

Sheffield City Council Local Plan SES30 – Preliminary Ecological Appraisal

Sheffield City Council

Date: 10/09/2025
Prepared by: Cura Terra Land & Nature
Ref: 25518-SES30-PEA-V2.0

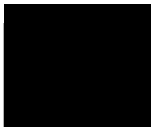
Report to: Sheffield City Council

Report Title: Sheffield City Council Local Plan SES30- Preliminary Ecological Appraisal

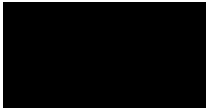
Version: V2.0

Issue Date: September 2025

Report Ref: 25518-SES30-PEA-V2.0

Originated By: 
James Storey
Senior Ecologist Date: 22/08/2025

Reviewed By: 
Sarah Thresher
Associate Director of Ecology Date: 27/08/2025

Approved By: 
Claire Convallaria
Associate Director of Ecology Date: 29/08/2025

Prepared by:
 Cura Terrae Land & Nature, 4 President Buildings, Savile Street, Sheffield, S4 7UQ. 0114 266 9292

Version	Author	Description	Date
V0.1	JS	First draft	22/08/2025
V0.2	ST	Quality assurance check 1 (QA1)	27/08/2025
V0.3	JS	Amendments following QA1	29/08/2025
V0.4	CC	QA2	29/08/2025
V1.0-2.0	JS	Client issue	10/09/2025

The report and the site assessments carried out by Cura Terrae on behalf of the client in accordance with the agreed terms of contract and/or written agreement form the agreed Services. The Services were performed by Cura Terrae with the skill and care ordinarily exercised by a reasonable Environmental Consultant at the time the Services were performed. Further, and in particular, the Services were performed by Cura Terrae taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between Cura Terrae and the client.

Other than that expressly contained in the paragraph above, Cura Terrae provides no other representation or warranty whether express or implied, in relation to the services.

This report is produced exclusively for the purposes of the client. Cura Terrae is not aware of any interest of or reliance by any party other than the client in or on the services. Unless expressly provided in writing, Cura Terrae does not authorise, consent or condone any party other than the client relying upon the services provided. Any reliance on the services or any part of the services by any party other than the client is made wholly at that party's own and sole risk and Cura Terrae disclaims any liability to such parties.

This report is based on site conditions, regulatory or other legal provisions, technology or economic conditions at the time of the Service provision. These conditions can change with time and reliance on the findings of the Services under changing conditions should be reviewed.

Cura Terrae accepts no responsibility for the accuracy of third-party data used in this report.

Contents

Executive Summary	4
1. Introduction	6
1.1 Background	6
1.2 Legislation	6
2. Methodology	8
2.1 Data Consultation	8
2.2 Ecological Walkover Survey	9
2.3 Protected and Key Species	9
2.4 Invasive Species.....	11
2.5 Assumptions and Limitations	12
3. Findings and Evaluation	13
3.1 Site Description	13
3.2 Designated Sites	13
3.3 Habitats.....	15
3.4 Species.....	20
3.5 Invasive Species.....	25
4. Ecological Constraints and Recommendations	27
4.1 Proposals	27
4.2 Constraints, Potential Impacts and Recommendations	27
5. Ecological Enhancement	44
6. References.....	46
Figure 1: UK Habitat Classification Map	48
Figure 2: Designated Sites Map	49
Figure 3: Waterbody Location Map	50
Appendix 1: Site Photographs.....	51
Appendix 2: Non-Statutory Designated Sites.....	52
Appendix 3: Bird Species.....	58

Executive Summary

Cura Terrae Land & Nature (Cura Terrae) was commissioned in July 2025 by Sheffield City Council (SCC) to undertake a Preliminary Ecological Appraisal (PEA) for a circa 36.55 -hectare (ha) area of land between Bramley Lane and Beaver Hill Road, Handsworth, Sheffield, S13 9HH (Ordnance Survey National Grid Reference (OS NGR): SK 41381 85669), hereafter referred to as ‘the Site’ and as annotated in Figure 1.

At the time of writing, no detailed development proposals for the Site were available. However, it is understood that SCC may consider removing the Site from its current Green Belt designation and bringing it forward for potential residential development in the future, so this report is based on reasonable estimates and assumptions. The impact assessment and recommendations made within this report would therefore need to be confirmed following a review of any finalised plans for the Site where these become available.

Shire Brook Local Nature Reserve (LNR), Woodhouse Washlands LNR and Bowden Housteads & Carbrook Ravine LNR are located within 2 km of the Site and the Site is located within one Impact Risk Zone (IRZ) relating to Moss Valley Meadows Site of Special Scientific Interest (SSSI) which is located approximately 4 km west of the Site. No risks relating to the IRZ and likely impacts from a residential development at the Site were identified when consulting the risk register, although this would need to be assessed in full should detailed proposals become available.

The Shirtcliffe Valley Grasslands Local Wildlife Site (LWS), Shirtcliffe Woods & Fields LWS, and Lower Shirtcliffe Valley LWS adjoin the Site directly to the west, south and east. If detailed proposals become available, a full impact assessment should be undertaken prior to any planning decision so SCC can identify any potential impacts and if necessary, design an appropriate mitigation strategy to safeguard the conservation objectives and status of the LWS bounding the Site.

It is recommended that a Construction Ecological Management Plan (CEMP) be prepared to inform any future proposals for the Site given the proximity of the LWS and the range of habitat and species protection measures likely to be required.

The habitat information detailed within this report should form the baseline habitat information for a feasibility stage Biodiversity Net Gain Assessment (BNGA) and predicted quantitative biodiversity values, to be completed should detailed proposals become available for the Site. Given that a watercourse is present on-site (WC1, Figure 1) and the Shirtcliffe Brook (WC2, Figure 3) is located within 10 m of Site to the south east, with both watercourses likely to be impacted by any future proposals, impacts will need to be assessed through a River Condition Assessment (RCA) which would feed into the BNGA and any post-development scenario modelling.

It is recommended that an Invasive Non-Native Species (INNS) walkover survey is undertaken during the appropriate botanical season (April to September inclusive) to fully determine the presence or likely

absence of INNS within the Site ahead of any proposed development commencing. This will inform recommendations for management, treatment, or removal of any INNS encountered to facilitate the works. Any proposed works should follow standard measures to include biosecurity measures to be implemented during the construction and operational phases to reduce the possibility of spread of invasive species and wildlife diseases.

Key recommendations with regards to protected species are as follows:

Based on the lack of suitable aquatic habitats identified within 500m of the Site, Best Practice Measures (BPM) are considered likely to be appropriate to safeguard amphibians and protect great crested newt (GCN) *Triturus cristatus* in the unlikely event they are present at the time of works. Nonetheless due to the size of the Site, records of GCN in the wider landscape within 1 km and presence of suitable terrestrial habitat with dispersal corridors off-site via the wider Shirtcliffe Valley; it is advised that an enquiry is made through the District Level Licencing (DLL) Scheme for GCN to assess whether Natural England (NE) hold any unknown records of waterbodies for locations within 250 m of the Site and inform next steps with regard to GCN. It is advised that a detailed badger *Meles meles* walkover survey covering the Site and within 30 m of the Site boundary is completed in late autumn/early spring by a suitably qualified ecologist to confirm the presence/likely absence of badger setts.

It is recommended that a Ground Level Tree Assessment (GLTA) is undertaken for the Site to assess the suitability of trees on or immediately adjacent to the Site for roosting bats, and also note any incidental evidence of bats, and the requirement for any further survey, mitigation, including licencing, where appropriate.

In order to assess any impacts of any proposals on the Site which is considered to display 'High' suitability for foraging and commuting bats, a suite of bat activity surveys comprising of nighttime bat walkover surveys (NBW) and static monitoring surveys should be undertaken in accordance with good practice guidelines (Collins, 2023).

Breeding bird surveys are recommended to fully consider the impacts of any proposals to the future conservation of certain species in the local area.

Further surveys are recommended for both water vole *Arvicola amphibius* and otter *Lutra lutra*. Best Practice Measures (BPM) with regards to nesting birds should be in place during any proposed vegetation clearance.

BPM are outlined for common amphibians, badger, otter, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus* and harvest mouse *Micromys minutus* to be adhered to during any proposed vegetation clearance and construction (to be detailed in CEMP).

Outline recommendations for ecological enhancement in the form of bat and bird boxes, hedgehog houses, hedgehog highways, insect towers and native planting are recommended to be incorporated as part of any proposals for the Site. Final details for enhancements for those species requiring further survey would need to be confirmed following a review of any finalised plans for the Site along with the results of any further protected species surveys undertaken.

1. Introduction

1.1 Background

- 1.1.1 Cura Terrae Land & Nature (Cura Terrae) was commissioned in July 2025 by Sheffield City Council (SCC) to undertake a Preliminary Ecological Appraisal (PEA) for a circa 36.55 -hectare (ha) area of land between Bramley Lane and Beaver Hill Road, Handsworth, Sheffield, S13 9HH (Ordnance Survey National Grid Reference (OS NGR): SK 41381 85669), hereafter referred to as ‘the Site’ and as annotated in Figure 1.
- 1.1.2 The red line boundary for the Site is taken from the ‘Housing Site’ boundary for SES30, as detailed in the ‘*Sheffield Plan Proposed Additional Site Allocations May 2025*’ document (SCC, 2025).
- 1.1.3 At the time of writing, no detailed development proposals for the Site were available. However, it is understood that SCC may consider removing the Site from its current ‘Green Belt’ designation and bringing it forward for potential residential development in the future, so this report is based on reasonable estimates and assumptions. The impact assessment and recommendations made within this report would therefore need to be confirmed following a review of any finalised plans for the Site where these become available.
- 1.1.4 The purpose of the PEA was to record and map habitats and assess the potential for the Site to support (or contain) species protected under UK nature conservation legislation, namely the Wildlife & Countryside Act 1981 (as amended) (WCA), the Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) and the Natural Environment and Rural Communities Act 2006 (NERC). For full details of legislation relating to those habitats and species discussed within this report visit <http://www.legislation.gov.uk>.
- 1.1.5 This report details the findings of a data consultation and ecological walkover survey carried out in July 2025. The methodologies employed and all survey findings are described along with an evaluation and assessment of the ecological importance of habitats present within the Site and a discussion of likely protected/priority species presence. Any requirement for further survey or assessments and/or mitigation/enhancement is also detailed as required.

1.2 Legislation

- 1.2.1 The primary purpose of the PEA was to identify any ecological constraints to the proposed works, including designated sites, habitats and species protected by legislation, namely, but not limited to:

The Wildlife and Countryside Act (WCA) 1981 (as amended);
The Conservation of Habitats and Species Regulations 2017 (as amended) (“the Habitats Regulations”);

The Protection of Badgers Act 1992;
The Natural Environment and Rural Communities (NERC) Act 2006;
The Environment Act 2021; and,
The Local Biodiversity Action Plan (LBAP) for Sheffield originally produced by the Sheffield Biodiversity Partnership (Sheffield Biodiversity Steering Group, 'Sheffield Local Biodiversity Action Plan', 2002) with updates made in 2012 (in partnership with SCC) including production of Action Plans for four main habitat types (grassland, woodland, heathland and wetland), Action Plans for the River Don and South Yorkshire Navigation Canals, Action Plans for Green Roofs and Species Action Plans (e.g. white clawed crayfish *Austropotamobius pallipes*).

2. Methodology

2.1 Data Consultation

- 2.1.1 A data consultation was undertaken by Cura Terrae in July 2025 with SCC to determine the presence of existing biological records and local non-statutory designated sites of nature conservation interest within 2 km of the Site. All records were received directly from SCC and were reviewed, but records dating from the past ten years are considered to have greater relevance. Data consultations are an important component of a PEA and are the first stage of identifying any ecological constraints and assessing the likely ecological effects of a development proposal.
- 2.1.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website (<http://magic.defra.gov.uk>) was consulted in July 2025 for information on statutory designated sites of nature conservation interest, including the presence of any relevant Impact Risk Zones (IRZs). IRZs were developed by Natural England to provide an initial assessment of the potential risk to Sites of Special Scientific Interest (SSSIs) (statutory designated sites). MAGIC was also used to identify the presence of European Protected Species (EPS) mitigation licences within 2 km of the Site. MAGIC was also used to search for information relating to Great Crested Newt *Triturus cristatus* (GCN) class survey licence return data and GCN pond survey data (2017-2019) within 250 m of the Site, as well as the presence of watercourses within 30 m of the Site.
- 2.1.3 Natural England's (NE) GCN Risk Zone dataset was consulted to give an understanding of the potential presence of GCN in the local area and therefore the likelihood of the species being present on the Site. This dataset identifies areas where the distribution of GCN has been categorised into district zones relating to GCN occurrence and the level of impact development is likely to have on this species. These zones are split into Red, Amber, and Green and White and are described as follows:
- Red zone – contains key populations of GCN, which are important on a regional, national or international scale and include designated Sites of Special Scientific Interest for GCN;
 - Amber zone – contains main population centres for GCN and comprise important connecting habitat that aids natural dispersal;
 - Green zone – contains sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species; and,
 - White zone – contains no GCN. However, as most of England forms the natural range of GCN, white zones are rare and will only be used when it is certain that there are no GCN.
- 2.1.4 Information obtained from SCC, MAGIC, and NE is included within this report where appropriate.

2.2 Ecological Walkover Survey

- 2.2.1 The Site was surveyed on the 31st July 2025 by Senior Ecologist James Storey MSc BSc following good practice: the UK Habitat Classification System (UKHab 2.0) (UKHab Ltd., 2023). This survey method aims to define the habitat types present and is not intended to provide a complete list of all plants occurring across the Site.
- 2.2.2 The UKHab survey covered land within the Site (as illustrated by the red line boundary in Figure 1). Habitats and vegetation types present inside the Site were recorded using primary codes on to a field map and notable, rare or scarce plant species, including other features of ecological interest, were highlighted and marked using Target Notes (TN). The current management of habitats and associated features were noted and assigned UKHab secondary codes where relevant. Secondary codes are denoted in square brackets e.g. [32 - Scattered trees] within the report and Figure 1.
- 2.2.3 Evidence of protected species or species of nature conservation importance were recorded where present at the time of survey. Habitats present that are listed as Habitats of Principal Importance (HPI) under Section 41 of the NERC Act 2006 or as priority habitats in the Sheffield Local Biodiversity Action Plan (LBAP) were also noted.
- 2.2.4 Survey findings and TN are detailed in Section 3 and annotated on Figure 1, with photographs provided in Appendix 1.
- 2.2.5 The abundance of plant species recorded within each habitat was classified according to the DAFOR rating. The standard terms are as follows:
- D – Dominant;
 - A – Abundant;
 - F – Frequent;
 - O – Occasional; and,
 - R – Rare.
- 2.2.6 The importance of ecological features present within the Site was determined based on the guidance given in CIEEM Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) and Guidelines for Ecological Impact Assessment (CIEEM, 2024). Individual ecological receptors (habitats and species) that could be affected by future development of the Site were assigned levels of importance for nature conservation. The highest level is International, then decreasing in order of importance through UK, national, regional, county, local, and lastly site level (within the zone of influence).

2.3 Protected and Key Species

- 2.3.1 Any evidence of or potential for protected species or groups encountered during the survey was recorded. These included observations of field signs and an assessment of the suitability of the

habitats present to support protected species. For full details of legislation relating to all habitats and species discussed within this report visit <http://www.legislation.gov.uk>.

Amphibians

- 2.3.2 The Site was assessed with regards to its potential to support amphibians, including GCN.
- 2.3.3 A desk-based search for waterbodies within 500 m of the Site, which are not separated by a significant barrier to amphibian dispersal, were searched for using 1:10,000 OS mapping.
- 2.3.4 Habitats within the Site were assessed for their suitability to support amphibians during their terrestrial and aquatic stages. The connectivity of any suitable habitat within the Site to other habitat within the surrounding area was assessed during the Site visit and through visual analysis of aerial imagery.

Badger

- 2.3.5 Signs of badger *Meles meles* activity were searched for within the Site and up to 30 m beyond the perimeter of the Site observed, where access was possible and not restricted by dense vegetation.
- 2.3.6 The survey followed standard methodology detailed in ‘*Surveying Badgers*’ (Harris et al., 1989), ‘*The History, distribution, status and habitat requirements of the badger in Britain*’ (JNCC, 1990) and guidance from the Badger Conservation Trust (August 2023) ‘*Badger Protection: Best Practice Guidance for Developers, Ecologists and Planner (England)*’.
- 2.3.7 This included survey for badger setts, latrine/dung pits, foraging marks, feeding signs (e.g. snuffle holes), footprints, badger hairs and worn pathways.
- 2.3.8 The survey focused on areas with suitable topography and/or vegetation for sett building as well as key habitats favoured for foraging such as woodland, hedgerows, field margins and banks.

Bats

- 2.3.9 A Daytime Bat Walkover (DBW) assessment of trees on or immediately adjacent to the Site was undertaken during the ecological walkover survey, where accessible, using the recommended survey protocol (Collins, 2023).
- 2.3.10 The Site was also assessed for its suitability for use by foraging and commuting bats in accordance with good practice guidelines (Collins, 2023) in relation to the availability of suitable habitat in the wider area off-site.

Birds

- 2.3.11 In 2021, an assessment of Birds of Conservation Concern (BoCC) was published by Stanbury et al. (2021), which defined rare and threatened bird species on three lists (Red, Amber and Green) describing the level of threat to each species of concern. “Red” is the highest conservation priority, with species needing urgent action, to “Green”, indicating that the species are relatively unthreatened.
- 2.3.12 Records provided by SCC were filtered for WCA 1981 (as amended) Schedule 1 bird species and those species protected under Annex 1 of the EU Directive on the Conservation of Wild Birds, also known as the Birds Directive. Priority species (NERC Act 2006, LBAP) were likewise highlighted and the BoCC was also referred to.
- 2.3.13 During the survey, habitats on the Site and immediately surrounding the Site were assessed for their potential value to nesting, wintering and foraging birds.

Invertebrates

- 2.3.14 The habitats present on the Site and immediately surrounding the Site were assessed for their suitability to support protected and notable invertebrates.

Reptiles

- 2.3.15 The habitats present on the Site were assessed for their suitability to support reptiles, with reference to their connectivity with other areas of suitable habitat within the wider landscape. Any incidental reptile encounters made during the survey were recorded.

Riparian Mammals and White-clawed Crayfish

- 2.3.16 A desk-based search for watercourses on, and within 30 m of, the Site which are not separated from the Site by a significant barrier to dispersal was undertaken using OS 1:10,000 mapping.
- 2.3.17 Where present and access was possible, watercourses were subsequently assessed for their suitability to support otter *Lutra lutra*, water vole *Arvicola amphibius* and white-clawed crayfish *Austropotamobius pallipes*.

Other Key and Notable Species

- 2.3.18 Whilst on Site habitats were assessed for their potential to support any other nationally, locally scarce, or locally notable species.

2.4 Invasive Species

- 2.4.1 Whilst on the Site any evidence of invasive non-native species (INNS), as listed on Schedule 9 of the WCA 1981 (as amended), was recorded and mapped where seen.

2.5 Assumptions and Limitations

- 2.5.1 Data provided by SCC was supplemented by submissions from local species groups (i.e. South Yorkshire Bat Group (SYBG)). However, at the time of reporting, SCC had not provided any data held by the Sheffield Bird Study Group. As a result, the bird records included in this report do not represent a comprehensive list for the local area. For the purposes of this PEA, this omission was not considered a significant constraint when evaluating the habitats on-site for their potential to support nesting, wintering and foraging bird species.
- 2.5.2 An ecological walkover survey is intended to provide a rapid assessment of habitats present within a site and is not intended to replace detailed vegetation or targeted protected species surveys, where deemed necessary. Where a greater level of information is necessary to inform an assessment, recommendations have been made to undertake further detailed survey.
- 2.5.3 Due to the presence of dense vegetation within areas of scrub and woodland across the Site, it was possible that signs of/potential for protected, notable and Invasive Non-Native Species (INNS) could have been missed, including the presence of badger setts and the suitability of trees for roosting bats and nesting birds, which is discussed further in subsequent sections. Overall, it was considered that a robust appraisal was completed for the majority of the Site and recommendations for further survey have been made in Section 4 where appropriate.

3. Findings and Evaluation

3.1 Site Description

- 3.1.1 The Site is approximately 36.55 ha and is formally identified under SSC's 'Green Belt' designation, comprising of a mixture of arable fields bound by hedgerows, lines of trees, mixed deciduous woodland and pockets of scrub with an unnamed watercourse (WC1, Figure 1) running through the centre of the Site. The Site is accessible via a network of Public Rights of Way (PRoW) that link the suburbs of Handsworth (to the west and north), Beaver Hill (to the east), and Shirtcliffe Wood (to the south) with the suburb of Woodhouse beyond. The wider landscape consisted of the various suburbs, greenspace, farmland and pockets of woodland that make up the eastern portion of the wider Sheffield district.

3.2 Designated Sites

- 3.2.1 Three statutory designated sites were identified within 2 km of the Site, which relate to Bowden Housteads/Carbrook Ravine Local Nature Reserve (LNR) located to the west, Shire Brook LNR located to the south, and Woodhouse Washlands LNR located to the east, as detailed in Table 1 below and illustrated in Figure 2.

Table 1: Designated Sites within 2 km of the Site

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Statutory		
Shire Brook LNR	Contains a network of several smaller non-statutory sites which support habitats including lowland heath, ancient meadow, woodlands, ponds, brook and marshland. Supports protected and notable species including water vole, harvest mouse <i>Micromys minutus</i> , bats and GCN.	1.10 km south

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Bowden Housteads/Carbrook Ravine LNR	An area of mixed broadleaved woodland designated as 'Ancient Woodland', with wet willow <i>Salix spp. carr</i> , acid grassland, and wet meadow.	1.21 km west
Woodhouse Washlands LNR	An area of wet grassland, marsh, ponds, ditches and a cut off river meander. The site is important for breeding birds such as snipe <i>Gallinago gallinago</i> , lapwing <i>Vanellus vanellus</i> , skylark <i>Alauda arvensis</i> and reed bunting <i>Emberiza schoeniclus</i> . It is a regionally important bird migration route as part of the wider Rother Valley.	1.52 km east

- 3.2.2 The statutory designated sites are of importance to nature conservation at the national level.
- 3.2.3 The Site is located within one Impact Risk Zone (IRZ) relating to Moss Valley Meadows Site of Special Scientific Interest (SSSI) located approximately 4 km west of the Site. No risks relating to the IRZ and likely impacts from a residential development at the Site were identified when consulting the risk register, although this would need to be assessed in full should detailed proposals become available.
- 3.2.4 A total of 22 non-statutory designated sites were provided by SCC for locations within 2 km of the Site, all relating to Local Wildlife Sites (LWS). Smelter Wood LWS, Shirtcliffe Grasslands LWS, Shirtcliffe Woods & Fields LWS and Lower Shirtcliffe Valley LWS all directly bound the Site to the west, south and east forming the wider Shirtcliffe Valley and support several HPI under Section 41 of the NERC Act 2006 including wet woodland, ancient woodland and lowland mixed deciduous woodland. All non-statutory designated sites within 2 km of the Site are listed and described further in Appendix 2.
- 3.2.5 The non-statutory designated sites are of importance to nature conservation at between the local and county level.

3.3 Habitats

- 3.3.1 Habitats recorded on the Site, their distribution and composition are discussed in order of dominance below. Habitat locations and TN depicting features of ecological interest are annotated on Figure 1. Site photographs are displayed in Appendix 1.

Cropland – Other Non-Cereal Crops (c1d8) [609 – Cover crops]

- 3.3.2 The Site predominantly comprises of six fields planted with cover crops (Plate 1, Appendix 1) largely dominated by common radish *Raphanus sativus* with abundant buckwheat *Fagopyrum esculentum*. Other species present across the fields included frequent fat hen *Chenopodium album* and charlock *Sinapis arvensis*, with occasional common orache *Atriplex patula*, knotgrass *Polygonum aviculare*, common flax *Linum usitatissimum* and camomile *Matricaria chamomilla*, and rare field speedwell *Veronica persica*, American willowherb *Epilobium ciliatum*, wild oat *Avena fatua*, dove's-foot cranesbill *Geranium molle*, purple ramping fumitory *Fumaria purpurea* and swinecress *Lepidium didymum*.
- 3.3.3 Other non-cereal crops is not a HPI under the NERC Act 2006 and is not listed within the Sheffield LBAP. The majority of Sheffield's Green Belt is actively used as agricultural land and mainly for crop production, which is common both locally and in the wider area. Despite its limited botanical diversity (particularly when land is returned to normal crop production), this habitat is fairly under-represented in the wider landscape. The habitat plays a role in maintaining open spaces which support certain wildlife (discussed further in Section 3.4), and through sensitive farming practices, can conserve the value of higher quality habitat associated (e.g. hedgerows and field margins), which in turn provide shelter for crops and improve soil structure, contributing to overall ecosystem functioning. As such, this habitat overall is considered to be of up to local value for nature conservation.

Woodland and Forest - Other Lowland Mixed Deciduous Woodland (w1f7) [30 – Semi-natural woodland, 203 – Mature tree, 204 – Veteran tree, 217 – Woodland open space]

- 3.3.4 Areas of other lowland mixed deciduous woodland were present along the banks of WC1 (Figure 1), within the east corner of the Site, and where a section of Shirtcliffe Woods & Fields LWS straddles the south boundary of the Site (Plates 2-3, Appendix 1). There was a mixture of age classes across all survey plots including saplings, mature, and veteran trees [203, 204], with tree/shrub species commonly recorded including frequent hazel *Corylus avellana*, ash *Fraxinus excelsior*, elder *Sambucus nigra*, wild cherry *Prunus avium* and common hawthorn *Crataegus monogyna*, with occasional pedunculate oak *Quercus robur*, sessile oak *Quercus petraea*, dog-rose *Rosa canina* and bramble *Rubus fruticosus* agg.. The ground layer across all survey plots included occasional ivy *Hedera helix*, common nettle *Urtica dioica*, wood avens *Geum urbanum* and bracken *Pteridium aquilinum*.

- 3.3.5 More localised tree/shrub species included occasional common osier *Salix viminalis*, white willow *Salix alba* with rare black poplar *Populus nigra*, turkey oak *Quercus cerris*, common snowberry *Symphoricarpos albus* and staghorn sumac *Rhus typhina*. Several small glades creating areas of interlinked open space [217] were present within the woodland to the east corner of the Site with the ground layer including abundant perennial rye-grass *Lolium perenne* and common bent *Agrostis capillaris* with frequent white clover *Trifolium repens*, creeping buttercup *Ranunculus repens*, Yorkshire fog *Holcus lanatus* and tufted hairgrass *Deschampsia cespitosa*, and occasional meadow buttercup *Ranunculus acris*, common sorrel *Rumex acetosa*, cat's ear *Hypochaeris radicata*, rosebay willowherb *Chamerion angustifolium* and great willowherb *Epilobium hirsutum*, and rare spear willowherb *Epilobium lanceolatum*.
- 3.3.6 Other lowland mixed deciduous woodland is listed as a HPI under the NERC Act 2006 and is covered in the LBAP's Woodlands Habitat Action Plan for Sheffield. Given the direct or indirect association of this habitat with the wider Shirtcliffe Valley which together form a wider network of semi-natural and ancient woodland throughout the wider landscape, the woodland present at the Site is considered to be of importance to nature conservation at the county level.

Woodland and forest – Other Broadleaved Woodland (w1g) [31 – Secondary woodland, 204 – Veteran tree]

- 3.3.7 An area of developing secondary woodland was present within the west of the Site which from review of the past 25 years of aerial imagery using Google Earth Pro¹, showed signs of having largely expanded through self-seeding from an originally smaller block of scattered veteran trees [204] and mature scrub to the east (Plate 4, Appendix 1).
- 3.3.8 Species composition included frequent ash, elder and common hawthorn, with occasional pedunculate oak, bramble and crab apple *Malus sylvestris*, and rare sweet chestnut *Castanea sativa*, laburnum *Laburnum anagyroides* and common lime *Tilia x europaea*. The ground layer was sparse with species including occasional wood avens and common nettle.
- 3.3.9 Other broadleaved woodland is not listed as HPI under the NERC Act 2006 although is covered in the LBAP's Woodlands Habitat Action Plan for Sheffield. Given the presence of veteran trees and direct connectivity with higher quality woodland within the Site and wider area off-site, this area of woodland is considered to be of importance to nature conservation at the local level.

Grassland – Modified Grassland (g4) [10 – Scattered scrub, 32 – Scattered trees]

- 3.3.10 Areas of modified grassland were present across the Site with a short to medium sward (5-30cm) associated with field margins, and areas of larger more rank grassland (≥ 30 cm) associated with

¹ <https://earth.google.com/intl/earth/>

open space within the woodland to the east (Plates 5-6, Appendix 1). Species composition across all areas included abundant false oat-grass *Arrhenatherum elatius* and common couch *Elymus repens*, with frequent perennial rye-grass, soft brome *Bromus hordeaceus*, Yorkshire fog, barren brome *Bromus hordeaceus*, cocksfoot *Dactylis glomerata*, greater plantain *Plantago major*, creeping buttercup and creeping thistle *Cirsium arvense*. Localised areas included occasional field bindweed *Convolvulus arvensis*, hogweed *Heracleum sphondylium*, common nettle, spear thistle *Cirsium vulgare* and great willowherb, with rare perennial sowthistle *Sonchus oleraceus*, common ragwort *Jacobaea vulgaris* and shepherd's purse *Capsella bursa-pastoris*.

- 3.3.11 Scattered scrub [10] was present in localised areas with species including occasional bramble and common hawthorn, with scattered trees [32] also present including ash, white willow, crab apple and holly *Ilex aquifolium*.
- 3.3.12 Modified grassland with scattered scrub and trees is not a HPI under the NERC Act 2006 and is not listed as a priority habitat within the LBAP. The grassland is generally species-poor, improved in nature and subject to high levels of footfall from local residents and dog walkers and is well represented in the wider landscape often associated with field margins and areas of public open space. As such, modified grassland at the Site is considered to be of no more than site level value to nature conservation.

Heathland and Shrub – Bramble Scrub (h3d) [32 - Scattered trees]

- 3.3.13 Two well established areas of bramble scrub were present towards the west of the Site and were likely a successional habitat between the neighbouring grassland and broadleaved woodland (Plate 7, Appendix 1). Scattered trees [32] were present in the northern section of scrub comprising of frequent common hawthorn.
- 3.3.14 Bramble scrub with scattered trees is not a HPI under Section 41 of the NERC Act 2006 and is not listed as a priority habitat within the LBAP. These areas were of limited botanical value due to the prevalence of commonly occurring species. Given the prevalence of this habitat locally, the small extent of this habitat on Site and its limited species diversity; bramble scrub at the Site is considered to be of no more than site level importance to nature conservation.

Grassland – Arrhenatherum Neutral Grassland (g3c5) [10 – Scattered scrub, 32 - Scattered trees, 521 – Unmanaged]

- 3.3.15 An area of Arrhenatherum neutral grassland which had a varying sward height of between 10 and 40 cm (Plate 8, Appendix 1) was present towards the west of the Site. Species included abundant false oat-grass, cocksfoot and common knapweed *Centaurea nigra*, with frequent Yorkshire fog, red fescue *Festuca rubra*, yarrow *Achillea millefolium* and common bent, occasional meadow vetchling *Lathyrus pratensis*, red bartsia *Odontites vernus*, bird's-foot trefoil *Lotus corniculatus*, hogweed, mouse-ear chickweed *Cerastium fontanum*, common nettle, black medic *Medicago lupulina*, meadow buttercup and rosebay willowherb, and rare bush vetch *Vicia sepium*, hairy tare *Vicia hirsute* and hedge woundwort *Stachys sylvatica*.

- 3.3.16 Scattered scrub [10] and scattered trees [32] were present amongst the sward with species including bramble, pedunculate oak, crab apple and ash.
- 3.3.17 Arrhenatherum neutral grassland of this nature is not a HPI under the NERC Act 2006, although grasslands are covered within the Grasslands Habitat Action Plan for Sheffield. Neutral grassland of higher biodiversity tends to cover unimproved neutral grassland (e.g. lowland meadows). Such habitats are typically characterised by a high proportion of broadleaved herbaceous species relative to grasses and are often maintained through traditional practices such as hay cutting followed by aftermath grazing. Signs of encroaching scrub from neighbouring scrub and woodland suggest natural succession is underway, and that this habitat may be part of a broader network of degraded or unmanaged meadows that are known to be prevalent in the local area. Despite this, this habitat still supports a few diagnostic indicator species typical of neutral grassland and remains suitable for supporting a variety of protected fauna (discussed in Section 3.4) and is therefore considered to be of up to local value for nature conservation.

Heathland and Shrub – Species-Rich Native Hedgerow (h2a5) [11 – Hedgerow with trees]

- 3.3.18 A network of nine sections of species-rich hedgerows bound the Site and between the fields (H1, 4-6, 9, 10, 12-14, Figure 1) (Plates 9-10, Appendix 1), four sections of which included trees [11] (H1, 5, 9 & 14, Figure 1). Species composition was similar across hedgerow sections and included abundant common hawthorn and blackthorn *Prunus spinosa*, with frequent hazel, ash, field maple *Acer campestre* and elder, and occasional pedunculate oak, holly, sycamore *Acer pseudoplatanus*, wych elm *Ulmus glabra* and sessile oak. Localised sections of hedgerow also included rare wild cherry, English elm *Ulmus procera*, laburnum, common lime, sweet chestnut and whitebeam *Sorbus aria*.
- 3.3.19 The species-rich native hedgerows with trees present at the Site qualify as a HPI under the NERC Act 2006 as they comprise 80% of at least one native woody species. Hedgerows are also listed within the LBAP and as such, the hedgerows on Site are considered to be of importance to nature conservation at up to the local level.

Heathland and Shrub – Other Native Hedgerow (h2a6)

- 3.3.20 Four sections of other native hedgerow (H2, 7, 8 & 11, Figure 1) were present across the Site (Plate 11, Appendix 1) with species including abundant common hawthorn with frequent blackthorn and hazel.
- 3.3.21 The other native hedgerows present at the Site qualify as a HPI under the NERC Act 2006 as they comprise 80% of at least one native woody species. Hedgerows are also listed within the LBAP and as such, the hedgerows on Site are considered to be of importance to nature conservation at up to the local level.

Rivers and Lakes – Other Rivers and Streams (r2b)

- 3.3.22 One unnamed watercourse (WC1, Figure 1) was present running through the centre of Site from west to east before joining the Shirtcliffe Brook further downstream off-site. The watercourse was flanked by areas of woodland for majority of its length on shallow embankments and was completely dry at the time of the survey (Plate 12, Appendix 1). The channel was approximately 2 m wide and 0.5 m deep with species recorded in the channel limited to occasional greater willowherb and bramble.
- 3.3.23 Rivers are listed as a HPI under the NERC Act 2006 although the watercourse on-site is not considered to meet the criteria to qualify as a HPI, and is not covered within the LBAP. Although the watercourse on-site was completely dry at the time of the survey and botanical species recorded within the channel were limited, it has potential to support protected and notable species (discussed in Section 3.4) and forms part of a wider riparian corridor with the adjoining Shirtcliffe Brook located off-site. As such, this habitat is considered to be of importance to nature conservation at up to the local level.

Grassland – Bracken (g1c) [32 – Scattered trees]

- 3.3.24 An area of bracken habitat was located between two fields within the south east of the Site (Plate 13, Appendix 1) and comprised of abundant bracken with frequent rosebay willowherb and creeping thistle. Scattered trees [32] were also present in the form of occasional elder, pedunculate oak and holly.
- 3.3.25 Bracken with scattered trees is not a HPI under Section 41 of the NERC Act 2006 and is not listed as a priority habitat within the LBAP. These areas were of limited botanical value due to the prevalence of commonly occurring species. Given the prevalence of this habitat locally and its limited species diversity; bracken at the Site is considered to be of no more than site level importance to nature conservation.

Heathland and Shrub – Non-Native and Ornamental Hedgerow (h2b)

- 3.3.26 A section of non-native and ornamental hedgerow was present along the east boundary of the northernmost field and contained abundant cypress species *Cupressus sp.* with occasional cherry laurel *Prunus laurocerasus* (Plate 14, Appendix 1).
- 3.3.27 Non-native and ornamental hedgerows are not a HPI under Section 41 of the NERC Act 2006, are not listed as a priority habitat within the LBAP and are prevalent in the local area in association with residential gardens and other greenspace. As such, the non-native and ornamental hedgerow is considered to be of importance to nature conservation at no more than site level.

Urban – Artificial Unvegetated, Unsealed Surface (u1c)

- 3.3.28 Artificial unvegetated, unsealed surface was present in association with a PRow running along part of the west boundary of the Site (Plate 15, Appendix 1).

- 3.3.29 Artificial unvegetated, unsealed surface is not a HPI under Section 41 of the NERC Act 2006 and is not listed as a priority habitat within the LBAP. Overall this habitats lacks botanical interest and is considered to be of negligible importance to nature conservation and is not discussed further in this report.

3.4 Species

Amphibians

- 3.4.1 SCC provided no records of amphibians for locations within 2 km of the Site. A search of MAGIC revealed no GCN EPS licences for locations within 2 km of the Site. One record of GCN Pond Surveys 2017-2019 was identified using MAGIC, located 1.85 km north east of the Site which confirmed GCN presence. A total of 11 GCN Class Survey Licence returns were identified using MAGIC dated between 2014 and 2017, with the closest located 1.53 km east of the Site from 2014. The Site is located entirely within a Green Risk Zone for Natural England (NE) District Level Licencing (DLL), which contain sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species.
- 3.4.2 No waterbodies were recorded on the Site or identified within 500 m of the Site (the typical dispersal limit for GCN) using OS mapping. The unnamed watercourse running through the centre of the Site (WC1, Figure 3) which joins the Shirtcliffe Brook (WC2, Figure 3) further downstream off-site were considered unsuitable for breeding amphibians and are therefore considered unlikely to support breeding GCN and common amphibians.
- 3.4.3 The Site offers suitable terrestrial habitats for amphibians including GCN for dispersal, foraging, sheltering and hibernating, although dispersal habitat into the wider landscape is confined to corridors of woodland to the west and east of the Site associated with the wider Shirtcliffe Valley, with the majority of the Site being surrounded by suburbs with associated infrastructure. WC1 and Shirtcliffe Brook may further act as a minor barrier to dispersal during periods of high flow. Higher quality habitat is located in the wider landscape further afield including the mosaic of wetlands, pasture and woodland associated with the wider River Rother corridor to the east of the Site.
- 3.4.4 Garden ponds/water features may exist in the local area off-site. In general, such water features are usually relatively small in size and are more likely to be used by common amphibians i.e. smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus* and/or common frog *Rana temporaria* (albeit GCN and common toad *Bufo bufo* may use them in certain circumstances; for example, if there is a larger waterbody close by that supports either of these species).
- 3.4.5 Based on the lack of waterbodies identified within 500 m of the Site, the Site's location within a Green Risk Zone and the presence of similar to higher quality habitat in the wider landscape, the Site is considered unlikely to support large populations of common amphibians (and relatively unlikely to support GCN). It is therefore considered to be of no higher than site level importance to amphibians in the terrestrial stage.

Badger

- 3.4.6 **Due to the high levels of persecution that badgers are subject to, records of badgers and location details must not be made publicly available.**
- 3.4.7 SCC provided four historical records pertaining to badger for locations within 2 km of the Site dated between 1997 and 2013, including one sett record located within the Site boundary from 1997.
- 3.4.8 During the walkover survey no evidence of badgers was observed on or within 30 m of the Site during the survey (where accessible). The habitats within the Site display suitability for sett building, primarily within and around areas of woodland and scrub, and beneath hedgerows, and particularly within Shirtcliffe Woods to south where there is likely less disturbance from local residents and dog walkers. All habitats on the Site provide suitability for foraging and commuting badgers and these are connected to other similar habitat in the wider area including woodland to the west, south and east of the Site.
- 3.4.9 Given the potential for badger setts to be present within areas on or within 30 m of the Site where inaccessible at the time of the survey and the variety of suitable sett building, foraging and commuting habitats present at the Site that are connected to suitable habitats in the wider area off-site, it is considered that the Site is of importance to badgers at up to the local level.

Bats

- 3.4.10 SCC provided a total of 214 records of bats for locations within 2 km of the Site, 61 of which pertained to records of roosting bats. Roost records pertained to common pipistrelle, pipistrelle species *Pipistrellus spp.* and unidentified bat species *Chiroptera spp.*, with the closest roost record pertaining to a common pipistrelle roost located approximately 0.14 km south of the Site within Shirtcliffe Woods (unknown date). The remaining records pertained to foraging, commuting or grounded bats, including common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, whiskered bat *Myotis mystacinus*, Brandt's bat *Myotis brandtii* and brown long-eared bat *Plecotus auritus*, with the closest record pertaining to a pipistrelle species recorded within the Site boundary (unknown date). A search of MAGIC returned no records of EPS licences relating to bats within 2 km of the Site.
- 3.4.11 Multiple trees including mature and veteran trees located on or within 10 m of the Site boundary were identified as supporting Potential Roosting Features (PRFs) of varying aspects and characteristics suitable for roosting bats, additionally, several mature trees across the Site had wooden bat boxes installed.
- 3.4.12 The Site contains high quality foraging and commuting habitat including mature woodland, grassland, scrub and hedgerows which are connected to similar habitat off-site forming part of the wider Shirtcliffe Valley. As such, the Site is deemed to display 'High' suitability for foraging and commuting bats in accordance with good practice guidelines.

Birds

- 3.4.13 SCC provided a total of 297 records pertaining to 61 bird species for locations within 2 km of the Site, including five Schedule 1 species (as listed within the WCA 1981 (as amended)), 17 Red, 21 Amber and 24 Green listed BoCC species, as summarised in Appendix 3. Schedule 1 species included the Red listed fieldfare *Turdus pilaris*, the Amber listed kingfisher *Alcedo atthis* and redwing *Turdus iliacus*, and Green listed red kite *Milvus milvus*.
- 3.4.14 The Site comprises of a mixture of suitable habitats to support a variety of breeding and foraging bird species recorded within 2 km of the Site, including all five previously recorded Schedule 1 species and a diverse assemblage of farmland birds, including ground nesting birds which may utilise areas of undisturbed cropland, field margins and grassland.
- 3.4.15 The grassland and hedgerow network across the Site have connectivity to other suitable habitats in the wider landscape which provide suitable hunting grounds for barn owl *Tyto alba* and other birds of prey due to these habitats likely supporting local populations of prey species including voles, shrews and mice. Some of the trees identified as having suitability for roosting bats on or adjacent to the Site have potential to support nesting barn owl, although no detailed survey was undertaken to characterise each tree.
- 3.4.16 Similar to higher quality habitat is available in the wider area to the west, south and east associated with Shirtcliffe Valley, and further afield with the wider River Rother corridor to the east and Shirebrook LNR to the south. Given the size of the Site and variety of suitable habitats that are connected to similar to higher quality habitats in the wider area, the Site is considered to be of importance to breeding and foraging birds at up to the local level.
- 3.4.17 The hedgerows, scrub and trees on Site include berry-producing species such as hawthorn, bramble, blackthorn, holly and elder which provide a foraging resource in autumn and winter for species such as redwing and fieldfare which have been recorded within the local area. Additionally, overwintering/migratory bird species including waders and wildfowl may utilise the fields within the Site for resting/shelter, although the Site is subject to regular disturbance and footfall from local residents, dog walkers and when the fields are in crop rotation. Higher quality habitat for overwintering/migratory birds is available further afield in association with the wider River Rother corridor to the east including the mosaic of wetlands, pasture and woodland. Overall, based on regular disturbance levels across the Site and availability of similar to higher quality habitats in the wider area, the Site is unlikely to support notable numbers of wintering birds and is therefore considered to be of importance to wintering birds at up to the site level only.

Invertebrates

- 3.4.18 SCC provided 20 records of invertebrates for locations within 2 km of the Site, with four records located within the Site boundary, pertaining to holly blue butterfly *Celastrina argiolus*, speckled wood butterfly *Pararge aegeria*, common wasp *Vespula vulgaris* and harlequin ladybird *Harmonia axyridis*, all dated from 2016.

3.4.19 The Site supports a variety of plant species and habitat structures that provide suitable floral foraging resources, sheltering value and basking opportunities for a range of invertebrates. The woodland, grassland, scrub, hedgerows and watercourse on-site provide suitable foraging and commuting corridors for a variety of pollinators, which is connected to higher quality habitat in the wider area off-site including grassland, scrub and woodland associated with the wider Shirtcliffe Valley to the west, south and east. The habitats within the Site overall tended to be lacking in complexity for invertebrates (i.e. the number of varied juxtaposed habitats, topographical variation and/or structural variation in a small area) with the majority of the Site being dominated by arable land. Whilst suitable habitat is present at the Site, given the availability of habitat in the wider area of similar to higher quality, the Site is considered unlikely to be importance to invertebrates at above the site level.

Reptiles

- 3.4.20 SCC provided one historic record of a grass snake *Natrix helvetica*, located approximately 0.04 km south of the Site within Shirtcliffe Woods in close proximity to the Shirtcliffe Brook, dated from 2010.
- 3.4.21 Site habitats including a mixture of grassland with varied sward heights along with scrub and hedgerow margins, woodland open space and edges, and the watercourse, provide a variety of shelter (including hibernation), basking, dispersal and foraging opportunities for reptiles, although areas of the Site that receive regular footfall from residents and dog walkers are considered to be suboptimal based on existing disturbance levels. There is direct connectivity to suitable habitats within the Site and other similar to higher quality habitats such as grassland, woodland edges and scrub associated with wider Shirtcliffe Valley off-site to the west, south and east.
- 3.4.22 Although the Site is subject to regular disturbance levels, based on the size of the Site and connectivity to suitable to higher quality habitats off-site associated with the wider Shirtcliffe Valley, the Site is considered to be of importance to reptiles at up to the local level.

Riparian Mammals & White-Clawed Crayfish

Otter

- 3.4.23 SCC provided no records of otter for locations within 2 km of the Site.
- 3.4.24 No evidence of otter was recorded during the survey on or within 30 m of the Site (where accessible), although the watercourse running through the centre of the Site displays some suitability for otter foraging and commuting, albeit limited based on being dry and the existing disturbance levels experienced by the watercourse and surrounding habitats from local residents and dog walkers. The watercourse is unlikely to provide opportunities for holt/den establishment compared to the Shirtcliffe Brook and other habitats associated with the wider Shirtcliffe Valley off-site, and Site habitats generally lacks availability of an abundant (or seasonally abundant)

food resources for foraging otter. Otters have a large home range of up to 20-40 km (depending on whether female or male) and therefore if present locally could nonetheless use the Site as part of a wider territory associated with the Shirtcliffe Valley for commuting purposes.

- 3.4.25 Based on the relatively limited value of habitats on Site compared to the availability of similar to higher quality habitats associated with the wider Shirtcliffe Valley off-site, the resources available on Site are considered unlikely to be of more than site level importance to otter.

Water Vole

- 3.4.26 SCC provided two historical records of water vole for locations within 2 km of the Site, with both records located along the Shirtcliffe Brook approximately 0.06 km south of the Site from 1975.
- 3.4.27 No evidence of water vole was recorded on or within 30 m of the Site during the survey. The watercourse running through the centre of the Site is predominantly surrounded by closed canopy woodland for the majority of its length and lacks in-channel vegetation/macrophyte species for foraging, although a few pockets of suitable bankside vegetation in the form of tall grasses and herbs exist along sections on the south bank neighbouring the adjoining field. The banks of the watercourse are mainly shallow in profile which provide some opportunities for burrowing although may not readily allow for nest chamber establishment above the water level during high flow. The watercourse is suitable for commuting water vole and is linked to more suitable riparian habitat downstream along the Shirtcliffe Brook and wider River Rother corridor beyond.
- 3.4.28 Based on the lack of recent records of water vole and presence of similar to higher quality habitats located downstream off-site, the resources available on Site are considered unlikely to be of value to water vole at more than site level.

White-Clawed Crayfish

- 3.4.29 SCC provided no records of white-clawed crayfish (WCC) for locations within 2 km of the Site.
- 3.4.30 WCC favour slow flowing watercourses with rocky substrate, which provide in-channel shelter opportunities. The watercourse on-site was considered unsuitable given that it was dry at the time of the survey and lacked any suitable refuges for WCC, although the Shirtcliffe Brook located further downstream off-site may be suitable should such features associated with this watercourse exist. Given the lack of suitable aquatic habitat on-site, it is considered unlikely that WCC would be associated with the Site, and they are not discussed further in this report. Should they be associated with the Shirtcliffe Brook further downstream off-site, general pollution measures outlined in Section 4.1 will safeguard WCC should they be present off-site at the time of any proposed works.

Other Notable and Key Species

Hedgehog

3.4.31 SCC provided no records of hedgehog *Erinaceus europaeus* for locations within 2 km of the Site.

3.4.32 Site habitats including woodland, grassland, scrub and hedgerows display suitability for foraging, commuting and sheltering/hibernating hedgehog. However, given the abundance of similar to higher quality habitat in the surrounding area associated with the wider Shirtcliffe Valley to the west, south and east, and residential gardens to the north of the Site, the resources on the Site are considered to be of importance to hedgehog at no greater than site level.

Brown Hare

3.4.33 SCC provided no records of brown hare *Lepus europaeus* for locations within 2 km of the Site.

3.4.34 Brown hares live in very exposed habitats, commonly found in grassland habitats and woodland edges, favouring a mosaic of arable field, grasses, woodland edge and hedgerows. Brown hare do not use burrows but make a small depression in the ground among long grass, known as 'forms'. Site habitats including the woodland edges, grassland, hedgerows and scrub provide some suitability for brown hare, although existing disturbance levels from local residents and dog walkers and residential suburbs to the north of the Site and further afield act as barriers to dispersal. Therefore, the resources on the Site are considered to be of importance to brown hare at no greater than site level.

Harvest Mouse

3.4.35 SCC provided no records of harvest mouse *Micromys minutus* for locations within 2 km of the Site, although the species is known to be present within the Shire Brook LNR located approximately 1.10 km south of the Site.

3.4.36 The Site habitats have some suitability for harvest mouse in particular the unmanaged areas of grassland, scrub margins and cropland if/when in tall growth. Whilst suitable habitat is present at the Site, there is availability of suitable habitat in the wider area particularly in association with the Shire Brook LNR to the south and Woodhouse Washlands to the east. As such, the Site is considered to be of no higher importance to harvest mouse than the site level.

3.5 Invasive Species

3.5.1 SCC provided three historical records of montbretia *Crocasmia x crocosmiiflora*, an Invasive Non-Native Species (INNS) listed under Schedule 9 of the WCA 1981 (as amended), all recorded within Shirtcliffe Woods approximately 0.07 km south of the Site between 1989 and 1990. No records of invasive fauna were provided by SCC for locations within 2 km of the Site.

3.5.2 An area of common snowberry (TN1, Figure 1) was recorded forming part of the woodland adjacent to the east boundary of the Site. Although not listed under Schedule 9 of the WCA 1981

(as amended), common snowberry is known to have invasive tendencies due to its ability to spread rapidly through suckering and berry dispersal.

4. Ecological Constraints and Recommendations

4.1 Proposals

- 4.1.1 At the time of writing, no detailed development proposals for the Site were available. However, it is understood that SCC may consider removing the Site from its current Green Belt designation and bringing it forward for potential residential development in the future, so this report is based on reasonable estimates and assumptions.

4.2 Constraints, Potential Impacts and Recommendations

- 4.2.1 The ecological constraints, and opportunities at the Site are discussed in the next sections with potential impacts (should development proposals be brought forward) included together with further survey/mitigation requirements detailed in Table 2. As detailed, the impact assessment and recommendations made within this report would need to be confirmed following a review of any finalised plans for the Site where these become available.
- 4.2.2 It is envisaged that this report will form an ecological baseline to aid the council's decision of removing the Sites current Green Belt designation. It is recommended that the council considers completing the protected species surveys identified in Table 2 to fully inform this decision. The Site habitats are considered to offer potential to support a range of species/species groups and opportunities exist to enhance habitats on Site to generate additional biodiversity value which will be considered further in the baseline BNGA to be prepared for the Site. Options such as registering the Site as a biodiversity net gain site on the national register may be a consideration together with Local Nature Recovery Strategy biodiversity priorities.
- 4.2.3 In accordance with published advice from CIEEM (2019), this PEA report will remain valid for a period of 18 months from the date of the survey. Should there be changes to the Site within this timeframe which may result in a change in the presence of habitats and/or species, an update survey should be considered. After 18 months an update PEA including site visit and desk study are likely to be required to inform an appropriate assessment of the potential impacts to ecological features and presence of protected species.

Table 2: Ecological Constraints, Impacts and Recommendations

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
Designated sites				
Shire Brook LNR, Woodhouse Washlands LNR and Bowsden Housteads & Carbrook Ravine LNR located within 2 km and the Site is located within one Impact Risk Zone (IRZ) relating to Moss Valley Meadows Special SSSI located approximately 4 km west of the Site.	Due to the presence of both LNR sites within 2 km and the Site falling within a SSSI IRZ, there is a risk that certain works on Site may have negative impacts on the identified statutory designated sites, although any development proposals brought forward for the Site are anticipated to be likely localised and are not expected to impact the integrity of the statutory designations listed. This is based on any proposals remaining wholly within the Site boundary and the distance between the Site and the designations as well as the specifics of the relevant IRZ. This will however need to be reviewed in full should proposals be brought forward.	Part of the Site is located within a SSSI Impact Risk Zone (IRZ). Works involving the following within the IRZ require consultation with Natural England: Infrastructure: Airports, helipads and other aviation proposals. Air Pollution: Livestock & poultry units with a floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500 tonnes.	Consultation with Natural England if required.	In advance of works if required.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
Smelter Wood LWS, Shirtcliffe Valley Grasslands LWS, Shirtcliffe Woods & Fields LWS and Lower Shirtcliffe Valley LWS	No direct impacts from any future proposals on the integrity of the LWS are anticipated should the works remain wholly within the Site boundary and habitats associated with the neighboring sites be retained (i.e. woodland along the south boundary), although there is likely to be some encroachment into the 'riparian zone' within 10 m of the Shirtcliffe Brook to the south east of the Site. Indirect impacts from noise, vibration and pollution are anticipated during any construction and operation phases.	It is recommended that a full impact assessment is undertaken prior to any planning decision so SCC can identify any potential impacts and if necessary, design an appropriate mitigation strategy to safeguard the conservation objectives and status of the LWS and wider Shirtcliffe Valley corridor.	Further consultation and mitigation strategy (if needed).	Prior to any proposed works commencing.
		If development proposals are brought forward for the Site, a Construction Environmental Management Plan (CEMP) is likely to be required for the Site to include appropriate mitigation measures to ensure the LWS are protected both during construction and post-development. This should include but may not be limited to dust management, noise control, designated refueling areas, spill mats, temporary fencing to prevent machinery encroachment, pollution prevention measures with regards to watercourses and a lighting strategy to ensure the adjoining habitats (e.g. woodland and watercourses) are not impacted by increased levels of illumination.	CEMP	Prior to any proposed works commencing.
Other non-statutory designated sites	Any proposals brought forward for the Site will likely be localised and are not expected to impact the integrity of the other non-statutory designated sites	N/A – although this should be re-addressed once any detailed proposals are made available for the Site.	N/A	N/A

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
	identified within 2 km of the Site. This is based on any proposals remaining wholly within the Site boundary and the distance between the Site and the identified designated sites. This will however need to be reviewed in full should detailed proposals be brought forward for the Site.			
Habitats	It is anticipated that any development proposals will likely result in the loss of the majority of Site habitats to accommodate residential plots, access roads and landscaping, including HPI such as lowland mixed deciduous woodland and hedgerows. Potential for impacts such as pollution of watercourses on and off-site during works without appropriate precautions.	The habitat information detailed within this report would form the baseline habitat information for a feasibility stage & design stage Biodiversity Net Gain Assessment (BNGA) and predicted quantitative biodiversity values, which can be completed once detailed proposals are made available or the Site. Given that a watercourse is present on-site and the Shirtcliffe Brook is located within 10 m of Site to the south east, with both watercourses likely to be impacted by any future proposals, it is recommended that a River Condition Assessment (RCA) is undertaken which would feed into the BNGA and any post-development scenario modelling.	BNGA and associated report(s) including RCA.	Feasibility Stage & Design stage BNGA to be completed ahead of any proposed works commencing.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
		Pollution prevention measures should be followed in accord with the current Guidance for Pollution Prevention (GPP), documents that replace the old series of Pollution Prevention Guidance (PPGs) documents. All pollution prevention measures should be included in the CEMP.		
		Once any further surveys have been undertaken where required following review of proposals for the Site, the CEMP document should draw together the various precautionary measures and timing constraints into one document. This will include habitat protection measures such as the use of fencing of Root Protection Zones (RPZs) to safeguard retained trees and hedgerows and pollution presence (dust, noise, lighting) to protect both retained on Site habitats and off-site habitats.	CEMP document.	Prior to any proposed works commencing.
Protected and notable species				
Amphibians	Any vegetation clearance/ground works at the Site would result in loss/damage/disturbance of suitable terrestrial habitat for amphibians together with the associated risk of killing/injury/disturbance of	Based on the lack of suitable aquatic habitats identified within 500m of the Site, Best Practice Measures (BPM) are considered likely to be appropriate to safeguard amphibians and protect GCN in the unlikely event they are present at the time of works. Nonetheless due to the size of the Site, records of GCN in the wider landscape within 1km and presence of suitable terrestrial habitat	BPM and DLL enquiry form.	Prior to any proposed works commencing.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
	amphibians, if present at the time of any proposed works.	with dispersal corridors off-site via the wider Shirtcliffe Valley; it is advised that an enquiry is made through the District Level Licencing (DLL) Scheme for GCN to assess whether Natural England (NE) hold any unknown records of waterbodies for locations within 250 m of the Site and inform next steps with regard to GCN.		
		The CEMP should include Best Practice Measures (BPM) for common amphibians to be adhered to during any proposed construction works to avoid disturbance/injuring/killing of individual common amphibians and minimise the risk of disturbing/damaging potential aquatic habitat and terrestrial shelter and/or hibernation sites.	BPM included within CEMP document.	Prior to any proposed works commencing and during works.
Badger	Any habitat loss associated with proposals for the Site is considered to result in the loss of suitable sett building and foraging/commuting habitat for badgers.	It is advised that a detailed badger walkover covering the Site and within 30 m of the Site boundary is completed by a suitably qualified ecologist in late autumn/early spring (when dense vegetation should be less of a restriction to survey) to confirm the presence/likely absence of badger setts. Should setts be identified then further activity survey would likely be required to determine set activity status and sett type. The information would be used to establish appropriate mitigation measures, including any requirement for licencing.	Badger activity walkover survey on Site and within 30m of the Site	Late autumn/early Spring ahead of development and to inform planning application submission.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
	Killing/injury /disturbance of badgers during construction and disturbance risks during construction and operational phases of the development (e.g.. increased levels of lighting, public access etc).	As a precautionary measure, BPM for badgers should be implemented throughout the construction phase to protect badgers in the event they are present at the time of any proposed works. The BPM should include: Deep excavations (>1m) or excavations with potential to flood will be securely fenced off to ground level or completely covered to ensure badgers cannot fall into potential pitfalls; Unfenced/uncovered shallow excavations (<1m) should have a pair of scaffold boards placed to one corner to act as an escape ramp, allowing any badgers to exit should they fall in; Open pipework will not be left open overnight; Any proposed works should be carried out during daylight hours, where possible; Lighting implemented during the construction and operational stages to be directed away from retained vegetation and off-site vegetated habitats. Tower lighting is not recommended. Hoods should be fitted to all lights to prevent light spill behind or above the light. Lights should be turned off when not in use.	BPM to be included in CEMP.	CEMP to be prepared ahead of works and to apply during pre-works checks.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
		It is recommended that vegetation clearance is kept to a minimum and does not exceed the planned amount. Appropriate storage of equipment and materials in designated areas and avoidance of stockpiling on Site. All waste to be securely stored in covered skips or containers to prevent materials littering the site. No litter to be left on Site. Should a suspected badger sett be encountered on Site or within 30m of the Site then works within 30m of the sett should cease and the ecologist contacted for advice. The CEMP should outline all measures to safeguard badgers during site clearance and construction.		
Bats (roosting)	Should any trees that display suitability to support roosting bats require felling/removal or management to facilitate the proposals, including trees with bat boxes, roosting bats would be impacted through damage /destruction/obstruction of access to PRFs and associated	It is recommended that a Ground Level Tree Assessment (GLTA) is undertaken for the Site to assess the suitability of trees on or immediately adjacent to the Site for roosting bats, and also note any incidental evidence of bats, and the requirement for any further survey, mitigation, including licencing, where appropriate.	GLTA survey and associated report(s).	Prior to any proposed works commencing

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
	injury/killing/disturbance of individual bats if present at the time of works.			
	Impacts through artificial lighting during construction and operational phases of the development has the potential to disturb roosting bats without mitigation.	Sensitive lighting should be designed for the construction and operational phases, in accordance with current guidance from the Bat Conservation Trust ' <i>Bats and Artificial Lighting at Night</i> ' (Guidance note 08/23). No artificial lighting (during the construction or operational stages) will be placed near to any potential bat roost features.	Sensitive lighting to be included in CEMP.	
Bats (foraging and commuting)	The Site is considered to display 'High' suitability for foraging and commuting bats. Any future proposals are likely to result in the loss of foraging and commuting habitats for bats and cause indirect impacts from increased lighting during the construction and operational phases, which may spill onto retained and created habitats.	In order to assess any impacts on foraging and commuting bats, a suite of bat activity surveys comprising of nighttime bat walkover surveys (NBW) and static monitoring surveys will be required. NBW surveys would be undertaken with at least one survey per season (i.e. once within April/May, once within June/August and once within September/October). Static bat detectors will cover linear and open habitats at the Site that would likely be impacted by the proposals and will be deployed for a minimum of five consecutive nights per month throughout the survey season (April to October inclusive) in line with current good practice guidance (Collins 2023). The findings of these surveys will inform the need for mitigation and compensation measures.	Bat activity surveys and associated report(s).	Prior to any proposed works commencing.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
		Lighting and the layout of any proposals (as well as any temporary lighting to be used during the construction phase) should be designed to avoid light-spill onto suitable retained and created habitats to safeguard these habitats as foraging, commuting and potential roosting resources. The lighting design should include consultation with an ecologist and be designed in accordance with current guidance from the Bat Conservation Trust <i>'Bats and Artificial Lighting at Night'</i> (Guidance note 08/23). The CEMP should outline all measures to safeguard bats during site clearance and construction.	Sensitive lighting strategy.	During any proposed works and post-development.
Birds	Any vegetation clearance will likely result in a loss of suitable habitat for nesting and overwintering birds, and associated risk of injury/killing/disturbance to nesting birds/active nests/chicks/eggs.	Due to the suitability of the Site for use by breeding birds, it is recommended that breeding bird surveys are undertaken based on online guidance produced by the Bird Survey & Assessment Steering Group (https://birdsurveyguidelines.org) to fully consider any impacts from any proposals to the future conservation of certain species in the local area. The surveys would comprise six survey visits spread evenly between late March and early July, starting from between half an hour before sunrise and half an hour after sunrise until mid-morning to record breeding behaviour and to map territories at the Site. At least one evening visit would be included	Breeding bird survey and associated report(s).	Prior to any proposed works commencing.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
		within the six visits, beginning during the last few hours of the day, and extending beyond sunset for at least one hour. Although the Site is considered suitable for wintering birds, further survey is unlikely to be necessary given that on-site habitats are unlikely to support a diverse species assemblage or large population of any given wintering bird species given the existing disturbance levels and the extensive availability of similar to higher quality habitat in the wider area.		
		It is recommended that nesting bird checks are undertaken by a suitably qualified ecologist if any vegetation clearance is scheduled to place during the nesting bird season (March to September inclusive). Nesting bird checks are valid for a 24-hour period only. If an active nest is identified, an appropriate exclusion zone (species dependent) must be installed around the nest until it is no longer active. This may require monitoring for periods of at least up to a month dependent on nesting stage. Be aware some species can nest all year round e.g. feral pigeon <i>Columba livia</i>.		

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
Reptiles	Any proposals will likely cause disturbance and loss/damage of suitable habitat which has the potential to impact reptiles through killing/injury/disturbance if present at the time of works.	It is recommended that reptile surveys are carried out to determine the presence or likely absence of reptiles on-site and inform appropriate mitigation and compensation measures where appropriate. Surveys should involve the deployment of refugia in suitable habitat and undertaking a minimum of seven visits to check the refugia. Should reptiles be encountered during the survey, further visits may be required to determine the population size of the species present. This survey should be undertaken during the optimal survey season which encompasses April – May and September. Refugia will need to be installed on Site in advance of surveys (a minimum of 2 weeks ahead of first survey visit).	Reptile surveys and associated report(s).	Prior to any proposed works commencing.
Otter	There is considered to be a low-risk otters may be encountered on the Site (or close to the Site) during any proposed works given the presence of the watercourse on-site and proximity of the Shirtcliffe Brook off-site, resulting in killing/injury or disturbance if present at the time of works. Due to the nature of habitat present on	BPM is considered likely to be sufficient to protect otter, however this should be confirmed following further survey in accord with guidance (Chanin, 2003) to be completed in tandem with the recommended water vole surveys below and following full review of proposals if brought forward. The CEMP should include BPM with regards to otter to be adhered to during site clearance and construction. These will work in tandem with the measures to be outlined for other mammals such as badger. Pollution prevention measures will also	BPM	Prior to any proposed works commencing and during works

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
	Site and within 30m it is considered that impacts will largely be restricted to foraging/commuting otter.	work to safeguard otter in the event that they are associated with off-site watercourses/habitats.		
Water vole	Disturbance and loss of suitable riparian habitat which may impact water vole through killing/injury if present at the time of works and/or damage/destruction of burrows.	Further survey of all watercourses (on Site and within 30m of the Site) for water vole is recommended in accordance with current best practice guidance (Dean et. al., 2016). This should comprise of two surveys, with the first to occur between April-June and the second between the July – September. These surveys will inform the requirement for any appropriate mitigation and compensation measures, including licensing where appropriate. The exact survey extent and approach should be confirmed upon review of the proposals. Depending on the likely scale of impacts additional riparian land outside of 30m may need to be scoped in.	Water vole surveys and associated report(s).	Prior to works commencing.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
Hedgehog	Any disturbance and loss of suitable habitat may have the potential to impact hedgehog through killing/injury/disturbance if present at the time of works.	Any proposed works should be carried out following BPM combined with the recommendations made for common amphibians and badgers. Further detail would be provided in the CEMP, however key measures include: Maintaining vigilance for hedgehogs at all times during the works. Allow any hedgehogs to move away from the Site of their own volition. Should a hedgehog be in immediate danger, they should be picked up by gloved hand to and placed in an area of suitable shelter and safety away from the proposed works (i.e. within woodland habitat/tall vegetation outside of the immediate works footprint). If hedgehog is encountered between November and March or juveniles are encountered the ecologist should be contact for advice immediately.	BPM	During any proposed works
Brown Hare	Any disturbance and loss of suitable habitat may have the potential to impact brown hare through	Works should be carried out following BPM combined with the recommendations made for common amphibians and badgers. Further detail will be provided in the CEMP.	BPM	During any proposed works.

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
	killing/injury/disturbance if present at the time of works.			
Harvest mouse	Any disturbance and loss of suitable habitat may have the potential to impact harvest mouse through killing/injury/disturbance if present at the time of works.	Works should be carried out following BPM combined with the recommendations made for common amphibians and badgers. Further detail will be provided in the CEMP.	BPM	During any proposed works.
Invasive Species				
INNS	Although no INNS listed under Schedule 9 of the WCA 1981 (as amended) were recorded at the time of the survey, any time elapsed since this assessment and a future development commencing means that the potential for INNS to establish within the Site boundary cannot be ruled out. Natural spread of common snowberry within the Site and to off-site habitats.	It is recommended that an INNS walkover survey is undertaken during the botanical season (April to September inclusive) to fully determine the presence or likely absence of INNS within the Site ahead of any proposed development commencing. This will inform recommendations for management, treatment, or removal of any INNS encountered to facilitate the works.	INNS walkover survey & MS.	Prior to and during any proposed works (where appropriate).
		It is recommended that the spread of common snowberry (and any further INNS if recorded during further surveys) is controlled through implementation of an INNS Method Statement (MS) in accordance with guidance published by Natural England, Department for Environment, Food & Rural Affairs, and the Environment Agency (2022). Details		

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
		of the INNS MS should be included within the CEMP.		
		Any proposed works should follow standard measures to include biosecurity measures to be implemented during the construction and operational phases to reduce the possibility of spread of invasive species and diseases (e.g. Chytridiomycosis an infectious disease in amphibians, caused by the chytrid fungi <i>Batrachochytrium dendrobatidis</i> and <i>Batrachochytrium salamandrivorans</i>). Site staff should be provided with a toolbox talk and information sheet which will detail and display common invasive species which may encountered on Site, e.g. giant hogweed <i>Heracleum mantegazzianum</i>, Himalayan balsam <i>Impatiens glandulifera</i> and Japanese knotweed <i>Fallopia japonica</i>. Biosecurity measures should be implemented during site clearance works to ensure that invasive plants are not spread throughout and off the Site. Plant material can be easily spread on equipment, machinery and clothing. In accordance with the Non-Native Species Secretariat (NNSS) protocol, the Check, Clean, Dry principles should be implemented, with boots, equipment and	Adherence to standard biosecurity protocols.	

Feature/Constraint	Potential Impact and Effect	Recommendation	Deliverable	Timing
		machinery cleaned before leaving Site, where possible. The above information should be detailed further within the CEMP document.		
		Any soft landscaping proposals at the Site must avoid the use of species listed on Schedule 9 of the WCA 1981 (as amended) and ideally no non-native species where possible.	Soft landscaping plan.	

5. Ecological Enhancement

- 5.1.1 A Biodiversity Net Gain Assessment (feasibility and design stage) would be undertaken for the Site should development proposals be brought forward to provide a predicted quantitative biodiversity value ahead of planned works and review options to achieve 10% Biodiversity Net Gain (BNG) on Site post-construction wherever possible. A Biodiversity Gain Plan (BGP) and associated Habitat Management and Monitoring Plan (HMMP) should be produced for the Site in tandem with Biodiversity Net Gain Assessment (BNGA).
- 5.1.2 Any Biodiversity Net Gain (BNG) strategy associated with proposals for the Site should include retention of key on Site habitats and should include enhancement of habitats and new habitat creations works on Site. The Site habitats are considered to offer potential to support a range of species/species groups and opportunities exist to enhance habitats on Site to generate additional biodiversity value which will be considered further in the baseline BNGA to be prepared for the Site. Options such as registering the Site as a biodiversity net gain site on the national register may be a consideration instead of development which may also work towards any forthcoming Local Nature Recovery Strategy biodiversity priorities.
- 5.1.3 The provision of bat roosting opportunities in the Site post-development would contribute towards biodiversity enhancement at the Site. Integrated bat boxes for buildings (e.g. Habitat integrated bat boxes) are recommended to be used to enhance the value of the Site for roosting bats. A minimum of one bat box should be installed per dwelling and be located preferably on the southern/south-eastern/south-western elevations. Some northern elevations are acceptable to provide a variety of microclimates for use by roosting bats throughout the year. Bat boxes should be positioned at eaves level (at least 4 m above the ground where possible) and in locations away from direct and indirect lighting, as far as possible. Bat box positions should be agreed with an ecologist at the design stage once detailed proposals are available.
- 5.1.4 To enhance the bird nesting potential of the Site post development it is recommended that swift *Apus apus* bricks are incorporated into the properties at construction stage to provide enhancements for this species and other nesting bird species such as house sparrow *Passer domesticus*, starling *Sturnus vulgaris* and blue tit *Cyanistes caeruleus*. Swift bricks should be located at eaves level (at least 4 m above ground level), in less disturbed areas, out of direct sunlight avoiding south facing aspects and prevailing weather conditions, with an uncluttered adjacent flight space e.g. avoiding electricity cables, vegetation etc. There should a minimum of one swift brick installed per dwelling although placement of swift bricks in groups to encourage species which nest in colonies should be considered. Positions of swift bricks should be agreed with an ecologist at the design stage once detailed proposals are available.
- 5.1.5 Hedgehog houses and insect towers are recommended to be placed on-site, ideally within areas of retained vegetation and out of view. The number and location of which should be decided once detailed proposals are available for the Site.

- 5.1.6 Should any closed board fencing be used as part of any proposals, holes (at least 13 cm x 13 cm) will be created to allow passage for hedgehog thereby creating “hedgehog highways” through the development, with locations to be agreed with an ecologist at the design stage once detailed proposals are available.
- 5.1.7 The final details of the above recommendations for ecological enhancement at the Site, including number and type of species-specific enhancement features, should be informed by the results of any further protected species to be undertaken where appropriate as well as through full review of the proposals should these be brought forward.

6. References

BRIG (2011). UK Biodiversity Action Plan Priority Habitat Descriptions. Available:

http://jncc.defra.gov.uk/PDF/UKBAP_PriorityHabitatDesc-Rev2011.pdf

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

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

CIEEM. (2019). '*Advice note on the lifespan of ecological reports and surveys*'. [online]. Available at <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

Collins, J. (2023) '*Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn)*'. The Bat Conservation Trust, London.

Cresswell, P, Harris, S & Jefferies, DJ (1990) '*The history, distribution, status and habitat requirements of the badger in Britain*'. Nature Conservancy Council.

Department for Environment, Food and Rural Affairs (2024). '*The Statutory Biodiversity Metric – User Guide*'. Available from:

https://assets.publishing.service.gov.uk/media/65673fee750074000d1dee31/The_Statutory_Biodiversity_Metric_-_User_Guide.pdf

Harris, S., Cresswell, P. and Jefferies, D. (1989). '*Surveying Badgers*'. Mammal Society (Occasional Publication No 9).

Natural England (2010) '*List of habitats and species of principal importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006*'.

Natural England, Department for Environment, Food & Rural Affairs, and the Environment Agency. (2022). '*Guidance - Stop invasive non-native plants from spreading*' [online]. Retrieved from <https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants>.

Non-Native Species Secretariat (2017). Sourced from:

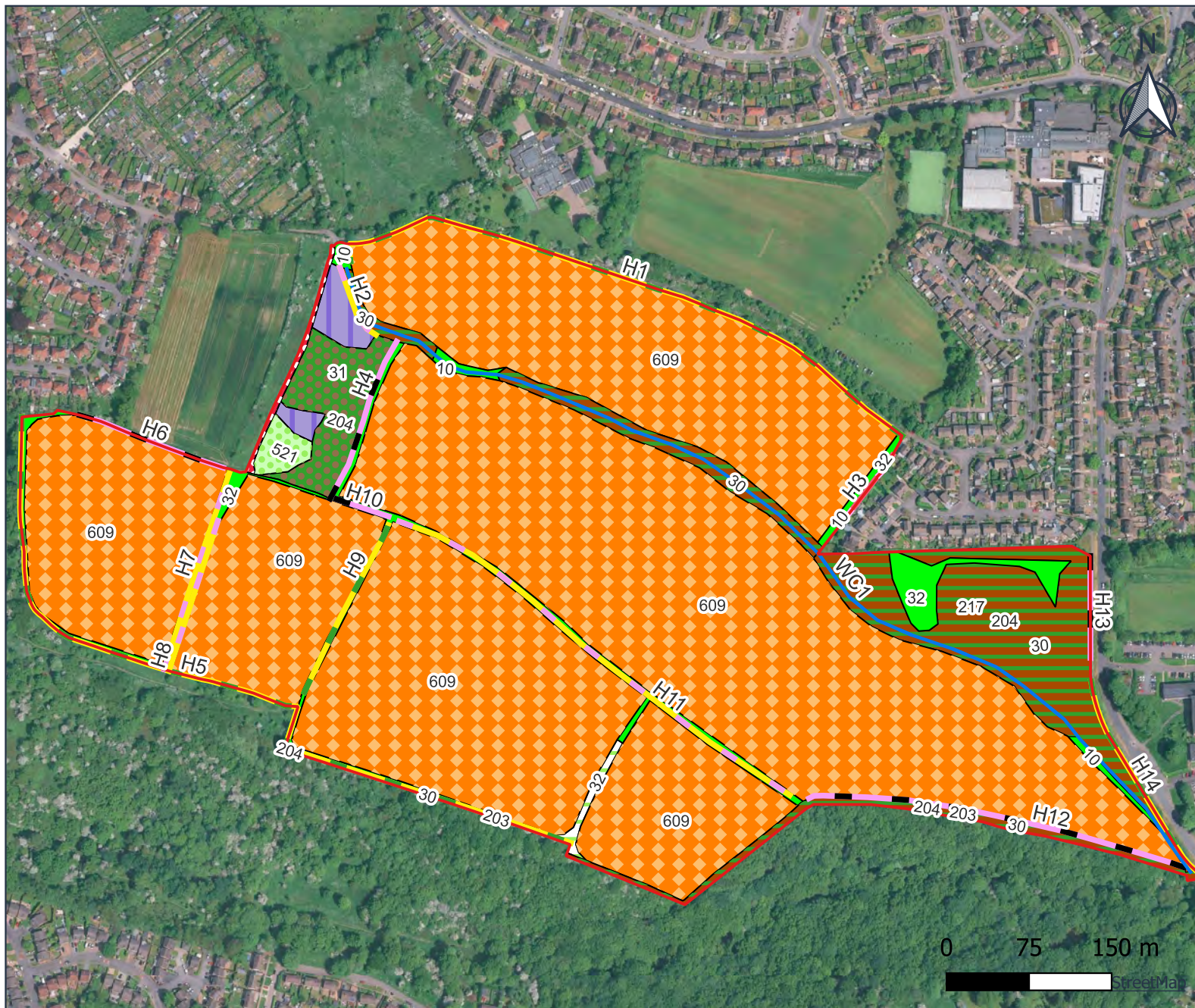
<https://www.nonnativespecies.org/whatcan-i-do/check-clean-dry/>

Sheffield City Council (2011). '*Sheffield Biodiversity Action Plan*'. [online]. Last accessed July 2025. Available at: <https://www.sheffield.gov.uk/parks-sport-recreation/biodiversity-conservations>

Stanbury A, Eaton M, Aebischer N, Balmer D, Brown A, Douse, A, Lindley, P, McCulloch N, Noble D and Win I. (2015). '*The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Island and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*'. *British Birds* 114: 723-747.

UK Habitat Classification Working Group. (2023). UK Habitat Classification 2.0 at <https://www.ukhab.org>.

Figure 1: UK Habitat Classification Map



Legend

- Site boundary
- h2a5 - species-rich native hedgerow
- h2a5- species-rich native hedgerow [11 - Hedgerow with trees]
- h2a6 - other native hedgerow
- h2b - non-native and ornamental hedgerow
- r2b - other rivers and streams
- g1c - bracken [32 - Scattered trees]
- g3c5 - Arrhenatherum neutral grassland [10 - Scattered scrub, 32 - Scattered trees, 521 - Unmanaged]
- g4 - modified grassland [10 - Scattered scrub, 32 - Scattered trees]
- w1f7 - other lowland mixed deciduous woodland [30 - Semi-natural woodland, 203 - Mature tree, 204 - Veteran tree, 217 - Woodland open space]
- w1g - other broadleaved woodland [31 - Secondary woodland, 204 - Veteran tree]
- h3d - bramble scrub [32 - Scattered trees]
- c1d8 - other non-cereal crops [609 - Cover crops]
- u1c - artificial unvegetated, unsealed surface

Revision	Date	Drawn by	Checked by
A	17/08/2025	JS	ST

Drg. Ref.:
25518.001

Scale 1:5,200
(A4):

Figure 2: Designated Sites Map

1:27,000



Legend

- Site boundary
- 2 km buffer
- Designated sites



Revision	Date	Drawn by	Checked by
A	07/08/2025	AO	JS
B	10/09/2025	AO	JS

Drg. Ref.: 25518-PEA-F2 Scale (A4): 1:27,000

Figure 3: Waterbody Location Map



Legend

- Site boundary
- 30 m buffer
- 250 m buffer
- 500 m buffer
- Watercourses

Revision	Date	Drawn by	Checked by
A	04/08/2025	AO	JS

Drg. Ref.: 25518-PEA-F3 Scale (A4): 1:17,500

Appendix 1: Site Photographs



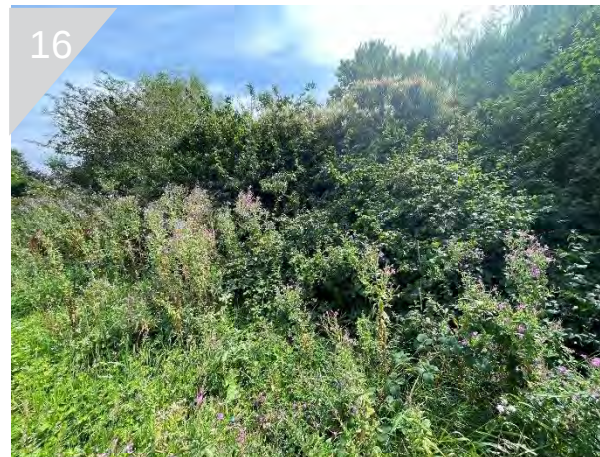
- 1 Other non-cereal crops (c1d8) with cover drops [609]
- 2 Area of other lowland mixed deciduous woodland (w1f7) associated with WC1 within the centre of the Site
- 3 Area of other lowland mixed deciduous woodland (w1f7) located within the north east corner of the Site
- 4 Other broadleaved woodland (w1g) located within the west of the Site



- 5 Modified grassland (g4) associated with field margins
- 6 Modified grassland (g4) associated with larger area of open space located within woodland to north east
- 7 Area of bramble scrub (h3d) with scattered trees [32] located within north west of the Site
- 8 Area of other neutral grassland (g3c) with scattered trees [32] present towards the west of the Site



- 9 Species-rich native hedgerow (h2a5) with trees [11] located on south boundary of the Site (H5, Figure 1)
- 10 Species-rich native hedgerow (h2a5) located on east boundary of the Site (H13, Figure 1)
- 11 Other native hedgerow (h2a6) located within centre of the Site (H7, Figure 1)
- 12 Section of watercourse channel located within centre of the Site (WC1, Figure 1)



- 13 Area of bracken (g1c) with scattered trees [32] located towards the south of the Site
- 14 Non-native and ornamental hedgerow (h2b) located on east boundary of the Site (H3, Figure 1)
- 15 Artificial unvegetated, unsealed surface (u1c) in the form of a PRow running along the west boundary of the Site
- 16 Area of common snowberry forming part of woodland habitat towards the east boundary of the Site (TN1, Figure 1)

Appendix 2: Non-Statutory Designated Sites

Table A3: Non-Statutory Designated Sites within 2 km of the Site

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Smelter Wood LWS	HPI includes ancient woodland HPI and qualifies as lowland mixed deciduous woodland. There is a rich ground flora with at least eleven Ancient Woodland Indicator (AWI) species present.	Directly adjoining the Site to the west
Shirtcliffe Valley Grasslands LWS	The grasslands include areas that are species-rich. The Shirtcliff Brook flows down through the edge of the grasslands from adjacent Smelter Wood. Up the slope towards the top field, known as 'the edge', there is continuous rocky outcrop with areas of scree.	Directly adjoining the Site to the south
Shirtcliffe Woods & Fields LWS	Long established woodland with HPI including ancient woodland and qualifies as lowland mixed deciduous woodland. Supports a range of AWI, including ramsons <i>Allium ursinum</i> , bluebell <i>Hyacinthoides non-scripta</i> and wood melick <i>Melica uniflora</i> . The wood is dominated by oak and there are small patches of scrub and grassland present.	Directly adjoining the Site to the south

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Lower Shirtcliffe Valley LWS	Most of the interest in this site is wet woodland HPI which is dominated by willow species. The ground flora here consists of lesser water-parsnip <i>Berula erecta</i>, marsh foxtail <i>Alopecurus geniculatus</i>, jointed rush <i>Juncus articulatus</i>, common spike-rush <i>Eleocharis palustris</i>, reed canary-grass <i>Phalaris arundinacea</i>, hairy sedge <i>Carex hirta</i> and common reedmace <i>Typha latifolia</i> recorded. The site also has a mature hedgerow and areas of semi-improved neutral grassland which has a diverse flora.	Directly adjoining the Site to the east
Woodhouse Banks & Sally Clarks LWS	Forming part of the Shire Brook LNR. Includes a variety of habitats to the north of Stone Lane and east of Coisley Hill. It includes several areas of old unimproved grassland, such as Sally Clark's Meadow, plus hedgerows, scrub and blocks of trees planted during the re-landscaping of the former sewage works.	0.65 km south

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Normanton Spring LWS	Forming part of the Shire Brook LNR. The site is a former landfill site which was capped and landscaped some time during the 1980s. It consists primarily of woodland habitat but also contains an area of grassland roughly in the middle of the site. It is fed from the south by the water course of the Shire Brook but this disappears under a culvert near the centre of the site.	0.87 km south west
Coisley Hill to Stone Lane LWS	Forming part of the Shire Brook LNR and consists of a mixture of habitats: grassland, scrub, plantation and hedgerows, plus two ponds with marginal vegetation.	0.90 km south
Carbrook Ravine & Spring Wood LWS	As described in Table 1.	0.93 km west
Woodhouse East Disused Railway LWS	The scrub, hedgerows and former orchard attract a range of birds, including bullfinch <i>Pyrrhula pyrrhula</i> , yellowhammer <i>Emberiza citrinella</i> , grasshopper warbler <i>Locustella naevia</i> and songthrush <i>Turdus philomelos</i> .	0.94 km south east

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Handsworth Tip LWS	Handsworth Tip offers a great variety of habitats within a small area and is a place where natural regeneration can be seen in action. There are areas of bare earth that are slowly being colonised by mosses and low-growing, rosette-forming plants characteristic of urban commons. Other areas have already established as grasslands, acid and neutral. There are patches of woodland, some of which have well developed ground flora. Some areas of dense scrub, hedgerows and a wet flush are present also.	0.98 km north west
Richmond Park LWS	Contains a section of the Shire Brook Watercourse, with pond, woodland, hedgerow and semi-improved grassland habitat also present.	1.05 km south west
Lynley Bank Meadows LWS	Former Beighton Tip which now supports habitats including a mosaic of mainly grassland, tall herbs and scrub.	1.05 km south east
Wickfield Heath & Plantation LWS	Forming part of the Shire Brook LNR and includes an area of the HPI lowland heathland.	1.07 km south west

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Coisley Hill to Linleybank LWS	Forming part of the Shire Brook LNR and comprises a linear strip mainly on the south side of Shire Brook, extending from Coisley Hill roundabout to the edge of the former Beighton Tip, now known as Linleybank Meadow. The northern boundary of the site roughly follows the course of the brook and includes the riparian habitats. The southern boundary includes a thin ribbon of land on the south side of the A57 which is similar in character with the rest of the site. This sub-site as a whole holds a range of habitats, including ponds, marsh, grassland, scrub, hedgerows and blocks of planted woodland.	1.18 km south
Woodhouse Washlands LWS	As described in Table 1.	1.21 km east
Richmond Pond LWS	The pond has areas of open water with emergent vegetation such as yellow water-lily <i>Nuphar lutea</i> and branched bur-reed <i>Sparganium erectum</i> . There are areas of abundant marginal vegetation including water mint <i>Mentha aquatica</i> and yellow iris <i>Iris pseudacorus</i> . The central area of the pond was becoming dominated by common reedmace <i>Typha latifolia</i> .	1.31 km south west
Bowden Housteads Wood LWS	As described in Table 1.	1.32km west

Designated Site	Citation Summary	Approximate Distance and Direction from the Site
Birley Spa Wood LWS	Forming part of the Shire Brook LNR and characterised by an area of mixed habitats adjoining the historic bath house building at Birley Spa. The spring at Birley Spa feeds a large pond which overflows to a stream which eventually joins the Shire Brook in the valley bottom. The stream runs through a wooded valley of mature trees. Other areas of the site are dominated by dry heath and grassland giving them the character of lowland heath.	1.41 km south
Waverley Pond LWS	This site consists of oak-dominated woodland, plus a large spring-fed pond which is a breeding site for common amphibians.	1.46 km north west
Beighton Marsh LWS	Forms part of the Shire Brook LNR. No citation provided.	1.77 km south east
Birley Vale LWS	No citation provided.	1.95 km south west
Frecheville Heath LWS	No citation provided.	1.96 km south west

Appendix 3: Bird Species

Common Name	Scientific Name	Status
Fieldfare	<i>Turdus pilaris</i>	Schedule 1, Red
Cuckoo	<i>Cuculus canorus</i>	Red
Grasshopper Warbler	<i>Locustella naevia</i>	Red
Greenfinch	<i>Carduelis chloris</i>	Red
Grey Partridge	<i>Perdix perdix</i>	Red
House Martin	<i>Delichon urbica</i>	Red
House Sparrow	<i>Passer domesticus</i>	Red
Lapwing	<i>Vanellus vanellus</i>	Red
Lapwing	<i>Vanellus vanellus</i>	Red
Linnet	<i>Carduelis cannabina</i>	Red
Mistle Thrush	<i>Turdus viscivorus</i>	Red
Skylark	<i>Alauda arvensis</i>	Red
Starling	<i>Sturnus vulgaris</i>	Red
Swift	<i>Apus apus</i>	Red
Tree Sparrow	<i>Passer montanus</i>	Red
Willow Tit	<i>Poecile montanus</i>	Red

Yellowhammer	<i>Emberiza citrinella</i>	Red
Kingfisher	<i>Alcedo atthis</i>	Schedule 1, Amber
Redwing	<i>Turdus iliacus</i>	Schedule 1, Amber
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Amber
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber
Common whitethroat	<i>Sylvia communis</i>	Amber
Dunnock	<i>Prunella modularis</i>	Amber
Grey Wagtail	<i>Motacilla cinerea</i>	Amber
Kestrel	<i>Falco tinnunculus</i>	Amber
Lesser Black-backed Gull	<i>Larus fuscus subsp. graellsii</i>	Amber
Nightjar	<i>Caprimulgus europaeus</i>	Amber
Redshank	<i>Tringa totanus</i>	Amber
Reed Bunting	<i>Emberiza schoeniclus</i>	Amber
Rook	<i>Corvus frugilegus</i>	Amber
Song Thrush	<i>Turdus philomelos</i>	Amber
Sparrowhawk	<i>Accipiter nisus</i>	Amber
Stock Dove	<i>Columba oenas</i>	Amber
Tawny Owl	<i>Strix aluco</i>	Amber

Wheatear	<i>Oenanthe oenanthe</i>	Amber
Willow Warbler	<i>Phylloscopus trochilus</i>	Amber
Woodpigeon	<i>Columba palumbus</i>	Amber
Wren	<i>Troglodytes troglodytes</i>	Amber
Red Kite	<i>Milvus milvus</i>	Schedule 1, Green
Blackbird	<i>Turdus merula</i>	Green
Blue Tit	<i>Cyanistes caeruleus</i>	Green
Carrion Crow	<i>Corvus corone</i>	Green
Chiffchaff	<i>Phylloscopus collybita</i>	Green
Coal Tit	<i>Parus ater</i>	Green
Collared Dove	<i>Streptopelia decaocto</i>	Green
Garden Warbler	<i>Sylvia borin</i>	Green
Goldcrest	<i>Regulus regulus</i>	Green
Goldfinch	<i>Carduelis carduelis</i>	Green
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Green
Great Tit	<i>Parus major</i>	Green
Grey Heron	<i>Ardea cinerea</i>	Green
Jackdaw	<i>Corvus monedula</i>	Green

Jay	<i>Garrulus glandarius</i>	Green
Long-tailed Tit	<i>Aegithalos caudatus</i>	Green
Magpie	<i>Pica pica</i>	Green
Pheasant	<i>Phasianus colchicus</i>	Green
Pied Wagtail	<i>Motacilla alba</i>	Green
Robin	<i>Erithacus rubecula</i>	Green
Rock Dove	<i>Columba livia</i>	Green
Siskin	<i>Carduelis spinus</i>	Green
Swallow	<i>Hirundo rustica</i>	Green
Treecreeper	<i>Certhia familiaris</i>	Green