ECOLOGY REPORT

SHILLFORD HAULAGE FACILITY

EAST RENFREWSHIRE

21.12.2023 VERSION 3.1

PREFACE

This document is a report for ecological services to be carried out by the company.

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REVISION AND SIGN OFF

ISSUE DATE	AUTHORS	CHECKED BY	SIGNED OFF	VERSION	CHANGE REFERENCE
11.07.2023	Rory Baillie Kiera Hamilton Hadyn Reis Murray	Beccy Osborn Emma Robson	Beccy Osborn	1	
20.10.2023	Emma Robson	Beccy Osborn	Beccy Osborn	2	BBS, Bat transect and NVC survey information added.
15.12.2023	Scott Allinson	Emma Robson	Emma Robson	3	Site boundary update from client
21.12.2023	Scott Allinson			3.1	Retitling of project due to change of scope of works.

EXECUTIVE SUMMARY

Direct Ecology Ltd. was commissioned by Ironside Farrar Ltd to carry out a Preliminary Ecological Appraisal (PEA) at Shillford, East Renfrewshire to inform plans for a new haulage facility, including the repurposing of a shed.

A desk study for the presence of sites designated for nature conservation with the potential to be affected by the proposals, and for existing records indicating the presence of protected or priority species near the site, was carried out in June 2023. An extended Phase 1 habitat survey and a Preliminary Roost Assessment was undertaken in May 2023 which included a walkover survey for protected species. A bat activity transect and remote monitoring survey was undertaken, a breeding bird survey and an NVC surveys was undertaken.

The extended Phase 1 habitat survey identified 13 different habitat types on site which largely consisted of semi-improved neutral grassland, marshy grassland and scattered scrub and trees. In the northwest of the site are metal shed structures and a residential home/office building.

Two old swallow nests, five active jackdaw nests and one active blue tit nest were found on site during the day survey. A range of species of conservation concern were confirmed to be using the areas of scrub and marshy grassland including; starling, willow warbler, sedge warbler whitethroat and reed bunting. The buildings on site support house martin, swallow and house sparrow.

The metal shed is assessed to be of negligible suitability for roosting bats. The adjacent house has at least moderate bat roost potential. Five species of bat were recorded during survey; common pipistrelle, soprano pipistrelle, Leisler's bat, brown-long eared, Daubenton's bat. The most commonly recorded species was soprano pipistrelle, followed by common pipistrelle. The remaining species were only rarely recorded. On the nocturnal bat transect, the highest level of activity was recorded in the south-west corner of the site close to the mature trees.

The development will lead to the loss of the majority of habitats on site, including the marshy grassland (of local importance) and habitat for bird species of conservation concern including reed bunting and sedge warbler.

The report details several recommendations regarding site ecology. The following is a summary of key recommendations:

- The trees on site should be retained wherever possible with appropriate root protection zones in place. If any trees are to be removed, appropriate like for like replanting of native species should take place as part of the landscaping of the site. Species chosen for planting should be native, of local provenance, and of known wildlife benefit.

- Areas of semi-neutral grassland should be retained and incorporated into the SUDs scheme to create a 'biodiversity zone' which will provide habitat for bats and birds.

- The lines of non-native conifers should be considered for removal and replacement with native species.

- Best practice methods should be in place to minimise dust pollution and should include assessing factors such as foreseeable events which may lead to elevated airborne emissions, identification of potential sources of dust, control and management of dust, monitoring dust, and reviewing and reporting.

- If the off-site garages, reception building or Shillford House are to demolished, then a preliminary roost assessment and nocturnal surveys will need to be undertaken. If these buildings are to be retained then sensitive working methods in close proximity would be required (e.g. the buildings should not be lit up).

- Bird and bat boxes should be integrated into the newly developed buildings on site or fixed externally and should be erected on trees for some species.

- Japanese knotweed, an invasive non-native species, was noted within the site boundary and in the 30m buffer. Legally there is a requirement to avoid the spread of this species off site. An INNS management is required.

- To ensure compliance with the Wildlife and Countryside Act 1981 (as amended), if any works are to be undertaken during the bird nesting season (March to August inclusive) then a nesting bird check should be carried out by a suitably experienced ecologist immediately prior to works commencing in an area. If birds are found to be nesting, any works which would destroy, disturb or damage nests would have to be delayed until the young have fledged and the nest has been abandoned naturally. A pre-works check for nesting birds is required immediately prior to works commencing.

- A pre works check for any evidence of otter and water vole prior to habitat clearance should be undertaken, as well as maintaining and enhancing the ditch to provide suitable habitat for otter and water vole. The ditch should not be culverted.

- All workers should receive a 'toolbox' talk, during which contractors will be informed of any potential issues regarding protected species on site (including nesting birds, bats). This will ensure that all site workers are inducted in relation to the ecological requirements on the site.

- An emergency procedure should be in place should any protected species or their resting site (e.g., nesting bird) be encountered during operations. All work should cease in the area immediately and a suitably experienced ecologist should be consulted to determine any mitigation requirements i.e., suitable setbacks or buffer zones, and consultation with statutory bodies or licence applications if required.

- If the works commence more than 18 months from the final survey, then update surveys should be undertaken including for badger.

CONTENTS

1 PROJECT INFORMATION

1.1 SCOPE

This report presents the results of a Preliminary Ecological Appraisal and a Preliminary Roost Assessment undertaken to inform the proposed development of a new haulage facility and repurposing of a shed at Shillford, East Renfrewshire. The survey was undertaken on behalf of Ironside Farrar Ltd to advise on potential ecological constraints to the proposed development (Figure 8), as well as to advise on compliance with relevant legislation and planning policy.

Ecological work for the site included:

- A desk study.
- A Preliminary Ecological Appraisal (PEA) in the form of an extended Phase 1 habitat survey, incorporating an initial site walkover for protected species.
- A Preliminary Roost Assessment (PRA) of the buildings and trees present on site.
- A National Vegetation Classification (NVC) survey and assessment for Groundwater Dependent Terrestrial Ecosystems (GWDTE).
- Bat activity transect survey.
- Bat remote monitoring survey.
- Breeding bird survey.

1.2 SITE LOCATION AND DESCRIPTION

The site measures 3.72 ha and is located 2km west of Neilston in East Renfrewshire (central grid reference NS 45012 56251 (Figure 1, Appendix 2)). The area around the site is predominantly arable fields, with pockets of coniferous woodland and scrub.

1.3 RELEVANT LEGAL FRAMEWORK AND POLICY

This assessment has taken into account relevant legislation, guidance and policy including:

- EC Habitats (Directive 92/43/EEC)
- EC Birds Directive (Directive 2009/147/EC)
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- The Conservation (Natural Habitats, &c) Amendment Scotland Regulations 2007
- Wildlife and Countryside Act 1981 (as amended)
- Nature Conservation Scotland Act 2004 (as amended)
- The Wildlife and Natural Environment (Scotland) Act 2011
- The Protection of Badgers Act 1992 (as amended)
- Planning for Natural Heritage: Planning Advice Note 60 (Scottish Government, 2000)
- Local Biodiversity Action Plan
- Scottish Biodiversity List (SBL) (NatureScot, 2020)
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017
- National Planning Framework 4 (Scottish Government, 2023)
- Developing with Nature guidance (NatureScot, 2023)

1.3.1 BIODIVERSITY NET GAIN

The National Planning Framework 4 (NPF4) was adopted by Scottish Ministers in February 2023 and now forms part of the statutory Development Plan. Within NPF4 *Policy 3 – Biodiversity* states that:

- Development proposals will contribute to the enhancement of biodiversity, including (where relevant) restoring degraded habitats and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.

2 METHODS

2.1 DESK STUDY

A desk study was undertaken to determine the presence of any designated nature conservation sites and conservation areas, as well as records of protected and notable habitats and species, and invasive non-native species (INNS), within a 2km radius of the site. The presence of any statutory or non-statutory sites designated for their bird interest within 20km of the site boundary was included in the records search. In addition, a 50m buffer used to search for areas of woodland listed on the Ancient Woodland Inventory and in the Native Woodland Survey of Scotland (NWSS). In regard to protected species records, only commercially available records within the last 10 years have been included.

The following sources were consulted:

- NatureScot SiteLink (NatureScot, 2023)
- Scotland's Environment Web Map (Scottish Government, 2023)
- National Biodiversity Network (NBN) Atlas (NBN, 2023)

2.2 FIELD SURVEY METHODS

The extended Phase 1 habitat survey was carried out on dates as detailed in Table 5. Ten figure grid references were taken to record notable site features as target notes, using a handheld GPS device. Time and weather data for the survey visit is given in Table 5. The habitat survey area comprised the site and the protected species survey included a 30 m buffer (Figure 1), where access was available.

2.2.1 PHASE 1 HABITAT SURVEY

Habitats were classified using the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Survey method (JNCC, 2010). Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. Target notes of notable plant species were made. Plants and their frequency of occurrence were recorded using the subjective DAFOR scale (dominant, abundant, frequent, occasional, or rare).

Any invasive and invasive non-native plant species present within the survey area covered by the Wildlife and Natural Environments (Scotland) Act 2011 (WANE) were noted, although a specific survey for non-native invasive species was not undertaken.

The potential for the habitats to be dependent on groundwater (Groundwater Dependent Terrestrial Ecosystem, GWDTE) was assessed, following the practice guide published by Forestry Commission Scotland (Forestry Commission Scotland, 2018).

2.2.2 NATIONAL VEGETATION CLASSIFICATION (NVC) SURVEY

Vegetation assessed to be potentially dependent on groundwater was subject to NVC survey. Homogenous stands of vegetation were identified and mapped using the NVC survey method (Rodwell, 1991). The NVC provides a standardised system for classifying and mapping semi-natural plant communities and ensures that surveys are carried out to a consistent level of detail and accuracy.

The data gathered on species composition and relative abundance were used to assign the vegetation to an NVC plant community with reference to Rodwell (1991).

2.2.3 PROTECTED SPECIES WALKOVER

A walkover survey for evidence of protected species was undertaken, focusing on species that are likely to be present in the area. Walkover field surveys identified the presence of, and the suitability of habitats to support, protected and priority bird, herptile and mammal species within the site and up to 30m beyond the site boundary. Sightings and field evidence was recorded via numbered Target Notes (TN) which included a brief description, photograph and 10 figure OS grid reference made using a handheld GPS unit.

2.2.3.1 BATS

In line with guidance from NatureScot and the Bat Conservation Trust (BCT) (Collins, 2016), a detailed internal and external survey of the buildings were conducted, where safe to do so. During the assessment, surveyors searched the buildings for potential or actual bat roosting sites including features such as gaps at panels, under slates, around windows and below cladding. Surveyors also assessed the suitability of the surrounding habitat for commuting and foraging bats. This information allowed the building to be classified as High, Moderate, Low or Negligible in terms of suitability for roosting bats (Collins, 2016). Table 1 details BCT categories in relation to roosting and commuting/foraging habitats.

Where accessible, all suitable bat ingress and roosting features were subject to a detailed inspection using a ladder, a high-powered torch and an endoscope. Any bats, or evidence of bat activity present (such as droppings, urine staining, grease marks, scratch marks or feeding remains), were recorded. Any features that were considered beyond the safe reach of a ladder were assessed using binoculars, where possible. This assessment included an internal survey of any loft spaces or other suitable areas of the building for roosting bats.

An assessment of the hibernation roosting potential of the building was also undertaken as per BCT guidelines.

In line with guidance from NatureScot and the Bat Conservation Trust (BCT) (Collins, 2016), an assessment was made of the suitability of the habitats on site and in the vicinity to support roosting or foraging bat species (Table 1). A daytime survey of any trees on site was conducted, and these were subject to a visual assessment from ground level to identify features potentially suitable for roosting bats. Potential roost sites were investigated with the aid of binoculars and a powerful torch.

Trees and structures were categorised as having negligible to high potential for roosting bats, according to Bat Conservation Trust (BCT) guidelines (see Table 1 below).

Table 1: BCT Categories of Roosting Habitats and Commuting and Foraging Habitats.

BCT Categories	Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by the individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as fragmented hedgerows or an unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only –the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broad-leaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.2.3.2 BAT ACTIVITY TRANSECT

Additionally, one bat activity transect survey was undertaken to ascertain the use of the site by commuting and foraging bats, and to identify the species present. Surveyors follow a pre-determined route, stopping at regular intervals to record any bats registered by sight or by an electronic bat detector (Anabats, Walkabout or similar); used to record any calls during the transect. The surveys are undertaken in suitable weather conditions (i.e. dry, with little wind and temperatures above 7°C) and were carried out from sunset.

2.2.3.3 BAT REMOTE DETECTOR SURVEY

Additional information on the use of the site by foraging and commuting bats was collected. Chorus detectors were left out on site to record bat activity at two locations for 15 nights from 30.08.2023 to 13.09.2023. Figure 6, Appendix 2 show the locations of the detectors. Calls were averaged over the total number of nights and the detailed tables of results are shown in Appendix 6.

2.2.3.4 BADGER

A walkover survey for evidence of badger *Meles meles* activity was undertaken within the site and extended to areas of suitable habitat 30 m beyond the site boundary. Any evidence of badger activity (in the form of bedding, scratch marks, paths, prints, guard hairs, latrines, dung and signs of foraging) was recorded.

Badger surveys can be undertaken at any time of year when vegetation growth is not high. Badgers are more active and mark their territories in the spring, but they are still active above ground throughout the year. Badgers can have territories that are over 2 km^2; therefore, seasonal foraging in an area that is within a territory may not be recorded.

2.2.3.5 OTTER & WATER VOLE

The ditches within the site were assessed for their suitability to support otter *Lutra lutra.* Any field signs of otter presence (in the form of spraints, slides, holts, couches, tracks and resting up sites) were recorded.

Suitable areas for water vole *Arvicola amphibius* were noted, including any strips of marginal vegetation at the toe of a watercourse's bank and tussocks or marginal vegetation away from the bank. Any field

signs of water vole presence (a combination of droppings, feeding remains, burrows and footprints were recorded.

2.2.3.6 BIRDS

An assessment was made of the suitability of the habitats for birds to use for nesting and foraging, and all birds observed during the surveys were recorded. A full breeding or wintering bird survey was not undertaken. The survey was undertaken outside of the nesting season.

2.2.3.7 RED SQUIRREL & PINE MARTEN

Signs of red squirrel *Sciurus vulgaris* and pine marten *Martes martes* were noted during the walkover survey, such as feeding signs, scats and dens. Note was also made of habitats with potential to support these species.

2.2.3.8 BIRDS

A breeding bird walkover survey was carried out on 21.07.2023 with all birds heard and seen onsite recorded. Any potential breeding behaviour was noted (e.g. singing, males defending territories, alarming, nest building, birds carrying food, etc.). These observations were then mapped using GIS software to give an indication of territories within the site, and whether breeding was considered possible, probable, or confirmed by the behaviours recorded across the visit.

2.2.3.9 OTHER FAUNA

The presence, or potential presence, of any other species of note was recorded (e.g., Scottish Biodiversity List (SBL) species, Local Biodiversity Action Plan species, reptiles, amphibians and invertebrates).

2.3 EVALUATION

Based on the site survey and desk study an evaluation has been undertaken to identify important ecological features within the survey area. A detailed assessment has not been undertaken of other features that for example are sufficiently widespread, unthreatened and resilient to project impacts. However, recommendations are made to safeguard biodiversity as emphasised in the EU Biodiversity Strategy 2020.

Table 2 is used as a guide when identifying important ecological features. Consideration when assessing importance is given to designated sites, legally protected features, features listed on the Scottish Biodiversity List and Local Biodiversity Action Plan, and bird species listed in Birds of Conservation Concern (Stansbury *et al.*, 2021).

Table 2: Guideline nature value levels

Level of Value	Examples (not definitive and often dependent on professional judgement)
International	Internationally-designated or proposed sites (such as SACs) meeting the criteria for international designation; or non-designated sites meeting the criteria for international designation. A significant area of a habitat type listed in *Annex I of the Habitats Directive*. Sites supporting populations of internationally-important numbers of species/assemblages.
National	Nationally-designated sites (such as SSSIs, National Nature Reserves, Marine Nature Reserves, Nature Conservation Review Grade 1 sites); or non-designated sites meeting SSSI selection criteria. Sites supporting populations of nationally-important numbers, and/or supplying critical elements of their habitat requirements. A site supporting 1 % or more of a national population.

Regional	Sites containing viable areas of threatened habitats of importance within a regional context. A significant area of habitat type listed on the *Scottish Biodiversity List* (SBL). Sites supporting viable breeding populations of nationally-scarce species on account of their rarity or supplying critical elements of their habitat requirements. Any regularly-occurring population of a nationally-important species that is threatened or rare in the region (e.g. >1 % of the regional population).
Local	Sites meeting the criteria for council area designation (such as Site of Importance for Nature Conservation (SINC)) which may include amenity and educational criteria in urban areas. Designated Local Nature Reserves. Sites containing significant areas of any priority habitat listed on the *LBAP*. Sites supporting significant populations of species known to be council rarities or included on the *LBAP*, and/or supplying critical elements of their habitat requirements. A site supporting 1 % or more of a county population.
Site	Undesignated sites, or features or species considered to appreciably enrich the resource within the context of the local area (i.e. approx. 5 km radius from the site area). Examples include species-rich hedgerows and ponds. Individual or small numbers of protected species common to the area. Small areas of *LBAP* habitat or other habitats of note.
Negligible	Low-grade and widespread habitats or species. A widespread species with minimal use of an area that does not form a significant element of its habitat requirements.

2.4 SURVEY INFORMATION

All survey work and reporting was overseen by Beccy Osborn, Principal Ecologist and Company Director. She is an experienced Ecologist and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) with over 20 years' ecological consultancy experience. She holds various protected species licences including a NatureScot bat licence and badger development licence.

Table 3: Survey details

Date	Surveyor	Survey Type	Start / Finish	Weather
25.05.2023	Kiera Hamilton Hadyn Reis Murray	Extended Phase 1 Survey Protected species walkover	11.00/14:30	Temp: 18; WS: 0; CC: 0; Rain: 0
04.07.2023	Kiera Hamilton	Preliminary roost assessment of trees	10.30 –14.00	Temp: 16; WS: 3; CC: 0; Rain: 0
21.07.2023	Adam Samson	Breeding bird walkover survey	07:20 –09;50	Temp: 112/17; WS: 1; CC:2; Rain: 0
30.08.2023	Rory Baillie (RB) Will Maslen (WM)	Bat activity transect	20:45 –21:34	Temp: 12/11; WS: 1/1; CC: ½; Rain: 0/0
13.10.2023	Emma Robson ACIEEM	NVC survey	09:30-12:00	Temp: 5; WS: 1; CC:1; Rain: 0

2.5 SURVEY LIMITATIONS

The Shillford House buildings and associated garages were not fully surveyed for bat roost or nesting bird potential, survey was limited to an external visual inspection. It is understood that these buildings are to be retained.

One of the remote detectors ran out of battery after the 10th survey night however it thought that enough data was collected to allow for a reasonable assessment of bat activity at the site.

3 RESULTS

3.1 DESK STUDY RESULTS

3.1.1 STATUTORY/NON-STATUTORY DESIGNATED SITES

The site is not designated for any natural heritage features. There are five sites designated as Local Nature Conservation Sites (LNCS) within 1km of the site. Details of these sites are described below in Table 4. Due to the limited scale of the works and the lack of ecological connectivity to the site, it is not predicted that there will be any impacts upon any nature conservation sites in the wider area.

Table 4: Designated sites within 2km of the site boundaries

Site Name	Designation	Proximity to site	Description	Considered further in the assessment
Loch Libo	SSSI/SWTR	1.1km west	The loch is a long natural formed low land loch that supports a diverse range of aquatic and emergent plant communities. The loch serves as a unique example of a eutrophic loch in East Renfrewshire.	No
Thorterburn	LNCS	150m north	A small burn surrounded by small strips of woodland and shrubs. No further information.	No
Uplawmoor Wood	LNCS	200m west	An area of woodland that is known to support local populations of native tree species and a diverse range of flora communities. No further information	No
Cowden Burn Corridor	LNCS	350m east	A small burn that runs along the public road and is branched by a corridor of woodland and shrubs. No further information	No
Cowden Burn and Howcraigs Hill	LNCS	500m south	An open area of grassland on the north side of Howcraigs Hill. The area consists of scattered trees and shrubs. No further information.	No
Finniebrae	LNCS	850m northwest	An area of open mixed grassland and wetland. No further information.	No
Key: SWTR –Scottish Wildlife Trust Reserve SSSI –Site of Special Scientific Interest LNCS –Local Nature Conservation Site (also known as LBS Local Biodiversity Sites) LNR –Local Nature Reserve				

3.2 ANCIENT WOODLAND INVENTORY, TPOs AND NWSS

No sites registered on the Ancient Woodland Inventory or Native Woodland Survey of Scotland are present within 50m of the site.

3.3 PHASE 1 HABITAT SURVEY

The Phase 1 habitats recorded on site are summarised below and illustrated in Figure 3, Appendix 2. They are listed in the order found within the *Handbook for Phase 1 Habitat Survey* (JNCC, 2010), not in order of ecological value.

- Semi-natural broadleaved woodland (A.1.1.1)
- Dense scrub (A2.1)
- Scattered scrub (A2.2)
- Mixed scattered trees (A3.3)
- Neutral grassland –semi-improved (B2.2)
- Marshy grassland (B5)

- Poor semi-improved grassland (B6)
- Tall ruderal (C3.1)
- Marginal vegetation (F2.1)
- Running water (G2.1)
- Cultivated/disturbed land –amenity grassland (J1.2)
- Introduced shrub (J1.4)
- Defunct hedgerow - species poor (J2.2.2)
- Buildings (J3.6)
- Hardstanding (J5)

Semi-natural broadleaved woodland (A.1.1.1)

A small copse of young willow *Salix* sp. and birch *Betula* sp. trees has established to the east of the large shed (Photo 4). Ground flora comprises abundant tufted hair grass and bramble.

Dense scrub (A2.1)

An area of dense scrub with piles of rubble and waste material lies behind the large green shed in the west of the site (Photo 1). The vegetation predominantly consists of abundant broom *Cytisus scoparius*, bramble *Rubus fruticosus*, and colt's foot *Tussilago farfara*, with frequent white clover *Trifolium repens*, common ragwort *Jacobaea vulgaris*, wild angelica *Angelica sylvestris*, springy turf moss *Rhytidiadelphus squarrosus*, and common horse tail *Equisetum arvense*. Occasionally recorded species include meadow buttercup *Ranunculus acris* and field bindweed *Convolvulus arvensis*; which can become invasive, details further outlined in *Section 3.3.3*. Meadowsweet *Filipendula ulmaria* and Welsh poppy *Papaver cambricum* were rarely recorded within this habitat.

Along the northern bank of the ditch that bisects the site, the vegetation is dominated by raspberry cane *Rubus idaeus*.

Scattered scrub (A2.2)

Frequent scattered hawthorn scrub is present within the unmanaged field to the north-east of the site (Photo 3). In addition scattered hawthorn is present along the southern and northern boundaries of the site.

Mixed scattered trees (A3.3)

Scattered broadleaf trees are present along the central ditch (Photo 17), along the roadside as part of an outgrown hedgerow (Photo 9) and within the eastern field (Photo 3). The broadleaf trees recorded comprise abundant hawthorn *Crataegus monogyna*, goat willow *Salix caprea*, grey willow *Salix cinerea*, and occasional rowan *Sorbus aucuparia,* ash *Fraxinus excelsior,* sycamore *Acer pseudoplatanus*, and cherry *Prunus* sp.. Lines of non-native coniferous trees are present around the car park and along the roadside to the west of the site. Species include cypress *Cupressaceae* sp. and spruce *Picea* sp. (Photo 15). Very limited ground flora was noted along these coniferous tree lines.

A row of four mature beech trees are present along the southern boundary of the site (Photo 18).

Neutral grassland –semi-improved (B2.2)

The north-eastern field within the site comprises of unmanaged semi-neutral grassland. The sward height varies across the area however is generally tall. The grassland comprises of abundant tufted hair grass, with frequently recorded creeping thistle, meadow vetchling, St Johns wort, common nettle, wild angelica, false oat grass, ribwort plantain. A bryophyte layer of springy turf moss *Rhytidiadelphus squarrosus* was noted across much of the area- typical of unmanaged grasslands.

Areas of shorter sward grassland were noted likely where soils and drainage differs, such areas contained silverweed *Potentilla anserina*, wild angelica, seal heal, bent, ribwort plantain *Plantago lanceolata*, common sedge *Carex nigra*, and common knapweed *Centaurea nigra* and a range of bryophytes including pointed spear moss *Calliergonella cuspidata,* springy turf moss *Rhytidiadelphus squarrosus*, *Hylocomium splendens*, Rarely recorded was the orchid common twybalde *Neottia ovata*, only two or three plants were noted (Photo 5).

Marshy grassland (B5)

The southern portion of the site comprises mainly of marshy grassland. The main central area where soils are waterlogged comprise of dominant meadowsweet, with frequent soft rush *Juncus effusus*, and marsh horsetail, occasional marsh thistle *Cirsium paulsutre*, common valerian *Valeriana officinalis*, wild angelica and common sorrel and rarely tufted hair grass. The bryophyte layer comprises of abundant springy turf moss and pointed spear moss with occasional *Lophocolea bidentata* and *Plagiomnium undulatum*. The habitat shows most affinity to the NVC community M27a *Filipendula ulmaria –Angelica sylvestris* mire-*Valeriana officinalis –Rumex acetosa* sub-community. Photo 8.

Either side of the above community, the vegetation grades into M27b –(*Urtica dioica –Vicia cracca* sub-community), which is likely due to more improved conditions from field runoff to the south. Here, tufted hair grass is abundant alongside soft rush with frequent creeping buttercup and only occasional meadowsweet and wild angelica. Rarely recorded were marsh horsetail. The bryophyte layer was less abundant, with springy turf moss and pointed spear moss noted.

Poor semi-improved grassland (B6)

The south-western portion of the site comprises of a sloping field of species poor, rank grassland (Photo 6,7). The sward is dominated with creeping soft grass. Frequently recorded in this habitat included redshank *Persicaria maculosa*, common sorrel *Rumex acetosa*, broadleaf dock *Rumex obtusifolius*, false oatgrass *Arrhenatherum elatius*, tufted hair grass Deschampsia cespitosa and ground elder *Aegopodium podagraria*. Around the margins of this habitat, dense thickets of bramble and common nettle *Urtica dioica* were noted.

Tall ruderal (C3.1)

Ruderal vegetation was noted around the margins of the dense scrub habitat and colonising the rubble piles (Photo 2). The vegetation is similar to the surrounding flora recorded within the dense scrub; the composition varies in the abundance of rosebay willowherb *Chamaenerion angustifolium* present amongst the rubble piles. To the east of the site is an area of rosebay willowherb and apple mint, and the south of the site, between two areas of marshy grassland is a stand of common nettle.

Marginal vegetation (F2.1)

The central ditch supports a strip of marginal vegetation (Photo 12). The vegetation comprised abundant reed canary grass and yellow iris *Iris pseudacorus* which formed dense clusters, frequent soft rush tussocks, and meadowsweet. The banks were lined with stretches of rank grass and bramble thickets and emerging rosebay willowherb was conspicuous amongst the ground flora.

Cultivated/disturbed land –amenity grassland (J1.2)

A small area within the northwest corner of the site, well managed with a short sward (Photo 10). The sward is relatively species poor, being dominated by grasses. Annual meadow grass *Poa annua* was recorded in abundance, with frequent coverage of meadow foxtail *Alopecurus pratensis*, and Yorkshire fog *Holcus lanatus*. Frequently recorded herbs included common daisy *Bellis perennis*, common ragwort, creeping buttercup *Ranunculus repens*, with occasional sweet vernal grass *Anthoxanthum odoratum*, broadleaf plantain *Plantago major*, and field wood-rush *Luzula campestris*.

Introduced shrub (J1.4)

Along the roadside of the amenity grassland is a row of introduced shrubs.

Defunct hedgerow - species poor (J2.2.2)

Lining the southwestern boundary of the site, a hedge comprises well established hawthorn with signs of historic flailing (Photo 11). The hedge row appears to be currently unmanaged and it is gappy and bare in some sections. Young grey willow trees were noted along some sections of the hedge with two sapling sycamore *Acer pseudoplatanus* noted. The ground flora comprises abundant cow parsley *Anthriscus sylvestris*, with occasional foxglove *Digitalis purpurea*, ground elder, and bramble.

Fence (J2.4)

Present on various stretches of the site, post and wire fencing lining the fields in the south, as well as disused heras fencing.

Running water (G2.1)

A shallow ditch with steep banks bisects the site. Water flows west to east however very little open water is visible due to dense marginal vegetation (see F2.1 above).

Buildings (J3.6)

Within the northwest of the site stands four structures, comprising three large bus shelters and a smaller office building (Photo 13). Details of the structures are further outlined in *Section 3.4.1* below.

Hardstanding (J5)

A large proportion of the site in the northwest is hardstanding, the area is used as an access point for the site and a carpark for the busses (Photo 14). Limited vegetation was noted due to continual disturbance from moving vehicles.

Photo 1: Dense scrub colonising waste pile (A2.1).

Photo 2: Tall ruderal

Photo 3: Extensive area of scattered trees (A3.3) and scattered scrub.

Photo 4: Area of woodland

Photo 5: Common twayblade orchid

Photo 6: Poor semi-improved field

Photo 7: Transition between the two grassland types (B2.2/B5).

Photo 8: Marhsy grassland (B5).

Photo 9: Outgrown hedgerow along road

Photo 10: Small area of managed amenity grass (J1.2).

Photo 11: Hawthorn hedge along site boundary (J2.2.2).

Photo 12: Burn and marginal vegetation

Photo 13: Offsite old bus shelters and office building (J3.6).

Photo 14: Gravel/ tarmac carpark of bus shelter (J5).

Photo 15: Lines of conifer trees

Photo 16. Central ditch and marshy grassland beyond

Photo 17. Mixed scattered trees along ditch

Photo 18. Mature beech trees

3.3.1 HABITAT EVALUATION

The value of Phase 1 habitats is given in the table below with reference to their legal protection, the Scottish Biodiversity List, East Renfrewshire Biodiversity Action Plan 2018-2022, and guideline nature value levels (Section 2.3).

Table 5: Areas of Phase 1 Habitat types and their assessed value.

Phase 1 Habitat	Geographical and Biodiversity Value	Habitat notes
Semi-natural broadleaved woodland (A.1.1.1)	Site	A small area of self-seeded, young trees.
Dense scrub (A2.1)	Site	This habitat's value lies in supporting a range of declining bird species, and particular invertebrate larvae. Common and widespread plant species present providing shelter for wildlife especially birds and mammals.

Scattered scrub (A2.2)	Site	Small area of habitat with common and widespread plant species present.
Mixed scattered trees (A3.3)	Site	The trees within this habitat range from early mature to mature and provide important shelter and habitat for fauna in the area. The trees on site are unmanaged and have a good variety of structural diversity.
Neutral grassland – semi-improved (B2.2)	Site	An extensive area on site with signs of previous management, although currently unmanaged at the time of the survey. Common species present and not particularly diverse, greater diversity around the margins in proximity to the marshy grassland habitat.
Marshy grassland (B5)	Local	An extensive and important habitat on site for foraging wading birds, invertebrates, and amphibians; especially if in an area where heavy soils retain substantial water. Habitat on site as unmanaged and had a tall sward height, good species diversity.
Poor semi-improved grassland (B6)	Negligible	Species poor and rank sward.
Tall ruderal (C3.1)	Site	Habitat comprised of common and widespread species, has the potential to provide habitat for invertebrates and pollinators. In dense coverage has the potential as habitat for small mammals.
Marginal vegetation (F2.1)	Site	Tall vegetation of widespread and common species.
Running water (G2.1)	Site	Forms a blue habitat corridor connecting habitats.
Cultivated/disturbed land –amenity (J1.2)	Negligible	Monoculture grassland (some self-seeded species providing some more diversity) providing little value to local wildlife. Intensively managed, provides little shelter for fauna on site.
Introduced shrub (J1.4)	Negligible	Non-native species.
Defunct hedgerow – species-poor (J2.2.2)	Site	The hedge is in relatively good condition although it's gappy in some sections, despite being species poor the hedge may provide nesting habitat and shelter for birds and small mammals.
Fence (J2.4)	Negligible	Feature deemed to have little ecological value.
Buildings (J3.6)	Site	Feature deemed limited ecological value, provided nesting opportunities for birds but deemed to have low/negligible bat roost potential.
Hardstanding (J5)	Negligible	Habitat deemed to have little ecological value.

3.3.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS

The habitats on site were assessed for their potential to be groundwater dependent terrestrial ecosystems (GWDTEs). The M27a and b communities present at the site have the potential to be 'Moderately' groundwater dependent, in line with SEPA guidelines[1]. However given that the areas of M27a and b are located within a flat, low lying area at the base of slopes and a stream flows to the north, it is considered the vegetation is likely not irrigated by groundwater and instead through surface and sub-surface water run-off from the higher ground to the south and the stream to the north.

[1] https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf

3.3.3 INVASIVE NON-NATIVE SPECIES

Several stands of the highly invasive, non-native Japanese knotweed *Fallopia japonica* were recorded on site growing along the banks of the ditches (Photo 15, 16). This species prefers moist soil and will spread rapidly through its extensive rhizome system, making control difficult. It can form dense thickets which shade and outcompete native species.

A small cluster of field bindweed *Convolvulus arvensis* was noted behind the large shed in the west of the site (Photo 17). This is a native species to Europe though it has the potential to become invasive if left unmanaged. This species has a robust and extensive root system which allows it to spread quickly forming dense mats, outcompeting other species.

Photo 15: Large stand of Japanese knotweed along the northeast bank of ditch (TN 2).

Photo 16: Small cluster of Japanese knotweeds growing in ditch (TN 1).

Photo 17: Field bindweed growing in waste ground behind shed (TN 5).

3.4 PROTECTED AND NOTABLE SPECIES

This section summarises the results of the desk study and protected species survey for the site. Details of the records for protected and notable species are given in Appendix 4. Target notes for the protected species survey can be found in Appendix 3. Figure 4 (Appendix 2) displays the approximate location of each target note.

3.4.1 BATS

Desk Study

Within this area of Scotland, the following bat species are known to be present (Richardson, 2000; Harris and Yalden, 2008; Osborn, 2016, pers. obs.):

- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *Pipistrellus pygmaeus*
- Nathusius' pipistrelle *Pipistrellus nathusii* (rarely)
- Daubenton's bat *Myotis daubentonii*
- Natterer's bat *Myotis nattereri*
- Brown long-eared bat *Plecotus auritus*
- Leisler's bat *Nyctalus leisleri* (rarely)

It is thought possible that any of the regularly occurring species could be present on site or within the surrounding landscape. All species listed above (except for Leisler's bat) are Scottish Biodiversity list species (Scottish Government, 2012).

No records were returned from the data search.

3.4.1.1 Preliminary Roost Assessment

Shed- On-site

The shed, which appears to be fairly newly constructed is used for storing buses (Photo 18). Found in the eastern side of the site, is mainly constructed of metal corrugated sheets, with 36 plastic skylights and steel pillars. The ground is gravel and bare soil. There was external light seen around two of the door frames on the western aspect as well as at the gaps above the wall sheeting, which does not meet the roof (Photo 21). These two gaps would provide access for small numbers of transitory bats to the inside of the building for roosting or foraging opportunities. The building inside is subject to temperature and light fluctuations due to the number of plastic skylight windows. These windows are noted to be in good condition with no cracks. The shed has rollers on the western aspect, but these appear to be tight with no potential roost features. The building is assessed to have negligible roost potential.

Photo 18: Internal view of shed

Photo 19: NW aspect of the shed

Photo 20: Back of shed

Photo 21: External light see at the top of the wall sheets

Shillford House – Off-site

Shillford House is found in the north western corner of the site, constructed from sandstone blocks and a slate roof. A full preliminary roost assessment was not conducted on this building. The metallic ridgeline is lifted in some areas, as well as some loose slates which could provide some roosting opportunities. The general stonework of the building looks intact and in good condition, but there are some cracks around the chimney stacks and there are likely gaps a the wallhead. The building is assessed to provide at least moderate bat roost potential.

Photo 22: Shillford house, from the south

Garages and Office – Off-site

There are two adjoining garages and an office reception building, found in the west of the site. The garages are constructed of metal corrugated sheeting roofs and walls, with roller doors at the front. There are gaps around the roller doors, which are frequently open according to staff on site, and also underneath the metal

fascia boards around the front of the garages. The buildings were assessed to have negligible potential. The office reception building (Photo 24) is made of metal corrugated sheeting roofing, with painted brick walls. This building has negligible potential for roosting bats.

Photo 23: One of the two adjoining gagares and reception building.

Photo 24: Reception building

3.4.1.2 ACTIVITY TRANSECT

Detailed results from the bat activity transect can be seen in Appendix 5. Three species of bat were recorded during the activity transect survey; soprano pipistrelle, common pipistrelle and Leisler's bat. The first bat, a soprano pipistrelle, was recorded 37 minutes after sunset, to the east of the large shed. This early recording suggests the bat was roosting nearby to the site.

Soprano pipistrelle were recorded early in the survey, around 40 minutes after sunset, feeding over the site and along the treeline along the roadside. Later in the survey, around one hour after sunset, a faint Leisler's call was heard however this bat was not seen. Shortly after, common and soprano pipistrelle passes were recorded and bats were observed foraging in and around the mature beech trees to the south-west of the site. The highest level of activity was recorded in the south-west corner of the site close to these mature trees.

3.4.1.3 REMOTE MONITORING

Detailed results from the remote monitoring can be seen in Appendix 6. Five species of bat were recorded by both detectors during the remote monitoring survey; common pipistrelle, soprano pipistrelle, Leisler's bat, brown-long eared, Daubenton's bat. The most commonly recorded species was soprano pipistrelle, followed by common pipistrelle. The remaining species were only rarely recorded.

The remote detector to the east of the site (R2) was situated near a potential flyway with bats able to come up the hedgerow off site. Detector R1, was near the mature trees in the south-west. Although the detectors did not record for the same number of nights (R1 - 14, R2 –10), detector R1 in the east of the site recorded higher levels of activity of soprano pipistrelle (562 passes compared to 193 passes), more similar for common pipistrelle, Leislers bat and brown long-eared bat and with more Daubenton's bats on R1.

Soprano pipistrelle bats were regularly recorded within 30 minutes of sunset on both detectors indicating roosts nearby.

3.4.1.4 HABITAT EVALUATION

The immediate surrounding habitat on site, is of moderate suitability for bats. There are a strip of mixed coniferous and broadleaved trees surrounding the border of the site, providing commuting and foraging opportunities. Small, wooded areas and lines of trees surround the buildings and provide connectivity into

the wider landscape. Broadleaved woodland and scrub in the surrounding area provide good foraging habitat for bats. Loch Libo is found 1.2km to the west and provides foraging and commuting habitat for species such as soprano pipistrelle and Daubenton's bat. Uplawmoor Wood found 0.5km to the west as well, with Neilstonside Hill and associated mixed woodland providing other foraging habitat for species like the common pipistrelle and Natterer's.

3.4.1.5 TREES

Full details of the trees identified to have bat roosting potential during the day survey are provided in Table 8, Appendix 4 and Figure 5, Appendix 2.

Trees with bat roost potential are present. There are two ash *Fraxinus excelsior* trees to the southeast of the site, one sitting on the site boundary and other sitting on the 30m buffer with summer transient roosting potential for small numbers of bats. There are two further sycamore trees within the buffer in the east that have low potential for bats through delaminated bark, and some cracks and splits in branches. The trees on site lack high potential features for maternity or hibernation roost as the features noted were mainly too small or shallow.

Table 6: Categorisation of trees after ground surveys

BCT Category	Total Tree Count
Low	2
Low / Moderate	1
Moderate	1

3.4.2 BADGER

Desk Study

One record was identified in the data search in 2016, within 2km of the site boundary.

Field survey

No evidence of badgers was found throughout the survey. There is potential for foraging and sett building, in the slopes along the ditches in the semi-improved grassland to the south, but no evidence was found.

3.4.3 OTTER AND WATER VOLE

Desk Study

No records of water vole were obtained from within 2km of the site, the absence of records should not be taken to mean that this species is not present in the search area.

Field survey

The small ditches at the site, approximately 2m wide, provide limited suitability for commuting otter, as they dry out in multiple places and lack any connectivity to other watercourses. The central ditch is culverted to the west of the site. The closest significant body of water to the site is Loch Libo, this lies approximately 1.2km to the west.

The long ditch bisecting the site with slow running water provides commuting and burrowing potential for water vole. The banks of the burn were lined with rank grass species and stretches of bramble thicket, some sections were shaded by the existing tree lines, though relatively long stretches of the ditch are

unshaded which could be suitable for water vole. However, no signs such as runs, or droppings were recorded during the survey.

3.4.4 RED SQUIRREL AND PINE MARTEN

Desk Study

There were no records of pine marten or red squirrel. The absence of records should not be taken to mean that this species is not present in the search area.

Field survey

The site has limited habitat for pine marten and red squirrel as there are no areas of forestry or plantation, which would be used for foraging and shelter. They may use treelines, scattered trees, and the hedgerow for commuting purposes along the edges of the site. However, no signs were record during the survey.

3.4.5 REPTILE AND AMPHIBIANS

Desk Study

No records of reptiles or amphibians were obtained from within 2km of the site, the absence of records should not be taken to mean that this species is not present in the search area.

Field survey

No signs of reptiles or amphibians were found during the survey. The rubble piles in the west of the site have the potential to serve as refugia for reptiles, their raised height may also provide a basking spot. The long ditch bisecting the site has the potential to provide suitable breeding habitat for amphibians such as common frog and palmate newt, due to the slow moving/stagnant water.

3.4.6 BIRDS

Desk Study

The table in Appendix 4 lists the records made within 2km of the site and over the last 10 years[2]. A total of 22 species were returned from the records search and comprised of farmland, moorland and wetland species, which include common species typical of the local habitats and geographical location of the site.

Field survey

Table 7 outlines all birds recorded on or close to the site during the initial walkover and breeding bird survey, as well as their conservation status (red, amber or green, as given in Stansbury et al., 2021).

Initial walkover

A variety of habitats on site provide forage and nesting opportunities for a range of common species. A blue tit nest was recorded, in a nest box to the north of the site, in the coniferous scattered trees. Five active jackdaw nests and two disused swallows' nests were recorded within the garages to the west of the site. A disused nest, possibly jackdaw was found in the shed in the east of the site.

Breeding bird survey

Birds recorded during the single breeding bird survey visit are all species regularly associated with farmland, wetland and wooded habitats, with many of the same species recorded during the walkover survey. However, a number of species of conservation concern were recorded including high densities of some species including species such as sedge warbler and reed bunting.

[2] Includes only records available for commercial use.

Red list species house sparrow and starling likely nest on site in buildings and potentially house martin on nearby buildings. Herring gull were recorded but likely forage on the site.

A number of amber list species were recorded, presumed breeding on site, associated with the areas of scrub and grassland including dunnock, reed bunting, sedge warbler, song thrush, whitethroat and willow warbler. A lot of individuals of species such as reed bunting and sedge warbler were recorded, indicating that the habitats on site are important for and well used by these species of conservation concern.

Approximate locations of sightings are shown in Figure 7, Appendix 2.

Table 7: Birds recorded on site during the initial walkover survey and single breeding bird survey

Species	BTO Code	Conservation Status (BoCC)/ Legislation/ LBAP	Recorded during initial walkover	Recorded during BBS	Walkover survey notes	Breeding bird survey notes
Blackbird *Turdus merula*	B.	Green	✓	✓	Seen and heard across the site during both surveys.	Recorded across the site. May breed on site - scrub and trees on site provide suitable nesting habitat.
Blue tit *Cyanistes caeruleus*	BT	Green	✓	✓	Observed within dense scrub and trees. Nest with young chicks seen in nest box in mixed scattered trees to the north of the site during walkover survey. Chicks had fledged when bat roosting potential tree survey was completed in July.	Recorded across the site. One juvenile bird recorded –breeds on or near the site.
Buzzard *Buteo Buteo*	BZ	Green	✓		Seen in fields to the north of the boundary.	
Carrion crow *Corvus corone*	C.	Green	✓	✓	Seen flying over the site and foraging in fields	Foraging in fields on site. Not considered to be breeding on site.
Chaffinch *Fringilla coelebs*	CH	Green	✓	✓	Heard during both surveys. Not seen.	Recorded across the site. May breed on site - scrub and trees on site provide suitable nesting habitat.
Dunnock *Punella modularis*	D.	Amber		✓		One juvenile recorded near the road on the west of the site –breeds on or near the site.
Goldfinch *Fringilla carduelis*	GO	Green		✓		Recorded across the site. May breed on site - scrub, trees and unmanaged grassland on site provide suitable nesting habitat.
Great tit Parus major	GT	Green	✓	✓	Heard during the second survey. Not seen.	Recorded across the site. May breed on site –trees may provide suitable nest site, or offsite - buildings adjacent to the site may provide suitable nest sites.
Herring gull *Larus argentatus*	**HG**	**Red; SBL**	✓	✓	**Seen flying over the site and foraging in fields**	**Two birds recorded in field beyond western boundary of site. Not considered to breed on site.**

Species	BTO Code	Conservation Status (BoCC)/ Legislation/ LBAP	Recorded during initial walkover	Recorded during BBS	Walkover survey notes	Breeding bird survey notes
House martin *Delichon urbicum*	**HM**	**Red**	✓		**Seen flying around the Shillford House**	
House sparrow *Passer domesticus*	**HS**	**Red, SBL, LBAP**		✓		**Considered to nest under corrugated roof on building adjacent to western boundary of site.**
Jackdaw *Coloeus monedula*	JD	Green	✓	✓	Seen flying over the site and foraging in fields. Multiple nests noted in the buildings to the west of the site.	One group of up to 15 birds recorded loafing on the roofs of the buildings adjacent to the western boundary of the site. Not considered to nest on site –buildings adjacent to site may provide suitable nest sites.
Magpie Pica pica	Mg	Green	✓	✓	Seen foraging within the scrub in the east of the site.	Recorded across the site. Not considered to currently nest on site although the trees may provide suitable nest sites.
Pied wagtail *Motacilla alba*	PW	Green	✓	✓	Seen and heard during the survey. Could nest in the buildings.	Present on site. Ditch on site or buildings adjacent to site may provide suitable nesting habitat.
Reed bunting *Emberiza schoeniclus*	RB	Amber, SBL, LBAP		✓		Recorded on site. Two adult birds observed feeding juvenile –breeds on or near the site.
Robin *Erithacus rubecula*	R.	Green	✓	✓	Seen and heard across the site. Could nest in areas of scrub.	Recorded across the site. May breed on site - scrub and trees on site provide suitable nesting habitat.
Rook *Corvus frugilegus*	RO	Amber	✓		Seen flying across the site	
Sedge warbler *Acrocephalus schoenobaenus*	SW	Amber, LBAP		✓		Recorded on site. Likely to breed on site - scrub and unmanaged grassland on site provides suitable nesting habitat.
Song thrush *Turdus philomeos*	ST	Amber, SBL		✓		One individual recorded. May breed on site - scrub and trees on site provide suitable nesting habitat.
Starling *Sturnus vulgaris*	**SG**	**Red; SBL**	✓	✓	**Seen flying across the site and within adjacent fields. Could nest in buildings on site**	**A group of four birds recorded foraging in field beyond western boundary of site. Trees on site, or buildings adjacent to the site, may provide suitable nest sites**
Swallow *Hirundo rustica*	SL	**Green**	✓	✓	Multiple nests recorded in the garages to the west of the site.	Recorded in flight over site. Two birds observed entering garage adjacent to site –may nest here.

Species	BTO Code	Conservation Status (BoCC)/ Legislation/ LBAP	Recorded during initial walkover	Recorded during BBS	Walkover survey notes	Breeding bird survey notes
Whitethroat *Sylvia communis*	WH	Amber		✓		Recorded across the site. Likely to breed on site – scrub on site provides suitable breeding habitat.
Willow warbler Phylloscopus trochilus	WW	Amber	✓	✓	Heard but not seen on site. Could nest in areas of scrub.	Recorded across site. Likely to breed on site – areas of scrub and trees on site provide suitable breeding habitat.
Woodpigeon *Columba palumbus*	WP	Amber	✓	✓	Seen flying over the site and foraging in fields	Recorded across the site. May breed on site –trees and scrub on site provide suitable nesting habitat.
Wren *Troglodytes* troglodytes	WR	Amber	✓	✓	Heard during both surveys. Not seen.	Recorded in the northeast of the site. May breed on site –trees and scrub on site provide suitable nesting habitat.

Key:
BoCC: Birds of Conservation Concern 5 (Stansbury *et al., 2021)*
SBL: Scottish Biodiversity List
LBAP: Local Biodiversity Action Plan

3.4.7 OTHER FAUNA

Desk Study

No records of any other notable species were obtained from within 2km of the site, the absence of records should not be taken to mean that this species is not present in the search area.

Field survey

No other protected species were noted during the walk over survey. Although not a protected species, a large number of green dock beetle *Gastrophysa viridula* were noted within the northeast of the site.

4 DISCUSSION AND RECOMMENDATIONS

4.1 INTRODUCTION

It is understood that the proposed development is for a transport depot, workshops, office and welfare facilities, museum, drainage works, landscape works including parking, formation of new access, and associated development on site. The proposals for the development can be seen in Figure 8 Appendix 2.

National Planning Framework 4 (NPF4) Policy 3(a) requires that all development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats, and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.

4.2 DESIGNATED SITES

The Loch Libo SSSI/SWTR is located 1.1km west of the site and the Uplawmoor Wood lies 200m west, which lines the southern extent of the SSSI/SWTR. The woodland is in close proximity to the site and as such serves as a green corridor for local fauna between the site and the wider environment.

4.2.1 RECOMMENDATIONS

- Scottish Environment Protection Agency (SEPA) Guidance for Pollution Prevention (GPP) documents should be consulted to ensure that watercourses, waterbodies and wetlands adjacent to the site are not adversely impacted by the proposed works. Care should be given with regards to the SSSI/SWTR.
- Existing trees on site should be retained where possible to maintain the integrity of possible green corridors between the site and the surrounding environment.
- Native tree planting should be incorporated into the landscape plans to maintain and enhance existing green corridors.

4.3 ANCIENT WOODLAND INVENTORY (AWI)

No blocks of woodland listed on the AWI are found within 50m of the site boundary, the closest block of native and ancient woodland lies approximately 240m to the west of the site. Given the nature of the proposed development, it is not expected that any negative impacts will occur.

4.4 HABITATS AND PLANTS

From the development plan provided by the client, it can be seen that the proposed development would result in the loss and/or modification of most of the habitats on site. The largest of which are areas of semi-improved neutral grassland, marshy grassland, and dense scrub. The marshy grassland at the site is considered to be of Local importance.

The watercourse at the site is to be retained, with two culverts proposed at crossing points.

The planned development includes landscape works (including proposed creation of a SuDS Pond), recommendations for these proposals are outlined below.

4.4.1 RECOMMENDATIONS

- Minimise the loss of the marshy grassland habitat, which is of local importance.
- Ensure the burn has a wide buffer, with native vegetation bordering it.

- Trees at the site should be retained wherever possible. In addition, an area of semi-neutral grassland could be retained to the east of the site and incorporated into the SUDs design, to create a biodiversity zone.
- Lines of non-native conifers could be removed and replaced with a range of native species which are more beneficial to wildlife.
- Best practice methods should be in place to minimise dust and silt and other pollution and should following Scottish Environmental Protection Agency (SEPA) best practice guidance.
- Any trees nearby the site, which are not to be affected as a part of any proposed works, should be protected in accordance with British Standard 5837:2012 "Trees in relation to design, demolition and construction –recommendations". Protective measures should be installed on site prior to the commencement of any works on site. This should include protection from construction traffic and personnel as well as material storage and the trees should be protected by physical barriers (including root protection zones).
- Any trees that are removed should be replaced with like for like, native planting. These could include some of the following:
    - Field maple *Acer campestre* is attractive to aphids and their predators (ladybirds, hoverflies, birds). The flowers provide nectar and pollen to bees, while the seeds re eaten by birds and small mammals.
    - Birches *Betula* spp. –Scotland's native birch species may be suitable for inclusion within hedging. These include downy birch *B. pubescens* and silver birch *B. pendula*, the latter of which was noted to be present on site and is of particular wildlife value.

      Alder *Alnus glutionsa* – Alder is the food plant for the caterpillars of several moths. Catkins provide an early source of nectar and pollen for bees, and the seeds are eaten by the siskin, redpoll and goldfinch. Alder do well in wet conditions, as such they would do well within the large area of marshy grassland on site.
- The hedgerow at the site should be retained and enhanced by infilling gaps with native species.
- The SuDS Pond should be incorporated into the landscape design to not only deal with surface water runoff but to enhance biodiversity on site. Biodiversity enhancements could be achieved by some of the following:
    - The SuDS should incorporate a diverse range of native planting with known wildlife value.
    - Natural colonisation of native plants and local fauna during the SuDS establishment process should be allowed.
    - Include trees, scrub, and wet woodland features as these can increase habitat for amphibians and invertebrates.
    - Form banks, mounds, and terraces to provide a mosaic of permanently wet, temporarily wet, and dry features. These will aid in creating a variety of habitats which benefit local fauna.
- Runoff from the development works should be appropriately dealt with to avoid contamination of the watercourse.

- The space should be used innovatively to enhance biodiversity on the site including incorporation of climbers such as native ivy *Hedera helix* on walls and fences can be designed for biodiversity as shelter and a source of food, as ivy blooms mainly in Autumn it provides a vital nectar source in the colder months. Other native species that could be planted that would be of wildlife benefit include honeysuckle.

4.5 INVASIVE NON-NATIVE SPECIES

Japanese knotweed was noted within the site boundary and the 30m buffer. The proposed plans show that development works are within the vicinity of the two large stands of Japanese knotweed. Legally there is a requirement to avoid the spread of this invasive species off site.

4.5.1 RECOMMENDATIONS

To avoid negative impacts upon the environment, all works must be undertaken in accordance with best practice. An INNS management plan should be developed and include measure such as:

- The stands of Japanese knotweed should be appropriately disposed of (which include deep burial on site) prior to the works commencing to ensure no spread off site.
- Deep burial involves burying the plant material to a depth of 5 metres, a depth of 2m is permissible of the plant material is sealed with a geotextile membrane[3].
- Removal of Japanese knotweed off site must be conducted by a registered waste carrier and taken to an authorised landfill site[4].

4.6 BATS

The shed is assessed to be of negligible bat roost potential.

If Shillford House would be demolished or disturbed by works, then a preliminary roost assessment and nocturnal surveys would be required to ascertain their status in relation to roosting bats.

Trees and their bat roost potential are listed in Table 8, Appendix 4. Given the current proposals, it is not expected that any of the trees with bat roost potential will require removal. However if removal is required, the two trees with low potential would need a supervised fell and trees with moderate potential further pre works survey.

A supervised fell should involve a licensed bat worker being present on site and working with the arboricultural felling contractor. The level of supervision may vary per tree. All trees will have an update check from ground level. For some trees this may involve checks of any low-level crevices with an endoscope or torch or if needed an aerial survey to check higher features. Where features are not accessible at height (e.g., on grounds of health and safety), checks will be made of the felled tree. For some trees the bat worker may require the arboricultural felling contractor to do section fells of some trees.

4.6.1 RECOMMENDATIONS

- Following Bat Conservation Trust (BCT) guidance (Collins, 2016), negligible potential buildings (i.e., the shed) do not need to undergo a nocturnal survey. If the works are to demolish Shillford House, then two nocturnal surveys are likely to be required to ascertain the status of the house

[3] https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading
[4] https://www.gov.uk/government/publications/treatment-and-disposal-of-invasive-non-native-plants-rps-178/treatment-and-disposal-of-invasive-non-native-plants-rps-178#contact

with regards to roosting bats. Given the close proximity of Shillford House and its potential for roosting bats, sensitive working methods are required, for example the house should not be lit up.
- Linear features at the site should be retained given their use by foraging and commuting bats, including the central stream and hedgerow.
- To enhance the site for roosting bats, at least five woodcrete boxes should be affixed to retained mature trees around the site. Where possible, bat boxes should also be integrated or affixed to the new buildings.

Recommendations for lighting should follow the ILP guidance note on bats and Artificial Lighting at Night (ALAN) (ILP., 2023). Lights should not illuminate retained treelines or any additional habitat incorporated into the landscaping on the site and dark flyways though the site should be maintained where possible,

Recommendations include:

- Minimising ALAN close to vegetation.
- Maximising dense vegetation to maximise roosting opportunities and protect against ALAN.
- Have dark corridors around and through the site where possible.
- Where possible blue content in lighting should be minimised
- All luminaires should lack UV elements and LED should be used where possible.
- Internal luminaires could be recessed when installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.

4.7 BADGER

No evidence of badger was found, although there is suitable habitat to the south of the site within the semi-improved grassland for foraging and sett-building.

General recommendations for mammals are given, including update surveys if works start more than 18 months after this survey.

4.8 OTTER AND WATER VOLE

No evidence of otter was recorded on site during the survey, the site itself has very limited potential otter habitat given the lack of well-connected water bodies.

No water vole signs were found on site. However, the small burns on site offer potential foraging and burrowing habitat for water vole.

Recommendations include a pre works check for any evidence of otter and water vole prior to habitat clearance, as well as maintaining and enhancing the ditch to provide suitable habitat for otter and water vole. The ditch should not be culverted.

4.9 RED SQUIRREL AND PINE MARTEN

No signs of red squirrel or pine marten were found on site during the survey. The site itself has low suitability as habitat for these two species. No recommendations are made.

4.10 REPTILES AND AMPHIBIANS

The rubble piles in the west of the site have the potential to serve as refugia for reptiles, their raised height may also provide a basking spot. The long ditch bisecting the site has the potential to provide suitable breeding habitat for amphibians, due to the slow moving/stagnant water.

Before clearance of the rubble piles, a pre works check must be undertaken to check for any reptiles using the piles as refugia. It is recommended that the ditch is maintained and enhanced in the proposed plans to provide suitable habitat for amphibians.

4.11 BIRDS

Multiple active jackdaw nests, disused swallow nests and an active blue tit nest was recorded on site, with the habitats on site and other species of conservation concern such as starling and species that use scrub and marshy grassland habitat including yellowhammer and whitethroat and reed bunting and sedge warbler and high numbers of these species of conservation concern were recorded. The development of the site shall result in the loss of a range of habitats including scrub, marshy grassland and scattered trees which will lead to the loss of habitat for species such as sedge warbler and reed bunting.

4.11.1 RECOMMENDATIONS

- Minimise the loss of the marshy grassland and scrub habitat to ensure some habitat is retained for species such as sedge warbler and reed bunting.
- Integral bird boxes and at least 15 boxes affixed to mature retained trees should be incorporated into the site design to offset the potential loss of nests sites caused by the demolition works.
- The SUDs area and biodiversity zone should include fruit bearing scrub species including hawthorn and cherry as well as areas of marshy grassland to provide habitat for species of conservation concern including sedge warbler and reed bunting that are frequent on the current site.
- To ensure compliance with the Wildlife and Countryside Act 1981 (as amended)5, any works on the building on areas which may support bird nests and any habitat clearance, should be undertaken outside the bird nesting season (generally extends between March/April to August/September inclusive, dependent on species and weather conditions).
- If it is not possible to schedule works outside the bird nesting season, then a nesting bird survey should be carried out by a suitably experienced ecologist immediately prior to works commencing in an area. If birds are found to be nesting, any works which would destroy, or damage nests would have to be delayed until the young have fledged and the nest has been abandoned naturally.
- An emergency procedure will be implemented whereby if a nesting bird (or any other protected species) is discovered during the works, work in this area should cease until the area can be checked by a suitably qualified ecologist. As necessary an appropriate buffer will be set up and regularly monitored until the chicks have left the nest naturally.

4.12 GENERAL MITIGATION

- Any steep-sided excavations that need to be left overnight should be covered or fitted with mammal ramps to ensure that any animals that enter can safely escape. Such excavations should be backfilled as soon as possible to minimise the potential for animals to become trapped.

- All workers should receive a 'toolbox' talk during which contractors will be informed of any potential issues regarding protected species (including nesting birds). This will ensure that all site workers are inducted in relation to the ecological requirements within the extension area and wider landscape.

- An emergency procedure should be in place should any protected species or their resting site (e.g., active birds' nest) be encountered during operations. All work should cease in the area immediately

[5] Of relevance here, the legislation makes it an offence to take, damage, destroy or interfere with a nest of any wild bird whilst it is in use or being built. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents

and a suitably experienced ecologist should be consulted to determine any mitigation requirements i.e., suitable set-backs or buffer zones, and consultation with statutory bodies or licence applications if required.

- If works do not commence for 18 months from the date of these surveys, update surveys for protected species should be undertaken, including for badgers.

5 BIBLIOGRAPHY AND REFERENCES

Chartered Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (version 7 July 2006). http://www.cieem.net/ecia-guidelines-terrestrial-freshwater-and-coastal-

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

Crawley, D., Coomber, F., Kubasiewicz, L., Harrower, C., Evans, P., Waggitt, J., Smith, B. and Matthews, F. (2020) *Atlas of the Mammals of Great Britain and Northern Ireland*. Mammal Society: London.

Harris, S., and Yalden, D (2008) *Mammals of the British Isles, Handbook (4th Edition).* Mammal Society, Southampton.

Joint Nature Conservation Committee (2010) *Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint).* Joint Nature Conservation Committee, Peterborough.

National Biodiversity Network (2023) *Interactive Map Tool*. Available online at: https://data.nbn.org.uk/

NatureScot (2023) *SiteLink*. Available online at: https://sitelink.nature.scot/home

NatureScot (2023) *Developing with Nature Guidance.* Available online at: Developing with Nature guidance | NatureScot

Richardson, P (2000) *Distribution Atlas of Bats in Britain and Ireland 1980-1999.* Bat Conservation Trust, London.

Scottish Government (2000) *Planning for Natural Heritage: Planning Advice Note 60.* Available online at: http://www.scotland.gov.uk/Publications/2000/08/pan60-root/pan60

Scottish Government (2012) *Scottish Biodiversity List v1.4.* Available online at: http://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL

Scottish Government (2017) *The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations*. Available online at: http://www.legislation.gov.uk/ssi/2017/102/contents/made

Scottish Government (2019). Scotland's Environment Web Interactive mapping tool. Available online at: https://map.environment.gov.scot/sewebmap/

Scottish Government (2023) *National Planning Framework 4.* Available online at: National Planning Framework 4 - gov.scot (www.gov.scot)

Stansbury, A., Eaton, M., Aebiscer, N., Balmer, D., Brown, A., Douse, P. et al. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, 114, pp. 723 - 747.

Wenham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (2002) The Migration Atlas: movements of the birds of Britain and Ireland. BTO.

APPENDIX 1 –RELEVANT LEGISLATION

EUROPEAN PROTECTED SPECIES

European Protected Species (EPS) are those that are protected by the EC Habitats and Species Directive 92/43/EEC. The Conservation (Natural Habitats, &c.) Regulations 1994 translates this European legislation into UK law. This has been amended in Scotland by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004 and 2007 and the Conservation (Natural Habitats, &c.) Amendment (No. 2) (Scotland) Regulations 2008. EPS includes bats (all species), beaver, otter, wildcat and great crested newt. These Regulations make it an offence to deliberately or recklessly:

- capture, injure or kill an EPS
- harass a wild animal or group of wild animals of EPS
- to disturb such an EPS while it is occupying a structure or place it uses for shelter or protection
- to disturb an EPS while it is rearing or otherwise caring for its young
- to obstruct access to a breeding site or resting place of an EPS or to otherwise deny an EPS use of a breeding site or resting place
- to disturb an EPS in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs
- to disturb an EPS in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
- to disturb such an animal while it is migrating or hibernating

It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal
- keep transport, sell or exchange or offer for sale or exchange any wild animal or plant EPS or any part or derivative of one (from 1st May 2007)

In relation to protected species of animal, licences can be issued under Regulation 44 to permit, for specific purposes, certain actions that would otherwise be against the law. Scottish Natural Heritage (NatureScot) is responsible for all EPS licensing under the Habitats Regulations (with the exception of some areas of licensing for whales and dolphins).

There is no provision for development licences as such, however, under Regulation 44 (2e) of the Conservation (Natural Habitats, &c.) Regulations 1994 licences may be granted for:

- Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

However, a licence will not be granted unless, importantly under 44 (3), the appropriate licensing authority is satisfied:

- That there is no satisfactory alternative; and

That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

WILDLIFE AND COUNTRYSIDE ACT 1981

The Wildlife and Countryside Act 1981 provides protection to species and habitats. The Nature Conservation (Scotland) Act 2004 amends the Wildlife and Countryside Act 1981 in Scotland.

BIRDS

All wild birds receive general protection to their nest and eggs under the Wildlife and Countryside Act 1981, as amended by the Wildlife and Natural Environment (Scotland) Act 2011. Some species receive enhanced statutory protection due to their listing in schedule 1 of the Wildlife and Countryside Act 1981. It is an offence to disturb a Schedule 1 species while it is building a nest or is in, on, or near a nest containing eggs or young.

There are obligations within the Birds Directive 1979 relating both to protection of species and maintenance of habitats. Birds on Annex 1 to the Birds Directive, regularly occurring migratory species, and birds on Schedule 1 to the Wildlife & Countryside Act are recognised in statute as requiring special conservation measures.

A number of bird species have been highlighted in non-statutory lists as priorities of Conservation Concern in the United Kingdom. This includes those listed in Birds of Conservation Concern 4: and *Priority Species* listed in the UK *Biodiversity Action Plan*. Stansbury *et al*. (2021) assigns all birds according to three categories:

- Red list species - those birds whose populations or range is rapidly declining (recently or historically), and those of global conservation concern;
- Amber list species - those birds whose populations are in moderate decline, rare breeders, internationally important and localised species and those of an unfavourable conservation status in Europe; and,
- Green list species - those other birds occurring in the united kingdom not included in the red or amber lists above. Further details of the appraisal can be found in Stansbury *et al*. (2021).

SCHEDULE 5 ANIMALS

Enhanced protection is provided for species listed on Schedule 5, including red squirrel, water vole, pine marten and freshwater pearl mussel. It is an offence to recklessly kill, injure or take animals listed on Schedule 5, with the exception of water vole. Water voles are protected in respect of Section 9(4) only (in Scotland), meaning that water vole habitat is protected, although the animals themselves are not.

It is also an offence to recklessly damage, destroy or obstruct access to any place used for shelter or breeding. Licences are available for development purposes if certain conditions are met. Licences should be applied for from NatureScot.

HABITATS AND PLANTS

The protection of habitats and plants of national importance is provided under the provisions of the Wildlife & Countryside Act 1981 (as amended). This designates key sites that fulfil the habitat designation criteria as Sites of Special Scientific Interest (SSSI). Certain plant species receive enhanced statutory protection under Schedule 8 of the Act.

PROTECTION OF BADGERS ACT 1992

The Protection of Badgers Act (1992) provides full legal protection to badgers. In Scotland, this legislation was amended by the Nature Conservation (Scotland) Act 2004 and more recently by the Wildlife and Natural Environment (Scotland) Act 2011. It is an offence to recklessly take, injure or kill a badger (or knowingly cause or permit such an offence), or destroy or cause disturbance to their

setts. This includes underground holes and other places of shelter occasionally used by badgers, such as sheds, concrete pipes or culverts etc. *A sett is defined in the Act as any structure or place which displays signs indicating current use by a badger.* Updated guidance has (September 2014) been provided by NatureScot and can be found on the NatureScot website at: https://www.nature.scot/doc/standing-advice-planning-consultations-badgers. In addition, badgers are afforded protection from cruel ill treatment. As the definition of 'ill treatment' has not been clearly defined; this is likely to include preventing badgers access to their setts as well as causing the loss of significant foraging resources within a badger territory. Licences are available for the disturbance or destruction of setts. NatureScot must be consulted prior to any works which could cause disturbance to badgers.

INVASIVE NON-NATIVE SPECIES

The WANE Act amended and expanded Section 14 of the Wildlife and Countryside Act 1981. The 1981 Act now contains sections on the release or planting of all non-native species and the keeping, sale and notification of invasive species, in addition to provisions on Species Control Agreements and Species Control Orders. Non-native is re-defined to include native species out with their natural range and the natural range is further defined as the location in which an animal or plant is indigenous. The 'wild' is also more clearly defined and there is a list of exempted land (Section 5, list 2 of Code of Practice). The WANE Act also put in place the means to introduce a new code of practice with regard to non-native species. This was done under Section 14C of the amended Wildlife and Countryside Act and came into force in July 2012. The code of practice should be referred to when dealing with any non-native animal or plant. The code outlines the law relating to native and non-native species and explains the main provisions set out in the 1981 Act. Schedule 9 has now been repealed.

APPENDIX 2 –MAPS

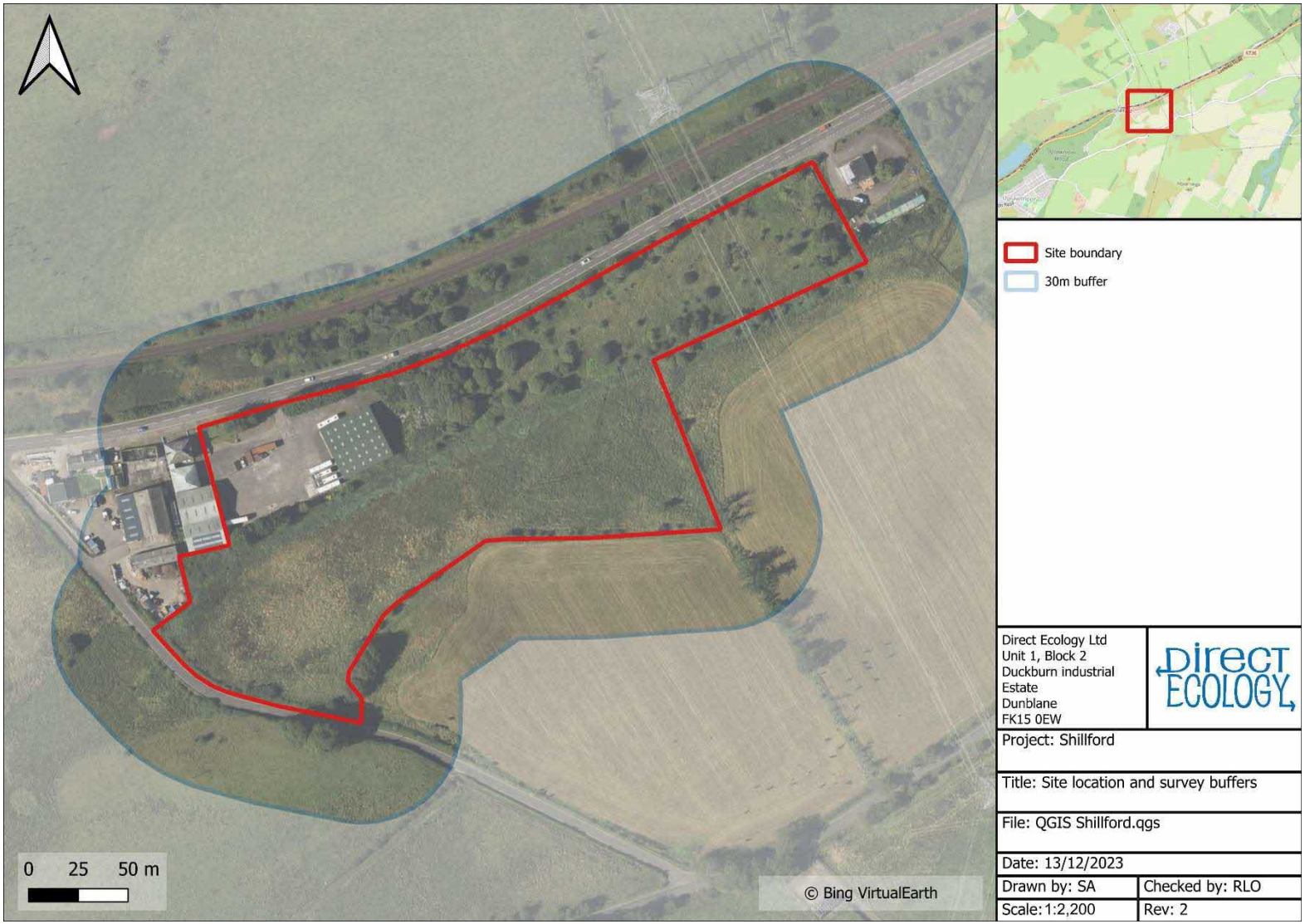


Figure 1: Site boundary and 30m buffer

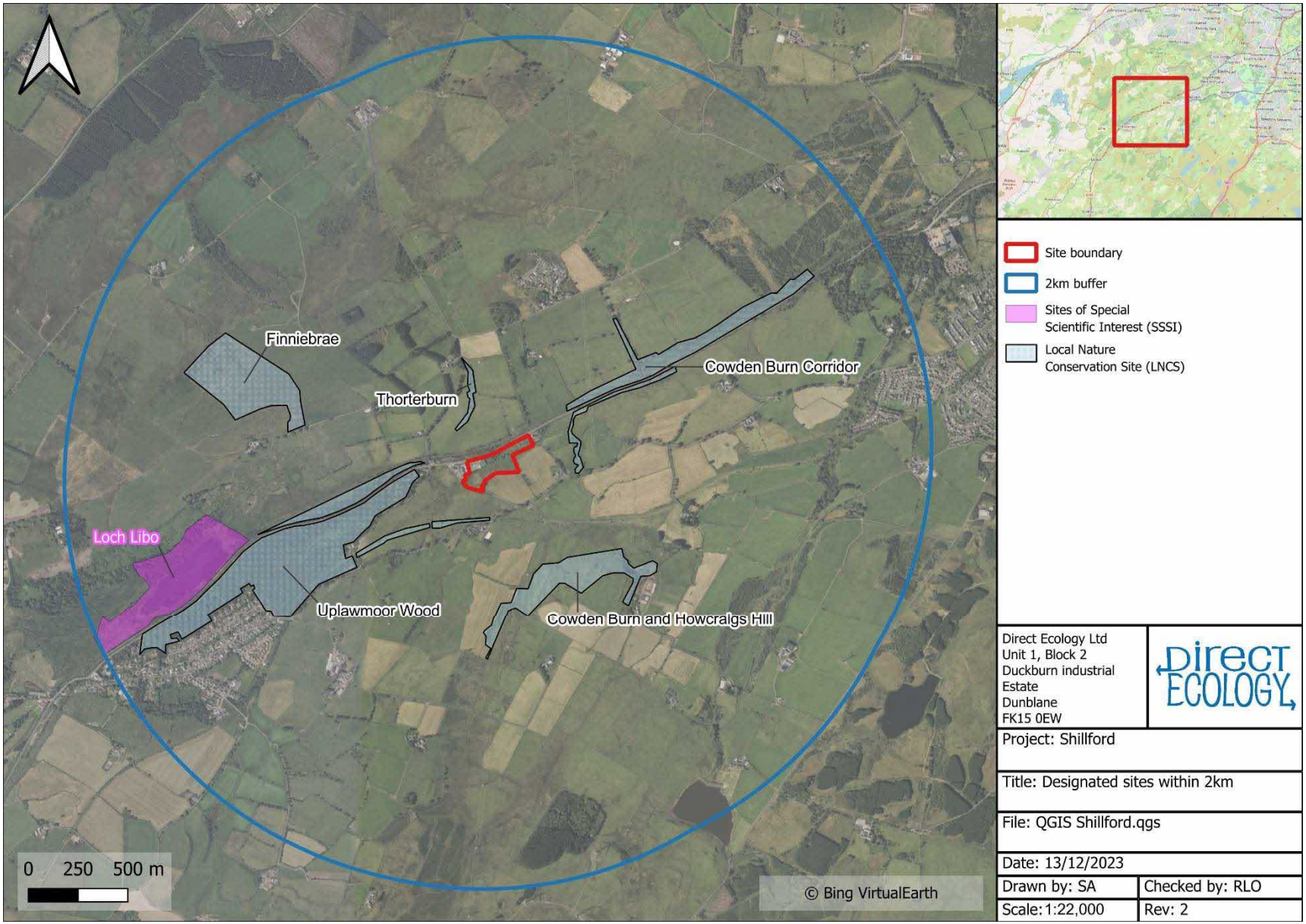


Figure 2: Designated and non designated sites within 2km of the site

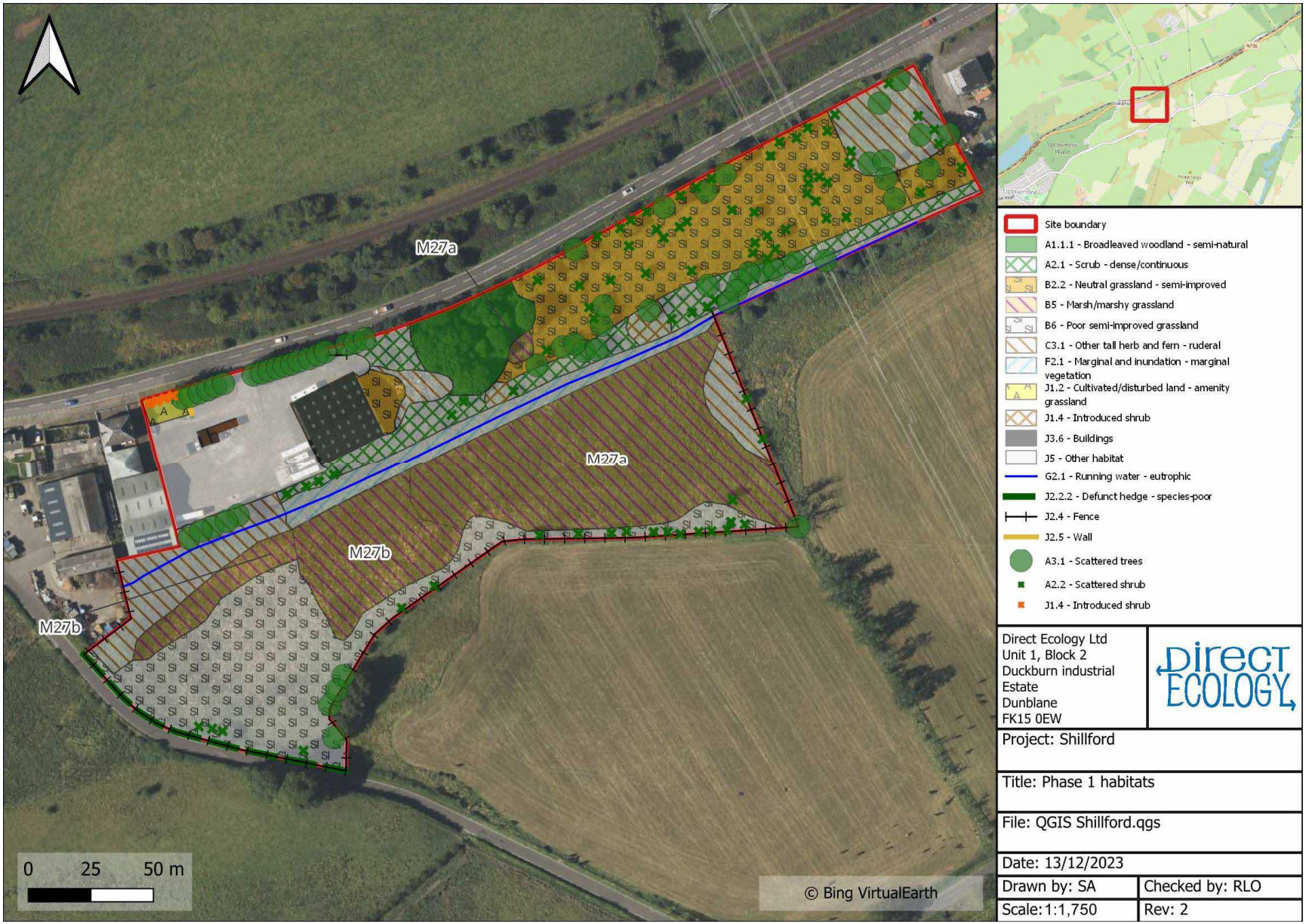


Figure 3: Phase 1 and NVC habitats on site

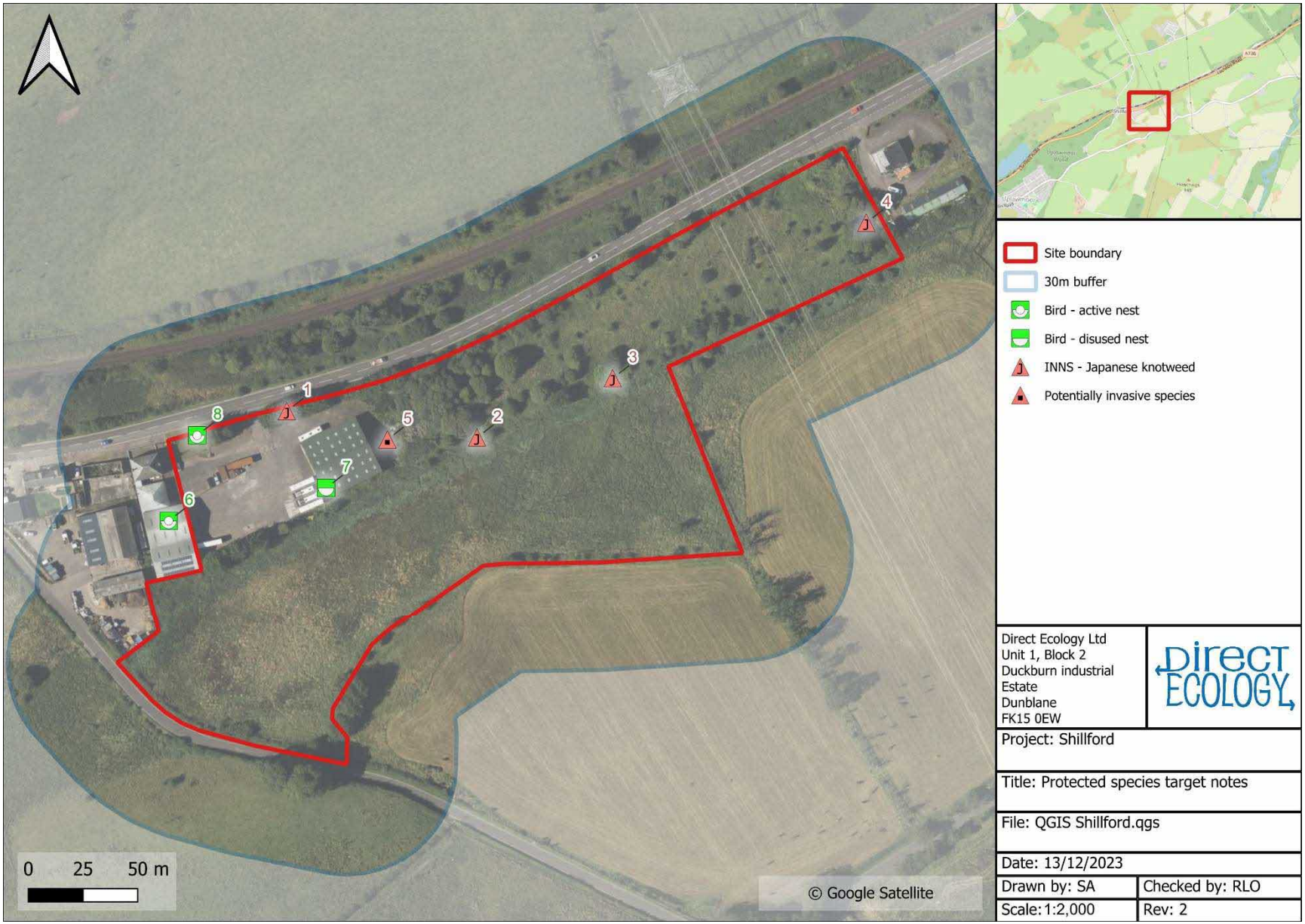


Figure 4: Protected species target notes

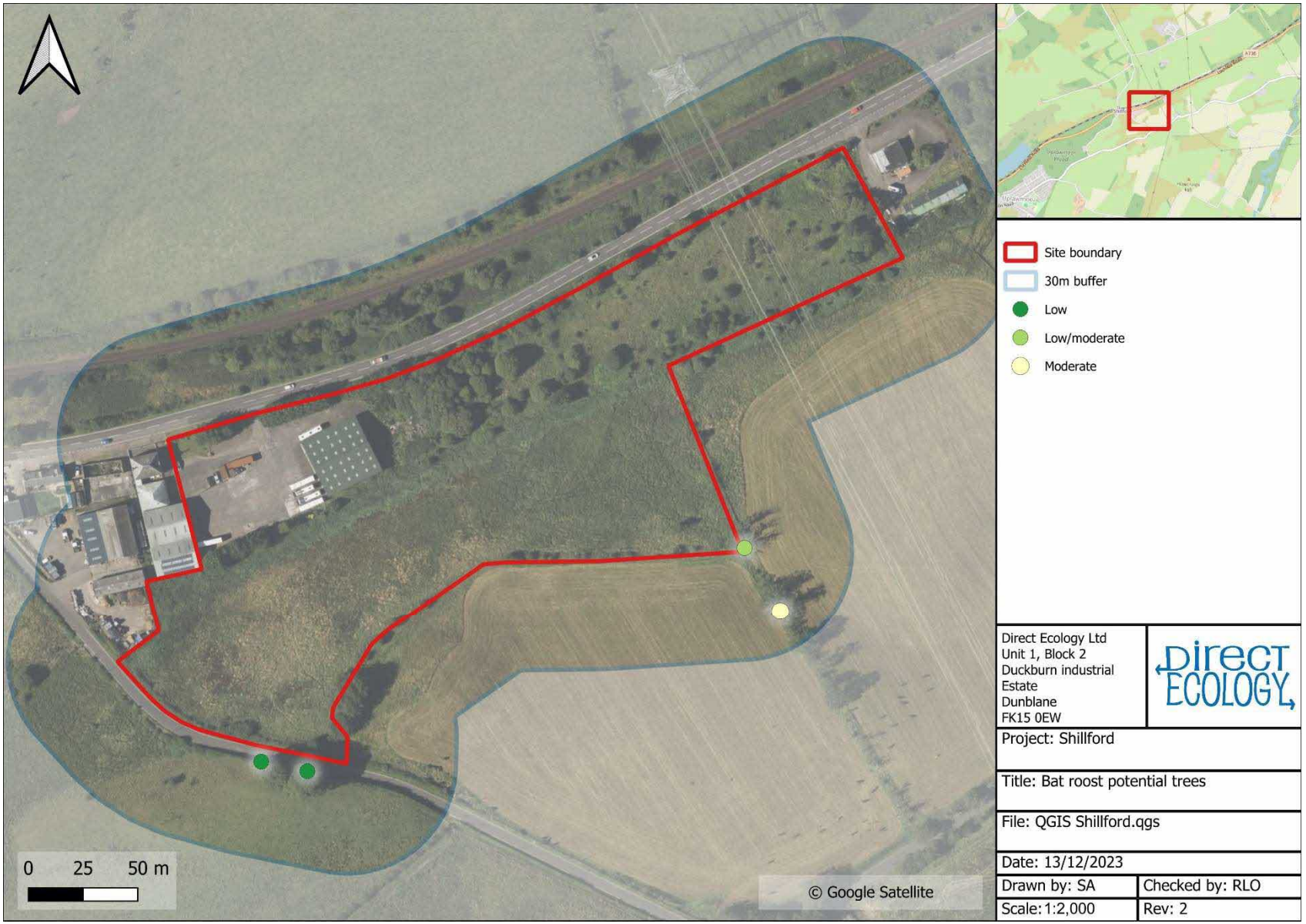


Figure 5: Bat Roost Potential trees

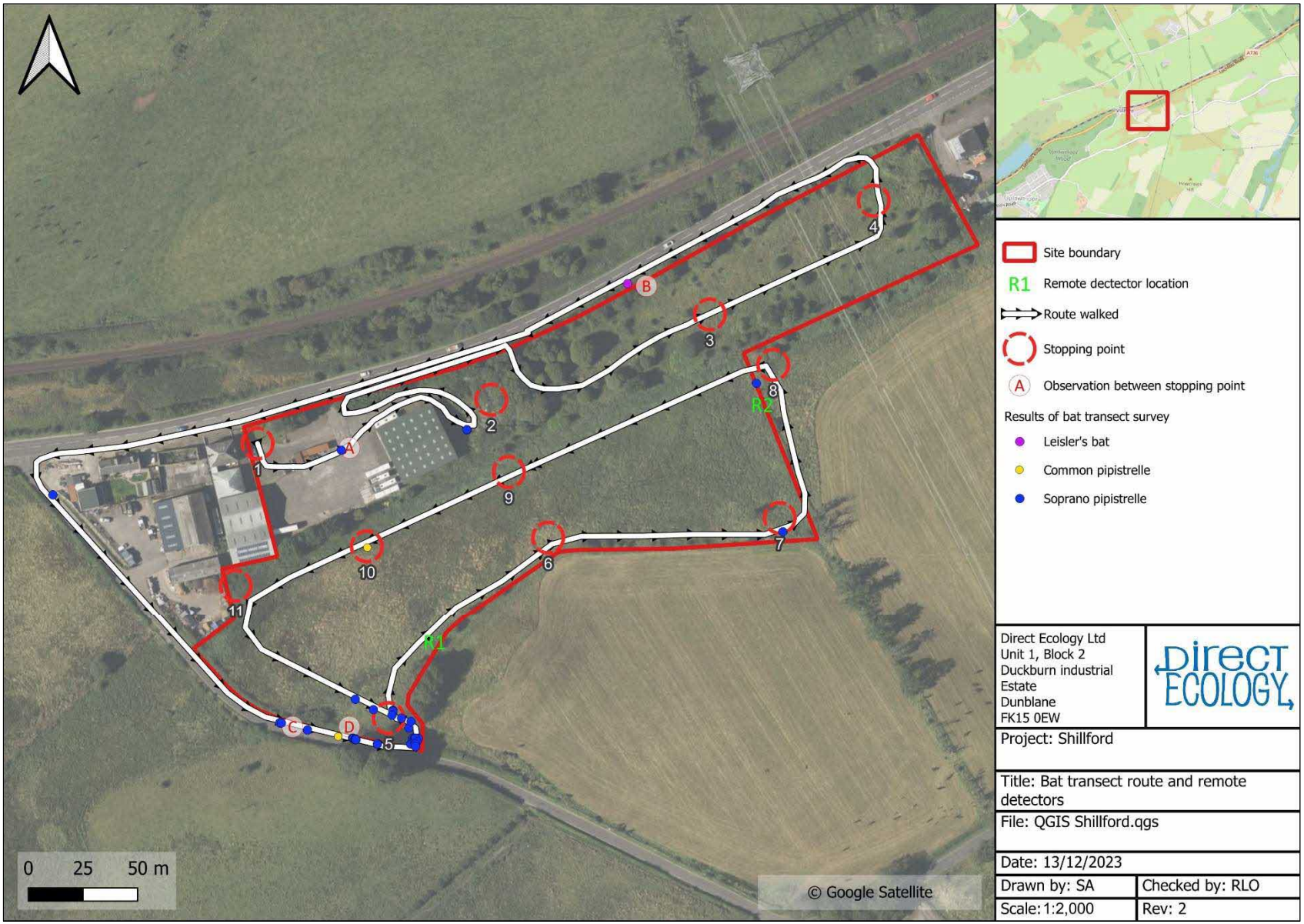


Figure 6: Bat transect route and remote detector locations

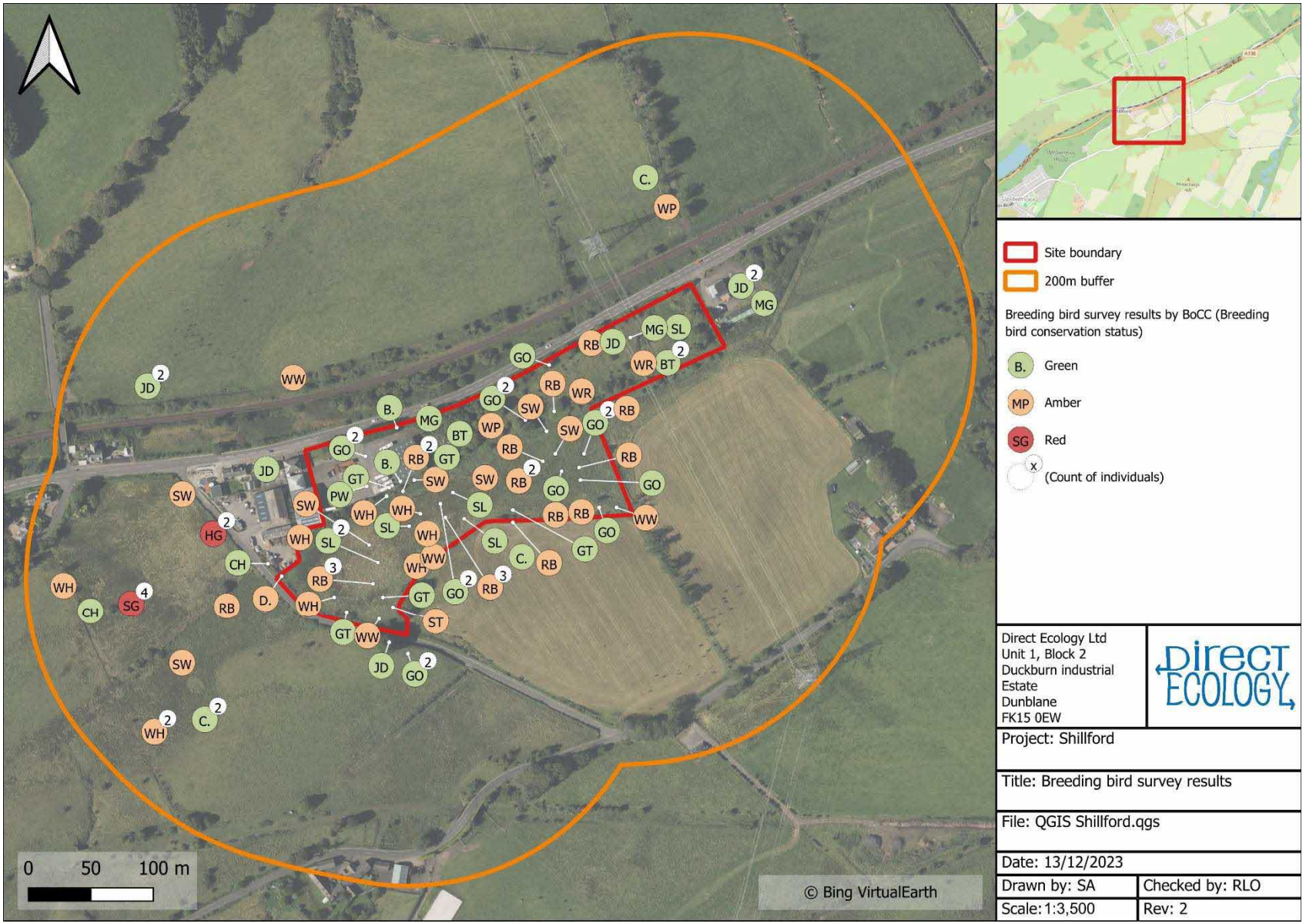


Figure 7: BBS walkover results

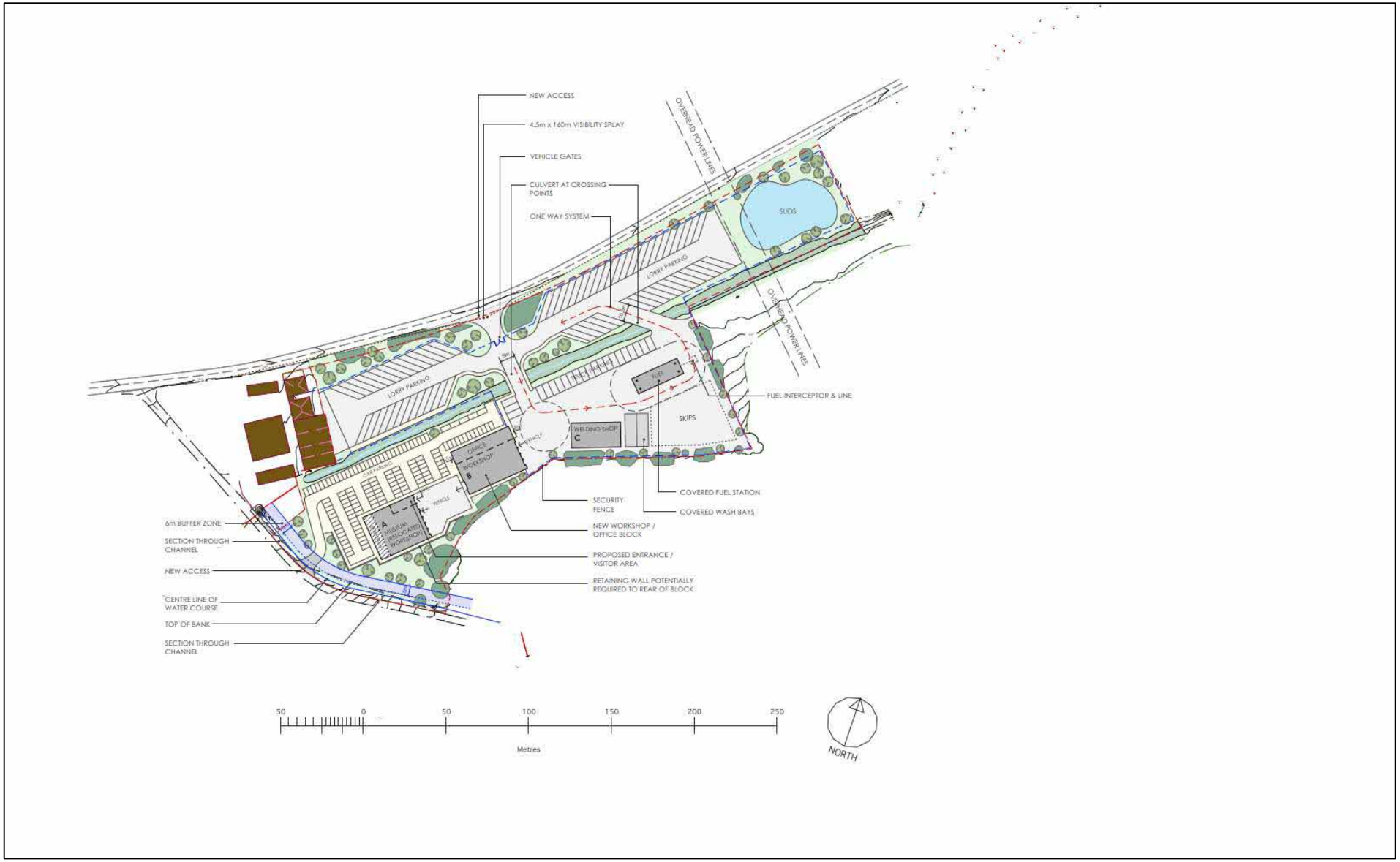


Figure 8: Shillford planned site layout

APPENDIX 3 –TARGET NOTES

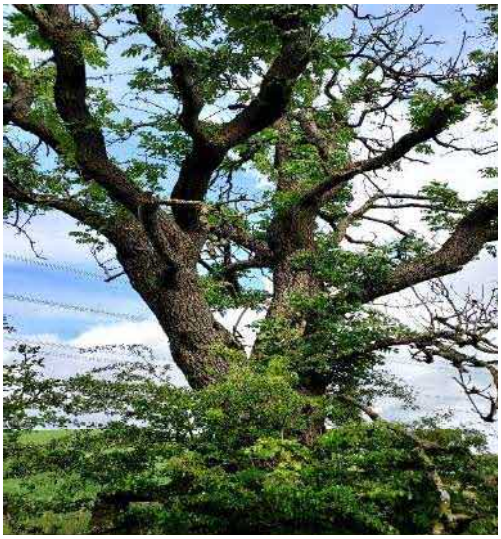
Table 7: Protected species target notes (INNS = Invasive non-native species).

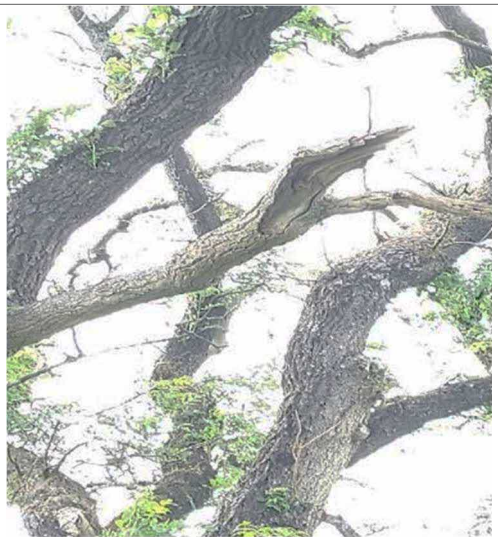
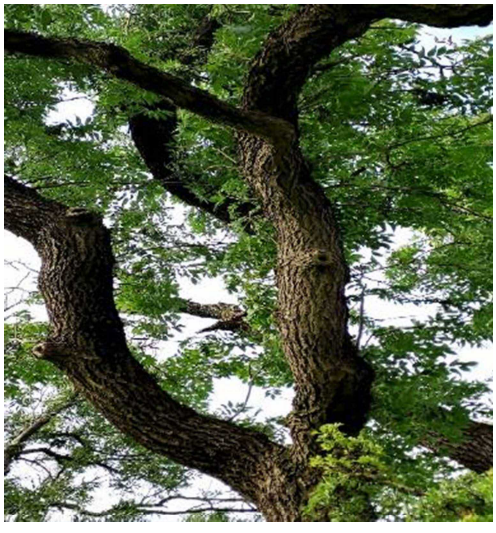
Target Note	Grid reference	Species	Feature	Description	Photo
1	NS 44963 56281	Japanese knotweed	INNS	A small cluster of around 10 plants, was recorded beneath a line of cypress trees within the northwest of the site.	
2	NS 45050 56269	Japanese knotweed	INNS	Recorded along the banks of the ditch in the west of the site, a large stand of approximately 8m wide.	
3	NS 45112 56296	Japanese knotweed	INNS	Further east along the bank, a large stand was recroded, approximately 17m wide.	 
4	NS 45228 56367	Japanese knotweed	INNS	Two individual plants were recorded within a dry ditch to the east of the site, within the 30m buffer. Not native invasive.	

Target Note	Grid reference	Species	Feature	Description	Photo
5	NS 45009 56268	Bindweed	Potentially invasive	A small cluster of bindweed was recorded behind the moder bus shelter in the west of the site. Native species.	
6	NS 44909 56231	Bird	Nest	Five active Jackdaw nests and two disused swift nests were recorded within the garages in the west of the site.	
7	NS 44981 56246	Bird	Nest	A large diused nest, possibly Jackdaws was found in the south western corner of the old bus shelter in the east, the building proposed for relocation.	
8	NS 44922 56270	Bird	Nest	An active blue tit nest was found in a wooden bird box in the scattered trees to the north of the site.	

APPENDIX 4 –TREE SURVEY RESULTS

Table 8: Tree Survey Results.

Target Note	GR	Tree	Survey Results	Bat Roost Potential (BRP)	Photo
1	NS 45168 56228	Ash	Mature ash tree around 16m in height, with a split in limb at 10 - 12m on north-west limb. Snapped limb around 10m on east aspect, crack runs down the branch and is dead ending. Another snapped limb at around 8m –snapped wood now appears rotten. Dead ending knot hole on east aspect at around 10m. Several small-snapped branches, all appear dead ending.	Low – moderate	 

Target Note	GR	Tree	Survey Results	Bat Roost Potential (BRP)	Photo
					
2	NS 45192 56190	Ash	Mature ash tree around 16 –18m in height. Multiple knot holes recorded. Large knot hole at around 7m on south aspect. Knot holes on south-west aspect at 7m, with four additional know holes at 10m. Several limbs of which are dead ending, with a dead limb at height but no bat roost potential.	Moderate	 

Target Note	GR	Tree	Survey Results	Bat Roost Potential (BRP)	Photo
3	NS 44951 56120	Sycamore	Semi-mature Sycamore tree with lifted bark in several areas and in addition there was a dead limb at 12m in the middle of the canopy. with rot holes noted on the dead limb.	Low	
4	NS 44972 56115	Sycamore	Semi-mature Sycamore tree, with loose bark noted throughout the tree. There is a snapped off branch around 9m in height, on the east aspect. Multiple holes noted at height, that are possibly extending down the trunk of the tree.	Low	

APPENDIX 4 –DESK STUDY RESULTS

Table 9: Protected species desk study records

Species	No. of records	Most recent	Proximity of nearest record to study area	Relevant Legislation / conservation status
MAMMALS				
Eurasian Badger *Meles meles*	1	2016	Within 2km^2 of the site.	SBL, PBA
Eurasian Otter *Lutra lutra*	1	2013	Within 2km^2 of the site.	SBL, HR
BIRDS				
Common Sandpiper *Actitis hypoleucos*	2	2014	Within 2km^2 of the site.	BoCC Amber
Curlew *Numenius arquata*	3	2006	Within 2km^2 of the site.	SBL, BoCC Red
Goldeneye *Bucephala clangula*	11	2018	Within 2km^2 of the site.	BoCC Red
Hen Harrier *Circus cyaneus*	1	2014	Within 2km^2 of the site.	SCH 1, Annex 1, SBL, BoCC Red
Herring Gull *Larus argentatus*	1	2018	Within 2km^2 of the site.	SBL, BoCC Red
Kestrel *Falco tinnunculus*	1	2014	Within 2km^2 of the site.	SBL, BoCC Amber
Lesser Black-backed Gull *Larus fuscus*	3	2018	Within 2km^2 of the site.	BoCC Amber
Mallard *Anas platyrhynchos*	11	2018	Within 2km^2 of the site.	BoCC Amber
Meadow pipit *Anthus pratensis*	5	2014	Within 2km^2 of the site.	BoCC Amber
Mistle thrush *Turdus viscivorus*	1	2016	Within 2km^2 of the site.	BoCC Red
Moorhen *Gallinula chloropus*	7	2018	Within 2km^2 of the site.	BoCC Amber
Oystercatcher *Haematopus ostralegus*	4	2014	Within 2km^2 of the site.	BoCC Amber
Pochard *Aythya ferina*	1	2017	Within 2km^2 of the site.	SBL, BoCC Red
Skylark *Alauda arvensis*	6	2014	Within 2km^2 of the site.	SBL, BoCC Red
Snipe *Gallinago gallinago*	2	2018	Within 2km^2 of the site.	BoCC Amber

Sparrowhawk *Accipiter nisus*	3	2017	Within 2km^2 of the site.	BoCC Amber
Teal *Anas crecca*	2	2018	Within 2km^2 of the site.	Bocc Amber
Whooper *Cygnus cygnus*	4	2018	Within 2km^2 of the site.	SCH 1, Annex 1, SBL, BoCC Red
Willow warbler *Phylloscopus trochilus*	1	2014	Within 2km^2 of the site.	BoCC Amber
Woodcock Scolopax rusticola	3	2016	Within 2km^2 of the site.	SBL, BoCC Red
Woodpigeon *Columba palumbus*	1	2014	Within 2km^2 of the site.	BoCC Amber
Wren *Troglodytes troglodytes*	4	2016	Within 2km^2 of the site.	BoCC Amber

Key:

ECH 4: Annex IV of the EC Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora.

HR: Conservation Natural Habitats & C Regulations 1994 as amended
WCA: Wildlife and Countryside Act 1981
SBL: Scottish Biodiversity List species
LBAP: Local Biodiversity Action Plan Species
BoCC: Birds of Conservation Concern
PBA: Protection of Badgers Act (1992)

Datasets: Birds (BTO/JNCC/RSPB partnership), Field Survey, Mammal Mapper App Sighting Records , SNH Bat Casework records 1970-2007, Roost Count, SNH Bat Casework Recording log 2015, Waterway Survey

APPENDIX 5 –BAT TRANSECT RESULTS

Table 10. Transect 30.08.2023, Rory Baillie and Will Maslen

Point No.	Time	Grid Reference	Species	Activity (including no. of passes)
SURVEYORS: RB and WM START TIME: 20:45 SUNSET: 20:18 Temp: 12/11; WS: 1/1; CC: 1/2; Rain: 0/0 Temp = Temperature (oC); WS = Wind speed - 0 (calm) –12 (hurricane); CC = Cloud cover (in eighths); Rain = 0-4 (0 = dry)				
1.	20:45 – 20:55	NS 44915 56260		No activity recorded.
A.	20:55	NS 44915 56263	P. pyg	One soprano pipistrelle pass recorded on detector on the way to stop point 2, not seen by surveyors.
2.	20:58 – 21:03	NS 45022 56280	P. pyg	Three soprano pipistrelle passes recorded on detector. Feeding buzzes heard. A bat seen flying along the treeline and part of the road from west to east.
2-3	21:04 – 21:09			No activity recorded on the way to stop point 3.
3.	21:10 – 21:15	NS 45122 56319		No activity recorded
3-4	21:16 – 21:17			No activity recorded on the way to stop point 4 from the transect route.
4.	21:18 – 21:23	NS 45197 56371		No activity recorded.
B.	21:26	NS 45086 56332	N. lei	One faint Leisler's pass recorded on detector on the way to stop point 5, not seen by surveyors.
4-5	21:27 – 21:33			No activity recorded on the way to stop point 5.
C.	21:34	NS 44925 56130	P. pyg	Two soprano pipistrelle passes recorded on detector, not seen by surveyors on the way to stop point 5.
D.	21:35 – 21:38	NS 44957 56130	P. pyg, P. pip	Multiple soprano and common pipistrelle passes recorded on detector as well as feeding buzzes. Foraging activity in and around large trees, with two bats seen briefly by the surveyors.
5.	21:39 – 21:44	NS 44975 56134	P. pyg, P. pip	Several soprano and one common pipistrelle passes recorded on detector. Not seen by surveyor. Possibly foraging around trees.

Point No.	Time	Grid Reference	Species	Activity (including no. of passes)
5-6	21:45 – 21:47			No activity recorded on the way to stop point 6 from the transect route.
6.	21:48 – 21:53	NS 45048 56217		No activity recorded.
6-7	21:54			No activity recorded as surveyors were moving towards stop point 7 of the transect route.
7.	21:55 – 22:00	NS 45154 56296	P. pyg	One faint soprano pipistrelle pass recorded on detector. Not seen by surveyors.
7-8	22:01			No activity recorded as surveyors were moving towards stop point 8 of the transect route.
8.	22:02 – 22:07	NS 45151 56296	P. pyg, P. pip	One soprano and one common pipistrelle pass recorded on detector. Not seen by surveyors.
8-9	22:08 – 22:10			No activity recorded as surveyors were moving towards stop point 9 of the transect route.
9.	22:11 – 22:16	NS 45030 56247		No activity recorded.
9-10	22:17			No activity recorded on the way to stop point 10 from the transect route.
10.	22:18 – 22:23	NS 44965 56213		No activity recorded.
10-11	22:24			No activity recorded on the way to stop point 11.
11.	22:25 – 22:30	NS 44905 56195		No activity recorded.
11-1	23:31 – 22:33		P. pyg	Nine soprano pipistrelle passes recorded on detector, not seen by surveyors.
FINISH TIME: 22:34				

APPENDIX 6 –BAT REMOTE DETECTORS RESULTS

Table 11. Dusk, 30.08.2023 –13.09.2023 Chorus 3 (R1) remote detector.

Species	*M. dau*	*Pl. aur*	*N. lei*	*P. pip*	*P. pyg*
Total passes per species	4	14	9	98	562
Average pass per day (14 days) per species	0.285	1	0.64	7	40.14

Table 12: Dusk, 25.07.2023 –09.08.2023, Chorus 3 (R1) remote detector

Date	Species	First recording	Approx. hrs & mins after sunset	Last recording	Approx. hrs & mins before sunrise	Total passes per species
30.08.2023	Soprano pipistrelle	22:51	2:38	05:38	00:36	4
	Common pipistrelle	21:20	1:07	22:13	8:01	4
	Leisler's bat	21:42	1:29	05:38	0:36	6
31.08.2023	Soprano pipistrelle	21:25	1:15	05:43	0:33	27
	Common pipistrelle	21:33	1:23	03:38	2:38	16
01.09.2023	Soprano pipistrelle	21:23	1:16	05:30	0:48	36
	Common pipistrelle	21:28	1:21	02:47	3:31	27
	Brown long-eared bat	22:29	2:22	n/a	n/a	1
	Leisler's bat	22:51	2:44	n/a	n/a	1
02.09.2023	Soprano pipistrelles	21:54	1:49	05:52	0:28	141
	Common pipistrelle	22:44	2:39	02:04	4:16	5
	Daubenton's bat	n/a	n/a	01:34	4:46	1
	Brown long-eared bat	03:49	8:44	03:54	2:26	4
	Leisler's bat	n/a	n/a	04:27	1:53	1
03.09.2023	Soprano pipistrelle	20:28	0:26	05:58	0:24	79
	Common pipistrelle	00:29	5:27	03:36	2:46	6

	Brown long-eared bat	00:35	5:33	03:42	2:40	6
04.09.2023	Soprano pipistrelle	20:45	0:45	00:11	6:14	4
	Common pipistrelle	21:46	0:46	00:11	6:14	2
05.09.2023	Soprano pipistrelle	21:14	1:17	04:36	1:50	15
	Common pipistrelle	21:06	1:09	04:33	1:53	13
	Daubenton's bat	n/a	n/a	04:15	2:11	1
06.09.2023	Soprano pipistrelle	20:40	0:46	04:34	1:54	9
	Common pipistrelle	n/a	n/a	03:14	3:14	1
	Brown long-eared bat	n/a	n/a	02:17	4:11	1
07.09.2023	Soprano pipistrelle	20:12	0:20	04:52	1:38	12
	Common pipistrelle	21:28	1:36	00:29	6:01	13
	Daubenton's bat	n/a	n/a	04:25	2:05	1
	Leisler's bat	23:59	4:07	02:51	3:39	2
08.09.2023	Soprano pipistrelle	21:03	1:14	06:01	0:31	25
	Common pipistrelle	21:08	1:19	00:27	6:05	2
	Brown long-eared bat	n/a	n/a	04:09	2:23	1
	Leisler's bat	20:39	0:50	n/a	n/a	1
09.09.2023	Soprano pipistrelle	21:36	1:49	04:25	2:09	12
	Common pipistrelle	21:57	2:10	01:28	5:06	3
10.09.2023	Soprano pipistrelle	20:03	0:19	06:02	0:33	83
	Common pipistrelle	20:17	0:33	01:29	5:06	5
11.09.2023	Soprano pipistrelle	20:33	0:52	02:17	4:20	4
12.09.2023	Soprano pipistrelle	22:57	3:16	02:14	4:23	3
	Brown long-eared bat	n/a	n/a	00:50	5:47	1

	Daubenton's bat	n/a	n/a	01:14	5:23	1
13.09.2023	Soprano pipistrelle	20:16	0:27	06:03	0:38	106
	Common pipistrelle	23:09	3:30	n/a	n/a	1

Table 13. Dusk, 30.08.2023 – 13.09.2023 Chorus 4 (R2) remote detector.

Species	***M. dau***	***Pl. aur***	***N. lei***	***P. pip***	***P. pyg***
Total passes per species	3	6	11	79	193
Average pass per day (10 nights) per species	0.21	0.43	0.79	5.64	13.79

Table 14. Dusk, 30.09.2023 – 13.09.2023 Chorus 4 (R2) remote detector.

Date	**Species**	**First recording**	**Approx. hrs & mins after sunset**	**Last recording**	**Approx. hrs & mins before sunrise**	**Total passes per species**
30.08.2023	Leisler's bat	n/a	n/a	03:55	2:19	1
	Common pipistrelle	22:29	2:19	n/a	n/a	1
	Soprano pipistrelle	20:49	0:39	21:41	8:33	2
31.08.2023	Daubenton's	n/a	n/a	01:38	4:38	2
	Brown long-eared bat	n/a	n/a	03:50	2:26	1
	Common pipistrelle	20:44	0:34	05:41	0:35	14
	Soprano pipistrelle	00:33	4:23	05:43	0:33	10
01.09.2023	Leisler's bat	22:51	2:44	n/a	n/a	1
	Soprano pipistrelle	20:43	0:36	05:47	0:31	22
	Common pipistrelle	20:43	0:36	05:51	0:27	19
02.09.2023	Brown long-eared bat	22:43	2:38	03:44	2:36	3
	Leisler's bat	21:29	1:24	05:54	0:26	2
	Common pipistrelle	20:44	00:39	00:09	6:11	10
	Soprano pipistrelle	20:44	00:39	05:52	0:28	27

03.09.2023	Brown long-eared bat	22:27	2:25	03:49	2:33	3
	Common pipistrelle	20:49	0:47	n/a	n/a	1
	Soprano pipistrelle	20:34	0:32	05:57	0:23	25
04.09.2023	Leisler's bat	21:00	1:00	n/a	n/a	1
	Soprano pipistrelle	20:42	0:42	21:28	8:56	3
05.09.2023	Leisler's bat	n/a	n/a	05:14	1:12	1
	Common pipistrelle	20:47	0:50	05:59	0:27	11
	Soprano pipistrelle	20:45	0:48	05:59	0:27	19
06.09.2023	Daubenton's bat	21:59	2:05	n/a	n/a	1
	Common pipistrelle	22:15	2:21	22:16	8:12	3
	Soprano pipistrelle	20:39	0:45	05:45	0:43	3
07.09.2023	Leisler's bat	23:02	3:10	n/a	n/a	2
	Common pipistrelle	20:27	0:35	23:48	6:42	15
	Soprano pipistrelle	20:26	0:34	05:31	0:59	64
08.09.2023	Leisler's bat	21:00	1:11	03:49	2:43	2
	Common pipistrelle	20:37	0:48	21:26	9:06	5
	Soprano pipistrelle	20:24	0:35	04:05	2:27	18
09.09.2023	n/a	n/a	n/a	n/a	n/a	n/a
10.09.2023	n/a	n/a	n/a	n/a	n/a	n/a
11.09.2023	n/a	n/a	n/a	n/a	n/a	n/a
12.09.2023	n/a	n/a	n/a	n/a	n/a	n/a
13.09.2023	n/a	n/a	n/a	n/a	n/a	n/a