*.
- 5.2.19 This habitat is assigned a default condition within The Statutory Biodiversity Metric (Defra, 2023).

5.3 Species and Species Groups

Amphibians

- 5.3.1 No great crested newt records were provided by Barnsley Biological Records Centre for locations within a 1.5 km radius of the site. A series of six great crested newt presence records, all collected in 2014 from a location c.2 km south of the site, were however included in the Class Survey Licence Returns dataset on the MAGIC web resource. No historic great crested newt mitigation licences, or presence records included on the 2017-2019 Pond Surveys datasets were located within a 2 km radius of the site.
- 5.3.2 Seven amphibian records were provided by Barnsley Biological Records Centre for locations within a radius of 1.5 km of the site centroid. Records included three common toad *Bufo bufo*, two common frog *Rana temporaria* and two smooth newt *Lissotriton vulgaris* records. The closest records to site comprised single common toad and common frog records, collected in 1995 from a location c.1 km southwest of the site
- 5.3.3 The pond search revealed no ponds within a 500 m radius of the site. Given the apparent absence of suitable local breeding sites, it was considered that populations of amphibians present in the local area were likely to weak, if present at all. Consequently the site was considered unlikely to experience much use by common amphibian species with great crested newt expected to be absent.

Badger

- 5.3.4 Two badger *Meles meles* records were provided by Barnsley Biological Records Centre for locations within a 1.5 km radius of the site centroid. Both records comprised field signs, recorded more than 900 m from the site.
- 5.3.5 Given the lack of field signs, the site's suburban location and the lack of local records it was considered unlikely, though not impossible, that the site would experience use by foraging badger.

Bats

Third party records

- 5.3.6 A total of 19 bat records were provided by Barnsley Biological Records Centre. Positively identified species in the records comprised common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula* and Leisler's bat *Nyctalus leisleri*. No records were provided for the site itself with the nearest record comprising a roost used by a single bat of an unidentified species, recorded from a location 390 m northwest of the site in 2005.
- 5.3.7 A total of 31 bat records were provided by South Yorkshire Bat Group. Positively identified species in the records comprised common pipistrelle, Nathusius' pipistrelle *Pipistrellus nathusii*, soprano pipistrelle, noctule and Leisler's bat. No records were provided for the site itself with the nearest record comprising an injured pipistrelle bat, collected in 2015 from a location 110 m south of the site.
- 5.3.8 No historic EPS mitigation licences have been obtained for locations within 2 km of the application site.

Internal and external inspection of buildings

5.3.9 Potential roost features associated with the exterior of the dwelling (B1) comprised the following:

- Lifted flashing around the base of the chimney.
- Potential access to the wall top behind the gutters.
- Occasional gaps between roof tiles.

5.3.10 Internally the roof of the dwelling (B1) was L-shaped with no felt present and the roof suspended on a ridge beam, rafters, purlins and battens. The void varied between a height of 1.5 m and 1.2 m. Torching was present on the underside of tiles with light gaps noted between some tiles. A layer of glass fibre insulation c. 100 mm thick was present with the ceiling boarded. The roof void was quite dirty internally.

5.3.11 No signs of bats were recorded from either the inside or outside of the dwelling and this building was considered to display a low level of bat roosting suitability.

5.3.12 The open-fronted wood store (B2, Plate 7) and wooden shed (B3, Plate 7) were both inspected and considered to display a negligible level of bat roost suitability.

Plate 12. Lifted flashing at base of chimney



Plate 13. Gaps beneath lifted roof tiles



Plate 14. Interior of roof void



Nocturnal survey

- 5.3.1 29th August 2024 - Sunset was at 20:02. The temperature at the beginning of monitoring was 15 °C, with a light air (Beaufort Scale Force 1) and a clear sky. The temperature dropped to 13 °C by the end of monitoring with the wind ceasing and the sky remaining clear. The weather was dry throughout.
- 5.3.2 No bat roosting activity was recorded during the survey. The first bat activity recorded during the survey comprised a common pipistrelle commuting onto site from the east at 20:26 (24 minutes after sunset). Thereafter intermittent common pipistrelle foraging and commuting activity was recorded for the remainder of the survey. No other bat species were recorded during the survey.

- 5.3.3 Taking into account the results of the building inspections and nocturnal surveys. It was considered that the likely absence of roosting bats from site buildings had been demonstrated.

Trees and foraging suitability

- 5.3.4 There were no trees either on, or adjacent to the site that displayed features with potential to accommodate roosting bats.
- 5.3.5 The nocturnal survey showed some site use for foraging by at least one species of bat. The mature garden exhibited a good structural diversity (grassland, shrubs and trees), which is associated with wind protected foraging areas and the generation of insect prey. Nevertheless, the site was limited in extent and located adjacent to other similar albeit smaller gardens. The northwest hedgerow comprised part of a wider hedgerow network. The southeast treeline bordering Sackup Lane, although of value as a foraging resource, did not however connect to an extended network or treeline/hedgerow and was thus less likely to be of particular value as a part of wider commuting routes.

Birds

- 5.3.6 The only bird species recorded during the field survey comprised greenfinch *Chloris chloris* and blackbird *Turdus merula*.
- 5.3.7 A total of 50 bird records relating to 27 different species were provided by Barnsley Biological Records Centre for locations within the same Ordnance Survey 1 km Grid Square as the site. These species included a wide range of common garden bird species, together with several more specialist farmland birds. Of those garden species which might be expected to use the site, also recorded on the red list species within the Birds of Conservation Concern (Stanbury, 2021), the records included greenfinch (also recorded during the site survey), house sparrow *Passer domesticus*, mistle thrush *Turdus viscivorus* and starling *Sturnus vulgaris*.
- 5.3.8 Site buildings, shrubs and trees have potential for use by nesting birds. Site habitats have potential for foraging use by a wide range of common and widespread bird species. It is however considered that the site lacks much suitability for use by uncommon habitat specialists.

Hedgehog

- 5.3.9 Three hedgehog *Erinaceus europaeus* records were provided by Barnsley Biological Records Centre for locations within a 1.5 km radius of the site. No records were received for the site itself. The closest record to site was collected in 2012 from a location 1.2 km east of the site. The site was considered likely to comprise part of a wider foraging habitat used by this species, were a population to be present in the local area.

Invasive species

- 5.3.10 Four species included on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) were recorded from the site during the field survey. These species comprised hedgehog rose (TN1, Appendix 3; Plate 15), wall cotoneaster (TN1 & TN 3; Plate 15), rhododendron (TN 2; Plate 16) and montbretia (TN 4; Plate 17).

- 5.3.11 The nearest historic record of a species included on Schedule 9, provided by Barnsley Biological Records Centre comprised a record of Japanese knotweed *Fallopia japonica*, collected in 2008 from a location 880 m south of the site.

Plate 15. Wall cotoneaster and hedgehog rose at TN 1



Plate 16. Rhododendron at TN 2



Plate 17. Montbretia at TN 4



Invertebrates

- 5.3.12 Given the ubiquitous garden habitats on site, rarely occurring and/or notable species of invertebrates are not likely to be present.

Plants

- 5.3.13 Given the findings of the field survey and the garden habitats on site, it is considered unlikely to support rare or notable species of flowering plant.

Reptiles

- 5.3.14 One reptile record was provided by Barnsley Biological Records Centre. This record comprised a common lizard *Zootoca vivipara*, recorded in 2019 from a location 1.4 km west of the site.
- 5.3.15 The site displayed no particular suitability for common lizard with the adjacent areas of garden and arable habitat also lacking much suitability. Given the lack of connectivity to areas of higher suitability for this species, it was considered unlikely to be a receptor to the proposed scheme.

5.4 Ecological Importance Summary

- 5.4.1 Table 2 summarises the ecological value of each habitat, species group and species detailed in this section of the report

Table 2. Ecological importance of each habitat, species or species group on site and adjacent

Habitat, Species or Species Group	Ecological value
g4 – modified grassland	Site
u1b5 – buildings	Site
u1b6 – other developed land	Site
h2b – non-native & ornamental hedgerow	Site
32 – scattered trees	Site
33 – line of trees	Site
847 – introduced shrub	Site
Amphibians	Site (if present)
Badger	Site (if present)
Bats	Site
Birds	Site
Hedgehog	Site
Invasive species	Not applicable
Invertebrates	Site
Plants	Site
Reptiles	Unlikely receptor to scheme

5.5 Biodiversity Calculation

- 5.5.1 For the purposes of calculating the site's value using The Statutory Biodiversity Metric the modified grassland, introduced shrub and non-native and ornamental hedgerow were all mapped as Vegetated garden (Appendix 8). Large trees and medium trees present on site, either within the line-of-trees or scattered trees were mapped as individual trees.
- 5.5.2 The existing site's value as calculated The Statutory Biodiversity Metric is 1.52 Habitat Units (Appendix 9).

6. Assessment

6.1 Proposals

- 6.1.1 The assessment of impacts is based on the layout shown in Appendix 1. It is assumed that all existing site habitats, with the exception of the Non-native and ornamental hedgerow along the northwest boundary, will be lost.

6.2 Biodiversity Calculations

- 6.2.1 The Headline Results output of The Statutory Biodiversity Metric are presented in Appendix 9, based on the proposed site habitats shown in Appendix 10. The metric shows a loss of -1.25 Habitat Units (an 81.69 % net loss).
- 6.2.2 A net loss in Habitat Units cannot be avoided for the proposed scheme. As a result, it is proposed to purchase Habitat Units appropriate to deliver a 10 % net gain from a third party landbank (i.e. Environment Bank).

6.3 Assessment of Impacts

- 6.3.1 No impacts upon designated sites are anticipated because of the nature and scale of the development and distance from the single local designated site.
- 6.3.2 Site habitats are considered to be of importance to nature conservation at the site level only. The site is not considered to be of importance at greater than the site level to any faunal species group.
- 6.3.3 The likely unmitigated impacts of the development were considered to comprise:
- The net loss of 148 m² of vegetated garden (comprising a mix of modified grassland, introduced shrub and non-native hedgerow).
 - The loss of one large tree and 11 medium trees, together with other small trees.
 - Damage to the root systems of existing hedgerow plants and trees as a result of construction works.
 - A small loss of foraging habitat for hedgehogs, bats, birds, and invertebrates.
 - The potential exclusion of hedgehogs from new areas of habitat.
 - The loss of bird nesting habitat and the potential removal of active birds' nests. Active bird nests are legally protected from destruction.
 - Increased lighting affecting nocturnal species such as hedgehogs, bats, nocturnal invertebrates and some birds.
 - The potential spread of the invasive plant species hedgehog rose, wall cotoneaster, rhododendron and montbretia. These species are Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) and as a result it is an offence to plant or otherwise cause these plant species to grow in the wild.
 - Biosecurity risks as a result of and bringing in plants, seeds and soil for landscaping.
- 6.3.4 Mitigation and enhancement measures have been proposed for the site.

6.4 Mitigation and Enhancement Measures

Root protection

- 6.4.1 British Standard 5837 (2012): Trees in relation to design, demolition and construction, should be followed. Root Protection Zones (RPZ's) for the retained hedgerow, the retained tree and offsite trees located within 5 m of the site boundary should be calculated and implemented to prevent harm to root systems.

Site clearance

- 6.4.2 Nesting birds were expected to make some use of site vegetation and buildings and consequently it is strongly recommended that site clearance avoids the nesting bird season. If some vegetation clearance is required during the main nesting bird season (March – August) then this should be preceded within 48 hours by a nesting bird check, to be undertaken by an ecologist.

Treatment of existing invasive plant species

- 6.4.3 Prior to site clearance, existing specimens of plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) should be identified and marked by an ecologist. Such species known from the site included hedgehog rose, wall cotoneaster, rhododendron and montbretia. The excavated material may then either be buried on site, in accordance with Regulatory Position Statement 178 (<https://www.gov.uk/government/publications/treatment-and-disposal-of-invasive-non-native-plants-rps-178/treatment-and-disposal-of-invasive-non-native-plants-rps-178>), or removed from site by a licensed waste disposal contractor. The contractor should be notified of the Schedule 9 species that they are transporting.
- 6.4.4 No plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) should be included in the new planting plan for the site.

Wildlife friendly landscaping and addressing additional biosecurity risks

- 6.4.5 The hedgerow on the site's northwest boundary should be retained, with planting of new lengths of hedgerow between adjacent development plots encouraged. A landscaping plan should be developed that includes provision of at least one native tree, or fruit tree within each garden. New areas of lawn to be created, or existing areas to be restored, will be sown with a grass mix that includes fine grasses and wildflowers that will thrive in short grass¹. Advice on how to take care of a flower rich lawn is given on the Plant Life website². This will benefit the invertebrates in the local area and the other wildlife such as hedgehogs, amphibians, birds and bats, that feed on them.
- 6.4.6 All plants and seed should be bought from UK nurseries that adhere to national standards regarding plant health, with UK grown material used in preference wherever available. All imported material must conform with industry standards BS 8601 (Subsoil), BS 3882 Topsoil). Topsoil to be general purpose, 10 mm screened and

¹ An example of a flower rich short sward seed mix is available from:

<https://www.wildflowerlawnsandmeadows.com/product/wild-flower-lawn-seed-mix/>

² Information on how to mow a lawn to maximise the presence of wildflowers can be found at <https://nomowmay.plantlife.org.uk/what-is-no-mow-may/wild-flower-lawn/>

locally sourced (unless otherwise stated). Only peat free compost should be used in landscaping.

Bat and bird boxes

- 6.4.7 Each new dwelling should have one integrated bat brick and one integrated swift *Apus apus* brick as required to accord with Barnsley Council's Biodiversity and Geodiversity Supplementary Planning Document. It is recommended that a bat box design such as the PRO UK Build-in WoodStone Bat Box is used, with a suitable design of swift box comprising the AfS S-Brick. Studies have shown that swift boxes are used by the full range of nesting birds that utilise buildings; consequently, these boxes will also provide potential nesting space for house sparrow and starlings. The proposed locations of new bat and swift boxes are shown in Appendix 11.
- 6.4.8 We recommend the use of bat safe roofing felt as standard. Standard breathable roofing felts are not safe for use in bat roosts. Further information on this issue is included in Appendix 12.

Hedgehogs

- 6.4.9 In order to ensure that hedgehogs continue to be able to freely access the site, 13 cm x 13 cm hedgehog holes should be cut at the base of new dwelling boundary fences. In order to show new homeowners, the purpose of new fence holes, signs should be affixed over the hole on both sides of the fence (i.e. Eco Hedgehog Hole Fence Plate). The proposed locations for hedgehog holes are shown in Appendix 11.

Lighting

- 6.4.10 The design of outside lighting should be carefully considered in line with guidance from the Institute of Lighting Professionals and the Bat Conservation Trust Guidance (IILP, 2023). Where external lighting is required, it must be downwards facing and have a horizontal cut off, i.e. with no upwards component. The lighting should be relatively low level and a warm colour tone (i.e. not cold white or blue). Lighting on the rear of the properties should be activated only by PIR sensors.

6.5 Conclusion and Residual Effects

- 6.5.1 The proposals are expected to result in a net loss of 81.69 % of Habitat Units (a loss of 1.25 Habitat Units). As a result, it is proposed to purchase Habitat Units appropriate to deliver a 10 % net gain from a third party landbank.
- 6.5.2 In order to reduce scheme impacts and to ensure the scheme maximises potential benefits to nature conservation, it is recommended that mitigation and enhancement measures detailed in Section 6.4 are adopted.
- 6.5.3 The results of this survey are considered to be valid for a period of 24 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

7. References

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

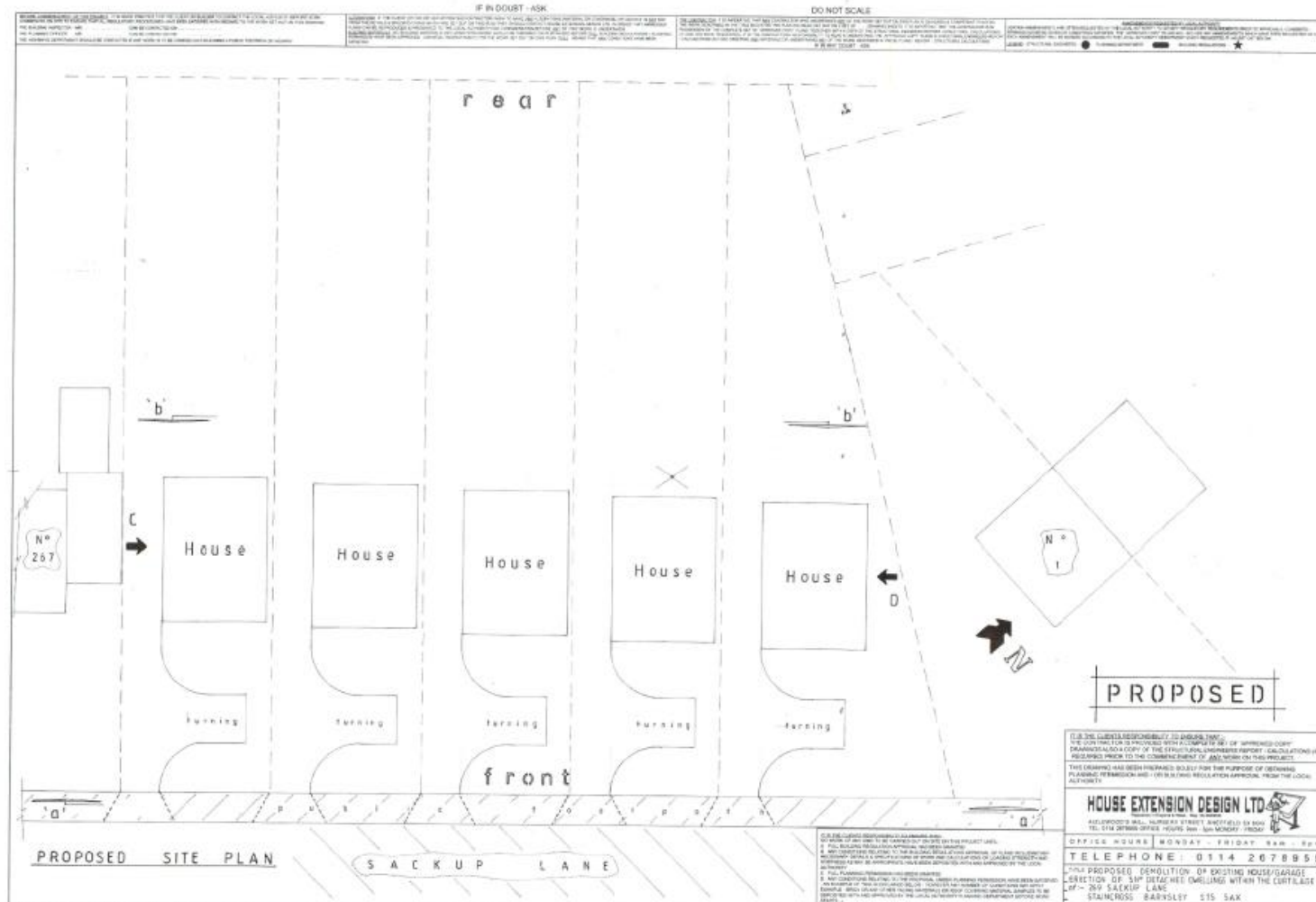
ILP (2023) Guidance Note 08/23 Bats and Artificial Lighting At Night. Bat Conservation Trust and Institute of Lighting Professionals.

Defra (2023) The Statutory Biodiversity Metric User Guide (draft). Defra.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., & I Win (2021) *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds 114: 723-747. Available online at: www.britishbirds.co.uk/content/status-our-bird-populations

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

Appendix 1. Outline Development Proposals



Appendix 2. Relevant Legislation and Policy

Wildlife legislation relating to statutory designated sites and species is summarised in Table A1 and A2 below. This legal information is intended for summary only, and the original legal documents should be consulted if a detailed understanding is required.

Table A1. Legislation relating to designated sites and habitats

Designated Site	Legal Status
Local Wildlife Site (LWS)	While they have no direct legal status, Local Wildlife Sites are considered important enough to receive recognition within the planning system. National planning policy requires local authorities to identify Local Wildlife Sites and provide for their protection through local policy.

Table A2. Legislation relating to species

Species	Legal Status
European protection	
European Protected Species (EPS) (including bats, Great Crested Newt (GCN), otter and hazel dormouse)	These animal species and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2017, which makes it illegal to: • Intentionally or deliberately capture, injure, or kill any such animal or to deliberately take or destroy their eggs. • Deliberately disturb such an animal. • Damage or destroy a breeding site or resting place of such an animal. European Protected Species (EPS) licences can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed: • The development is for reasons of overriding public interest. • There is no satisfactory alternative; and • The favourable conservation status of the species concerned will be maintained and/or enhanced. Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed. Natural England also allow sites to be registered on the Bat Low Impact Class Licence to permit activities that would otherwise be unlawful under the Conservation Regulations where the 3 tests can be passed and the bat roosts to be impacted are of low conservation status.

Species	Legal Status
National protection	
European Protected Species and other species including water vole and white clawed crayfish	These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any such animal. • Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and • Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
Common amphibians and reptile species	These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.
Badger	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and also make it illegal to intentionally or recklessly interfere with a Badger sett. This includes damaging or destroying a sett, obstructing access to a sett and disturbing a Badger while it is occupying a sett. Licences can be granted by Natural England to permit sett closure and/or disturbance between July and November inclusive.
Schedule 1 birds	Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.
All bird species	All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any wild bird. • Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
Invasive species	The Wildlife and Countryside Act 1981 (as amended) 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 of the Act. In relation to Schedule 9 plants it is an offence to plant or otherwise cause these plant species to grow in the wild.

Species and Habitats of Principal Importance

Planning authorities have a duty under Section 40 of the NERC Act 2006 to have regard to priority species and habitats in exercising their functions including development control and planning. In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is known as the list of Habitats and Species of Principal Importance (HPI/SPI). The HPI/SPI list is used to guide planning authorities in implementing their duty under the NERC Act.

National Planning Policy Framework

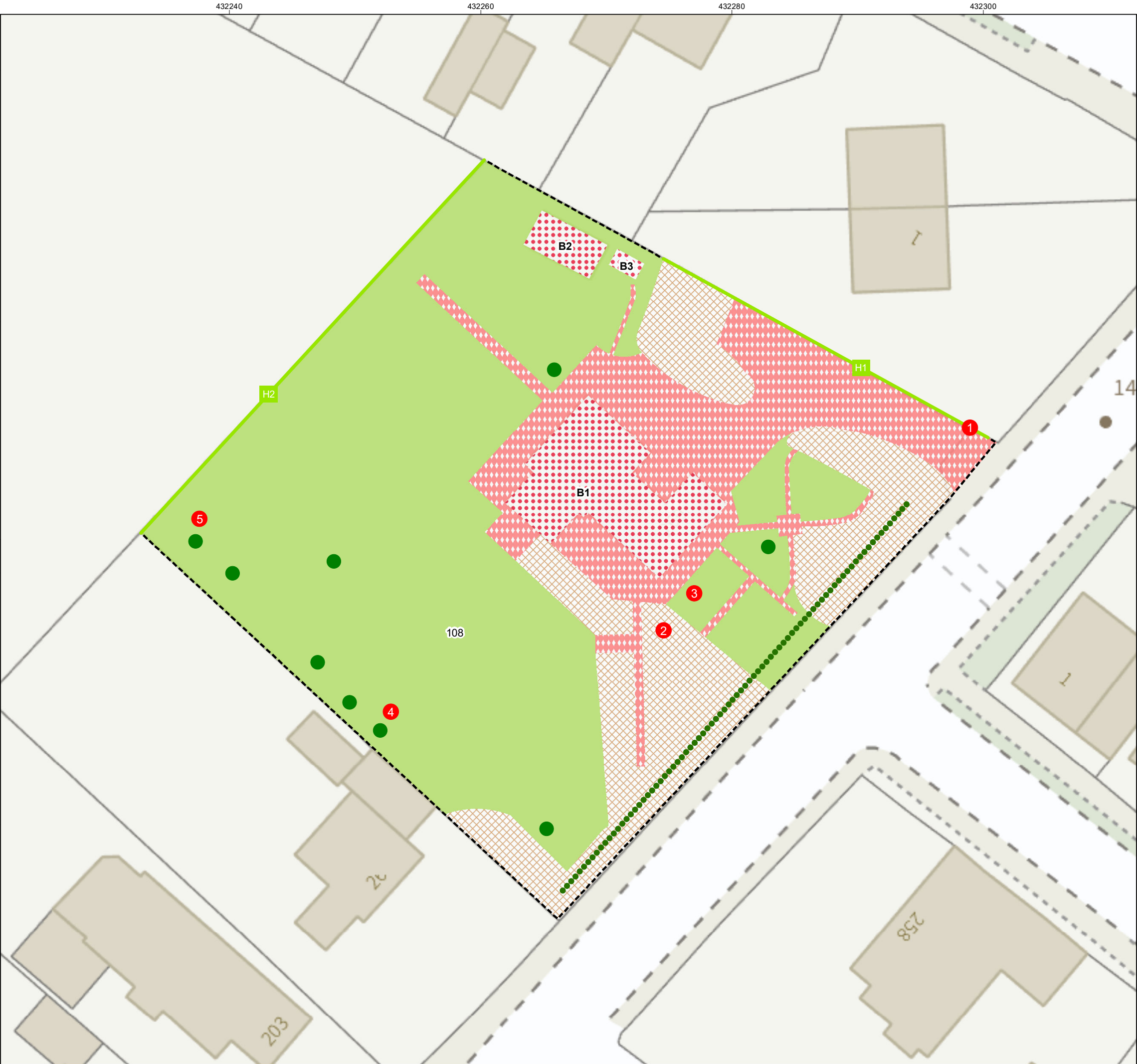
The National Planning Policy Framework for England was revised in 2024. This document states that plans should 'protect and enhance biodiversity by identifying sites of importance for biodiversity' and the conservation, restoration and re-creation of priority habitats, and ecological networks and should 'pursue opportunities for securing measurable net gains for

biodiversity'. It also puts an emphasis on refusing development which would result in 'significant harm to biodiversity which cannot be mitigated or compensated for' or the 'loss or deterioration of irreplaceable habitats (such as ancient woodland)' unless there are 'wholly exceptional reasons and a suitable mitigation strategy exists'.

Local Biodiversity Action Plans

The HPI/SPI list included on Section 41 of the NERC Act 2006 is supported by a series of Local Biodiversity Action Plans (LBAPs), usually set up on a local authority local authority administrative boundary basis. Each LBAP identifies those habitats and species considered to be most important in that area (usually referred to as priority habitats and species). Commonly, an LBAP will identify a number of habitats and species for which "action plans" have been prepared.

Appendix 3. UK Habitat Classification Plan



Survey Information	
	Site boundary (2,083.8m ²)
UK Habitat Survey (Primary Habitats)	
	g4 - Modified grassland (1,213.5m ²)
	u1b5 - Building (134.0m ²)
	u1b6 - Other developed land (355.1m ²)
	847 - Introduced shrub (381.2m ²)
	h2b - Non-native & ornamental hedgerow (H1:29.5m, H2:403.m)
	33 - Line of trees (41.4m)
	32 - Scattered tree (9)
	Target note

Secondary codes:

108 - Frequently mown

Target notes:

1 – Hedgehog rose and wall cotoneaster specimens in hedge
2 – Rhododendron specimen
3 – Wall cotoneaster specimen
4 – Montbretia specimen
5 – Compost heap for leaf mould with mesh sides

Source:
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0 2.5 5 10
Metres

PROJECT TITLE

SACKUP LANE, DARTON

DRAWING TITLE

Figure 1. UK Habitat Survey Plan

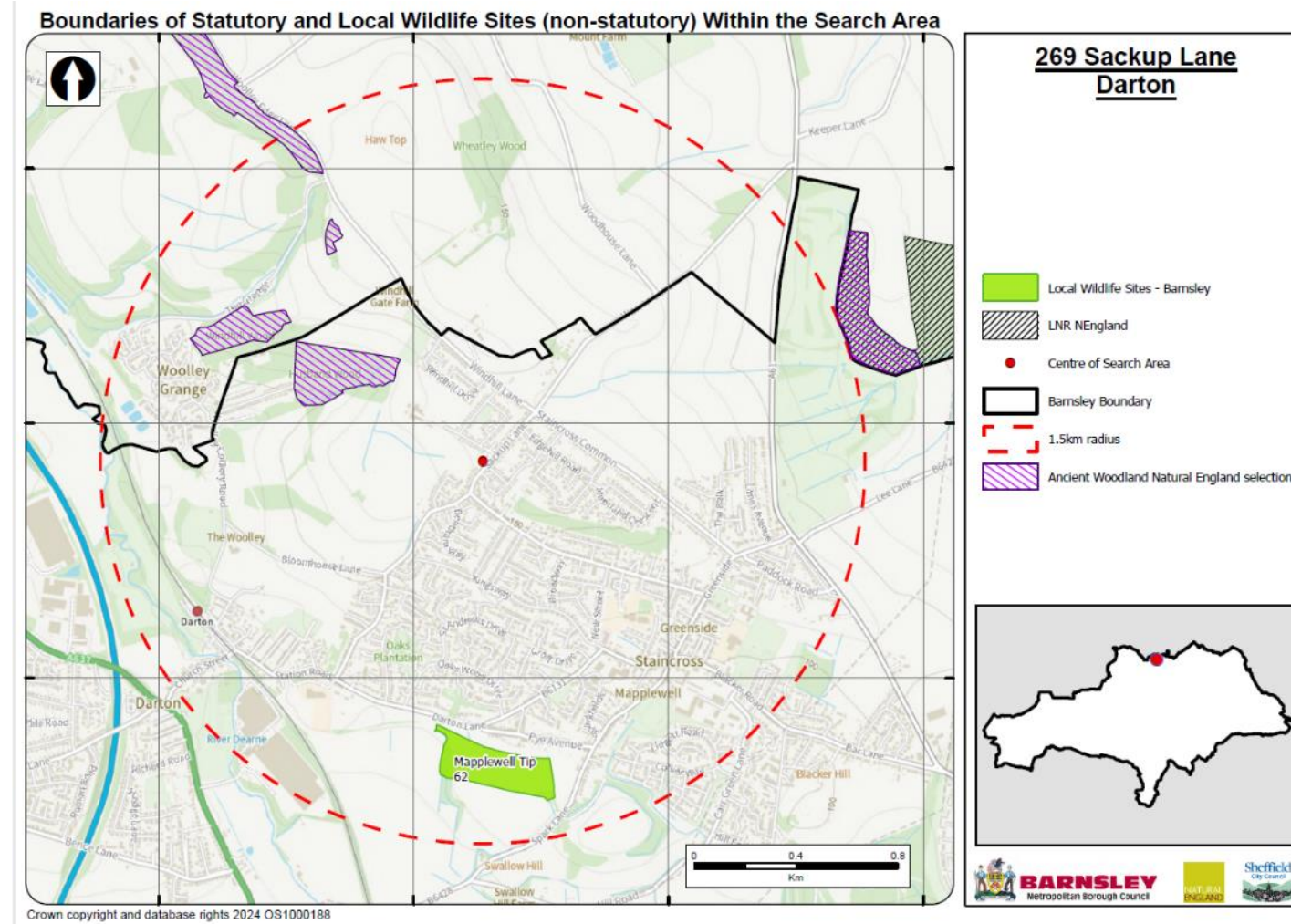
VER	DATE	REMARKS	Drawn	Checked
1.0	10/09/24	UKHab	MP	RB

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/SackupLane/UKHab

SCALE	1:300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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Appendix 4. Designated Sites Map



Appendix 5. Plant Species Recorded on Site

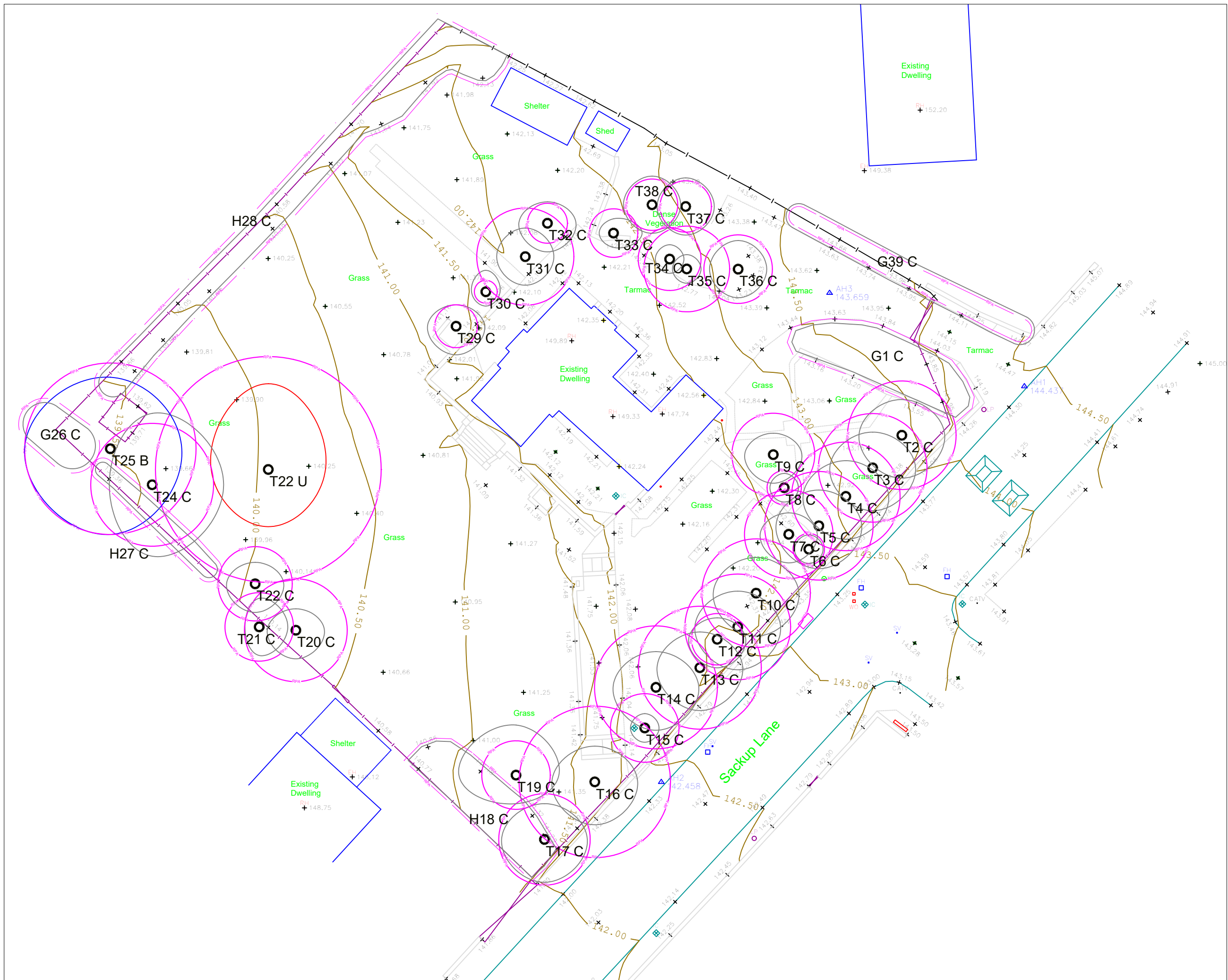
Common Name	Latin Name	g4 - modified grassland	h2b – non-native and ornamental hedgerow	32 – scattered trees	33 – line of trees	847 – introduced scrub
Perennial rye grass	<i>Lolium perenne</i>	A				
Broadleaf plantain	<i>Plantago major</i>	F				
Creeping buttercup	<i>Ranunculus repens</i>	F				
Red fescue	<i>Festuca rubra</i>	F				
Selfheal	<i>Prunella vulgaris</i>	F				
White clover	<i>Trifolium repens</i>	F				
Common dog violet	<i>Viola riviniana</i>	O				
Yorkshire fog	<i>Holcus lanatus</i>	O				
Cypress	<i>Cupressus spp.</i>		A	F	O	O
Holly	<i>Ilex aquifolium</i>		O	F	O	
Snowberry	<i>Symphoricarpos albus</i>		O			O
Berberis	<i>Berberis spp.</i>		O			
Blackthorn	<i>Prunus spinosa</i>		O			
Garden privet	<i>Ligustrum ovalifolium</i>		O			
Hedgehog rose	<i>Rosa rugosa</i>		O			
Silver birch	<i>Betula pendula</i>		O			
Sycamore	<i>Acer pseudoplatanus</i>		O			
Wall cotoneaster	<i>Cotoneaster horizontalis</i>		O			
Rowan	<i>Sorbus aucuparia</i>			F	O	O
Horse chestnut	<i>Aesculus hippocastanum</i>			F		
Weeping willow	<i>Salix babylonica</i>			F		

Common Name	Latin Name	g4 - modified grassland	h2b – non-native and ornamental hedgerow	32 – scattered trees	33 – line of trees	847 – introduced scrub
Copper beech	<i>Fagus sylvatica purpurea</i>				A	
Wild cherry	<i>Prunus avium</i>				O	
Bramble	<i>Rubus fruticosus agg.</i>					O
Buddleia	<i>Buddleja davidii</i>					O
Californian lilac	<i>Ceanothus spp.</i>					O
Elder	<i>Sambucus nigra</i>					O
Fuchsia	<i>Fuchsia spp.</i>					O
Hebe	<i>Veronica spp.</i>					O
Hydrangea	<i>Hydrangea spp.</i>					O
Japanese laurel	<i>Aucuba japonica</i>					O
Lilac	<i>Syringa vulgaris</i>					O
Montbretia	<i>Crocasmia × crocosmiiflora</i>					O
Red valerian	<i>Centranthus ruber</i>					O
Rhododendron	<i>Rhododendron ponticum</i>					O
Soapwort	<i>Saponaria officinalis</i>					O
Yew	<i>Taxus baccata</i>					O

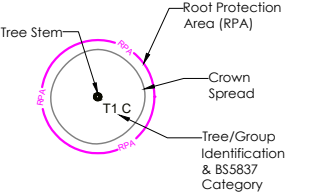
Appendix 6. Individual Tree Condition Assessment Table

Tree number (Arboricultural Report)	T2	T3	T4	T5	T10	T13	T14	T16	T20	T23	T24	T25
Number of component trees	1	1	1	1	1	1	1	1	1	1	1	1
Size	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Large	Medium	Medium
A - Tree is a native species	No	No	No	No	No	No	No	No	Yes	No	No	No
B - Tree canopy is predominantly continuous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
C - The tree is mature	No	No	No	No	No	No	No	No	No	Yes	No	No
D - There is little or no evidence of an adverse impact on tree health by human activities	No	No	No	No	No	No	No	No	No	No	Yes	Yes
E - Natural ecological niches for vertebrates and invertebrates are present	No	No	No	No	No	No	No	No	No	Yes	No	No
F - More than 20 % of the tree canopy is oversailing vegetation beneath	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Condition	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Moderate	Moderate	Moderate	Moderate
Notes	Heavily pollarded	Heavily pollarded	Heavily pollarded	Heavily pollarded	Heavily pollarded	Heavily pollarded	Heavily pollarded	Heavily pollarded	Heavily pollarded	Pollarded		

Appendix 7. Tree Constraints Plan



KEY

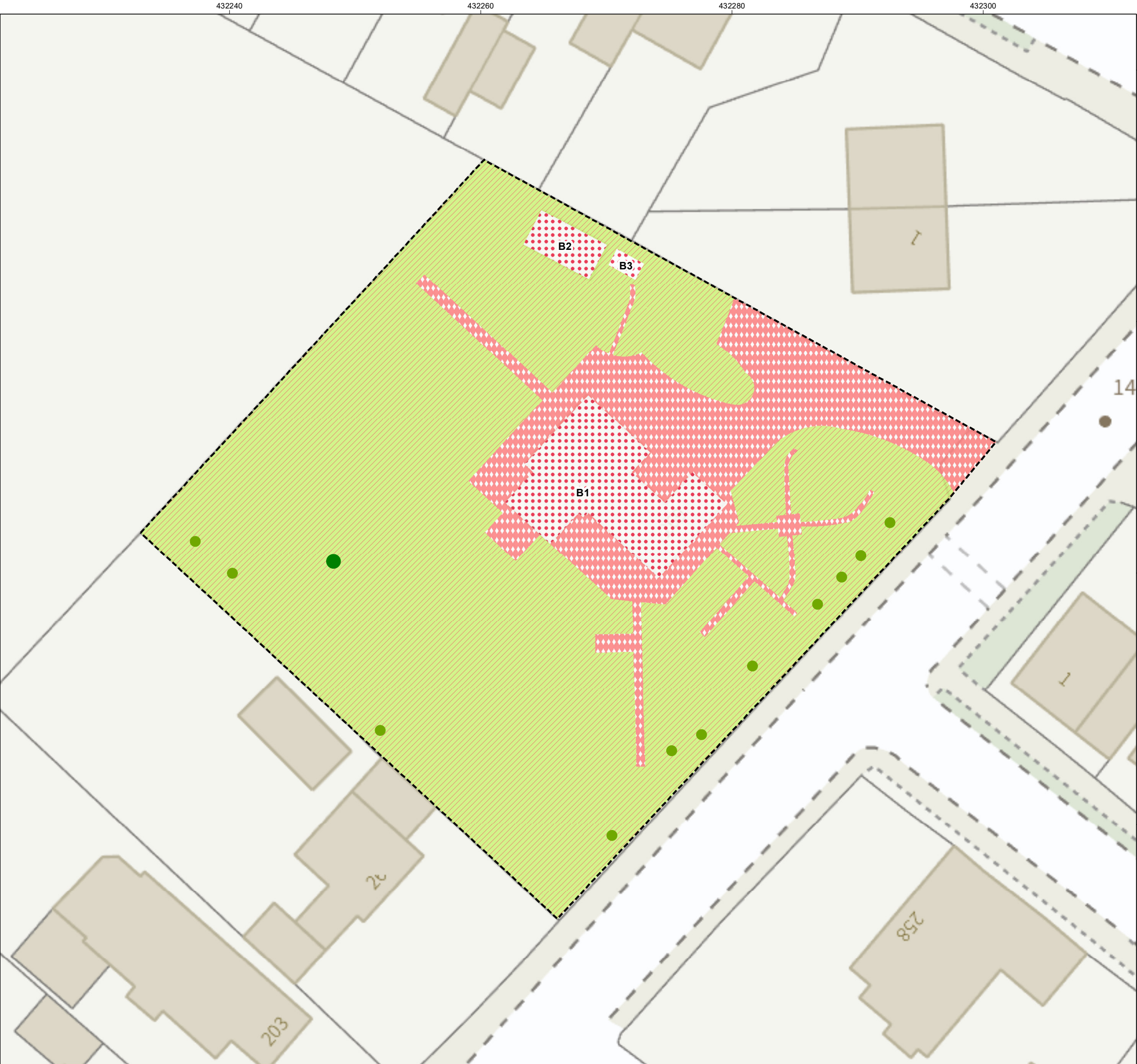


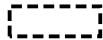
- Category A**
Tree/group of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**
Tree/group of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**
Tree/group of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
- Category U**
Trees in such condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.

Drawing Title:	
Tree Constraints Plan	
Site Address:	
269 Sackup Lane Darton	
Client:	
Mr F Collumbine	
Date:	Job Ref:
11/06/2024	TCC-1934-1
Scale:	Revision:
1:250 at A3	1

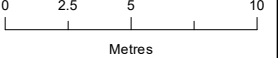
Tree Care Consultancy
ARBORICULTURAL CONSULTANTS
Clifton Villa, 37 Hall Cliffe Road, Horbury
Wakefield, West Yorkshire, WF4 6BY
Phone: 01924 270619
Email: info@treecareconsultancy.co.uk
Company Number: 10363679
VAT: 253 6681 87

Appendix 8. Biodiversity Net Gain Baseline Plan



Survey Information	
	Site boundary (2,083.8m ²)
UK Habitat Survey (Primary Habitats)	
	u1b5 - Building (134.0m ²)
	u1b6 - Other developed land (355.1m ²)
	828 - Vegetated garden (1,594.7m ²)
	Large tree (1)
	Medium tree (11)

Source:
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PROJECT TITLE

SACKUP LANE, DARTON

DRAWING TITLE

Figure 2. Biodiversity Net Gain Habitat Plan

VER	DATE	REMARKS	Drawn	Checked
1.2	16/12/24	BNG	MP	RB

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/SackupLane/BNG

SCALE	1:300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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Appendix 9. Biodiversity Metric Headline Results

Land off Sackup Lane, Darton		Return to results menu		
Headline Results				
Scroll down for final results ▲				
On-site baseline	Habitat units	1.52		
	Hedgerow units	0.00		
	Watercourse units	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.28		
	Hedgerow units	0.00		
	Watercourse units	0.00		
On-site net change (units & percentage)	Habitat units	-1.25	-81.69%	On-site net gain is less than target set ▲
	Hedgerow units	0.00	0.00%	
	Watercourse units	0.00	0.00%	
Off-site baseline	Habitat units	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site net change (units & percentage)	Habitat units	0.00	0.00%	
	Hedgerow units	0.00	0.00%	
	Watercourse units	0.00	0.00%	
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-1.25		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Spatial risk multiplier (SRM) deductions	Habitat units	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
FINAL RESULTS				
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-1.25		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	-81.69%	Total net gain achieved is less than target set ▲	
	Hedgerow units	0.00%		
	Watercourse units	0.00%		
Trading rules satisfied?		No - Check Trading Summaries ▲		

Appendix 10. Proposed Habitat Plan



Survey Information	
	Site boundary (2,083.8m ²)
UK Habitat Survey (Primary Habitats)	
	u1b - Developed land; sealed surface (637.5m ²)
	828 - Vegetated garden (1,446.3m ²)

Source:
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Metres

PROJECT TITLE

SACKUP LANE, DARTON

DRAWING TITLE

Figure 3. Proposed Habitat Plan

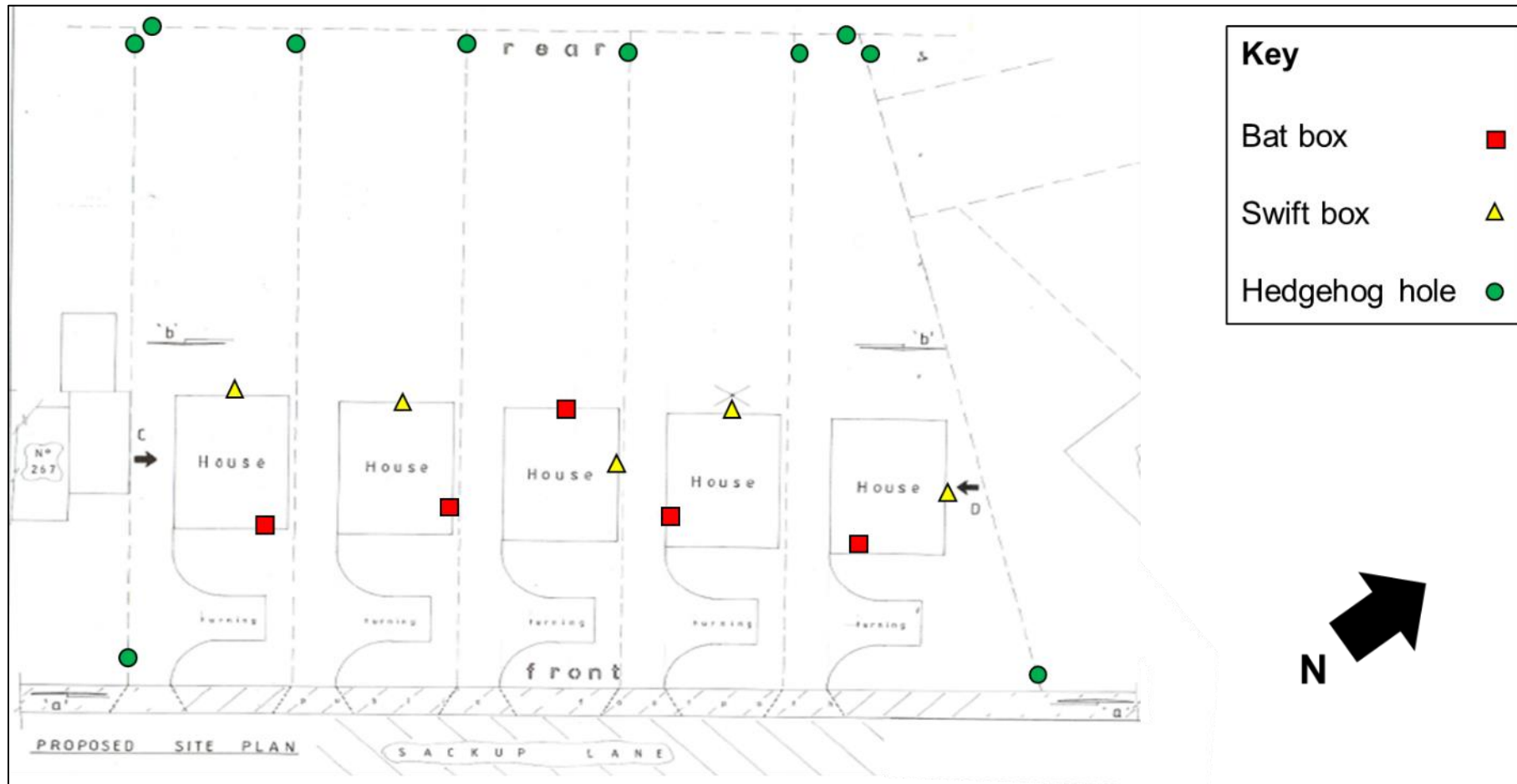
VER	DATE	REMARKS	Drawn	Checked
1.1	17/12/24	Proposed	MP	RB

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/SackupLane/Proposed

SCALE	1:300	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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Appendix 11. Bat Box, Bird Box and Hedgehog Hole Plan



Appendix 12. Bats and Roofing Membranes

Standard roof membranes can cause the death of significant numbers of bats. Traditional bitumen coated roofing felt is recommended where roosting bats are expected to be present.

The problem

Standard non-bitumen coated membranes (including almost all breathable membranes) used below roof slates and tiles present a significant problem for bats. Over time, strands are pulled away from the surface of these materials as bats crawl over them. These fuzzy strands are very strong and can tangle and trap bats, sometimes causing the death of bats over multiple years³.

One example we have encountered comprised a pipistrelle roost which formed in a building extension constructed in 2009. Over the course of just 13 years the roofing felt degraded to the extent that it trapped and killed more than 10 bats. Fortunately, the problem in this roost was identified and remedial work was undertaken to replace the roofing membrane in 2022.

Plate A12.1. Four dead pipistrelles tangled in breathable roofing membrane



Although a new roof might be considered to lack potential bat access points, that is often not the case. Roofs covered with stone slates almost always have gaps large enough to be accessed by bats, this is often also the case where imitation stone slates are used. On older buildings the uneven roof timbers and/or building design also often results in gaps on wall tops and between slates. Even on new builds it is often possible for bats to access potential roosts via features such as dry verge capping. Some bats can access a space no wider than a biro pen, therefore it is not surprising that they can find their way into most buildings.

Safe roofing membranes (and membranes behind cladding)

From a bat perspective, the best membrane option for areas where roosts are expected comprises traditional hessian-backed Type 1F bituminous felt. This product has been widely and safely used as a secondary weather barrier since approximately the 1950s/1960s. Wooden sarking has also been used for many decades and if appropriately treated, is safe for use in bat roosts. Wooden sarking also has the benefit of providing adding additional insulation

³ Wearing S. Essah E., Gunnel K. & Bonser R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. Architecture and Environment

and it is usually breathable.

At the time of writing (and to our knowledge) two products have passed the 'snagging propensity' test; consequently these products are approved by Natural England for use in bat roosts. This test attempts to replicate the wear and tear which results from bats crawling over the membrane. The approved products are: TLX BatSafe^{4,5} and SIGA Majcoat 350. Although they have passed this test, it is unclear how these membranes will degrade in the medium-long term, particularly in larger bat roosts. Therefore we do not recommend that they are used for roosts with multiple bats, and particularly for large (maternity roosts). A third product, SIGA Majcoat 200 SOB Diffusion, passed the test for its upper surface only. This product should not be used in known bat roosts or locations where bat mitigation is to be installed. Although none of these products are considered to be as safe as traditional Type 1F bituminous felt, they may provide an option for roofs where future bat use cannot be ruled out, and a breathable solution is required.

Additional considerations

In recent years a fairly substantial proportion of the lofts we have surveyed which had existing breathable felt, were found to have been damaged by wasps. The wasps appear to have chewed holes in the felt and formed nests. This doesn't appear to be a problem associated with traditional bitumen coated roofing felt. Any holes within roofing felt are likely to significantly reduce its functionality as a secondary weather barrier. Where bats or birds come into contact with breathable roofing membranes, they can also damage it causing it to leak, they can also significantly reduce the breathability of the felt in that location.

Plate A12.2. Damage to a breathable roofing membrane adjacent to a wasp nest



Traditional bituminous Type 1F roofing felt is a non-breathable product and therefore ventilation is required. Sufficient ventilation can be usually be achieved, even in buildings with vaulted ceilings, however, some consideration during the design stage is required. Products to increase the ventilation within roofs where bituminous Type 1F felt has already been installed are also available.

⁴ <https://www.gov.uk/government/publications/bats-apply-for-a-mitigation-licence#full-publication-update-history~:text=Use%20of%20safe%20roofing%20membranes>

⁵ TLX BatSafe requires all joints and cut edges to be taped in order to prevent the fraying of bare edges.

Appendix 13. Bat Records

In accordance with best practice and the requirements of bat licensing, bat records collected during surveys are supplied to the relevant biological record centres and bat groups. The records to be supplied in accordance with this survey are shown below. House names/numbers are not given out by record holding organisations except under very particular circumstances. Please let us know if you object to the distribution of these records.

Date	Species	Address	OS Grid Reference	Notes
29/08/2024	Common pipistrelle	269 Sackup Lane, Darton	SE 32260 10840	Foraging