

**CHINGFORD PLAIN,
EPPING FOREST**

PRELIMINARY ECOLOGICAL APPRAISAL

Draft Document

September 2019

Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EclA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

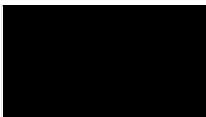
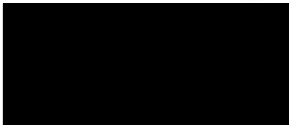
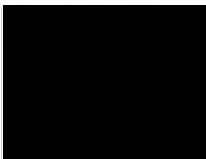
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The Preliminary Ecological Appraisal has been undertaken with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017). This report has been produced in accordance with the CIEEM Guidelines for Ecological Report Writing 2017 (CIEEM, 2017). The survey work has been undertaken in line with references within CIEEM's Source of Survey Guidance (CIEEM, 2017).

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EXECUTIVE SUMMARY

Ecological Survey and Assessment Ltd (ECOSA) have been appointed by City of London Corporation as Conservators of Epping Forest to undertake a Preliminary Ecological Appraisal of Chingford Plain, Bury Road, Chingford, Epping Forest. The purpose of the appraisal is to assess the site's ecological baseline and identify constraints and opportunities associated with delivering large-scale concerts at the site in order to inform their decision process. The site is located in Chingford, Greater London and comprises part of a grassland field bounded by woodland to the north.

The main findings of the Preliminary Ecological Appraisal are:

- It is understood that the site is designated as a SINC although the full citation or boundary of the SINC was not available at the time of preparing this report. The site has been assessed as having suitability to support tree roosting bats, foraging and commuting bats, badger, breeding birds, wintering birds, widespread species of reptile, great crested newt, European hedgehog and common toad. In the absence of suitable mitigation in respect of the aforementioned species groups/species, these could present an ecological constraint to the proposed event.
- Mitigation recommendations include minimising visitors accessing to the wider SINC, the erection of Heras fencing (or similar) around the event boundary and maintaining a minimum buffer of 20 metres between the broadleaved woodland. Further consideration to the potential impact of the event on the SINC will be necessary once the citation for the SINC is available and further details for the event come forward.
- Recommendations have been made for a sensitive lighting scheme to minimise potential disturbance impacts on foraging and commuting bats. Further consideration will need to be given to bats and nesting birds once the noise levels of any future event are known in order to ensure the species groups will not be disturbed.
- If the site boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if the event does not commence within 18 months of the date of the most recent relevant survey.

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by City of London Corporation as Conservators of Epping Forest to undertake a Preliminary Ecological Appraisal to identify the ecological constraints and opportunities associated with delivering large-scale concerts at Chingford Plain, Bury Road, Chingford, Epping Forest (hereafter referred to as the site).

1.2 The Site

The site is located in Chingford, Greater London centred on National Grid Reference (NGR) TQ 3960 9511 (**Map 1**). The Phase 1 habitat map (**Map 2**) depicts the boundary of the site.

The site comprises a grassland field bounded by car parking and Bury Road to the west Epping Forest to the north and the remainder of the field to the east and south.

The wider area is dominated by an urbanised landscape associated with Greater London. Areas of open green space are located within proximity to the site include other parts of Epping Forest surrounding the site.

1.3 Aims and Scope of Report

The information within this report is based on a field survey and desktop study carried out during June and August 2019. The objectives of the appraisal are:

- To provide preliminary baseline information on the current habitats, the suitability of the site to support notable and protected species, and evidence of notable and protected species both on site and in the immediate vicinity of the site, where relevant;
- To identify the proximity of any statutory sites designated for nature conservation importance;
- To identify the likely ecological constraints associated with the proposals;
- To identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy'¹;
- To identify any additional surveys that may be required to inform an Ecological Impact Assessment (EclA); and

¹ In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

- To identify the opportunities offered by the proposals to deliver ecological enhancement

1.4 Site Proposals

City of London Corporation as Conservators of Epping Forest have been approached by event organisers to hold concert style events with audiences in excess of 50,000 on land under their ownership. At the time of preparing this report, there are no detailed plans for the proposed events at the site, however, it is anticipated that this would be a daylong event with associated set up.

2.0 METHODS

2.1 Introduction

This section details the methods employed during the Preliminary Ecological Appraisal. Any significant limitations to the survey methods are also considered.

2.2 Zone of Influence

To define the total extent of the study area for this appraisal (Zone of Influence²), the proposed scheme was reviewed to establish the spatial scale at which ecological features could be affected. The appropriate survey radii for the various elements of the appraisal (i.e. desktop study and field survey) have been defined in the relevant sections below. These distances are determined based on the professional judgement of the ecologist leading the appraisal, taking into account the characteristics of the site subject to appraisal, its surroundings and the nature and scope of the proposals. Determination of the Zone of Influence is an iterative process and will be regularly reviewed and amended as the project evolves.

2.3 Scoping

Protected species considered within this appraisal are those species/species groups considered likely to be encountered given the geographical location and context of the site. These are discussed within the results section (Section 3.0) of the current report. Where such a species is unlikely to be present on site a justification for likely absence is provided. Species considered likely absent from the site are not then considered in the potential ecological constraints and mitigation measures section (Section 4.0) of this report.

2.4 Desk Study

A full biological record centre desktop study was not undertaken as part of this appraisal. However, City of London Corporation as Conservators of Epping Forest hold information relating to non-statutory designated sites and records of protected species within the vicinity of the site.

2.4.1 City of London Corporation as Conservators of Epping Forest

City of London Corporation as Conservators of Epping Forest provided data on 24th September 2019. The data supplied included common and widespread species but this appraisal focusses on records of legally protected and notable species (flora and fauna) within the local area, including Species of Principal Importance for the Conservation of diversity in England notified under Section 41 of the Natural Environment and Rural

² The Zone of Influence, as defined by CIEEM, is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities.

Communities (NERC) Act 2006 and as listed in the England Biodiversity List (**Appendix 4**).

2.4.2 Multi-Agency Geographic Information for the Countryside

The Multi-Agency Geographic Information for the Countryside (MAGIC) database (DEFRA, 2019) was reviewed on 20th August 2019 to establish the location of statutory designated sites located within the vicinity of the site. This included a search for all internationally and nationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within one kilometre of the site. Where appropriate, the desk study search area has been extended to take account of any appropriate statutory designated sites which need consideration in terms of potential in-direct effects and which support particularly mobile species, particularly those specifically mentioned in local planning policy. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs.

Sites within two kilometres of the site boundary where European Protected Species Mitigation (EPSM) licences have been granted were reviewed. This information allows a greater understanding of the potential for European protected species to be present in the local area.

2.4.3 Other Sources of Information

Online mapping resources, at an appropriate scale, were used to identify the presence of habitats such as woodland blocks, ponds, watercourses and hedgerows, in the vicinity of the site. These habitats may offer resources and connectivity between the site and suitable habitat in the local area, which may be exploited by local species populations.

The presence of ponds or other waterbodies within a 500 metre radius of the site in particular are noted in relation to great crested newt. The 500 metre radius is a standardised search radius to assist in the assessment of the suitability of a site and its surrounding habitat to support this species, based on current Natural England guidance (English Nature, 2001).

2.5 Field Survey

The field survey broadly followed standard Phase 1 habitat survey methodology (JNCC, 2010) and included a search for evidence of, and an assessment of the site's suitability to support, protected and notable species as recommended by CIEEM (CIEEM, 2017). The field survey covered all accessible areas of the site, including

boundary features Habitats described in Section 3.0, have been mapped (**Map 2**) and photographs provided, where relevant.

2.5.1 Phase 1 Habitat Survey

An assessment was made of all areas of vegetation within the site based on the standardised Phase 1 habitat survey methodology (JNCC, 2010). This involved identification of broad vegetation types, which were then classified against Phase 1 habitat types, where appropriate. A list of characteristic plant species for each vegetation type was compiled and any invasive species³ encountered as an incidental result of the survey recorded.

2.5.2 Protected and Notable Species Appraisal

A preliminary appraisal of the site's suitability to support legally protected and notable species was carried out. The following species/species groups were considered during the appraisal.

Bats

The survey conformed to current Bat Conservation Trust guidelines (Collins, 2016). An assessment was made of the suitability of trees on the site and immediately on the site boundary to support roosting bats based on the presence of Potential Roosting Features such as holes, cracks, splits, loose bark and ivy cladding for trees.

An assessment was made of the suitability of the site and the surrounding landscape to support foraging and/or commuting bat species. The assessment of the suitability of the site to support roosting, foraging and commuting bats is based on a four-point scale as detailed in **Appendix 3**.

Otter

The otter appraisal was based on an assessment of the suitability of the habitat present within the site to support otter by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), proximity of the site to freshwater and potential important feeding resources (such as fisheries), presence of habitat features which could provide opportunities for resting places and/or holts (such as tunnels, hollows at the base of trees and presence of dense, undisturbed habitat). During the survey attention was paid to the presence of evidence such as spraints, feeding remains, footprints and slides.

Badger

The survey involved an assessment of the suitability of the site to support badger. Evidence of the species was recorded as an incidental result of the Phase 1 habitat

³ Plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

survey and included locating badger setts, paths, and signs of territorial activity such as latrine sites.

Hazel Dormouse

The appraisal for the suitability of the site to support hazel dormouse was based on an assessment of habitat features that may indicate that the species is present. This includes the presence of key food sources such as hazel and bramble, or plants used as nesting material such as honeysuckle and clematis. Additionally, the species requires a continuum of food supply so that habitat structure, diversity and connectivity to adjacent areas of woodland/scrub are important features in determining the suitability of the site for hazel dormouse.

Water Vole

The water vole appraisal was based on an assessment of the suitability of the habitat present within the site to support water vole by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), bank structure and the bank side vegetation. Water voles generally require sloping banks in which to burrow and well-developed bank side vegetation to provide shelter and food. During the survey attention was paid to the presence of burrows, latrines, feeding remains, trails and footprints.

Birds

The appraisal of breeding birds on the site was based on the suitability of habitat present to support nesting bird communities, the presence of bird species that may potentially nest within the available habitat and evidence of nesting such as old or currently active nests.

The assessment of wintering birds was based on an assessment of the suitability of the habitat on site to support important wintering bird species and populations. Particular attention was paid to the suitability for the site to support wintering farmland bird species, waders and wildfowl.

Reptiles

The reptile appraisal was based on an assessment of the suitability of the habitat present within the site to support a population of reptiles. Reptiles particularly favour scrub and rough grassland interfaces and the presence of these is a good indication that reptiles may be present on site. In addition, reptiles may utilise features such as bare ground for basking, tussocky grassland for shelter and compost heaps and rubble piles for breeding and/or hibernating.

Great Crested Newt

The appraisal of the site to support great crested newt included establishing the presence of suitable aquatic habitats such as ponds, lakes or other waterbodies within or adjacent to the site and the presence of suitable terrestrial habitat. Waterbodies that are densely shaded, highly eutrophic or that contain fish are likely to be less suitable for this species. The suitability of on-site ponds and terrestrial habitat is considered in relation to the presence of ponds within the wider area, as identified within the desktop study (Paragraph 2.4.3), and their suitability to be used as a network.

Invertebrates

An assessment was made of the suitability of the site to support diverse communities of invertebrates. The assessment was based on the presence of habitat features which may support important invertebrate communities. These features include, for example, an abundance of dead wood, the presence of diverse plant communities, varied woodland structure, sunny woodland edges with a diverse flora, waterbodies and water courses and areas of free draining soil exposures. During the field survey there was no attempt made to identify species present as this is a more specialist area of ecological assessment reserved for targeted surveys.

Other Relevant Species

An assessment was made of site suitability for other notable species such as more rarely encountered protected species, Species of Principal Importance for the Conservation of diversity in England notified under Section 41 of the NERC Act 2006 and as listed in the England Biodiversity List, and Local Biodiversity Action Plan (LBAP) species⁴, specific to the study region.

Invasive Species

During the field survey any incidental records of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded. However, it should be considered that the survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

2.6 Field Survey Details

The field survey was carried out by Richard Chilcott, Principal Ecologist of ECOSA on 19th June 2019. The weather conditions were humid and overcast with 100% cloud cover, an ambient temperature of 20°C and little to no wind.

During the survey, the surveyor was equipped with 10x40 binoculars and a digital camera.

⁴ LBAPs identify local priorities for biodiversity conservation by translating national targets for species into effective action at the local level and identifying targets for species important to the local area.

2.7 Limitations

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The field survey has therefore not produced a complete list of plants and animals and in the absence of evidence of any particular species should not be taken as conclusive proof that the species is absent or that it will not occur in the future.

Online mapping resources provide an indication of habitat features present in the wider area, but do not provide a detailed assessment of habitat types.

The desk study data originates from City of London Corporation as Conservators of Epping Forest. A more exhaustive desktop study was not undertaken at this stage. The data search results cannot be taken as an exhaustive list of species present in the area.

A large proportion of the desk study data is historic (in excess of ten years old) and, therefore, the purposes of this report only the most recent and relevant records have been referenced within this report.

At the time of preparing this report it is understood that the site forms part of a SINC, however, the full citation for the SINC has yet to be provided to ECOSA.

Given the large number of trees present along the site boundaries, it was not possible to fully inspect each tree for bat roosting suitability. Therefore, potential bat roosting features may be present which were not identified during the survey.

Not all potential bat roosting features are accessible to the surveyor, e.g. gaps beneath roof materials or holes or cracks in trees, and therefore assessments are based upon the potential for these features to provide suitable roosting opportunities.

3.0 BASELINE ECOLOGICAL CONDITIONS

3.1 Introduction

This section details the results of the Preliminary Ecological Appraisal undertaken for the site. It assesses the baseline ecological conditions of the site at the time the desktop study was completed and based on the ecological features recorded during the field survey.

3.2 Statutory and Non-statutory Designated Sites

3.2.1 Statutory Designated Sites

There are two statutory designated sites of nature conservation interest situated within one kilometre of the site boundary. These are:

- Epping Forest (SAC) – Located immediately north of the site at its nearest point and designated for supporting beech forests, northern Atlantic wet heaths, European dry heaths and stag beetle *Lucanus cervus*.
- Epping Forest (SSSI) – Located immediately north of the site at its nearest point and designated for supporting notable habitats, invertebrate assemblages and amphibians and breeding birds.

Further details of the statutory designations listed above are provided in **Appendix 1**.

3.2.2 Non-Statutory Designated Sites

It is understood from correspondence with Epping Forest that the site is also designated as a Site of Importance for Nature Conservation. However, the citation for the SINC was not available at the time of preparation of this report.

Further information on sites designated for nature conservation are provided in **Appendix 2**.

3.3 Habitats

3.3.1 Desktop Study Results

A review of the MAGIC website has identified the site as supporting the Habitat of Principal Importance wood-pasture and parkland. The MAGIC website also identified the presence of the Habitat of Principal Importance deciduous woodland immediately bounding the north of the site. Ancient semi-natural woodland was also identified as abutting the northern boundary of the site at its closest point.

No recent (within the last ten years) notable plant species have been recorded at the site based on the information provide by City of London Corporation as Conservators of Epping Forest.

3.3.2 **Field Survey Results**

Habitats within the site are shown on the Phase 1 Habitat Map (**Map 2**). Habitats are described in general terms using standard Phase 1 habitat survey terminology. The main habitats recorded on site during the Phase 1 habitat survey were as follows:

Semi-improved grassland

The site almost entirely comprises semi-improved grassland which comprises part of a larger field. The field was subject to light cattle grazing at the time of survey with mown paths and is tussocky in nature (**Figure 1**). Species recorded within this habitat include soft brome *Bromus hordeaceus*, perennial rye-grass *Lolium perenne*, common bent *Agrostis capillaris*, meadow foxtail *Alopecurus pratensis*, Yorkshire fog *Holcus lanatus*, crested dog's-tail *Cynosurus cristatus*, meadow grasses *Poa* species with herbaceous species including cut-leaved crane's-bill *Geranium dissectum*, ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, white clover *Trifolium repens*, greater plantain *Plantago major*, common sorrel *Rumex acetosa*, common mouse-ear *Cerastium fontanum*, creeping cinquefoil *Potentilla reptans*, bird's-foot trefoil *Lotus corniculatus*, common knapweed *Centaurea nigra*, meadow buttercup *Ranunculus acris* and red clover *Trifolium pratense*.



Figure 1: Semi-improved grassland within the site looking west



Figure 2: Rough grassland around car park

Areas of rough grassland are also present around the car park area to the west of the site (**Figure 2**). Species specifically recorded in this area include barren brome *Bromus sterilis*, false oat-grass *Arrhenatherum elatius*, cock's foot *Dactylus glomerata*, wall barley *Hordeum murinum* and soft brome with forb species typical of more unmanaged ground including cleavers *Galium aparine*, prickly sow thistle *Sonchus asper*, hedge

mustard *Sisymbrium officinale*, bush vetch *Vicia sepium*, hogweed *Heracleum sphondylium*, ribwort plantain and common nettle *Urtica dioica*.

Scattered Scrub

Areas of scrub are present around the margins of the car to the west of the site which area dominated by bramble *Rubus fruticosus* aggregate with occasional willow *Salix* species (**Figure 3**).



Figure 3: Areas of scrub and rough grassland present in the west of the site

Ruderal vegetation

An area of ruderal vegetation is present on the western boundary of the site adjacent to Bury Road (**Figure 4**). Species within this habitat are dominated by common nettle with broad-leaved dock *Rumex obtusifolius* and willowherb *Epilobium* species also present.



Figure 4: Area of ruderal vegetation adjacent to Bury Road

Other Habitats

Areas of hardstanding and bare earth are present in the west of the site associated with the areas of car parking.

An area of woodland forming Epping Forest is also present to the immediate north of the site. This was not fully surveyed as it lies outside of the site boundary however, forms mature broad-leaved woodland (**Figure 5**). Species recoded along the southern boundary of the woodland include pedunculate oak *Quercus robur*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, holly *Ilex aquifolium* and willow.



Figure 5: Woodland edge present off site to the north

3.3.3 Summary

The features of relatively greater interest in terms of the site are the broad-leaved woodland (situated offsite to the north) and semi-improved grassland. The site is not considered to be the Habitat of Principal Importance Parkland, as identified as part of the MAGIC search which could comprise scattered trees set over grassland.

3.4 Notable and Legally Protected Species

3.4.1 Bats

Desktop Study Results

A review of the MAGIC website identified a total of two granted EPSM licences in respect of bats within two kilometres of the site. A licence was granted in 2016 for the destruction of a maternity roost of soprano pipistrelle *Pipistrellus pygmaeus* with the second licence granted for the destruction of a resting place of common pipistrelle *Pipistrellus pipistrellus* in 2017.

Consultation with City of London Corporation as Conservators of Epping Forest produced records of common pipistrelle, soprano pipistrelle, Nathusius pipistrelle *Pipistrellus nathusii*, Daubenton's bat *Myotis daubentonii*, Leisler's bat *Nyctalus leisleri* and noctule *Nyctalus noctula* in 2007. These are all field and not roost records which indicates the presence of foraging and/or commuting bats. The exact location is unknown but were located approximately 250 metres south-east of the site.

Tree Assessment

No trees are present within the site itself. However, a number of trees are present along the site boundaries within the woodland to the north of the site. Whilst these were not assessed in detail as part of the survey it is highly likely that tree either along the boundary or within the wider woodland to the north support potential roost features.

Foraging and Commuting Habitat

The site provides good quality habitat for foraging and commuting bats associated with the woodland bounding the site and the tussocky semi-improved grassland across the site. This habitat is also connected to other high quality foraging and commuting habitat in the surrounds (specifically the extensive areas of Epping Forest) and therefore, the site is assessed as having high suitability for foraging and commuting bats.

3.4.2 Otter

Desktop Study Results

No granted EPSM licences in relation to otter *Lutra lutra* were identified within two kilometres of the site boundary. However, this does not confirm the absence of the species in the local area.

Consultation with City of London Corporation as Conservators of Epping Forest produced no records of otter within the local area, however, this does not confirm the absence of the species in the local area.

Field Survey Results

The site or immediately adjacent habitat does not support suitable habitat for resting otter or for holt creation. The habitat on site is unsuitable for otter and therefore the species is not considered further in this report.

3.4.3 Badger

Desktop Study Results

Consultation with City of London Corporation as Conservators of Epping Forest produced no records of badger *Meles meles*, however, this does not confirm the absence of the species in the local area.

Field Survey Results

No evidence of badger was recorded within the site during the survey undertaken. However, the site and the surrounds provide suitable foraging habitat for badger in the form of the semi-improved grassland and scrub present. The woodland forming the boundaries of the site also provides suitable opportunities for badger sett construction.

3.4.4 Hazel Dormouse

Desktop Study Results

No granted EPSM licence in respect of hazel dormouse *Muscardinus avellanarius* were identified on the MAGIC website within two kilometres of the site boundary.

Consultation with City of London Corporation as Conservators of Epping Forest produced no records of hazel dormouse, however, this does not confirm the absence of the species in the local area.

Field Survey Results

The site itself is unsuitable for supporting hazel dormouse, lacking any well connecting and diverse wooded vegetation which the species generally requires. However, the woodland present along the northern boundary does provide suitability for supporting the species and is well connected to other suitable habitat in the wider area. Notwithstanding this, at the time of writing no records of hazel dormouse had been identified and therefore, no further consideration has been given to this species in this report.

3.4.5 Water Vole

Desktop Study Results

Consultation with City of London Corporation as Conservators of Epping Forest produced no records of water vole *Arvicola amphibius* within the local area, however, this does not confirm the absence of the species in the local area.

Field Survey Results

The habitat within the site is unsuitable to support water vole without the presence of sloping banks adjacent to water in which to burrow and, therefore, the species is not considered further in this report.

3.4.6 Birds

Desktop Study Results

Consultation with City of London Corporation as Conservators of Epping Forest produced a large number of notable bird records within the site and surrounds. Records within the last ten years include meadow pipit *Anthus pratensis*, reed bunting *Emberiza schoeniclus*, redwing *Turdus iliacus*, swallow *Hirundo rustica*, bullfinch *Pyrrhula pyrrhula*, song thrush *Turdus philomelos*, skylark *Alauda arvensis*, linnet *Carduelis cannabina*, woodcock *Scolopax rusticola*, dunnoek *Prunella modularis*, short eared owl *Asio flammeus*, whinchat *Saxicola rubetra*, fieldfare *Turdus pilaris* and swift *Apus apus*

Field Survey Results

Species recorded during the field survey undertaken include house sparrow, woodpigeon *Columba palumbus* and blackbird *Turdus merula*. The boundary vegetation is suitable for supporting for supporting nesting birds in the form of extensive woodland. The site is also suitable for supporting ground nesting birds such as skylark.

The site will also likely provide suitable habitat for supporting a variety of overwintering birds including fieldfare and redwing, as listed in the desktop study.

3.4.7 Reptiles

Desktop Study Results

A number of records of reptiles were returned by City of London Corporation as Conservators of Epping Forest the most recent of which was grass snake *Natrix helvetica* identified in 2012. Records of common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* were also returned in 2005 and 2006 respectively.

Field Survey Results

The site provides high quality habitat for supporting common reptile species with the tussocky grassland present providing the necessary shelter and foraging opportunities species require. The site is also well connected to suitable hibernation features including the woodland to the north and scrub present in the grassland field to the south and east. Given the presence of records return by Epping Forest it is assumed that a population of common lizard, slow-worm and grass snake would be present at the site.

3.4.8 Great Crested Newt

Desktop Study Results

A single licence granted for great crested newt *Triturus cristatus* was identified by MAGIC approximately 1.6 kilometres to the west of the site in 2011. The record did not clearly establish whether the licence was for damage or destruction to a breeding site or resting place.

A review of online aerial photography and 1:25,000 OS mapping identified the presence of four ponds within 500 metres of the site boundary the nearest of which is present approximately 250 metres to the south-east of the site.

The most recent record of great crested newt provided by City of London Corporation as Conservators of Epping Forest was recorded in 2001 at Chingford Golf Course to the west of the site. No grid reference was provided as part of the record.

Field Survey Results

No waterbodies are present within the site and therefore, the species does not breed within the site. The site offers suitable terrestrial habitat for the species in the form of the tussocky grassland whilst the surrounding habitats in the form of the continued grassland, scrub and woodland also offer suitable terrestrial habitats. Whilst the status of great crested newt is currently unknown in the surrounding ponds it is not possible to rule out the potential presence of the species within terrestrial habitats.

3.4.9 Invertebrates

Desktop Study Results

A large number of invertebrate records were returned by City of London Corporation as Conservators of Epping Forest. However, of those only two notable records were returned from within the last ten years with small heath *Coenonympha pamphilus* and white admiral *Limenitis camilla* recorded in 2010 and 2019 respectively east and west of the site. Stag beetle also forms part of the designation of the Epping Forest SAC situated to the immediate north of the site.

Field Survey Results

The semi-improved grassland within the site offers suitable habitat to support a range of invertebrate species with high quality habitat also present in the surrounds in the form of the mature woodland. The site is unlikely to support stag beetle lacking any areas of deadwood for reproduction.

3.4.10 Other Relevant Species

Desktop Study Results

A single record of European hedgehog *Erinaceus europaeus* was returned by City of London Corporation as Conservators of Epping Forest recorded in 2012 at Chingford Plain. Records of common toad *Bufo bufo* were also returned within the search area the most recent of which was recorded in 1999 in Chingford Golf Course to the west.

Field Survey Results

No evidence of any other relevant species was recorded within the site during the survey undertaken. The site supports suitable habitat European hedgehog and common toad in the form of the tussocky grassland present across the site.

3.5 Summary of Key Ecological Features

The following features are those with greatest ecological value that lie within the site's Zone of Influence:

- Epping Forest SAC and SSSI present to the immediate north;

- Site is designated as a SINC although the citation was unavailable at time of report preparation;
- Suitability for the site to support foraging and commuting bats and tree roosting bats along the northern site boundary;
- Suitability to support foraging badger;
- Suitability to support breeding birds;
- Suitability to support widespread species of reptiles;
- Suitability to support terrestrial great crested newt;
- Suitability to support European hedgehog and common toad; and
- Suitability to support a diversity of invertebrates.

4.0 POTENTIAL ECOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

4.1 Introduction

This section identifies potential constraints to the proposed development scheme based on the key ecological features as identified in Section 3.0 and summarised in Paragraph 0. Recommendations are included for mitigation and compensation based on the identified ecological constraints, and opportunities for enhancement are discussed.

4.2 Designated Sites

4.2.1 *Potential Constraints*

The site immediately adjoins Epping Forest SAC and Epping Forest SSSI to the north. The proposals have the potential to result in direct impacts of these sites through increase in human activity and potential pollution and littering events.

At this stage the citation for the SINC was unavailable and therefore, it is unknown what features the SINC is designated for and therefore, the constraint that this presents to the proposals. The siting of staging, material, machinery, the movement of people to and from the event, trampling effects and littering has the potential to reduce the diversity and ecological value of the notable habitats for which the SINCs are designated for. Any vehicle movements could also result in damage to the SINCs if inappropriately managed.

4.2.2 *Potential Mitigation and Compensation Measures*

Subject to further assessment it may be possible to offset the impact to the SINC through the implementation of an appropriate environmental management plan to ensure that the site, and surrounding SAC, SSSI and SINC, SSSI are fully cleared of any equipment, litter and waste following the completion of the event. This would also need to include appropriate, managed, access routes to the site and the use of trackways to minimise damage to grassland where possible on any heavy traffic areas within the concert area. This should be designed in consultation with a suitably qualified ecologist. However, this could still result in damage to the SINC habitats. For example, if the SINC is designated for the presence of neutral grassland, then an annual event which would damage the grassland prior to flowering could result in permanent damage to the features the SINC is designated for. Further consideration will need to be given to this as proposals come forward.

Epping Forest SAC and SSSI should be buffered by a minimum of 20 metres between the event area and habitats with no access to these buffers during the site set up or operational phase. The exclusion zone will be marked by high visibility fencing, such as Heras fencing (or similar). As the proposals for the event come forward it will be

necessary for the consenting authority to undertake a Habitats Regulations Assessment to determine whether there would be any likely significant effect on Epping Forest SAC either alone or in-combination with other plans or projects.

4.2.3 Enhancement Opportunities

No enhancements in respect of designated sites are recommended.

4.3 Habitats

4.3.1 Potential Constraints

The proposals have the potential to result in the degradation of the habitats present and temporary loss of their ecological functionality during the period of the event.

The movement of people to and from the event, trampling effects and littering has the potential to result in the degradation of the existing habitats at the site. The access routes to the site used by both the site set up team and attendees has the potential to degrade habitats in the surrounds.

4.3.2 Potential Mitigation and Compensation Measures

As already recommended an appropriate buffer of a minimum of 20 metres will require establishment between the event site and the woodland to the north of the site in order to minimise the risk of any damage to these habitats. No access to these buffers during the site set up or operational phase. The exclusion zone will be marked by high visibility fencing, such as Heras fencing (or similar).

An appropriate environmental management plan will need to be implemented at the event to ensure that the site, and surrounding habitats, are fully cleared of any equipment, litter and waste following the completion of the event. This would also need to include appropriate, managed, access routes to the site and the use of trackways to minimise damage to grassland where possible on any heavy traffic areas within the concert area. This should be designed in consultation with a suitably qualified ecologist.

4.3.3 Enhancement Opportunities

Whilst the existing management regime for the site is currently unknown it is recommended that this is reviewed in order to ensure that the site is subject to sympathetic management to allow recover and enhancement following the completion of the event.

4.4 Bats

4.4.1 Potential Constraints

Any future event at the site has the potential to result in disturbance to roosting, foraging and commuting bats through increased noise levels. The introduction of external

lighting has the potential to result in increased light spill on roosting, foraging and commuting features, resulting in the disturbance of bats.

In England, bats and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, all bat species are protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 4** for details.

4.4.2 Potential Mitigation and Compensation Measures

Recommendations have been made for maintaining a minimum buffer of 20 metres between the event area and the woodland to the immediately north of the site in Paragraph 4.3.2 in order to avoid disturbing bats, should they be present. It is recommended that further consideration and assessment is given to bats once the layout and noise levels of the future event have been established.

The tree line should not be lit. Lighting should be restricted to the event itself and not during site set-up or closure. A further assessment of the potential lighting impacts should be undertaken once lighting plans are known.

4.4.3 Enhancement Opportunities

No enhancements in respect of bats are recommended.

4.5 Badger

4.5.1 Potential Constraints

Any future event at the site will result in temporary loss of badger foraging habitat short-term.

4.5.2 Potential Mitigation and Compensation Measures

Given that the loss of badger foraging habitat is only short-term (matter of days), no mitigation or compensation measures are recommended.

4.5.3 Enhancement Opportunities

No enhancements in respect of badger are recommended.

4.6 Birds

4.6.1 Potential Constraints

Should the event be undertaken during the nesting bird season (March to August, inclusive) then there is the potential for the proposals to result in disturbance and loss of nest both within the boundary vegetation and within the tussocky grassland within the site.

All birds, their nests, eggs and young are legally protected, with certain exceptions, under the Wildlife and Countryside Act 1981. Refer to **Appendix 4** for details.

4.6.2 Potential Mitigation and Compensation Measures

It is recommended that further consideration is given to birds once the layout and noise levels of any future event have been established. Areas of habitat could be managed in advance of the event in order to reduce the suitability for ground nesting birds.

4.6.3 Enhancement Opportunities

No enhancements in respect of birds are recommended.

4.7 Reptiles

4.7.1 Potential Constraints

Any future event has the potential to result in direct harm on slow-worm, common lizard and grass snake through site set up. Any future event at the site during the active reptile season of April to early October will result in the loss of habitat suitable for widespread species of reptile in the short-term.

Widespread reptile species (slow-worm, common lizard, grass snake and adder *Vipera berus*) are protected under the Wildlife and Countryside Act 1981 against harm, see **Appendix 4** for details.

4.7.2 Potential Mitigation and Compensation Measures

It is recommended that a precautionary method of works be utilised during the event set up. This would include the progressive strimming of grassland habitats down to 30 centimetres to encourage reptiles to disperse to the wider habitat in the surrounds. This would then be left for a minimum of 24 hours and mown to ground level in order to ensure the event area remains unsuitable. This should be included in the set-up plan for the site and should be undertaken under the supervision of an suitability qualified ecologist.

Following the completion of the event the affected area of grassland would be allowed to re-establish with any reptiles re-colonising the site.

4.7.3 Enhancement Opportunities

No enhancements in respect of reptiles is recommended.

4.8 Great Crested Newt

4.8.1 Potential Constraints

A population of great crested newt is present within the surrounding landscape. Any future event has the potential to result in direct effects on great crested newt if the event affected suitable habitat such as the tussocky semi-improved grassland.

Any future event at the site during the active great crested newt season of April to early October will result in the loss of habitat suitable for the species in the short-term.

In England, great crested newt and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, this species is protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 4** for details.

4.8.2 Potential Mitigation and Compensation Measures

The precautionary method of works for reptile set out in Paragraph 4.7.2 would minimise the potential risk to great crested newt during the event. However, given that great crested newt is a European Protected Species it is recommended that Natural England be consulted through their Discretionary Advice Service (DAS) on the precautionary method of works once details of the event are known.

4.8.3 Enhancement Opportunities

No enhancements in respect of great crested newt are recommended.

4.9 Invertebrates

4.9.1 Potential Constraints

The proposals will like result in the temporary loss of suitable terrestrial invertebrate habitat. However, given that it is anticipated that this would be for a very limited period of time this is not considered to be a significant constraint.

4.9.2 Potential Mitigation and Compensation Measures

Given the absence of potential significant constraints, no mitigation and compensation measures are recommended.

4.9.3 Enhancement Opportunities

No enhancements in respect of invertebrates is recommended.

4.10 Other Relevant Species

4.10.1 *Potential Constraints*

During the operational phase and site set up, any future event has the potential to result in direct effects on European hedgehog and common toad, if present, if the event is allowed to encroach onto tussocky grassland.

4.10.2 *Potential Mitigation and Compensation Measures*

Recommendations have been made for maintaining a minimum buffer of 20 metres between the event area and broadleaved woodland and hedgerows as discussed in Paragraph 4.2.2 in order to avoid harm to European hedgehog and common toad, should they be present.

Sensitive clearance methods of the tussocky grassland will be necessary prior to the commencement of any future event as set out in Paragraph 4.7.2. Any individual encountered as part of this work should be relocated to unaffected habitats in the surrounds.

4.10.3 *Enhancement Opportunities*

No enhancements in respect of European hedgehog and common toad are recommended.

5.0 CONCLUSION

5.1 Conclusion

The site is designated as a SINC with Epping Forest SAC and SSSI situated immediately to the north of the site. The full citation or boundary of the SINC was not available at the time of preparing this report. The site has been assessed as having suitability to support protected species including roosting bats, foraging and commuting bats, badger, breeding birds, wintering birds, great crested newt, widespread species of reptiles, European hedgehog and common toad.

The key constraints are the timing of the event, access routes, compaction and trampling, noise, lighting and layout of the event. Recommendations made including a sensitive lighting scheme, a minimum 20 metre buffer from the broadleaved woodland, establishing Root Protection Zones for mature scattered trees, perimeter fencing, an environmental management plan and controlled access routes.

Further consideration will need to be given to bats once the noise levels and layout of any future event are known in order to ensure these species groups will not be disturbed. Recommendation have also been made for a precautionary method of works during site set up in respect of reptiles and great crested newt. Further consideration will also need to be given to the potential impact of the event on the SINC, once further information on the features for which the SINC is designated are understood.

5.2 Updating Site Survey

If the boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

6.0 REFERENCES

CIEEM, 2017. *Chartered Institute of Ecology and Environmental Management Website*.
[Online]

Available at: www.cieem.net

CIEEM, 2017. *Guidelines for Ecological Report Writing*. 2nd ed. Winchester: Chartered Institute of Ecology and Environmental Management.

CIEEM, 2017. *Guidelines for Preliminary Ecological Appraisal*. 2nd ed. Winchester: Chartered Institute of Ecology and Environmental Management.

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

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

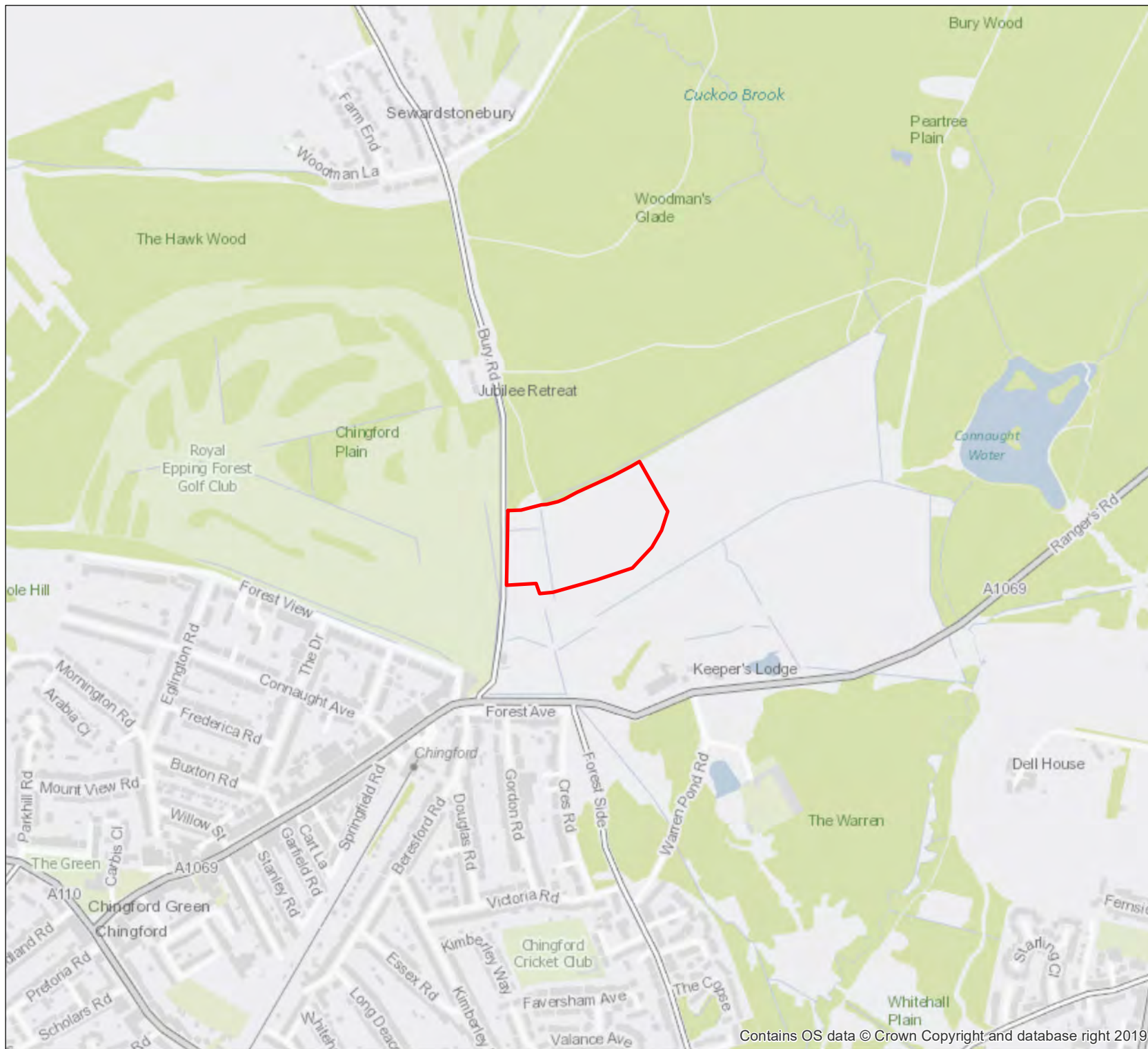
DEFRA, 2019. *Multi-Agency Geographic Information for the Countryside (MAGIC) Map Application*. [Online]

Available at: www.defra.magic.gov.uk

English Nature, 2001. *Great Crested Newt Mitigation Guidelines*. Peterborough: English Nature.

JNCC, 2010. *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. Peterborough: Joint Nature Conservation Committee.

Map 1 Site Location Plan



CHINGFORD PLAIN, EPPING FOREST

PRELIMINARY ECOLOGICAL APPRAISAL

Map 1 - Site Location Plan

Client:	City of London Corporation as Conservators of Epping Forest
Date:	September 2019
Status:	Final

KEY

Site Boundary



Scale at A4: 1:10,000

0 100 200 400 Metres



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Ecological Survey & Assessment

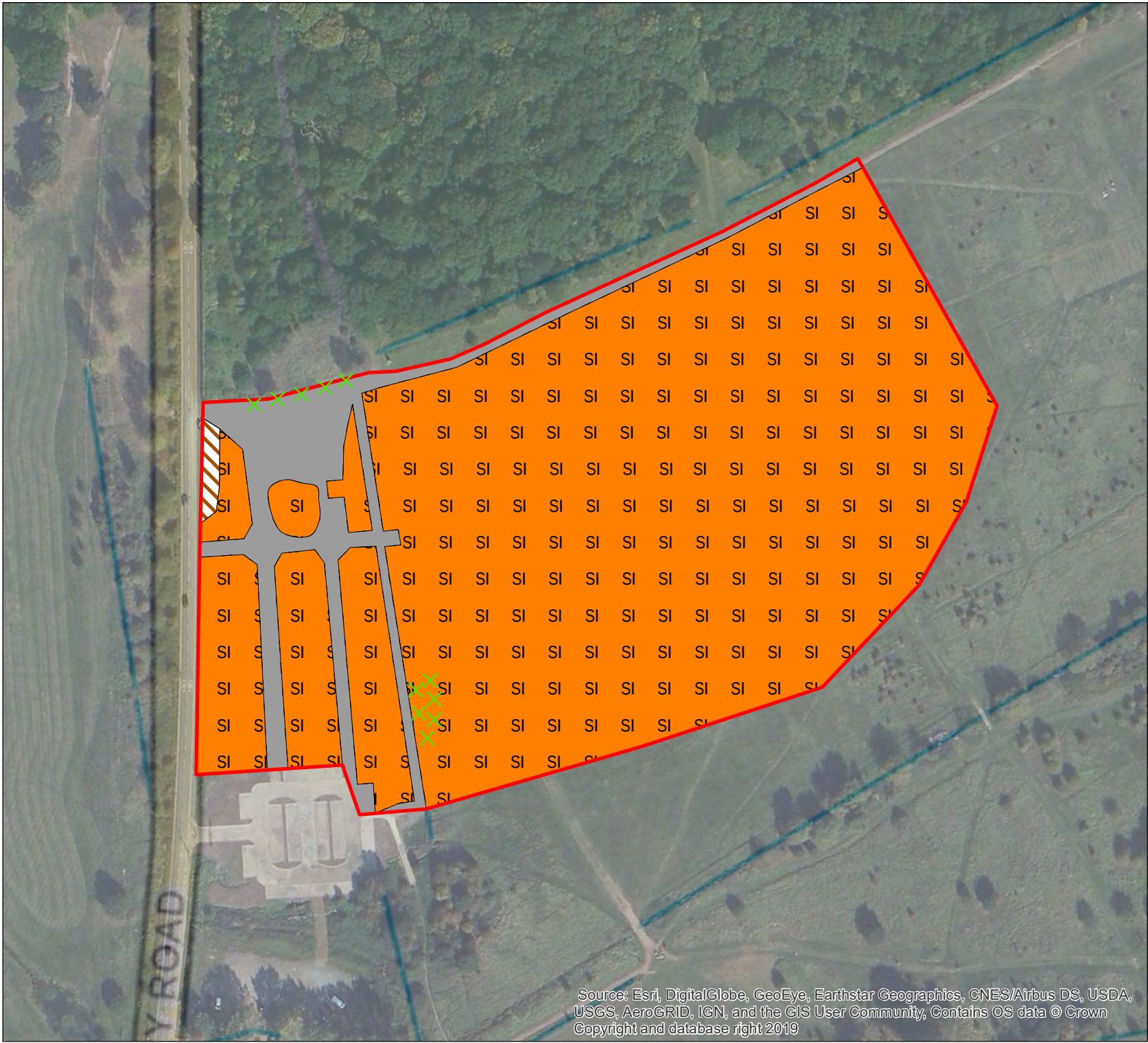
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Map 2 Phase 1 Habitat Map



CHINGFORD PLAIN, EPPING FOREST

PRELIMINARY ECOLOGICAL APPRAISAL

Map 2 - Phase 1 Habitat Map

Client:	City of London Corporation as Conservators of Epping Forest
Date:	September 2019
Status:	Draft

KEY

-  Site Boundary
-  Scattered Scrub
-  Semi-improved Grassland
-  Tall Ruderal
-  Hardstanding

Scale at A4: 1:2,000

0 20 40 80 Metres

N

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Appendix 1 Statutory Designated Sites within the Desktop Study Area

Details of statutory designated sites within the desktop study area, as listed in Paragraph 3.2.1, are provided in **Table 1**.

Table 1: Statutory Designated Sites Located Within the Desktop Study Area

Designation	Name	Approximate Relative Location	Reason for Designation
Epping Forest	SSSI	Immediately north	Annex I habitats which are a primary reason for the selection of the site: - Atlantic acidophilous beech forests with <i>Ilex</i> and sometimes also <i>Taxus</i> in the shrub layer (<i>Quercion robur-petraeae</i> or <i>Ilici-Fagenion</i>) Annex I habitats which are present as a qualifying feature but not a primary reason for the selection of the site: - Northern Atlantic wet heaths with <i>Erica tetralix</i> - European dry heaths Annex II species that are a primary reason for selection of the site; - Stag beetle – records of which are widespread and frequent across the site.
Epping Forest	SSSI	Immediately north	Epping Forest is one of only a few remaining large-scale examples of ancient wood-pasture in lowland Britain and has retained habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains and scattered wetland. The seminatural woodland is particularly extensive, forming one of the largest coherent blocks in the country. The Forest plains are also a major feature and contain a variety of unimproved acid grasslands which have become uncommon elsewhere in Essex and the London area. In addition, Epping Forest supports a nationally outstanding assemblage of invertebrates, a major amphibian interest and an exceptional breeding bird community.

Appendix 2 Sites Designated for Nature Conservation

Statutory Sites

Internationally Designated Sites - Ramsar Sites, Special Areas of Conservation and Special Protection Areas

Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) form a network of protected sites across the European Union called Natura 2000 sites. In the United Kingdom the primary legislative protection is afforded to these sites under the Conservation of Habitats and Species Regulations 2017 (as amended).

Ramsar sites are designated as wetlands of international importance which are afforded similar legislative protection to Natura 2000 sites.

SACs are sites which support internationally important habitats or internationally important assemblages or populations of species. SPAs are designated for supporting internationally important populations of birds listed in the annexes of the Birds Directive. SACs, SPAs and Ramsar sites are generally also designated as Sites of Special Scientific Interest.

Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) there is a legal requirement that competent authorities, such as local planning authorities, need to consider whether plans or projects are likely to have a significant adverse effect on Natura 2000 sites or Ramsar sites, either alone, or in combination with other plans or projects. In the event that a likely significant effect cannot be ruled out, on the basis of objective information, then the competent authority must undertake an “Appropriate Assessment” to fully assess the plan or project against the site’s conservation objectives. Unless certain defined derogation tests can be met, the competent authority may not authorise nor undertake any plan or project which adversely affects the integrity of a Natura 2000 site or Ramsar site.

Nationally Designated Sites – Sites of Special Scientific Interest and National Nature Reserves

Sites of Special Scientific Interest (SSSIs) receive legal protection under the Wildlife and Countryside Act 1981 (as amended). Such sites are designated to protect specific areas of biological or geological interest of national importance. Such sites also generally receive strict protection through the planning system.

National Nature Reserves (NNRs) are also usually designated as SSSIs and are specifically managed for their wildlife value. They receive legal protection through the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). As with SSSIs, these sites generally receive strict protection through the planning system.

Locally Designated Sites – Local Nature Reserves

Local Nature Reserves (LNRs) are designated by local authorities under the National Park and Access to the Countryside Act 1949. These are generally designated not only for their local wildlife value but also for education, scientific and recreational purposes. These sites generally receive protection from development through the planning system.

Non-Statutory Sites

Locally Designated Sites

In addition to statutory designations, local authorities often designate sites of nature conservation importance at the local level. Such designations are named differently by each local authority and may be referred to as Local Wildlife Sites (LWSs), Sites of Importance for Nature Conservation (SINCs) or Sites of Nature Conservation Importance (SNCIs), amongst others. The exact level of protection afforded to these sites varies and is normally defined through local planning policy.

Appendix 3 Appraisal Criteria for Bats

The criteria used to assess the suitability of roosting and foraging/commuting habitat for bats is based on industry guidelines and outlined in **Table 2**⁵.

Table 2: Criteria used to Assess Suitability of Roosting and Foraging/Commuting Habitat for Bats

Suitability	Description of roosting habitats	Commuting and foraging habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate	A structure of tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically/structure that does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerows or un-vegetated stream, but isolated (i.e. not very well connected to the surrounding landscape by other habitat). Suitable, but isolated, habitat that could be used by small numbers of foraging bats such as a lone tree or a patch or scrub.
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

⁵ Table adapted from (Collins, 2016)

Appendix 4 Relevant Legislation

Bats

All UK bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely:
- To impair its ability to survive, breed, or rear or nurture their young;
- To impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat *Rhinolophus ferrumequinum*;
- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Bechstein's bat *Myotis bechsteinii*;
- Barbastelle *Barbastella barbastellus*; and
- Greater mouse-eared bat *Myotis myotis*.

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Great Crested Newt

Great crested newt are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely, to impair its ability to survive, breed, or rear or nurture their young, to impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any one of these species uses for shelter or protection.

Breeding Birds

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls. Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread species of reptile that are native to Britain, namely common or viviparous lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix*

natrix, are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence to:

- Intentionally kill or injure any of these species.

The remaining native species of British reptile (sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*) receive a higher level of protection via inclusion under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations (in England and Wales only) and the Wildlife and Countryside Act 1981 (as amended). The distribution of these species are restricted to only a few sites in England.

Species and Habitats of Principal Importance in England

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The England Biodiversity 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 NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. There are currently 943 species of principal importance and 41 habitats of principal importance included on the England Biodiversity List.