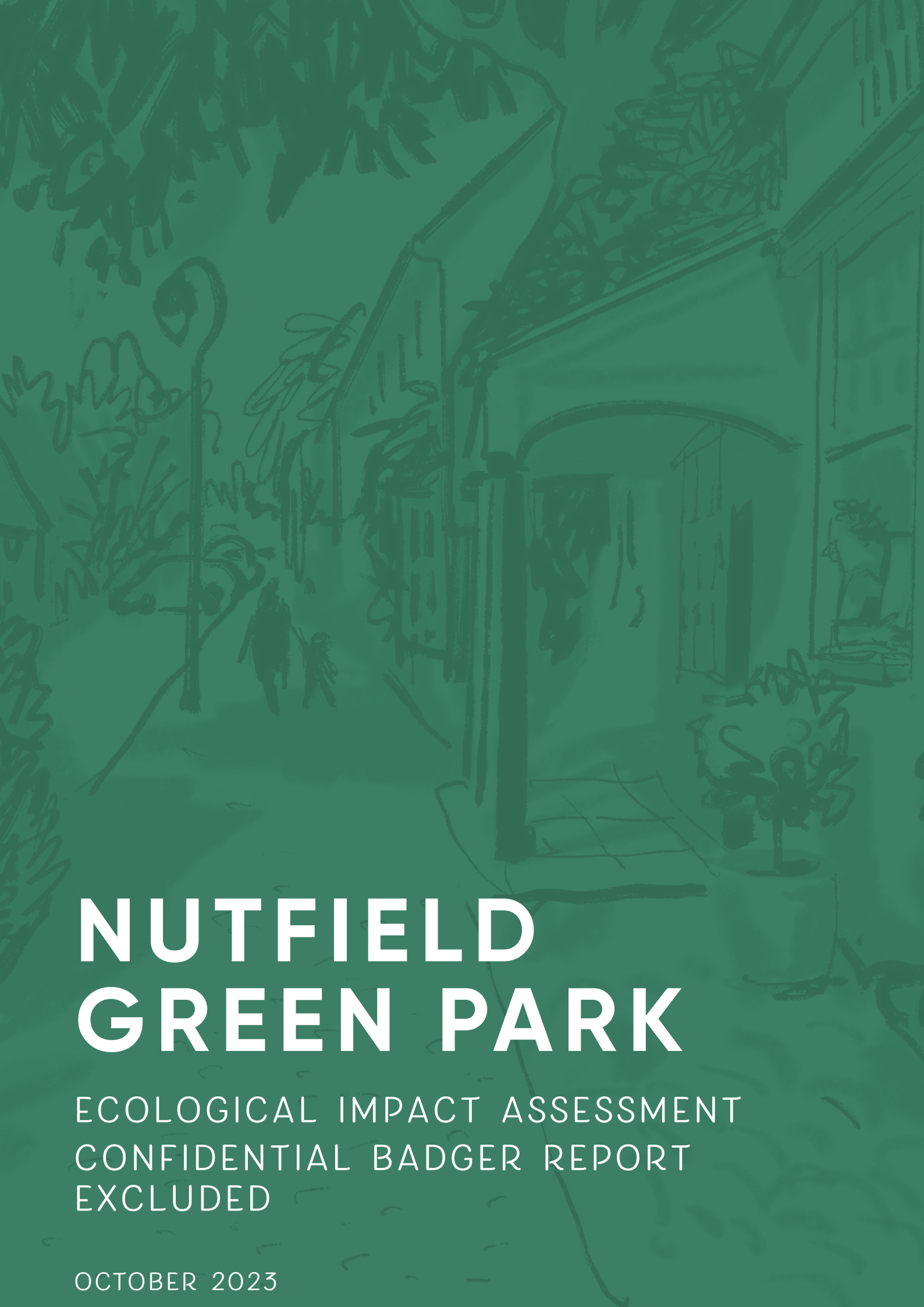

NUTFIELD GREEN PARK

ECOLOGICAL IMPACT ASSESSMENT
CONFIDENTIAL BADGER REPORT EXCLUDED

OCTOBER 2023

Nutfield Park Developments Limited (Ltd)

Nutfield Green Park

ECOLOGICAL IMPACT ASSESSMENT

October 2023

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1.0 NON-TECHNICAL SUMMARY

Report Scope and Methodology
• FPCR were commissioned by Nutfield Park Developments Limited (Ltd) to undertake an Ecological Impact Assessment (EcIA) of Nutfield Green Park, Tandridge to provide an ecological baseline for the site and determine its ecological importance. • The proposals for the site are a residential development of up to 166 dwellings and an Integrated Retirement Community with associated infrastructure. • A suite of ecological surveys was undertaken to inform this assessment, including an UKHab Survey, a desktop study and a range of protected/notable species surveys.
Ecological Baseline
• The Mole Gap to Reigate Escarpment SAC is located approximately within 3.8km of the Site. This is sufficiently distant and buffered from the site and are therefore not expected to be affected by the proposals. • The Site forms part of the Holmethorpe Sandpits Complex LWS which is designated for the range of habitats it supports and its breeding bird assemblage. • The site is dominated by a range of habitats including woodlands, grasslands, scrub and ponds. These are largely common and widespread habitats supporting limited botanical diversity, however the Lowland Mixed Deciduous Woodlands and the Hedgerows onsite are habitats of principal importance. • Surveys have identified a small population of grass snake in association with wetland habitats onsite. • A medium population of great crested newt is present in the north of the site. • Breeding bird surveys have identified that the site is used by an assemblage of common and widespread generalist, urban edge and woodland species that includes breeding nightingale. This assemblage is considered to be of Local Importance. • In addition, the site provides some degree of suitable habitat for a range of protected/notable species including bats and invertebrates. • A number of badgers setts are also present onsite and the habitats present provide a range of foraging and commuting opportunities.
Residual Effects
• The assessment has demonstrated that in the absence of mitigation, proposals would lead to, at most, **not significant negative effects of county importance on the Holmethorpe Sandpits Complex LWS at a County level.** In addition, not significant negative effects could be expected for lowland mixed deciduous woodlands, hedgerows, badgers, birds, other broadleaved woodlands, other mixed woodlands, scrub and other neutral grassland habitat. • A combination of intrinsic mitigation, targeted mitigation, compensation and ecological enhancement detailed within this EcIA have demonstrated that proposals will lead to **short-term not significant adverse effects** on lowland mixed deciduous woodlands, hedgerows, badgers, birds, other broadleaved woodlands, other mixed woodlands, scrub and other neutral grassland habitat. However, in the **medium- to long-term, negligible to Not Significant positive effects** are anticipated for all important ecological features.

2.0 INTRODUCTION

2.1 The following Ecological Impact Assessment (EcIA) has been prepared by FPCR Environment and Design Ltd on behalf of the Nutfield Park Developments Limited (Ltd) for the development proposals of Nutfield Green Park, Tandridge (Central OS Grid Ref: TQ 30576 50986) herein referred to as 'the Site'.

2.2 To inform this assessment, a suite of ecological surveys have been undertaken on and around the site. The full reports are appended to this report and include:

- Bat Survey Report (FPCR, 2023)
- Breeding Bird Survey Report (FPCR 2023)
- Bird Strike Risk Assessment (FPCR 2023)
- Great Crested Newt Survey Report (FPCR 2023)
- Hazel Dormouse Survey Report (FPCR, 2023)
- Invertebrate Survey Report (Mark G. Telfer 2023)
- Reptile Survey Report (FPCR, 2023)
- Badger Report (FPCR, 2023)
- Biodiversity Net Gain Report (FPCR 2023)

2.3 The aim of the EcIA is to:

- provide a summary of the methods and results of all new survey work and refer to previous work to establish an ecological baseline;
- identify and describe all potentially significant ecological effects associated with the proposed development on important ecological features;
- set out the mitigation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects;
- provide an assessment of the significance of residual effects;
- identify appropriate enhancement measures and consider biodiversity net gain; and
- set out the requirements for post-construction monitoring.

Site Location and Context

2.4 The Site is approximately 58.8ha in size and is located to the North of the Village of Nutfield in the Tandridge borough area. It comprises a former quarry that has been historically restored and has become dominated by a mix of habitats. A large portion of the site is wooded, with some example of mature semi-natural woodlands present in the south, plantation woodlands in the centre/north of the Site and a large area of self-set birch/willow woodland in the centre of the Site. Two large pasture grasslands are present in the central/northern part of the Site, while a compartment of coarse grassland in present in the south-west of the Site. Small blocks of mixed scrub are scattered around the site while extensive areas of bramble scrub are present in the south-east and south-west. Three waterbodies are also present on Site which comprise two fishing lagoons in the north of the site and a central woodland pond.

2.5 In the surrounding landscape, the Site abuts the residential environs of Nutfield to the south. To the west lies a restored landfill site which sits between the Site and the extant Patteson Court Landfill Site. Eastwards, the landscape comprises a mix of woodlands, pasture grassland, arable fields and the Mercers South Quarry Site to the north-east. To the North lies additional areas of woodland and farmland before the landscape becomes dominated by the residential environs of South Merstham.

Site Proposals

2.6 The proposals include seeking outline planning permission for the development of the site for 166 new homes (Use Class C3) and an Integrated Retirement Community with 70 care home beds and 41 extra case facility beds. In addition, proposals include the creation of new access, landscaping and associated works to facilitate the development, in phases which are severable (Outline with all matters reserved, except for Access).

3.0 LEGISLATION AND POLICY

3.1 Details on relevant national and local policy and legislation for ecology in relation to the development site are provided in Appendix A. The policies and legislation most relevant are:

- The Conservation of Habitats and Species Regulations 2017 (CHSR) (as amended) in relation to the European Protected Species (EPS) great crested newt *Triturus cristatus* (GCN), bats (all species) and hazel dormouse *Muscardinus avellanarius*; and European protected sites i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and Internationally protected "Ramsar Sites" (collectively known as "National Site Network site" following the UK's exit from the EU). Annex II bat species of particular relevance in relation to SACs designated for bats.
- The Wildlife and Countryside Act 1981 (WCA) (as amended) in relation to all wild birds (including Schedule 1 species), other animals (notably Schedule 5 species), flora (those listed in Schedules 8 and 9) and Sites of Special Scientific Interest (SSSI);
- The Environment Act 2021 which covers a range of environmental protections and enhancements including requiring developments to demonstrate a mandatory biodiversity net gain following publication of secondary legislation;
- Protection of Badgers Act (PBA) 1992 which protects badgers from killing or harm;
- Natural Environmental and Rural Communities (NERC) Act 2006 in relation to various priority species and habitats;
- Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995;
- National Planning Policy Framework (NPPF) 2021 which sets out the Governments planning policy for England including measure to conserve and enhance the natural environment by protecting and enhancing value landscapes, recognising the value and wider benefits of natural capital and minimising impacts/providing net gains for biodiversity;
- Local Planning Policy contained within the Tandridge Core Strategy (2008) and Local Plan Part 2: Detailed Policies (2014) and associated Supplementary Planning Documents (SPD) including policy DP19: Biodiversity, Geological Conservation and Green Infrastructure;
- Local Nature Reserves (LNR) as designated most recently by the NERC Act 2006;
- Non-statutory protected local sites including County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) and Ancient Woodland Inventory (AWI) sites;
- Local Biodiversity Action Plans (LBAP); and
- Birds of Conservation Concern (BoCC).

4.0 METHODOLOGY

Historic Surveys

4.1 Historic surveys of the Site were completed to support a recently refused outline planning application (ref: TA/2021/1040) for the construction of 239 new homes, a 70-bedroom rehabilitation and respite care facility with an associated up to 100 extra care units and staff accommodation in 2020. Also included in previous proposals were access, associated green infrastructure and a bell being centre. The results of these surveys are discussed in this report where relevant, with the following surveys completed to inform the previous application:

- Phase 1 Habitat Survey and UKHab Survey
- Badger Surveys
- Bat activity surveys
- Bat roost assessments
- Great Crested Newt Surveys
- Hazel dormouse surveys
- Invertebrate Surveys
- Reptile surveys

Desktop Study

4.2 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:

- Surrey Biodiversity Record Centre (SuBRC);
- Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.defra.gov.uk); and
- Tandridge District Council planning portal[1]

4.3 Further inspection of colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

4.4 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:

- 15km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites).
- 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs) and species records (e.g. protected, Local Biodiversity Action Plan (LBAP) or notable species).

1 Ashford Borough Council Planning Portal - https://planning.ashford.gov.uk/ [Accessed 20.09.2021]

- 1km around the application site for sites of County Importance (e.g. Biological Heritage Sites Local Wildlife Sites(LWS)).

4.5 When handling data, species data were filtered to include records from the previous ten years only to keep the data relevant to the date of this assessment.

UKHab Survey

4.6 A field survey was conducted on the 18th August 2022. Survey methods followed the extended UKHab Survey methodology. This involved a systematic walk over of the Site to classify the broad habitat types and identify any Habitats of Principal Importance (HPI) for the conservation of biodiversity as listed within Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. Habitats were broadly mapped in the field using a detailed topography map produced for the scheme using pens or pencils as appropriate.

4.7 Where feasible, target notes and species lists were compiled for individual areas and assessments of abundance were made using the DAFOR scale. Vascular plant nomenclature follows Stace (2010)[2]. Whilst the species lists collected should not be regarded as exhaustive, sufficient information was gained during the survey to enable classification and assessment of broad habitat types and identify features likely to be of interest.

Invasive Plants, Notifiable Weed Species and Other Notable Flora

4.8 Consideration has been given as to the presence of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA 1981)[3] and the presence of any notable weeds including those covered under the Weed Act 1959[4] (where population is significant enough to be considered injurious).

Faunal Surveys

4.9 Following the initial assessment of the Site for protected/notable species potential, a series of further surveys were completed in 2022/23. Detailed methods are contained within the specific species reports in *Appendix D to J.*

Impact Assessment

4.10 The assessment of significant ecological effects has been undertaken in accordance with CIEEM EcIA guidelines[5]. In summary, the process involves:

- **Establish Baseline** – this is based on desk study and field surveys which describes the existing and potential Important Ecological Features (IEFs) within the zones of influence specified.
- **Determine the Scale of Importance of Ecological Features** - importance is determined using geographical frames of reference: Local, Country, Regional, National and International. This assessment is based on a variety of factors, including statutory protection, statutory designation, conservation status, abundance and rarity.

2 Stace, C.A. (2010). New Flora of the British Isles. (3rd Ed.). Cambridge: Cambridge University Press
3 Act of Parliament, (1981). The Wildlife and Countryside Act 1981 (as amended), London: HMSO.
4 Act of Parliament. (1959). The Weed Act 1959. London: HMSO.
5 CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.1)*. Chartered Institute of Ecology and Environmental Management, Winchester.

- **Assess Significant Ecological Effects** –based on the importance of the ecological feature, magnitude of the effect and sensitivity of the features considered. This is description-based rather than applying a matrix which considers construction and operation effects only where relevant. The assessment assumes the proposed layout, intrinsic mitigation and routine ecological mitigation normally conditioned, and these are outlined clearly.
- **Mitigation** – This will be based on the mitigation hierarchy – avoidance, mitigation, compensation and enhancement. Any further mitigation measures required will be outlined to ensure residual effects are lowered to a level considered acceptable. Enhancements will seek biodiversity net gain in line with the NPPF and Local Plan Policy DP19: Biodiversity, Geological Conservation and Green Infrastructure. Monitoring will be considered where applicable.
- **Future Baseline and Residual Effects** – final conclusionary statements for the short, medium and long term.

Limitations

4.11 This assessment aims to provide baseline ecological data for the Site and as such presents an overview of the habitats and features present during the specific surveys undertaken to date. Due to the transient and complex nature of ecosystems, no investigation can provide a complete representation or prediction of the natural environment present, however every effort has been made to ensure an accurate description of the Site is presented, by following best practice guidance, experience and professional judgement.

4.12 The extended phase 1 habitat survey took into consideration the presence of invasive non-native flora species, however this survey did not constitute a full survey for the presence of this group which would come with its own survey requirements.

4.13 The phase 1 habitat map (*Figure 2*) has been reproduced from detailed field notes and informed by aerial imagery, OS mapping and site maps provided by the client. The accuracy of this figure is therefore ultimately guided by the accuracy of these sources and can only be relied upon to a certain degree of resolution.

4.14 Data provided by third party sources collated during the desktop study is generally made up from a wide range of sources including (but not limited to) those submitted by ecological consultancies, wildlife conservation organisations and volunteers. As such, this data is typically focused on areas of known nature conservation, is reliant upon formal surveys having been undertaken within an area or the presence of an expert within the locality (particularly for invertebrate records) and as such this data can never be fully relied upon as a complete ecological dataset for any given area. Rather, this data is used as a guide to likely presence of notable ecological features and can never be relied upon for likely absence.

4.15 Given the transient nature of natural processes, ecological data should never be relied upon for more than two years from completion of surveys.

4.16 No other limitations specific to this survey influenced this assessment.

5.0 ECOLOGICAL BASELINE

Desk Study

Designated Sites

Statutory Designated Sites

5.1 There is one statutory designation of international conservation importance within 15km of the site. Mole Gap to Reigate Escarpment SAC lies approximately 3.8km west of the Site. This Site is primarily designated for the three Annexe I habitats it supports including the only area of stable box scrub in the UK, orchid-rich calcareous grasslands and yew woodlands.

National designations

5.2 There are no national designations within 2km of the site.

SSSI Risk Impact Zones

5.3 The north-western corner of the Site sits within Natural England's SSSI Risk Impact zone for the following proposals:

- All Planning Applications: All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi-natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.
- Airports, helipads and other aviation proposals.
- Minerals, Oil and Gas: Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
- Air pollution: Any industrial/agricultural development that could cause air pollution (including: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t).
- Combustion: General combustion processes >50MW energy input including: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.
- Discharges: Any discharge of water or liquid waste of more than 5m³/day to ground (i.e. to seep away) or to surface water, such as a beck or stream.

5.4 The remainder of the Site sits within another Natural England SSSI Risk Impact zone for all of the above proposals with the following minor difference:

- Discharges: Any discharge of water or liquid waste of more than 20m³/day to ground (i.e. to seep away) or to surface water, such as a beck or stream.

Non-Statutory Designated Sites

5.5 The majority of the Site is designated as part of the Holmethorpe Sandpits Complex Site of Nature Conservation Importance (SNCI) which is described as containing a range of habitats including lagoons, ruderal communities, marsh, willow carr and rank grassland. It is selected as

being of county importance for birds both as foraging and breeding site. A further five potential SNCIs (pSNCI) lie within the search area including:

- Nutfield Marsh Pond 80m North of the Site
- Foxhole 85m South of the Site
- Denholm Wood 220m South-east of the Site
- Warners Pond 275m North of the Site
- Stanley's Wood 575m South-east of the Site

5.6 No further description or information was provided about any of these pSNCIs by SuBRC .

Protected/Notable Species

5.7 A number of species records from the previous ten years were provided for the area by SBIC. These largely included a range of bird species including the following that are listed on WCA Sch.1: barn owl *Tyto alba*, black redstart *Phoenicurus ochruros*, fieldfare *Turdus pilaris*, green sandpiper *Tringo ohropus*, peregrine *Falco peregrinnus*, redwing *Turdus iliacus* and wood sandpiper *Tringo glareola.*

5.8 Other protected species recorded include several badger *Meles meles* records and chalk hill blue *Polyommatus coridon* records.

5.9 The locations of protected/notable species records provided by BLBRMC are shown on *Figure 1*.

UKHab Survey

5.10 The locations of the habitats described below are illustrated in *Figure 2: UKHab Plan*.

Modified Grassland

5.11 Straddling the central woodland compartment are two large compartments of pasture grassland with a sheep grazed sward characterised by frequent Yorkshire fog *Holcus lanatus,* perennial rye-grass *Lolium perenne* and sweet vernal grass *Anthoxanthum ordoratum*. Herb species include frequent creeping thistle *Cirsium arvense,* marsh thistle *Cirsium palustre* and creeping buttercup *Ranunculus repens* with occasional creeping cinquefoil *Potentilla reptans,* spear thistle *Cirsium vulgare* and mouse-ear chickweed *Cerastium fontanum.* Bird's-foot trefoil *Lotus corniculatus,* germander speedwell *Veronica chamaedrys* and meadow vetchling *Lathyrus pratensis* are rarely recorded in the sward.

Woodlands

5.12 A range of woodland compartments are present onsite which include 'other mixed woodland', 'other broadleaved woodland' and a number of compartments which meet the UKHab definition for Lowland Mixed Deciduous woodland. In general, woodland ground flora exhibited limited diversity and was particularly poor in mixed woodlands and immature self-set woodlands across the site, where dense crowding of trees limited light penetration to the woodland floor. These are each briefly described in Table 1 alongside their UKHab type.

5.13 In accordance with UKHab descriptions, all compartments of Lowland Mixed Deciduous Woodland (W1, W4, W6, W7, W9, W12 and W14) are considered to be priority habitats.

Table 1: Woodland Compartments Present Onsite

Compartment Reference	UKHab Type	Summary description
W1	Lowland mixed deciduous woodland	Semi-natural mature woodland with frequent sycamore, goat willow, silver birch and oaks. Ground flora includes frequent dog's mercury and ground ivy with occasional hybrid bluebell.
W2	Other mixed woodland	Area of self-set immature woodland dominated by goat willow and silver birch. Very limited ground flora on account of dense crowding of immature trees.
W3	Other broadleaved woodland	Small blocks of mixed woodland that includes sitka spruce, Lombardi poplar, silver birch and beach.
W4	Lowland mixed deciduous woodland	Large area of plantation woodland with frequent sitka spruce, Corsican pine, English oak and sycamore. Scrub includes hawthorn, elder and cherry laurel where the canopy was less dense.
W5	Other mixed woodland	The central lagoon has become dominated by self-set immature willows and silver birch. Some mature willows and alder are scattered throughout, but this area largely comprises densely crowded immature trees with a limited ground flora.
W6	Lowland mixed deciduous woodland	Area of mature, semi-natural woodland with English oak, field maple, sycamore, ash, beech and silver birch. The woodland has a varied topography and a more diverse ground flora including wild strawberry, dog's mercury, false brome and common male fern.
W7	Lowland mixed deciduous woodland	Area of self-set immature woodland over former developed land which is dominated by silver birch, willow, sycamore and alder.
W8	Other broadleaved woodland	Area of self-set immature woodland dominated by silver birch which is all a similar age and is densely crowded.
W9	Lowland mixed deciduous woodland	Semi-natural mature woodland with frequent sycamore, goat willow, silver birch and oaks. Ground flora includes frequent dog's mercury and ground ivy with occasional hybrid bluebell. A stand of Japanese knotweed is present in the north of the parcel.
W10	Other mixed woodland	Small area of woodland comprising Corsican pine, silver birch and willows. Some scrub is present including hawthorn and bramble.
W11	Other broadleaved woodland	Area of immature self-set ash trees which are all a similar age and are densely crowded together.
W12	Lowland mixed deciduous woodland	Semi-natural mature woodland with frequent sycamore, goat willow, silver birch and oaks. Limited ground flora due to the use of this area as a bike park.

Compartment Reference	UKHab Type	Summary description
W13	Other broadleaved woodland	Area of establishing broadleaved woodland plantation including poplar, English oak, alders, Norway maple, hybrid black poplar and sycamore. Includes a strip of mature, plantated Lombardy poplar and Italian alder trees with limited ground flora dominated by common nettle and bramble to the south east.
W14	Lowland mixed deciduous woodland	Large area of mixed plantation woodland comprising Scot's pine, Norway spruce, Italian alder, grey alder, sweet chestnut, English oak and ash.
W15	Other broadleaved woodland	Small block of trees including poplars and sycamore.
W16	Other broadleaved woodland	Small block of trees including poplars and sycamore.
W17	Other mixed woodland	Mixed plantation woodland comprising Scot's pine, Norway spruce, Italian alder, grey alder, sweet chestnut, English oak and ash.
W18	Other mixed woodland	Mixed plantation woodland comprising Scot's pine, Norway spruce, Italian alder, grey alder, sweet chestnut, English oak and ash.

Scrub

Bramble Scrub

5.14 Field compartments in the south of the Site previously assessed as being 'other neutral grassland' as part of the baseline study for the previous planning application for the Site has since become heavily encroached upon by bramble *Rubus fruticosus* scrub which now dominates these areas. Some immature hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and elder *Sambucus nigra* shrubs are scattered within the bramble, however these do not cover enough area for this habitat to qualify as mixed scrub. Remnant patches of grassland are scattered throughout, however these are no more characteristic of clearing and/or edge habitat of the bramble scrub. Species include false oat-grass *Arrhenatherum elatius,* Yorkshire fog *Holcus lanatus,* cock's foot *Dactylis glomerate,* common ragwort *Jacobaea vulgaris* and meadow vetchling *Lathyrus pratensis.*

5.15 A stand of the WCA Sch 9 species Japanese knotweed *Reynoutria japonica* is present in bramble scrub that dominates the southwestern development parcel.

Mixed Scrub

5.16 Mixed scrub habitats are present in the north of the Site in association with the fishing ponds (S4 and S5). Species include hawthorn, elder, bramble and sycamore. Common nettle *Urtica dioica* is abundant, scattered amongst these scrub habitats.

5.17 An area of scrub (S3) dominated by bramble but with occasional immature English oak, hawthorn, elder and blackthorn is present in the south-east of the site. Also present in the south

of the Site is a strip of mixed scrub below powerline running through woodlands. Species include abundant bramble with frequent hawthorn and occasional English oak, hawthorn and elder.

Other Neutral Grassland

5.18 The south-westernmost (G1) field compartment comprises a large remnant area of coarse, ungrazed pasture which comprises frequent rough meadow-grass *Poa trivialis,* Yorkshire fog and timothy *Phleum pratense* with occasional hard rush *Juncus inflexus,* self-heal *Prunella vulgaris* and spear thistle. Changing forget-me-not *Myosotis discolor,* red campion and sheep sorrel *Rumex acetosella* are rarely recorded. Small patches of similar grassland are present in the south-east of the Site as well.

5.19 Small patches of this habitat type are also present in the north of the Site (G5) in association with mixed scrub habitats to the north of the fishing ponds. The sward is tightly grazed by rabbits and comprises frequent sweet vernal grass, marsh thistle, Yorkshire fog and rough meadow-grass with occasional teasel *Dipsacus fullonum,* common centaury *Centaurium erythraea* and red fescue *Festuca rubra.* Wild strawberry *Fragaria vesca* and common spotted orchid *Dactylorhiza fuchsia* are rarely recorded.

Non-Priority Ponds

5.20 A densely overgrown pond (Pond P2) is present in the North of the Site. It has a central island dominated by trees and is surrounded by plantation woodlands. These have begun encroaching on the pond and now many willows are growing in the pond itself with many overhanging branches. Exposed roots of bankside trees and mats of algae overhanging the branches indicate that water levels fluctuate drastically. Marginal vegetation is very limited on account of shading from bankside vegetation but includes water figwort *Scrophularia auriculata,* yellow iris *Iris pseudacorus* and soft rush *Juncus effusus.*

5.21 The north-western pond (P1) is a fishing lake which is surrounded by plantation woodland with many overhanging branches. Similarly to pond P2, exposed roots of bankside trees and mats of algae overhanging the branches indicate that water levels fluctuate. Due to its use as a fishing pond, aquatic vegetation is limited and includes fennel pondweed *Potamogeton pectinatus* and duckweeds. Marginal vegetation is very limited and dominated by the invasive New Zealand pygymweed *Crassula helmsii* with occasional pendulous sedge *Carex pendula* and bittersweet *Solanum dulcamara*.

5.22 A third pond (P3) is also present in the central woodland, however this pond was dry at the time of survey and is known to be an ephemeral feature. Dense, dried out algal matts over willow roots indicate that the pond has high nutrient levels.

Hedgerows

5.23 Hedgerows onsite are limited to the eastern Site boundary (H2) and included tall, outgrown features dominated by hawthorn with occasional elder, bramble, willow, dog-rose *Rosa canina*, blackthorn and dogwood. Ground flora comprises grasses within the adjacent grasslands but also included common nettle, cleavers *Galium aparine* and cow parsley *Anthriscus sylvestris.*

5.24 A second hedgerow is also present in the south-west of the site, bordering the A25. This comprised similar species composition including hawthorn, elder, bramble, willow, dog-rose and blackthorn.

5.25 Both hedgerows comprised >80% native species and so are habitats of principal importance.

Ditch

5.26 A single dry ditch (D1) is present alongside, running along the west of woodland compartment W5 at the base of a slope. It did not support any marginal or emergent vegetation indicating that it was likely dry for much of the year.

Protected and Notable Species

5.27 The Site is considered to have the potential to support the following species/groups:

- Badger *Meles meles*
- Bats
- Breeding birds
- Great crested newts (GCN) *Triturus cristatus*
- Hazel dormice *Muscardinus avellanarius*
- Reptiles
- Invertebrates

5.28 Full details of the further surveys are provided in the appended reports, however *Table 2* summarises the key findings during such specific surveys.

Table 2: Protected/Notable Species Surveys Summary

Species/ Group	Site Suitability and Survey Results
Badger (*Appendix D*)	Onsite habitats supported a range of suitable habitats for badgers including woodlands, coarse grassland, scrub and pasture habitats. Several setts have been recorded around the Site including four annexe setts in the south-west. In addition, 4 subsidiary setts and 7 outlier setts were recorded. Evidence of foraging and latrine were widespread around the Site. A possible territory marker was present to the northeast of the central woodland and an annexe sett in the north-east of the Site indicates that there are two possible territories on Site; one associated with an off-site main sett likely present to the west of south of the site and another likely off-site to the east**. Badger are common and widespread in England and the Site is therefore considered to be of no more than Local value for this species. The Protection of Badgers Act 1992 however requires development proposal to have regard for this species.**
Bats (*Appendix E*)	**Trees** – Trees onsite were assessed for their bat roosting potential. Only trees within the development areas were subject to this survey, while other areas of woodland and hedgerows were not subject to further survey as impacts are not anticipated. In total, 29 trees have been identified as having roosting bat potential. Of these, five are located within the development platforms for the Site. Trees T5, T6 and T21 supported high roosting potential features while tree T1 supported moderate roosting potential. These trees were all subject to further survey in 2022/2023 and no roosting bats were identified using the trees. **No trees present onsite support roosting bats, however the woodlands onsite likely provided suitable foraging habitat. The Site is therefore considered to be of Local importance for roosting bats.**
	Habitats – The range of habitats present onsite provide suitable foraging and commuting habitats. Transect and automated static surveys have identified a range of

Species/ Group	Site Suitability and Survey Results
	bats using the Site which for the most part included common and widespread species with the most commonly encountered bats including common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus.* The annexe 2 species, barbastelle, was recorded onsite in August 2022 comprising 2 passes during the transect survey and 2 contacts recorded during the static detector survey occasion. This is not consistent with regular use that could indicate this species using the site as a foraging resource and the passes are therefore considered to represent small numbers of bats commuting across the site only. **The Site provides good foraging and commuting habitat for an assemblage of common and widespread bat species and is therefore considered to be of Local importance.**
Birds (*Appendix F and G)*	The Site forms part of the Holmethorpe Sandpits Complex SNCI which is designated in part for the breeding bird assemblage is supports. The range of habitats present onsite provided foraging and breeding opportunities for an assemblage of generalist, woodland and woodland edge species. Notably, nightingale were recorded as a probably breeding species onsite with a potential breeding territory in the north-west of the Site. **The Site is designated as a SNCI and it is therefore considered to be of County importance for breeding birds.**
Dormice (Appendix H)	The hedgerows and woodland onsite provided suitable commuting and nesting habitat for this species. Surveys undertaken in 2022 and historically have not identified any evidence of hazel dormice, and so it is likely they are absent from the Site. **No evidence or observations of hazel dormice have been identified onsite and this species therefore does not pose a constraint to the proposals and is consequently not discussed further in this report.**
GCN (*Appendix I)*	**Breeding Habitat** – A moderate population of GCN has been recorded within ponds to the north-west of the site during historic surveys. Updated eDNA surveys have confirmed that this population is likely still present, while ponds within 250m of the development area all returned negative results from these surveys. **A moderate population is present in the North-west of the Site within a pond to the East of the onsite fishing pond and the Site is therefore considered to be of Local Importance for GCN.**
	Foraging and Refuge Habitat – Woodland, scrub and coarse grassland habitats onsite provided good foraging and refuge habitat for GCN, while pasture grassland were considered to be of sub-optimal quality for this species. Coarse grasslands were for the most part over 250m from the known GCN population present onsite (with the exception of small areas present in the north of the site in association with scrub habitats.) Habitats within 50m of the GCN breeding pond were for the most part dominated by woodland which likely provided good quality foraging and refuge habitat for GCN. **It is therefore considered likely that GCN onsite will largely be restricted to pond P2 and its associated woodland, scrub and grassland habitats.**
Reptiles (*Appendix J*)	The coarse grasslands, associated scrub and ponds provided good quality foraging habitat for common and widespread reptile surveys. Presence/absence reptile surveys undertaken in June, September and October 2022 and historically have identified a 'low' population of grass snakes was recorded within the onsite habitats. These records were largely associated with waterbodies onsite. **Reptile survey results identified small numbers of grass snake which is considered to be of not more than Local Importance.**
Invertebrates (*Appendix K)*	An extensive invertebrate assemblage was recorded using the habitats within the Site, but the species recorded were typical of the habitats present on the Site. Whilst the results suggested the habitats may provide a significant resource for invertebrate this was considered to be due to the geographical location and the mosaic of habitat present across the Site. Of particular value was an area of more sandy grassland in the northern part of the eastern pasture grassland field compartment. **The invertebrate assemblage recorded across the Site was varied but largely typical of the habitats present and it was therefore considered to be of not more than Local Importance. The area of sandy grassland in the north of the Site was considered to be of Local Importance for the invertebrate assemblage it supports.**

Summary of Important Ecological Features

5.29 The suite of surveys have demonstrated that the proposals have the potential to effect a range of important ecological features. These are summarised in *Table 3* and assigned a geographic context based on survey results, relevant legislation and policy.

Table 3: Important Ecological Features On-Site and within Local Area

Important Ecological Feature	Relevant Legislation/ Policy	Geographic Scale	Rationale
Mole Gap to Reigate Escarpment SAC	NPPF	International (SAC)	This SAC is located within the search area for Statutory Designated Sites of International Importance designated for their biodiversity value.
SSSIs	NPPF	National	The Site lies within a SSSI impact radius which requires all planning applications that will extend existing urban areas to have regard for impacts on SSSIs.
Holmethorpe Sandpits Complex LWS	NPPF, Local Plan	County	The Site forms part of this LWS designation.
pLWSs	NERC S41, Local Plan	Local	The Nutfield Marsh Pond, Foxhole, Denholm Wood, Warners Pond and Stanley's Wood pLWSs were located within 1km of the Site boundary.
Lowland mixed deciduous woodlands	NPPF	Local	A number of woodland compartments onsite comprised this habitat of principle importance for nature conservation. A stand of Japanese knotweed has been identified to the north of W9.
Hedgerows	NPPF	Local	Both hedgerows are dominated by Native species and are therefore habitats of principal importance.
Other broadleaved woodland, other mixed woodland, other neutral grassland, mixed scrub and non-priority ponds	NPPF	Local	These habitats were present in a mosaic across the Site and provided additional opportunities to contribute to botanical and faunal diversity onsite. None were particularly species-rich, however each is considered to be a medium distinctiveness habitat within the BNG metric completed for the Site and so offer some inherent value. A stand of Japanese knotweed has been identified within the dense bramble scrub habitats in the south-western development parcel. New Zealand pygmyweed has also been identified in P1.
Badgers	PBA	Local	The Site likely provides habitat for 2 badger clans, with a main sett of one clan present in the south-west of the Site.
Bats	CHSR, WCA Sched 5, NERC S41	Local	Low levels of barbastelle and common bat species activity on Site. Commuting and foraging opportunities provided by the range of habitats present onsite.
Birds	WCA, NERC S41, Local Plan	County	On-site habitats provided suitable habitat for an assemblage of common and widespread urban edge/generalist species in addition to Nightingale. The Holmethorpe Sandpits Complex is

Important Ecological Feature	Relevant Legislation/ Policy	Geographic Scale	Rationale
			designated in part for the bird assemblage it supports.
GCN	CHSR, WCA Sched 5, NERC S41	Local	A medium population of GCN is present onsite and the Site provides a range of foraging and commuting habitat as well as places of rest and shelter for this species.
Invertebrates	NERC S41	Local	The sandy grassland in the north of the site supported a notable assemblage of invertebrates.
Reptiles	WCA Sched 5, NERC S41	Local	Surveys identified a low population of grass snake onsite, largely in association with wetland habitats.

Where NPPF = National Planning Policy Framework 2019; NERC S.41 = Natural Environment and Rural Communities Act 2006 Section 41; CHSR = Conservation of Habitats and Species Regulations 2017; WCA = Wildlife and Countryside Act 1981.

6.0 IMPACT ASSESSMENT

Development Proposals and Intrinsic Mitigation

6.1 The proposals are for outline planning permission for the development of the site for up to 166 new homes new homes and an Integrated Retirement Community (comprising a 70 bed care home with facilities for 41 bed extra care beds), creation of new access, landscaping and associated works to facilitate the development, in phases which are severable (Outline with all matters reserved, except for Access).

6.2 The proposals sought ecological input during an early phase of the design process to ensure that the impacts on ecological receptors will be kept to a minimum. BNG calculations have been completed (see Appendix L) from an early stage to guide the proposals and ensure that a gain in excess of 20% can be achieved and the results of faunal surveys have been used to ensure negative impacts are kept to a minimum. The proposed scheme includes the following intrinsic ecological avoidance, mitigation and enhancement measures:

- 51.8ha of green infrastructure is proposed, constituting 88% of the total area Site area. This will provide opportunities for habitat creation, including species-rich meadow grassland, mixed scrub, woodlands and wetland habitats.
- Mature trees will be retained and root protection areas (RPA) adequately buffered wherever possible. Tree loss has been kept to a minimum.
- Development platforms have been sited on areas which are currently subject to extensive bramble encroachment and are therefore considered to be of limited ecological value.
- New hedgerow planting around residences throughout the Site.
- Retained woodlands and hedgerows will be protected from damage and to allow sufficient room for management in line with RPAs identified in the Arboricultural Assessment.
- SuDS basins and swales will provide a green/blue corridor through the scheme. These offer opportunities for habitat creation and increased habitat diversity.
- Proposals include additional tree planting within the development area, with them included along streets and within GI areas around the Site peripheries.

Biodiversity Net Gain and Habitat Enhancements

6.3 The development framework has been assessed using the DEFRA Metric Version 4.0. Details of this assessment are provided in Appendix K Based on proposing habitats that are readily achievable and common place in residential development of this type, the BNG calculations will result in a 21.72% gain in habitat units, 72.92% gain in hedgerow units and a 648.14% gain in watercourse units. This will be achieved through the enhancement of existing retained habitats and the enhancement of existing habitats through the creation of native species-rich grasslands, mixed scrub, woodland, hedgerows and new wetland features.

Core Documents

6.4 The following lists the core documents that will secure the mitigation and enhancement measures described in this report. They can be secured through appropriately worded pre-commencement

planning conditions, attached to the application to be submitted and discharged prior to the commencement of works.

1. Construction and Environmental Management Plan for Ecology (CEMP: Ecology): This pre-commencement document contains the necessary Method Statements to ensure protected species are not unlawfully harmed during ground clearance, earthworks and during construction. The document will include an Ecological Constraints and Mitigation Plan drawing that clearly shows the location of constraints and details mitigation required, where necessary. This will also provide measures for removal WCA Sch9 Invasive Non-native plant species from the Site.
2. Habitat Management and Monitoring Plan (HMMP): this provides planting/landscape information that includes both the landscape and ecology features and their management for an appropriate period. The document will include ecological enhancement and management information as appropriate to demonstrate how the biodiversity net gain measures will be delivered and can also include the final Ecological Mitigation and Enhancement Plan that shows location of wildlife boxes and other proposed features.

Historic Applications

6.5 The Site was the subject of a previous planning application (ref: TA/2021/1040) which was refused on 21 September 2021, and Reasons for Refusal (RfR) 14 and 18 related to ecology and nature conservation.

6.6 Reason for Refusal 14 related to the potential effects to the breeding bird assemblage within the Site and the potential effects to the overall breeding bird assemblage within Holmethorpe Sandpits Complex SNCI which the site is located within. Whilst located the Holmethorpe Sandpits Complex SNCI, the habitats within the Site are largely representative of those within the wider SNCI, as such the breeding bird assemblage recorded within the Site would also be present in the wider SNCI. Consequently, the application of the mitigation / compensation proposed development of the Site is unlikely to result in significant effect to the overall assemblage within the SNCI or undermine the overarching designation in the wider environment.

6.7 RFR 18 relates to the potential effects to increases in use of balancing facilities by wetland birds within the flight path of Gatwick Airport. Such use can and will be minimised through the implementation of appropriate design features in any surface water attenuation required. The implementation of such measures are common across the country, therefore the reason for refusal can be easily resolved.

6.8 The scheme design has been significantly altered, including the reduction of the development area, the concentration of proposals in the south of the Site only and the inclusion of large areas of habitat creation and enhancement to address these reasons for refusal.

Assessment of Likely Significant Effects on Important Ecological Features

6.9 The status of the important ecological features (IEFs) identified on site have been reviewed against the proposals and intrinsic mitigation to determine whether there are any impact pathways and whether any of these will lead to a likely significant effect. These are assessed in *Table 4*. The requirement for additional mitigation measures above the intrinsic mitigation has

been considered for each of the IEFs where they can reduce the scale of negative effects or encourage a positive effect.

Table 4: Assessment of Effects on Important Ecological Features

IEF: Mole Gap to Reigate SAC	
Assessment of Impacts	The proposals are for 166 dwellings and an integrated retirement community across 7ha of proposed built environment. The Mole Gap to Reigate Escarpment SAC is considered to be sufficiently distant from the Site that there will be no direct impacts on its designation nor any indirect impacts from construction operations (such as noise or dust deposition). Similarly, the Site is sufficiently distant from the SAC that it is not anticipated to lead to effects on the GCN populations that the Site is designated for. Furthermore, Bechstein's bats were not recorded on-site during bat surveys undertaken and so the Site does not represent an important foraging or commuting resource for the population of this species present within the SAC. It is also considered extremely unlikely that the proposals would lead to a significant effect on the SAC as a result of increased visitor pressure as the proposals include extensive areas of Green Infrastructure (GI) with new walking routes that will be attractive for residents. Consequently, the scheme is not considered likely to lead to an effect on the SAC designation.
Predicted Effect	**Negligible**
IEF: SSSIs	
Assessment of Impacts	The construction phase of development is not expected to have a direct impact on any SSSIs due to the intervening distance between the Site and any nationally designated sites (all over 2km from the Site). It is also considered extremely unlikely that the proposals would lead to a significant effect on any SSSIs as a result of increased visitor pressure as the proposals include extensive areas of Green Infrastructure (GI) with new walking routes that will be attractive for residents.
Predicted Effect	**Negligible**
IEF: Holmethorpe Sandpits Complex LWS	
Assessment of Impacts	The Site forms part of the Holmethorpe Sandpits Complex LWS and consequently the proposals will have a direct effect on this LWS through the loss of areas of bramble scrub, coarse grassland and woodlands. Furthermore, it can be anticipated that construction could lead to indirect impacts on retained habitats within the LWS through factors such as dust deposition and pollution. The proposals have the potential to reduce the suitability of parts of the Site for birds, particularly nightingale, thereby reducing the value of the LWS designation.
Predicted Effect	**Not Significant negative effect at a County Scale**
Mitigation	The proposals include the retention and enhancement of a significant portion of the site (88%). Retained habitats will be protected through the installation of fencing as detailed in the Arboricultural Assessment produced for the application. Works will be undertaken in accordance with a CEMP which will provide details on how potential indirect construction impacts associated with the proposals will be managed to prevent harm to retained habitats
Compensation	Green infrastructure proposals will see the existing pasture grasslands of low ecological value enhanced to native species-rich meadow grasslands through the introduction of an appropriate seed mix and/or green hay from a suitable local donor site. This will significantly enhance the ecological value and diversity of grassland habitats onsite. All retained woodlands will be enhanced through the implementation of long-term woodland management for an appropriately agreed period which will enhance their biodiversity value. New ponds will be created, including a series of cascading features connected by naturalised swales. These have been designed as part of the Site drainage measures to ensure that the existing ephemeral pond in the centre of the site will be able to hold water throughout the year. Other existing ponds will be enhanced through the clearance of dense tree cover on the banks which is currently causing significant shading to the margins preventing the establishment of a diverse emergent and aquatic vegetation assemblage. Planting will include the introduction

	of a diverse range of marginal, emergent and aquatic vegetation to boost the biodiversity value of ponds. Habitat creation measures will also see the introduction of mixed scrub and woodland planting. This will ensure that overall, the total area of woodland will remain the same as prior to the development with an equivalent area of woodland being planted to that lost. Planting of both habitats will ensure a diverse range of canopy, understorey and ground flora planting will be included. Finally, additional native species-rich hedgerows will be incorporated within the development areas to help maintain connectivity across the Site. Therefore, while overall there will be a decrease in the area of GI onsite, the above measures will provide a significant enhancement of the ecological value and diversity of onsite habitats.
Residual Effects	**Short-term not significant Negative Effect, Medium- to Long-term Not Significant Positive Effect at a County Scale**
pLWSs	
Assessment of Impacts	The construction phase of development is not expected to have a direct impact on any pLWSs due to the intervening distance between the Site and any nationally designated sites (all over 2km from the Site). It is also considered extremely unlikely that the proposals would lead to a significant effect on any SSSIs as a result of increased visitor pressure as the proposals include extensive areas of GI with new walking routes that will be attractive for residents. The CEMP produced for the scheme will further reduce the likelihood of indirect effects on these sites.
Predicted Effect	**Negligible**
Lowland Mixed Deciduous Woodland	
Assessment of Impacts	The proposals will result in the loss of 2.13ha of woodlands, including 1.36ha of priority habitat lowland mixed deciduous woodland. The proposals have been designed to ensure that good condition examples of the priority habitat Lowland Mixed Deciduous Woodland will be retained. There will be in an overall decrease of this habitat on site. The woodland losses are primarily comprised of self-set birch and willow woodlands that are considered to be poor quality examples of this habitat and while meeting the definition of a priority habitat, they are not exceptional in their diversity nor structure. They largely consist of single-story woodlands within the central lagoon that have limited ground flora and not distinct understorey. Trees are primarily of the same age and are densely crowded, limiting growth. Therefore, while there will be a loss of habitat of principle importance, this is not considered to be significant.
Predicted Effect	**Not significant negative at a Local Scale**
Mitigation	Retained woodlands will be protected through the installation of fencing as detailed in the Arboricultural Assessment produced for the application. Works will be undertaken in accordance with a CEMP which will provide details on how potential indirect construction impacts associated with the proposals will be managed to prevent harm to retained habitats. The CEMP will also detail measures for removing the Japanese knotweed present to the north of W9.
Compensation	All retained woodlands will be enhanced through the implementation of long-term woodland management for an appropriately agreed period to enhance their biodiversity value. Enhancement will also include the selective thinning of trees, the retention of deadwood onsite and the introduction of a more diverse ground flora through the introduction of seed and/or targeted plug planting. A program of non-native invasive species eradication will be implemented to prevent the continued encroachment of these plants. Habitat creation measures will also see the introduction of native woodland planting. This will ensure that overall, the total area of woodland will remain the same as prior to the development with an equivalent area of woodland being planted to that lost. This habitat will be planted using a diverse range of native canopy trees species and understorey shrubs along with the introduction of an appropriate seed mix to boost the ground flora. Planting will employ naturalised planting patterns to target the creation of lowland mixed deciduous woodland to ensure that the scheme will not result in a loss of woodland habitat.
Residual Effects	**Short-term Negative, Medium- to Long-term Negligible at a Local Scale**

Hedgerows	
Assessment of Impacts	Proposals retain the majority of hedgerows, which are limited on site. The retained hedgerows along the east of the Site will be sufficiently distant from the construction operations that indirect impacts are not anticipated. A small section of hedgerow H1 in the south-west of the Site will be lost to facilitate the construction of an access road into the Site. The retained sections of hedgerow H1 will be in close proximity to construction works and are susceptible to damage either through direct accidental above ground damage, or through damage to roots through compaction. This hedgerow is a habitat of principal importance Suitable compensation through new hedgerow planting will be undertaken and will include only native species planting so that all new hedgerows will qualify as habitats of principal importance as they mature. No likely significant effect is anticipated on this habitat type, due to the limited loss and additional planting proposed. It is recognised that there will be a short-term loss in the overall presence of mature hedgerows while compensatory planting establishes, but this is not considered to be significant given the small-scale loss and the overall abundance of hedgerow and tree line habitats in the local area.
Predicted Effect	**Not Significant Negative Effect at a Local Scale**
Mitigation	In order to maintain the integrity of the retained hedgerows and avoid their degradation through individual residential management (i.e. removal of sections, excessive cutting by homeowners), where possible existing hedgerows will not be incorporated into gardens and will instead be managed as part of the site-wide green infrastructure.
Compensation	To compensate for the partial losses in hedgerow H1, native hedgerow planting will take place throughout the Site in excess of that to be lost and this will use a mix of native species to create species-rich hedgerow features.
Enhancement	None
Residual Effects	**Short-term Not Significant Negative Effect at a Local Scale and a Medium- to Long-term Negligible to Not Significant Positive Effect at a Local Scale**
Other broadleaved woodland, other mixed woodland, other neutral grassland, mixed scrub and non-priority ponds	
Assessment of Impacts	The proposals will result in direct losses of these habitats, and it can be anticipated that construction could lead to indirect impacts on retained habitats through factors such as dust deposition and pollution. These habitats were not identified as being particularly diverse and were largely characterised by species poor grasslands, bramble scrub and plantation woodlands. Therefore, the anticipated losses are not considered to be significant
Predicted Effect	**Not Significant negative effect at a Local Scale**
Mitigation	The proposals include the retention and enhancement of a significant portion of the site (88%). Retained habitats will be protected through the installation of fencing as detailed in the Arboricultural Assessment produced for the application. Works will be undertaken in accordance with a CEMP which will provide details on how potential indirect construction impacts associated with the proposals will be managed to prevent harm to retained habitats. The CEMP will also detail measures for preventing the spread of new zealand pygmyweed from pond P1.
Compensation	Green infrastructure proposals will see the existing pasture grasslands of low ecological value enhanced to native species-rich meadow grasslands through the introduction of an appropriate seed mix and/or green hay from a suitable local donor site. This will significantly enhance the ecological value and diversity of grassland habitats onsite. All retained woodlands will be enhanced through the implementation of long-term woodland management for an appropriately agreed period which will enhance their biodiversity value in the long-term. Other broadleaved woodlands and other mixed woodlands will be enhanced through selective thinning and the introduction of additional tree planting. Selective thinning of other mixed woodlands will target non-native pines to reduce the shading effects they are currently causing and allowing light to penetrate to the woodland floor. Ground flora will be enhanced though the introduction of a more diverse ground flora through the introduction of seed and/or targeted plug planting. A program of non-native invasive species eradication will be

	implemented to prevent the continued encroachment of these plants. New ponds will be created, including a series of cascading features connected by naturalised swales. These have been designed as part of the Site drainage measures to ensure that the existing ephemeral pond in the centre of the site will be able to hold water throughout the year. Other existing ponds will be enhanced through the clearance of dense tree cover on the banks which is currently causing significant shading to the margins preventing the establishment of a diverse emergent and aquatic vegetation assemblage. Planting will include the introduction of a diverse range of marginal, emergent and aquatic vegetation to boost the biodiversity value of ponds. Habitat creation measures will also see the introduction of mixed scrub and woodland planting. This will ensure that overall, the total area of woodland will remain the same as prior to the development with an equivalent area of woodland being planted to that lost. Planting of both habitats will ensure a diverse range of canopy, understorey and ground flora planting will be included. The biodiversity net gain assessment completed for the scheme has demonstrated that the proposals will lead to a gain in excess of 20%. Therefore, while overall there will be a decrease in the area of GI onsite, the above measures will provide a significant enhancement of the ecological value and diversity of onsite habitats.
Residual Effects	**Short-term not significant Negative Effect, Medium- to Long-term Not Significant Positive Effect at a Local Scale**
Badgers (Appendix D)	
Assessment of Impacts	The majority of setts across the Site will be retained, including the main sett S6. The proposals will likely result in disturbance to setts S9, S10, S11 and S13. S9 and S10 which lie within the western development parcels. These setts will therefore require closure until a Natural England Derogation Licence has been obtained prior to work commencing onsite. Setts S11 and S13 are likely to be indirectly impact and should therefore be closed temporarily to facilitate works. In addition, the proposals will result in an overall reduction of foraging habitat available for badgers through the loss of woodlands, scrub and grassland habitats. These effects are not considered to be significant as badgers are common and widespread in England and the scale of proposals is unlikely to effect more than a single clan of badgers. During construction, there is a risk of badgers becoming trapped and killed or injured within open trenches.
Predicted Effect	**Not Significant Negative Effect at a Local Level**
Mitigation	The proposals include extensive habitat creation and enhancement measures across approximately 88% of the site area. This will enhance the existing foraging habitats for badgers. The retention of the majority of woodlands onsite and the planting of new large-scale areas of woodland and scrub will provide additional sett building habitat to allow the onsite clan to dig new setts to replace those lost to the proposals. The CEMP produced for the Site will include measures to protect badgers from harm during construction. This can include measures such as covering trenches overnight, fencing and restricting working hours.
Enhancements	Planting of new areas of mixed scrub should include a range of fruit-bearing species to provide additional optimal foraging habitat for Badgers.
Residual Effects	**Short-term Negative Effect at a Local Level, Medium- to Long-term Negligible to Positive Effect at a Local Level.**
Bats (Appendix E)	
Assessment of Impacts	The Site offers a range of habitats that provide suitable commuting, foraging and roosting opportunities for bats. Surveys have demonstrated that no trees within the proposed development areas have been identified as bat roosts and so the potential presence of a roost does not pose a constraint to the proposals. Activity surveys conducted onsite have demonstrated that the Site is used by a range of common and widespread bat species, utilising the Site. A peak of 2 contacts of barbastelle bats were recorded during transect surveys and a peak of 2 registrations were recorded during static detector surveys. Barbastelle bats, an annexe 2 species, were recorded using the Site but are not thought to be reliant on the habitats, with records likely comprising commuting bats passing through the Site. The majority of commuting and foraging habitats (hedgerows and tree lines) will be retained including the majority of woodlands and mixed scrub habitats. The proposals will result in significant enhancements to existing habitats that will enhance

	foraging opportunities for bats by providing better habitat for invertebrate prey species. New species-rich meadow grasslands in particular will provide excellent foraging habitat for this species group. Proposals will increase light levels onsite through the introduction of building and street lighting, which would reduce the suitability of retained hedgerows and created habitats. The habitats used by bats onsite are widely available in the surrounding area. Therefore, the reduction in suitability of the on-site habitats due to lighting is not considered likely to cause a significant effect given the relatively low number of bats recorded.
Predicted Effect	**Not Significant Negative Effect at a Local Scale**
Mitigation	Measures to reduce light spill will be detailed in the CEMP produced for the scheme. This will include the maintenance of dark corridors along retained and newly created habitats used by bats for foraging and commuting.
Enhancement	Woodcrete bat boxes (Schwegler or similar design) will be installed on retained mature trees and on new dwellings throughout the Site (where possible) to increase roosting opportunities.
Residual Effects	**Negligible to Not Significant at a Local Scale**
Birds (Appendix F and G)	
Assessment of Impacts	The Site largely supports an assemblage of common and widespread urban edge, woodland and generalist species. Of note, breeding nightingale have been recorded on site. The habitat creation and enhancement measures will improve the quality of foraging and breeding habitats for the assemblage recorded. The proposals include significant additional scrub planting which will be managed to created glades, rides and clearings throughout which will provide additional areas of optimal habitat for nightingale that will be managed for a an appropriately agreed period to ensure long-term habitat is available for this species. Additional habitats including wetland with marginal vegetation will also attract additional species including reed bunting, reed warbler and sedge warbler. The wetlands will be designed to sit alongside scrub planting to ensure they do not attract significant groupings of wildfowl that could lead to an increased bird strike risk at Gatwick Airport. The proposals will therefore result in beneficial effects to the bird assemblage recorded. Construction activities during breeding bird season could negatively impact nesting birds within habitats on site.
Predicted Effect	**Short-term Not Significant Negative Effect and a Medium- to Long-term Not Significant Positive Effect at a Local Scale**
Mitigation	Vegetation removal will be avoided during breeding bird season or will be carried out immediately following a nesting bird check by a suitably qualified ecologist. Mixed scrub habitats will be designed to ensure significant areas are inaccessible by humans. This will chiefly be achieved through the design of scrub to ensure glades, rides and clearings are largely maintained within the interior of scrub blocks (with the exception of management access routes). Scrub will also be allowed to develop diverse edge habitats to further restrict human access. This will further promote the suitability of these areas to increase the amount of optimal breeding habitat for Nightingale onsite.
Enhancement	The inclusion of green infrastructure planting and the maturation of gardens will lead to additional opportunities for a range of species. A mixture of nest boxes, such as the 1B Schwegler nest box or similar woodcrete design will increase nesting opportunities. Nest boxes specifically designed for urban species such as house sparrow, house martin and starling will also be provided. These also provide protection against predators.
Residual Effects	**Short-term Not Significant Negative Effect and a Medium- to Long-term Not Significant Positive Effect at a Local Scale**
GCN (Appendix I)	
Assessment of Impacts	GCN were only present within pond to the north of the site which are over 250m from the development proposals. Consequently, there will be no direct effects to this species. The series of drainage pools designed across the site will ensure there is sufficient capacity to ensure the proposals do not result in indirect impacts to the populations of GCN present within the northern ponds. The creation and enhancement of wetland, grasslands, scrub and woodlands will lead to an increase

	in optimal foraging and breeding habitat for this species allowing it to colonise a greater extent of the site. Consequently, the proposals will result in beneficial effects for great crested newts.
Predicted Effect	**Not Significant Positive Effect at a Local Scale**
Mitigation	To further prevent any likelihood of harm to GCN, the CEMP will include a precautionary working method statement that will provide measures to reduce the risks of GCN being harmed during habitat enhancement works within 250m of the onsite breeding pond.
Residual Effects	**Not Significant Positive Effect at a Local Scale**
Invertebrates (Appendix J)	
Assessment of Impacts	A notable invertebrate assemblage was recorded within sandy grassland in the north of the site. This area will be retained and suitably buffered/protect throughout the proposals ensuring there will be no significant residual effects on the invertebrate assemblage noted. Habitat creation and enhancement works across the majority of the site will improve foraging, breeding and shelter resources for invertebrate species.
Predicted Effect	**Not Significant Positive Effect at a Local Scale**
Reptiles (Appendix K)	
Assessment of Impacts	A low reptile population was identified onsite where they were largely associated with wetland habitats. These habitats will be retained and enhanced throughout the proposals and the range of habitat enhancement measures will significantly increase the availability of foraging and commuting habitat for reptiles. There is an increased risk of harm during construction and road fatalities with newly created roads. Residential developments also increase the risk of cat predation.
Predicted Effect	**Not Significant Positive Effect at a Local Scale**
Mitigation	Prior to vegetation clearance, a passive displacement exercise will be undertaken within the development parcels to ensure reptiles are not harmed, injured or kill during works, with methods detailed in a CEMP. This should focus on the western field compartment. New hedgerow planting should include thorny species to provide corridors with some protection against cats and more log piles should be installed within the open green space adjacent to hedgerows and tree lines to provide more opportunities for refuge.
Enhancement	Log piles and an artificial hibernaculum will also be provided to offer places of refuge, as well as suitable hibernation habitat. These can be placed on the edges of proposed species-rich meadow grassland habitats.
Residual Effects	**Not Significant Positive Effect at a Local Scale**

7.0 CONCLUSIONS

7.1 The suite of ecology surveys identified a range of important ecological features on Site and within its zone of influence. The impacts on these were assessed against the proposals for a residential development of Nutfield Green Park.

7.2 The assessment has demonstrated that in the absence of mitigation, proposals would lead to, at most, a **significant negative effect at a local level** due to the direct impacts anticipated on the Holmethorpe Sandpits Complex LWS**.**

7.3 Proposals have from been landscape and ecology led from an early stage in the process, ensuring that the scheme can be designed to mitigate for negative effects associated with the construction proposals and anticipated habitat losses. Biodiversity net gain calculations were completed early in the design process to ensure that losses of higher distinctiveness habitats could be minimised and that sufficient opportunities for habitat creation and enhancement could be incorporated into the proposals. This has led to the proposals comprising 88% green infrastructure, with over 50ha of the Site being enhanced with ecology as a focus. This will comprise new species-rich grasslands, woodland habitats, wetlands and scrub in addition to the enhancement of retained habitats wherever possible.

7.4 Though this combination of intrinsic mitigation, targeted mitigation, compensation and enhancement detailed within this EcIA and appendices, have demonstrated that the proposals will lead to **short-term not significant negative effects** on the Holmethorpe Gravel Pits LWS, Lowland Mixed Deciduous Woodlands, Hedgerows, badgers and breeding birds. However, in the mid- to long-term, **negligible to not significant positive effects are anticipated for all important ecological features.**

7.5 The proposals will lead to a Biodiversity net gain in excess of 20% for habitat, hedgerow and watercourse units highlighting the ecological benefits that the scheme will deliver. In addition, targeted fauna enhancement measures will provide additional opportunities to enhance the ecological value of the Site.

Key

- Nutfield Site Boundary
- 2km Buffer
- SNCIs
- Beetle Species
- Flowering Plant Species
- Spider Species
- Box Plant Species
- Brown Long-eared Bat
- Brown Tree Ant
- Canada Goose
- Cetti's Warbler
- Common Lizard
- Common Pipistrelle
- Common Toad
- Dunnock
- Few-Flowered Garlic
- Grass Snake
- Great Crested Newt
- Greenfinch
- Greylag Goose
- House Martin
- Japanese Knotweed
- Kestrel
- Long-eared Bat species
- Long-horned General
- Mallard
- Meadow Pipit
- Montbretia
- Moorhen
- New Zealand Pigmyweed
- Noctule Bat
- Pipistrellle sp.
- Red Kite
- Reed Bunting
- Round-leaved Mint
- Serotine
- Slow-worm
- Smooth Newt
- Soprano Pipistrelle
- Three-cornered Garlic
- Wall Bedstraw
- Wall Cotoneaster
- West European Hedgehog
- Whitethroat
- Woodpigeon

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masterplanning ■ environmental assessment ■ landscape design ■ urban design ■ ecology ■ architecture ■ arboriculture

0 500 1,000 m

client
Nutfield Park Developments Ltd

project
Nutfield Green Park, Tandridge

drawing title
CONSULTATION PLAN

scale @ A3
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FK / DS

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Figure 1

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Key

- Red Line Boundary
- Native hedgerow
- Species-rich native hedgerow
- Ditches
- Artificial unvegetated, unsealed surface
- Bramble scrub
- Developed land; sealed surface
- Hawthorn scrub
- Lowland mixed deciduous woodland
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (non-priority habitat)

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0 50 100 m

client
Nutfield Park Developments Ltd

project
Nutfield Green Park

drawing title
UKHAB SURVEY HABITAT PLAN

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drawn
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Figure 1

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APPENDIX A: RELEVANT LEGISLATION, POLICY AND GUIDANCE

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

1.1 The Regulations ensure that the habitat and species protection and standards derived from EU law as per "The Habitat Regulations" Amendment will continue to apply after Brexit.

European Protected Sites

1.2 The Habitats Regulations ratifies into UK law the "Habitats Directive" (92/43/EEC) and the "Birds Directive" (79/409/EEC). It places a duty on the Secretary of State to propose a list of sites which are important for species listed in Annex I and II of the Habitats Directive respectively to the European Commission. Once the Commission and EU Member States have agreed that the sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs). The EU Member States must then designate these sites as Special Areas of Conservation (SACs) within six years.

1.3 The Regulations require the compilation and maintenance of a register of European sites to include SACs as well as Special Protection Areas (SPAs) designated for birds and sites designated as internationally important wetlands under the Ramsar Convention known as "Ramsar Sites". These three designations form a collective Europe wide network of internationally protected sites known as Natura 2000. All European sites are also designated under UK law as Sites of Special Scientific Interest (SSSIs; please see below).

Habitats Regulation Assessment

1.4 There is a requirement under EU law that Member States' take measures to reach and maintain European Protected Sites' at Favourable Conservation Status (FCS). An Appropriate Assessment is required for plans or projects that may potentially damage a European Protected Site. This is based on an assessment against a given European Protected Site's Conservation Objectives. The process is commonly known as a Habitats Regulations Assessment (HRA).

1.5 The HRA must be conducted by, or on behalf of, the Competent Authority. The HRA process assesses plans or projects alone or in combination. It involves a four-stage approach as follows:

- Stage One: Screening - also known as the Test of Likely Significant Effect (TOLSE). If the Competent Authority cannot screen out a *likely significant effect,* an Appropriate Assessment is required.
- Stage Two: Appropriate Assessment - the Competent Authority will only agree to plans or projects that will not affect the *integrity* of a European site also known as the "Integrity Test".
- Stage Three: Alternative Solutions - assesses any alternative solutions of a potentially damaging plan or project that failed the Integrity Test, and if it is determined there are no alternative solutions, the project cannot be agreed to and it will either need to be changed or refused.
- Stage Four: The final stage may allow a plan or project to proceed if after failing stage three if it is for Imperative Reasons of Overriding Public Interest, and only if suitable compensatory measures are secured.

1.6 Any plan or project that may have a potentially damaging effect on a transient species or the habitat on which it relies (for example bats or birds), that is both a Qualifying Features of a European Protected Site and considered *functionally linked* with a European Protected Site, are required under law to be considered as part of any HRA process.

European Protected Species

1.7 The Habitats Regulations includes a list of animals and plant species taken from the Annex IV of the Habitats Directive that have a natural range in Great Britain. These are collectively known as European Protected Species (EPS) and are listed in Table 1. The regulations make it an offence to deliberately capture, kill, disturb, take or destroy eggs of, or damage or destroy a breeding or resting place of animals listed in Schedule 2 of the Regulations, and to pick, collect, cut, uproot or destroy wild plants listed in Schedule 5 of the Regulations. They also protect these species alive or dead and parts thereof from various forms of possession and trade.

Table 1: The Habitats Regulations Schedule 2 and Schedule 5 species

	Common Name	Scientific Name
Schedule 2 – European Protected Animal Species	Horseshoe bats – all species	*Rhinolophidae*
	Bats – all species	*Vespertilionidae*
	Large blue butterfly	*Maculinea arion*
	Wild cat	*Felis silvestris*
	Dolphins, porpoises & whales - all species	*Cetacea*
	Hazel dormouse	*Muscardinus avellanarius*
	Pool frog	*Rana lessonae*
	Sand lizard	*Lacerta agilis*
	Fisher's estuarine moth	*Gortyna borelii lunata*
	Great crested newt	*Triturus cristatus*
	Otter	*Lutra lutra*
	Lesser Whirlpool Ram's-horn snail	*Anisus vorticulus*
	Smooth snake	*Coronella austriaca*
	Sturgeon	*Acipenser sturio*
	Natterjack toad	*Bufo calamita*
	Marine turtles	*Caretta caretta* *Chelonia mydas* *Lepidochelys kempii* *Eretmochelys imbricata* *Dermochelys coriacea*
Schedule 5 – European Protected Plant Species	Shore dock	*Rumex rupestris*
	Killarney fern	*Trichomanes speciosum*
	Early gentian	*Gentianella anglica*
	Lady's-slipper	*Cypripedium calceolus*
	Creeping marshwort	*Apium repens*
	Slender naiad	*Najas flexilis*
	Fen orchid	*Liparis loeselii*
	Floating-leaved water plantain	*Luronium natans*
	Yellow marsh saxifrage	*Saxifraga hirculus*

1.8 These actions may be made lawful in certain circumstances through the granting of licences by the appropriate authority (Natural England). Licences must only be granted after the appropriate

authority is satisfied that no satisfactory alternatives are available. In most circumstances, licences are only applied for and granted following full planning permission.

1.9 In determining whether or not to grant a licence Natural England must apply the requirements of The Conservation of Habitats and Species Regulations 2012 (amendment) and, in particular, the three derogation tests:

- Test 1: A licence can be granted for the purposes 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: The appropriate authority shall not grant a licence unless they are satisfied "that there is no satisfactory alternative".
- Test 3: The appropriate authority shall not grant a licence unless they are 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.

Wildlife and Countryside Act 1981 (as amended)

1.10 The Wildlife and Countryside Act 1981 (WCA) (as amended) is the principal legislation providing protection for wildlife in the UK. It prescribes legislation for wild birds, other animals, wild plants and non-native species. In addition, it provides for the designation of Sites of Special Scientific Interest (SSSI) in England.

Wild birds

1.11 The WCA as amended by Schedule 12 of the Countryside and Rights of Way Act 2000 makes it an offence (with exception to species listed in Schedule 2) to intentionally or recklessly:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006); or
- take or destroy an egg of any wild bird.

1.12 For birds listed on Schedule 1 of the WCA, protection extends to offences relating to the intentional or reckless disturbance of these birds while at their nests or their dependent young.

Other animals

1.13 The WCA (as amended) makes it an offence to (subject to exceptions) intentionally or recklessly kill, injure or take wild animals listed on Schedule 5 of the Act. For some species, the protection extends to interference with places used for shelter or protection, or disturbing animals occupying or obstructing access to such places. These species are regarded as "fully protected" and as well as the EPS species listed above include the mammal species water vole *Arvicola terrestris*, pine marten *Martes martes* and red squirrel *Sciurus vulgaris* as well as selected others from a range of species groups including, fish, butterflies, hemipteran bugs, beetles, crickets, dragonflies, moths, spiders, crustaceans, sea-mats, molluscs, Annelid worms and sea anemones (and allies).

1.14 There are seven species on Schedule 5 of the Act that not fully protected but are still protected against killing and injuring these include the common reptile species slow worm *Anguis fragilis*, viviparous lizard *Lacerta vivipara*, grass snake *Natrix natrix* and adder *Vipera berus*.

1.15 The Act prohibits certain methods of killing, injuring, or taking wild animals, and numerous species are protected against sale only as well as other variations for example Atlantic stream (white-clawed) crayfish *Austropotamobius pallipes* are protected against taking and sale.

Vascular plants, bryophytes, lichens and fungi

1.16 With regards to native flora the Act makes it an offence to (subject to exceptions) intentionally or recklessly pick, uproot or destroy any wild plant listed in Schedule 8. Similarly, the Act prevents the sale, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native species

1.17 The Act 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 in England and Wales.

Sites of Special Scientific Interest

1.18 The Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs). These sites can be identified for their flora, fauna, geological or physiological interest. In England, the power to confirm an SSSI lies with Natural England.

1.19 Laws protecting areas designated as SSSIs are described in Sections 28 to 33 of Part 2 of the Wildlife and Countryside Act 1981 (as amended). SSSIs are the principle statutory designation of sites in the UK and offences are enforced through Natural England. Offences include the following:

SSSI owners and occupiers

- carrying out, causing or allowing operations likely to damage an SSSI without Natural England consent.
- failing to keep to a management notice.
- failing to let us know about a change in ownership or occupation of land in an SSSI.

Public bodies

- carrying out or authorising operations likely to damage an SSSI without meeting the requirements to notify Natural England.
- failing to minimise any damage to an SSSI and if there is any damage, failing to restore it to its former state so far as is reasonably practical and possible.

Any person

- intentionally or recklessly damaging, destroying or disturbing any of the habitats or features of an SSSI.
- intentionally or recklessly damaging, destroying, obscuring or taking down a site notice put up on land within an SSSI.
- preventing a Natural England officer lawfully accessing an SSSI.

Environment Act 2021

1.20 The act became law on 10th November 2021 and covers a range of environmental protections and enhancements. It is enforced by an independent Office for Environmental Protection (OEP). In relation to nature and biodiversity, the act will deliver:

- Strengthened biodiversity duty
- A requirement for developments to deliver at least 10% biodiversity net gain
- Local Nature Recovery Strategies
- Protected Site Strategies and Species Conservation Strategies
- Conservation Covenants
- Strengthened woodland protection enforcement measures

Protection of Badgers Act 1992

1.21 Badgers and their setts are protected under the Protection of Badgers Act 1992. This act is based on the need to protect badgers from persecution by baiting and deliberate harm or injury.

The act makes it an offence to:

- intentionally capture, kill or injure a badger;
- damage, destroy or block access to their setts;
- disturb badgers in setts;
- treat a badger cruelly;
- deliberately send or intentionally allow a dog into a sett; and
- bait or dig for badgers.

A sett is defined as:

"Any structure or place that displays signs indicating current use by a badger".

Natural Environmental and Rural Communities (NERC) Act 2006

1.22 Section 40 of the NERC Act 2006 imposes a duty on every public authority to conserve biodiversity in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

1.23 Section 41 (S41) of the NERC Act 2006 requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK BAP List of Priority Species and Habitats. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006.

National Planning Policy Framework (NPPF) 2023

1.24 The National Planning Policy Framework (NPPF) sets out the Government's planning policy for England. As such, the NPPF must be a material consideration for local authorities when considering planning decisions. The following relate to ecology/biodiversity:

Policy 15 – Conserving and enhancing the natural environment

170. The planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

171. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

172. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks. Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

174. When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other

developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

176. The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;
b) listed or proposed Ramsar sites; and
c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Area of Conservation, and listed or proposed Ramsar sites.

177. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Local Nature Reserves

1.25 Local Nature Reserve (LNR) is a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006 by principal local authorities.

1.26 Local authorities have the powers to acquire, declare and manage LNRs. Parish and town councils can declare LNRs providing power is given by the district or county council. LNRs may or may not have other statutory designations such as SSSI status. LNRs must be controlled by the local authority through ownership, lease or agreement with the owner. The main aim must be to care for the natural features which make the site special. LNRs are of local, but not necessarily national, importance.

1.27 LNRs are usually owned by local authorities, with management often passed onto other organisations such as County Wildlife Trusts etc. They often have good public access and facilities. There is no legal necessity to manage an LNR to any set standard but management agreements and plans often exist. Protection of LNRs is usually provided through local planning policy and through local bylaws.

Non-Statutory Protected Local Sites

1.28 Non-statutory Designated Sites are sites designated by local authorities which fall outside the statutory criteria for designation. They are policy protected and included in the National Planning Policy Framework (NPPF) as “Local Sites”. Local Planning Authorities should set criteria-based policies against which proposals for developments on or affecting protected wildlife sites should be

judged. Non-statutory sites are given various names including County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC) and Local Wildlife Sites (LWS). to this end Ancient Woodland Inventory (AWI) sites are also considered non-statutory sites.

Hedgerows

1.29 Hedgerows are designated as Habitats of Principal Importance under the NERC Act 2006. The National Planning Policy Framework (NPPF) emphasises the preservation, restoration and re-creation of priority habitats and ecological networks. Hedgerows are important components of ecological networks linking other important habitats and designated sites.

1.30 Hedgerows also receive statutory protection under the Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995, which came into force in 1997. The regulations introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Local Biodiversity Action Plan (LBAP)

1.31 Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Birds of Conservation Concern (BoCC)

1.32 The Birds of Conservation Concern (BoCC) is jointly prepared by the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

1.33 The report classifies birds according to the extent that they are known to be declining. The classifications are split into groups, Red, Amber and Green, with species classified as Red being those with the greatest declines. The criteria for classifications are presented in *Table 2*.

Table 2: BoCC species classification criteria

Red List Criteria	**Global Conservation Status** - Species listed by BirdLife International as being Globally Threatened using IUCN criteria
	Historical Decline - A severe decline in the UK between 1800 and 1995, without substantial recent recovery.
	Breeding Population Decline - Severe decline in the UK breeding population size, of more than 50%, over 25 years or the entire period used for assessments since the first BoCC review, starting in 1969 ("longer-term").
	Non-breeding Population Decline - Severe decline in the UK non-breeding population size, of more than 50%, over 25 years or the longer-term.
	Breeding Range Decline - Severe decline in the UK range, of more than 50%, as measured by number of 10 km squares occupied by breeding birds, over 25 years or the longer-term.
Amber List Criteria	**European Conservation status** - Categorised as a Species of European Conservation Concern
	Historical Decline – Recovery - Red listed for Historical Decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years).

	Breeding Population Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).
	Non-breeding Population Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).
	Breeding Range Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).
	Rarity - UK breeding population of less than 300 pairs, or non-breeding population of less than 900 individuals.
	Localisation - At least 50% of the UK breeding or non-breeding population found in 10 or fewer sites.
	International Importance - At least 20% of the European breeding or non-breeding population found in the UK.
Green List Criteria	All regularly occurring species that do not qualify under any of the red or amber criteria are green listed.
	Includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.

APPENDIX B: SITE PHOTOGRAPHS

Photograph 1: Other Neutral Grassland (Western Development Parcel)

Photograph 2: Immature Woodland Compartment in Central Lagoon (W4)

Photograph 3: Good Condition Lowland Mixed Deciduous Woodland (W5)

Photograph 4: Pasture grassland

Photograph 5: Sandy Grassland Area

Photograph 6: Ephemeral Pond P3

Photograph 7: Dense Bramble Scrub

APPENDIX C: BOTANICAL SPECIES LIST

Woodlands											
Species Name		**Abundance (DAFOR)**									
Common Name	**Scientific Name**										
Compartment Ref:		**W1**	**W2**	**W3**	**W4**	**W5/8**	**W6/7/ 9/10/12**	**W11**	**W13**	**W14**	**W15/16**	**W17/18**
Ash	*Fraxinus excelsior*	F		O	O		O	D	O	O		
Crack willow	*Salix fragilis*								O	R		F
Elder	*Sambucus nigra*	O					O		O	O		O
Sycamore	*Acer pseudoplanatus*	F	R	F	O		F		R			O
Goat willow	*Salix caprea*		D	R	O	A	O		O	O		F
Hawthorn	*Crataegus monogyna*	O	R	O	O	O	F		O	O	O	O
Italian lords-and-ladies		R	O			R			R	R		
Common nettle	*Urtica dioica*	F	O	F		A	O	O	F	F	F	A
Garlic mustard	*Alliara petiolate*	R					O		O	O		O
Creeping thistle	*Cirsium vulgare*											R
Ivy	*Hedera helix*	R		O		F	O	R	O	O		O
Dog's mercury		F	F	R		O	O/LF	R	O	O		O
Common figwort	*Scrophularia nodosa*	R	O				R					R
Creeping cinquefoil	*Potentilla reptans*	O	O				O		R	R		R
Cleavers	*Gallium aparine*	O	F	O		O			O	O	O	O
Silver birch	*Betula pendula*	O	D	R	O	A	O		O	O		
Aspen	*Populus tremula*								R	R		
Hazel	*Corylus avellana*	O			O		O					
Ground-ivy	*Glechoma hederacea*	F		R					O	O		F
Broad-leaved willowherb	*Epilobium montanum*	R					R					R
Creeping bent	*Agrostis stolonifera*	R					R		R	R		R

Red campion	*Silene dioica*						R		R	R		R
Wood dock	*Rumex sanguineas*						O					O
Soft rush	*Juncus effusus*						R					
Japanese knotweed	*Reynoutria japonica*						R (W9)					
Great willowherb	*Epilobium hirsutum*						R		LO	R		
Wood anemone		R					R					
Common male-fern	*Dryopteris filix-mas*			R	R	R	LO					R
False brome	*Brachypodium sylvaticum*						LO					
Wild strawberry	*Fragaria vesca*						LO					
Germander speedwell	*Veronica chaemedrys*	R			R		LO		R	R		
Wood avens	*Geum urbanum*	O		R	O	R	LF		O	O	R	F
Hybrid bluebell		O					LF					
Pedunculate oak	*Quercus robur*	F		O	O	R	F		F	F	F	F
Horse chestnut	*Aesculus hippocastanum*	R										
Beech	*Fagus sylvatica*	R		O								O
Lombardy poplar	*Populus nigra 'italica'*			O	R							
Scot's pine	*Pinus syvestris*			F	R				R	F		F
Grey alder	*Alnus incana*			R	R							
Norway spruce	*Picea abies*			R	R							O
Hybrid black poplar	*Populus x canadensis*			O					LF		O	O
Alder	*Anus glutionsa*			R					O	O		O
Field maple	*Acer campestra*				R	R	R					R
Wych elm	*Ulmus glabra*				R				R	R	R	
Sitka spruce	*Picea sitchensis*				A							
Dogwood	*Cornus sanguinea*				O	LO			R			
English elm	*Ulmus procera*				R							
Common lime	*Tilia x europaea*						R					
Holly	*Ilex aquifolium*						O					
Sweet chestnut	*Castanea sativa*						R					R

Copper beech	*Fagus sylvatica purpurea*						R					
Rowan	*Sobus aucuparia*						R					
Wild cherry	*Prunus avium*						R			R		R
Common larch	*Larix decidua*									F		
Italian alder	*Alnus cordata*								LO			
Lawson cypress	*Chamaecyparis lawsoniana*											O
Selfheal	*Purnella vulgaris*											R

Grasslands				
Species Name		**Abundance (DAFOR)**		
Common Name	**Species Name**			
	Compartment Ref:	**G1**	**G2/3/4**	**G5**
Goat's rue	*Galega officianalis*		O	O
Common nettle	*Urtica dioica*	O	LD	F
Perennial ryegrass	*Lolium perene*		A	
Yorkshire fog	*Holcus lanatus*	D	A	F
Marsh thistle	*Cirsium palustre*	O	O/LF	F
Cock's-foot	*Dactylis glomerata*	O		
Creeping thistle	*Cirsium arvensis*	F	O/LF	
Sweet vernal grass	*Anthoxanthum odoratum*		LF	F
Red fescue	*Festuca rubra*		F	O
Common vetch	*Vicia sativa*		LO	
Mouse-ear chickweed	*Cerastium fontanum*		O	O
Creeping buttercup	*Ranunculus repens*	F	F	F
Red clover	*Trifolium pratense*		LO	F
Bird's-foot trefoil	*Lotus corniculatus*	R	R	F
Creeping cinquefoil	*Potentilla reptans*		R	F

Spear thistle	*Cirsium vulgare*		LO	
Tufted hairgrass	*Deschampsia caespitosa*		R	
Germander speedwell	*Veronica chamaedrys*		R	
Changing forget-me-not	*Myosotis discolor*		R	F
Meadow vetchling	*Lathyrus pratensis*		R	
Bramble	*Rubus fruticosus*	F		O
Cleavers	*Galium aparine*	O		
Rough meadow-grass	*Poa trivialis*	F		O
Sheep sorrel	*Rumex acetosella*	R		
Wild teasel	*Dipsacus fullonum*	O		O
Common field speedwell	*Veronica persica*	R		
Timothy	*Phleum pratense*	F		
Creeping bent	*Agrostis stolonifera*	LF		
Common ragwort	*Jacobaea vulgaris*	LF		O
Hard rush	*Juncus inflexus*			O
Ground ivy	*Glechoma hederacea*			F
Sealfheal	*Prunella vulgaris*			F
Thyme-leaved speedwell	*Veronica serpyllifolia*			F
Black medick	*Medicago lupulina*			F
Common centaury	*Centaurium erythraea*			O
Common spotted orchid	*Dactylorhiza fuchsia*			R
Broadleaved willowherb	*Epilobium montanum*			O

Scrub					
Species Name		**Abundance (DAFOR)**			
Common Name	**Species Name**				
	Compartment Ref:	**S1**	**S2**	**S3**	**S4/5**
Common nettle	*Urtica dioica*	F	F	F	A
Bramble	*Rubus fruticosus*	D	F	D	D
Sycamore	*Acer pseudoplanatus*	O	O	O	O
Hawthorn	*Crataegus monogyna*	O	O	O	O
Elder	*Sambucus nigra*	O	F	F	F
Japanese knotweed	*Reynoutria japonica*	R			
Pedunculate oak	*Quercus robur*	R	O	O	
Ash	*Fraxinus excelsior*	R		O	
Blackthorn	*Prunus spinosa*	R	R	O	
Field maple	*Acer campestre*	R	R	R	
Bracken	*Pteridium aquilonium*	R			
Wild teasel	*Dipsacus fullonum*	O			
Meadowsweet	*Filipendula almaria*	LF			
A buddleja	*Buddleja spp.*	O			
Wood avens	*Geum urbanum*	R	R		
Broadleaved dock	*Rumex obtusifolius*	R	R		

Nutfield Park Developments Limited (Ltd)

Nutfield Green Park

APPENDIX E: BAT SURVEY REPORT

October 2023

This report may contain sensitive ecological information, it is the responsibility of the Local Authority to determine if this should be made publicly available

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Figure 6: August Dawn Bat Transect Plan

Figure 7: September Bat Transect Plan

Figure 8: October Bat Transect Plan

Figure 9: Static Detector Location Plan

APPENDIX

Appendix E1: Static Detector Data 2022

1.0 NON-TECHNICAL SUMMARY

1.1 FPCR were commissioned by Nutfield Park Developments Limited (Ltd) to undertake bat surveys at Nutfield Green Park, Tandridge to provide an ecological baseline for an application to develop the Site and to determine assemblage and activity levels of bats.

1.2 Proposals include a residential development comprising up to 166 units and a care community comprising 70 care home beds and 41 extra care facility beds with associated access and green infrastructure.

1.3 The Site was dominated by a range of habitats including woodlands, grasslands, scrub and ponds. In general, woodlands, woodland edge and wetland habitats provided the greatest suitability for bats. The developable area of the Site was largely dominated by rank grasslands, dense bramble scrub and poor-quality self-set woodland that was of more limited suitability for bats.

1.4 In accordance with The Bat Conservation Trust (BCT) guidance, a monthly survey effort was considered appropriate. Bat transects and static detector surveys were completed from May to October 2022, during which 12 species/species groups were identified as occurring across the site. The bulk of bat activity was confined to the northern part of the site, though concentrations of activity were also noted around the southern woodlands of the Site.

1.5 There were no buildings onsite.

1.6 Four trees assessed as supporting bat roosting potential features were identified as being likely impacted by the scheme. Further nocturnal surveys on these trees did not identify any bats emerging or re-entering the trees and their presence is not considered to pose a constraint to proposals. With adjacent woodland and on-site trees remaining unaffected by the proposals, bat roosts are therefore not considered to propose a constraint to development.

1.7 The proposals include extensive habitat enhancement and creation measures, with 88% of the total Site boundary proposed for green infrastructure with a focus on enhancing the biodiversity value of the Site. Movement corridors will be retained around the development parcels and the enhancement of all retained woodlands and the pasture grassland fields into native species-rich meadows will enhance the foraging and commuting value of the Site. New pond creation and woodland/scrub planting will further add to foraging opportunities.

1.8 A sensitive lighting strategy should be secured through and appropriately worded condition to reduce impacts on retained habitats.

1.9 It is recommended that the proposals include the installation of bat boxes around the Site to provide optimal roosting opportunities for bats and enhance the exist resource of such features.

1.10 Where possible the planting scheme will use native species, with an emphasis on species bearing nectar, berries, fruit, and nuts, to enhance the foraging opportunities available for local invertebrate fauna, which in turn will benefit bats.

2.0 INTRODUCTION

2.1 The following bat survey report has been prepared by FPCR Environment and Design Ltd on behalf of Nutfield Park Developments Limited (Ltd) for the site at Nutfield Green Park, Tandridge (central OS grid reference TQ 30533 50982), here after referred to as the 'site'.

2.2 This report should be read in conjunction with the Ecological Impact Assessment (EcIA, FPCR, 2023) for the site. Surveys to inform this assessment comprised a desktop study, nocturnal tree surveys, bat activity transects, and automated static bat detector surveys.

Site Location and Context

2.3 The Site is approximately 58.8ha in size and is located to the North of the Village of Nutfield in the Tandridge borough area. It comprises a former quarry that has been historically restored and has become dominated by a mix of habitats. A large portion of the site is wooded, with some example of mature semi-natural woodlands present in the south, plantation woodlands in the centre/north of the Site and a large area of self-set birch/willow woodland in the centre of the Site. Two large pasture grasslands are present in the central/northern part of the Site, while a compartment of coarse grassland in present in the south-west of the Site. Small blocks of mixed scrub are scattered around the site while extensive areas of bramble scrub are present in the south-east and south-west. Three waterbodies are also present on Site which comprise two fishing lagoons in the north of the site and a central woodland pond.

2.4 In the surrounding landscape, the Site abuts the residential environs of Nutfield to the south. To the west lies a restored landfill site which sits between the Site and the extant Patteson Court Landfill Site. Eastwards, the landscape comprises a mix of woodlands, pasture grassland, arable fields and the Mercers South Quarry Site to the north-east. To the North lies additional areas of woodland and farmland before the landscape becomes dominated by the residential environs of South Merstham.

Site Proposals

2.5 The proposals include seeking outline planning permission for the development of the site for 166 new homes (Use Class C3) and an Integrated Retirement Community with 70 care home beds and 41 extra case facility beds. In addition, proposals include the creation of new access, landscaping and associated works to facilitate the development, in phases which are severable (Outline with all matters reserved, except for Access).

3.0 LEGISLATION

3.1 Before any proposals take place, measures must be taken to ensure that the legislation concerning bats is not breached as a result of works. Bats are afforded full protection under the Wildlife & Countryside Act 1981 (as amended)[1] and the Conservation of Habitats and Species Regulations 2019 (EU Exit) (as amended)[2].

3.2 Under Regulation 43 of the Conservation of Habitats and Species Regulations 2019 (EU Exit) (as amended) it is illegal to:

- Deliberately capture, injure, or kill any wild animal of a European Protected Species (EPS),
- Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young,
- Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) – disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate,
- Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong,
- Deliberately disturb wild animals of an EPS (whilst occupying a structure of place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection,
- Damage or destroy a breeding site or resting place of a wild animal an EPS.

3.3 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:

- Recklessly or intentionally kill, injure, or take any wild animals included in Schedule 5.
- Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,
- Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.

3.4 If impacts to bats or their roosts cannot be avoided a European Protected Species Licence from Natural England is required in order to allow proposals to derogate from the Legislation (Licences cannot be obtained to provide protection against offences under the Wildlife & Countryside Act 1981 (as amended)).

[1] *Wildlife and Countryside Act 1981 (as amended)* [online] Available at: https://www.legislation.gov.uk/ukpga/1981/69 [Accessed 6 July 2021].
[2] *The Conservation of Habitat and Species Regulations 2017 (as amended)* [online] Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made [Accessed 6 July 2021].

4.0 METHODOLOGY

Desk Study

1.11 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:

- Surrey Biodiversity Record Centre (SuBRC);
- Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.defra.gov.uk); and
- Tandridge District Council planning portal[3].

1.12 The search area for biodiversity information regarding sites designated for their bat assemblage or individual records of bats was related to the significance of sites and species and potential zones of influence, as follows:

- 15km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs).
- 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs).
- 1km around the application site for sites of County Importance (e.g. Local Wildlife Sites (LWS)) and species records (e.g. protected, Local Biodiversity Action Plan (LBAP) or notable species).

1.13 When handling data, species records were filtered to those within the last ten years, unless considered relevant to the site assessment.

Field Surveys

Building Roost Surveys

4.0 There were no buildings present within the Site boundary to assess for potential roost features.

Tree Roost Surveys

4.1 Trees within the Site were assessed from the ground for their potential to support roosting bats by experienced ecologists on 1st July 2022. *Figure 1* shows the location of the trees with bat roosting potential.

4.2 The trees were searched for potential roosting features (PRFs) from ground level with the aid of a torch and binoculars, where appropriate. Features[4] include:

- Natural holes e.g. knot holes arising from naturally shed branches
- Man-made holes e.g. cavities that have developed from flush cuts
- Woodpecker holes
- Cracks/splits in stems or branches (horizontal and vertical)
- Lifted or partially detached bark
- Other hollows or cavities, including butt rot and canker cavities

3 Ashford Borough Council Planning Portal - https://planning.ashford.gov.uk/ [Accessed 20.09.2021]

4 BS 8596:2015 Surveying for bats in trees and woodland – Guide. British Standards Institute.

- Crossing stems or branches with suitable roosting space between
- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk)
- Bat, bird or dormouse boxes

4.3 Trees were then placed into bat roost potential categories as per current BCT guidance and summarised in *Table 1*.

Table 1: Bat Roost Potential Categories for Buildings and Trees

Categories	Description for trees
Confirmed Roost	Evidence of roosting bats in the form of live/dead bats, droppings, urine staining, fur oil staining etc.
High Potential	A tree with one or more PRFs that are obviously suitable for large numbers of bats on a more regular basis and/or longer duration due to their size, shelter, suitable conditions (height above ground, light levels, etc), and surrounding habitat. Examples include, but are not limited to, woodpecker holes, large cavities, hollow trunks, hazards beams.
Moderate Potential	A tree with PRFs which could support one or more potential roost sites due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status e.g. large roost or maternity roost. Examples include, but are not limited to, rot holes, branch socket cavities, canker cavities, etc.
Low Potential	A tree of sufficient size and age to contain PRFs but with none seen from the ground or features that offer very limited potential. Examples include, but are not limited to, shallow splits, upward facing holes, etc.
Negligible Potential	No features present likely to be used by roosting bats.

4.4 The trees with bat potential were compared with the Site proposals. Those that were of high or moderate potential and likely to be impacted by the scheme were assessed through nocturnal emergence/re-entry surveys 30th/31st August 2022, 20th/21st September 2022 and 6th/7th July 2023. These surveys were undertaken on trees T1, T5, T6 and T21 in line with guidance and in suitable weather conditions (*Table 2*). One to two surveyors were positioned at each tree to cover the potential roosting features identified. Infra-red cameras were also used to cover additional aspects of the tree and aid with night-time vision. Bat activity was recorded using of the full spectrum Wildlife Acoustic Inc. Echo Meter Touch bat detectors in conjunction with the Echo Meter Touch app on Samsung Android phones.

Table 2: Nocturnal Tree Survey Dates and Weather Conditions

Survey Date	Trees Surveyed	Start Time	Start temp (°C)	Wind (BF)	Rain	Cloud cover (%)
30.08.2022	T1, T21	19:37	19	0	0	80
31.08.2022	T5, T6	04:31	15	1	0	10
20.09.2022	T5, T6	18:49	16	0-1	0	90
21.09.2022	T1, T21	05:04	11	2	0	100
06.07.2023	T21	21:03	17	0	0	0
07.07.2023	T5, T6	03:08	10	0	0	0

Manual Activity Surveys – Transects

4.5 The primary objective of walked transects were to identify foraging areas, commuting routes, species composition, and general species utilisation of the Site by local bat populations.

4.6 The BCT guidance states that surveys undertaken should be proportional to the predicted impacts of the proposed activities on bats. Factors that influence the type of survey and effort required include the likelihood of bats being present, type of proposed activity, scale of activity, size, nature and complexity of the site, species concerned and number of individuals.

4.7 Under this guidance, the proposed developable areas of the Site were considered to be of moderate habitat suitability (*Table 4.1, BCT Guidance 2016*) and fell under the monthly survey requirements (*Table 8.3 BCT Guidance, 2016*), whereby six activity transects and static surveys were undertaken, once each month – May to October 2022.

4.8 In line with the BCT guidance the transect route was determined prior to survey in order to cover all habitat areas of the Site with the focus on those considered to provide greater suitability for bats. The transects included three-minute point count stops, during which time all bat activity was recorded. The point counts were strategically located throughout the Site to account for any habitat loss or potential impacts from the proposed development, and to ensure a comprehensive coverage of habitats. The dusk transects commenced at sunset and continued for approximately two hours while the dawn survey began two hours before, and ended at, sunrise. Surveys were undertaken in conditions that were close to optimal as described within the BCT guidance (2016), where sunset temperatures were 10^{o}C or above with no rain or strong winds.

4.9 The surveys were undertaken by appropriately experienced/licenced ecologists from FPCR. The transect was walked at a steady pace using an Apple iPad mini with an Echo Meter Touch (Wildlife Acoustics Version 2.0.4). This software identifies and tags sound files that it suggests are bat passes and all such passes were checked by experienced ecologists in the field to ensure accurate species identification. These surveys were also supplemented by written notes documenting bat activity present onsite and identifying any key foraging and commuting routes.

4.10 Post-survey, bat calls were also analysed using Kaleidoscope Viewer© (Wildlife Acoustics, Inc version 5.1.3) software package, by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. From this, the level of bat activity across the Site, in relation to the abundance of individual species foraging and commuting along habitats, was assessed.

4.11 The timings of the surveys can be seen in *Table 3* below.

Table 3: Nocturnal Survey Timings and Weather Conditions

Survey Date	Survey Type	Start Time	Sunset /Sunrise Time	Finish Time	Weather Conditions
May 19.05.22	Dusk Transect	21:04	20:59	22:59	17°C; 10% cloud cover; 1 BF, 0 rain
June 22.06.22	Dusk Transect	21:20	21:20	00:04	20°C, 5% cloud cover, 0 BF, 0 rain
July 28.07.22	Dusk Transect	20:55	20:55	23:14	18°C, 30% cloud cover, 0-1 BF, 0 rain
August 15.08.22	Dusk Transect	20:23	20:23	22:29	22°C, 70% cloud cover, 1 BF, 0 rain
August 16.08.22	Dawn Transect	3:48	5:48	5:48	17°C, 100% cloud cover, 1 BF, 0 rain
September 15.09.22	Dusk Transect	19:16	19:16	21:35	15°C, 90% cloud cover, 0 BF, 0 rain
October 05.10.22	Dusk Transect	18:29	18:29	20:42	13°C, 50% cloud cover, 3-4 BF, 0 rain

4.12 The weather conditions and timings of the surveys are considered suitable to provide data which demonstrates a representative sample of bat activity around the Site.

Automated Activity Surveys – Static Detectors

4.13 Static bat detectors were used to record the passing behaviours of bats from a fixed position. These detectors were deployed onsite to supplement the manual transects surveys, with passive recording surveys recommended in guidance produced by the BCT (2016).

4.14 Passive monitoring was undertaken using an automated logging system Wildlife Acoustics Inc. SM4Bat FS bat detectors with outputs saved to an internal storage device. Detectors used SMM-U2 microphones and were placed along linear features considered to be of value to bats, such as hedgerows and woodland edges.

4.15 Devices were placed in a location for an extended period of time of suitable weather conditions (little no rain/wind and temperatures above 10°C). The weather conditions over the course of each recording period were however representative for the timing of each survey. Detectors were programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise.

4.16 For the purposes of analysis if the static detector was out over five nights the additional nights were only assessed for bat species listed on Annex II[5] of the Habitats Directive. The recorded data were analysed using Kaleidoscope Viewer© (Wildlife Acoustics, Inc version 5.1.3) software package to assess the amount of bat activity onsite by recording the number of bat passes.

4.17 The SM4BAT FS detector records sound files of up to 12 seconds in length before a new file is created. Analysis of these files can highlight the presence of more than one bat if they are recorded simultaneously on the same sound file. Each sound file is counted as a single bat registration and the number of registrations provides an indication of the relative importance of the site/the detector location for bats.

[5] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

4.18 The timings for static detector surveys undertaken are shown in *Table 4* and the static locations are shown on *Figure 9.*

Table 4: Static Detector Survey Dates

Units	Periods Recorded	Weather Conditions
1 and 2	19th – 24th May 2022	Cool temperatures, highs of 15 °C overnight, no rain, light winds.
3 and 4	22nd – 27th June 2022	Mild nights, highs of 17°C, mainly overcast nights, little wind.
5 and 6	28th July – 2nd August 2022	Warm temperatures 20°C over night some drizzle on the morning of 31st. Light cloud cover and wind.
7 and 8	19th – 24th August 2022	Very warm overnight temperatures, 20° overnight, no rain, light wind.
9 and 10	15th – 20th September 2022	Warm temperatures, highs of 20 °C overnight, no rain, some overcast nights, light wind
11 and 12	5th – 10th October 2022	Mild temperatures with highs of 16°C over night, no rain, mainly clear nights, little wind

Limitations

4.19 Due to the overlapping properties of bat echolocation calls from *Myotis* and *Nyctalus* species, it is not always possible to identify a series of echolocation calls from bats included in these genera to species level. In the majority of cases, identification to genus level was possible, which is considered a suitable taxonomic level to allow potential affects to be assessed and appropriate mitigation designed.

4.20 The lower amplitude calls made by brown long-eared bat *Plecotus auritus* and barbastelle *Barbastella barbastellus* are more difficult to detect and may not be picked up by the directional microphones. Therefore, these species may have been under-recorded during these surveys.

4.21 The static detector units do not discern between individual bats, or a single bat passing the microphone several times, and therefore the data recorded can only provide an indication of bat activity as bat registrations per unit time.

5.0 RESULTS

Desk Study

Designated Sites

5.0 There were no sites designated for their bat assemblage within the Desktop Study Area.

Protected/Notable Species

5.1 There were no records of bat species within 1km of the Site however, records of seven species of bat were returned from SBIC within 2km of the site. Species recorded included:

- Common pipistrelle *Pipistrellus pipistrellus*,
- Soprano pipistrelle *Pipistrellus pygmaeus*,
- Pipistrelle species *Pipistrellus spp*
- Brown long-eared bat *Plecotus auritus*,
- Long-eared bat species *Plecotus spp*,
- Noctule *Nyctalus noctula*.
- Serotine *Eptesicus serotinus*

Field Surveys

5.2 The range and quality of habitats within the developable area of the Site as a whole are considered to be of 'moderate' value to bats, which can be attributed to the large proportion of rank grassland, dense bramble scrub and poor quality immature woodland habitat present, however the woodlands and hedgerows are considered to provide linear habitats for commuting and connectivity to the wider area. The remainder of the Site include better quality habitats for bats, particularly within more mature woodland areas.

Tree Roost Surveys

5.3 28 trees with potential to support roosting bats were identified from the ground based tree assessments within or around the development area of the Site. Of these 13 were of low potential, 10 were moderate potential and five were high potential. These are summarised in Table 5 below and shown on Figure 1. Trees highlighted in bold had nocturnal surveys completed on them as they were considered to be the most at risk from impacts associated with the proposals.

Table 5: Trees with Bat Potential Summary

Tree Reference	Bat Roosting Potential	Species	Description of feature
T1	**Moderate**	**Willow sp.**	**Woodpecker hole**
T2	Low	Silver birch	Heavily matted ivy
T3	Moderate	English Oak	Woodpecker hole with staining

Tree Reference	Bat Roosting Potential	Species	Description of feature
T4	High	English Oak	Two branch tear outs, partially detached platey bark, rot hole
T5	**High**	**Unknown dead tree**	**Rot hole, woodpecker hole, partially detached platey bark**
T6	**High**	**English Oak**	**Woodpecker hole**
T7	High	Ash	Woodpecker hole
T8	Low	English Oak	Partially detached platey bark
T9	Moderate	Scots pine	Heavily matted ivy
T10	Moderate	Field maple	Heavily matted ivy
T12	Moderate	English Oak	Two woodpecker holes, canker cavity
T13	Moderate	English Oak	Heavily matted ivy
T14	Low	English Oak	Woodpecker hole
T15	Low	Silver birch	Knot hole
T16	Low	English Oak	Woodpecker hole
T17	Low	Hybrid black poplar	Vertical split
T18	Low	Willow sp.	Woodpecker hole
T19	Low	Willow sp.	Woodpecker hole
T20	Moderate	Broad leaved lime	Woodpecker hole
T21	**High**	**Unknown dead tree**	**Several woodpecker holes**

Tree Reference	Bat Roosting Potential	Species	Description of feature
T22	Low	Sycamore	Two rot holes
T23	Low	English Oak	Vertical splits
T24	Low	Field maple	Rot hole
T25	Moderate	English Oak	Branch tear out
T26	Moderate	English Oak	Two branch tear outs
T27	Moderate	Sycamore	Branch tear out
T28	Moderate	English Elm	Woodpecker hole
T29	Low	Beech	Bird box

5.4 No bats were observed entering or emerging from trees T1, T5, T6 or T21 during the nocturnal surveys.

Manual Activity Transect Surveys

5.5 A total of 225 contacts from seven different species/species groups were made over the seven survey occasions. Results for each survey are summarised in *Table 6* below, with the distribution of encounters mapped on *Figures 2* to *8*.

Table 6. Bat Transect Summary of Results 2022

Date	Total Contacts	Species Recorded (No. Contacts)	Activity Summary
25th May 2022 *Figure 2*	31	Six species/species groups: • Common pipistrelle (14) • Soprano pipistrelle (11) • Myotis sp. (2) • Nyctalus sp. (2) • Noctule (1) • Brown long-eared (1)	Bats were recorded during all Point Counts with the exception of PCC which was in the centre of a grassland field. The majority of the contacts were from common pipistrelles making up 45% of the total. Activity was spread throughout the Site with a concentration occurring at the woodland at the northern extent of the Site at PCD where a number of pipistrelles were recorded commuting along the footpath which runs through the woodland. One soprano pipistrelle was recorded foraging at the beginning of the survey in the woodland at the southern extent of the Site. One Nyctalus sp. Was recorded foraging during PCD in the woodland at the northern extent of the site.

Date	Total Contacts	Species Recorded (No. Contacts)	Activity Summary
22nd June 2022 *Figure 3*	35	Five species/species groups: • Common pipistrelle (22) • Soprano pipistrelle (5) • Noctule (4) • Brown long-eared (2) • Myotis sp. (2)	The majority of contacts were from common pipistrelles which made up 63% of total contacts. Contacts were made during Point Counts A, C, D, F, G, H and I. Contacts occurred throughout the Site with areas of higher levels of activity noted by the woodland/scrub habitat at the south-western extent of the Site and by the woodland at the north of the Site. Two brown long-eared bats were encountered during the survey; these were both recorded commuting, one along the southern boundary parallel to the A25 and the other along the eastern edge of the woodland located in the centre of the Site.
28th July 2022 *Figure 4*	28	Four species/species groups: • Soprano pipistrelle (12) • Common pipistrelle (11) • Noctule (3) • Myotis sp. (2)	Activity was concentrated at the northern and southern sections of the Site with few contacts occurring in the central areas. Soprano pipistrelles were the most frequently encountered species accounting for 43% of the contacts. Common pipistrelles were the next most encountered group and made up 39% of the contacts. Almost half of contacts (43%) were made by foraging bats. This behaviour was observed mainly along the woodland edges at the northern extent of the Site.
15th August 2022 *Figure 5*	37	Six species/species groups: • Common Pipistrelle (20) • Soprano pipistrelle (9) • Myotis sp. (3) • Brown long-eared (2) • Barbastelle (2) • Noctule (1)	Contacts were made during Point Counts C, D, F and I. Common pipistrelle were the most frequently encountered species making up 54% of all contacts. Contacts were made at the southern and northern extent of the Site, along the woodland edges. Low levels of activity were recorded along the eastern boundary of the Site next to Nutfield Marsh Road. **Annex II species** Two barbastelles were encountered during the survey, both were recorded commuting through the Site. The first was located in the woodland at the south-eastern extent of the Site and the second was encountered at the woodland edge on the western boundary of the Site.
16th August 2022 (Dawn) *Figure 6*	35	Four species/species groups: • Soprano pipistrelle (18) • Common pipistrelle (12) • Myotis sp. (3) • Noctule (2)	Activity during the dawn transect mainly occurred at the western boundary and around the woodland compartments at the southern and northern extents of the Site. In particular there were high levels of commuting bats along the western boundary of the Site. No activity was recorded in the grassland field at the eastern extent of the Site. The majority of contacts were from common and soprano pipistrelles which together accounted for 86% of all contacts. Noctules and Myotis sp. were recorded commuting through the Site in low numbers.
15th September 2022 *Figure 7*	34	Five species/species groups: • Common pipistrelle (15) • Soprano pipistrelle (14) • Myotis sp. (3) • Noctule (1) • Brown long-eared (1)	Activity occurred at the northern and southern extents of the Site along the edges of the woodland parcels. No activity was recorded in the grassland field compartment at the western extent of the Site. Most of the contacts were from common and soprano pipistrelles which accounted for 85% of the total contacts. Myotis sp. were encountered on three occasions and single contacts from noctules and brown long-eared bats were recorded.

Date	Total Contacts	Species Recorded (No. Contacts)	Activity Summary
			Most of the activity recorded was from commuting bats, however some foraging and social calls from soprano and common pipistrelles were also recorded.
5th October 2022 *Figure 8*	25	Three species/species groups: • Soprano pipistrelle (11) • Common pipistrelle (8) • Myotis sp. (6)	There were fewer bat contacts from fewer species/ species groups during the October transect compared with previous months. The majority of the activity was from foraging bats, commuting and social behaviour was also recorded. Soprano pipistrelles were the most frequently encountered species making up 44% of all contacts. Contacts were mainly located along the woodland edges at the southern and north-western extents of the Site. No activity was recorded at the eastern extent of the Site.

5.6 Contacts from bats were recorded in low numbers with the majority of contacts being common pipistrelles. There was a concentration of bats at the northern extent of the Site along the edges of woodlands bordering pasture grasslands where bats were recorded on all survey occasions. Concentrations of bats were also recorded around the southern woodlands of the Site.

5.7 Contacts from the less commonly recorded bat species/species groups such as barbastelles, Nathusius' pipistrelle, *Myotis* sp. and *Nyctalus* sp. tended to comprise no more than one or two passes.

Automated Activity Surveys

5.8 The following paragraphs detail the findings of the automated activity surveys. In this context, the term 'registration' refers to a unique sound file created over the course of a number of seconds. Based on this, numerous 'registrations' does not necessarily refer to multiple bats (unlike the manual activity survey section above, where the number of bats can often be visually identified), as one bat may create a number of registrations, for example an individual foraging in close proximity to the microphone for a sustained period of time.

Overall summary

5.9 During the automated surveys completed in 2022, 12 species/species groups were recorded, consisting of common pipistrelle (comprising 54.60% of total data), Soprano pipistrelle (29.70%), *Myotis* sp. (5.89%), noctule (4.68%), brown long-eared (2.86%) pipistrelle sp. (0.99%), Nyctalus sp. (0.93%), Nathusius' pipistrelle (0.29%), Nyctalus/Eptesicus (0.04%), serotine (0.01%), barbastelle (0.01%) and Leisler's bat (0.007%)

5.10 Registrations from barbastelles, an Annex II species, were identified on-site in very low numbers, accounting for just 0.01% of all of the registrations. The vast majority of recordings originated from widespread and relatively commonly occurring bat species.

5.11 *Table 7* below summarises the activity levels recorded and describes the locations on site for each of the units deployed. These can also be seen in *Figure 9*. See *Appendix A* for the full results.

Table 7: Static Activity Summary

Survey Period	Unit Reference /Location	Total Registrations Over five nights	Species Recorded (in order of abundance and total number of registrations)	Summary of Activity
19th – 24th May 2022	Unit 1: Located on the western edge of the central woodland parcel	704	• Soprano pipistrelle (332) • Common pipistrelle (267) • Myotis sp. (53) • Noctule (26) • Brown long-eared (20) • Nyctalus sp. (5) • Pipistrelle sp. (1)	Soprano pipistrelles were the most frequently recorded species accounting for 47% of total registrations and were recorded on all five nights of the survey. Common pipistrelles were also recorded on every night of the survey and made up 38% of the total. Myotis sp. and brown long-eared were also recorded on every night of the survey. Noctules were recorded on four nights and accounted for 3% of total recordings Nyctalus sp. and pipistrelle sp. were recorded in low numbers each accounting for less than 1% of the total.
19th – 24th May 2022	Unit 2: Located at the north-eastern extent of the site, in a hedge parallel to Nutfield Marsh Road	540	• Common pipistrelle (173) • Soprano pipistrelle (141) • Noctule (115) • Myotis sp. (76) • Nathusius' pipistrelle (28) • Nyctalus (5) • Brown long-eared (2)	Soprano and common pipistrelles were the most frequently recorded species, together accounting for more than half of all registration (58%). They were recorded on every night of the survey. Noctules and Myotis sp. were also recorded on every night of the survey, though in lower numbers, and accounted for 21% and 14% of the recordings, respectively. Nathusius' pipistrelle was recorded on four nights of the survey and made up 5% of the total. Nyctalus sp. and brown long-eared bats were recorded in low numbers.
22nd – 27th June 2022	Unit 3: On scrub in the centre of a field compartment at the south-western extent of the site.	2047	• Common pipistrelle (1460) • Soprano pipistrelle (494) • Noctule (54) • Myotis sp. (24) • Brown long-eared (8) • Nyctalus sp. (5) • Pipistrelle sp. (2)	Common pipistrelles were recorded in high numbers on every night of the survey and made up 71% of the total registrations. Soprano pipistrelles were the next most encountered group and were also recorded on every night of the survey, accounting for 24% of the total. Noctules and Myotis sp. were also recorded on every night of the survey and accounted for 2% and 1% of the total, respectively. Brown long-eared, Nyctalus sp. and pipistrelle sp. were recorded in low numbers.

Survey Period	Unit Reference /Location	Total Registrations Over five nights	Species Recorded (in order of abundance and total number of registrations)	Summary of Activity
22nd – 27th June 2022	Unit 4: On the edge of a glade in a woodland at the southern extent of the site.	244	• Soprano pipistrelle (132) • Common pipistrelle (52) • Brown long-eared (44) • Noctule (13) • Myotis sp. (2) • Nyctalus (1)	Levels of bat activity were lower in this area of the site compared with the other static which was deployed over the same time period. Soprano and common pipistrelles made up the vast majority of the recordings together totalling 75%. Brown long-eared bats were recorded on every night of the survey in low numbers and accounted for 18% of total registrations. Myotis sp. and Nyctalus sp. were recorded in low numbers, each accounting for less than 1% of the total.
28th July – 2nd August 2022	Unit 5: Located at the northern boundary of the site in an area of unmanaged grassland	3233	• Common pipistrelle (1700) • Soprano pipistrelle (860) • Noctule (269) • Myotis sp. (226) • Nyctalus sp. (68) • Pipistrelle sp. (66) • Brown long-eared (30) • Nathusius' Pipistrelle (8) • Serotine (2) • Barbastelle (2) • Leisler's (1)	The number of total registrations in this area were more than double what was recorded on Unit 6 which was also deployed in July. Common and soprano pipistrelles along with unidentified pipistrelle sp. accounted for the vast majority of registrations, together making up 82% of the total. Noctules and Myotis sp. were the next most frequently encountered species/species groups which were both recorded in high numbers on every night of the survey. Brown long-eared bats were also recorded on every night of the survey in low numbers, with a peak of nine registrations on the fourth night of the survey. Nathusius' pipistrelle, serotine and Leisler's bat were each accounted for less than 1% of the total. **Annex II species** Two barbastelle registrations were recorded on the last night of the survey between the hours of 22:00 and 00:00.
28th July – 2nd August 2022	Unit 6: On the eastern edge of the central woodland parcel.	1152	• Common pipistrelle (739) • Soprano pipistrelle (306) • Myotis sp. (44) • Noctule (28) • Brown long-eared (21) • Nyctalus sp. (10)	Common pipistrelles accounted for the majority of registrations (64%) averaging 148 calls per night. Soprano pipistrelles were the next most recorded group, accounting for 27% of the total and giving an average of 61 registrations per night. Myotis sp. were recorded on every night of the survey and made up 3.8% of the total. Brown long-eared and unidentified Nyctalus sp. and Nyctalus/Eptesicus were recorded in low numbers.

Survey Period	Unit Reference /Location	Total Registrations Over five nights	Species Recorded (in order of abundance and total number of registrations)	Summary of Activity
			• Nyctalus/Eptesicus (4)	
19th – 24th August 2022	Unit 7: On the western edge of the woodland in the southern extent of the site.	2931	• Common pipistrelle (2020) • Soprano pipistrelle (719) • Myotis sp. (105) • Noctule (76) • Brown long-eared (9) • Nyctalus sp. (2)	Common pipistrelles were recorded in high numbers at an average of 404 registrations per night. Soprano pipistrelles were also recorded in high numbers at an average of 143 registrations per night. Together these two species made up 93% of all registrations. Myotis sp. and noctules were recorded on every night of the survey totalling 3.9% and 2.6% of the recordings respectively. Brown long-eared sp. and Nyctalus sp. were recorded in low numbers, each accounting for less than 1% of that total.
19th – 24th August 2022	Unit 8: On the eastern boundary of the site in a hedgerow parallel to Nutfield Marsh Road	736	• Common pipistrelle (332) • Soprano pipistrelle (161) • Brown long-eared (141) • Myotis sp. (47) • Noctule (28) • Pipistrelle sp. (14) • Nyctalus sp. (13)	The level of activity in this area of the site was lower when compared to what was recorded on Unit 7 which was deployed over the same time period. Common pipistrelles and soprano pipistrelles were the most frequently recorded groups, which combined made up two thirds (67%) of all recordings. This was an average of 66 and 32 registrations per night for common and soprano pipistrelles, respectively. Brown long-eared bats were also recorded in relatively high numbers when compared to the other survey occasions with an average of 28 registrations per night and making up 19% of the total.

Survey Period	Unit Reference /Location	Total Registrations Over five nights	Species Recorded (in order of abundance and total number of registrations)	Summary of Activity
15th – 20th Sept 2022	Unit 9: On the edge of a glade in a woodland at the southern extent of the site.	412	Common pipistrelle (180) Soprano pipistrelle (96) Brown long-eared (72) Myotis sp. (27) Pipistrelle sp. (26) Noctule (5) Nyctalus sp. (5) Nathusius' pipistrelle (1)	Common and soprano pipistrelles were the most frequently recorded species together accounting for more than half (67%) of all of the recordings. Common pipistrelles were recorded an average of 36 times per night whereas soprano pipistrelle were recorded less, with an average of 19 registrations per night. Brown long-eared bats were encountered slightly less frequently than soprano pipistrelles with an average of 14 registrations a night and accounting for 17% of all recordings. Myotis species were recorded on every night of the survey in low numbers and made up 6% of the total. Unidentified pipistrelle species also accounted for 6% if the total. Nyctalus sp. and Nathusius' pipistrelle were recorded infrequently.
15th – 20th Sept 2022	Unit 10: Located on the eastern edge of the central woodland parcel.	577	• Common pipistrelle (220) • Soprano pipistrelle (191) • Myotis (108) • Brown long-eared (24) • Pipistrelle sp. (14) • Nyctalus sp. (11) • Noctule (7) • Nathusius' pipistrelle (2)	The level of activity in this area of the Site was similar to that which was recorded on Unit 9 over the same time period. Common and soprano pipistrelles were the most frequently recorded species and combined accounted for 71% of total registrations. Myotis sp. were also recorded in relatively high numbers and accounted for 19% of the total and had an average of 21 registrations per night. Brown long-eared bats were recorded in low numbers on every night of the survey, accounting for 4% of the total. Pipistrelle sp., Nyctalus sp., noctules and Nathusius' pipistrelle were all recorded in low numbers.
5th – 10th Oct 2022	Unit 11: At the southern boundary of the site in a hedgerow parallel to the A25.	274	• Common pipistrelle (108) • Soprano pipistrelle (82) • Myotis sp. (54) • Noctule (15)	Common pipistrelles were the most frequently encountered species making up 39% of the total recordings. There was an average of 21 registrations from common pipistrelles per night which is lower than on previous survey occasions. Soprano pipistrelles were then next most frequently recorded species with an average of 16 registrations per night.

Survey Period	Unit Reference /Location	Total Registrations Over five nights	Species Recorded (in order of abundance and total number of registrations)	Summary of Activity
			• Brown long-eared (14) • Nyctalus sp. (1)	Myotis sp. were recorded on every night of the survey and accounted for 20% of the total recordings. Noctules were recorded on every night of the survey and brown long-eared bats were recorded on four of the five nights. They accounted for 5.5% and 5.1% of total recordings respectively. A single registration from Nyctalus sp. was recorded.
5th – 10th Oct 2022	Unit 12: On an area of scrub at the centre of the site, to the north of the central woodland parcel.	1054	• Soprano pipistrelle (616) • Common pipistrelle (340) • Myotis sp. (53) • Noctule (15) • Pipistrelle sp. (14) • Brown long-eared (12) • Nyctalus sp. (3) • Nathusius' pipistrelle (1)	The number of recordings from this static were much higher than from Unit 11 which was recording over the same period in October. Soprano pipistrelles constituted more than half (58%) of all recordings, followed by common pipistrelles which accounted for almost one third of the total (32%). Soprano pipistrelles were recorded an average of 123 times per night whereas common pipistrelles were recorded 68 times each night on average. The next most frequently encountered group were Myotis sp. which were recorded on every night of the survey but in lower numbers that the soprano or common pipistrelles. Myotis sp. were recorded an average of just 0.8 times each night. Unidentified pipistrelle sp. were recorded on just one night of the survey and accounted for 1.3% of the total. Brown long-eared bats were recorded on four nights of the survey and made up 1.1% of the total. Nyctalus sp. and Nathusius' pipistrelle were recorded in low numbers and each accounted for less than 1% of the total.

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 The following section provides an evaluation of the Site and identifies the likely ecological constraints associated with the proposed development. Where appropriate, measures for the avoidance, mitigation, and compensation of any likely potential impacts together with any enhancements are discussed.

Bat Roosts

6.2 Ground based tree assessments found 28 trees with bat potential. Four of these trees had nocturnal surveys carried out on them due to the likelihood of them being impacted by the development proposals. No bats were observed emerging form or re-entering into these trees during the nocturnal surveys.

6.3 The presence of bat roosts therefore does not pose a constraint to the development proposals. If the proposed layout changes, then further surveys may be needed to assess the impact of the development of the potential roosting trees in different locations around the site.

Activity Surveys

6.4 The range and quality of habitats within the developable area of the Site are considered to be of 'moderate' value to bats, which can be attributed to the large proportion of rank grassland, dense bramble scrub and poor quality woodland habitats present. Better quality habitats within more established woodland parcels and areas of wetland habitats which do provide foraging and commuting opportunities for bats link the Site to the wider landscape will all be retained and enhanced by the proposals.

6.5 The activity surveys recorded a total of seven bat species/species groups. The vast majority of the contacts (80%) were from common and soprano pipistrelles which are common and widespread species. Two passes from barbastelles, which are an Annex II species, were recorded during the August dusk transect. These were from commuting individuals which were likely passing through the site.

6.6 Based upon the findings of the transect surveys it is considered that the linear features such as the scrub vegetation at the northern extent of the Site at the woodland edges throughout the Site provide commuting routes and connectivity for bats. These features also provide opportunities for foraging, thus providing ecological value.

6.7 The number of registrations recorded during automated surveys were highest during the surveys undertaken in the summer months. The greatest number of recordings came from a static deployed in July at the northern extent of the site. Levels of activity were also high at the south-western extent of the Site, in the unmanaged field compartment. Activity was lower at the eastern boundary of the Site and in the glade in the centre of the south-eastern woodland compartment.

6.8 Two barbastelle registrations were recorded during the automated surveys, both were recorded on the same night during the July survey. It is likely that these registrations were from commuting bats that were passing through the Site only and this level of activity is not consistent with what would be expected if the Site provided a regularly used resource by this annexe 2 species.

6.9 These static detector surveys provide additional information on bat activity levels around the site that complement the transect surveys; indicating that bat activity onsite is mainly from common

and widespread species associated with scrub and woodland vegetation with a concentration at the northern boundary and in the south-western field compartment.

6.10 Consequently, the bat activity levels are considered not to pose a constraint to the redevelopment of the Site, providing existing linkages, corridors to surrounding habitats are retained and buffered.

Mitigation

6.11 While some areas of woodland at the southern extent of the site are proposed to be lost to development, the retention and enhancement of all retained woodlands will ensure connectivity is maintained which will ensure the continuity of local bat assemblages onsite. The green infrastructure proposals for the Site include the enhancement of pasture grasslands into native species-rich meadow grasslands which will provide a significant enhancement in the availability of optimal foraging habitats for bats, as diverse grasslands will attract invertebrate prey species to the Site. Furthermore, the proposals include the enhancement of existing ponds and the creation of a series of new interconnected pools will provide additional optimal foraging habitat. Enhancement of wetland features will include the provision of aquatic, emergent and marginal planting to further attract invertebrate prey species to the Site.

6.12 These enhancements will more than adequately compensate for the areas of habitat that will be lost to the proposals. With 88% of the Site proposed as green infrastructure to be enhanced for its biodiversity value, the proposals are likely to benefit the local bat assemblage utilising the Site.

6.13 To minimise impacts of lighting on bats, proposals will adopt a sensitive external lighting scheme, which will be designed to minimise light spill on retained, and proposed habitats of value to commuting and foraging bats. The lighting scheme will be designed with regards to current guidance provided by the Bat Conservation Trust and the Institution of Lighting Professionals[6] and adopt the following principles:

- The avoidance of direct lighting of existing trees, hedgerows, scrub, woodland, or proposed areas of habitat creation/landscape planting
- Buffer zones and GI are not to be illuminated
- During the construction period, no lighting should be used in proximity to boundary features, if needed lights will be directionally focused/shrouded; and
- Directional lighting and avoidance of upward lighting and/or light spillage.

6.14 Dark corridors will be designed, based on the above principles, to ensure retention, and incorporation, of habitats of value to bats for foraging, potential roosting and commuting into the wider landscape.

6.15 Roads and buildings in close proximity to the retained habitats will also have lighting sensitively positioned, so as to avoid illumination of canopies, which can further disrupt the flight patterns of bats.

[6] Bats and artificial lighting in the UK: Bats and the Built Environment series. Bat Conservation Trust and Institution of lighting professionals Guidance note 08/18 (2018).

Enhancements

6.16 The creation of new woodland habitats at the eastern extent of the site will improve the provision of suitable habitats in this area for bats and improve connectivity between the north and south of the site. These areas of planting will utilise native tree and shrub species, which will provide new opportunities for various invertebrate species, that will in turn increase the foraging potential for native bat species. Early flowering native shrubs should be used, such as hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, hazel *Corylus avellana*, honeysuckle *Lonicera periclymenum,* and ivy *hedera helix* to encourage more invertebrate prey items for bats.

6.17 New foraging opportunities will be provided by the range of habitats to be created and enhanced onsite include species rich grasslands, scrub, wetlands and woodland. These will help attract a wider diversity of invertebrates and provide an improvement in the foraging opportunities available onsite.

6.18 The development will also provide additional refuge opportunities for the local bat population by installing bat boxes or incorporating tubes and/or bricks into the built fabric of residential dwellings. Bat boxes and bricks will be arranged around the development in different locations to ensure coverage of several different aspects, to encourage choice of a variety of alternative roost sites. In combination with bird and invertebrate boxes, it is recommended that at least 50% of the proposed dwellings will include at least one form of integrated wildlife box.

7.0 CONCLUSION

7.0 Surveys have demonstrated that the Site is used as foraging and commuting habitat for a range of common and widespread bat species utilising the mix of habitats present including woodlands, scrub and grassland.

7.1 Barbastelle, an annexe II bat species, was identified during transect and static surveys in august 2022. This comprised a small number of passes and this species was not recorded during any other survey months. These records are therefore considered to be consistent with irregular use of the Site by bats commuting in the wider landscape. The Site is consequently not considered to provide an important resource for any annex II bat species.

7.2 A number of trees that are anticipated to be lost to proposals were identified as supporting features suitable for roosting bats. These trees were subject to further emergence surveys and no roosts were identified. Their loss is therefore not considered to pose a constraint to the proposals. All other trees are anticipated to be retained.

7.3 Proposals include the loss of habitats including areas of dense bramble scrub, coarse grasslands and woodlands. The majority of woodland loss will comprise immature, self-set secondary woodland with limited diversity. The loss of these habitats will ultimately reduce the availability of foraging habitats for bats.

7.4 The proposals include extensive habitat creation and enhancement measures that will enhance the Site for bats by providing optimal foraging habitat, particularly within newly created ponds and species-rich grassland habitats. Retained, enhanced and created habitat will be managed in the long-term to be of benefit for biodiversity and these enhancements will adequately compensate for impacts associated with the habitat losses anticipated.

7.5 The proposals will also include the provision of a range of bat boxes across the site which will provide optimal foraging opportunities for the range of bat species recorded.

APPENDIX E1: STATIC DETECTOR DATA 2022

Unit No.	Start Date	End Date	Total Registration	Common Pipistrelle			Soprano Pipistrelle			Myotis Species			Noctule			Brown Long-eared		
01-May	19/05/202	24/05/202	704	267	98	5.882857	332	113	7.315013	53	15	1.167758	26	8	0.572862	20	5	0.440663
02-May	19/05/202	24/05/202	540	173	62	3.811902	141	53	3.10681	76	18	1.674593	115	56	2.533923	2	1	0.044068
03-Jun	22/06/202	27/06/202	2047	1460	470	34.31549	494	162	11.61086	24	11	0.56409	54	20	1.269203	8	3	0.18803
04-Jun	22/06/202	27/06/202	244	52	14	1.24278	132	40	3.15475	2	2	0.047799	13	5	0.310695	44	11	1.051583
05-Jul	28/07/202	02/08/202	3233	1700	663	35.42753	860	280	17.92216	226	57	4.709778	269	98	5.605886	30	9	0.625192
06-Jul	28/07/202	02/08/202	1152	739	234	15.39967	306	121	6.376587	44	13	0.916895	28	10	0.583479	0	0	0
07-Aug	15/08/202	20/08/202	2931	2020	1037	38.08327	719	191	13.55538	105	26	1.979576	76	64	1.432836	9	3	0.169678
08-Aug	19/08/202	24/08/202	736	332	114	6.119722	161	45	2.967696	47	13	0.866346	28	11	0.516121	141	61	2.599038
09-Sep	15/09/202	20/09/202	412	180	81	2.866648	96	26	1.528879	27	11	0.429997	5	3	0.079629	72	31	1.146659
10-Sep	15/09/202	20/09/202	577	220	72	3.503681	191	61	3.041832	108	28	1.719989	7	3	0.111481	24	6	0.38222
11-Oct	05/10/202	10/10/202	274	108	36	1.559648	82	25	1.184177	54	22	0.779824	15	5	0.216618	14	6	0.202177
12-Oct	05/10/202	10/10/202	1054	340	175	4.909925	616	197	8.895628	53	21	0.765371	15	7	0.216614	12	4	0.173291
				Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
		Totals:	**13904**	**7591**	**1037**	**11.81478**	**4130**	**280**	**6.428013**	**819**	**57**	**1.274708**	**651**	**98**	**1.013229**	**376**	**61**	**0.585214**

Unit No.	Start Date	End Date	Pipistrelle Species			Nyctalus Species			Nathusius' pipistrelle			Long Eared Species			Nyctalus / Eptesicus			Serotine			Barbastelle			Leisler's		
01-May	19/05/202	24/05/2022	1	1	0.022033	5	2	0.110166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02-May	19/05/202	24/05/2022	0	0	0	5	3	0.110171	28	10	0.616955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03-Jun	22/06/202	27/06/2022	2	2	0.047008	5	2	0.117519	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04-Jun	22/06/202	27/06/2022	0	0	0	1	1	0.0239	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-Jul	28/07/202	02/08/2022	66	48	1.375422	68	21	1.417101	8	4	0.166718	0	0	0	1	1	0.02084	2	1	0.041679	2	2	0.041679	1	1	0.02084
06-Jul	28/07/202	02/08/2022	0	0	0	10	3	0.208385	0	0	0	21	9	0.437609	4	2	0.083354	0	0	0	0	0	0	0	0	0
07-Aug	15/08/202	20/08/2022	0	0	0	2	1	0.037706	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08-Aug	19/08/202	24/08/2022	14	4	0.258061	13	9	0.239628	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09-Sep	15/09/202	20/09/2022	26	12	0.414071	5	2	0.079629	1	1	0.015926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Sep	15/09/202	20/09/2022	14	7	0.222961	11	7	0.175184	2	1	0.031852	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Oct	05/10/202	10/10/2022	0	0	0	1	1	0.014441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Oct	05/10/202	10/10/2022	14	14	0.202173	3	2	0.043323	1	1	0.014441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
		Totals:	**137**	**48**	**0.213229**	**129**	**21**	**0.200778**	**40**	**10**	**0.062257**	**21**	**9**	**0.032685**	**5**	**2**	**0.007782**	**2**	**1**	**0.003113**	**2**	**2**	**0.003113**	**1**	**1**	**0.001556**

Key:

Site Boundary

Trees With Bat Potential

- High
- Moderate
- Low

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0 100 200 m

client
Nutfield Park Developments Ltd

job title
Nutfield Green Park, Tandridge

drawing title
TREES WITH BAT POTENTIAL

scale @ A3

drawn
DS / DH

issue date
6/10/2023

drawing / figure number
Figure 1

rev
10973-E-01

L:\10900\10973\ECO\QGIS\QGIS 2.14\Plans\Bat Figures\10973 Bats in Trees.qgs

Key:

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Contacts

- Common Pipistrelle
- Soprano Pipistrelle
- Brown Long-eared
- Myotis Species
- Nyctalus Species
- Noctule

Plan Reference	Time	Species	Behaviour	Passes
Start	21:04			
1	21:05	S. Pip	Foraging	2
PCA	2:14 - 21:17			
2	21:15	Noctule	Commuting	1
3	21:16	S. Pip	Commuting	1
PCB	21:23 - 21:26			
4	21:23	C. Pip	Commuting	2
5	21:25	S. Pip	Commuting	1
6	21:31	C. Pip	Commuting	3
7	21:34	S. Pip	Commuting	1
PCC	21:38 - 21:41			
8	21:46	BLE	Commuting	1
9	21:46	S. Pip		
10	21:49	C. Pip	Commuting; Social Calls	Cont.
11	21:49	S. Pip	Commuting; Social Calls	Cont.
12	21:49	Myotis sp.		
PCD	21:53 - 21:56			
13	21:53	Nyctalus sp.	Foraging	Cont.
14	21:53	C. Pip	Commuting	2
15	21:55	S. Pip	Commuting	1
16	21:57	C. Pip	Commuting	1
17	22:00	C. Pip	Commuting; Social Calls	Cont.
18	22:02	S. Pip	Commuting; Social Calls	Cont.
PCE	22:03 - 22:06			
19	22:03	C. Pip	Commuting	Cont.
20	22:03	S. Pip	Commuting	Cont.
21	22:17	S. Pip	Commuting	1
PCF	22:20 - 22:23			
22	22:20	C. Pip	Commuting	1
23	22:23	C. Pip	Commuting	1
24	22:25	S. Pip	Commuting	1
PCG	22:35 - 22:38			
25	22:37	C. Pip	Commuting	1
26	22:40	C. Pip	Commuting	1
PCH	22:43 - 22:46			
27	22:43	C. Pip	Commuting	Cont.
28	22:48	C. Pip	Commuting	3
29	22:48	Myotis sp.	Commuting	3
PCI	22:56 - 23:59			
30	22:56	C. Pip	Commuting	3
31	22:58	Nyctalus sp.	Commuting	1
Finish	22:59			

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0 100 200 m

L:\10900\10973\ECO\QGIS\QGIS 2.14\Plans\Bat Figures\10973-E-01 May 2022 Bat Transect Plan

client
Nutfield Park Developments Ltd

project
Nutfield Green Park, Tandridge

drawing title
BAT TRANSECT PLAN (25.05.22)

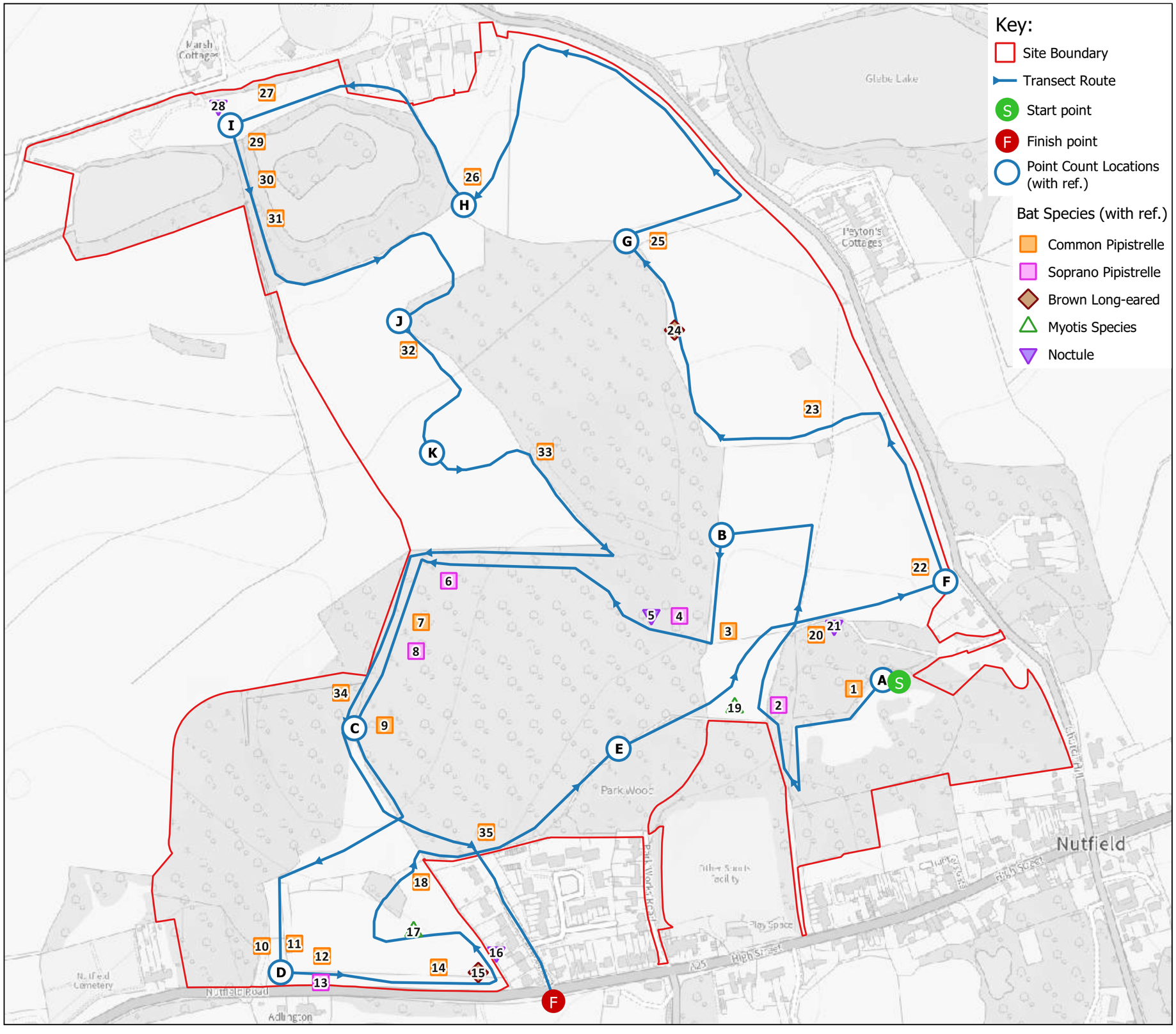
scale @ A3
1:4,500

drawn
DS/KAB

issue date
6/10/2023

drawing / figure number
Figure 2

rev
10973-E-01



Map Ref.	Time	Species	Behaviour	Passes
Start	21:20			
PCA	21:20 - 21:23			
1	21:23	C. Pip	Commuting	1
2	21:25	S. Pip	Commuting	7
PCB	21:31 - 21:34			
3	21:37	C. Pip	Commuting	1
4	21:38	S. Pip	Commuting	3
5	21:38	Noctule	Foraging	Cont.
6	21:43	S. Pip	Commuting	2
7	21:45	C. Pip	Commuting	Cont.
8	21:45	S. Pip x2	Commuting	Cont.
PCC	21:51 - 21:54			
9	21:52	C. Pip	Commuting	2
10	22:01	C. Pip	Commuting	4
PCD	22:02 - 22:05			
11	22:02	C. Pip x2	Foraging	Cont.
12	22:05	C. Pip	Foraging; Commuting	Cont.
13	22:05	S. Pip	Foraging; Commuting	Cont.
14	22:08	C. Pip	Foraging; Commuting	2
15	22:09	BLE	Commuting	1
16	22:10	Noctule	Commuting	2
17	22:12	Myotis sp.	Commuting	1
18	22:15	C. Pip	Commuting	1
PCE	22:21 - 22:24			
19	22:26	Myotis sp.	Commuting	2
20	22:29	C. Pip	Commuting	1
21	22:29	Noctule	Commuting	2
PCF	22:33 - 22:36			
22	22:34	C. Pip	Commuting	1
23	22:42	C.Pip	Commuting	1
24	22:45	BLE	Commuting	2
PCG	22:47 - 22:53			
25	22:50	C. Pip		1
PCH	23:02 - 23:05			
26	23:03	C. Pip		Cont.
27	23:15	C. Pip	Commuting	2
PCI	23:17 - 23:20			
28	23:18	Noctule	Commuting	2
29	23:19	C. Pip	Commuting	4
30	23:22	C. Pip	Commuting	1
31	23:23	C. Pip	Foraging; Commuting	2
PCJ	23:29 - 23:32			
32	23:34	C. Pip	Commuting	1
PCK	23:36 - 23:39			
33	23:42	C. Pip	Commuting	2
34	23:52	C. Pip	Commuting	1
35	00:01	C. Pip	Foraging; Commuting	8
Finish	00:04			

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0 100 200 m

client
Nutfield Park Developments Ltd.

project
Nutfield Green Park, Tandridge

drawing title
BAT TRANSECT PLAN 22.06.22

scale @ A3
1:4,200

drawn
DS / KAB

issue date
6/10/2023

drawing / figure number
Figure 3

rev
10973-E-01

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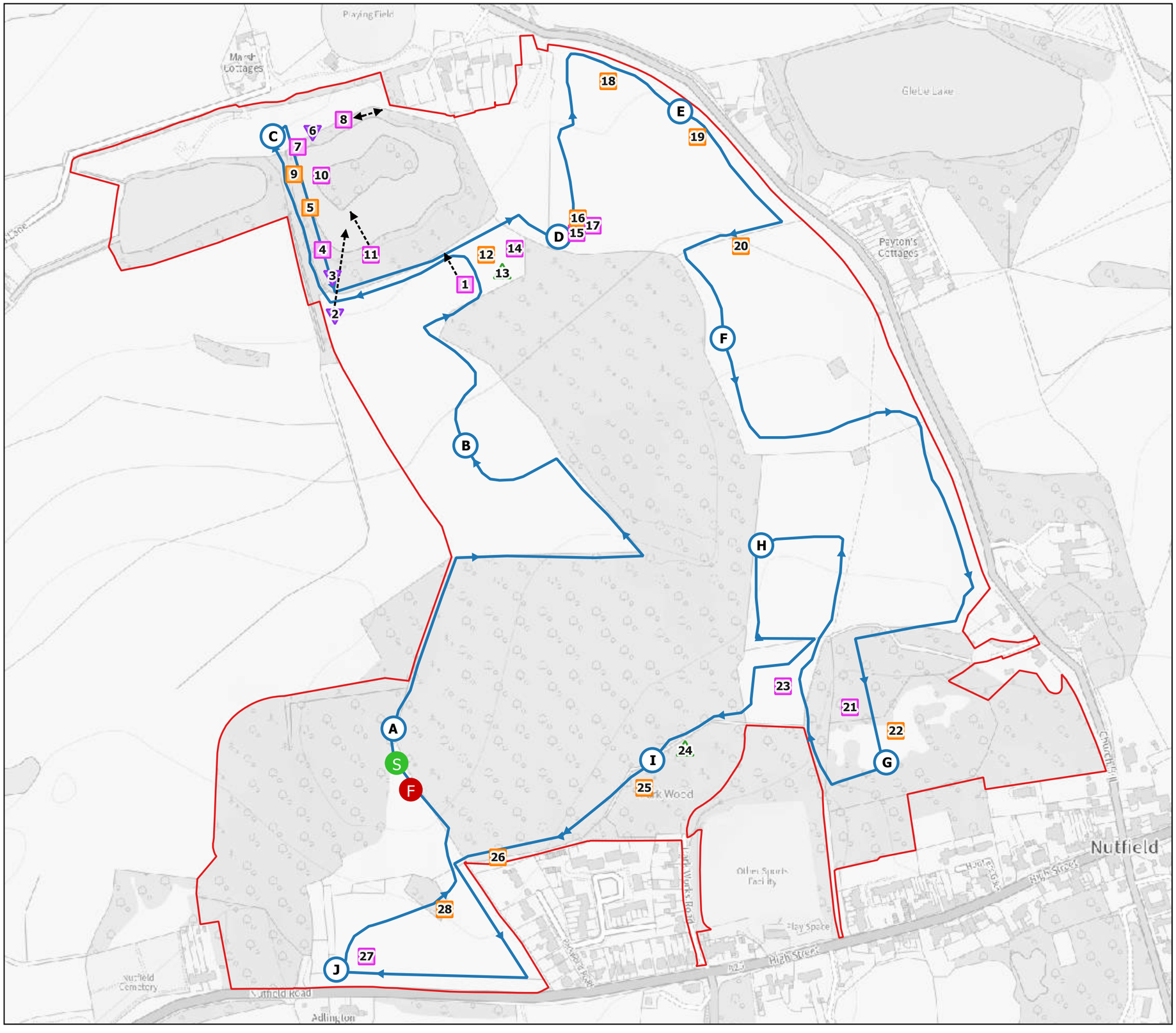

Key:

- Transect Route
- Start point
- Finish point
- Point Count Locations (with ref.)
- Flight Arrow

Bat Contacts (with ref.)

- Common Pipistrelle
- Soprano Pipistrelle
- Myotis Species
- Noctule

Plan Ref.	Time	Species	Behaviour	Passes
Start	20:55			
PCA	20:55 - 20:58			
PCB	21:06 - 21:09			
1	21:14	S. Pip	Foraging	2
2	21:19	Noctule	Foraging	3
3	21:22	Noctule	Commuting	1
4	21:23	S. Pip	Foraging	Cont.
5	21:25	C. Pip	Foraging	Cont.
PCC	21:27 - 21:30			
6	21:28	Noctule	Foraging	3
7	21:29	S. Pip	Commuting	1
8	21:31	S. Pip	Foraging	Cont.
9	21:38	C. Pip	Foraging	3
10	21:38	S. Pip	Foraging	Cont.
11	21:42	S. Pip	Commuting	1
12	21:45	C. Pip	Foraging	4
13	21:45	Myotis	Commuting	1
14	21:46	S. Pip	Commuting	Cont.
PCD	21:49 - 21:52			
15	21:49	S. Pip	Commuting	1
16	21:51	C. Pip	Commuting	1
17	21:51	S. Pip	Commuting	1
18	21:36	C. Pip		2
PCE	21:58 - 22:01			
19	22:01	C. Pip	Commuting	1
20	22:04	C. Pip	Commuting	1
PCF	22:07 - 22:10			
21	22:28	S. Pip	Foraging	2
PCG	22:30 - 22:33			
22	22:32	C. Pip	Foraging	2
23	22:38	S. Pip	Commuting	1
PCH	22:42 - 22:45			
24	22:49	Myotis		1
PCI	22:50 - 22:53			
25	22:52	C. Pip	Commuting	1
26	22:56	C. Pip	Foraging	Cont.
PCJ	23:02 - 23:05			
27	22:04	S. Pip		1
28	23:07	C. Pip	Commuting	1
Finish	23:14			

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0 100 200 m

client
Nutfield Park Developments Ltd

project
Nutfield Green Park, Tandridge

drawing title
BAT TRANSECT PLAN 28.07.22

scale @ A3
1:4,250

drawn
DS / KAB

issue date
6/10/2023

drawing / figure number
Figure 4

rev
10973-E-01

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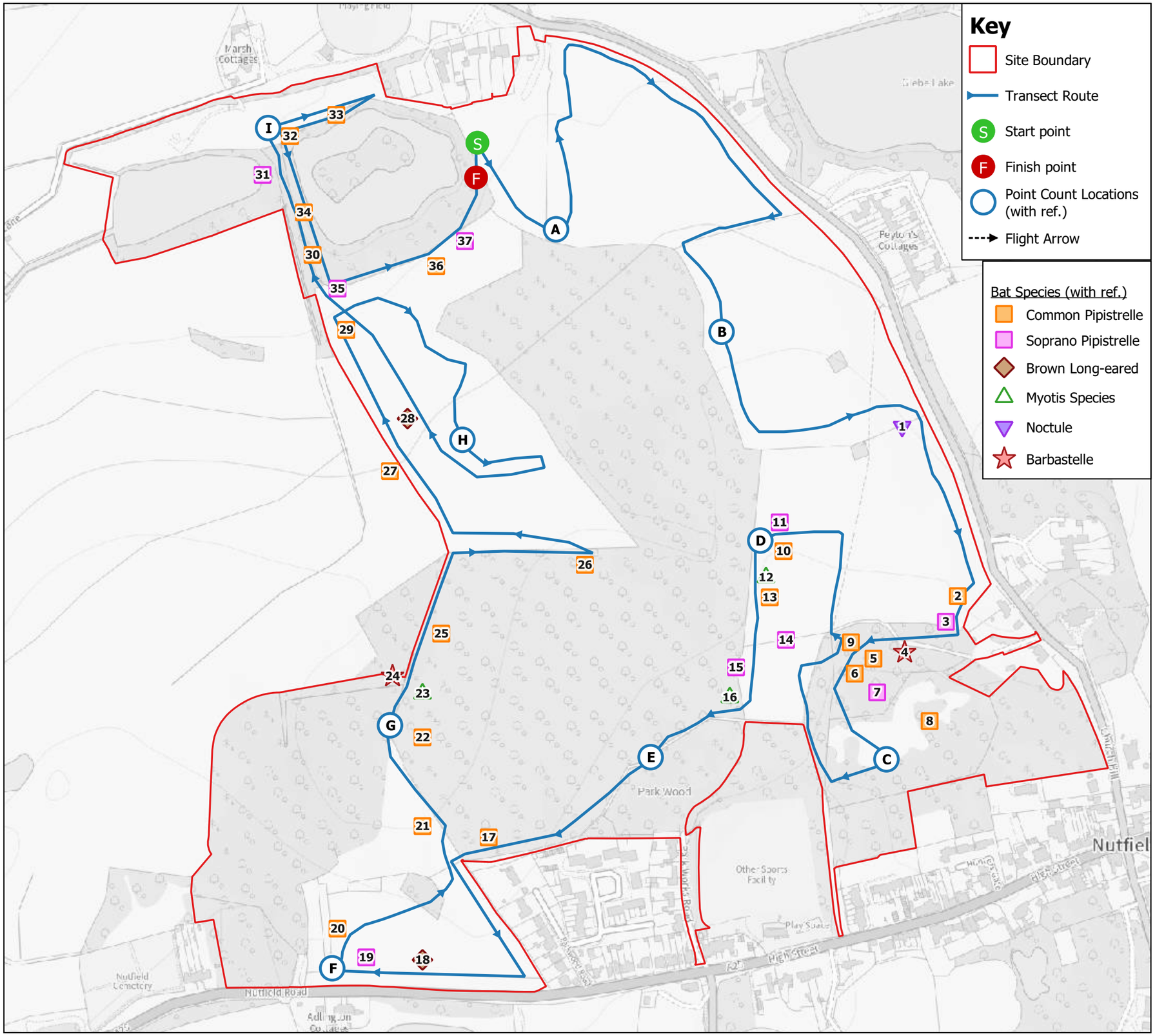

"Plan Ref."	Time	Species	Behaviour	"Passes"
Start	20:23			
PCA	20:25 - 20:28			
PCB	20:37 - 20:40			
1	20:44	Noctule	Commuting	2
2	20:49	C. Pip	Commuting	1
3	20:50	S. Pip	Foraging	5
4	20:50	Barb.	Commuting	1
5	20:53	C. Pip	Commuting	2
6	20:54	C. Pip		1
7	20:54	S. Pip	Commuting	1
8	20:56	C. Pip	Commuting	2
PCC	20:56 - 20:59			
9	21:02	C. Pip x2	Commuting	1
PCD	21:04 - 21:07			
10	21:07	C. Pip	Commuting	1
11	21:07	S. Pip	Foraging	Cont.
12	21:07	Myotis	Foraging	3
13	21:08	C. Pip	Foraging	3
14	21:10	S. Pip	Foraging	3
15	21:13	S. Pip	Foraging	3
16	21:13	Myotis	Foraging	Cont.
PCE	21:16 - 21:19			
17	21:25	C. Pip	Commuting	1
18	21:28	BLE	Commuting	1
19	21:29	S. Pip	Foraging	4
20	21:30	C. Pip	Foraging	Cont.
21	21:35	C. Pip	Commuting	1
PCF	21:37 - 21:40			
22	21:39	C. Pip	Foraging	Cont.
23	21:41	Myotis	Foraging	Cont.
24	21:41	Barb.	Commuting	1
25	21:43	C. Pip	Commuting	1
26	21:50	C. Pip	Commuting	1
27	21:53	C. Pip	Foraging	3
28	21:54	BLE	Commuting	1
29	21:55	C. Pip	Foraging	Cont.
PCH	21:59 - 22:02			
30	22:05	C. Pip	Foraging	Cont.
31	22:07	S. Pip	Foraging	3
PCI	22:08 - 22:11			
32	22:10	C. Pip	Foraging	3
33	22:12	C. Pip	Foraging	5
34	22:18	C. Pip	Foraging	Cont.
35	22:21	S. Pip	Commuting	1
36	22:24	C. Pip	Foraging	Cont.
37	22:25	S. Pip	Commuting	1
Finish	22:29			

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masterplanning ■ environmental assessment ■ landscape design ■ urban design ■ ecology ■ architecture ■ arboriculture

0 100 200 m

client
Nutfield Park Developments Ltd

project
Nutfield Green Park,
Tandridge

drawing title
AUGUST BAT TRANSECT PLAN 15.08.22
DUSK

scale @ A3
1:4250

drawn
DS

issue date
6/10/2023

drawing / figure number
Figure 5

rev
10973-E-01

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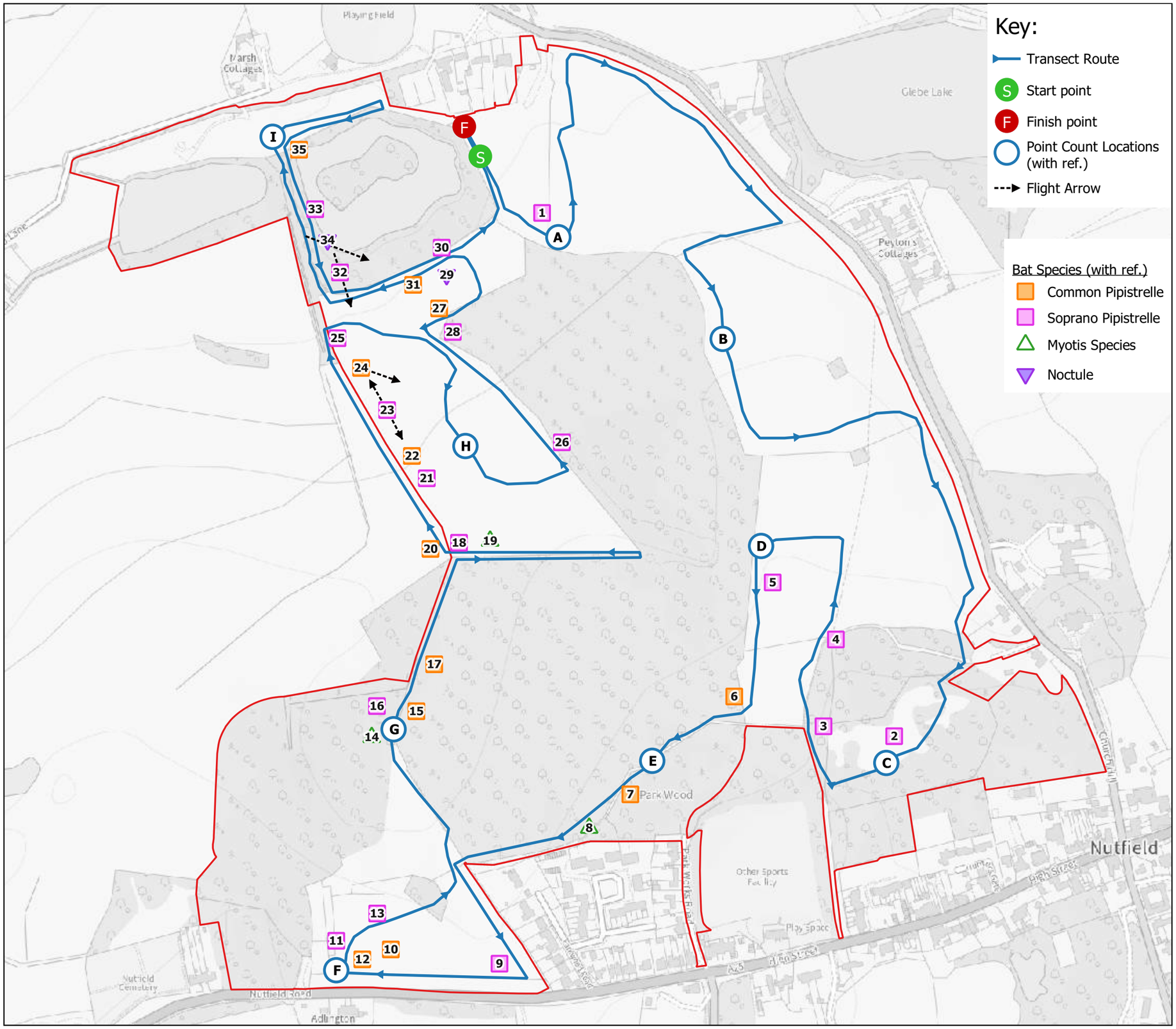

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Plan Ref.	Time	Species	Behaviour	Passes
Start	03:33			
PCA	3:39 - 3:42			
1	03:43	S. Pip	Commuting	1
PCB	3:53 - 3:56			
PCC	4:08 - 4:11			
2	04:09	S. Pip	Commuting	1
3	04:12	S. Pip	Commuting + Social	1
4	04:13	S. Pip	Commuting	1
PCD	4:16 - 4:19			
5	04:20	S. Pip	Commuting + Social	1
6	04:24	C. Pip	Commuting	1
PCE	4:27 - 4:30			
7	04:31	C. Pip	Commuting + Social	1
8	04:32	Myotis sp.	Commuting	2
9	04:35	S. Pip	Commuting	1
10	04:37	C. Pip	Commuting	1
PCF	4:38 - 4:41			
11	04:38	S. Pip	Foraging + Social	Cont.
12	04:39	C. Pip	Social Calls	1
13	04:41	S. Pip	Social Calls	1
14	04:47	Myotis sp.	Commuting	1
PCG	4:48 - 4:51			
15	04:49	C. Pip	Foraging	2
16	04:50	S. Pip	Commuting	1
17	04:52	C. Pip	Commuting	1
18	04:59	S. Pip	Commuting	1
19	04:59	Myotis sp.	Commuting	1
20	05:00	C. Pip	Commuting	1
21	05:02	S. Pip	Commuting	1
22	05:02	C. Pip	Commuting	1
23	05:04	S. Pip	Foraging	2
24	05:04	2x C. Pip	Foraging	3
25	05:06	S. Pip	Commuting	1
PCH	5:10 - 5:13			
26	05:14	S. Pip	Foraging	2
27	05:16	C. Pip	Foraging	Cont.
28	05:16	S. Pip	Foraging	Cont.
29	05:19	Noctule	Commuting	1
30	05:21	S. Pip	Foraging	Cont.
31	05:21	C. Pip	Commuting	1
32	05:25	S. Pip	Commuting	2
33	05:28	S. Pip	Foraging	2
34	05:28	Noctule	Commuting	1
35	05:31	C. Pip	Foraging	Cont.
PCI	5:32 - 5:35			
Finish	05:48			

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0 100 200 m

client
Nutfield Park Developments Ltd

project
Nutfield Green Park, Tandridge

drawing title
AUGUST BAT TRANSECT PLAN 16.08.22 DAWN

scale @ A3 1:4,254.402753 | drawn DS / KAB | issue date 6/10/2023

drawing / figure number **Figure 6** | rev **10973-E-01**

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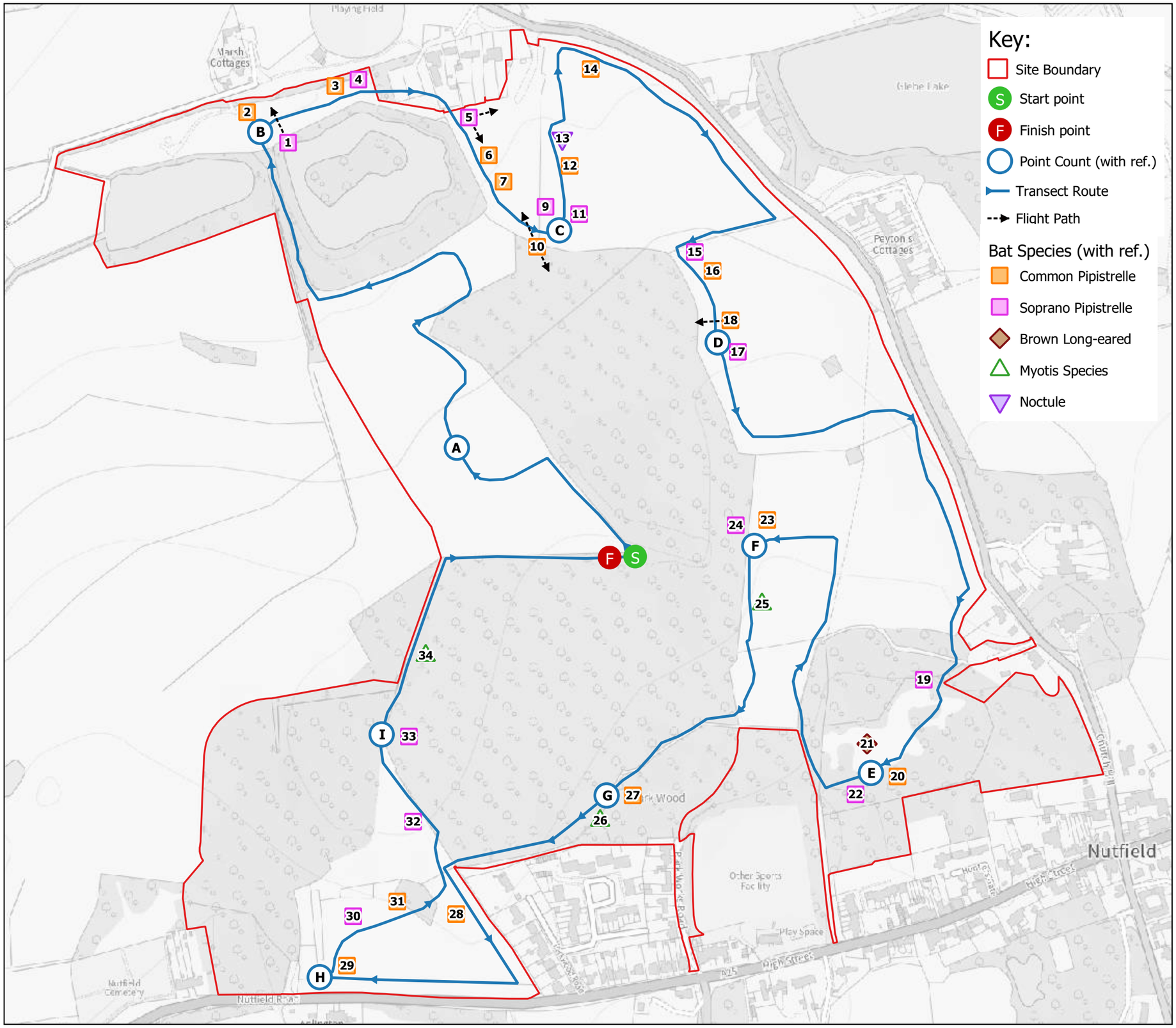

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Plan Ref	Time	Species	Behaviour	Passes
Start	19:16			
PCA	19:19 - 19:24			
PCB	19:35 - 19:40			
1	19:37	S. Pip	Commuting	2
2	19:38	C. Pip	Commuting	2
3	19:43	C. Pip	Commuting	1
4	19:43	S. Pip	Commuting	2
5	19:48	S. Pip	Foraging	3
6	19:49	C. Pip	Commuting	1
7	19:50	2x C. Pip	Foraging	Cont.
8	19:51	S. Pip	Commuting	1
PCC	19:52 - 19:57			
9	19:53	S. Pip	Commuting	1
10	19:54	C. Pip	Foraging	Cont.
11	19:56	S. Pip	Commuting	1
12	19:59	2x C. Pip	Foraging	2
13	20:02	Noctule	Commuting	2
14	20:04	C. Pip	Foraging	2
15	20:10	S. Pip	Social	1
16	20:11	C. Pip	Commuting	1
PCD	20:12 - 20:17			
17	20:15	S. Pip	Commuting	1
18	20:15	C. Pip	Foraging	3
19	20:33	S. Pip	Social	2
PCE	20:35 - 20:40			
20	20:37	C. Pip	Commuting	2
21	20:38	BLE	Commuting	1
22	20:39	S. Pip	Commuting	1
PCF	20:48 - 20:53			
23	20:50	C. Pip	Foraging	Cont.
24	20:52	S. Pip	Commuting + Social	3
25	20:53	Myotis sp.	Commuting	1
PCG	21:01 - 21:06			
26	21:01	Myotis sp.	Foraging	Cont.
27	21:03	C. Pip	Foraging + Social	2
28	21:09	C. Pip	Commuting	1
PCH	21:14 - 21:19			
29	21:15	C. Pip	Commuting	1
30	21:20	S. Pip	Commuting	1
31	21:21	C. Pip	Commuting	1
32	21:25	S. Pip	Foraging + Social	1
PCI	21:27 - 21:32			
33	21:32	S. Pip	Commuting	1
34	21:32	Myotis sp.	Commuting	1
End	21:35			

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0 100 200 m

client
Nutfield Park Developments Ltd

project
Nutfield Green Park,
Tanbridge

drawing title
SEPTEMBER BAT TRANSECT PLAN 15.09.22

scale @ A3
1:4,200

drawn
BL

issue date
6/10/2023

drawing / figure number
Figure 7

rev
10973-E-01

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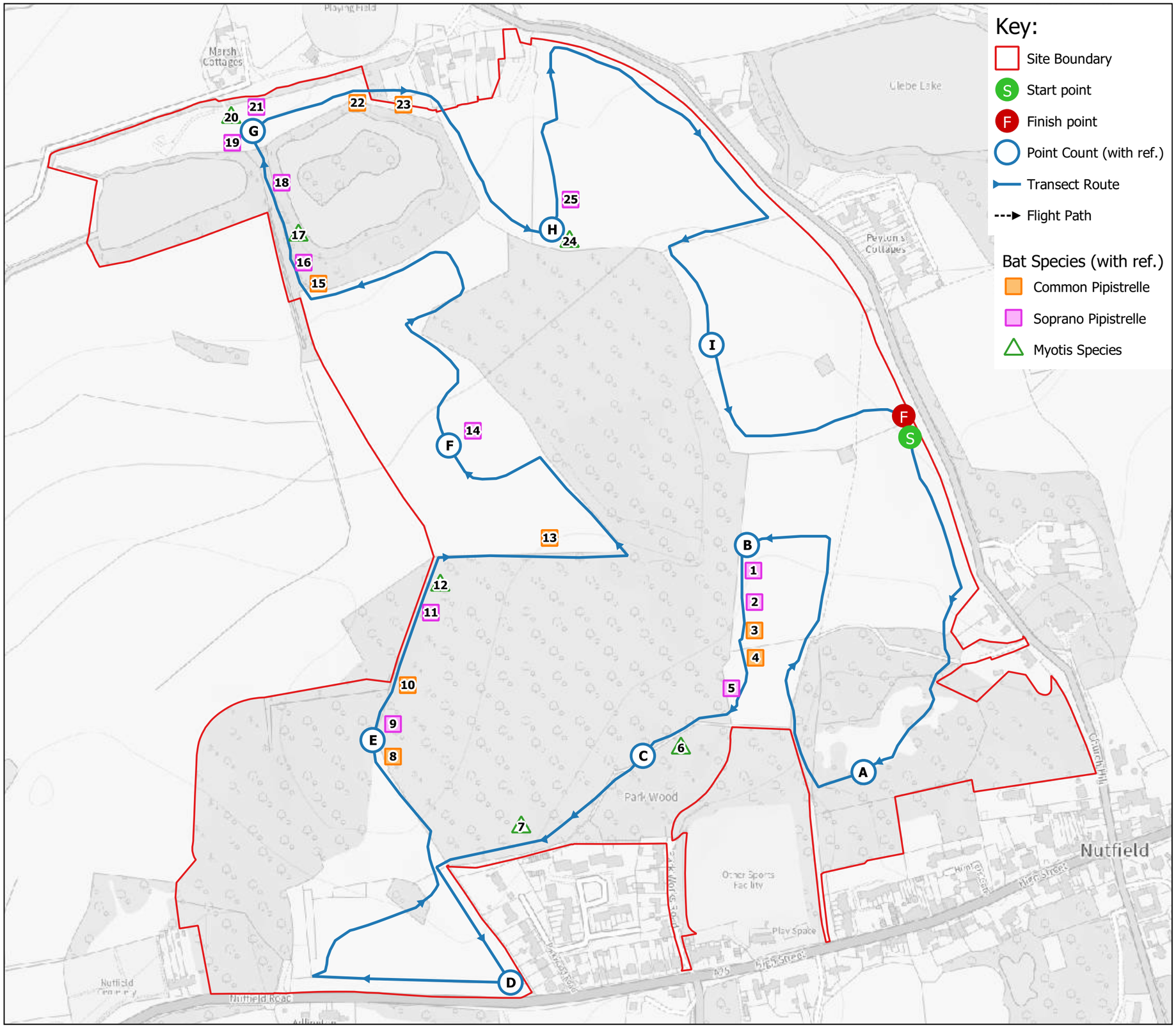

Plan Ref	Time	Species	Behaviour	Passes
Start	18:29			
PCA	18:38 - 18:43			
PCB	18:46 - 18:51			
1	18:50	S. Pip	Foraging	2
2	18:52	S. Pip	Foraging	3
3	18:53	2x C. Pip	Foraging + Social	3
4	18:55	C. Pip	Foraging	2
5	18:56	S. Pip	Commuting	2
6	18:57	Myotis sp.	Commuting	2
PCC	18:58 - 19:03			
7	19:08	Myotis sp.	Foraging	3
PCD	19:13 - 19:18			
PCE	19:27 - 19:32			
8	19:28	C. Pip	Commuting	2
9	19:30	S. Pip	Commuting	1
10	19:34	C. Pip	Commuting	2
11	19:36	S. Pip	Foraging	2
12	19:36	Myotis sp.	Foraging	1
13	19:40	C. Pip	Commuting	1
PCF	19:47 - 19:52			
14	19:49	S. Pip	Commuting	1
15	19:59	C. Pip	Commuting	1
16	19:59	S. Pip	Foraging	2
17	20:00	Myotis sp.	Foraging	Cont.
18	20:02	S. Pip	Foraging + Social	Cont.
PCG	20:04 - 20:09			
19	20:04	S. Pip	Foraging + Social	2
20	20:07	Myotis sp.	Foraging	3
21	20:08	S. Pip	Foraging + Social	Cont.
22	20:12	C. Pip	Foraging	3
23	20:14	C. Pip	Foraging	3
PCH	20:18 - 20:23			
24	20:18	Myotis sp.	Commuting	2
25	20:24	S. Pip	Commuting	1
PCI	20:32 - 20:37			
End	20:42			

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client
Nutfield Park Developments Ltd

project
Nutfield Green Park, Tandridge

drawing title
OCTOBER BAT TRANSECT PLAN 05.10.22

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drawing / figure number **Figure 8** | rev **10973-E-01**

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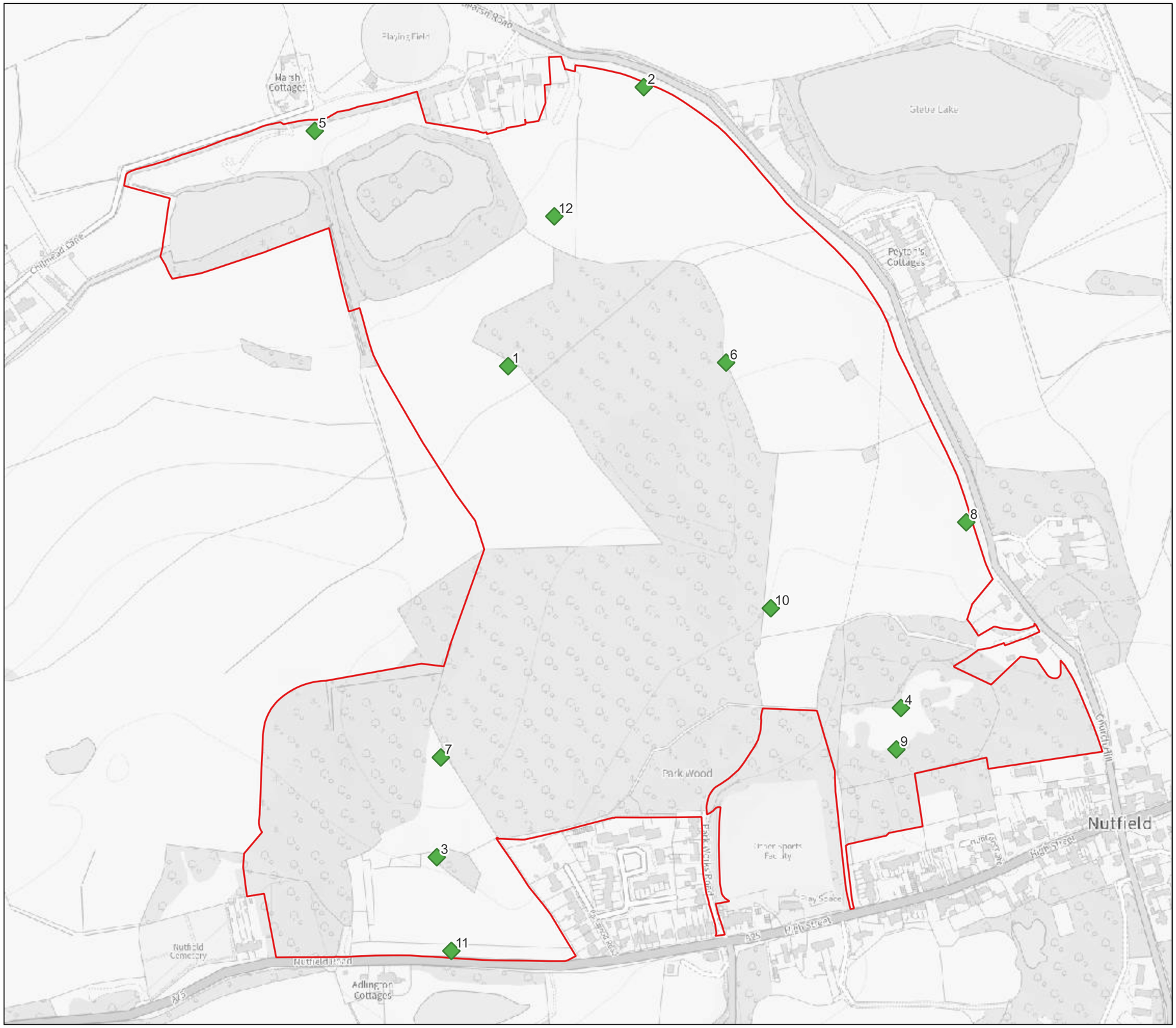

Key:

- Site Boundary
- Static Locations

1, 2 - May
3, 4 - June
5, 6 - July
7, 8 - August
9, 10 - September
11, 12 - October

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client
Nutfield Park Developments Ltd.

project
Nutfield Green Park,
Tandridge

drawing title
BAT STATIC DETECTOR LOCATION PLAN

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Nutfield Park Developments Limited (Ltd)

Nutfield Green Park

APPENDIX F - BREEDING BIRD SURVEY REPORT

October 2023

FPCR Environment and Design Ltd
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-	Final	REM \ 24.01.23	OGJ / 04.10.23

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FIGURE

Figure 1: Breeding Bird Survey – Notable Species 2022

APPENDIX

Appendix F-1: Breeding Bird Survey Results 2022

1.0 INTRODUCTION

1.1 The following report has been prepared by FPCR Environment and Design Ltd on behalf of Nutfield Park Developments Limited (Ltd) for a proposed residential led development at Nutfield Green Park, Tandridge, Surrey (central OS Grid Reference TQ 30525 50964).

1.2 The scope and objectives of the report are to:

- present the findings of the breeding bird surveys undertaken in 2022;
- assess the relative importance of the survey area for the breeding bird assemblage;
- review the site proposals and provide recommendations for mitigation, compensation and enhancement.

Site Location and Context

1.3 The Site is approximately 58.8ha in size and is located to the North of the Village of Nutfield in the Tandridge borough area. It comprises a former quarry that has been historically restored and has become dominated by a mix of habitats. A large portion of the site is wooded, with some example of mature semi-natural woodlands present in the south, plantation woodlands in the centre/north of the Site and a large area of self-set birch/willow woodland in the centre of the Site. Two large pasture grasslands are present in the central/northern part of the Site, while a compartment of coarse grassland in present in the south-west of the Site. Small blocks of mixed scrub are scattered around the site while extensive areas of bramble scrub are present in the south-east and south-west. Three waterbodies are also present on Site which comprise two fishing lagoons in the north of the site and a central woodland pond.

1.4 In the surrounding landscape, the Site abuts the residential environs of Nutfield to the south. To the west lies a restored landfill site which sits between the Site and the extant Patteson Court Landfill Site. Eastwards, the landscape comprises a mix of woodlands, pasture grassland, arable fields and the Mercers South Quarry Site to the north-east. To the North lies additional areas of woodland and farmland before the landscape becomes dominated by the residential environs of South Merstham.

Site Proposals

1.5 The proposals include seeking outline planning permission for the development of the site for 166 new homes (Use Class C3) and an Integrated Retirement Community with 70 care home beds and 41 extra case facility beds. In addition, proposals include the creation of new access, landscaping and associated works to facilitate the development, in phases which are severable (Outline with all matters reserved, except for Access).

Historic Applications

1.6 The Site was the subject of a previous planning application (ref: TA/2021/1040) which was refused, and Reasons for Refusal (RfR) 14 and 18 related to ecology and nature conservation.

1.7 Reason for Refusal 14 related to the potential effects to the breeding bird assemblage within the Site and the potential effects to the overall breeding bird assemblage within Holmethorpe Sandpits Complex SNCI which the site is located within.

1.8 RFR 18 relates to the potential effects to increases in use of balancing facilities by wetland birds within the flight path of Gatwick Airport.

1.9 The scheme design has been significantly altered, including the reduction of the development area, the concentration of proposals in the south of the Site only and the inclusion of large areas of habitat creation and enhancement to address these reasons for refusal.

2.0 LEGISLATION & STATUS

Legislation

2.1 Annex 1 of the EC Birds Directive lists rare and vulnerable species of regularly occurring or migratory wild birds that are subject to special conservation measures. The Directive also provides for the designation of Special Protection Areas (SPA) for the protection of these species which form part of the Natura 2000 networks of sites protected by European Wildlife Legislation.

2.2 The Wildlife and Countryside Act 1981 (as amended) is the principal legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions to:

- Kill, injure or take any wild bird intentionally;
- Take, damage or destroy the nest of any wild bird while in use or being built; or
- Take or destroy the egg of any wild bird.

2.3 Additional protection is afforded to species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), whereby intentional disturbance whilst building or occupying a nest or disturbance of dependent young is considered an offence. The Natural Environment and Rural Communities (NERC) Act 2006 strengthens the WCA further with respect to the protection of the nests of certain birds listed on Schedule ZA1, even when they are not in use. The NERC Act also offers additional protection to birds released into the wild as part of a repopulation programme.

2.4 Certain species have also been identified as species of principal importance under Section 41 of the NERC Act 2006 (NERC S.41). The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Status

2.5 In addition to statutory protection, some bird species are classified according to their conservation status, such as their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK[1]:

- Red list (high conservation concern) species are those that are globally threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
- Green list (low conservation concern) species fulfil none of the above criteria.

[1] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747

3.0 METHODOLOGY

Desk Study

3.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:

- Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.defra.gov.uk)
- Surrey Biodiversity Information Centre (SBIC)
- Tandridge District Council planning portal[2]

3.2 Further inspection of colour 1:25000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) were also undertaken to provide additional landscape context and identify any features of potential importance for nature conservation in the wider countryside.

3.3 The search area for biodiversity information was related to the significance of designated sites and protected species and associated potential zones of influence. For local bird records (e.g., protected, or otherwise notable species) a 1km search area was adopted.

3.4 Datasets were restricted to the last ten years to ensure that recent and more relevant records of protected/notable species were considered. However, where protected/notable species have been documented over ten years ago and there are no recent accounts, these have been included.

Breeding Bird Survey

3.5 Five breeding bird surveys (BBS) were undertaken in 2022 between May and July. The survey methodology employed was broadly based on that of territory mapping, as developed by the British Trust for Ornithology (BTO)[3]. All birds encountered (seen or heard) were recorded on a field survey plan using standard BTO species codes and symbols, which denote bird sex, age and behaviour (where appropriate).

3.6 The site was walked over by experienced ecologists between sunrise and 11:00am. A route was mapped out prior to the survey, with particular attention paid to linear features, such as hedgerows and tree lines, and other natural features, such as scrub or waterbodies.

3.7 The criteria used in the assessment of breeding birds has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC 1979)[4] and are grouped into four categories:

- **Non-breeder** e.g. flyover, or observed in unsuitable habitat;
- **Possible breeder** e.g. birds observed in suitable habitat, or a singing male recorded;
- **Probable breeder** e.g. pair in suitable habitat, territory defence, agitated behaviour or nest building; and
- **Confirmed breeder** e.g. recently fledged young observed, adult birds carrying food for young.

2 Ashford Borough Council Planning Portal - https://planning.ashford.gov.uk/ [Accessed 20.09.2021]

[1] Bibby, C.J., N.D. Burgess & D.A. Hill (2000) *Bird Census Techniques*: 2nd Edition. London: Academic Press

[4] EOAC (1979) *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

3.8 The surveys were conducted to ascertain the sites' potential to support breeding populations of bird species that have been assessed to be of some conservation importance, including those included on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and/or Birds of Conservation Concern (BoCC) Red or Amber lists[5]. These species are likely to be at greatest threat in relation to further decline and are commonly referred to as 'notable' species.

3.9 The surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results (Table 1).

Table 1: Survey Dates and Weather Conditions

Date	Cloud Cover (%)	Rain	Wind (Beaufort scale)	Visibility
19th May 2022	60	0	1-2	Very Good
21st May 2022	100	0	2	Very Good
15th June 2022	20	0	1	Good
28th June 2022	90	0	0	Very Good
14th July 2022	10	0	1	Very Good

Assessment Methodology

3.10 The conservation value of bird populations was measured using two separate approaches: nature conservation value and conservation status.

3.11 The CIEEM guidance on Ecological Impact Assessment (EcIA)[6] assesses nature conservation value within a geographical context. To attain each level of value, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 2. In some cases, professional judgement may be required to increase or decrease the allocation of the specific value, based upon local knowledge.

3.12 In order for a species to obtain a conservation value as Local Level or higher, they must regularly occur in sustainable populations within the site boundaries.

3.13 The most recent annual bird report for Surrey[7] was then consulted to inform the conservation status of species within the county.

[5] Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. & Gregory, R. (2015) Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds*, 108: 708-746.
[6] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.1).* Chartered Institute of Ecology and Environmental Management, Winchester.
[7] Surrey Bird Club (2022) *Surrey Bird Report 2019*

Table 2: Evaluation Criteria

Nature Conservation Value	Selection Criteria
International	• A species which is part of the cited interest of a SPA and which regularly occurs in internationally, or nationally important numbers. • A species present in internationally important numbers (>1% of international population).
National	• A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers. • A nationally important assemblage of breeding or over-wintering species. • A species present in nationally important numbers (>1% UK population). • Rare breeding species (<300 breeding pairs in the UK).
Regional	• Species listed as Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006), which are not covered above, and which regularly occurs in regionally important numbers. • Species present in regionally important numbers (>1% of regional population). • Sustainable populations of species that are rare or scarce within a region. • Species on the BoCC Red List and which regularly occurs in regionally important numbers.
County	• Species listed as Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006), which are not covered above, and which regularly occurs in county important numbers • Species present in county important numbers (>1% of county population). • Sustainable populations of species that are rare or scarce within a county, or listed as priority species for nature conservation under S41 of the NERC Act. • A site designated for its county important assemblage of birds (e.g. a SINC Site). • Species on the BoCC Red List and which regularly occur in county important numbers.
Local	• Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List or listed as Priority Species under Schedule 41 of the NERC Act (2006) which are not covered above) regularly occurring in locally sustainable populations. • Sustainable populations of species which are rare or scarce within the locality.
Site	• Species that are common and widespread

4.0 RESULTS

Desk Study

Designated Sites

Statutory Designated Sites

4.1 There were no statutory sites designated for their bird assemblage within the Desktop Study Area.

Non-Statutory Designated Sites

1.0 There is one Site of Nature Conservation Importance (SNCI) within 1km of the site boundary. The majority of the site falls within Holmethorpe Sandpits Complex SNCI, which is designated due to the lagoons, ruderal communities, marsh, willow carr, rank grassland habitats it supports. This site is considered to be of county importance for foraging and breeding birds.

Notable Bird Records

4.2 Numerous bird species records within 1km of the site were returned from SBIC. These included a number of records with two and four figure grid references (i.e. low resolution) that lie adjacent to or encompass the site boundaries and could not be mapped accurately.

4.3 These records comprised many common and widespread species, as well as several rarer species with some conservation significance i.e., species of principal importance under NERC S41, or listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). These included, but are not limited to:

- Reed Bunting Emberiza schoeniclus
- Cetti's warbler *Cettia cetti*

Field Surveys

Summary

4.4 Between May and July 2022, a total of 57 bird species were recorded onsite (Appendix A). Of these, 25 appear on one or more of the following and are hereinafter referred to as 'notable' species:

- Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)
- BoCC Red or Amber lists
- Section 41 of the NERC Act 2006

4.5 Of the 57 recorded bird species, 11 were confirmed as breeding including the notable species moorhen *Gallinula chloropus* and starling *Sturnus vulgaris*. The remaining nine confirmed breeding species were all BoCC Green-listed species (low conservation concern). 17 species were probable breeders; including nightingale, spotted flycatcher, mallard, woodpigeon, whitethroat, wren, song thrush, dunnock and yellowhammer; with the remaining eight species BoCC Green-listed.

4.6 The remaining 29 species recorded were considered possible breeders (20) or non-breeders (eight).

4.7 Table 3 provides a summary of the notable bird species and their breeding status on site whilst Figure 1 shows the distribution of the notable species.

Table 3: Protected, Species of Principal Importance and BoCC Red and Amber Listed Bird Species Recorded during Breeding Bird Surveys 2022, and their Recent Status within Surrey.

Species	Legal/ Conservation status	Peak Count / Number of Survey Occasions Recorded	Breeding Status†	Recent Status in Surrey
Mallard *Anas platyrhynchos*	Amber list	7 / 3	Probable breeder	Common breeding resident
Sparrowhawk *Accipiter nisus*	Amber list	1 / 3	Possible	Moderately common resident
Red kite *Milvus milvus*	WCA Sch. 1	5 / 1	Possible	Regular but increasing visitor, now breeding
Black-headed gull *Chroicocephalus ridibundus*	Amber list	(10 flyovers) / 1	Non-breeder	Numerous winter visitor and passage migrant. Breeds in small numbers
Herring gull *Larus argentatus*	Red list	(11 flyovers) / 2	Non-breeder	Common winter visitor and passage migrant. Breeds in very small numbers
Swift *Apus apus*	Red list	28 / 1	Non-breeder	Common but declining breeding summer visitor
Stock dove *Columba oenas*	Amber list	2 / 2	Possible	Common breeding resident and passage migrant
Woodpigeon *Columba palumbus*	Amber list	26 / 5	Probable	Common breeding resident, passage migrant and winter visitor
Moorhen *Gallinula chloropus*	Amber list	3 / 4	Confirmed	Common breeding resident and winter visitor
Kingfisher *Alcedo atthis*	WCA Sch. 1	1 / 1	Possible	Moderately common breeding resident
Tawny owl *Strix aluco*	Amber list	2 / 1	Possible	Common breeding resident
Whitethroat *Curruca communis*	Amber list	6 / 4	Probable	Common breeding summer visitor and passage migrant
Skylark *Alauda arvensis*	Red list NERC S.41	1 / 1	Possible	Common but declining breeding resident, passage migrant and winter visitor
Wren *Troglodytes troglodytes*	Amber list	56 / 5	Probable	Common breeding resident
Starling *Sturnus vulgaris*	Red list NERC S.41	23 / 4	Confirmed	Common breeding resident
Song thrush *Turdus philomelos*	Amber list NERC S.41	12 / 5	Probable	Common breeding resident
Mistle thrush *Turdus viscivorus*	Red list	2 / 3	Possible	Common breeding resident
Spotted flycatcher *Muscicapa striata*	Red list NERC S.41	1 / 2	Probable	Breeding summer visitor in declining numbers

Species	Legal/ Conservation status	Peak Count / Number of Survey Occasions Recorded	Breeding Status†	Recent Status in Surrey
Nightingale *Luscinia megarhynchos*	Red list	1 / 2	Probable	Scarce breeding summer visitor
Dunnock *Prunella modularis*	Amber list NERC S.41	13 / 5	Probable	Common breeding resident
Grey wagtail *Motacilla cinerea*	Amber list	(1 flyover) / 1	Non-breeder	Moderately common breeding resident and passage migrant
House sparrow *Passer domesticus*	Red list NERC S.41	2 / 1	Non-breeder	Common breeding resident
Greenfinch *Carduelis chloris*	Red list	1 / 2	Possible	Common resident, passage migrant and winter visitor
Yellowhammer *Emberiza citrinella*	Red list NERC S.41	2 / 1	Probable	Moderately common but decreasing breeding resident

Bird Survey Results Description

4.8 The majority of bird species recorded were typical of the range of habitats that dominate the Site, primarily woodland and pasture grassland. The internal parts of the pasture grasslands provided limited breeding opportunities for the majority of species recorded with only a single skylark *Alauda arvensis*, a ground nesting bird, recorded onsite. Pasture grassland is generally of low suitability for this species and the areas of more coarse grassland present onsite were either too small in size or densely encroached by bramble scrub rendering them unsuitable. The field interiors, and associated scrub, did provide some suitable foraging habitat for a small number of species including yellowhammer *Emberiza citrinella*, green woodpecker *Picus viridis*, stonechat *Saxicola torquata* and corvids.

4.9 Woodland and hedgerow habitats across the Site provided breeding and foraging opportunities for a variety of widespread, generalist and woodland species including great spotted woodpecker *Dendrocopos major*, wren *Troglodytes troglodytes,* blackbird *Turdus merula,* robin *Erithacus rubecula* and the common tit, finch and warbler species recorded. Notable species including spotted flycatcher *Muscicapa striata* and nightingale *Luscinia megarhynchos* were both recorded using the woodland and associated scrub with the spotted flycatcher to the south-west of the site and nightingale to the north.

4.10 The three waterbodies on-site provided some suitable breeding and foraging habitat for a small number of species including mallard *Anas platyrhynchos*, kingfisher *Alcedo atthis*, tufted duck *Aythya fuligula*, moorhen *Gallinula chloropus* and little grebe *Tachybaptus ruficollis*; the latter two of which were confirmed to be breeding on site.

4.11 Other species recorded using onsite habitats during breeding bird surveys included house sparrow *Passer domesticus* within close proximity to residential buildings to the east of the site with two individuals recorded on a single survey occasion. This species has specific habitat requirements and

is strongly associated with urban environs. The site provided suitable foraging resources and but lacked suitable breeding habitat.

4.12 Sparrowhawk *Accipiter nisus*, red kite *Milvus milvus*, tawny owl *Strix aluco* and buzzard *Buteo buteo* were also recorded on-site, most likely foraging. All four species were recorded as possible breeders due to their breeding habitat being present on site but a lack of breeding evidence recorded.

4.13 A number of species including grey wagtail *Motacilla alba*, herring gull *Larus argentatus*, raven *Corvus corax* and cormorant *Phalacrocorax carbo* were recorded overflying the site only and due to a lack of breeding evidence and/or unsuitable habitat, were recorded as non-breeders on site.

Breeding Assemblages

4.14 The grassland habitats were of limited suitability as breeding habitat, with the only species that may be using this habitat for breeding being skylark, of which only a single individual was recorded across all five surveys. These habitats provided suitable foraging for a larger number of species including yellowhammer, stonechat, woodpigeon and starling. Breeding was considered possible by stonechat and probable by woodpigeon and confirmed for starling *Sturnus vulgaris*. As a result, the site was considered to be of not more than **Local** level importance for this grassland bird assemblage.

4.15 Hedgerows and woodland features on the site provide suitable breeding and/or foraging habitat for an assemblage of common and widespread generalist species including dunnock *Prunella modularis*, blackbird, nuthatch *Sitta europaeus* and buzzard. The assemblage recorded is considered typical of the habitats present, which are a common feature of the surrounding landscape. While the assemblage includes a number of notable species, these species are all fairly common to abundant in Surrey and the numbers recorded are all considered typical of the habitats present. The site was therefore considered to be of no more than **Local** level importance for the generalist assemblage recorded.

4.16 A small number of waterbodies on-site provide suitable foraging and/or breeding habitat for a limited number of species including kingfisher, moorhen and little grebe. Moorhen and little grebe were confirmed breeders due to young being recorded on-site, mallard was a probable breeder and the remaining species wetland species all possible breeders. Therefore, the site was considered to be of not more than **Local** importance for the wetland bird assemblage.

Individual Species

4.17 *Table 4* summarises those birds species recorded from the site that are of at least Local importance.

4.18 The majority of the other breeding bird species were either recorded in small numbers, were recorded flying over the site, were noted in unsuitable breeding habitats and/or are considered common and widespread breeding species. These individual species that make use of the available habitats are recognised as being of only Site importance.

Table 4: Birds of at least Local Importance

Name		Status		Nature Conservation Value
		WCA Sch.1	NERC S.41	
BoCC Red List				
Nightingale	*Luscinia megarhynchos*			County
Spotted flycatcher	*Muscicapa striata*		+	Local
Skylark	*Alauda arvensis*		+	Local
Starling	*Sturnus vulgaris*		+	Local
Greenfinch	*Carduelis chloris*			Local
Yellowhammer	*Emberiza citrinella*		+	Local
BoCC Amber List				
Tawny owl	*Strix aluco*		+	Local
Sparrowhawk	*Accipiter nisus*			Local
Whitethroat	*Curruca communis*			Local
Song thrush	*Turdus philomelos*		+	Local
BoCC Green List				
Kingfisher	*Alcedo atthis*	+		Local

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 The following section provides an assessment of the potential impacts of the proposals upon breeding birds. Where appropriate, recommendations are provided for mitigation and enhancement that take account of the likely ecological effects. Throughout the evaluation, any recommendations for mitigation have been informed by the most up-to-date Illustrative Masterplan (PL-02).

5.2 The proposed residential development will comprise associated green space including an attenuation basin, woodland and shrub planting and areas of public open space. In addition, the northern half of the site will not be developed, the habitats will be enhanced, and new habitats created.

5.3 The recommendations below have been given with the aim of informing development proposals on how to best maintain the conservation status of bird species present.

Impact Assessment

5.4 The potential impact of the loss or change of habitat upon breeding bird species arising from the effects of development is based upon an understanding of each species' ecological requirements, the type of development, number of birds recorded on site, their nature conservation criteria based on legislation and current guidance, their county status according to *The Sussex Bird Report 2019* and professional judgement.

5.5 The following potential impacts to the recorded bird populations and assemblage may result from the proposals:

- Direct loss/change of breeding habitat.
- Disturbance during construction and/or operation.

Habitat Loss

5.6 The proposals will lead to a loss of approximately 2.1ha of woodland to facilitate the construction of an access road between the two development parcels proposed. Coarse grasslands and bramble scrub habitats in the south-west and south-west of the Site will also be lost. All other habitats across the Site including pasture grasslands, ponds, hedgerows and woodlands will be largely retained and enhanced as a part of the proposed green infrastructure. In addition, a range of habitat creation measures will be implemented including the creation of a series of small connected ponds as part of the drainage scheme, additional woodland/hedgerow planting, pasture grassland enhancement into species-rich meadows and the creation of scrub habitat.

5.7 The individual species recorded onsite that are arguably the most vulnerable to impacts from habitat loss/change are the eleven species that are considered to be of at least Local importance. These comprise notable species that are either specially protected, appear on the BoCC Red list and/or are listed as a NERC Priority Species and were recorded in at least locally important numbers.

5.8 The loss of some of the grassland habitats will inevitably lead to a decrease in foraging/breeding habitat for notable species such as skylark, yellowhammer and bullfinch. However, the retention and enhancement of the northern grasslands into species-rich meadow grasslands will ensure that an abundance of optimal grassland foraging habitat will be introduced to continue supporting these species. With the creation of more scrub habitat, yellowhammer and bullfinch will also benefit from additional foraging and/breeding habitat. It is therefore considered that the development of the site

will lead to a negligible to positive effect on these species at a **Local** scale. This is not expected to lead to a significant effect as these species were recorded in small numbers and these species are more typically encountered in farmland environments, however the additional opportunities provided by the green infrastructure proposals will be beneficial to local populations of these species.

5.9 The loss of some woodland habitat to the south of the Site will lead to a decrease in foraging and breeding habitat for the generalist and woodland bird assemblages. However, the enhancement of the remaining woodland habitat and green infrastructure associated with the development, will help to mitigate for this loss, with additional woodland planting providing further habitat in the long-term as it matures. Species such as song thrush, mistle thrush and dunnock, which will all readily habituate to human disturbance, will not be impacted greatly. Indeed, a number of notable species are likely to benefit from the proposals, including house sparrow with the inclusion of built environment and wetland features providing more potential breeding sites for this urban species. It is therefore considered that development of the site will result in beneficial or negligible impact to the majority of the generalist and woodland bird populations recorded.

Nightingales

5.10 Nightingale is a red-listed bird, having declined by 90% in the 40 years leading up to 2012, with their range contracting towards to the south-east. They are a bird of woodland and scrub, preferring to breed in areas of dense scrub, often within close proximity to water. During the breeding bird surveys, one male nightingale was recorded singing towards to north-west of the site in the woodland adjacent to the two fishing ponds. Although this area will not be lost to development, the woodland will continue to become less suitable for nightingale as it matures. It is therefore important to enhance the Site for this species by creating extensive areas of optimal scrub habitat. The north-western woodland would benefit from selective thinning as well as supplementary planting of scrub.

5.11 Elsewhere, it is recommended that mixed scrub mosaics are created in the grassland to the north-east of the site and managed for at least 30 years post-development. Optimal habitat for nightingale is dense scrub with areas of bare ground underneath and a dense field layer on the peripheries. This scrub should then be managed by rotational cutting, on a 10-to-15-year cycle, preventing scrub from getting too old and to encourage new, vigorous growth. Ideal scrub species include hawthorn and blackthorn, although structure and management are most important.

5.12 Rabbit fencing, approximately a meter high and dug into the ground, around new scrub in the north-east of the site may be beneficial to help prevent browsing of new growth from rabbits which are present on site.

5.13 Overall, the enhancement and creation of scrub will benefit nightingales, but also a large number of other bird species including garden warbler *Sylvia borin*, whitethroat *Sylvia communis*, yellowhammer and spotted flycatcher.

Disturbance Impacts

5.14 Construction operations have the potential to disturb birds using the site for roosting, foraging, and breeding. Operations likely to disturb breeding birds include noise from vegetation clearance, initial ground works and some construction activities, such as piling, which are of low frequency but of high amplitude. Active, high level, infrequent disturbance causes most birds to be displaced for short

periods[8]. During the breeding season disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as the retained hedgerows or woodland edge. Whilst there is some potential for breeding success to be reduced, this is not expected to affect the local conservation status on the majority of the bird species using the site for breeding.

5.15 The increase in domestic animals during the operational phase, particularly cat, may lead to an effect on small bird populations. Recent research is inconclusive as to the actual effect that domestic cats can have on wild populations. However, (although some species may be more susceptible to predation than others) it is considered unlikely that the increased abundance of cats would alter the conservation status of any of the breeding birds assemblages present in this instance, with the magnitude of any such impact reduced by the retention of hedgerows and scrub which will continue to provide cover and screening from potential predators. it is therefore considered that the impact of cats will be of negligible significance.

Mitigation

5.16 To avoid disturbance to breeding birds, ground clearance works and vegetation removal will be undertaken prior to the bird-breeding season (March to August, inclusive). If this is not possible, the area will be checked prior to removal of vegetation or ground works by an experienced ecologist. If active nests are found, vegetation will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the Wildlife and Countryside Act, 1981. A suitably qualified ecologist would supervise this.

Enhancements

5.17 The green infrastructure proposals for the Site include the enhancement of pasture grasslands into native species-rich meadow grasslands which will provide a significant enhancement in the availability of optimal foraging habitats for a range of bird species including the generalist and woodland edge species recorded, as diverse grasslands will attract invertebrate prey species to the Site and will provide seeds for foraging. Furthermore, the proposals include the enhancement of existing ponds and the creation of a series of new interconnected pools will provide additional optimal foraging habitat and new breeding opportunities for species such as reed bunting. Enhancement of wetland features will include the provision of aquatic, emergent and marginal planting to further attract invertebrate prey species to the Site.

5.18 These enhancements will more than adequately compensate for the areas of habitat that will be lost to the proposals. With 88% of the Site proposed as green infrastructure to be enhanced for its biodiversity value, the proposals are likely to benefit the local bird assemblages utilising the Site.

5.19 Woodlands will be enhanced through measures such as selective thinning, additional tree planting and the introduction of additional standing and fallen deadwood and ground flora species. In additional, an equivalent area of woodland planting will be provided to compensate for the area lost ensuring that in the long-term, woodland coverage onsite remains the same. The proposals also include extensive scrub planting which will be managed to incorporate diverse edge habitat along

[8] Hockin, D., Ounsted, M., Gorman, M., Hill, D., Keller, V., and Barker, M. 1992 Examination of the effects of disturbance on birds with reference to the role of environmental impact assessments. Journal of Environmental Management, 36, 253–286

with clearings, glades and rides to provide optimal foraging and breeding opportunities to generalist bird species.

5.20 A number of SuDS will be incorporated into the grassland to the north-west of the site, creating a wetland mosaic habitat. Attenuation features should be planted with an appropriate marginal vegetation mix that includes common reed *Phragmites australis*. This will provide habitat and nesting opportunities for wetland species such as reed bunting. Due to the Site being located within the risk radius of Gatwick Airport, these ponds will be planted with scrub at the banks to ensure they do not attract increased numbers of species such as waders, ducks, geese and gulls that could lead to an increased birdstrike risk (see appendix G of the accompanying EcIA report). Habitat creation here will instead focus on small passerines such as reed bunting, cetti's warbler, sedge warbler and *Acrocephalus schoenobaenus* by creating areas of emergent/marginal vegetation in association with scrub and woodland edge habitats. This habitat creation will also benefit the limited wetland bird assemblage already recorded on-site such as kingfisher, little grebe and moorhen.

5.21 Additional planting is to be incorporated into the sites green infrastructure and will provide additional foraging and breeding habitat for a range of bird species. Where possible it is recommended that consideration is given to the provision of native, fruit bearing species of local origin to provide an optimal foraging resource for a range of bird species including the thrush species recorded.

5.22 Additional enhancements that could be integrated with the on-going management of the site include the erection of a mixture of nest box types. The following provides details of other suitable nest box types to be erected at suitable locations:

- A mixture of small hole (26mm and 32mm) boxes placed along the retained habitat around the proposed development area will provide nesting opportunities for blue tit *Cyanistes caeruleus* and great tit *Parus major*. These boxes generally have a high uptake rate;
- Small open fronted nest boxes again should be placed throughout the site especially on trees which support a climber such as ivy which provides a degree of concealment. These boxes typically attract robin and blackbird;
- Stock dove nest boxes should be placed within the more established boundary habitats including mature tree standards;
- Consideration should subsequently be given to the provision of nest boxes for urban birds, including house sparrow, house martin, swallow and swift. Given the urbanised nature of the proposed development, opportunities exist to encourage these species to breed on site.
- Consideration should also be given to providing nesting opportunities for a range of birds of prey including boxes for kestrel, tawny owl and barn owl.

6.0 CONCLUSION

6.1 Surveys have demonstrated that the Site is used as foraging and commuting habitat for a range of common and widespread woodland, woodland edge and generalist bird species utilising the mix of habitats present including woodlands, scrub and grassland. This included a range of notable species, including the locally scarce species, nightingale which favours scrub habitats.

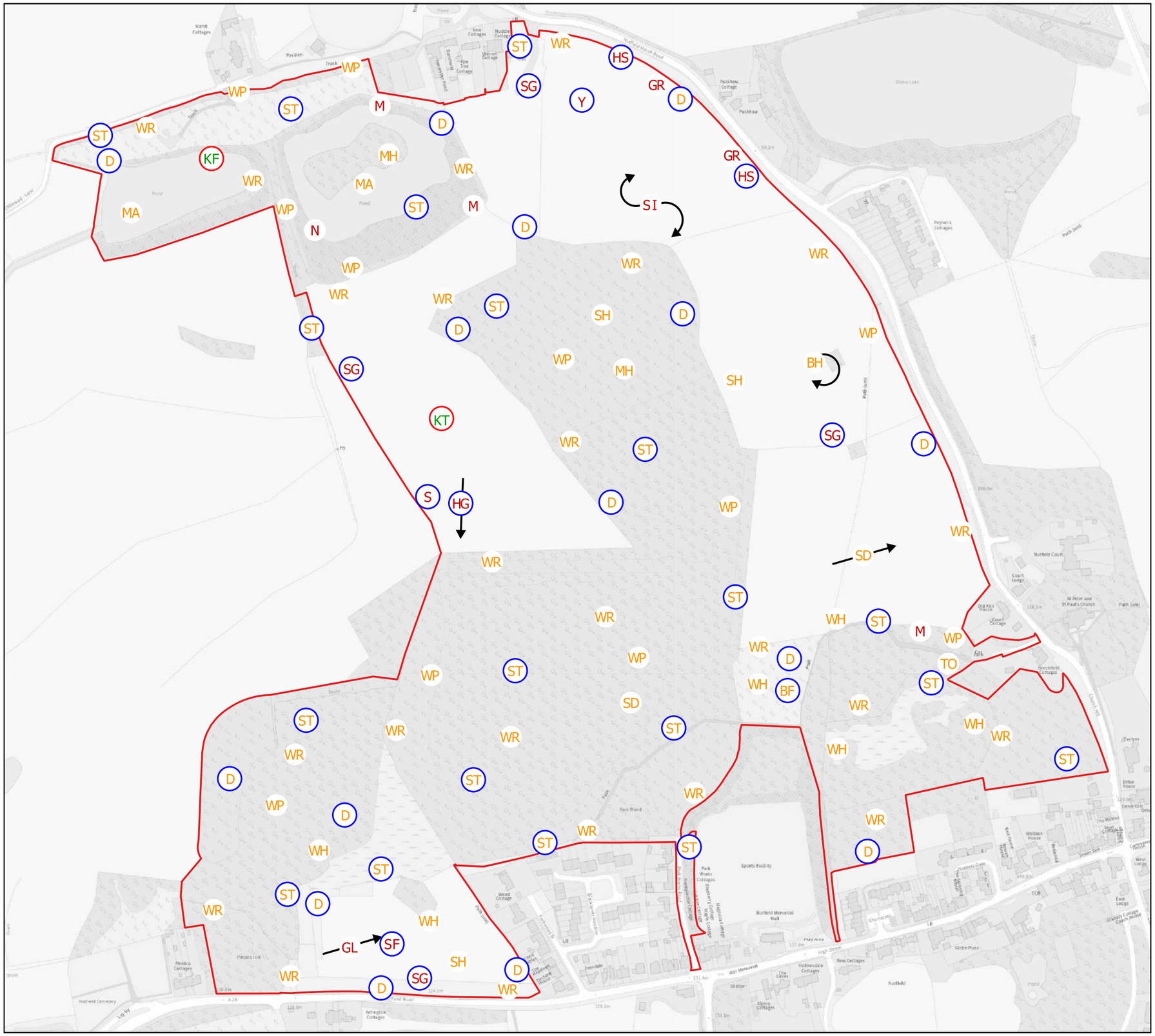
6.2 Proposals include the loss of habitats including areas of dense bramble scrub, coarse grasslands and woodlands. The majority of woodland loss will comprise immature, self-set secondary woodland with limited diversity. The loss of these habitats will ultimately reduce the availability of foraging habitats for woodland, woodland edge and generalist bird species. The loss of dense bramble scrub habitats in not anticipated to impact the nightingale which were recorded in the north of the Site.

6.3 The proposals include extensive habitat creation and enhancement measures that will enhance the Site for the bird assemblage recorded by providing optimal foraging habitat, particularly within newly created ponds and species-rich grassland habitats. Retained, enhanced and created habitat will be managed in the long-term to be of benefit for biodiversity and these enhancements will adequately compensate for impacts associated with the habitat losses anticipated.

6.4 Habitat enhancements may also attract additional notable species to start using the Site such as reed bunting.

6.5 The proposals will also include the provision of a range of bird boxes across the site which will provide optimal breeding opportunities for a range of the bird species recorded.

6.6 Ultimately, the extensive habitat creation and enhancement works are anticipated to lead to a beneficial impact on the bird assemblage recorded by providing high quality foraging and breeding habitats. Nightingale are also expected to benefit from the proposals through the provision of extensive scrub habitats that will provide optimal foraging and breeding habitats for this species.



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masterplanning environmental assessment landscape design urban design ecology architecture arboriculture

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Key

BoCC Red List Species

- GR Greenfinch
- GL Grey Wagtail
- HG Herring Gull
- HS House Sparrow
- M Mistle Thrush
- N Nightingale
- S Skylark
- SF Spotted Flycatcher
- SG Starling
- SI Swift
- Y Yellowhammer

BoCC Amber Listed Species

- BH Black-headed Gull
- BF Bullfinch
- D Dunnock
- MA Mallard
- MH Moorhen
- ST Song Thrush
- SH Sparrowhawk
- SD Stock Dove
- TO Tawny Owl
- WH Whitethroat
- WP Woodpigeon
- WR Wren

BoCC Green Listed Species

- KF Kingfisher
- KT Red Kite

Site Boundary
Fly over only
NERC Species of Principle Importance
Schedule 1 Species

client
Nutfield Park Developments Ltd.

project
Nutfield Green Park, Tandridge

drawing title
BREEDING BIRD SURVEY RESULTS - DISTRIBUTION OF NOTABLE SPECIES

scale 1:4,200 | drawn REM | issue date 6/10/2023

drawing / figure number
Figure 1

rev
10973-E-01

APPENDIX F-1: BREEDING BIRD SURVEY RESULTS & CATEGORISATION OF BREEDING STATUS

Table 1: Surveyors and Conditions

Survey	Surveyor	Date	Cloud (%)	Rain	Wind	Visibility
1	APD	19.05.21	60	None	1-2	V. Good
2	OGJ	21.05.22	100	None	2	V. Good
3	REM	15.06.22	20	None	1	Good
4	OGJ	28.06.22	90	None	0	V. Good
5	REM	14.07.22	10	None	1	V. Good

Table 2: Surveyors Results

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Conservation Status & Protection	Breeding status[1]
Canada Goose	*Branta canadensis*	-	-	(1 flyover)	-	-	Not Listed	Non-breeder – F
Mallard	*Anas platyrhynchos*	-	7 (+ 2 flyovers)	-	2	1	Amber list	Probable - P
Tufted Duck	*Aythya fuligula*	-	2	-	-	-	Green list	Probable - P
Cormorant	*Phalacrocorax carbo*	-	(1 flyover)	-	-	-	Green list	Non-breeder – F
Grey heron	*Ardea cinerea*	-	1	-	-	-	Green list	Possible - H
Sparrowhawk	*Accipiter nisus*	1	1	-	1	-	Amber list	Possible - H
Red Kite	*Milvus milvus*	5	-	-	-	-	Green List WCA Sch.1	Possible - H
Buzzard	*Buteo buteo*	2	1	1 (+ 2 flyovers)	(1 flyover)	1 (+ 1 flyover)	Green list	Possible - H
Black-headed gull	*Chroicocephalus ridibundus*	-	-	-	(10 flyover)	-	Amber list	Non-breeder – F
Herring gull	*Larus argentatus*	-	-	-	(3 flyovers)	(11 flyovers)	Red list	Non-breeder – F
Swift	*Apus apus*	-	-	-	(28 flyovers)	-	Red list	Non-breeder – UH
Stock dove	*Columba oenas*	1	-	-	2	-	Amber list	Possible - H
Woodpigeon	*Columba palumbus*	6	26 (+ 6 flyovers)	15 (+ 8 flyovers)	25 (+ 9 flyovers)	4 (+ 6 flyovers)	Amber list	Probable - T

[1]European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Conservation Status & Protection	Breeding status[1]
Collared Dove	*Streptopelia decaocto*	-	1	-	1	-	Green list	Possible - H
Moorhen	*Gallinula chloropus*	2	3	-	1	1	Amber list	Confirmed - FL
Coot	*Fulica atra*	-	1	1	-	-	Green list	Possible - H
Little Grebe	*Tachybaptus ruficollis*	1	1	-	-	-	Green list	Confirmed - FL
Kingfisher	*Alcedo atthis*	1	-	-	-	-	Green list WCA Sch. 1	Possible - H
Tawny Owl	*Strix aluco*	-	-	-	2	-	Amber list	Possible - H
Great spotted woodpecker	*Dendrocopos major*	3	6	2 (+ 1 flyover)	4	1	Green list	Confirmed - ON
Green Woodpecker	*Picus viridis*	4	3	-	2	-	Green list	Confirmed - FF
Ring-necked Parakeet	*Psittacula krameri*	7	36 (+ 33 flyovers)	3	1 (+ 2 flyovers)	(5 flyovers)	Not Listed	Confirmed - ON
Jay	*Garrulus glandarius*	2	2	-	2	1	Green list	Possible - H
Magpie	*Pica pica*	1	9 (+ 3 flyovers)	6	7	8	Green list	Possible - H
Jackdaw	*Corvus monedula*	11	24 (+ 7 flyovers)	55 (+ 52 flyovers)	104 (+ 225 flyovers)	5	Green list	Confirmed - ON
Carrion crow	*Corvus corone*	5	18 (+ 1 flyover)	8 (+ 11 flyovers)	11 (+ 7 flyovers)	31 (+ 1 flyover)	Green list	Possible - H
Raven	*Corvus corax*	-	-	-	-	(1 flyover)	Green list	Non-breeder – F
Garden warbler	*Sylvia borin*	1	2	-	1	-	Green list	Probable - T
Whitethroat	*Curruca communis*	-	6	1	2	2	Amber list	Probable - T
Goldcrest	*Regulus regulus*	7	10	8	6	-	Green list	Probable - T
Blue tit	*Cyanistes caeruleus*	4	20	23	10	9	Green list	Confirmed – FL
Great tit	*Parus major*	6	7	6	4	6	Green list	Confirmed – FL
Coal tit	*Periparus ater*	-	4	-	-	3	Green list	Probable - T
Skylark	*Alauda arvensis*	-	-	-	-	1	Red List NERC S.41	Possible – S, H
Swallow	*Hirundo rustica*	-	(1 flyover)	(1 flyover)	-	-	Green list	Non-breeder – UH
Long-tailed tit	*Aegithalos caudatus*	13	6	3	5	1	Green list	Confirmed - ON

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Conservation Status & Protection	Breeding status[1]
Chiffchaff	*Phylloscopus collybita*	17	12	15	5	4	Green list	Probable - T
Blackcap	*Sylvia atricapilla*	14	10	3	11	3	Green list	Probable - T
Nuthatch	*Sitta europaea*	-	1	2	-	1	Green list	Possible – H
Treecreeper	*Certhia familiaris*	-	3	-	5	-	Green list	Probable - T
Wren	*Troglodytes troglodytes*	21	47	56	20	18	Amber list	Probable - T
Starling	*Sturnus vulgaris*	1	23	5	5	-	Red list NERC S.41	Confirmed - FF
Blackbird	*Turdus merula*	15	25 (+ 1 flyover)	26 (+ 2 flyovers)	26	8 (+ 1 flyover)	Green list	Probable - P
Song thrush	*Turdus philomelos*	8	12	8	7	3	Amber list NERC S.41	Probable - T
Mistle thrush	*Turdus viscivorus*	2	1	-	2	-	Red list	Possible – S, H
Spotted flycatcher	*Muscicapa striata*	1	1	-	-	-	Red list NERC S.41	Probable - T
Robin	*Erithacus rubecula*	9	36	13	22	5	Green list	Confirmed - FL
Nightingale	*Luscinia megarhynchos*	1	1	-	-	-	Red list	Probable - T
Dunnock	*Prunella modularis*	3	13	11	7	6	Amber list NERC S.41	Probable - T
Grey Wagtail	*Motacilla cinerea*	(1 flyover)	-	-	-	-	Amber list	Non-breeder – F
Stonechat	*Saxicola rubicola*	1	-	-	-	-	Green list	Possible – H
House sparrow	*Passer domesticus*	2	-	-	-	-	Red list NERC S.41	Non-breeder – UH
Chaffinch	*Fringilla coelebs*	-	3	1	(2 flyovers)	-	Green list	Possible – S, H
Bullfinch	*Pyrrhula pyrrhula*	-	-	-	-	1	Amber List NERC S.41	Possible – S, H
Greenfinch	*Carduelis chloris*	-	1	-	-	1 (+ 1 flyover)	Red list	Possible – S, H
Goldfinch	*Carduelis carduelis*	-	5 (+ 1 flyover)	7 (+ 2 flyovers)	10 (+ 2 flyovers)	34	Green list	Possible – S, H
Yellowhammer	*Emberiza citrinella*	-	-	-	-	2	Red List NERC S.41	Probable - P
Total No. Species		**34**	**42**	**26**	**36**	**30**	**Total: 57**	

Breeding Status evidence can be broken down into four sections, each with their own codes, as defined by the European Ornithological Atlas Committee:

Confirmed breeder
DD – distraction display or injury feigning
UN – used nest or eggshells found from this season
FL – recently fledged young or downy young
ON – adults entering or leaving nest-site in circumstances indicating occupied nest
FF – adult carrying faecal sac or food for young
NE – nest containing eggs
NY – nest with young seen or heard

Probable breeder - Evidence accumulated during the survey indicates that the bird species is breeding on site.
P – pair in suitable nesting habitat
T – permanent territory (defended over at least 2 survey occasions)
D – courtship and display
N – visiting probable nest site
A – agitated behaviour
I – brood patch of incubating bird (from bird in hand)
B – nest building or excavating nest-hole

Possible breeder - Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.
H – observed in suitable nesting habitat
S – singing male

Non-breeder
F – flying over
M – migrant
U – summering non-breeder
UH – observed in unsuitable nesting habitat

Nutfield Park Developments Limited (Ltd)

Nutfield Green Park, Tandridge

Appendix G: Bird Strike Hazard Risk Assessment

October 2023

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Table 4: Threshold Levels of Bird Numbers Above Which Control Measures May be Required

FIGURES

Figure 1: Site Location & Context

1.0 INTRODUCTION

1.1 The following Bird Strike Hazard Management Plan has been prepared by FPCR Environment & Design Ltd. on behalf of Nutfield Park Developments Limited (Ltd) for development proposals of Nutfield Green Park, Tandridge (Central OS Grid Ref: TQ 30576 50986) herein referred to as 'the Site'

1.2 The Site is located approximately 8.6km north-east of Gatwick Airport as shown on Figure 1.

1.3 In the UK, the Civil Aviation Authority (CAA) requires all airports to take appropriate mitigation measures to deter birds on and around airfields. Most collisions between aircraft and birds (known as bird strike) occur on or near airfields, just prior to aircraft landing, during the take-off roll, and around the time of rotation. As birds can be very mobile, bird attractive features far beyond an airfield boundary may increase flight safety hazard.

1.4 Planning Authorities are required to consult with aerodromes before granting planning permission for any development that might endanger the safety of aircraft by attracting birds within a 13km radius of an airfield such as areas of open water.

Site Location and Context

1.5 The Site is approximately 58.8ha in size and is located to the North of the Village of Nutfield in the Tandridge borough area. It comprises a former quarry that has been historically restored and has become dominated by a mix of habitats. A large portion of the site is wooded, with some example of mature semi-natural woodlands present in the south, plantation woodlands in the centre/north of the Site and a large area of self-set birch/willow woodland in the centre of the Site. Two large pasture grasslands are present in the central/northern part of the Site, while a compartment of coarse grassland in present in the south-west of the Site. Small blocks of mixed scrub are scattered around the site while extensive areas of bramble scrub are present in the south-east and south-west. Three waterbodies are also present on Site which comprise two fishing lagoons in the north of the site and a central woodland pond.

1.6 In the surrounding landscape, the Site abuts the residential environs of Nutfield to the south. To the west lies a restored landfill site which sits between the Site and the extant Patteson Court Landfill Site. Eastwards, the landscape comprises a mix of woodlands, pasture grassland, arable fields and the Mercers South Quarry Site to the north-east. To the North lies additional areas of woodland and farmland before the landscape becomes dominated by the residential environs of South Merstham.

Site Proposals

1.7 The proposals include seeking outline planning permission for the development of the site for 166 new homes (Use Class C3) and an Integrated Retirement Community with 70 care home beds and 41 extra case facility beds. In addition, proposals include the creation of new access, landscaping and associated works to facilitate the development, in phases which are severable (Outline with all matters reserved, except for Access).

1.8 The proposals include a variety of habitat creation and enhancement measures including scrub and woodland planting, the enhancement of existing ponds and of pasture grasslands into species-rich meadows, and the creation of a series of small ponds. Other habitat creation measures within

the development platforms include tree planting, hedgerows planting and the creation of amenity grasslands.

1.9 This document provides an outline of the principles in which to manage the attractiveness of the Site to bird species that might create a potential hazard to aviation detailed below, and in turn, ensure any potential bird strike risk is minimised.

1.10 This document will be submitted to and approved in writing by the Local Planning Authority in consultation with Gatwick Airport Safeguarding.

1.11 This bird risk assessment for the proposals refers to Civil Aviation Publication 772 - Bird strike Risk Management for Aerodromes.

Historic Applications

1.1 The Site was the subject of a previous planning application (ref: TA/2021/1040) which was refused, and Reasons for Refusal (RfR) 14 and 18 related to ecology and nature conservation.

1.2 Reason for Refusal 14 related to the potential effects to the breeding bird assemblage within the Site and the potential effects to the overall breeding bird assemblage within Holmethorpe Sandpits Complex SNCI which the site is located within.

1.3 RFR 18 relates to the potential effects to increases in use of balancing facilities by wetland birds within the flight path of Gatwick Airport.

1.4 The scheme design has been significantly altered, including the reduction of the development area, the concentration of proposals in the south of the Site only and the inclusion of large areas of habitat creation and enhancement to address these reasons for refusal.

2.0 AVIATION POLICY

ODPM Circular 01/2003 - Safeguarding Aerodromes, Technical Sites and Military Explosives Storage Areas: The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) Direction 2002.

2.1 Civil aerodromes are licensed to ensure that certain types of flights, essentially those for the transport of fare-paying passengers and those for flying training, use only those aerodromes which provide a range of facilities in accordance with internationally agreed safety criteria. These criteria are set out in Annex 14 to the Convention on International Civil Aviation 1944 (The Chicago Convention). The Civil Aviation Authority has developed its own licensing guidance document, Civil Aviation Publication (CAP) 168, Licensing of Aerodromes, which amplifies Annex 14 to the Convention.

2.2 In domestic legislation civil aerodromes are licensed under an Air Navigation Order made under section 60 of the Civil Aviation Act 1982. The Civil Aviation Authority is responsible under the Air Navigation Order for being satisfied that a licensed aerodrome is safe for use by aircraft, having regard to the physical characteristics of the aerodrome and its surroundings by ensuring that proposed developments are assessed.

2.3 In addition, a requirement is placed on the licensee to take all reasonable steps to ensure that the aerodrome and its surrounding airspace are always safe for use by aircraft.

Aerodrome Safegaurding Maps: 'Bird strike' Hazard

2.4 The document states that:

- Certain civil aerodromes (including Gatwick Airport), selected on the basis of their importance to the national air transport system, are officially safeguarded, in order to ensure that their operation and development are not inhibited by developments which have the potential to increase the number of birds or the bird hazard risk.
- Bird strikes are one of the major controllable hazards to aviation. Most bird strikes occur on or near aerodromes but, because birds are very mobile, features far beyond an aerodrome boundary may increase the hazard. If a man-made development provides feeding, roosting, or breeding opportunities, or shelter and security, it may, depending on the siting of the development and the species which it attracts, increase the number of birds visiting or overflying an aerodrome or the number of birds in the airspace used by aircraft.
- To protect aerodromes against these hazards, safeguarding maps include, in addition to the requirements related to the height of buildings and structures, a dotted circle, with a 13-kilometre radius in the case of civil aerodromes. Local planning authorities are required to consult the relevant consultee (Gatwick Airport) before granting planning permission for any development within the relevant radius of an officially safeguarded aerodrome which is likely to attract birds. Whether or not a development is likely to attract birds will depend on a number of factors. A local planning authority will need to consider not only the individual potential bird attractant features of a proposed development but also whether the development, when combined with existing land features, will make the safeguarded area, or parts of it, more attractive to birds or create a hazard such as bird flightlines across aircraft flightpaths.

Safeguarding procedure and development

2.5 The consultation process includes a means to address potential wildlife attractant developments within a 13km radius circle of the aerodrome. The primary aim is to guard against new or increased hazards caused by development, (including) the creation or modification of areas of water such as reservoirs, lakes, ponds, wetlands, and marshes which attract certain bird species.

2.6 Whether or not a development is likely to attract birds will depend on several factors, where consideration is required.

- The numbers, including seasonal variations, and types of wild birds that may be attracted to the development.
- Any proposed landscaping or habitat designs.
- The distance from the aerodrome.
- The location of the development relative to aircraft arrival and departure flightpaths and within the visual circuit; and
- Wild bird movements in relation to the aerodrome; for example, waterfowl move primarily between wetlands and along watercourses. Creating new bodies of water may cause more waterfowl movements and the increase of bird strike risk.

3.0 POTENTIAL BIRD STRIKE HAZARD

3.1 Although single small birds can cause accidents, there exists a positive correlation between bird weights and numbers, and the risk that an aircraft will be damaged 1 (Milsom, 1990) as illustrated in Table 1.

Table 1: The Relationship Between the Percentage of Damaging Strikes, the Weight of the Bird and the Number of Birds Struck.

Bird Weight	% Damaging Strikes (% Damaging Engines)
<100g (Small)	2.7 (0.7)
101-1000g (Medium)	12.0 (3.96)
>1000g (Large)	22.7 (4.97)

Number of Birds Struck	% Damaging Strikes (% Damaging Engines)
1	8.12 (2.1)
2 – 10	14.6 (4.6)
11 - 100	40.32 (22.6)

3.2 The risk of a catastrophic accident owing to multiple engine thrust loss after a bird strike encounter with a flock of geese is rising dramatically. The risk of such a strike will be approximately 2.5 times higher in 2010 than 2000, and around 6 times higher than 1990. There are no natural forces acting to limit this population growth[1].

3.3 Smaller birds can also pose a hazard to aircraft where they occur in large flocks. Of particular concern is the winter behaviour of starlings. Typically, starling behaviour comprises the gathering of large numbers of the species into roosts during autumn months for shelter and protection in numbers. Entire roosts can take flight in one event creating impressive patterns in flight although it is considered that most of this behaviour is conducted at altitudes of between 30-500 feet above ground level[2]. Although the largest starling roosts occur at coastal sites where resident populations are supplemented by migratory groups, inland reedbeds can often attract roosts comprising several thousand birds.

3.4 UK bird strike statistics show that approximately 90% of reported UK bird strikes occur below an altitude of 2000ft. Other research conducted in Denmark[3] shows that most bird strikes take place whilst the aircraft are on the ground or below 100ft during both take-off and landing. At an approach angle of 3˚, almost 69% of all bird strikes are recorded within 600m of the runway. The report also shows that frequency of bird strikes when aircraft are above 100ft during take-off and landing does not deviate from the frequency of bird strikes recorded whilst aircraft are enroute. Therefore, the

[1] Civil Aviation Authority (2006) *Large Flocking Birds - An International Conflict between Conservation and Air Safety*.

[2] Clarence D. Coe, JR. 1968. Thermal Soring by Migrating Starling. The Auk, 85: 19-23.

[3] Christensen, Thomas Kjær. (2006). *Risk assessment in relation to restoration of wetlands (lakes and wet meadows) in proximity to airports, a basic model. (Translated in English)* Senior advisor, PhD National Environmental Research Institute, University of Aarhus, Denmark Grenåvej 14, DK-8410 Rønde, Denmark.

report shows that there is no change in the risk of bird strike with distance to an airport when aircraft are more than approximately 6km away from the runway.

3.5 Aircraft landing at EMA that are descending from a high cruising altitude are expected to be below an altitude of 2000ft at 9km from the runway. Aircraft which are landing on runway 27 (from the east) at EMA are likely to be lined up on final approach at an average distance of 8-9km from the runway. Given the orientation of the runway, an aircraft on final approach will be descending through airspace approximately 3km to the south of the proposed development site and not directly over. However, other aircraft such as those on training exercises undertaking 'touch and go' or 'missed approach' techniques and smaller aircraft from the flying school based at EMA are expected to be flying at lower altitudes further out from the runway and are likely to make shorter final approaches into EMA. Therefore, these aircraft should be considered at more risk of bird strike than those descending from a high altitude.

The Priority Group of Birds

3.6 Species that are larger than 1kg or occur in flocks are most likely to cause damage to aircraft and have the most potential to cause accidents. In addition, as numbers increase the risk of ingestion and engine damage increases markedly for larger flocks (Milsom, 1990)[4]. These factors have led to the defining of a 'Priority Group' of bird species, i.e., large and/or flocking species, which are of a higher concern when examining bird strike risk. This Priority Group includes, cormorants, herons, wildfowl (geese, swans, and ducks), raptors (birds of prey), game birds (pheasants and partridges), waders, plovers, gulls, pigeons, swifts, hirundine (swallows and martins), winter thrushes (redwings and fieldfares), corvids, starlings, and winter finch flocks.

[4] 1 Milsom, T P. 1990. The Use of Bird strike Statistics to Monitor the Hazard and Evaluate Risk on UK Civil Aerodromes. Bird strike Committee Europe20, Helsinki. Working Paper 30, pages 303-320.

4.0 BIRD ECOLOGY

4.1 To assess the likelihood of a particular group or species using the proposed waterbodies, their behaviour and habitat requirements must be understood. The following behaviour characteristics displayed by the various groups below is drawn directly from the CAP 772 document and is specific to on- or near-aerodrome activity. It is provided here as an insight to what makes certain birds attracted to on- or near-aerodrome areas.

Specific Behaviour of Priority Groups in Relation to Aerodromes

Cormorant

4.2 Cormorants *Phalacrocorax carbo* nest at both coastal and inland colonies, with numbers supplemented during the winter months by continental birds. Inland, it feeds on ponds, lakes, and rivers where fish are plentiful, and roosts communally on lakes, in trees and on power cables.

Grey Heron

4.3 Grey heron *Ardea cinerea*, despite being a predator of fish and amphibians, can sometimes be found hunting mice and voles on aerodromes.

Swans

4.4 Mute swans *Cygnus olor* mainly frequent rivers, lakes, and small ponds, although they move onto farmland to feed, especially during winter. Flights are mainly confined to movements between roosting and feeding areas.

Geese

4.5 The numbers of non-native Canada geese *Branta canadensis* have increased rapidly since the 1950s and flocks may occur on or near aerodromes. Canada geese are gregarious in winter, roosting on lakes and ponds, and travelling several kilometres daily to feed on farmland or short grass. Pairs are widely dispersed on islands in lakes, rivers, and gravel pits in the breeding season. Canada geese tend to be site faithful, with females tending to return to their natal areas to nest each year. Flocks of feral, non-migratory greylag geese *Anser anser* have also established in parts of the UK.

Ducks

4.6 A variety of duck species breed and/or winter in Britain. Many are relatively large, heavily built birds that tend to fly in very close formation, and with the potential to cause damage to aircraft if involved in a bird strike. By far the most numerous species is mallard *Anas platyrhynchos*, frequenting rivers, lakes, and small ponds, and often feeding on fields and aerodromes (when flooded), often at night.

Raptors

4.7 There is a common but false belief that wild birds of prey keep other species away from aerodromes and that their presence on an aerodrome may be beneficial. Birds of prey are dependent on abundant prey and will therefore be attracted to aerodromes with abundant small mammal or bird populations. Flocks of smaller birds often mob raptors and the prolonged disturbance they cause could increase the bird strike risk on the aerodrome. Kestrels *Falco tinnunculus* are small falcons, which hunt mice and large insects on farmland, aerodromes and in a variety of open habitats. Its preferred prey is especially abundant in permanent grassland and kestrels are, therefore, common on aerodromes and alongside motorways. It is the only raptor that habitually hovers motionless on rapidly beating wings. Sparrowhawks Accipiter nisus are small, short-winged hawks that hunt low

over the ground, often using hedgerows or other linear obstacles as cover, to flush out small birds, which they catch with a rapid burst of speed. Buzzards *Buteo buteo* are much larger birds of open country, moors, and hills throughout much of Britain. They soar on long broad wings and take carrion, rabbits, and other small ground dwelling animals.

Game Birds

4.8 Numbers of pheasants *Phasianus colchicus* vary locally with the intensity of rearing and release by neighbouring estates. Pheasants roost overnight in woods and thickets ('coverts') and generally walk onto fields and aerodromes to feed. It can sustain flight for only a few seconds, usually to escape danger. Grey partridge *Perdix perdix* and red-legged partridge *Alectoris rufa* are both squat, ground living birds, often on arable land in small flocks ('coveys'). They roost on the ground and are also active at night. They are very difficult to detect and flush from aerodrome long grass.

Waders

4.9 Oystercatchers are primarily a coastal bird and specialist cockle predator but will feed on other shoreline and soil invertebrates. On the coast, activity patterns are strongly influenced by tide state: repeated influxes onto an aerodrome can occur if no suitable roosting sites remain on mudflats or salt marsh around high tide. Oystercatchers *Haematopus ostralegus* are also often active at night. On coastal aerodromes they will nest on gravel islands surrounding lights and marker boards, breaking up paved surfaces, French drains, and disturbed ground such as rabbit excavations. 'Piping parties', vociferous display flights, and mobbing of potential nest predators make nesting oystercatchers obvious.

4.10 Curlews *Numenius arquata* occur on mudflats and grassland, often in large flocks in winter, mostly around the coast but inland in smaller numbers throughout lowland Britain and Ireland. Curlews nest on moors (up to 600 m above sea level) and farmland. Nesting curlews defend a large territory against other curlews and, therefore, aerodromes rarely have more than one or two pairs. Other species of wader may appear on coastal aerodromes, especially when on migration in spring and autumn.

Plovers

4.11 Lapwings *Vanellus vanellus* prefer open habitats with low or sparse vegetation, especially grassland, such as aerodromes. Hence lapwings may centre their activities on them for much of the year. In lowland Britain, numbers are usually at a minimum during the breeding season, the breeding population having declined significantly since 1970. Flocks begin to build in June or July as local birds disperse from breeding sites and continental birds arrive in the UK. Some aerodromes provide attractive habitat to small numbers of lapwing during the breeding season but can attract substantial flocks of non-breeding birds towards the end of the summer. At this time, they may appear lethargic and reluctant to disperse because of the energetic strain of moulting. Once harvesting and ploughing are under way from August, making soil invertebrates particularly accessible, lapwing numbers on aerodromes decline as they exploit these seasonal feeding opportunities. They remain relatively scarce on aerodromes until October or November when large flocks reappear with influxes of continental birds. Unless hard weather settles in, wintering numbers can remain high until spring migration in February and March. However, prolonged frozen ground or snow cover prevents lapwings from feeding and they are forced to move to seek better conditions further south or at the coast.

4.12 Golden plover *Pluvialis apricaria* are slightly smaller than lapwings and much more difficult to detect on aerodromes because of their cryptic coloration. They are less common than lapwing but wintering flocks can be very large and dense. Golden plover frequent similar habitats to lapwings during the winter and use aerodromes in much the same way, often forming mixed flocks. Feeding birds run, pause and up end like lapwings. Golden plovers occur on aerodromes at night.

Gulls

4.13 Ecologically, gulls fall into two broad groups: 'small gulls' (black-headed gull *Chroicocephalus ridibundus* and common gull *Larus canus*); and large gulls' (herring gull *Larus argentatus*, lesser black backed gull *Larus fuscus* and great black-backed gull *Larus marinus*). When inland, small gulls feed predominantly on soil invertebrates on aerodromes, farmland, playing fields etc; and resort more to landfills where food wastes are tipped when natural food is unavailable in hard weather. Large gulls are much more dependent on landfills when inland, but many remain on the coast throughout the year. When not feeding, flocks spend long periods loafing on open undisturbed sites and commonly use aerodromes for loafing early in the day.

4.14 Black-headed gulls feed on soil invertebrates by sight in short grass, and loaf especially on runways and taxiways. This behaviour usually peaks with maximum food availability in mild wet weather in September, late winter, and early spring. Black-headed gulls take earthworms, slugs, and snails from runways/taxiways in very wet weather, *bibio* flies in spring, flying ants on hot summer days and cranefly in August and September. Ploughing fields nearby causes short-term influxes, with birds attracted by the availability of invertebrates. It breeds mainly on marshes and moors and, therefore, on few aerodromes. Like the black-headed gull, but in smaller numbers, the common gull arrives later in the south, and often feeds on higher ground. This species is often very persistent when feeding o aerodromes, and sometimes chases and robs other gulls of food.

4.15 Herring gulls are less common than small gulls on inland aerodromes, which they use mostly for loafing and pre- and post- roost assemblies. The herring gull breeds on some coastal aerodromes. As for the herring gull, the lesser black-backed gull uses aerodromes mostly for loafing and pre- and roost assemblies. They may also breed on coastal aerodromes. Great black-backed gulls are less numerous and more solitary than other gulls, rest without feeding for long periods, and are a generalist predator and scavenger.

Pigeons

4.16 In recent years, woodpigeons have been involved in a sharp increase in bird strikes, with the seasonal distribution reflecting their pattern of visiting aerodromes. Woodpigeons Columba palumbus are most numerous on well-wooded farmland, feeding on cereals, clover, peas and other crops, weeds, acorns and beechmast. They visit aerodromes mainly in summer, when weeds in long grass are flowering and seeding, and in late winter in search of clover leaves after acorn crops are exhausted and stubble fields gleaned bare or ploughed under. Outside the breeding season there are communal roosts in larger woods but flightlines are not well defined and temporary, reflecting changes in feeding area. They fly between the roost and feeding fields (up to around 10 km, but further in areas with less arable land) throughout the day. Feeding flocks are larger in the mornings. Later in the day, some birds return to the roost or perch in trees near the feeding fields, especially in the longer autumn and spring days.

4.17 Stock doves *Columba oenas* are often misidentified as woodpigeons or feral pigeons *Columba livia*. Bird strikes involving stock doves tend to be concentrated in the early summer when they are

attracted by weeds to aerodromes. Like woodpigeons, stock doves occur as pairs or in small flocks, often with woodpigeons. Their food includes weed seeds, and stock doves are particularly attracted to aerodrome long grass with many wildflowers, especially vetches. Stock doves will lie and 'sunbathe' on runways and taxiways.

4.18 Pigeons are known to live on aerodromes, roosting and nesting in warehouses and hangars. In such sheltered environments, they can breed year-round. They are involved in bird strikes all year round. Racing pigeons may especially be a bird strike risk between April and August. Collared doves *Streptopelia decaocto* have become widespread and numerous in Britain since their arrival from the continent in the 1950s. It is common in towns, suburbs, parks, farms, and granaries but less so on aerodromes.

Swifts and Hirundine

4.19 Swift *Apus apus*, swallows *Hirundo rustica*, sand martins *Riparia riparia* and house martins *Delichon urbica* are summer visitors, which feed on flying insects. Flocks congregate where prey is concentrated by the wind, or where they arise: aphids over bean and cereal fields, midges over water, froghoppers, and cranefly over grass. Swifts nest in holes in buildings and only alights at the nest. Small flocks engage in screaming chases. It ascends to height to spend the night on wing - 'vesper flights' visible on radar over towns where breeding populations are concentrated. Swifts do not respond to dispersal action. Swallows nest on ledges and beams in buildings. Flocks alight on runways and taxiways mainly in autumn. Flocks of swallows and martins feeding in flight usually resist attempts to disperse them but can sometimes be moved on when resting on the ground.

Corvids

4.20 Rooks *Corvus frugilegus* are gregarious and feed on soil invertebrates, grain and seeds, and roots on farmland and aerodromes. They find much of their food by vigorously probing the upper soil horizons. They nest colonially in mature tall treetops (rookeries), where they return for security, although new colonies may appear in smaller trees. Their lack of interest in runways is probably partly responsible for their rarely being involved in bird strikes, despite their relative abundance on aerodromes. Dawn and dusk flightlines and pre-roost assemblies may increase the risk of a bird strike occurring. Their foraging range is restricted to a few kilometres from the rookery when nesting. Consequently, the presence or absence of rooks on aerodromes in the breeding season depends on the size and proximity of the local rookeries. British and Irish rooks (numbering around 1 million pairs in the UK) are largely sedentary but continental birds boost the UK winter population, especially in the east.

4.21 Carrion crows *Corvus corone* are involved in very few bird strikes. Although continuously and almost universally present on aerodromes, they occur in small numbers and, being resident, apparently establish routines that help them avoid aircraft. However, their habit of feeding on carrion on runways and the occurrence of nomadic flocks create a potential bird strike risk, which cannot be ignored. They feed in a wide variety of habitats, including aerodromes. Their diet includes carrion, small mammals and birds, eggs, shore animals, soil invertebrates, grain, and fruit. On aerodromes, bird strike carrion or dead insects around runway lights may attract them to runways. They will drop hard-shelled prey on runways and taxiways to break it open.

4.22 Although common on aerodromes, jackdaws *Corvus monedula* are involved in very few bird strikes. However, they associate commonly with rooks and significant numbers may nest and/or roost in hangars. Jackdaws are very gregarious, often in mixed flocks with rooks on farmland and

aerodromes. Their diet is like those of rooks', but on grassland jackdaws feed on surface-dwelling invertebrates, rather than digging for prey. They also take small mammals, eggs, and chicks. They roost communally, again, often with rooks in woodland. They nest in cavities in hollow trees, buildings (including hangars), aircraft hulks, chimneys, quarries, and cliffs. Jackdaws are an abundant resident, with numbers being swelled by continental birds during winter.

Starlings

4.23 Although starlings *Sturnus vulgaris* are involved in a small percentage of bird strikes, their large and dense flocks can present a bird strike risk, especially when flocks combine prior to joining a roost around dusk. Most strikes occur during and after the breeding season when flocks of juveniles are difficult to disperse from aerodromes. Starlings are omnivorous opportunists, taking a wide range of food including worms, insects, seeds, fruit, cereals, household scraps and other wastes; however, grassland is the most important feeding habitat. Starlings sometimes 'shadow' livestock to prey on disturbed invertebrates and flies, and 'hawk' for flying insects when they are abundant (e.g., cranefly, ants).

4.24 Starlings roost communally outside the breeding season. In summer, roosts may be small and scattered but, with the autumn immigration of large numbers of continental starlings, roosts become large and stable and can contain tens or hundreds of thousands of birds. Typical roosting habitat is dense vegetation (not necessarily tall but usually difficult to penetrate): thorn thickets, game coverts, young unthinned conifer plantations, reedbeds etc. Large roosts also occur in town centre buildings, hangars, on bridges, dockyard cranes, and almost anywhere with an abundance of sheltered, inaccessible perches. Starlings may travel long distances between roost and feeding areas. They start to return to the roost about an hour before sunset, and it may take 30 minutes or more for a roost to be vacated. Departures in all directions (reflecting the wide availability of starlings' favoured grassland feeding habitat) result in a series of concentric expanding rings of flocks which thin out into fragmented arcs with increasing distance.

5.0 BASELINE CONDITIONS

Existing Habitats

5.1 The Site comprises a range of habitats including grasslands, woodlands, ponds and scrub. Various woodland compartments dominate large parts of the Site where they broadly comprise semi-natural broadleaved woodlands in the south and plantation mixed woodlands in the north (though some areas of mixed plantation are also present in the south). Some areas of the broadleaved woodlands are more mature and established than other, with the central lagoon comprising dense, immature self-set willow and birch woodland as opposed to more diverse mature woodland along the southern boundaries of the Site.

5.2 A range of grassland habitats are present across the Site, with two large pasture grasslands straddling the central woodland compartment of the Site. The topography of these fields slopes up towards a Natural high point in the south of the Site. A small compartment of rank grassland is present in the south-east of the Site which is dominated by coarse species and small pockets of other rank grassland habitats are present in the north and south-east of the Site amongst dense scrub habitats.

5.3 Three ponds are present onsite include a fishing pond in the north-west, a pond with a central island in the north and an ephemeral pond in the centre of the Site. All three are densely shaded by surrounding woodlands and the two northern ponds have limited aquatic, emergent or marginal vegetation as a result. The central pond dries regularly and therefore also supports limited wetland vegetation.

5.4 A range of scrub habitats are present including extensive areas of dense bramble scrub in the south of the Site. More mixed blocks of scrub are present in the north of the site where species include hawthorn, blackthorn and elder.

Field Survey Results

5.5 The Site has been subject to a series of breeding bird surveys throughout 2022 to inform the proposals. Full details of these surveys are provided in *Appendix F Breeding Bird Survey Report* of the accompanying Ecological Impact Assessment prepared for the Site (FPCR 2023).

5.6 The maximum counts of each of the Priority Group species recorded during the bird surveys are provided in Table 2 below and broken down into each 'Priority Group' for which constituent species were recorded. Priority Groups not featured in Table 2 are omitted as no species that falls within that group were recorded.

Table 2: Field Survey Results

Priority Species/Group	Peak Count During Survey				
	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
Geese					
Canada goose *Branta canadensis*	0	0	1 flyover	0	0
Ducks					

Priority Species/Group	Peak Count During Survey				
	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
Mallard *Anas platyrhynchos*	0	7 + 2 flyovers	0	2	1
Tufted duck *Aythya fuligula*	0	2	0	0	0
Raptors					
Sparrowhawk *Accipiter nisus*	1	1	0	1	0
Red kite *Milvus milvus*	5	0	0	0	0
Buzzard *Buteo buteo*	2	1	1 + 2 flyovers	1 flyover	1 + 1 flyover
Waders					
Moorhen *Gallinula chloropus*	2	3	0	1	1
Gulls					
Black-headed gull *Chroicocephalus ridibundus*	0	0	0	3 flyovers	11 flyovers
Herring Gull *Larus argentatus*				10 flyovers	
Pigeons					
Stock dove *Columba oenas*	1	0	0	2	0
Woodpigeon *Columba palumbus*	6	26 + 6 flyovers	15 + 8 flyovers	25 + 9 flyovers	4 + 6 flyovers
Collared dove *Streptopelia decaocto*	0	1	0	1	0
Swifts and hirundines					
Swift *Apus apus*	0	0	0	28 flyovers	0
Swallow *Hirundo rustica*	0	1 flyover	1 flyover	0	0
Corvids					
Jay *Garrulus glandarius*	2	2	0	2	1
Magpie *Pica pica*	1	9 + 3 flyovers	6	7	8
Jackdaw *Corvus monedula*	11	24 + 7 flyovers	55 + 52 flyovers	104 + 225 flyovers	5
Carrion crow *Corvus corone*	5	18 + 1 flyover	8 + 11 flyovers	11 + 7 flyovers	31 + 1 flyover
Raven *Corvus corax*	0	0	0	0	1 flyover
Individual Species					

Priority Species/Group	Peak Count During Survey				
	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
Cormorant *Phalacrocorax carbo*	0	0	1 flyover	0	0
Grey heron *Ardea cinerea*	0	1	0	0	0
Starling *Sturnus vulgaris*	1	23	5	5	0

6.0 PROPOSED HABITATS

6.1 The site includes extensive green infrastructure (approximately 88% of the Site boundary area) which will be enhanced to improve the biodiversity value of the Site. Bird strike risk has been a key factor in designing the habitat creation and enhancement measures to ensure they do not significantly increase numbers of priority groups.

6.2 The green infrastructure proposals for the Site include the following habitat creation/enhancement measures:

- Pasture Grassland enhancement into native species-rich meadow grassland. These will be managed to ensure the sward height is not kept short (i.e. through hay-cutting) over winter to prevent attracting flocks of waders or geese.
- Pond creation will include a series of cascading ponds running from the south of the Site downhill to the northern ponds. These will be planted in association with scrub and woodland habitat to prevent open flight paths into new wetland habitats.
- Enhancement of existing ponds will include additional marginal, emergent and aquatic vegetation planting and the clearance of woodland that is currently densely shading the ponds. The drainage scheme will also encourage the central pond to hold water throughout the year.
- Scrub planting will include extensive areas of mixed scrub managed to incorporate glades, rides and clearings. This will be designed to specifically enhance the site for Nightingale which are not considered to pose a significant bird strike risk.
- Additional woodland planting will be undertaken to ensure there is no-net loss in woodland area across the Site.
- Existing woodlands will be enhanced through selective thinning and the introduction of additional species to boost botanical diversity.
- A series of drainage ponds will be created within and around the development parcels of the scheme.

Post-Development Habitat Suitability Assessment for Priority Groups

6.3 The groups and species identified within the Priority Group of birds have a variety of habitat requirements which ultimately determine the suitability and 'attractiveness' of a feature to that group or species, as described in Table 3. To assess the likelihood of a particular group or species using the proposed green roof and other newly created habitats, their behaviour and habitat requirements must be understood. The following behaviour characteristics displayed by the various groups below is drawn directly from the *CAP 772* document and is specific to on- or near-aerodrome activity. It is provided here as an insight to what makes certain birds attracted to on- or near-aerodrome areas.

6.4 An important consideration for this risk assessment is the altitude of planes from Gatwick Airport flying above the Site to ensure that birdstrike risks can be properly assessed. Gatwick Airport provided information on the altitude of planes in the surrounding area around the airport and at the location of the Site, planes are expected to be at 6,000-8,000ft (1830m-2440m)[5].

[5] https://aircraftnoise.gatwickairport.com/2021/04/22/typical-altitudes-of-aircraft/

Table 3: Potential of new habitats to act as an Attractant and targeted mitigation.

Group/ Species	Potential of new habitats as an Attractant	Risk of Proposed Habitats acting as an Attractant	Mitigation	Residual Risk of Proposed Habitats acting as an Attractant
Cormorant	Cormorants traditionally fly at 1-150m[6] altitude which is significantly below the altitude that planes fly over the Site. Therefore, the risk of the proposals leading to increased birdstrike with cormorants is negligible.	**Negligible**	None required	**Negligible**
Grey Heron	Additional ponds may increase foraging opportunities on site, attracting increased numbers of cormorants to feed onsite. It is however extremely unlikely that this species would fly at heights above 6,000ft where planes from Gatwick Airport will be flying over the Site.	**Low**	Enhanced ponds and newly created ponds will not be stocked with fish. Newly created ponds will be monitored for the presence of fish which will be removed if present.	**Negligible**
Swans	No swans were recorded onsite and so it is likely that the existing ponds are of low suitability for this group. New ponds will be too small to provide suitable habitat for swans. Scrub planting around ponds and the presence of woodland around existing ponds will prevent flight lines for swans to access features easily.	**Negligible**	None required.	**Negligible**

[6] https://frostyarctic.com/do-cormorants-fly/

Group/ Species	Potential of new habitats as an Attractant	Risk of Proposed Habitats acting as an Attractant	Mitigation	Residual Risk of Proposed Habitats acting as an Attractant
Geese	Wildflower meadows will be managed to ensure they do not support a short sward over winter which could attract geese (i.e. hay cut management) and scrub planting around new ponds and woodland around existing ponds will prevent flight lines for geese to access features easily, making them undesirable for large migrating flocks which may pose a risk of birdstrike. New ponds may provide suitable habitat while planted scrub is maturing as geese will be able to access them easily. Pasture grasslands may provide suitable foraging habitat while establishing.	**Moderate**	Following pond creation, fencing should be installed around new ponds to prevent flightlines for geese. This should include high visibility fencing such as orange plastic netting to ensure it acts to detract geese from using the ponds. Grasslands should be monitored during the first year of establishment to determine whether they act as an attractant for geese. Where any flocks in excess of 50 geese are observed using the Site, mitigation measures should be implemented. These can include installing fencing across fields, using pyrotechnics and other bird scaring methods.	**Low**
Ducks	Wildflower meadows will be managed to ensure they do not support a short sward over winter which could attract ducks (i.e. hay cut management) and new scrub planting around new ponds and woodland around existing ponds will prevent flight lines for ducks to access features easily, making them undesirable for large flocks which may pose a risk of birdstrike. New ponds may provide suitable habitat while planted scrub is maturing as ducks will be able to access them easily.	**Moderate**	Following pond creation, fencing should be installed around new ponds to prevent flightlines for ducks. This should include high visibility fencing such as orange plastic netting to ensure it acts to detract ducks from using the ponds. Grasslands should be monitored during the first year of establishment to determine whether they act as an attractant for ducks, particularly wigeon. Where any flocks in excess of 50 ducks are observed using the Site, mitigation measures should be implemented. These can include	**Low**

Group/ Species	Potential of new habitats as an Attractant	Risk of Proposed Habitats acting as an Attractant	Mitigation	Residual Risk of Proposed Habitats acting as an Attractant
	Pasture grasslands may provide suitable foraging habitat while establishing.		installing fencing across fields, using pyrotechnics and other bird scaring methods.	
Raptors	New meadow grassland habitats will provide optimal foraging habitat for a range of raptor species including red kite, buzzard, sparrowhawk and kestrel. The new ponds could also attract the dragonfly prey species of hobby. The baseline surveys recorded a typical assemblage of raptors and so increases are likely to be minimal due to the carrying capacity of the Site to support territories. In addition, High flying UK raptors include buzzard and red kite which can sporadically fly at heights of 1000m[7] and 1600m[8] respectively, which is below the 1830-2440m that planes from Gatwick fly over the Site.	**Negligible**	None required	**Negligible**
Game birds	Game birds typically fly at low altitudes and would not be expected to reach heights that could pose a risk to planes flying to or from Gatwick Airport.	**Negligible**	None required	**Negligible**
Waders	Wildflower meadows will be managed to ensure they do not support a short sward over winter which could attract waders such as lapwing (i.e. hay cut	**Low**	Following pond creation, fencing should be installed around new ponds to deter waders which favour open sightlines. This should include high	**Negligible**

[7] https://birdfact.com/birds/buzzard#:~:text=According%20to%20an%20International%20Bird,reach%20heights%20of%201%2C000%20metres

[8] https://link.springer.com/article/10.1007/s10336-022-01994-#:~:text=The%20birds%20sporadically%20reached%20flight,56%25%20of%20location%20fixes)

Group/ Species	Potential of new habitats as an Attractant	Risk of Proposed Habitats acting as an Attractant	Mitigation	Residual Risk of Proposed Habitats acting as an Attractant
	management) and scrub planting around new ponds and woodland around existing ponds will prevent these features becoming suitable for waders which favour open ponds for breeding and foraging. New ponds may provide suitable habitat while planted scrub is maturing as they will provide the open sight lines favoured by waders. Pasture grasslands may provide suitable foraging habitat while establishing.		visibility fencing such as orange plastic netting to ensure it acts to detract waders from using the ponds. Grasslands should be monitored during the first year of establishment to determine whether they act as an attractant for waders. Where any flocks in excess of 100 waders are observed using the Site, mitigation measures should be implemented. These can include installing fencing across fields, using pyrotechnics and other bird scaring methods.	
Plovers	Wildflower meadows will be managed to ensure they do not support a short sward over winter which could attract plovers (i.e. hay cut management) and scrub planting around new ponds and woodland around existing ponds will prevent these features becoming suitable for plovers which favour open ponds for breeding and foraging. New ponds may provide suitable habitat while planted scrub is maturing as they will provide the open sight lines favoured by plovers. Pasture grasslands may provide suitable foraging habitat while establishing.	**Low**	Following pond creation, fencing should be installed around new ponds to deter plovers which favour open sightlines. This should include high visibility fencing such as orange plastic netting to ensure it acts to detract plovers from using the ponds. Grasslands should be monitored during the first year of establishment to determine whether they act as an attractant for plovers. Where any flocks in excess of 100 plovers are observed using the Site, mitigation measures should be implemented. These can include installing fencing across fields,	**Negligible**

Group/ Species	Potential of new habitats as an Attractant	Risk of Proposed Habitats acting as an Attractant	Mitigation	Residual Risk of Proposed Habitats acting as an Attractant
			using pyrotechnics and other bird scaring methods.	
Gulls	While the habitats onsite will be enhanced, this is not expected to attract significantly increased numbers of gull species which will favour open, short grasslands or arable habitats for foraging. Meadow grasslands will be managed to ensure they are not kept short over the winter and new ponds will be small inside and will be surrounded by scrub planting to prevent creating large bodies of open water to attract gulls. Pasture grasslands and ponds may provide suitable foraging habitat while vegetation and planting is establishing.	**Moderate**	Following pond creation, fencing should be installed around new ponds to deter gulls which favour open sightlines. This should include high visibility fencing such as orange plastic netting to ensure it acts to detract gulls from using the ponds. Grasslands should be monitored during the first year of establishment to determine whether they act as an attractant for plovers. Where any flocks in excess of 100 small gulls or 50 large gulls are observed using the Site, mitigation measures should be implemented. These can include installing fencing across fields, using pyrotechnics and other bird scaring methods.	**Low**
Pigeons	While the habitats onsite will be enhanced, this is not expected to attract significantly increased numbers of pigeon species. Typically, large flocks of pigeons are drawn to open arable habitats which provide abundant foraging opportunities. No arable habitats will be created, with the enhancements onsite targeting small passerine species, particularly	**Negligible**	None required	**Negligible**

Group/ Species	Potential of new habitats as an Attractant	Risk of Proposed Habitats acting as an Attractant	Mitigation	Residual Risk of Proposed Habitats acting as an Attractant
	nightingale. Consequently, any increases in pigeon numbers onsite will be negligible.			
Swift & Hirundines	The habitat enhancements onsite may attract additional foraging swifts and hirundines as they will likely lead to increased invertebrate prey. Swifts will typically forage between heights of 50 to 100m, while swallows and martins will typically forage at lower altitudes. Therefore, this is not expected to lead to any significant increases in birdstrikes.	**Negligible**	None required	**Negligible**
Corvids	While the habitats onsite will be enhanced, this is not expected to attract significantly increased numbers of corvid species. Typically, large flocks of corvids are drawn to open arable habitats which provide abundant foraging opportunities. No arable habitats will be created, with the enhancements onsite targeting small passerine species, particularly nightingale. Consequently, any increases in corvid numbers onsite will be negligible.	**Negligible**	None required	**Negligible**
Starling	Habitat enhancements are targeted at small passerine species and are not anticipated to lead to significant increases in large flocks of starling. Areas of reed will be small within newly created small ponds and will not create significant roosting habitat,	**Negligible**	None required	**Negligible**

General mitigation Measures

Construction Management Principles

6.5 During the construction phase of the project every effort should be made to prevent the appearance of areas of standing water that can attract gulls and wading birds as well as offer a source of drinking water around which large numbers of birds may congregate. If any such features should appear these should be drained if possible or, failing that, made otherwise unattractive to birds through the installation of wires suspended above inundated areas to deter take-off and landing or visual screen fencing to obstruct sight lines.

Principles of Design in Order to Reduce Appeal to Priority Group Bird Species

6.6 In recognition of the proximity of the proposed application site to Gatwick Airport, measures to monitor and review the potential bird strike hazard should be carried out by a private management company (herein referred to as the 'guardian') responsible for maintaining the Green Infrastructure. It will also be the guardian's responsibility to maintain on-going dialogue with Gatwick Airport in order to discuss the numbers and distribution of priority birds onsite.

6.7 Throughout the year the guardian or appointed contractor will be required to undertake monitoring of the Site to review the level of bird activity at the Site.

6.8 It is considered that during the winter months when large flocks of wintering birds are present in the UK will be the most detectable it will be required that the guardian of the Green Infrastructure or an appointed, suitably qualified contractor, monitors the Site to review the existence and/or population sizes of Priority Group species using the Site.

6.9 During the remainder of the year the potential for significant populations of most Priority Group species at the Site is considered negligible and therefore regular visitation for the purposes of monitoring is not required.

6.10 Prominent signage should be erected to discourage the feeding of birds.

6.11 In the event that these above measures fail (i.e. surveys show that bird threshold levels are regularly being exceeded, a primary meeting is held and mitigation methods are deployed, yet the number of birds recorded using the site is still in excess of threshold levels), advice will be sought from an independent third-party consultant that specialises in bird strike assessment and prevention. They can then evaluate whether any additional action needs to be taken, or whether the current level of mitigation is sufficient. Threshold levels for Priority Groups deemed potentially likely to colonise the Site are given in Table 3 above, it should be noted that these thresholds refer to birds actively using the Site and excludes individuals recorded as flyovers.

Bird Communications Procedure

6.12 Should the site visitations consider that the number of 'Priority Group' birds is over the agreed threshold level, it is the responsibility of the site guardian to notify Gatwick Airport of the occurrence. The notification of this trigger event will generate a primary meeting between representatives of the site guardians, Gatwick Airport, and any other interested parties in discussing the occurrence of the birds and, if bird management control is considered necessary by Gatwick Airport at this

point, the tactics to use in order to lower the number of 'Priority Group' birds using the Site and to lessen the bird strike hazard.

Population Control Techniques

6.13 Bird scaring or other number management techniques will need to be approached with sensitivity given the proposed use of the Site, the close proximity of residential properties, and the sensitivity of non-target birds. It is expected that the technique employed for most species will be the playing of species-specific distress calls at regular intervals from the Site. The use of recorded distress calls generally works well with species that often communicate with each other such as gulls, starlings, thrushes, and finches of primary concern at this Site. With reference to the CAA's document CAP772 the playing of distress calls would be the preferred option as it is considered the most sensitive approach. The results of this action should be the subject of a temporary increase in the frequency of monitoring and reporting to Gatwick Airport.

6.14 Should further monitoring determine that the playing of bird distress calls has not been successful, or where the target species are known not to react to distress calls, such as corvids, it may be necessary to hold a further meeting to discuss more intrusive scare or exclusion methods. These would be considered to include the use of pyrotechnics, starter guns or scarer cartridges. Where meetings are held to discuss these more intensive scare methods, the agenda should include discussion of the most appropriate methodologies, outline the frequency of use, duration and timing of scaring events, access to the site, and other matters considered pertinent to enable the more intrusive scare methods to be undertaken expediently. Careful consideration should be given to the use of pyrotechnics near to areas of human habitation.

6.15 As a very last resort, where all other methods fail to control feral geese a form of population management including lethal control should be considered. General licences can be obtained for the lethal control of Canada geese for the purposes of preserving public health or public safety or air safety. A special licence will be required for the control of protected species. Lethal control may attract objection from the public and local conservation organisations and its success is unpredictable. It is considered that this scenario would be highly unlikely.

7.0 CONCLUSION

7.0 This assessment has demonstrated that while the proposals have the potential to lead to a low to moderate increased risk of priority bird species being present onsite.

7.1 Mitigation measures including the sensitive design of habitats to be created and the implementation of fencing and bird detractant measures during habitat establishment have demonstrated that the risk of proposals leading to increased bird strike risk at Gatwick Airport is Low to Negligible.

7.2 Monitoring of bird populations throughout the construction works and following completion of the proposals has been recommended to review the bird populations present.

7.3 Additional bird control measures have been recommended where monitoring demonstrates that priority bird populations increase to levels that could pose a significant risk of increased bird strike.

7.4 Consequently, the proposals are not anticipated to lead to a significant increase of bird strike risk at Gatwick Airport.

Key

Site Boundary

Gatwick Airport

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH t:01509 672 772 f:01509 674 565 e: mail@fpcr.co.uk w: www.fpcr.co.uk
masterplanning ■ environmental assessment ■ landscape design ■ urban design ■ ecology ■ architecture ■ arboriculture

0 1 2 km

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client
Nutfield Park Developments Ltd.

project
Nutfield Green Park

drawing title
Site Location & Context

scale
1:45,000

drawn
HG

issue date
6/10/2023

drawing / figure number
Figure 1

rev
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