Extended Phase I Habitat Survey for Proposed Development Site at

Former Kingspark School

Gillburn Road

Dundee

DD3 8LR

June 2017

Prepared for Persimmon Homes North Scotland & Charles Church Scotland
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Executive Summary
Acorna Ecology Ltd. was commissioned in June 2017 to carry out an extended Phase I habitat survey with protected species walkover survey element on land south of Gillburn Road, Dundee. The Application Site was part of the former Kingspark school grounds, now dominated by open rank grassland and woodland copse/screening woodland. The ecological surveys included the Phase I habitat survey, a desk study for sites with nature conservation designations and relevant protected species records, and a walkover protected species survey that considered the potential presence of relevant European Protected Species (bats), Badgers, and potential for breeding birds.

Phase I habitats
None of the habitats within the study area were notable for their rarity, quality, or extent: in summary we consider all habitats within the Application Site to be unremarkable. Habitats and botanical species are therefore not considered an ecological constraint for development at this site.

Bats
Based on our survey of tree roost potential we consider that there is limited potential for roosting bats to use trees with ivy cover in the woodland strip along the eastern boundary of the Application Site. We recommend that a series of a minimum of two dusk and one pre-dawn bat activity survey covering each location where bats could potentially roost should be completed.

Badgers
Badgers are not an ecological constraint within the survey area.

Breeding Birds
In general birds were concentrated in the woodland habitats. To maintain a high due regard for the potential for breeding birds to be present we recommend that any site preparation works such as vegetation removal or soil stripping is done between August and March to avoid the bird breeding season.

Contents

1. Introduction

Acorna Ecology Ltd. was commissioned in June 2017 to carry out an extended Phase I habitat survey with protected species walkover survey element on land south of Gillburn Road, Dundee (Figure 1., NO 39606 33120). The Application Site was part of the former Kingspark school grounds, now dominated by open rank grassland and woodland copse/screening woodland all of plantation origin, and was bounded by Gillburn Road to the north, St Pauls R.C. Academy to the east, and residential development to the west and south.

2. Scope of Assessment and Survey

The ecological surveys included the Phase I habitat survey, a desk study for sites with nature conservation designations and relevant protected species records, and a walkover protected species survey that considered the potential presence of relevant European Protected Species (bats), Badgers, and potential for breeding birds.

3. Relevant Policy and Guidance

This ecological assessment has been undertaken with regard to the legislative requirements given in the following:

- The Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations);
- The Conservation (Natural Habitats &c.) Amendment (Scotland) Regulations as amended (2004, 2007, 2008, 2011, and 2012);
- Nature Conservation (Scotland) Act, 2004;
- Wildlife and Countryside Act 1981 (and subsequent amendment through The Conservation (Natural Habitats &c.) Amendment (Scotland) Regulations 2007, 2009, & 2011);
- Protection of Badgers Act, 1992 (and subsequent amendment through The Nature Conservation (Scotland) Act 2004);
- Wild Mammals (Protection) Act, 1996;
- The Convention on the Conservation of European Wildlife and Natural Habitats (The Berne Convention), 1979;
- The Land Reform (Scotland) Act, 2003;
- Scottish Planning Policy (June 2014) replaces NPPG14 and SPP (February 2010);
- The UK Biodiversity Action Plan (BAP), revised priority list 2007; and the
- Scottish Biodiversity List 2007

3.1. Biodiversity Status

The UK Biodiversity Action Plan (BAP) is the UK Government's commitment to the Convention on Biological Diversity signed in 1992. It is comprised of two types of Action Plans developed to set priorities for nationally and locally important habitats and wildlife:

Habitat Action Plans

- Broad Habitat Statements - summary descriptions of 28 natural, semi-natural and urban habitats and the current issues affecting the habitat and broad policies to address them; and
- UK BAP Priority Habitat Action Plans (HAPs) - detailed descriptions for 45 habitats falling within the Broad Habitat classification and detailed actions and targets for conserving these habitats.

Species Action Plans

- Produced for UK BAP Priority Species: information on the threats facing 382 species and action plan targets to achieve a positive conservation status;

- Grouped Species Action Plans (SAPs) - common policies, actions and targets for similar species, for example for Eyebrights, or Commercial Marine Fish. There are nine grouped action plans;

- Species Statements - overview of the status of species and broad policies developed to conserve them for two groups of species.

Several bat species are UK BAP priority species with action plans. Soprano Pipistrelles are a UK Biodiversity Action Plan priority species but Common Pipistrelle bats have now been removed from the list (2007). Daubenton's bat is a species of UK conservation concern.

Local Biodiversity Action Plans

Each Local Biodiversity Action Plan (LBAP) partnership, usually but not always at the local authority level identifies and establishes actions to conserve local priorities and also link this action to the delivery of national Species and Habitat Action Plan targets wherever possible. Grouped action plans at this level include bats, and Waders, for example.

3.2. Notable Habitats and Plants

Notable habitats in the UK are protected by statutory designation as Special Areas of Conservation if their value is recognised internationally, Sites of Special Scientific Interest (SSSI) if have a national value, or as Local Nature Reserves (LNR) if valued within a local authority area. The Wildlife and Countryside Act 1981 transposes European legislation conferring protection on such habitats: Sections 28 to 33 of Part 2 of the Wildlife and Countryside Act detail the law regarding SSSIs. Sections 34 to 53 deal with other protected areas within Great Britain.

Several plant species are classed as European Protected Species and are listed in Annex IV of the EC Habitats Directive, and in the UK on Schedule IV of the Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations).

In addition, there are a number of species protected by the Wildlife & Countryside Act 1981, which makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants. It also contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

The most problematic invasive, non-native plants were listed on Schedule 9 of the Wildlife & Countryside Act 1981. Under section 14(2) of the Act it was an offence to plant or otherwise cause to grow any species of plant listed on Schedule 9. Due to identification of a whole host of additional problematic invasive species a draft list of species for addition to the Schedule was prepared in 2007 and consulted on.

Invasive species presence across ownership boundaries raised issues with liability at many sites where any scheduled invasive plant species have knowingly been allowed to spread onto neighbouring properties as it was illegal to allow them to spread thus. The relatively recent Wildlife & Natural Environment (Scotland) Act (2011) significantly amended the Wildlife and Countryside Act in Scotland, and has removed ambiguity on liability by simplifying the issue of invasive non-native species in the wild and avoided the need for addition to a revised list by simply making it an offence to plant or cause **any** non-native plant species to grow in the wild. This change in policy has brought Scotland to the forefront of invasive species and control by demonstrating a high recognition of the issues invasive plant species are causing including high costs for control and eradication.

Some invasive species are more onerous to deal with than others, for example, Japanese Knotweed may take three or more years to eradicate, and any waste containing Japanese Knotweed is classed as controlled waste, and cannot be used for exemptions under Waste Management Licensing. For off-site disposal it must be buried in a licensed landfill site at a depth of at least 5m. Section 34 of the Environmental Protection Act 1990 places a duty of care on all waste producers to ensure that any wastes are disposed of safely and that a written description of the wastes, and any specific harmful properties, is provided to the site operator. Failure to appropriately dispose of any material containing Japanese Knotweed or several other invasive species may lead to prosecution under Sections 33 and 34 of the Environmental Protection Act 1990 and Section 14 of the WCA 1981. The Nature Conservation (Scotland) Act 2004 increased the penalties available to someone committing a Section 14 offence. Penalties on summary conviction were increased to include imprisonment for up to six months and/or a fine not exceeding £40,000. On conviction on indictment, the penalties are an unlimited fine (i.e. whatever the court feels to be commensurate with the offence) and/or a 2 year prison sentence.

3.3. European Protected Species: The Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations)

Full consideration of European Protected Species (EPS) must be given as part of the planning application process, not as an issue to be dealt with at a later stage.

Several plant species are classed as European Protected Species and are listed in Annex IV of the EC Habitats Directive, and in the UK on Schedule IV of the Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations). Full consideration of European Protected Species (EPS) must be given as part of the planning application process, not as an issue to be dealt with at a later stage. The European Protected Species of potential relevance to this survey area were the following nine species of plant:

Creeping Marshwort	*Apium repens*
Early Gentian	*Gentianella anglica*
Fen Orchid	*Liparis loeselii*
Floating-leaved water Plantain	*Luronium natans*
Lilarney Fern	*Trichomanes speciosum*
Lady's Slipper	*Cypripedium calceolus*
Slender Naiad	*Najas flexilis*
Shore Dock	*Rumex rupestris*
Yellow Marsh Saxifrage	*Saxifraga hirculus*

The European Protected Species of animal of potential relevance to this survey area were bat species found in Angus.

European Protected Species are protected in Annex IVa in the EC Habitats and Species Directive, which is transposed into UK legislation by the Conservation (Natural Habitats &c.) Regulations 1994 (Schedule II of The Habitats Regulations). The full details of this legislation can be viewed at:

http://www.opsi.gov.uk/SI/si1994/Uksi_19942716_en_4.htm

This legislation was amended on the 14th February 2007 (The Conservation (Natural Habitats &c.) Amendment (Scotland) Regulations 2007.), and explanatory guidance on this was published by the Scottish Government in April 2007. The amendment removed all EPS from Schedule 5 of the Wildlife & Countryside Act 1981. There are therefore now no defences in the WCA 1981 whatsoever for any actions impacting on EPS, and protection is afforded by the following legislation only:

Under Regulation 39 of the Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations) it is now a criminal offence (subject to specific exceptions) to:

(a) deliberately or recklessly to capture, injure or kill a wild animal of a European protected species; (only defences are mercy killing, capture for tending a disabled animal or circumstances where the animal is captive bred and lawfully held).

(b) deliberately or recklessly–

(i) to harass a wild animal or group of wild animals of a European protected species;

(ii) to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;

(iii) to disturb such an animal while it is rearing or otherwise caring for its young;

(iv) to obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;

(v) to disturb such an animal 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; or

(vi) to disturb such an animal 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;

(c) deliberately or recklessly to take or destroy the eggs of such an animal; or

(d) to damage or destroy a breeding site or resting place of such an animal.

It should be noted that only the offence of damaging or destroying a breeding site or resting place of an EPS is a strict liability offence. The remaining offences are offences only where they are carried out "deliberately" or "recklessly".

In Scotland licenses may be granted by Scottish Natural Heritage (SNH) to permit certain activities that would otherwise be illegal due to their potential impact on EPS or their places of shelter/breeding, whether or not they are present in these refuges. This includes for developmental work. Under Regulation 44 of The Habitats Regulations, the provisions in Regulation 39 (protection of animals) do not apply to anything done for any of the purposes defined in Regulation 44 provided that any action is carried out "under and in accordance with the terms of a licence granted by the appropriate authority".

Three tests must be satisfied before a development licence for disturbance of an EPS or damage to a site/destruction of a site used by EPS will be granted. Note: A license application will fail unless all three tests are satisfied.

- Test 1 - the licence application must demonstrably relate to one of the purposes specified in Regulation 44(2). This regulation states that licences may be granted by SNH where the activities to be carried out under any proposed licence are for the purpose of "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";
- Test 2 - Regulation 44(3)(a) states that a licence may not be granted unless Scottish Natural Heritage is satisfied "that there is no satisfactory alternative"; and
- Test 3 - Regulation 44(3) (b) states that a licence cannot be granted unless Scottish Natural Heritage is satisfied "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".

Note: Breach of Licensing Conditions

A new regulation 46A came into force on 15th May 2007. This now makes it an offence to breach any conditions attached to a licence. Licence conditions should therefore be adhered to at all times.

3.4. Additional Legal Protection for bats

- Additional protection is afforded through the Bern Convention (1979), enacted in Scotland through the Nature Conservation Act (Scotland) 2004;
- Appendix III, the Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1980), Appendix 2; and
- The Bonn Convention's Agreement on the Conservation of Bats in Europe (London, 1991).

It is also a legal obligation in Scotland to consult with SNH before you do anything that might affect bats or their roosts such as:

- Removal of hollow, old, or decaying trees;
- Blocking, filling, or installing grilles over old mines or caves; and
- Building, alteration, maintenance, or re-roofing

In all cases where bats are found to occupy trees or buildings and there is a developmental issue, SNH must be informed before any development takes place. A licence to permit development may then be obtained from SNH if appropriate.

3.5. Badger

In the UK, Badgers are protected under the Protection of Badgers Act 1992 (c.51), which repeals the previous Badgers Acts of 1973 and 1991, and certain sections of other relevant acts such as The Wildlife and Countryside Act 1981, The Environmental Protection Act 1990, The Animals (Scientific Procedures) Act 1986, The Natural Heritage (Scotland) Act 1991, and The Criminal Justice Act 1991. The Protection of Badgers Act 1992 was further amended and strengthened through the Nature Conservation Act (Scotland) 2004.

The 1992 Act makes it an offence to:

- Wilfully kill, injure, catch, or take a Badger from the wild (or attempt to);
- Cruelly ill-treat a Badger, digging for Badgers, using Badger tongs, using a firearm other than permitted (under the exceptions regarding humane dispatch of an injured animal) within the Act;
- Damage, destroy or obstruct access to any part of a Badger sett (whether occupied or unoccupied);
- Disturb a Badger while it is occupying a sett, either by intent or by negligence;
- Dig a Badger sett;
- Cause a dog to enter a Badger sett;
- Sell or offer for sale a live Badger, have possession or control of a live Badger. Be in possession of a live or dead Badger or any part of one; and
- Mark a Badger or attach any ring, tag, or other marking device to a Badger.

Note: A Badger sett is defined within the Act as "any structure or place which displays signs indicating current use by a Badger" where current use means "any sett within an occupied Badger territory regardless of when it may have last been used".

It is also a legal obligation to obtain a licence from Scottish Natural Heritage before you do anything that might affect Badgers or their setts, for example for:

- Development purposes [as defined under the Town & Country Planning (Scotland) Act 1997]; and

- Alteration or maintenance of existing buildings where Badgers are found.

It is also a legal obligation in Scotland to consult with SNH before you do anything that might impact Badger setts, whether currently occupied or not.

Despite the above legislative protection, Badgers are not a UK Biodiversity priority species for conservation and are only considered of UK conservation concern.

3.6. Legal Protection for Breeding Birds

All breeding birds have basic statutory protection under the Wildlife & Countryside Act 1981. In addition, a number of species that are rare or uncommon are afforded enhanced statutory protection during the breeding season by inclusion on Schedule One of the Wildlife & Countryside Act 1981, which protects adults in places of rest, their eggs, and young.

- All breeding birds in the UK are protected through Sections 1-8 (referring to Schedules 1 to 4) of the Wildlife & Countryside Act [WCA] (enacting the Bern Convention and the Birds Directive), and subsequent amendments through the Nature Conservation (Scotland) Act 2004. With certain exceptions, all wild birds, their eggs and dependent young are protected from intentional killing, injuring and taking; they cannot be in anyone's possession, whether live or dead, and nests (whilst being built or in use) cannot intentionally be taken, damaged or destroyed. A general licence permits control of some species with landowner consent.

- Schedule 1 of the WCA is a list of nationally rare breeding birds for which all offences carry special (higher) penalties. The legislation also makes it an additional offence to intentionally or recklessly disturb adults or the dependent young of these species, at any stage of their breeding.

- Schedule 2 is a list of traditionally hunted birds for which protection does not apply outside a "close season".

- European legislation provides additional legal protection as European Protected Species for a number of species of high conservation concern.

'The Population Status of Birds in the UK' was originally produced in 2002, and listed the UK status of 247 species of bird. Of these 40 were "red-listed" and 121 "Amber-listed" as species of conservation concern, and 86 species "Green-listed". This listing did not provide additional legal protection for these species but highlighted those of concern for nature conservation purposes. The lists have been updated several times and were updated a fourth time in 2015 (Eaton et al. 2015), resulting in re-designation of the UK status of 247 species of bird: 67 are now "red-listed" and 96 "Amber-listed" as species of conservation concern, while only 81 species are "Green-listed".

4. Desk Study

A desk-based review of sites designated for their nature conservation interest was completed in June 2017.

4.1. Sites with Statutory Designation

Interrogation of the Scottish Natural Heritage SiteLink V3 database determined that the study area contained no sites with a statutory nature conservation designation. Trottick Mill Ponds Local Nature Reserve (LNR 8155) is the nearest one, and lies approximately 1km to the northeast of the Application Site.

4.2. Sites with Non-statutory Designation

The Local Authority protects some locally important natural heritage sites from damaging developments through designation as Sites of Importance for Nature Conservation (SINCS), and areas of lower wildlife value as Wildlife Corridors to link sites. The Local Authority is also aware of the Scottish Wildlife Trust network of local sites (Wildlife Sites) and utilizes these for guidance. The Application Site does not lie within any SINC, Wildlife Corridor, or Wildlife Site. The nearest SINC is less than 1km to the east on the Caird Park Golf Course, and includes the Gelly Burn corridor.

4.3. Protected Species

The NBN Gateway and the Central Scotland Wildlife Information Centre (CSWIC) were consulted for records of protected species on Site and in the wider area.

Bats have been recorded in seven of the eight adjacent 1km squares: no details available from NBN Atlas other than 56 records of which 46 are from the 1km square NO 3934.

5. Bats in Scotland

5.1. Background Information

Five species of bat are relatively widespread in Angus:

- Common Pipistrelle Bat (*Pipistrellus pipistrellus*) 45 kHz;
- Soprano Pipistrelle Bat (*Pipistrellus pygmaeus*) 55 kHz;
- Daubenton's Bat (*Myotis daubentonii*);
- Brown Long-eared Bat (*Plecotus auritus*); and
- Natterer's Bat (*Myotis nattereri*).

Another four species occur in Central Scotland but tend to have restricted distributions, or less is known about their distribution, and it is not currently known if any of these occur in Angus or Tayside:

- Noctule Bat (*Nyctalus noctula*) (more of a southern Scottish distribution but recorded in West Lothian and East Dunbartonshire);
- Nathusius's Pipistrelle Bat (*Pipistrellus nathusii*) 38 kHz –(Stirlingshire);
- Whiskered Bat (*Myotis mystacinus*) – within the Lanarkshire area; and

- Leislers Bat (*Nyctalus leisleri*) (more of a southern Scottish distribution but known southwest of Glasgow).

5.2. Bat Roost Types

Nine main types of roost have been identified (Collins 2016). These are:

- Day roosts (March – November but more-so in the summer): used for resting during the day, and may be occupied daily by solitary or small numbers of males, or may be used infrequently as part of a chain of roost sites alternated daily but are rarely occupied at night. Whole colonies of some species such the Leisler's bat will change roost during the day including taking young with them;

- Night roosts (March – November): a place where bats rest or shelter during the night but are rarely present during the day. Can be used by solitary bats or entire colonies, and are often indicated by large accumulations of insect remains and some droppings;

- Feeding roosts (May – November): a place where individual bats or small groups may rest or feed during the night between bouts of foraging, in times when weather changes, or just for a temporary rest. May be used by solitary bats to whole colonies but are rarely used during the day;

- Transitional/occasional roosts (spring or autumn generally but may be used April-October): Some roosts may be transitional, when small numbers are present for a limited period, usually during the spring and autumn.

- Swarming sites (August – November) tend to be around caves and mines and may be used for hibernation as well as being important for mating, with large numbers of male and female bats gathering from late summer to autumn.

- Mating roosts (September – October): where mating takes place from late summer and may continue through the winter;

- Maternity roosts (May - August): the most obvious roost type. These consist almost exclusively of females, most of which give birth and raise a single young but sometimes may include males in some species of bats. These colonies usually disperse by the autumn, although some species may remain in one roost all year round;

- Hibernation roosts (October – March); roost sizes may vary from individual to groups but must have a high humidity and constant cool temperature above freezing but generally less than 4°C; and

- Satellite roosts (May – August): alternative roosts near to maternity roosts used by a few breeding females or small groups of females throughout the breeding season;

Note: swarming sites (August – November) tend to be around caves and mines and may be used for hibernation as well as gathering for mating.

In Scotland, most species of bats roost by concealing themselves in crevices and are not easy to find. The presence of droppings is a key sign to their presence but numbers of droppings vary widely and even some large roosts have little evidence of droppings to indicate their presence. Hibernating bats however leave little or no trace of their presence. Other possible signs are a characteristic odour like ammonia. In addition, a clean or polished area at a place through which light can enter may suggest an entrance/exit hole.

5.3. Bats and Trees

Trees may provide safe dry places for bats to roost, although some bats prefer to roost in buildings when suitable buildings are present. Some bats remain roost faithful for prolonged periods, while

others may have several alternate roost sites, and others may range much further using roosts several kilometres apart as weather conditions, food availability, and seasons change. Potential roost sites in trees may include:

- Crevices in bark:
- Gaps under loose bark on dead branches or trunks;
- Rotted knot holes;
- Hollow trunks;
- Cracks, splits etc. in stems and branches;
- Rotted-out branches;
- Growth deformities, compression forks, cankers;
- Gaps between overlapping branches;
- Dense ivy coverage;
- Woodpecker and Squirrel holes;
- Bird nesting boxes/bat boxes already present; and
- Crow, Magpie, and Buzzard nests.

6. Survey Methods

6.1. Notable Plants, Habitats & Scheduled Invasive Plants

A Phase I Habitat walkover survey following the standard methodology and definitions used to map and describe habitats within the study area as per the Joint Nature Conservancy Committee guidelines (JNCC, 2010) was completed for the Application Site. Key locations of botanical interest were identified and target notes recorded where appropriate.

The objectives of this Phase I survey were to:

i. Provide a baseline assessment of habitat distribution and extent within the boundaries of the area;

ii. Provide a preliminary evaluation of the ecological value of the habitats;

iii. Record any notable species; and

iv. Record any non-native plants listed on Section 14(2) of Schedule 9 of the Wildlife & Countryside Act 1981.

6.2. Bats: Preliminary Ground Level Assessment of Trees for Roost Potential according to Collins (2016)

The Bat Survey Guidelines from Bat Conservation Trust (Collins, January 2016) stated:

"Professional judgement and surveyor experience: The guidelines are not a prescription for professional bat work. They do not aim to override professional judgement and cannot be used to replace experience. Deviations from the methods described are acceptable providing the ecological rationale is clear and the ecologist is suitably

qualified and experienced. In some cases it may be necessary to support such decisions with evidence, particularly if they may lead to legal challenge."

The aim of this survey was to determine if any tree had potential value for use by roosting bats, or evidence of any actual bat presence by a detailed inspection of the exterior of the tree from ground level. The survey looked for features that bats could use for roosting (PRFs) and categorised the trees according to their individual potential value for use by roosting bats (Table 6.2. below). Trees within the site were checked for PRFs such as crevices, holes, splits, tears, and ivy that could be used by bats to enter roosting sites such as those listed above, along with field signs of bat occupancy such as urine streaking, grease marks, smooth or worn surfaces, or droppings caught on bark or on webs. Where appropriate, inspections were made using binoculars.

Table 6.2. Tree/Building suitability assessed according to the Categories listed in the BCT Guidelines (Collins 2016)

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

6.3. Badgers

Field survey methodology followed Harris et al. (1989). Badgers leave many different signs of their occurrence, so are relatively easy to detect, these include:

- Badger setts may be large networks of connected tunnels and chambers with several entrances that are usually shaped like a flattened arch and 20-30cm high and 25-35cm across, or have a single entrance to either a small burrow or large network of tunnels. Bones in and around the entrance,

usually indicate Fox activity (rank fox smell may be noticeable). Fox earths have smaller entrances, but foxes may occupy Badger setts even when Badgers are in residence;

- Scraps of fresh bedding that have been dragged in (often grassy material) may be found around the sett entrance. There may also be scraps of old bedding that has been dragged out;
- Day nests are piles of bedding above ground that are used by Badgers occasionally;
- Badgers are clean animals and create spoil heaps outside the main sett, which may contain old bedding, bits of fur, and perhaps small bones. They also use latrines, and will have one or more that are used until the hole is full, and then they start another;
- Badger droppings are very varied depending on the diet (black and slimy means a diet rich in worms, but cereal grains, seeds, and hard parts of insects may be seen). The smell and texture are very distinctive; as is the usual deposition in small oblong latrines either by the sett or at strategic locations on the territory boundary (different individuals have different home ranges within the clan territory). Occasionally droppings are not deposited in latrines but left lying on the ground;
- Clear footprints will show a prominent central pad, either four or five toes and claw marks, and may be found leading to and from the sett, as well as on Badger trails. The front foot usually has longer claws than the back foot, and the prints may overlap, with the back print partially obscuring the front;
- Badger Hairs may be found caught on fences, on brambles or other thorny plants as well as in old bedding outside setts. The guard hairs are 7.5-10cm long, distinctly wiry to the touch, and are mainly white/off-white with a distinctive black band near the white tip. Shorter belly hairs may also be found but are finer and less wiry so are harder to confirm as Badger unless guard hairs or another field sign is found;
- Scratch marks on trees and rocks, fence-posts, wooden greenhouses, barns, or even garden furniture. Scratch marks often show a series of four or five parallel deep gouges, but sometimes lighter parallel lines of scratches are left where Badger claws have clipped something they have scrambled over (such as logs obstructing a Badger trail);
- Badgers have their own traditional networks of regularly used trails both through woodland and across fields that may have been used for many years, and may be worn to a clearly visible rut in the soil, with any new plant growth flattened. Prints may be evident on these trails and where boundary features or obstacles cross the route, Badger hairs may be found caught (for example, on barbed wire, low thorny branches, wooden fences, etc. Closer to the sett, these trails may be muddy through constant use;
- Ground disturbance from foraging Badgers may include round/oval snuffle holes a few cm deep when they forage for worms (50% of lowland Badger diet (especially on lawns and golf-courses). Signs of digging for roots, bulbs such as pignut, and tubers. Beetles and grubs may also be eaten, and the remains of wasp nests torn out of the ground are a sign of Badgers in an area. Badgers usually dig down through the top to avoid getting stung. Bark ripped from rotting logs or tree trunks may also be signs of foraging and grub extraction; and
- On cold, still, winter days, steam may rise from active Badger sett entrances.

The Application Site was searched for evidence of Badgers during the Phase I habitat survey. Where possible, the adjacent land within 30m of the Application Site was surveyed where access was open but otherwise land within 50m of the Application Site boundary was viewed from within the Application Site for evidence of use by Badgers (no access permission to adjacent land).

6.4. Potential Breeding Birds

The extended Phase I Habitat survey was completed during the breeding bird season, so all birds using the site at the time of survey were noted to help develop a list of bird species that either breed in the Application Site or use it. This, together with the ecologist's 38 years of experience of bird surveys

and habitat use provided a good understanding of what species may be present and where breeding birds may be concentrated.

6.5. Limitations

The tree assessment was primarily designed to identify if any tree had potential for use by roosting bats but could detect actual roosts if evidence was present, so the possibility of finding small numbers of bat droppings was reduced but larger accumulations would still be noticeable, as would any other evidence of bats such as grease marks or wear to the entrance of any hole used by bats. The limitations of surveys of this nature dictate that failure to find evidence of bats does not guarantee that bats have not been present, and further survey work would be required to be conclusive on the presence/absence of roosting bats. This is discussed in detail in the conclusions section below. Access to adjacent land in other ownership for survey was not possible as access for the collection of biological data for commercial purposes cannot take place without access permission. Weather conditions and time of year were acceptable for all surveys as completed so there were no significant constraints on the survey suite.

7. Results

7.1. Phase I habitats

The Application Site area had six Phase I habitat types present (Figure 1.). A total of 74 species of plants were noted (Appendix 1.). Figure 1. illustrates habitats and target note locations).

- A1.1.2 Plantation broad-leaved woodland: woodland strip at eastern side of the Application Site. Rowan, birch, and hawthorn dominant with some wild cherry, Scots pine, and elm present; and small copse of mixed trees dominated by broad-leaves in the north-central site area dominated by aspen, with rowan, oak, larch and spruce present;

- B4 Improved grassland: - covers much of the western end of the site and is typical of brownfield sites where grasses have been allowed to colonise naturally, with aggressive common species choking out finer grasses;

- C3.1 Tall ruderals: rosebay willowherb, brambles, nettles etc. associated with site boundaries and woodland areas under tree canopy so not mapped on Figure 1;

- J2.3.2 Defunct species-poor hedgerow with trees;

- J4 Bare ground: - formal access tracks etc.

- J5 Other habitat: field margins, track verges, waste path surfacing materials (whin dust mound?) etc.

7.2. Bats

7.2.1. Assessment of Trees for Bat Roost Potential

No evidence of any actual tree roost was found but a total of 10 trees with features of potential value for use by roosting bats were identified (Table 7.2.1. and Figure 2.) but not within the Application Site but near to it. In addition, the boundary hedge was densely clad in ivy and was suitable for use by bats.

Table 7.2.1. Trees with features of potential value for use by roosting bats

Ref #	Grid reference	Tree Species	BCT Category	Comments
T1	NO 39677 32988	Ash	High	Mature tree with dense ivy
T2	NO 39681 32997	Crack Willow	High	Dense ivy

Ref #	Grid reference	Tree Species	BCT Category	Comments
T3	NO 39684 32999	Sweet Chestnut	Moderate	Dense ivy
T4	NO 39686 33018	Cherry	Moderate	Dense ivy
T5	NO 39686 33018	Scots Pine	Low	
T6	NO 39688 33024	Scots Pine	Moderate	Dense ivy
T7	NO 39686 33032	Ash	Moderate	Two trees with dense ivy
T8	NO 39686 33039	Oak, Ash	Moderate	Oak and two ash trees with dense ivy
T9	NO 39693 33046	Ash	Moderate	Dense ivy
T10	NO 39691 33055	Elm	Low	Vines growing throughout tree

7.3. Badgers

No evidence of Badgers was found within the area surveyed.

7.4. Breeding Birds

Nine bird species were detected within the Application Site (13 pairs), of which one species was a UK Red-listed species of conservation concern (Song Thrush) and one was an Amber-listed species of conservation concern (Willow Warbler). Table 7.4. below, and Figure 2.).

Species code	Species
B.	Blackbird
BT	Blue Tit
CH	Chaffinch
CT	Coal Tit
R.	Robin
ST	Song Thrush
WP	Woodpigeon
WR	Wren
WW	Willow Warbler

Key

Species in red = UK Red-listed species of conservation concern
Species in amber = Amber-listed species of conservation concern
Species in black = Green-listed species of conservation concern

8. Conclusions

8.1. Phase I habitats

None of the habitats within the study area were notable for their rarity, quality, or extent: The grassland is rank and species-poor, and although the central wooded area has aspen it is in a non-natural setting so is greatly devalued. The woodland within the eastern boundary of the Application Site has trees worthy of retention if they are native species (subject to findings of a BS5837 Tree Condition Survey) or if they are a non-native species with high biodiversity value. The woodland has a depauperate ground flora dominated by ivy or is simply bare ground. Any retained mature trees should be retained with a due regard for the guidance provided by BS5837: 2012 Trees in relation to construction. Tree root protection areas should be calculated and defined with a defensible no entry barrier system, and no materials stored within the drip line of the canopy or vehicles allowed to track within it - to prevent ground compaction. In summary we consider all habitats within the Application

Site to be unremarkable. Habitats and botanical species are therefore not considered an ecological constraint for development at this site.

8.2. Bats

Based on our survey of tree roost potential we consider that there is limited potential for roosting bats to use trees with ivy cover in the woodland strip along the eastern boundary of the Application Site. We recommend that a series of a minimum of two dusk and one pre-dawn bat activity survey covering each location where bats could potentially roost should be completed. Note: As the bat roost potential is mostly outwith the Application Site the surveys are to confirm if any roost may be disturbed by works. Any site preparation works may still take place more than 30m from the trees/hedge, so this should still allow works to commence in the western part of the Application Site Note: Any site compound established would require lighting to be hooded and to face away from the woodland.

8.3. Badgers

Badgers are not an ecological constraint within the survey area.

8.4. Breeding Birds

In general birds were concentrated in the woodland habitats. To maintain a high due regard for the potential for breeding birds to be present we recommend that any site preparation works such as vegetation removal or soil stripping is done between August and March to avoid the bird breeding season. If any such works were proposed during the bird breeding season we recommend that the area proposed for works and a 50m buffer would need checked by an ecologist to determine if any breeding birds with active nests or dependent fledglings were present. If any were present then works must not take place in that area and a defined buffer zone until the breeding cycle is complete for those individual birds, although there may be other areas of the Application Site that could safely be worked if no breeding birds were present.

9. References/relevant reading

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Figure 1. Phase I habitats and target note locations

Key

	Site boundary
A1.1.2	Semi-natural broad-leaved woodland
B4	Improved grassland
C3.1	Tall ruderals (not illustrated as under trees or on boundaries
J1.4	Introduced shrub
J2.3.2	Defunct species-poor hedgerow with trees
J5	Other habitat
Tn1 – 4	Target note numbers

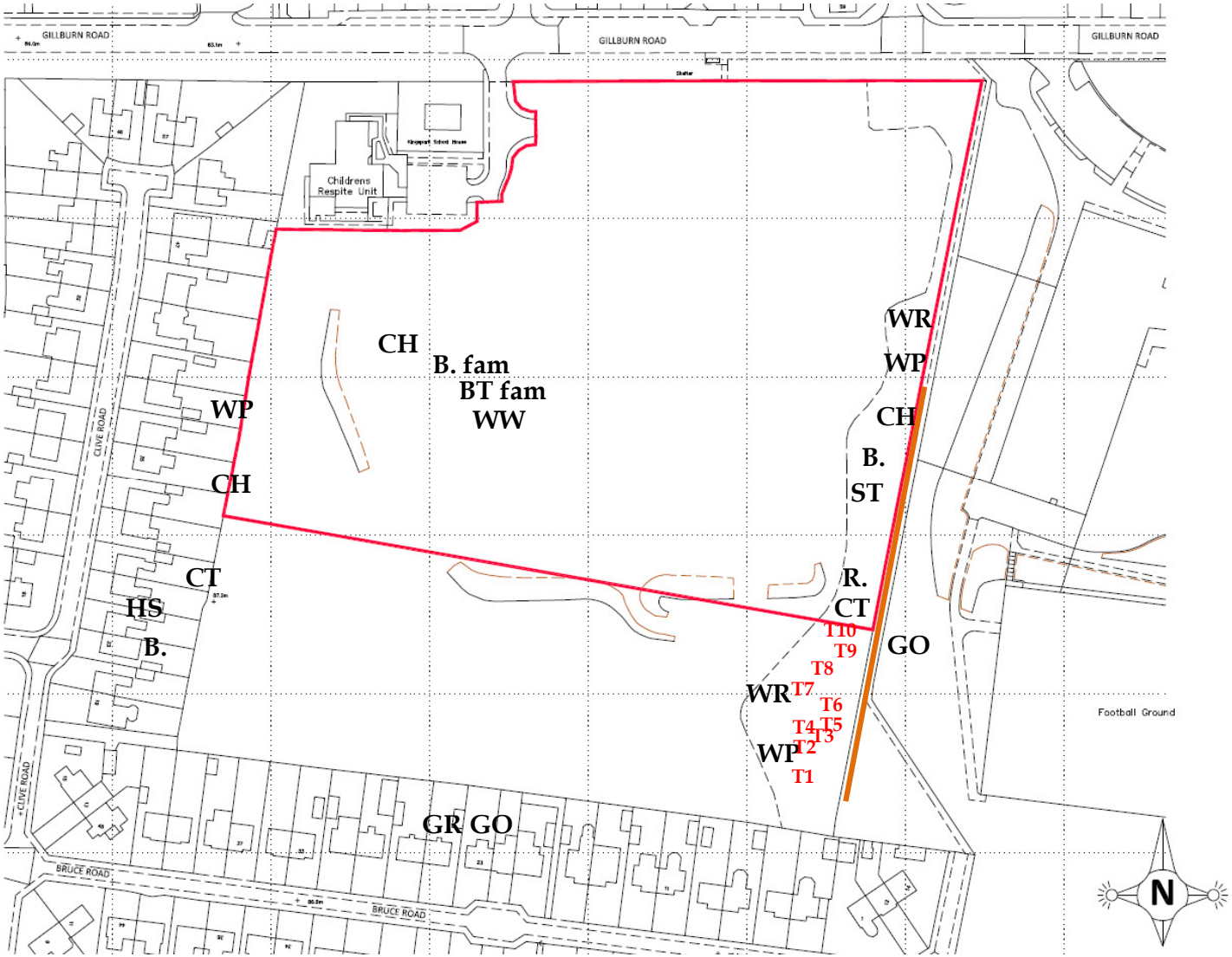
PROJECT TITLE
FORMER KINGSPARK SCHOOL
GILLBURN ROAD
DUNDEE
[Dundee City Council]

DRAWING TITLE
Location Plan

SCALE	DATE	DRAWN
1:1250@A3	December 2016	G
JOB NUMBER	DWG REFERENCE	REVISION
	LP-001	~

PERSIMMON HOMES NORTH SCOTLAND

Figure 2. Location of trees with bat roost potential, and locations of breeding birds detected



Key

Site boundary

T1-10 Tree with features that could be utilised by bats and hedging with ivy

Bird codes

B.	Blackbird
BT	Blue Tit
CH	Chaffinch
CT	Coal Tit
GO	Goldfinch
GR	Greenfinch
HS	House Sparrow
R.	Robin
ST	Song Thrush
WP	Woodpigeon
WR	Wren
WW	Willow Warbler
fam	Family with young

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PERSIMMON HOMES NORTH SCOTLAND

Appendix 1. Plant species list

		Target Note Number			
		Tn1	Tn2	Tn3	Tn4
Common name	**Scientific name**	**1**	**wooded**	**Boundary (w)**	**East wood**
Alder	*Alnus glutinosa*		1		
Annual Meadow-grass	*Poa annua*	1			
Ash	*Fraxinus excelsior*		1	1	
Aspen	*Populus tremula*		1		
Bluebell	*Hyacinthoides non-scripta*				1
Bramble	*Rubus fruticosus agg.*		1	1	
Broad-leaved Dock	*Rumex obtusifolius*	1			1
Broad-leaved Willowherb	*Epilobium montanum*	1			
Broom	*Cytisus scoparius*			1	
Cleavers	*Galium aparine*	1	1	1	1
Cock's-foot	*Dactylis glomerata*	1			
Colt's-foot	*Tussilago farfara*		1		
Common Chickweed	*Stellaria media*	1			
Common Nettle	*Urtica dioica*			1	
Common Ragwort	*Senecio jacobaea*	1	1		
Cow Parsley	*Anthriscus sylvestris*	1		1	
Crack Willow	*Salix fragilis*				1
Creeping Buttercup	*Ranunculus repens*	1			1
Creeping Thistle	*Cirsium arvense*		1		
Crested Dog's-tail	*Cynosurus cristatus*	1			
Daisy	*Bellis perennis*		1		
Dandelion	*Taraxacum officinale agg.*	1			1
Dog Rose	*Rosa canina*		1	1	
Elder	*Sambucus nigra*		1	1	1
Elm	*Ulmus sp.*				1
Field Rose	*Rosa arvensis*	1			
Garlic Mustard	*Alliaria petiolata*		1		
Germander Speedwell	*Veronica chamaedrys*		1	1	1
Goat Willow	*Salix caprea*		1		
Greater Plantain	*Plantago major*	1			
Greater Stitchwort	*Stellaria holostea*	1			
Groundsel	*Senecio vulgaris*	1			
Guelder-rose	*Viburnum opulus*				1
Hawthorn	*Crataegus monogyna*				1
Hazel	*Corylus avellana*			1	
Himalayan Cotoneaster	*Cotoneaster simonsii*			1	
Holly	*Ilex aquifolium*			1	

		Target Note Number			
		Tn1	Tn2	Tn3	Tn4
Common name	**Scientific name**	**1**	**wooded**	**Boundary (w)**	**East wood**
Honeysuckle	*Lonicera periclymenum*			1	
Hornbeam	*Carpinus betulus*			1	1
Ivy	*Hedera helix*				1
Laburnum	*Laburnum anagyroides*			1	
Larch	*Larix decidua*		1		
Lesser Trefoil	*Trifolium dubium*	1			
Lilac	*Syringa vulgaris*			1	
Male Fern	*Dryopteris filix-mas agg.*			1	1
Meadow Foxtail	*Alopecurus pratensis*	1			
Meadow Vetchling	*Lathyrus pratensis*		1		
Meadowsweet	*Filipendula ulmaria*		1		
Northern Marsh Orchid	*Dactylorhiza purpurella*	1			
Norway spruce	*Picea abies*		1		
Perennial Rye-grass	*Lolium perenne*	1			
Prickly Sow-thistle	*Sonchus asper*	1			
Red Fescue	*Festuca rubra*	1			
Ribwort Plantain	*Plantago lanceolata*	1			
Rosebay Willowherb	*Chamerion angustifolium*		1	1	
Rowan	*Sorbus aucuparia*		1	1	1
Scots Pine	*Pinus sylvestris*				1
Selfheal	*Prunella vulgaris*				1
Sheep's Fescue [agg.]	*Festuca ovina agg.*		1		1
Shepherd's Cress	*Teesdalia nudicaulis*	1			
Silver Birch	*Betula pendula*				1
Small-leaved Cotoneaster	*Cotoneaster integrifolius*		1	1	
Snowberry	*Symphoricarpos albus*		1		
Spear Thistle	*Cirsium vulgare*	1		1	
Sweet Chestnut	*Castanea sativa*			1	1
Timothy	*Phleum pratense*	1			1
White Clover	*Trifolium repens*	1			
White Willow	*Salix alba*				1
Whitebeam	*Sorbus aria*			1	
Wild Cherry	*Prunus avium*		1		1
Wild Privet	*Ligustrum vulgare*			1	
Wood Avens	*Geum urbanum*		1		1
Yarrow	*Achillea millefolium*	1			
Yorkshire-fog	*Holcus lanatus*	1	1		
	# Plant species in habitat	29	26	24	24

Appendix 2. Plates

Plate 1. View eastwards across north-central area of Application site with screening woodland to rear of image

Plate 2. View south-westwards across north-central area of Application Site

Plate 3. View southwards across central area of Application Site

Plate 4. View westwards across southern end of Application Site

Plate 5. View northwards along screening woodland on eastern boundary of Application Site

Plate 6. Inside screening woodland strip

Plate 7. Inside screening woodland strip – boundary hedging/trees to right of image

Plate 8. Inside screening woodland strip