ecology solutions ltd

BEECHCROFT DEVELOPMENTS LTD

ST. MICHAEL'S CONVENT, HAM COMMON, HAM, RICHMOND UPON THAMES

Ecological Assessment

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ecology solutions for planners and developers

CONTENTS

PLANS

APPENDICES

1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions was commissioned to undertake an Ecological Assessment of St Michael's Convent, Ham Common, Richmond, Surrey (see Plan ECO1) by Beechcroft Developments Ltd.

1.1.2. The proposals for the application site are for residential redevelopment of the site, including conversion and demolition of some of the existing buildings.

1.2. Site Characteristics

1.2.1. The application site (hereafter referred to as 'the site') is located within Ham, in the Borough of Richmond upon Thames. The site is bordered to the north and east by Martingales Close, with residential development further north and east of the site, with the Richmond Golf Club further east. To the south the site is bordered by Ham Common Road and Ham Common itself beyond, while to the west the site is bordered by residential back gardens and a school playing field, with residential development beyond.

1.2.2. The site itself comprises mown, amenity grass lawn, amenity planting and trees, including orchard trees. There are smaller areas of allotments, hedgerows and two small amenity ponds present within the site, as well as a number of buildings and structures.

1.3. Ecological Assessment

1.3.1. This document assesses the ecological interest of the site at St Michael's Convent, Ham Common, Ham, Richmond upon Thames. The importance of the habitats within the site is evaluated with due consideration given to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1].

1.3.2. Where necessary mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site. Specific enhancement opportunities that are available for habitats and wildlife within the site are detailed where appropriate, with reference to the 'UK Post-2010 Biodiversity Framework'[2]. Finally conclusions are drawn.

[1] CIEEM(2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal,* 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

[2] JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012) *UK Post-2010 Biodiversity Framework. July 2012.* http://jncc.defra.gov.uk/page-6189

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the site and the surrounding area, Ecology Solutions contacted the Greenspace Information for Greater London (GiGL) record centre.

2.2.2. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)[3] database. This information is reproduced where appropriate on Plan ECO1 and at Appendix 1.

2.3. Habitat Survey Methodology

2.3.1. Habitat surveys were carried out in September 2015 and between May and July 2016.

2.3.2. The site was surveyed based around extended Phase 1 survey methodology[4], as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent at different seasons. Nonetheless, given the timing of the surveys included the optimal period for the main habitats present, it is considered an accurate and robust assessment has been made of the botanical interest.

2.4. Faunal Survey

2.4.1. Obvious faunal activity, such as birds or mammals observed visually or by call during the course of the surveys, was recorded. Specific attention was paid to any potential use of the site by protected species, species of principal importance (Priority Species), or other notable species.

2.4.2. In addition, specific surveys were undertaken for bats, badgers *Meles meles* and Greta Crested Newts.

[3] http://magic.defra.gov.uk
[4] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

2.4.3. Experienced ecologists undertook the faunal surveys with regard to established best practice and guidance issued by Natural England. Details of the methodologies employed are given below.

Bats

2.4.4. Field surveys were undertaken within the site with regard to best practice guidelines issued by, the Joint Nature Conservation Committee (2004[5]) and the Bat Conservation Trust (2012[6] and 2016[7]).

2.4.5. The buildings within the site were subject to internal and external surveys in September 2015 using ladders, torches, mirrors, binoculars and an endoscope where necessary.

2.4.6. Evidence of the presence of bats was searched for, with particular attention paid to the roof areas and gaps between rafters and beams. Specific searches were made for bat droppings, which can indicate present or past use and extent of use and other signs to indicate the possible presence of bats e.g. presence of stained areas, or areas that are conspicuously cobweb-free.

2.4.7. The probability of a building being used by bats as a summer roost site increases if it:

- is largely undisturbed;
- dates from pre-20th Century;
- has a large roof void with unobstructed flying spaces;
- has access points for bats (though not too draughty);
- has wooden cladding or hanging tiles; and/or
- is in a rural setting and close to woodland or water.

2.4.8. Conversely, the probability decreases if a building is of a modern or pre-fabricated design/construction, is in an urban setting, has small or cluttered roof voids, has few gaps at the eaves or is a heavily disturbed premises.

2.4.9. The main requirements for a winter/hibernation roost site are that it maintains a stable (cool) temperature and humidity. Sites commonly utilised by bats as winter roosts include cavities/holes in trees, underground sites and parts of buildings. Whilst different species may show a preference for one of these types of roost site, none are solely dependent on a single type.

2.4.10. All trees within the site were assessed for their potential to support roosting bats. Features typically favoured by bats were searched for, including:

- Obvious holes, e.g. rot holes and old Woodpecker holes;

[5] Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.
[6] Bat Conservation Trust (2012). *Bat Surveys – Good Practice Guidelines (2nd Edition)*. Bat Conservation Trust, London.
[7] Collins, J. (ed.) (2016) *Bat Surveys for professional Ecologists: Good practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

- Dark staining on the tree, below the hole;
- Tiny scratch marks around a hole from bat claws;
- Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc.; and
- Very dense covering of mature Ivy over trunk.

2.4.11. In addition, surveyors also undertook evening emergence surveys of buildings considered to have potential to support roosting bats, to be affected by the development proposals. These surveys were undertaken in May and July 2016 using SongMeter EM3 bat detectors to record the data, which was subsequently analysed using Analook bat sound analysis software. This survey method aimed to identify if any bats were roosting within the building and the position of any access points used by bats, as well as the species and number of bats using any identified roosts.

2.4.12. The emergence surveys began 15 minutes prior to sunset and were terminated 2 hours after sunset and were carried out in suitable weather conditions.

2.4.13. In addition a SongMeter SM4 detector was left out for seven nights in July 2016 in order to record any bat activity within the orchard.

Badgers

2.4.14. Specific surveys for Badgers were carried out September 2015 with updated surveys undertaken in May and July 2016.

2.4.15. The surveys comprised two main elements. Firstly, searching thoroughly for evidence of Badger setts. For any setts that were encountered standard survey practice would record the location of each sett entrance, even if the entrance appeared disused. The following specific information was recorded where appropriate:

i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.

ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance, or have plants growing in or around the edge of the entrance.

iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be together with the remains of the spoil heap.

2.4.16. Secondly, any evidence of Badger activity such as well-worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was recorded so as to build up a picture of the use of the site by this species.

Great Crested Newts

2.4.17. There are two small amenity ponds (**P1** and **P2**) within the site, both of which are surrounded by amenity planting, which in turn is surrounded by areas of hardstanding.

2.4.18. A Habitat Suitability Index (HSI) survey of these two ponds was undertaken in September 2015.

2.4.19. An HSI survey is a quantitative measure of habitat quality for Great Crested Newts *Triturus cristatus* and is utilised as part of the assessment for a European Protected Species licence application.

2.4.20. An HSI survey is based on ten suitability indices that include:

- Location;
- Pond area;
- Pond drying;
- Water quality;
- Shade;
- Fowl;
- Fish;
- Ponds;
- Terrestrial habitat; and
- Macrophytes cover.

2.4.21. Scores are attributed to each index and are then converted to Suitability Index (SI) scores on a scale from 0.01 to 1 (1 represents optimal habitat). The ten scores are multiplied together and the tenth root of this number is then calculated to give the overall HSI score.

3. ECOLOGICAL FEATURES

3.1. Habitat surveys were undertaken within the site in September 2015 and between May and July 2016.

3.2. The following main habitat/vegetation types were identified within the site:

- Amenity Grass Lawn;
- Amenity Planting;
- Hedgerows and Trees;
- Ponds;
- Allotments; and
- Buildings, Structures and Hardstanding.

3.3. The location of these habitats is shown on Plan ECO2.

Amenity Grass Lawn

3.4. Amenity grass lawns are present throughout the site, which are maintained with a short-mown sward.

3.5. Species present within the amenity grass lawn include Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra*, Creeping Bent *Agrostis stolonifera and* Cock's Foot *Dactylis glomerata* within the sward. Herbaceous species Yarrow *Achillea millefolium,* Common Nettle *Urtica dioica*, Autumn Hawkbit *Leontodon autumnalis*, Common Chickweed *Stellaria media*, Common Field Speedwell *Veronica persica*, Dove's-foot Crane's-bill *Geranium molle,* Autumn Crocus *Crocus nudiflorus*, Ribwort Plantain *Plantago lanceolate*, Common Sorrel *Rumex acetosa*, Cyclamen *Cyclamen* sp., Daisy *Bellis perennis,* Spear Thistle *Cirsium vulgare* and Ground Ivy *Glechoma hederacea*.

Amenity Planting

3.6. Areas of amenity planting are present at the boundaries of the site, and associated with the buildings and boundary features.

3.7. Shrub species present include Firethorn *Pyracantha* sp., Escollonia *Escallonia macrantha,* Rose *Rosa* sp., Cotoneaster *Cotoneaster* sp., Viburnum *Viburnum* sp., Honeysuckle *Lonicera* sp., Rock Rose *Cistus* sp.*,* Dogwood *Cornus sanguinea*, Lavender *Lavandula sp.*, Wilson's Honeysuckle *Lonicera nitida*, Holly *Ilex aquifolium*, and Rosemary *Rosmarinus officinalis.* Snowberry *Symphoricarpos albus*, Vervain *Verbena officinalis*, Barberry *Berberis sp.,* Garden Privet *Ligustrum ovalifolium*, Bramble *Rubus fruticosus agg.*, Wood Spurge *Euphorbia amygdaloides,* Yucca *Yucca sp.,* Passionflower *Passiflora sp.,* Rhododendron *Rhododendron* sp.*,* Rose Of Sharon *Hypericum calycinum*, Forsythia *Forsythia* sp., *Pulmonaria sp.,* Oregon Grape *Mahonia* sp., *Hebe sp.,* Box *Buxus sempervirens*, Vine *Vitus sp.,* Hawthorn *Crataegus monogyna,* Clematis *Clematis sp., Eleagnus sp., Pittosporum sp., Syringa sp., Choysia sp.,* Bamboo *Pleioblastus sp*., Spotted Laurel *Aucuba japonica*, Portugal Laurel *Prunus lusitanica*, Hazel *Corylus avellana*, Cherry Laurel *Prunus laurocerasus*, Blue Atlas Cedar *Cedrus atlantica*, and Italian Cypress *Cupressus sempervirens.*

3.8. Herbaceous species present include Sedge *Cyperaceae* sp., Common Fleabane *Pulicaria dysenterica*, Lamb's Ear *Stachys byzantina,* Teasel *Alternanthera sessilis,* Strawberry *Fragaria vesca,* Hollyhock *Alcea rosea*, *Crocosmia sp., Penstemon sp., Astilbe sp.,* Mint *Menth asp.,* Ivy *Hedera helix*, Blue Eyed Grass *Sisyrinchium montanum*, *Bergenia sp., Cosmos* sp.*,* Evening Primrose *Oenothera biennis*, Dahlia *Dahlia pinnata*, Lemon Balm *Melissa officinalis*, Solomon's Seal *polygonatum,* Garlic Mustard *Alliaria petiolata*, Iris *Iris sp., Geranium sp*., *Fuchsia sp*., Cow Parsley *Anthriscus sylvestris*, Hogweed *Heracleum mantegazzianum*, Russian Vine *Fallopia baldschuanica*, Yellow Archangel *Lamiastrum galeobdolon*, Curry Plant *Helichrysum italicum*, Blue Fleabane *Erigeron acer*, Sage *Salvia officinalis*, Japanese Anemone *Anemone hupehensis*, Smoke Tree Cotinus coggygria, Columbine *Aquilegia sp*., Periwinkle *Vinca major*, *Nasturtium sp.,* Green Alkanet *Pentaglottis sempervirens*, Purple Loosestrife *Lythrum salicaria* and Wood Avens *Geum urbanum*.

Hedgerows and Trees

3.9. There are a number of amenity trees present throughout the site, in particular in the northern half of the site, with a number of orchard trees present within the areas of amenity grass lawn also in the northern half of the site. There are also three small sections of hedgerow within the site.

3.10. There are three small sections of hedgerow present within the site, two of which are box-cut amenity hedgerows comprising Wilson's Honeysuckle and Dogwood and border areas of amenity planting. There is also one hedgerow that runs through the centre of the site and is a 2m box-cut Hawthorn hedgerow.

3.11. Amenity trees present within the site include Yew, Black Mulberry *Morus nigra,* Maple *Acer sp*., Pine *Pinus* sp., Laburnum *Laburnum anagyroides*, Field Maple *Acer campestre*, Cedar *Thuja* sp.*,* Norway Maple *Acer platanoides*, Silver Birch *Betula pendula*, Ash *Fraxinus excelsior*, Oak *Quercus sp*., Sweet Chestnut *Castanea sativa*, Holly*,* Beech *Fagus sylvatica*, Monkey-puzzle *Araucaria araucana*, European Larch *Larix decidua*, Indian Bean Tree *Catalpa bignonioides*, Holm Oak *Quercus ilex,* Cypress *Chamaecyparis sp***.,** False Acacia *Robinia pseudoacacia***,** Damson *Prunus domestica,* Cherry Plum *Prunus cerasifera*, Fig *Ficus carica*, and Cherry *Prunus sp*.

3.12. In the northern half of the site there are a number of fruit trees present within the amenity grass lawn, and species present include Apple *Malus domestica*, Pear *Pyrus communis,* and Plum *Prunus domestica.*

Ponds

3.13. There are two small amenity ponds present within the site, P1 and P2, as shown on plan ECO2.

3.14. Pond **P1** lies in the east of the site. This pond comprises a moulded liner surrounded by stones and amenity planting, with a worn pathway to the east. The pond itself is approximately 0.5m^2 and supports two stands of Iris, with the entirety of the pond water (including down to the base) being visible.

3.15. Pond **P2** lies in the west of the site and lies within a narrow amenity planting border, surrounded by hardstanding and a brick wall. This pond is a small, square, concrete pond that is approximately 1m^2 and is choked with Iris, with no water visible during the survey in September 2015. During the surveys in 2016 this pond was recorded as being dry.

Allotments

3.16. There are a number of allotments within the site, which are used to grow a variety of vegetables and flowers.

Buildings, Structures and Hardstanding

3.17. There are three buildings (B1-B3), three structures and two greenhouses present within the site. These are described individually below.

3.18. Building **B1** is the main house, which is constructed of brick and is between two and three storeys in height. This building is comprised of a number of joined flat-roofed and pitched-roof sections (B1a-B1e).

3.19. B1a comprises a double-pitched and a hip-ended roof that is constructed with slate tiles and is surrounded by a parapet wall. Internally, this section of the roof is approximately 2m to the apex and is constructed with wooden beams and rafters, with felt lining and wooden boarding present. Fibreglass insulation is present on the floor of the double pitched section of this roof void, although is not present in the hip-ended section.

3.20. Section B1b comprises two sections, in the south there is a half-pitched, slate-tiled roof with a flat section in the centre, while to the north lies a pitched, slate-tiled section. Externally, there is a parapet wall surrounding both sections of roof. Internally, the roof is constructed of wooden beams and rafters, with felt lining and wooden boarding present, and fibreglass insulation on the floor. The southern section is approximately 2m to the flat roof, while the northern section is approximately 2m to the apex.

3.21. Sections B1c-e comprise flat-roofed sections of building, with a glass conservatory also present in section B1d. No roof voids are present within any of these sections, although there are small parapet walls around sections B1c and B1d.

3.22. Building **B2** is a residential flat above a series of garages. This building is constructed of brick, with a pitched, slate-tiled roof and a small parapet wall. Internally, the roof void is approximately 2m to the apex and sis constructed of wooden beams and rafters, with felt lining and fibreglass insulation.

3.23. Building B3 comprises a series of wooden sheds that are constructed of wooden slatting, with sloping corrugated asbestos and plastic roofs. The eastern and western-most sheds are open sided, while the remainder of the sheds have skylights and windows present, making them light internally. Internally these sheds are divided by wooden walls and there are no roof voids present.

3.24. Within the gardens there are two wooden sheds present, a summer house and a hermitage, that are constructed with wooden walls and pitched, corrugated plastic / felt roofs. No roof voids are present within these sheds. There are two,

joined greenhouses present in the west of the site, with a small joining structure constructed with a sloping, corrugated asbestos roof.

3.25. The remainder of the site comprises hardstanding pathways and car parking.

Background Records

3.26. GiGL returned no records of any notable plants from within the site itself. The nearest record of the Red listed species Round-fruited Rush *Juncus compressus* was returned from approximately 0.2km southwest of the site in 1994. The nearest records of Bluebell *Hyacinthoides non-scripta* (a Schedule 8 species protected from sale only, recorded in 2003), Yellow Vetchling *Lathyrus pratensis* (a Red List and Nationally Scarce species recorded in 2003), and Small Water-pepper *Persicaria hydropiper* (a Red List species recorded in 1993) were returned from approximately 11km north of the site. The nearest records of Hairy Cinquefoil *Potentilla villosa* (a Red List species) and Dittander *Lepidium latifolium* (a Nationally Scarce species) were returned from approximately 1.2km west of the site in 2004, while the nearest records of Tasteless Water-pepper *Persicaria mitis* (a Red List and Nationally Scarce species recorded in 1995) and Black Poplar *Populus nigra* (a Priority Species recorded in 2002) were returned from approximately 1.4km west of the site. The nearest record of Water-soldier *Stratiotes aloides* (a Red List species) was returned from approximately 1.4km north of the site in 1993.

3.27. None of the above species were recorded within the site.

4. WILDLIFE USE OF THE SITE

4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected species. Specific surveys have been undertaken with regard to bats and Badgers.

Bats

Tree Surveys

4.2. There is a single tree in the northwest of the site that was recorded as having developed features suitable to support roosting bats (as shown on Plan ECO3). This is a half-dead Tree of Heaven that has a number of woodpecker holes in its trunk, although no evidence of bats was observed, and this tree is to be retained within the development proposals.

Internal and External Surveys

4.3. No evidence of bats was recorded within any of the buildings surveyed, although access was not possible to survey the external roof sections of building B1 fully, given the presence of a parapet wall around the roof. However, it is considered that building B2 and the pitched roof sections of building B1 (B1a and B1b) offer some suitable roosting opportunities for crevice dwelling bats. It is not considered the flat roofed sections of building B1 (B1c, B1d and B1e) offer suitable roosting opportunities for bats.

4.4. Given the construction of building B3 and the sheds within the site, it is not considered these buildings / structures offer suitable opportunities for roosting bats.

Emergence Surveys

4.5. Two emergence surveys were undertaken in May and July 2016 on building B1b that was identified as potentially being lost to the proposals, although this section of the building is now to be retained.

4.6. During the survey on 26th May 2016, no bats were recorded emerging from building B1b. During this survey, only low levels of bat activity were recorded foraging around the buildings and commuting through the site, with a total of 26 registrations of Common Pipistrelle, four registrations of Soprano Pipistrelle, six registrations of Noctule and two registrations of Serotine bats. The results of this survey can be seen on Plan ECO4.

4.7. During the survey on the 12th July 2016, no bats were recorded emerging from building B1b. Only very low levels of activity were recorded, with only 24 registrations recorded of Common Pipistrelle and only six registrations of Soprano Pipistrelle bats foraging and commuting within the site. The results of this survey can be seen on Plan ECO5.

Automated Surveys

4.8. A bat detector was left out within the orchard area for seven nights in July 2016 (see Plan ECO3 for the location). During this survey, only very low levels of bat activity were recorded from both Common Pipistrelle and Soprano Pipistrelle bats. Full details of these results can be seen in Table 1 below.

Species	Number of Registrations						
	12.7.16	13.7.16	14.7.16	15.7.16	16.7.16	17.7.16	18.7.16
Common Pipistrelle	5	1	9	8	12	11	11
Soprano Pipistrelle	2	2	2	6	12	10	2

Table 1: Automated bat survey results July 2016.

4.9. **Background Information.** GiGL returned one record of a bat species from within the site in 2001. A number of records of bats were returned from approximately 0.6km northwest of the site in 2012, including for Daubenton's *Myotis daubentonii*, Noctule *Nyctalus noctula*, Nathusius' Pipistrelle *Pipistrellus nathusii*, Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*. The nearest record of a Brown Long-eared *Plecotus auritus* bat was recorded from approximately 1.1km north of the site in 2014, while the nearest records of Natterer's *Myotis nattereri* was returned from approximately 1.2km northwest in 2006. The nearest records of Leisler's *Nyctalus leisleri* and Serotine *Eptesicus serotinus* were returned from approximately 1.2km southwest of the site in 2012, while the nearest records of Whiskered bat *Myotis mystacinus* and Brandt's bat *Myotis brandti* were returned from approximately 1.3km north of the site in 2006. However, it is unclear whether any of these records are field or roost records.

Badgers

4.10. Specific surveys for Badgers were undertaken in September 2015 with updated surveys undertaken in May and July 2016.

4.11. During the surveys, four Badger setts (S1-S4) were recorded within the site, generally associated with the site boundaries (see Plan ECO3).

4.12. Sett S1 is located within the driveway of the site, with three active entrances recorded beneath a line of Yew trees. Badger hairs, fresh spoil and evidence of foraging was recorded associated with this sett.

4.13. Sett S2 is located along the western boundary of the site and comprises a single active entrance. Badger hairs were recorded associated with this sett, and the entrance extended off-site to the west beneath a fence.

4.14. Sett S3 is located along the eastern boundary of the site along a wall. This sett was recorded as having open entrances and in September 2015 this sett was recorded as being not as active as the other setts within the site. However, Badger hairs were also recorded associated with this sett, and during the surveys in 2016, this sett was recorded as being more active than during the previous surveys.

4.15. Sett S4 is present along the southern boundary of the site, and comprises a single active entrance that extends to the southwest of the site. Badger hairs were recorded within this sett and a mammal pathway was recorded along the southern boundary wall.

4.16. During the bat emergence survey in July 2016, four Badgers were seen walking across the amenity grass lawn.

4.17. A number of Badger latrines were recorded throughout the site during the 2015 and 2016 surveys, which were generally associated with the amenity planting

at the boundaries of the site, while mammal pathways were also recorded around the perimeter of the site. Mammal foraging was also recorded throughout the site, within the areas of amenity planting and amenity grass lawn, and it is considered that the allotments also provide suitable seasonal foraging opportunities for Badgers.

4.18. **Background Information.** GiGL returned no records of any Badgers from within the site itself or from the wider search area.

Other Mammals

4.19. As set out above, evidence of mammal pathways and foraging were recorded throughout the site. In addition, three potential Fox *Vulpes vulpes* earths were recorded at the boundaries of the site (as shown on plan ECO3), and there is anecdotal evidence of Foxes being recorded daily within the site.

4.20. No other evidence of mammals was recorded within the site. However, it is considered that the habitats within the site offer suitable opportunities for a range of common, small mammals.

4.21. **Background Records**. GiGL returned one record of Hedgehog *Erinaceus europaeus* a Priority Species, recorded from within the site itself in 2001. The nearest record of Water Vole *Arvicola amphibius* was recorded from approximately 1.1km southwest of the site in 2010, while the nearest record of Dormouse *Muscardinus avellanarius* was recorded from approximately 1.3km west of the site in 2004.

4.22. It is considered that the amenity planting, hedgerows and amenity grass lawn offer suitable opportunities for Hedgehog, although it is not considered that this species would be reliant upon the habitats present within the site. It is not considered the habitats within the site offer suitable opportunities for either Water Vole or for Dormouse.

Birds

4.23. It is considered that the hedgerows, trees and to a lesser extent the amenity planting within the site offer suitable nesting and foraging habitats for a number of common bird species.

4.24. During the surveys, a number of common bird species were recorded within the site, including Long-Tailed Tit *Aegithalos caudatus*, Robin *Erithacus rubecula*, Blackbird *Turdus merula*, Nuthatch *Sitta europaea*, Magpie *Pica pica*, Blue Tit *Cyanistes caeruleus* and Carrion Crow *Corvus corone*. The Schedule 9 species Ring-Necked Parakeet *Psittacula krameri* was also recorded flying over the site during the surveys.

4.25. **Background Information.** GiGL returned records the Red List and Priority Species House Sparrow *Passer domesticus* and Song Thrush *Turdus philomelos* from within the site in 2001.

4.26. The nearest records of the Red List and Priority Species Lesser Spotted Woodpecker *Dryobates minor*, Herring Gull *Larus argentatus* and Starling *Sturnus vulgaris*, and the Priority Species Dunnock *Prunella modularis* and Bullfinch *Pyrrhula pyrrhula*, were returned from approximately 0.4km north of the site in 2001. A number of species were returned from approximately 1.1km

north of the site in 2008, including the Red List and Priority Species Skylark *Alauda arvensis*, Cuckoo *Cuculus canorus* and Linnet *Carduelis cannabina*, while the nearest record of the Red List and Priority Species Lapwing *Vanellus vanellus* was returned from approximately 1km southwest of the site in 2000. The nearest records of Honey Buzzard *Pernis apivorus* (a Schedule 1 species) and Redwing *Turdus iliacus* (a Red List and Schedule 1 species) were returned from approximately 1.2km west of the site in 2000 and 2009 respectively, while the nearest records of Spotted Flycatcher *Muscicapa striata* (a Red List and Priority Species recorded in 2002) and Reed Bunting *Emberiza schoeniclus* (a Priority Species recorded in 2009) were returned from approximately 1.3km north of the site. The nearest records of Kingfisher *Alcedo atthis* (a Schedule 1 species recorded in 2014) and Fieldfare *Turdus pilaris* (a Red List and Schedule 1 Species recorded in 2007) were returned from approximately 1.4km north of the site.

4.27. It is considered that the habitats within the site offer some suitable opportunities for House Sparrow, Song Thrush, Dunnock, Starling, Reed Bunting and Bullfinch, and very limited opportunities for Lesser Spotted Woodpecker and Spotted Flycatcher, although it is not considered that any of these species would be reliant upon the habitats present within the site.

4.28. Given the habitats present, it is not considered the habitats within the site offer suitable opportunities for any of the other species listed above.

Great Crested Newts

4.29. There are two small amenity ponds present within the site, as well as a pond that lies approximately 120m southwest of the site boundary, which is separated from the site by Ham Common road and the short-mown amenity grass lawn of Ham Common itself. These ponds were subject to specific Habitat Suitability Index (HSI) assessments.

4.30. The HSI score for a pond lies between 0 and 1, with 0 indicating unsuitable habitat and 1 indicating optimal habitat. A score of <0.5 indicates poor habitat, 0.5-0.59 indicates below average habitat, 0.6-0.69 indicates average habitat, 0.7-0.79 indicates good habitat, and >0.8 indicates excellent habitat.

4.31. The results of the HSI assessment are set out in Table 2 below.

Pond no.	P1	P2	P3
Location	1	1	1
Pond area	0.05	0.05	N/A
Pond drying	0.9	0.1	0.9
Water quality	0.33	0.33	0.67
Shade	0.7	1	0.7
Fowl	1	1	0.67
Fish	1	1	0.33
Ponds	0.39	0.39	0.01
Terrestrial habitat	0.33	0.33	0.33
Macrophytes	0.5	0.8	0.4
HSI score	**0.48**	**0.42**	**0.37**

Table 2: HSI score for ponds P1, P2 and P3.

4.32. The results of the HSI assessment indicate that ponds P1, P2 and P3 all represent 'poor' habitat for Great Crested Newts. In addition pond P2 was recorded as being dry in 2016. In addition, the entirety of the water within pond P1 was observed during surveys carried out in September 2015, and between May and July 2016, and no evidence of Great Crested Newts was recorded within this pond. Although adult Common Frog *Rana temporaria* were recorded in June 2016.

4.33. Although Great Crested Newts can disperse up to 500 metres through suitable terrestrial habitat from a breeding pond, it is widely accepted that they tend to utilise suitable terrestrial habitat within a much closer distance. Activity is usually concentrated within 100 metres of breeding ponds and key habitat is located within 50 metres (termed by Natural England as core habitat).

4.34. Indeed, English Nature Research Report Number 576 (An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus* by Warren Cresswell and Rhiannon Whitworth) states:

4.35. *"The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate."*

4.36. Natural England is concerned about the trend for increasingly risk-averse mitigation with regard to Great Crested Newts. Quoting from the *"Instructions for completion of Method Statement template"* (Licence Risk Assessment section) that forms part of the template used for Great Crested Newt licence applications to Natural England these concerns arise for several reasons; *"Primarily, there is no legal need, and little benefit to great crested newt conservation, in undertaking mitigation where there are no offences through development. Even where there technically is an offence, such as the destruction of a small, distant area of resting place habitat, or even killing low*

numbers of newts, it is arguable that impacts beyond the core area often have little or no tangible impact on the viability of populations. Mitigation in such circumstances is of questionable value in conservation terms. There are, however, substantial costs: developers delay projects and spend large sums on mitigation."

4.37. It is considered that the majority of the habitats within the site are unlikely to support Great Crested Newts in their terrestrial phase (short mown amenity grass lawn, allotments and hardstanding) although the amenity planting does offer some suitable terrestrial habitat for amphibians.

4.38. On the basis of the above, it is considered reasonable to conclude that the development proposals would not result in any adverse effects on Great Crested Newts, and as such no further consideration is given to this species within this report.

4.39. **Background Information.** GiGL returned no records of Great Crested Newt from within the site itself or from the wider search area. A record of Common Frog was returned from within the site itself in 2001, while the nearest record of Common Toad *Bufo bufo* was returned from approximately 0.7km north of the site in 2011.

Invertebrates

4.40. Given the habitats present it is likely an assemblage of common invertebrate species would be present within the site.

4.41. **Background Information.** GiGL returned a record of Stag Beetle *Lucanus cervus* (a Priority Species) from within the site in 2001. A number of records of notable invertebrates were returned from within the search area, the nearest of which were for the Priority Species Ear Moth *Amphipoea oculea*, Small Square-spot *Diarsia rubi* and September Thorn *Ennomos erosaria*, and the Nationally Scarce species Waste Grass-veneer *Pediasia contaminella*, all returned from approximately 0.9km north in 2009.

4.42. Stag Beetle larvae are saproxylic, living in decaying wood, while the larval foodplants of Ear Moth are a variety of grasses and herbaceous plants. The larval foodplants of Small Square-spot are a verity of herbaceous species, while the larval foodplants of September Thorn are Oak, Birch and Lime. As such, it is considered the habitats within the site offer suitable opportunities for these species, although it is not considered any of these species would be reliant upon the habitat present within the site.

4.43. The Waste Grass-veneer is a species of heathland and dry grassland habitats, and as such it is not considered the site offers suitable opportunities for this species.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Ecological Evaluation

5.1.1. The latest guidelines for ecological evaluation produced by CIEEM[8] propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.

5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe[9]. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.

5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological/geographical units are also incorporated into the ranking procedure.

5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.

5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.

5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). The London Borough of Richmond upon Thames BAP currently lists a number of priority habitats and species.

5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the International level.

5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

[8] Institute of Ecology and Environmental Management (2006). Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006). http://www.ieem.org.uk/ecia/index.html.
[9] Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of Study areas of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

5.2. Habitat Evaluation

Designated Sites

5.2.1. **Statutory Sites:** There are no statutory designated sites of nature conservation within or adjacent to the site. The closest statutory designation is Ham Common

5.2.2. Ham Common Local Nature Reserve (LNR), which lies approximately 150m southeast of the site. This LNR has been designated for the presence of Birch and Oak woodland as well as acid grassland, as well as the notable species Remote Sedge *Carex remota* and Cow-wheat *Melampyrum pratense*, as well as birds, owls and Purple Hairstreak *Neozephyrus quercus* butterfly. This LNR is separated from the site by major and minor roads and open grassland of Ham Common, and as such it is not considered likely that there will be any adverse direct or indirect effects on this statutory designated site.

5.2.3. The nearest Special Area of Conservation (SAC) is Richmond Park SAC (also designated as a Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR), as well as the Richmond Park and associated areas Site of Metropolitan Importance (SMI)) that lies approximately 0.9km east of the site. This SAC is designated for the presence of the Annex II species Stag Beetle, with this SAC being one of four known outstanding localities of this species within the UK. The Richmond Park NNR is designated as supporting rare saproxylic beetles, while the Richmond Park SSSI is designated as a royal deer park that supports a nationally significant assemblage of invertebrates, including saproxylic beetles associated with ancient trees, as well as for its dry acid grassland.

5.2.4. Under the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, commonly referred to as the Habitats Directive (Council Directive 92/43/EEC), Member States are required to take special measures to maintain the distribution and abundance of certain priority habitats and species (listed in Annexes I and II of the Directive). In particular each Member State is required to designate the most suitable sites as SACs. All such SACs will form part of the Natura 2000 network under article 3(1) of the Habitats Directive.

5.2.5. The Conservation of Species and Habitats Regulations 2010 (as amended), commonly referred to as the Habitats Regulations, transpose the requirements of the Habitats Directive (and Birds Directive) into UK legislation. The Habitats Regulations aim to protect a network of sites in the UK that have rare or important habitats and species in order to safeguard biodiversity.

5.2.6. Under the Habitats Regulations, Competent Authorities have a duty to ensure that all the activities they regulate have no adverse effect on the integrity of any of the Natura 2000 sites. Regulation 61 of the Habitats Regulations requires that:

"61(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for a plan or project, which:-

(a) is likely to have a significant effect on a European site or a European offshore marine site in Great Britain (either alone or in combination with other plans or projects) and
(b) is not directly connected with or necessary for the management of the site,

shall make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

61(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority may specify.

61(5) In the light of the conclusions of the assessment, and subject to regulation 62, the authority shall agree to a plan or project only after having ascertained that it will not adversely affect the integrity of the European site.

61(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority shall have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given."

5.2.7. Regulation 61 of the Habitats Regulations therefore sets out a two stage process. The first test is to determine whether the plan / project is likely to have a significant effect on the European site, the second test (if applicable) is to determine whether the plan / project will affect the integrity of the European site.

5.2.8. In the High Court judgement passed in respect of Dilly Lane, Hartley Wintney, the judge, Mr Justice Sullivan, ruled that measures designed to avoid or mitigate adverse effects on the European site should be taken into account; if they are part of the plan or project they should be considered at the screening stage since avoiding adverse effects on the European site is precisely what they are designed to do.

5.2.9. By supporting the principle that avoidance and mitigation measures should be considered at the screening stage, the judgement avoids the need for an appropriate assessment of each and every planning application.

5.2.10. Given the nature and scale of the proposals and that the site is separated from Richmond Park SAC by major and minor roads, residential development and a golf course, it is considered that the proposals would not likely result in any significant adverse effect, either alone or in combination with other plans or projects, on this SAC / SSSI / NNR / Site of Metropolitan Importance (SMI).

5.2.11. This conclusion is supported by Natural England's Impact Risk Zones tool, which identifies that only residential developments of 100 units or more between 500m and 1km of the Richmond Park SSSI boundary would be likely to result in any significant adverse impacts on this designated site, and the development proposals are for only 26 residential units.

5.2.12. **Non-statutory Sites**: There are no non-statutory designations of conservation value within the site itself. The nearest Site of Borough Importance grade 2 (SBI2) is The Copse, Holly Hedge Field and Ham Avenue SBI2, which lies around 10m west of the site boundary at its closest point. This SBI2 is designated as a flower-rich meadow with ancient Oak trees that support a variety of invertebrates, fungi and birds. This SBI2 is separated from the site by a residential back garden and a playing field further north.

5.2.13. The nearest Site Local Importance (SLI) is Ham Common, West SLI, which lies to the south of Ham Common road. This SLI is designated for its acid grassland, scattered trees and pond that supports the Red List and locally rare species Round-fruited Rush.

5.2.14. Any potentially detrimental effects on the adjacent sections of The Copse, Holly Hedge Field and Ham Avenue SBI2 and Ham Common, West SLI through dust contamination will be mitigated through standard industry best practice measures. As such, it is not considered there will be any direct or indirect adverse effects on these non-statutory designated sites as a result of the proposals

5.2.15. The nearest Site of Metropolitan Importance (SMI) is the Richmond Park and associated areas SMI, which is also designated as an SAC, SSSI and NNR (as set out above) and is designated for it acid grassland, ancient pollarded Oak trees, woodland and wet grassland, with the ancient trees supporting a variety of nationally rare or scarce invertebrates, including Stag Beetle. As set out above, this SMI is separated from the site by major and minor roads, residential development and a golf course and it is considered that the proposals would not likely result in any significant adverse effect, either alone or in combination with other plans or projects on this SMI / SAC / SSSI / NNR.

5.2.16. The Ham Lands SMI also lies approximately 0.9km west of the site. This SMI is designated as an area of scrub and grassland along the River Thames that supports diverse flora. This SMI is separated from the site by roads, and extensive residential development, as well as a school playing field, and there are as such it is not considered there will be any direct or indirect adverse effects on this non-statutory designated site.

5.2.17. A number of additional statutory and non-statutory sites are located in the wider area (see Plan ECO1), but no significant adverse effects are anticipated.

Habitats

Amenity Grass Lawn

5.2.18. The short-mown amenity grass lawn within the site is of limited ecological value in terms of its species content, comprising only common and widespread species. However, this habitat does offer some suitable foraging opportunities for Badgers and birds (see below).

5.2.19. The majority of the amenity grass lawn is to be retained within the development proposals, although there will be losses to new buildings and access roads.

5.2.20. **Mitigation and Enhancements.** It is considered that no specific mitigation measures would be required for the loss of this habitat. However, losses could be offset through the sowing of new areas of amenity grassland with a species-rich seed mixture tolerant of regular mowing (such as Emorsgate's Flowering Lawn Mixture EL1) and be subject to a sensitive management regime, which would offset losses to the amenity grass lawn. In addition, the creation of areas of new species-rich wildflower grassland within the site, through oversowing or areas of retained amenity grass lawn with a native seed mixture (such as Emorsgate's Standard General Purpose Meadow Mixture EM2), and implementation of a suitable management regime to increase the floristic diversity of the site accordingly, would diversify habitats present and be seen as an enhancement over the existing situation.

Amenity Planting

5.2.21. The amenity planting within the site is of some limited ecological value in the context of the site, comprising a number of non-native, amenity species. However, the amenity shrubs do offer some suitable nesting and foraging opportunities for birds, foraging and navigational opportunities for bats, and foraging and shelter opportunities for Badgers (see below).

5.2.22. The amenity planting in the northern half of the site is generally to be retained, although there will be losses to the amenity planting in the southern half of the site to the development proposals.

5.2.23. **Mitigation and Enhancements**. It is considered that no specific mitigation measures would be required for the loss of this habitat. However, it is recommended that where the development proposals include areas of new shrub planting, these should be planted with a diverse mix of native species and those species of known benefit to wildlife.

Hedgerows and Trees

5.2.24. The hedgerows and trees within the site are of greater ecological value in the context of the site, although these include a number of non-native species. However, the trees offer suitable roosting, foraging and navigational opportunities for bats, foraging and nesting opportunities for birds, and foraging and shelter opportunities for Badgers, while the hedgerows offer some limited foraging and navigational opportunities for bats, foraging and nesting opportunities for birds and foraging opportunities for Badgers (see below).

5.2.25. The northern half of the site is identified on the MAGIC website as being the Priority Habitat Traditional Orchard.

5.2.26. Traditional orchards in excellent/good condition have established trees, no gaps are present, the orchard floor is predominantly grazed, mown or cut and there is evidence of standing and fallen dead wood. Those in poor condition are cited as those where there is more than 30% scrub cover

and no evidence of new planting (which is used to retain varied age structure and infill gaps in well managed traditional orchards).

5.2.27. The area of orchard trees in the northern half of the site is deemed to be in moderate condition, as there are established trees present and the grassland is mown, although there is no evidence of standing dead wood or new tree planting, while the fruit trees themselves are all of a similar age and are generally in good condition. The amenity planting at the boundaries of the site are not considered to represent Traditional Orchard, as these areas comprise semi-mature / mature trees, including non-native trees, and amenity planting, with no orchard trees present.

5.2.28. Although the vast majority of the orchard trees will be retained within the development proposals, there will be minor losses to facilitate two new semi-detached dwellings. There will also be partial losses to the hedgerow within the site.

5.2.29. **Mitigation and Enhancements.** It is recommended that the orchard trees be retained and safeguarded within the site wherever possible, and enhanced through the planting of new trees to replace gaps and provide a varied age structure. The loss of the small number of orchard trees to the development proposals could be off-set through the planting of new trees within the site, in particular in the southwestern corner of the area identified on the MAGIC website as 'Traditional Orchard', where there are gaps present. It is also recommended that an appropriate mowing regime be implemented to enhance the floristic diversity of the grassland beneath the orchard trees.

5.2.30. It is also recommended that the partial loss of the hedgerow be offset through the planting of new hedgerows or through the planting of new trees throughout the development proposals. It is recommended that any new hedgerow planting and tree planting comprise native species of local provenance.

5.2.31. As can be seen from the landscape proposals, extensive new landscape planting will be carried out throughout the site, which will offset the minor losses to the trees and hedgerows. It is recommended that the other trees within the site be retained and safeguarded within any development proposals, while it is also recommended that the hedgerows be retained wherever possible. It is recommended that any loss to the trees be offset through the planting of new, native tree species, while the planting of new native trees within any development proposals would serve to increase the floristic diversity of the site. It is also recommended that the loss of any hedgerows be offset through the planting of new, native hedgerows of a length / area greater than that lost.

Ponds

5.2.32. The amenity ponds within the site are of some limited ecological value in the context of the site in that they add to the diversity of habitats. However, pond P2 is subject to annual drying and both of these ponds are small in size and are considered to be poor examples of their habitat type in ecology terms, although they do offer some suitable habitat for amphibians (see below).

5.2.33. These ponds are to be lost to the development proposals.

5.2.34. **Mitigation and Enhancement.** The loss of these ponds is considered to be of only minor ecological significance, as they are poor examples of their habitat type. It is recommended that the development proposals include the creation of a new pond(s), which should be planted with a diverse range of native aquatic and marginal vegetation, which would offset the losses of the ponds and provide an enhancement over the existing situation.

Allotments

5.2.35. The allotments within the site are of negligible ecological value, although do offer some seasonal foraging opportunities for Badgers (see below).

5.2.36. **Mitigation and Enhancements**. Although no specific mitigation is required, it is recommended that where the development proposals include areas of new shrub planting, these should be planted with a diverse mix of native species and those of known benefit to wildlife.

Buildings / Structures and Hardstanding

5.2.37. The remainder of the site comprises buildings, structures and hardstanding. The structures and hardstanding are of no ecological value, although the buildings are of some limited ecological value as they offer potentially suitable opportunities for roosting bats (see below).

5.2.38. **Mitigation and Enhancements.** No specific mitigation is required for the loss of these habitats.

5.3. Faunal Evaluation

Bats

5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended) ("the Habitats Regulations"). These include provisions making it an offence to:

- Deliberately kill, injure or take (capture) bats;
- Deliberately disturb bats in such a way as to be likely to significantly affect:-
  - (i) the ability of any significant group of bats to survive, breed or rear or nurture their young; or to hibernate; or
  - (ii) to affect significantly the local distribution or abundance of the species concerned;
- Damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

5.3.2. The words 'deliberately' and 'intentionally' include actions where a court can infer that the defendant knew 'the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

5.3.3. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

5.3.4. Licences can be granted for development purposes by an 'appropriate authority' under Regulation 53 (e) of the Habitats Regulations. In England, the 'appropriate authority' is Natural England (the government's statutory advisors on nature conservation). European Protected Species licences permit activities that would otherwise be considered an offence.

5.3.5. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. There must be no satisfactory alternative; and
3. The favourable conservation status of the species concerned must be maintained.

5.3.6. Licences can usually only be granted if the development is in receipt of full planning permission (and relevant conditions, if any, discharged).

5.3.7. Seven species of bat are Priority Species, these are Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, Noctule *Nyctalus noctula*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared *Plecotus auritus*, Greater Horseshoe *Rhinolophus ferrumequinum,* and Lesser Horseshoe *Rhinolophus hipposideros*.

5.3.8. **Site Usage.** As set out above, section B1a and B1b and building B2 offer potentially suitable roosting opportunities for bats. Specific emergence surveys carried out on section B1b recorded no bats roosting within this building, and in any event, sections B1a and B1b and building B2 are to be retained within the development proposals.

5.3.9. Only very low levels of bat activity was recorded within the section of orchard to be affected by the development proposals, with only very few registrations of Common and Soprano Pipistrelle bats recorded (two of the UK's most common bat species).

5.3.10. There is one tree in the northwest of the site that has developed features suitable to support roosting bats, which is to be retained within the development proposals.

5.3.11. It is considered that the trees and to a lesser extent the amenity planting and hedgerows offer suitable foraging and navigational opportunities for bats.

5.3.12. **Mitigation and Enhancements.** The planting of new native trees within the development proposals and the creation of new areas of species-rich

grassland would provide new and enhanced foraging and navigational opportunities for bats.

5.3.13. If deemed necessary, a sympathetic lighting regime associated with any proposals could be implemented to minimise light spillage into key areas such as along the retained trees, in order to maintain foraging and navigation opportunities in this area. Further, should any bat roosts be identified, no external lighting will be placed next to any bat access points. This will maintain suitable dark corridors for use by bats. It is recommended that the use of sodium or LED lights, which produce less light spillage than other types of lighting, and have no low / no UV content, or UV-filtered lights be used. In addition, the spillage of the light can be reduced further through use of low-level lights and the employment of lighting 'hoods' which will direct light below the horizontal plane, preferably at an angle less than 70 degrees.

5.3.14. As an enhancement, it is recommended that bat boxes, such as Schwegler 1FF boxes (see Appendix 2), be erected on suitable retained semi-mature/mature trees within the site. This model of bat box is known to be attractive to a number of the smaller bat species, including Pipistrelle bats, which are known from the site. This measure will provide enhanced roosting opportunities within the site.

Badgers

5.3.15. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain, with particularly high populations in the southwest.

5.3.16. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "any structure or place which displays signs indicating current use by a Badger" [10]. "Current use" of a Badger sett is defined by Natural England as "how long it takes the signs to disappear", or more precisely, to appear so old as to not indicate "current use".

5.3.17. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting 'cruel ill treatment' of a Badger.

5.3.18. **Site Usage.** During the surveys undertaken, four Badger setts were recorded at the boundaries of the site, along with a number of Badger latrines and evidence of mammal foraging and pathways. Four Badgers were also seen within the site during a bat emergence survey.

5.3.19. It is considered that the amenity planting, hedgerows and trees offer suitable shelter opportunities for Badgers. It is considered that the amenity planting and amenity grass lawn offer suitable foraging opportunities for

[10] Protection of Badgers Act 1992 (as amended). Guidance on 'Current Use' in the definition of a Badger Sett http://www.naturalengland.org.uk/ourwork/regulation/wildlife

Badgers, while the fruit trees and allotments also offer suitable seasonal foraging opportunities.

5.3.20. Given the proximity of the development proposals to the Badger setts within the site, it is considered that sett S1 may be lost to the development proposals, while S2, S3 and S4 may need to be temporarily closed during the construction works.

5.3.21. **Mitigation and Enhancements.** It is considered that a Natural England licence will be required for the loss of sett S1 and the temporary closure of setts S2, S3 and S4 during the construction works, to ensure there is no disturbance to Badgers during construction works.

5.3.22. It is recommended that any landscaping proposals include the planting of thorny species around the retained setts, in order to reduce public pressure on these setts.

5.3.23. The creation of new areas of species-rich grassland the planting of new, native tree and shrub planting, and the inclusion of new fruit-bearing trees, will provide new foraging opportunities for Badgers, while the retention of the amenity planting at the boundaries of the site will maintain suitable foraging and dispersal routes for Badgers between both on-site and off-site habitats.

5.3.24. During the construction phase of any development it is often necessary to undertake a number of additional measures to safeguard any Badgers present on a site, particularly with regard to disturbance, loss of foraging and other related issues.

5.3.25. It is recommended that all contractors working in the vicinity of the Badger sett should be briefed regarding the presence of Badgers and of the types of activities that would not be permissible on site. Any licensing requirements should be particularly highlighted.

5.3.26. Any trenches or deep pits that are to be left open overnight should be provided with a means of escape should a Badger enter. This could simply be in the form of a roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water.

5.3.27. Any trenches / pits should be inspected each morning to ensure no Badgers have become trapped overnight. Should a Badger get stuck in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett. Should a trapped Badger be encountered, an ecologist should be contacted immediately for further advice.

5.3.28. The storage of topsoil or other ‘soft’ building materials within the application site should be given careful consideration. Badgers will readily adopt such mounds as setts, which would then be afforded the same protection as established setts. So as to avoid the adoption of any mounds, they should be subject to daily inspections (or nightly patrols if 24 hour security is present on site) or consideration given to fencing them with Badger proof fencing.

5.3.29. During the development the storage of any chemicals required for the building construction should be well away from any Badger activity and contained in such a way that they cannot be accessed or knocked over by any roaming Badgers.

Birds

5.3.30. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.

5.3.31. **Site Usage.** The trees, and to a lesser extent the amenity planting and hedgerows within the site offer suitable foraging and nesting opportunities for birds, while the amenity grass lawn also offers suitable foraging opportunities.

5.3.32. The vast majority of the trees and amenity planting is to be retained within the development proposals, although there will be minor losses of a small number of orchard trees to the development proposals.

5.3.33. **Mitigation and Enhancements.** As set out above, it is recommended that the trees be retained within the development proposals wherever possible, which will provide retained nesting opportunities birds. The planting of new native trees and shrubs as part of any landscape proposals, and the creation of any new areas of species-rich grassland, will provide new and enhanced foraging opportunities for birds. The inclusion of new fruit / berry-bearing species will provide additional seasonal foraging opportunities for birds.

5.3.34. As a precautionary measure, it is recommended that clearance of any suitable nesting vegetation, including tree felling, be undertaken outside the bird nesting season (March to July inclusive) to avoid any potential offence. Should the above timing constraints conflict with any timetabled works, it is recommended that works commence only after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. If nesting birds are found to be present during checks then clearance would need to be delayed until young have fledged.

5.3.35. Simple enhancement measures could ensure the ornithological interest at the site is increased. For example, the erection of nest boxes on suitable retained trees. Using nest boxes of varying designs would maximise the species complement attracted to the site and, where possible, these could be tailored to provide opportunities for Red Listed / Priority Species known from the local area such as House Sparrow recorded in the local area (see Appendix 3 for suitable examples).

Invertebrates

5.3.36. **Site Usage.** Given the habitats present it is likely an assemblage of common invertebrate species would be present within the site.

5.3.37. **Mitigation and Enhancements.** It is recommended that the trees within the site be retained wherever possible, which will provide retained opportunities for a range of invertebrates. Enhancement of the orchard

through the planting of new, traditional fruit species, creation and retention of standing and fallen dead wood, and the management of the grassland, will provide enhanced opportunities for a range of invertebrates. The enhancement of the retained grassland and creation of new areas of species-rich grassland will provide new suitable habitat for a range of invertebrates, while the creation of any new ponds as part of the development proposals will provide new opportunities for a range of aquatic invertebrates.

5.3.38. The provision of standing dead wood and log piles within the site will also provide new opportunities for a range of saproxylic invertebrates, such as Stag Beetle known from the local area, while implementation of other enhancement measures recommended above would also likely provide knock-on benefits for invertebrates.

6. PLANNING POLICY CONTEXT

6.1. The planning policy framework that relates to nature conservation in Richmond, Surrey is issued at three main administrative levels: nationally through the National Planning Policy Framework (NPPF); regionally through the London Plan; and locally through the London Borough of Richmond upon Thames Core Strategy. The proposed development will be judged in relation to the policies contained within these documents.

6.2. National Policy

National Planning Policy Framework

6.2.1. The National Planning Policy Framework (NPPF) sets out the Government's requirements for the planning system and was adopted on 27th March 2012. It replaces previous national planning policy, including PPS9 (Biodiversity and Geological Conservation) published in 2005.

6.2.2. The key element of the NPPF is that there should be 'a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking' (paragraph 14). It is important to note that this presumption 'does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined' (paragraph 119).

6.2.3. A number of policies in the NPPF are comparable to those in Planning Policy Statement (PPS)9 (which it replaced), including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 109) and ensuring that Local Authorities place appropriate weight to statutory and non-statutory nature conservation designations, protected species and biodiversity.

6.2.4. The NPPF also considers the strategic approach which local authorities should adopt with regard to the protection, enhancement and management of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.

6.2.5. Paragraph 118 of the NPPF comprises a number of principles which Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments, provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for, applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites, and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats unless the need for, and benefits of, the development in that location clearly outweigh the loss.

6.2.6. National policy therefore implicitly recognises the importance of biodiversity and that, with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.3. Regional Policy

The London Plan (March 2015)

6.3.1. The London Plan contains eight policies that are in whole or part concerned with nature conservation and the habitats that are of relevance to the Proposed Development. Those policies of relevance are Policies 7.16 - 7.19 and 7.21.

6.3.2. Of greatest relevance is Policy **7.19**, which is concerned with "Biodiversity and Access to Nature" and is concerned with the protection of nationally and locally designated sites as well as Priority Habitats and Species. Policies **7.16** and **7.17** are concerned with the protection of Green Belt and Metropolitan Open Land respectively. Policy **7.21** is concerned with the protection and enhancement of trees and woodland.

6.4. Local Policy

London Borough of Richmond upon Thames Core Strategy

6.4.1. The London Borough of Richmond upon Thames Core Strategy (adopted April 2009) contains three policies of relevance to biodiversity and nature conservation, Policies CP4, CP10 and CP11.

6.4.2. Policy **CP4** is concerned with the protection of nationally and locally designated sites and Priority Habitats and Species, as well as the protection of wildlife corridors and the River Thames corridor, while Policy **CP11** refers directly to the protection of the River Thames corridor. Policy **CP10** refers to open land and parks, as well as green corridors, and is concerned with the protection and enhancement of biodiversity within these areas.

6.5. Discussion

6.5.1. The development proposals will have no adverse effects on any statutory or non-statutory designated sites, and as such it is considered the development proposals accord with policy 7.19 of the London Plan and policy CP4 of the Core Strategy. Although there will be minor losses to the orchard trees, this can be compensated for through the planting of a greater number of new native trees (including traditional varieties of fruit) and as such, it is considered that the development proposals accord with policy 7.21 of the London plan and Policy CP10 of the Core Strategy.

6.5.2. In conclusion, implementation of the measures set out in this report would enable development of the site to accord with national, regional and local planning policy for ecology and nature conservation.

7. SUMMARY AND CONCLUSIONS

7.1. Ecology Solutions was commissioned in September 2015 to undertake an Ecological Assessment of St Michael's Convent, Ham Common, Richmond, Surrey (see Plan ECO1) by Beechcroft Developments Ltd.

7.2. The proposals for the application site are for residential redevelopment of the site, including conversion and demolition of the existing buildings.

7.3. Habitat surveys were carried out in September 2015 and between May and July 2016 in order to ascertain the general ecological value of the site and wider study area and to identify the main habitats and associated plant species. In addition specific surveys were undertaken within the site in respect of Badgers and bats.

7.4. There are not considered to be any significant adverse effects on any statutory or non-statutory sites of nature conservation interest from any development proposals.

7.5. During the surveys, four active Badger setts (S1-S4) were recorded within the site, generally associated with the site boundaries, and four Badgers were seen walking across the amenity grass lawn within the site. It is considered that a Natural England licence will likely be required as sett S1 may be lost to the development proposals, while given the proximity of the development proposals from setts S2, S3 and S4, these setts will also likely need a Natural England licence for their temporary closure during the construction phase of the development.

7.6. During the specific bat emergence surveys undertaken on building B1b, no bats were recorded emerging from this section of the building. Only very low levels of bat activity were recorded within the site during the surveys undertaken. In addition, only low levels of bat activity were recorded during the automated surveys of the orchard area.

7.7. Neither of the ponds within the site offer suitable opportunities for Great Crested Newts, with pond P2 recorded as being dry during the 2016 surveys.

7.8. It is considered that the majority of the habitats within the site are unlikely to support Great Crested Newts in their terrestrial phase (short mown amenity grass lawn, allotments and hardstanding) although the amenity planting does offer some suitable terrestrial habitat for amphibians.

7.9. However, it is considered reasonable to conclude that the development proposals would not result in any adverse effects on Great Crested Newts, and as such no further consideration is given to this species within this report.

7.10. The planting of new native trees, hedgerows and shrubs, and the enhancements to the retained areas of grassland, will provide retained and enhanced foraging and navigational opportunities for bats and foraging and nesting opportunities for birds.

7.11. Further recommendations have been made to safeguard other protected and notable species present within the site, including nesting birds. Recommendations have also been made to achieve ecological enhancements for such protected/notable species wherever possible.

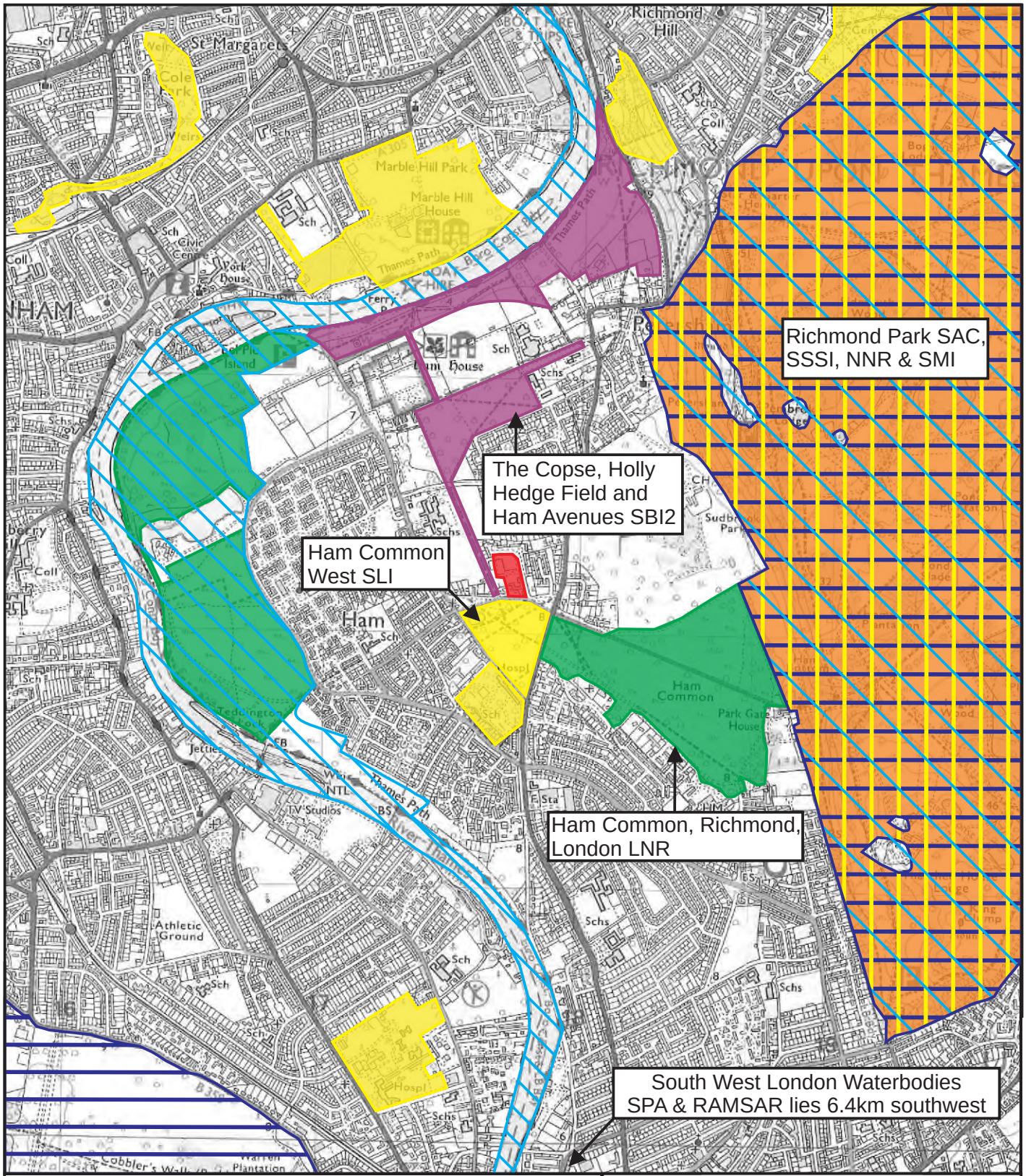
7.12. In conclusion, through the implementation of the safeguards and recommendations set out within this report it is considered that any development proposals will accord with planning policy with regard to nature conservation at all administrative levels.

PLANS AND APPENDICES

PLANS

PLAN ECO1

Site Location and Ecological Designations



KEY:

- SITE
- SPECIAL AREA OF CONSERVATION (SAC)
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- NATIONAL NATURE RESERVE (NNR)
- LOCAL NATURE RESERVE (LNR)
- SITE OF METROPOLITAN IMPORTANCE (SMI)
- SITE OF BOROUGH IMPORTANCE GRADE 2 (SBI2)
- SITE OF LOCAL IMPORTANCE (SLI)

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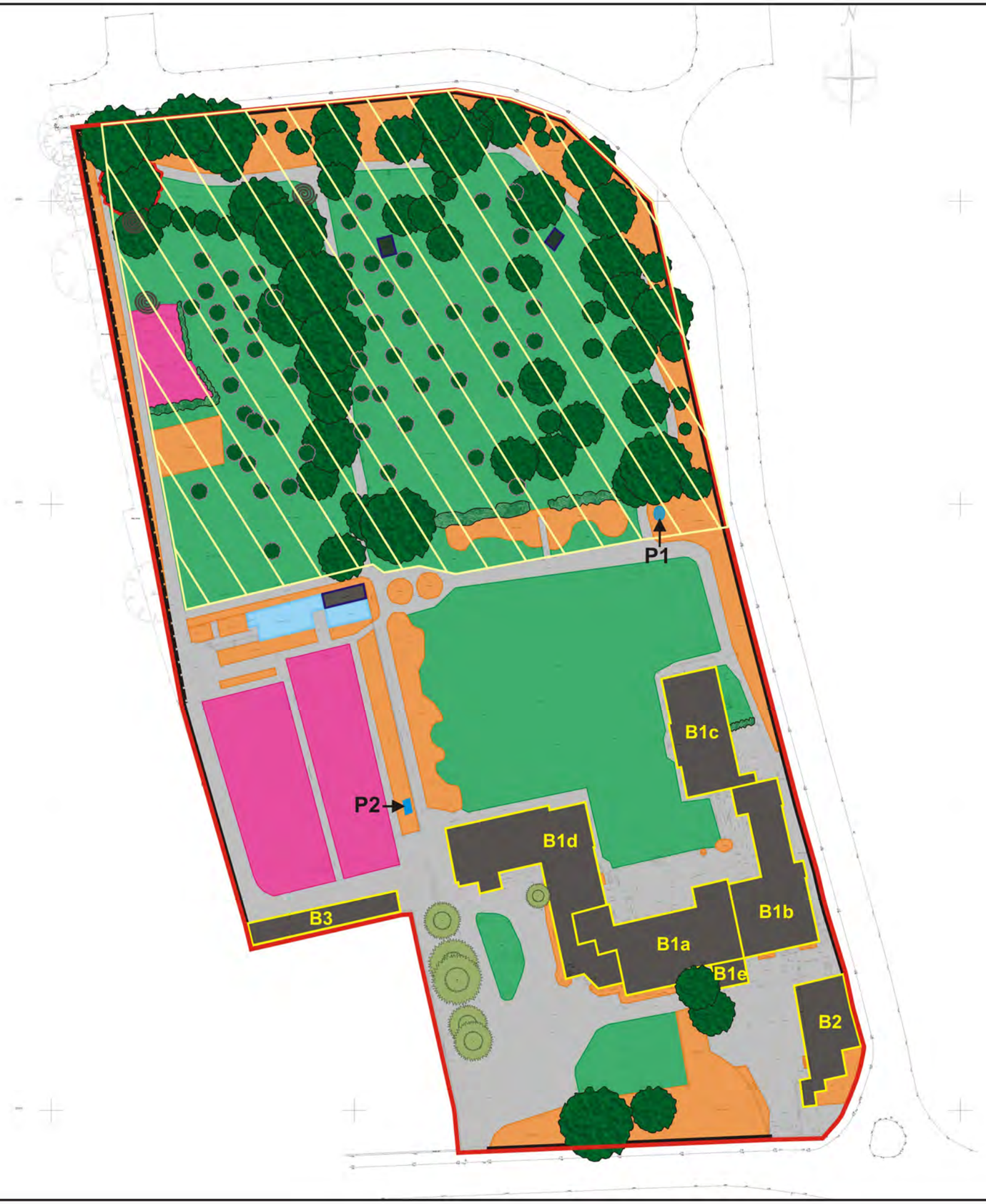
PLAN ECO1: SITE LOCATION AND ECOLOGICAL DESIGNATIONS

PLAN ECO2

Ecological Features



KEY:

- SITE BOUNDARY
- AMENITY GRASSLAND
- AMENITY PLANTING
- ALLOTMENT
- HARDSTANDING
- HEDGEROW
- TREE
- ORCHARD TREE
- CONIFEROUS TREE
- POND
- BUILDING
- STRUCTURE
- GREENHOUSE
- AREA IDENTIFIED AS TRADITIONAL ORCHARD ON THE MAGIC WEBSITE
- WALL
- FENCE
- COMPOST HEAP

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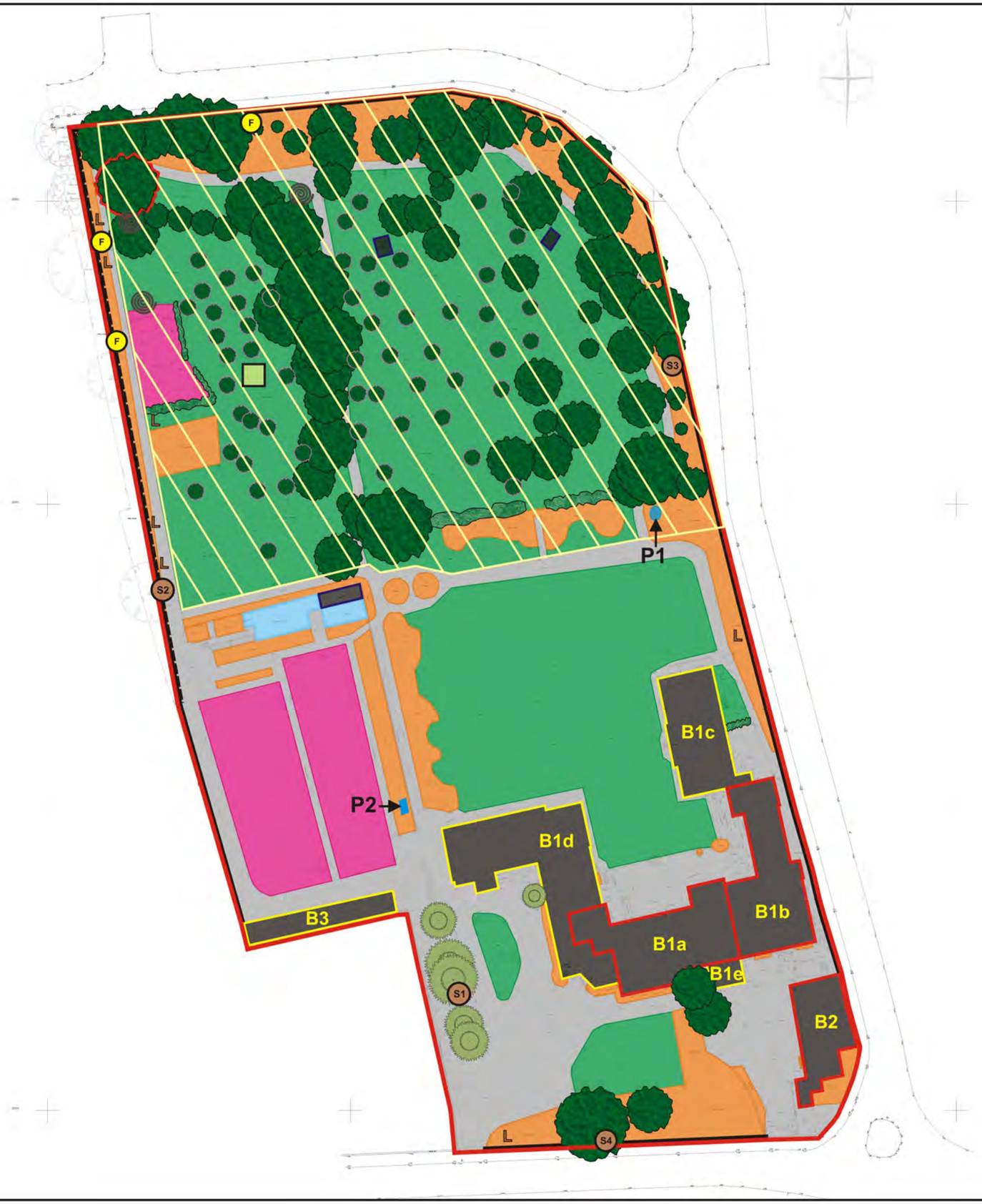
PLAN ECO2:
ECOLOGICAL FEATURES

PLAN ECO3

Protected Species



KEY:

- SITE BOUNDARY
- TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
- BS1 — BADGER SETT
- L — BADGER LATRINE
- F — POTENTIAL FOX EARTH
- BUILDING WITH POTENTIAL TO SUPPORT ROOSTING BATS
- AUTOMATED BAT DETECTOR LOCATION

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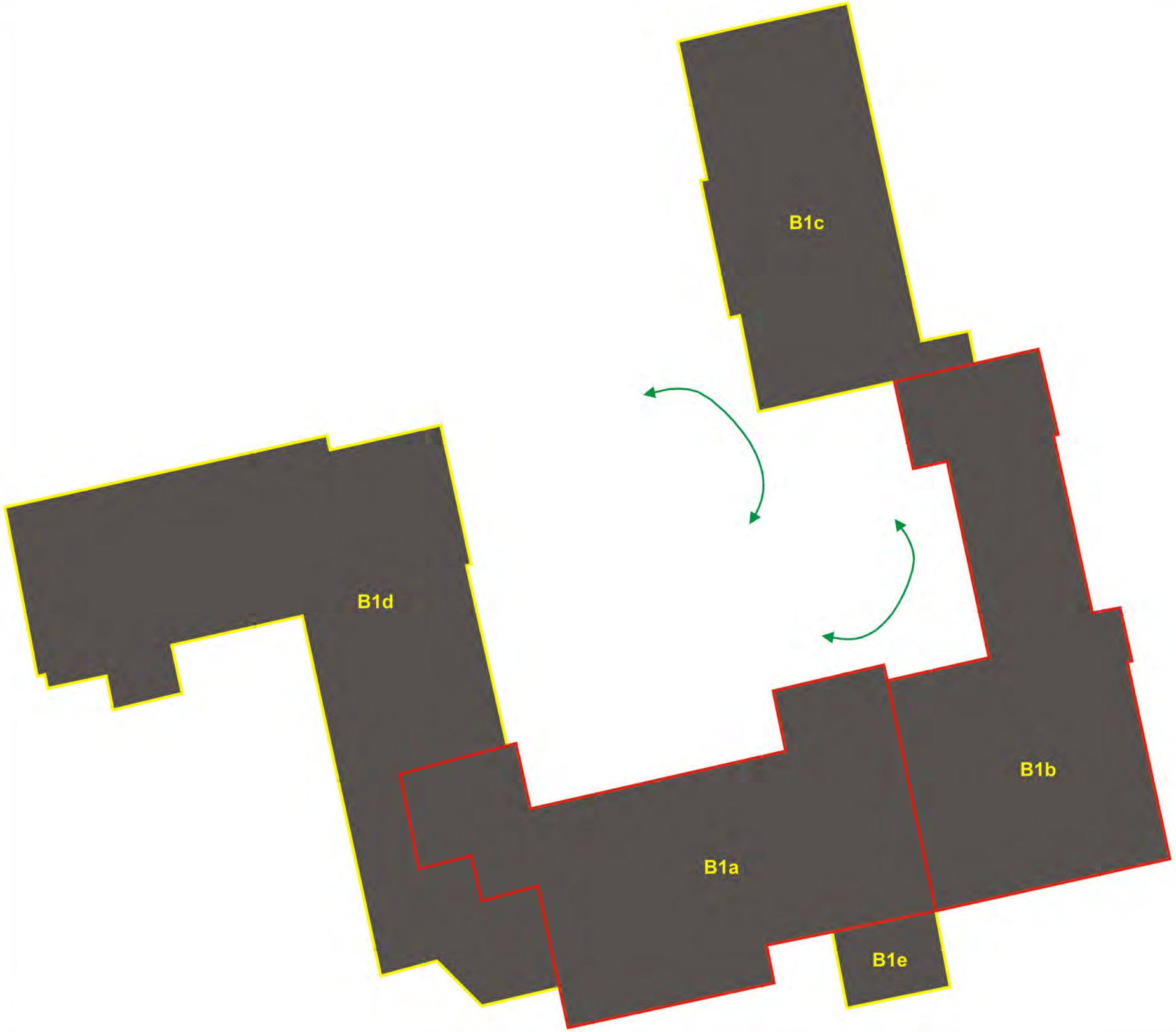
PLAN ECO3:
PROTECTED SPECIES

PLAN ECO4

Bat Emergence Survey Results May 2016



KEY:

BUILDING WITH POTENTIAL TO SUPPORT ROOSTING BATS

BUILDING

COMMON PIPISTRELLE FLIGHT LINE

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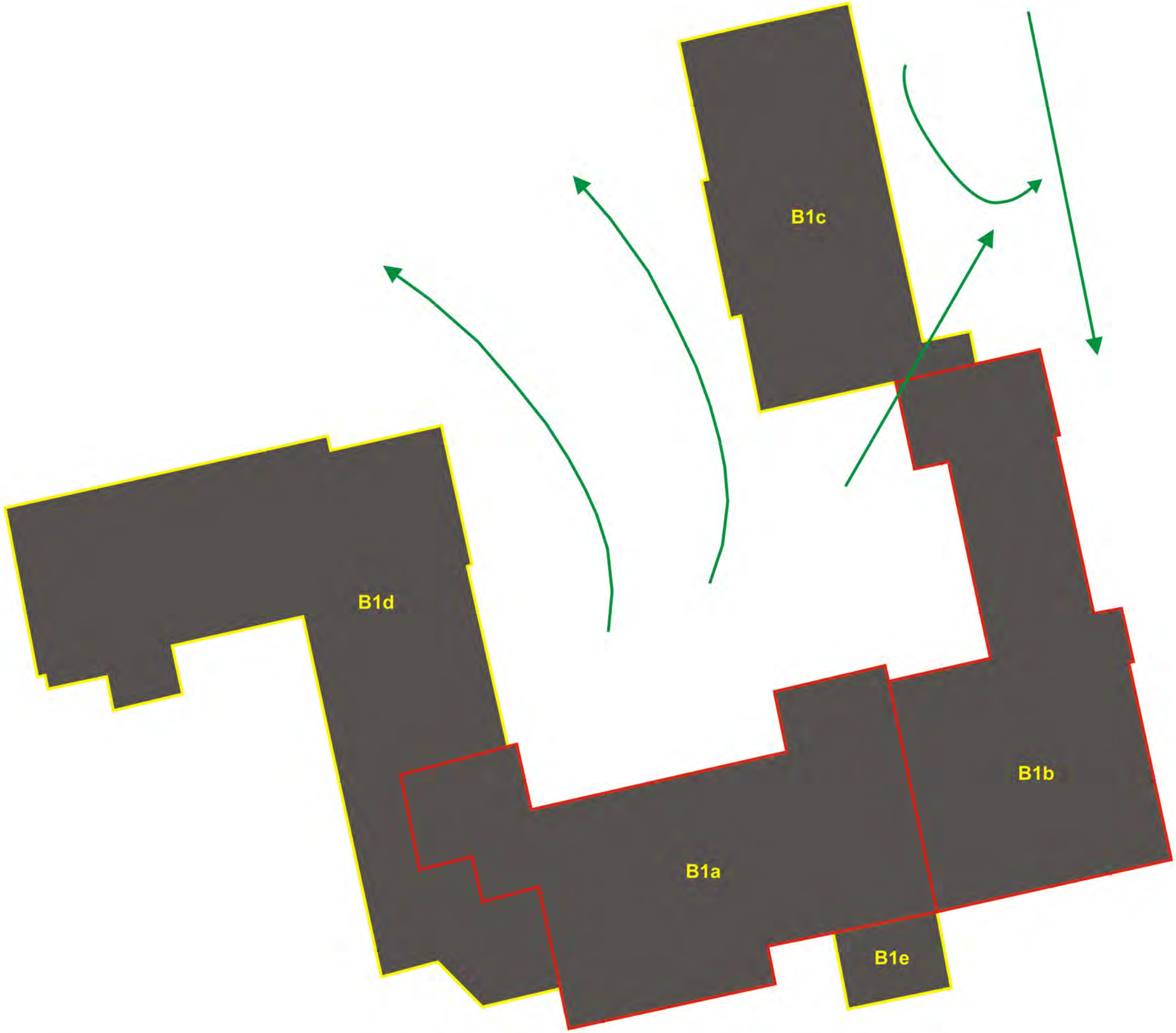
PLAN ECO4:
BAT EMERGENCE SURVEY
RESULTS MAY 2016

PLAN ECO5

Bat Emergence Survey Results July 2016



KEY:

BUILDING WITH POTENTIAL TO SUPPORT ROOSTING BATS

BUILDING

COMMON PIPISTRELLE FLIGHT LINE

N

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6908: HAM COMMON, HAM, RICHMOND

PLAN ECO5:
BAT EMERGENCE SURVEY
RESULTS JULY 2016

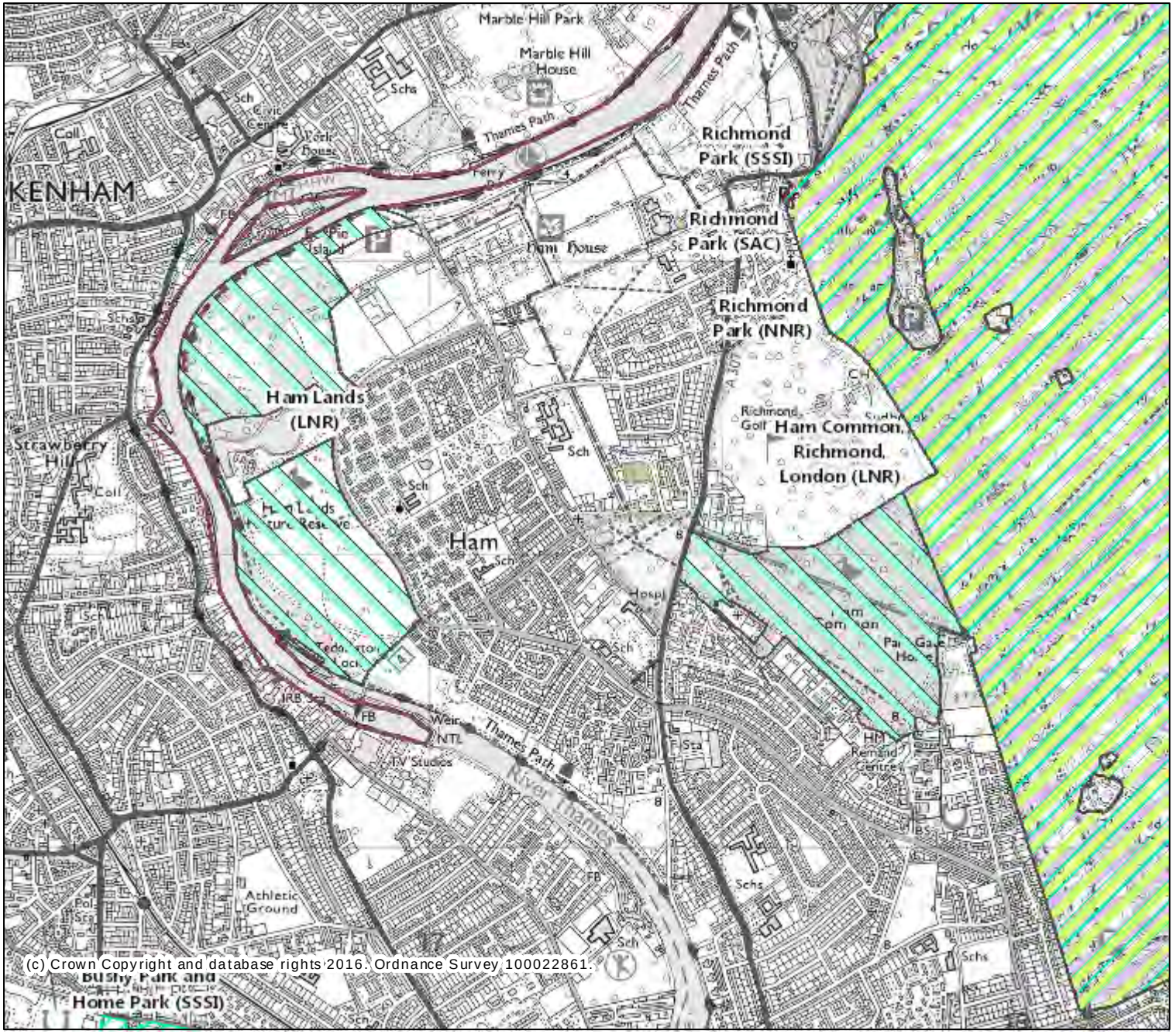
APPENDICES

APPENDIX 1

Information Downloaded from MAGIC

MAGIC

6908



Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)
- Priority Habitat Inventory - Traditional Orchards (England)

Projection = OSGB36
xmin = 512500
ymin = 169600
xmax = 522600
ymax = 174600
Map produced by MAGIC on 12 August, 2016.

APPENDIX 2

Schewgler 1FF Bat Box Specification

Bat Boxes

Schwegler bat boxes are made from ‘woodcrete’ and have the highest rates of occupation of all types of box.
The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.
Boxes can be hung from a branch near the tree trunk or fixed using ‘tree-friendly’ aluminum nails.

1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 27cm
Height: 43cm
Weight: 8.3kg

APPENDIX 3

Suitable Examples of Bird Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box.
They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.
Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and **black redstarts**.

Best sited on the walls of buildings with the entrance on one side.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

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