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D F Clark Bionomique Ltd

Preliminary Ecological Appraisal Report

of Chester Road on behalf of the London Borough of Camden

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Provided no significant changes are made to the proposal (where provided) or on the proposed site (*e.g.* significant changes to management practices or habitats present) subsequent to the report's issue; this report can be considered valid for 18 months from the date of issue.

Document History

This document has been issued and amended as follows:

Version	Initial Survey Date	Report Issue Date	Description	Author	Job Title	Verified and Approved by	Job Title
1	11th June 2019		Draft	Maithri Jayasuriya	Assistant Consultant Ecologist	Kate Baldock	Senior Ecologist
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Qualifications of Principal Author

Recommendations included within this report are the professional opinion of an experienced ecologist, based on an ecological site survey and the client's proposal for the site.

The site survey was carried out by Alexandra Zemanova BSc, MSc, an assistant ecological consultant with previous experience of conducting Phase 1 surveys and with a license to survey Great-Crested Newts.

The report was written by Maithri Jayasuriya. Maithri is an assistant ecological consultant with a BSc (Hons) in Zoology and an MSc in Ecology and Environmental Management, and has two years of experience as a field surveyor with a year's experience at assistant consultant level. He is also a qualifying member of the Chartered Institute of Ecology and Environmental Management.

Quality Assurance

This report has been produced in accordance with guidelines produced by The Chartered Institute of Ecology and Environmental Management (CIEEM) and British Standards Institute (BSI):

- BSI (2013) *Biodiversity – Code of practice for planning and development*. *BS 42020: 2013.*
- CIEEM (2017) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

All Preliminary Ecological Appraisal reports produced by DF Clark Bionomique Ltd are checked, verified, and approved by a second competent ecologist.

Contents

1 Summary 6
2 Introduction 9
3 Planning policy & legislation 10
4 Methodology 11
5 Results: Baseline Ecological Conditions 14
6 Conclusions and Recommendations 22
7 Bibliography 28
Appendix 1: Photographs 30
Appendix 2: Location Plan 31
Appendix 3: Habitat Plan 32
Appendix 4: Proposed Development 33
Appendix 5: Planning Policy and Biodiversity Legislation 34
Appendix 6: Survey Calendar 41
Appendix 7: Native Planting Options 42
Appendix 8: Nesting Provision for Birds 45
Appendix 9: Lighting for Bats 48

1 Summary

1.1 Purpose of the report

1.1.1 **This report should be read in full to identify potential impacts on protected/notable species and habitats, species and habitats of principal importance, statutory and non-statutory designated sites, and any further actions required.**

1.1.2 A Preliminary Ecological Appraisal was carried out Chester Road, Highgate, London, N19 5BP (TQ 28960 86543) on 11th June 2019. This report aims to provide advice regarding ecological constraints and opportunities arising from the proposed development of the site, and includes, if relevant, recommendations for further surveys. Where further surveys are recommended, these will ideally be undertaken in support of the planning application as results shall provide further specifications for mitigation and/or European Protected Species licencing requirements.

1.2 Key Issues

1.2.1 The proposed development site largely consisted of amenity grassland, hardstanding and introduced shrub. There were no areas that qualify as habitats of principle importance under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

1.2.2 The site falls within 2km of four sites of UK/Local designations. There are 29 designated sites of non-statutory importance within 2km.

1.2.3 The site has the potential to support nesting birds and bats. The surrounding area has limited potential to support protected species but bird and bat species are likely to be found nesting and roosting opportunities in the nearby Highgate Cemetery.

1.3 Conclusions

1.3.1 The development works are likely to impact any nesting birds and bats present on site. The development is unlikely to impact on reptiles, great crested newts, hazel dormice, badgers, or white-clawed crayfish.

1.3.2 Potential impacts of pollution running off into the surrounding area should be considered in order to ensure no direct or indirect impacts of wildlife outside the development boundary.

1.4 Key Recommendations

1.4.1 If protected species are identified during any of the below recommended surveys, appropriate impact avoidance and mitigation measures may need to be incorporated into designs. For any European Protected Species (*e.g.* bats), a licence may need to be obtained from Natural England prior to works being carried out. Full recommendations are given within section 6 of this report.

Species/Habitats	**Recommendations for Further Survey**	**Timings**
Nesting Birds	The building does not have potential for nesting birds, but scattered trees would provide nesting opportunities. All suitable nesting habitat removal is recommended to be undertaken outside the bird nesting season. If this is not possible, no more than 48 hours prior to commencement of works on site, a check for nesting birds must be undertaken by a suitably experienced ecologist who will provide recommendations to protect any active nests which will need to be left in situ and away from harm until any young have permanently left.	October - February
Bats	The building was identified as being of low bat potential, due to some lifted lead flashing and a hole in the wall in the southern elevation. There are extensive records of bat activity in the surrounding area. It is recommended that one dusk emergence survey is conducted on the building. If bats are found to be using the building, a total of three surveys will be required to inform a European Protected Species Mitigation licence from Natural England.	May – September (inclusive).
Species/Habitats	**Recommended Enhancements**	**Timings**
Soft Landscaping	Where possible, mature trees should be retained and protected during construction in accordance with the advice of an arboriculturalist, and in line with the British Standard: *'BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* Planting of climbers can be attached to sections of trellis on external walls of buildings, sections of fence and other walls and structures to increase the space available for wildlife. Climber planting should incorporate at least three species, such as: honeysuckle (*Lonicera periclymenum*), ivy (*Hedera helix*), common jasmine (*Jasminum officinale*), golden hop (*Humulus lupulus 'Aureus*') and old man's beard (*Clematis vitalba*).	Design/Construction Phase

	Where non-native species are to be included within the soft landscaping scheme, these can also be chosen for their wildlife benefit. The '*RHS Perfect for Pollinators*' label can be used as a useful guide when selecting non-native plants. Wildlife-friendly plantings will provide a degree of compensatory habitat for any vegetation removed in addition to an ecological enhancement where high value habitats are included within the design scheme.	
Birds	Two Schwegler 1B nest boxes with 26mm and 32mm entrance holes to be placed facing north or north-west at a height of between 4m to 7m.	Design/Construction Phase

2 Introduction

2.1 Instruction

2.1.1 D.F. Clark Bionomique Ltd were instructed on 16th May 2019 by the London Borough of Camden to carry out a Preliminary Ecological Appraisal (PEA) on Chester Road, Highgate, London, N19 5BP (TQ 28960 86543) on 11th June 2019

2.2 Site description

2.2.1 The proposed development site measures approximately 0.04 hectares. A reference plan showing the site boundaries can be seen in Appendix 2.

2.2.2 The site comprises a large two-storey building, hardstanding, amenity grassland, scattered trees and introduced shrubs. A wall runs around the eastern and western boundaries of the site. Residential dwellings are located to the north.

2.2.3 The site is located in an urban environmental is immediately surrounded by residential housing and their associated gardens. The Dartmouth Park road runs down the sites eastern border, with Chester road to the south-west. An area of amenity grassland lies 80 metres over Dartmouth Park road to the south-east, with a corridor of woodland located behind a row of houses approximately 130 metres to the south-west. The site is also 230 metres away (to the north-west) from Highgate Cemetery, which consists of approximately 2.3 hectares of deciduous woodland and areas of grassland.

2.3 Development proposal

2.3.1 The proposed redevelopment of the site involves the construction of a four and five stepped massing. It will entail 63 dwellings, with a mixture of studio, one-bedroom and two-bedroom units. The proposal also features communal areas and ancillary spaces.

2.4 Purpose of the report

2.4.1 This survey report aims to:

- Identify key ecological constraints to the project;
- Accurately assess and record the existing habitats on site;
- Identify habitats and/or structures that have the potential to support protected/priority/notable/invasive species and make recommendations for further surveys where appropriate;
- Identify any statutory/non-statutory designated sites within the zone of influence of the proposed development;
- Summarise the overall ecological value of the site in the context of legislation, planning policy and other relevant indicators of importance.

- Where possible at this stage, set out the mitigation measures required to ensure compliance with nature conservation legislation and address any potentially significant ecological effects;
- Where possible at this stage, identify appropriate enhancement measures.

3 Planning policy & legislation

3.1 Overview

3.1.1 In surveying and assessing the biodiversity features present on and near the site, regard has been given to relevant biodiversity legislation and the planning context of the development proposal. Reference has been made to established planning principles, all relevant national and local planning policies, local biodiversity objectives and targets, and green infrastructure strategies, along with any relevant supplementary planning documents.

3.1.2 Appendix 5 provides a more detailed summary of planning policy and biodiversity legislation information.

4 Methodology

4.1 Scope of the assessment & Zone of Influence

4.1.1 The survey site included the habitats within the proposed construction zone (red-line boundary), and where possible the survey boundary extended just beyond the construction zone.

4.1.2 '*The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities'* (CIEEM, 2018). The potential impacts of a development are not always limited to the boundaries of the site concerned, and for there to be an impact upon land that is outside of the site boundaries, there needs to be a source of impact, a pathway and a receptor.

4.1.3 In order to determine the zone of influence of the proposed development on ecological features (receptors), the potential key activities that can generate ecological impacts have been considered for the construction and operational phases of the development.

4.1.4 These impacts have then been considered in the context of pathways available to potential receptors on and off-site. Receptors considered will include any relevant statutory or non-statutory nature conservation designations to a distance of 2km for those at a national or local level, and to 5km for those at an international level. Protected species under national and international legislation, as well as Habitats and Species of Principal Importance for conservation under section 41 of the Natural Environment and Rural Communities Act 2006 have also been considered. Further, an assessment of the presence of or the potential presence of invasive plant and animal species was made during the site visit.

4.1.5 The zone of influence of the project should be reviewed if the project changes to ensure that it is still relevant.

4.2 Desk study

4.2.1 The Multi Agency Geographic Information for the Countryside (MAGIC) website managed by Natural England was consulted in 15th July 2019 to obtain information about:

- Statutory designated sites of European/international importance such as Ramsar Sites, Special Protection Areas (SPA) and Special Areas of Conservation (SAC) to a radius of 5km;
- Statutory designated sites of national importance such as Sites of Special Scientific Interest (SSSI) within a 2km radius of the site;
- The potential for the proposed development site to be present within a SSSI Impact Risk Zone and the effect that this could have on the proposed development;
- European Protected Species Mitigation (EPSM) licences that have been issued to a distance of 2km from the proposed site;
- Ponds within 250 metres of the site.

4.2.2 Aerial imagery (*Google maps*; 15th July 2019) was used in order to provide an indication of land-use in the surrounding area and the connectivity of habitats on and adjacent to the proposed development site.

4.2.3 The Greenspace Information for Greater London (GIGL) database was consulted to identify Local Wildlife protected/priority/otherwise notable species recorded within a 2km radius of the application site.

4.3 Desk study limitations

4.3.1 Information regarding aerial photography, European Protected Species Mitigation licences and protected areas is accurate to the date the records were retrieved, and last updated.

4.3.2 Records from biological records centres help understand the species that are or may be present in and around the study area. However, survey effort is variable between areas and many records are not submitted to records centres. Therefore, biological records centres cannot confirm absence of a species, and have only been used in this report in conjunction with other techniques to build up a picture of a study area.

4.3.3 There were no other known limitations to the desk study.

4.4 Field survey

4.4.1 A single daytime site visit was carried out on 11th June 2019. The weather conditions on the day of the visit were cloudy and overcast.

4.4.2 The survey was conducted following the standard methodology for Phase 1 Habitat Survey (JNCC, 2010). Vegetation communities were assessed through the identification of individual plant species, which were then grouped, classified and mapped based on standardised habitat descriptions.

4.4.3 Habitat suitable for protected/notable species, species of principal importance, or evidence of these species was also recorded, along with location information.

4.5 Field survey limitations

4.5.1 The survey was undertaken during the recommended period for carrying out PEAs.

4.5.2 There were no known limitations to the survey.

4.6 Assessment

4.6.1 The ecological value of the site and potential ecological impacts of the proposed development have been assessed in accordance with industry standard guidelines (CIEEM, 2013; CIEEM, 2018. Detailed assessments have not been recommended for widespread, unthreatened and

resilient features. However, recommendations have still been made to safeguard biodiversity as a whole, as per the European Union Biodiversity Strategy 2020 (CIEEM, 2018).

4.6.2 Key ecological features that require consideration during the development process include: statutory/non-statutory designated nature conservation sites, county biodiversity lists, Biodiversity Action Plan lists, red-listed, rare and legally protected species. These categories have been used to assist in making value judgements within the report. Further, geographical context has also been considered, with international/European importance being the highest value for conservation, followed by: national, regional, metropolitan, borough and local importance (as lowest value) (CIEEM, 2018). Finally, it will be assumed that a statutory designation holds a higher ecological value than a non-statutory designation.

4.6.3 The field survey included an assessment of the site's potential to support any legally protected species. Where best practice guidelines exist, these were used to assess the likelihood that individual species will be present using habitat suitability ratings, for example *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016). These have been used as a guide to inform any need for further surveys in respect of species which are present or have the potential to be present on site.

4.6.4 Historic data has only been considered if dated within the last ten years.

5 Results: Baseline Ecological Conditions

5.1 Overview

5.1.1 Only the results pertinent to the production of this report have been included below. Full copies of the original field and desk-top data, along with evidence of subsequent analysis and interpretation of results are available upon request.

5.2 Zone of Influence

5.2.1 One Site of Special Scientific Interest (SSSI) and three Local Nature Reserves (LNR) lie within 2km of the site (Table 1). The proposed development is isolated from these sites by a network of roads and buildings. There is no pathway by which pollutants may enter these sites. The Zone of Influence (ZoI) is limited to the site boundaries and areas just beyond.

5.3 Designated sites

5.3.1 There were no sites of European/international significance within a 5km radius of the application.

5.3.2 There are four designated sites of local importance (Table 1) within a 2km radius of the site.

5.3.3 The site does not fall within a SSSI Impact Risk Zone and there are no automatic recommendations for the Local Planning Authority to consult with Natural England regarding the likely risks of the development on nearby statutory designated sites.

Table 1: Results of the UK/local statutory designated sites desk study.

Name	**Designation**	**Distance & Direction (approximate)**	**Size (ha)**	**Grid Ref**	**Reasons for Designation**
UK/local statutory designations					
Hamstead Heath Woods	SSSI	1.5km (NW)	14.6	TQ 270 871	Sessile oak dominated woodland with wild service tree – a habitat rare in Greater London. Provides habitats for invertebrate assemblages in the form of dead wood, including standing trees. Likely enhances the surrounding habitats for bird assemblages.
Belsize Wood	LNR	1.9km (SW)	0.27	TQ 274 852	Habitats for breeding birds, invertebrates including stag beetles (*Lucanus cervus*). Also features a high floral diversity.

Parkland Walk	LNR	1.3km (N)	14.31	TQ 298 880	Secondary woodland with wild plum (*Prunus domestica*) and English elm (*Ulmus minor* var. *vulgaris*),, Also features acidic grassland which provides habitats for invertebrates.
Queen's Wood	LNR	1.7km (N)	21	TQ 287 885	Ancient oak and hornbeam woodland, with midland hazel, mountain ash, field maple, cherry, holly and birch. Rich ground flora includes wood anemone, nativeSe bluebells, and wood sorrel. Diverse arachnid assemblage and also features the jewel beetle.

Table 2: Results of the non-statutory designated sites desk study.

Name	**Designation**	**Distance & Direction (approximate)**	**Size (ha)**	**Grid Ref**	**Reasons for Designation**
Non-statutory designated sites					
M088 Highgate Cemetery	SINC	230m (NW)	14.81	TQ 287 867	Secondary woodland featuring ash and sycamore. Stonework features lichens, ferns and mosses. Invertebrate and bird assemblages also present.
Waterlow Park CaBl03	SINC	650m (NW)	10	TQ 286 871	Ponds with overhanging trees and shrubs. Plants include willowherb, jointed rush, and bittersweet. Waterfowl assemblages also present.
CaBl04 Kentish Town City Farm, Gospel Oak Railsides and Mortimer Terrace Nature Reserve	SINC	1.3km (S)	6.47	TQ 286 853	Hedge, pond/lake, scrub, secondary woodland and semi-improved neutral grassland habitats.
HgBl09 Crouch End Playing Fields Complex	SINC	2km (N)	14.6	TQ 292 886	Hedge, scattered trees, secondary woodland, semi-improved neutral grassland habitats. Mostly playing fields. Large colony of shining crane's bill (*Geranium lucidum*) which is rare in London.
IsBl01 Dartmouth Park Hill and Reservoir	SINC	230m (SE)	3.14	TQ 290 863	Victorian covered reservoir featuring variety of grassland habitats from neutral to acidic grassland. Features some uncommon plant species and small copper butterfly.

IsBl02 Archway Road Cutting	SINC	730m (NE)	0.73	TQ 291 872	Steep sided cutting on either side of the A1. Bordered on both sides by secondary woodland.
IsBl07 Upper Road Railway Cutting	SINC	960m (W)	4.71	TQ 299 868	Railway cutting providing ruderal, secondary woodland habitats.
IsBL08 Junction Road Cutting	SINC	590m (S)	0.5	TQ 291 860	Scrub, secondary woodland and tall herb habitats on the Crouch Hill railway line cutting. Features birds, invertebrates and mammal species.
CaBll11 Fitzroy Park Allotments	SINC	1.3km (NW)	1.42	TQ 278 872	Large allotment space surrounded by mature trees and featuring several ponds.
IsBll01 Elthorne Park and Sunnyside Gardens	SINC	1.3km (NE)	2.94	TQ 300 874	Landscaped park with amenity grassland, garden featuring exotic flowers and shrubs.
IsBll03 Holly Park Estate	SINC	1.8km (NE)	4.15	TQ 305 876	Mature parkland, scrub and wildflower assemblages.
IsBll14 St Joseph's Social Centre	SINC	570m (NW)	0.49	TQ 289 871	Social centre with orchard, hedges, woodland, flowerbeds and grassland areas.
CaL01 Holly Lodge Gardens	SINC	920m (NW)	1.39	TQ 281 869	Parkland areas separated by a wooded avenue
CaL15 Rochester Terrace Gardens	SINC	2km (S)	0.44	TQ 291 845	Public garden managed for wildlife.
HgL05 Harrington Site	SINC	990m (NW)	1.32	TQ 286 875	Community horticulture project and woods
HgL08 Southwood Lane Wood	SINC	1.45km (NW)	0.6	TQ 284 879	Narrow strip of woodland surrounded by a housing estate
HgL19L Yeatman Road Allotments	SINC	2km (NW)	3.26	TQ 278 882	Allotment with grassland and scrub. Support amphibians and reptiles.
HgL19M Shepherds Hill Allotments	SINC	1.88km (N)	3.82	TQ 292 884	Allotment with grassland and scrub. Support amphibians and reptiles.
IsL01 Archway Park	SINC	510m (NE)	0.83	TQ 294 870	Trees, shrubs and wildflowers.
IsL02 Foxham Gardens	SINC	830m (SE)	0.61	TQ 296 861	Landscaped park with native trees and shrubs. Bird and invertebrate assemblages present.
IsL03 Tufnell Park Primary School Gardens	SINC	1.25km (SE)	0.22	TQ 298 856	Flower beds, planted shrubbery, pond/lake with associated flora.
IsL04 Margaret MacMillan Nursery School Nature Garden	SINC	1.3km (NE)	0.29	TQ 299 875	Nursery school with small nature garden including ponds, lawn and mature trees.
IsL05 Hatchard Road Wildlife Garden	SINC	1km (NE)	0.5	TQ 300 869	Small woodland site adjacent to Crouch Hill Railway. Features flowering plants
IsL27 Whittington Park	SINC	740m (SE)	3.77	TQ 297 864	Amenity grassland, flower beds, hedge, planted shrubbery ,

					scattered trees and secondary woodland. Variety of bird species present.
IsL38 Royal Northern Hospital	SINC	1.33km (SE)	0.48	TQ 303 863	Amenity grassland, ornamental shrubs and scattered trees. 10% of park converted into wildlife meadow.

5.4 Habitats

5.4.1 A plan showing the habitats found on-site can be seen in Appendix 3. Photographs of the site can be found in Appendix 1.

Hardstanding

5.4.2 Approximately half the site was made up of hardstanding which served as car-parking space and access points into the building.

Amenity Grassland

5.4.3 There were patches of amenity grassland to the south-west and north-east of the site, dominated by common and widespread species (Photo 1).

Introduced shrub

5.4.4 The south-western margin of the site was lined with introduced shrub (Photo 2), which also featured in small patches centrally near the building. Species included common bottlebrush (*Callistemon citrinus*). Raised plant beds were found to the eastern margin of the site (Photo 3).

Scattered trees

5.4.5 Scattered broad-leaved trees were found within the patches of amenity grassland. Species included lime (*Tilia cordata*); sycamore (*Acer pseudoplatanus*); apple (*Malus*); cherry (*Prunus*) and introduced species such as false acacia (*Robinia pseudoacacia*).

Building

5.4.6 The main feature on site was the Chester Road Hostel building (Photo 4); a two-storey brick building with a flat-roof. A (south-facing) single-storey extension was located at the northern part of the main building. The roof appeared to be lined with bitumen.

5.5 Species

5.5.1 The below information will include a combination of desk study and field information. Value judgements will be included with regards to the species present or possibly present on site.

Amphibians

5.5.2 There are no ponds showing on MAGIC (*magic.defra.co.uk*; accessed on 16th July 2019) within 250m of the site. There have been no European Protected Species Mitigation licences (EPSM) issued for great-crested newts (*Triturus cristatus*) within 2km of the site in the last 10 years.

5.5.3 The GIGL database has no records of great crested newts (GCN) within 2km of the site from the last 10 years. There are extensive records of common frog (*Rana temporaria*) which was most recently recorded in 2017 approximately 1.1km away to the north-east. Common toad (*Bufo bufo*) have also been recorded, the closest being 1.2km to the north-west in 2011.

5.5.4 The site featured no ponds or areas of standing water. Much of it was bare ground with amenity grassland and introduced shrubs. There is little potential for the site to be used by GCN during the terrestrial phases. With the exception of Highgate Cemetery and the playing fields to the south-east, the surrounding area is urban and made up of residential dwellings. Darmouth Park Hill road to the east and Chester Road to the south-west provide barriers for any GCN present in the area to access the area. The wall surrounding the site acts as an additional barrier.

5.5.5 Due to the lack of available habitats, the site is considered to be of negligible potential for GCN or other amphibians.

Bats

5.5.6 One EPSM licence was issued for the destruction of a common pipistrelle (*Pipistrellus pipistrellus*) resting place in approximately 1.3km away to the north-east in 2011.

5.5.7 The GIGL database has extensive records of bats within 2km of the site, including:

- Common pipistrelles, the most recent record being 2km away to the north-west in 2017.
- Soprano pipistrelles (*Pipistrellus pygameus*), the closest being approximately 235 metres to the north-west in 2010.
- Noctules (*Nyctalus noctula*) were recorded at the closest point approximately 296 metres to the north-west in 2009.
- Leisler's bats (*Nyctalus leisleri*) were record, the closest point being approximately 721 metres to the north-west in 2011.
- One Natterer's bat (*Myotis nattereri*) was recorded 721 metres to the north-west in 2012.
- Daubenton's bats (*Myotis daubentonii*) have been recorded, the most recent record being approximately 1.6km to the north-west in 2017.
- Nine serotines (*Eptesicus serotinus*) were recorded, the closest approximately 721 metres north-west of the site in 2012.
- Brown long-eared bats (*Plecotus auritus*) were recorded, the closest record being 721 metres to the north-west in 2012.
- One grey long-eared bat (*Plecotus austriacus*) was recorded approximately 1.6km away to the north-west in 2017.

5.5.8 The area immediately surrounding the site is of limited potential for foraging bats, but the woodland areas of Highgate Cemetery 230 metres to the north-west would provide good quality habitats for commuting and foraging bats, as well as roosting opportunities.

5.5.9 The scattered trees did not display any signs of roosting bats such as droppings, urine stains or bats themselves. They also did not display features such as cracks or hollows which were of roosting bat potential.

5.5.10 The roof of the flat-roof building was unable to be fully inspected from the ground, but the building as a whole was well maintained. There was a minor gap beneath some partially lifted lead flashing (Photo 5), and a small hole in the wall (Photo 6) in the southern corner. The interior of the building was unable to be inspected due to a lack of access. No bats or signs of bats were observed on or around the building during the time of the survey.

5.5.11 The surrounding area was largely urban and of limited value to foraging bats, however there are extensive records of bat activity in the area. The Highgate Cemetery would provide good quality foraging and roosting habitats, which would see bats commuting over the site.

5.5.12 Overall the site is of low potential for roosting bats.

Hazel Dormice

5.5.13 There are no EPSM licences for hazel dormouse (*Muscardinus avellanarius*) from the last 10 years within 2km of the site.

5.5.14 The GIGL database did not have any records of hazel dormouse.

5.5.15 There were no hedgerows or woodland areas on-site that would provide foraging or nesting habitats for dormice, and no connectivity to suitable areas off-site. No evidence of hazel dormice was found on the site during the survey and it is highly unlikely that they will be found.

5.5.16 The site is considered to be of negligible potential for dormice.

Otter and Water Vole

5.5.17 The GIGL database did not have any records of otters (*Lutra lutra*) or water voles (*Arvicola amphibius*) within 2km of the site for the last 10 years.

5.5.18 The site did not feature any areas of running water or ditches which would be of use for otters or water voles. There was no way by which these species could access the site, and the surrounding area lacked any suitable habitats.

5.5.19 Overall the site is considered to be of negligible potential for otters and water voles.

Invertebrates

5.5.20 The GIGL database has records of invertebrate species such as stag beetles (*Lucanus cervus*) which was recorded approximately 447 metres to the north-west (closest point) in 2017. The white-letter hairstreak butterfly (*Satyrium w-album*) was recorded four times with the most recent record being 1.9km away to the north-east in 2009.

5.5.21 The site is of limited potential to support invertebrate species. The ornamental shrubs and planted beds have potential to support common and widespread species.

Reptiles

5.5.22 The GIGL database did not have any records of reptiles within 2km of the site from the last 10 years.

Much of the site is hardstanding and amenity grassland which would not provide foraging, basking or hibernating habitats for reptiles. The ornamental shrubs also would be unlikely to offer suitable habitats.

5.5.23 Overall, the site was of negligible potential for reptiles.

Birds

5.5.24 There are extensive records of bird species recorded within 2km of the site from the last 10 years. This included

- Firecrest (*Regulus ignicapilla*) which was recorded approximately 776 metres (closest point) to the north-west in 2012.
- Whimbrel (*Numenius phaeopus*) recorded at the closest point, 1.6km to the west in 2014.
- Dunnock (*Prunella modularis*) recorded at the closest point, 1.6km to the west in 2014.
- Swallow (*Hirunda rustica*) recorded at the closest point, 1.6km to the west in 2014.
- Cuckoo (*Cuculus canara*) recorded at the closest point, 1.6km to the west in 2014.

5.5.25 There scattered trees and ornamental shrubs will provide suitable habitats for birds. No signs of nesting was observed during the survey.

5.5.26 The building and vegetation onsite has potential for nesting birds.

Badgers

5.5.27 The GIGL database did not have any records of badgers (*Meles meles*) within 2km of the site from the last 10 years.

5.5.28 No evidence of badgers (tracks, fur, latrines, setts) was found on-site at the time of the survey. There is negligible potential habitat for badgers to build their setts in.

White-clawed crayfish

5.5.29 The site is of negligible potential for white-clawed crayfish (*Austropotamobius pallipes*) due to the lack of any running waterbodies.

Invasive plants

5.5.30 No invasive plant species were seen during the time of the survey.

5.5.31 Japanese knotweed (*Fallopia japonica*) and butterfly bush (*Buddleja davidii*) were recorded approximately 1.2km to the south-east in 2017. Himalayan balsam (*Impatiens glandulifera*) was recorded approximately 1.3km to the north-west in 2009. Giant hogweed (*Heraculeum mantegazzianum*) was recorded approximately 300m to the north-west near Highgate Cemetery in 2009.

Other protected/notable species

5.5.32 There are several records of hedgehog (*Erinaceus europaeus*) within 2km of the site. The most recent was recorded approximately 1.2km to the north-west in 2018. The site offered some habitat within the ornamental shrubs and planted beds for sheltering but the presence of a wall around the site reduce the chances of hedgehogs accessing the site. No hedgehog signs were found at the time of the survey.

6 Conclusions and Recommendations

6.1 General

6.1.1 The following section includes information regarding the ecological constraints and opportunities, recommendations for mitigation and any further survey works required.

Opportunities to enhance biodiversity have been noted below, and the '*mitigation hierarchy'* followed (BS 42020:2013). The *'mitigation hierarchy'* seeks first to avoid impacts, then mitigate unavoidable impacts, as a last resort compensation is recommended for unavoidable residual impacts (BS 42020:2013).

6.1.2 Where further survey work is required, a calendar showing appropriate survey times can be viewed in Appendix 7. The calendar is in line with the BSI Standards Publication: *Biodiversity – Code of practice for planning and development (BS 42020:2013).* However, survey calendars should only be used as a guide. Seasonal windows vary throughout the UK and between years, so timings can be flexible in accordance with the advice from a competent ecologist.

6.2 Zone of Influence

6.2.1 Standard pollution prevention control measures are recommended during the works. These measures should be reflected in working method statements and be communicated to all staff. Working method statements that include standard pollution prevention controls that all staff are aware of, understand and implement, will mean that any pollution incidents will be unlikely during construction and if they do occur, should be predominantly limited to the construction zone boundaries and those areas just beyond.

6.2.2 Emergency plans should be in place and practised in absence of a real incident to ensure that they are suitable and sufficient, and provide training to staff.

6.2.3 The effectiveness and implementation of environmental control measures should be continually monitored and reviewed. If unsure about the relevant controls required, gaining the advice of a specialist is recommended.

6.3 Designated sites

6.3.1 The development is 1.5km (north-west) away from the Hampsted Heath Woods SSSI. The development is unlikely to result in a significance net increase in visitors to the site. It is sufficiently separated from the site by roads and buildings.

6.3.2 The Parkland Walk (1.3km north), Queen's Wood (1.7km north) and Belsize Wood (1.9km south-west) local nature reserves and other designated sites (including SINCs; Table 2) are unlikely to see a significant increase in foot traffic.

6.4 Habitats

6.4.1 The habitats present are of limited value for wildlife *e.g.*hardstanding, amenity grassland, introduced shrubs. As far as possible, the habitats on site should continue to link to the habitats off site. This will help retain habitat corridors and landscape connectivity for a variety of species.

6.4.2 Where possible, mature trees should be retained and protected during construction in accordance with the advice of an arboriculturalist, and in line with the British Standard: *'BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations'.*

6.4.3 The proposed re-development provides an opportunity to enhance the ecological value of the site. It is recommended that locally appropriate, native flowering and fruiting shrubs, trees, and climbers that are beneficial to wildlife are included in the soft landscaping of the development (see Appendix 7).

6.4.4 Planting of climbers can be attached to sections of trellis on external walls of buildings, sections of fence and other walls and structures to increase the space available for wildlife. Climber planting should incorporate at least three species, such as: honeysuckle *Lonicera periclymenum*; ivy *Hedera helix*; common jasmine *Jasminum officinale*, golden hop *Humulus lupulus* 'Aureus' and old man's beard *Clematis vitalba*.

6.4.5 Where non-native species are to be included within the soft landscaping scheme, these can also be chosen for their wildlife benefit. For example, species such as lavender *Lavandula* sp, *Hebe* (especially late-autumn/winter flowering varieties such as 'Autumn Glory' and 'Great Orme'), and rosemary *Rosemarinus officinalis* provide good wildlife benefits. The RHS '*Perfect for Pollinators'* label can be used as a useful guide when selecting non-native plants. Wildlife-friendly plantings will provide a degree of compensatory habitat for any vegetation removed in addition to an ecological enhancement where high value habitats are included within the design scheme.

6.4.6 Prior to planting, more detailed horticultural instructions should be referred to for each plant species selected. This will help to ensure that the plantings are suitably located and managed and thus will remain viable post-development.

6.5 Species

Amphibians

6.5.1 Great crested newt, their breeding sites, and their places of shelter and rest are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2017 and Schedule 5, Section 9 of the Wildlife and Countryside Act 1981 (as amended). Under the terms of this legislation, it is an offence for anyone intentionally to kill, injure or disturb a great crested newt, or to possess one (whether live or dead) without licence. It is also an offence to damage, destroy or obstruct access to any place used by great crested newt for shelter. This includes terrestrial habitat areas.

6.5.2 There are no ponds or waterbodies on site or within a 250m radius. A wall around the area adds a barrier for any GCN in the area from accessing it. The site is of negligible potential and so no further surveys are necessary. If GCN are encountered on site during the works, activity should stop and a licenced ecologist contacted for advice.

Bats

6.5.3 All bat species in England and Wales, and their resting and breeding places (roosts), are afforded protection under The Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence for anyone to intentionally or recklessly kill or injure a bat, or disturb a roosting bat. It is also an offence to damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

6.5.4 Externally the building appeared to be in good condition, with limited roosting features. However, there was an area of lifted lead flashing and a small hole in the wall to the south that could potentially be of use for crevice-roosting species such as pipistrelle bats (*Pipistrellus* spp.). The building was deemed to be of low bat potential. It is recommended that buildings of low bat potential undergo one dusk emergence survey.

6.5.5 If the building is found to be home to roosting bats, then a further two surveys (a total of three) comprising of one dawn re-entry survey will be required to inform the application for a European Protected Species Mitigation licence.

6.5.6 There are extensive records of bat activity in the surrounding area. These bats are likely to be affected by increase light and noise pollution from the development works. However this is likely to be localised and temporary (BCT/ILE 2009). Any lighting on the site associated with the development should be directed downwards to where it is needed, with hoods, cowls, louvres, or shields used to direct the light to the intended area only. Measures to reduce the impacts of lighting need particular consideration with respect to areas where trees have been found to have bat potential or near foraging and commuting areas such as; hedgerows, woodland and boundary flowing drains. Further lighting advice can be found in Appendix 9.

Hazel dormice

6.5.7 Hazel dormice and their resting and breeding places are afforded protection under The Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence for anyone to intentionally or recklessly kill or injure a dormouse, or disturb a dormouse in its place of shelter. It is also an offence to damage, destroy or obstruct access to any place used by dormice for shelter, whether they are present or not.

6.5.8 There are no suitable foraging or nesting habitats for hazel dormice on-site. There is no connectivity to any suitable areas immediately off-site.

6.5.9 No further surveys for hazel dormice are necessary.

Otters and Water voles

6.5.10 Otters, and their breeding and resting places, are fully protected by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

6.5.11 Water voles are protected from killing, injury and disturbance whilst occupying a place of shelter or protection under the Wildlife and Countryside Act 1981 (as amended). This protection also prohibits any reckless or intentional damage, destruction or obstruction of any structure or place that water voles may be using for shelter or protection.

6.5.12 There are no suitable habitats for otters and water-voles on site or surrounding it. There is no way that these species can access the site. No further survey are necessary.

Invertebrates

6.5.13 No invertebrates protected by the Conservation of Habitats and Species Regulations 2017, under schedule 5 of the Wildlife and Countryside Act 1981 (as amended), or classified as Species of Principal Importance in England under section 41 of the Natural Environment and Rural Communities Act 2006 were observed during the site visit.

6.5.14 The habitats present on the site would attract an assemblage of common and widespread invertebrates. As a result no detailed invertebrate surveys are necessary.

6.5.15 Including soft landscaping to comprise native or wildlife-friendly planting (as above), e.g. with nectar-rich flowers will be attractive to a range of invertebrate species (e.g. bees and butterflies).

Reptiles

6.5.16 Common and widespread UK reptile species - common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), grass snake (*Natrix natrix helvetica*) and adder (*Vipera berus*) are protected from killing and injury under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The onsite habitats are not considered suitable for sand lizard (*Lacerta agilis*) or smooth snake (*Coronella austriaca*), which are protected under both the WCA and the Conservation of Habitats & Species Regulations 2017. The habitats are also unsuitable for the four common reptile species. All native UK reptile species are also listed as species of principal importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

6.5.17 The habitat on-site is considered to be of negligible habitat for reptiles. The areas of amenity grassland and shrub are unlikely to provide suitable habitats. No further surveys are necessary.

6.5.18 If reptiles are encountered during the construction works, then work should stop and an ecologist contacted for advice.

Birds

6.5.19 Nesting birds and their nests, eggs and chicks are protected from damage or destruction under the Wildlife and Countryside Act 1981 (as amended). Birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are also protected from disturbance at, on or near a nest.

6.5.20 There were no signs of nesting birds at the time of the survey. The building lacked features which would be suitable for nesting birds, however the scattered trees and scrub areas did have the potential to provide nesting habitats for birds. It is recommended that any removal of such habitats be done outside the nesting season (October to February). If any bird nests are found, the work should stop, the nest be left in place and an ecologist called on to site to inspect it for signs of use.

6.5.21 In order to provide an ecological enhancement for birds on the site, it is recommended that bird boxes be incorporated into the landscaping design. Two Schwegler 1B nest boxes with 26mm and 32mm holes should be placed on trees in the completed development at a height of approximately 4-7m in a sheltered north or north-facing direction. Further details are given in Appendix 8.

Badgers

6.5.22 Badgers and their setts are afforded protection under the Protection of Badgers Act 1992 (as amended). This legislation includes protection against damage to badger setts and against interference and disturbance of badgers whilst they are occupying a sett.

6.5.23 If any badger setts are discovered within 30m of the site, or badgers are found to be using the site regularly for foraging, then there is potential for the proposed scheme to impact upon this species and an impact avoidance/mitigation strategy should be devised. If any active badger setts are found within the footprint for the proposed works and these cannot be retained and protected, it will be necessary to apply to Natural England for a licence to close the sett(s).

6.5.24 There were no large mammal burrows or badger signs such as latrines, track marks or fur found during the walkover. There is a chance that badgers may access the site from the surrounding area but such instances are only likely to be transitional as it does not offer any foraging opportunities.

6.5.25 No further surveys for badgers are necessary.

Invasive plants

6.5.26 Some plant species are controlled under the Wildlife and Countryside Act 1981 (as amended) (e.g. Japanese knotweed and giant hogweed), making it illegal to plant or cause these plants to grow in the wild. Strict control of the disposal of affected soil and plant material is required.

6.5.27 No invasive plant species were observed during the walkover and as such no further action is needed.

Other legally protected/notable species

6.5.28 All wild mammals receive some protection under the Wild Mammals (Protection) Act 1996. This act includes offenses of crushing and asphyxiation of any wild mammal with intent to

inflict unnecessary suffering.

6.5.29 European hedgehogs (*Erinaceus europaeus*) are listed under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC). The UK population has been in decline over recent years. Hedgehogs will commonly be found in urban environments and have been found 1.8km to the north-west in 2018. The site itself offers some limited habitats for hedgehogs but the presence of the border wall means few if any individuals would be able to access the site. No further surveys are necessary.

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Websites

Natural England's MAGIC www.magic.defra.gov.uk

Appendix 1: Photographs

Photo 1: Amenity grassland covering communal areas.

Photo 2: Introduced shrub

Photo 3: Raised beds at eastern margin of site

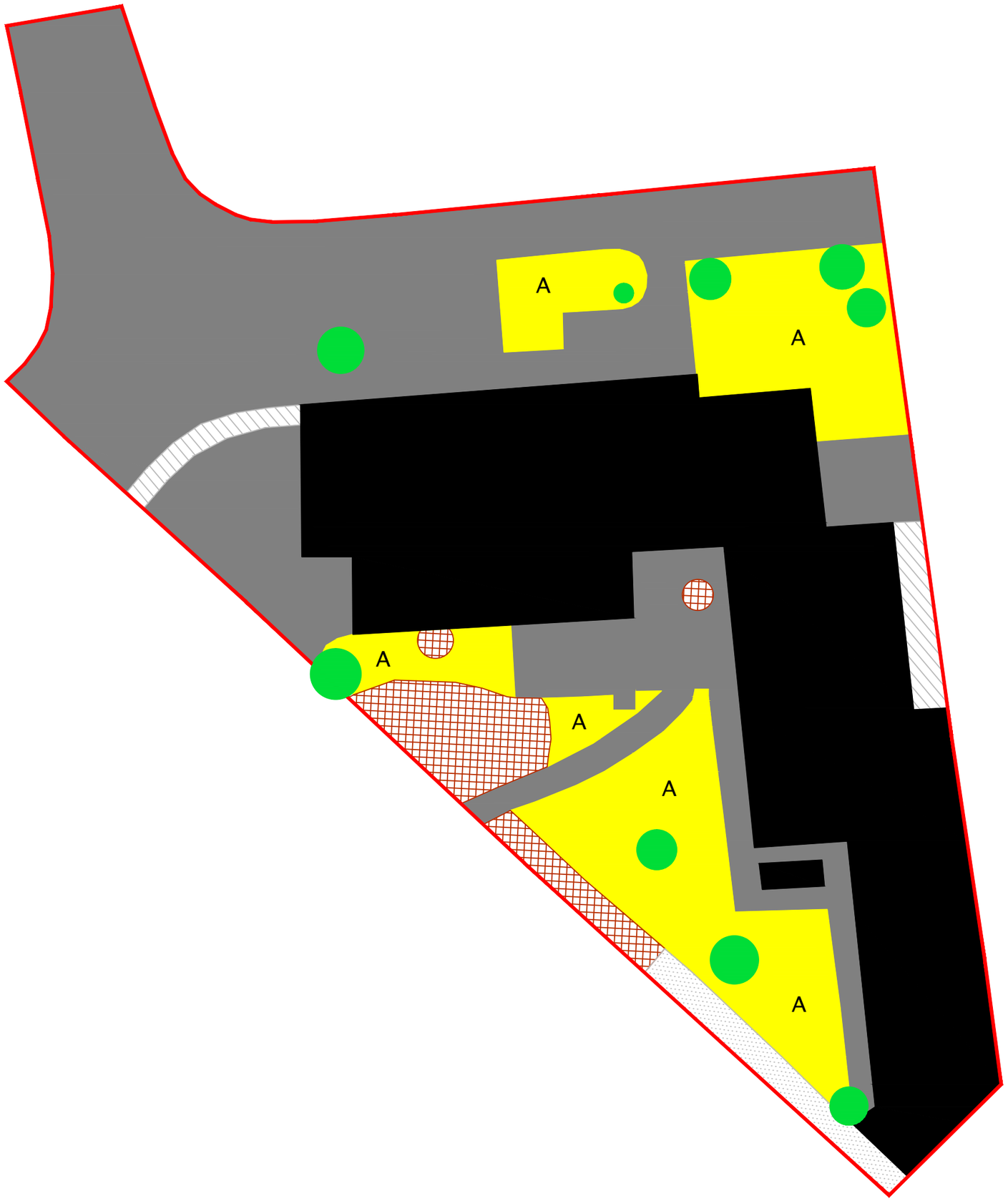
Photo 4: South-facing elevation of hostel building

Photo 5: Partially lifted lead flashing in southern corner

Photo 5: Small hole in wall in southern corner

Appendix 2: Location Plan

Appendix 3: Habitat Plan



Key

- A — Amenity Grassland
- Broad–Leaved Tree
- Introduced Shrub
- Building
- Hardstanding
- Rasied Beds/Planter
- Stairs
- Site Boundary

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Client: London Borough of Camden

Site address: Chester Road, London

Drawing title: Phase 1 Habitat Plan

Orientation: North

Date: June 2019

Scale: NTS

Drawing number: DFCP 3404

Revision: –

Drawn: AH

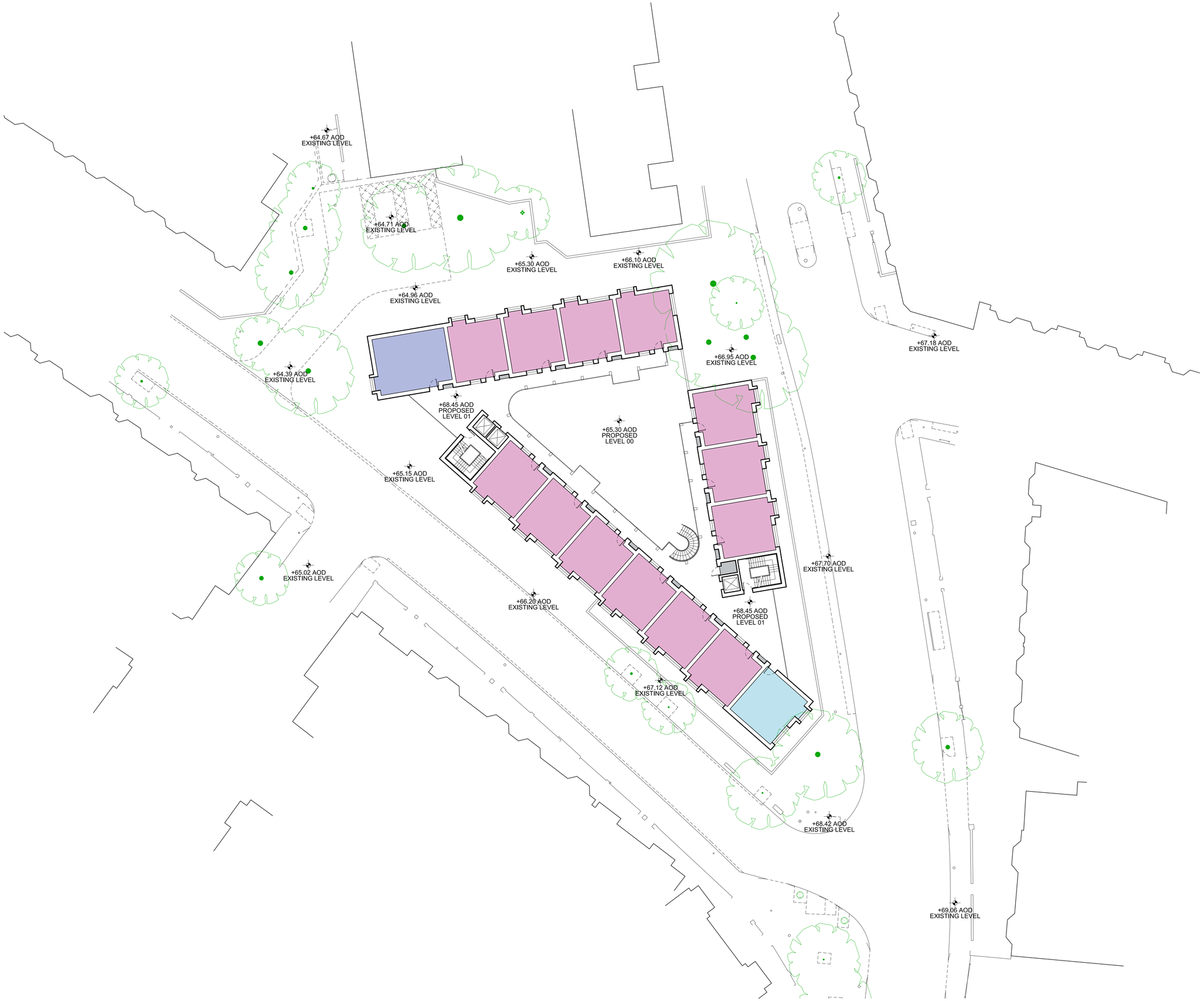
Authorised: AZ

Drawing status: Information

Notes

1. Do not scale from this drawing
2. Contractors must check all dimensions on site
3. Any discrepancies must be reported to the Landscape Architect before proceeding
4.
5. The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

Appendix 4: Proposed Development



1. Do not scale off this drawing.
2. All Bell Phillips architects drawings to be read in conjunction with written specification and all other consultant drawings.
3. All dimensions to be checked on site.
4. Any errors or omissions to be reported to Bell Phillips Architects immediately, prior to work being carried out.

N

Rev	Issued by	Description	Date
-	AT	FIRST ISSUE	30/04/19

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Status: SKETCH

Project: 0614
CHESTER ROAD

Title: OPTION B
PROPOSED FIRST FLOOR PLAN

Date	Drawn By	Checked By	Scales at A1
04/19	HP	AT	1:200

Drawing Number: 0614-SK-011

Revision: -

Appendix 5: Planning Policy and Biodiversity Legislation

National Planning policy

The UK Post-2010 Biodiversity Framework forms the government response to the 2010 Convention on Biological Diversity, and replaces the UK Biodiversity Action Plan with five internationally agreed strategic goals and targets, including reducing pressures on biodiversity and safeguarding ecosystems, species and genetic diversity. The government's Biodiversity 2020 strategy aims to halt the loss of biodiversity and the degradation of ecosystem services by 2020, to include restoration where feasible. These are used as a guide for decision makers such as local authorities to fulfil their obligations under sections 40 and 41 of the Natural Environment and Rural Communities Act 2006 to have regard to the purpose of conserving biodiversity in carrying out their duties.

The National Planning Policy Framework (NPPF) 2018 states the '*planning system should contribute to and enhance the natural and local environment by...minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'.* Further, the NPPF states that *'when determining planning applications, local planning authorities should apply the following principles:*

a) *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
b) *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
c) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'*

The NPPF also states that *'the following should be given the same protection as habitats sites:*

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

Local Planning policy

Camden Local Plan (2017)

Policy A3: Biodiversity
The Council will protect and enhance sites of nature conservation and biodiversity. We will:

a. designate and protect nature conservation sites and safeguard protected and priority habitats and species;
b. grant permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species;
d. assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed;
e. secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;
f. seek to improve opportunities to experience nature, in particular where such opportunities are lacking;
g. require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species;
h. secure management plans, where appropriate, to ensure that nature conservation objectives are met; and
i. work with The Royal Parks, The City of London Corporation, the London Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden.
c. seek the protection of other features with nature conservation value, including gardens, wherever possible;

Trees and vegetation
The Council will protect, and seek to secure additional, trees and vegetation. We will:

j. resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;
k. require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;
l. expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development;
m. expect developments to incorporate additional trees and vegetation wherever possible.

Ecological Surveys
Our supplementary planning document Camden Planning Guidance on sustainability sets out when the Council will require ecological surveys, the level and scope of detail required and the times in which they should be carried out. These surveys are used to identify important habitat features. It is expected that an ecology scoping survey will be required on all major sites unless the Council has specifically agreed it is not.

Enhancing nature conservation value

On larger schemes where development is considered to place a significant additional demand on natural greenspace, the Council will seek the provision of new natural greenspace within the site. Our Camden Planning Guidance on amenity sets out the size of scheme this relates to and how much greenspace will be sought based on the occupancy of the development. The layout and type of new habitats should take into account the site's role in buffering and connecting nature sites and wildlife corridors. Habitats and wildlife features should be integrated throughout the site, rather than being isolated pockets of nature

Where on-site provision is not possible, the impact should be mitigated through works to create, reinstate or enhance habitats nearby. Enhancements will be secured through the use of planning conditions and where appropriate, planning obligations. Strategic projects will potentially be funded through the Community Infrastructure Levy (CIL).

In many developments, it should be feasible to incorporate biodiversity enhancing measures. These can deliver a wide range of environmental and social benefits. This includes retrofits of existing buildings, subject to impacts on heritage assets and amenity. Potential responses including biodiverse-rich landscaping, sustainable urban drainage systems, 'species features' such as bird and bat boxes, artificial roosts for bats, tree planting and green roofs and walls. The Council will negotiate the provision of biodiverse living roofs in all suitable developments. Front gardens also provide an opportunity to provide soft landscaping (planting) which can improve biodiversity as well as enhancing the character and attractiveness of the area.

Developers and landowners should also give consideration to the need for species to move between different types of habitats. The Council will seek opportunities to secure green corridors as part of developments and through public realm improvements. Areas that could provide these corridors include land adjacent to railway lines and the Regent's Canal, where existing vegetation can be enhanced or new vegetation provided, and sites adjoining existing open spaces.

All enhancement measures, including the provision of natural greenspace, should contribute to the delivery of the BAP and green infrastructure strategies. As highlighted in Policy A2 Open space, the Mayor of London is supporting the development of a multi-functional network of accessible spaces and natural features (the All-London Green Grid).

Statutory and Non-Statutory Designations

Areas of land can be designated to legally protect a number of species and their habitats, as well as landscape and cultural aspects of the countryside. There are a number of different designations that can be applied with varying levels of protection.

Ramsar Wetlands of International Importance

Ramsar sites are of international importance for the quality of their wetland habitats and features. They are designated under the Ramsar Convention, with the first sites designated in 1976. All Ramsar sites in England are also European conservation sites and protected through the European legislation that protects SACs and SPAs (see below).

Special Areas of Conservation and Special Protection Areas

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are of European wide importance and strictly protected sites under the Conservation of Habitats and Species Regulations 2017. These regulations consolidate all the various amendments made to the Conservation (Natural Habitats etc.) Regulations 1994 (England and Wales). The regulations transpose the Council of the European Communities Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora into national law.

The Conservation of Habitats and Species Regulations 2017 provide for the designation and protection of Natura 2000 sites. The Marine and Coastal Access Act 2009 provides provision for the implementation of the protection of such sites in coastal/marine areas.

Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSIs) represent the best wildlife and geological sites in the country and are of national importance. SSSIs are protected under the Wildlife and Countryside Act 1981 (as amended).

A list of operations likely to damage the SSSI is provided to the landholder who must get permission from the regulator before carrying out any listed activity. Operations/developments adjacent to the SSSI can also have a negative impact and may also require permission from the regulator before being carried out. Natural England's online mapping tool: MAGIC.gov.uk provides *SSSI Impact Risk Zones* and lists types of developments within the *Impact Risk Zones* that could have an impact upon adjacent SSSIs.

Areas of Outstanding Natural Beauty

An Area of Outstanding Natural Beauty (AONB) is a precious landscape with distinctive character and natural beauty. There are 36 AONBs in England protected by the National Parks and Access to the Countryside Act of 1949.

AONBs often include flora and fauna of high quality and interest, as well as historical and cultural associations and scenic views.

National Nature Reserves

Sections 16-29 of the National Parks and Access to the Countryside Act 1949 in England establish National Nature Reserves, provisions strengthened by the Wildlife and Countryside Act 1981 (as amended).

A National Nature Reserve (NNR) is an area which is one of the best examples of a particular type of habitat/s. These areas are of national importance for conservation and are given strict protection against damaging operations. Any damaging operations which need to be carried out must be authorised by the designating body.

These protected areas also have strong protection against development on and around it.

Local Nature Reserves

Local Nature Reserves are statutory designations made under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities.

To qualify as a Local Nature Reserve, the site must be of importance for wildlife, geology, education or public enjoyment.

Local Nature Reserves (LNRs) are of local, but not necessarily national importance and are almost always owned by local authorities with good public access and facilities.

LNRs can be given protection against damaging operations, and has protection against development on and around it. Protection to the sites are usually through the Local Plan (produced by the planning authority), and are often supplemented by local by-laws.

The level and type of protection afforded to the LNR is decided locally and varies from site to site.

Local Non-Statutory Designations

The Local Planning Authority for any given area can designate certain areas as of being of local conservation interest. This is the lowest tier of conservation designation and the level of protection provided varies from area to area.

The Local Plan designates a certain level of protection for such areas in the planning process, giving limited protection against developments of certain types.

The name for locally designated sites varies from area to area. One name for such a designation is: a Site of Importance for Nature Conservation (SINC).

Protected Species Legislation

The Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats & Species Regulations 2017 and the Protection of Badgers Act 1992 (as amended) confer various degrees of legal protection on species including bats, reptiles, great crested newts, otters, dormice, water voles, badgers and birds. (A full list of protected species and their specific legal protection is provided within the schedules of the legislation.) This legal protection overrides all planning decisions.

The level of protection afforded to protected species varies dependent on the associated legislation.

In general, European Protected Species (EPS) (e.g. bats, great crested newt, dormice and otter) are afforded the highest level of protection. Any person who deliberately captures, injures or kills an EPS, deliberately disturbs an EPS or who damages or destroys a breeding site or resting place is guilty of an offence. Furthermore, any person who intentionally or recklessly disturbs an animal whilst it is occupying a structure / place used for shelter / protection and who obstructs access to any structure or place that an animal uses for shelter or protection is also guilty of an offence.

The level of protection afforded to species listed on the Wildlife and Countryside Act 1981 (as amended) varies considerably. 'Fully protected species,' such as water vole, are afforded the highest level of protection. Any person who intentionally kills, injures, or takes 'fully protected species,' or who intentionally or recklessly damages or destroys a structure or place used for shelter / protection, disturbs the animal whilst occupying a structure / place used for shelter and protection or obstructs access to any structure / place used for shelter or protection is likely to have committed an offence. Other species, such as common reptiles, are afforded less protection and for these species it may only be an offence to intentionally or recklessly kill or injure animals. All active bird nests, eggs and young are protected from destruction and Schedule 1 listed birds are also protected from disturbance whilst breeding.

Under certain circumstances licences can be granted by the Statutory Nature Conservation Organisation (Natural England in England) to permit actions that would otherwise be unlawful under The Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats & Species Regulations 2017 and the Protection of Badgers Act 1992 (as amended).

In addition to the above legislation, the Wild Mammals (Protection) Act (1996) provides protection for all wild mammals from certain cruel acts including crushing and asphyxiation, which can have relevance for methods employed during site clearance works.

Further, there is a requirement for local planning authorities to consider Species (and Habitats) of Principal Importance listed under Section 41 of the Natural Environment and Rural Communities Act 2006 when making planning decisions.

Appendix 6: Survey Calendar

Surveys not possible | Limited survey period | Optimal survey period

Habitats/ Vegetation

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Phase I (sub-optimal) No other detailed plant surveys Mosses and lichens only			Detailed habitat assessment surveys National Vegetation Classification Surveys for higher plants and ferns Mosses and lichens in April, May and September only						Phase I (sub-optimal) No other detailed plant surveys Mosses and lichens only		

Badgers

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limited sett/bait surveys	Limited Activity			Limited bait marking and sett surveys				Sett surveys			Limited sett/bait surveys

Bats

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inspection of hibernation, tree and building roosts			Limited Activity	Summer roost emergence and activity surveys (Maternity roosts start to form in May, females give birth in June, Mating starts in September)					Limited Activity	Inspection of hibernation, tree and building roosts	

Note: Potential roost and internal inspection surveys are possible all year round. Trees are best surveyed in winter.

Birds

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Winter species		Breeding birds/migrants species		Breeding birds		Low activity		Migrant species		Winter species	

Dormice

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gnawed hazelnut search (sub-optimal)		Nest tube / cage trap survey from April to November Nest searches (optimum time September to March)						Gnawed hazelnut search (optimum November to December)			

Great Crested Newts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Newts hibernating		Pond surveys for adults / Terrestrial surveys / Egg surveys April to mid-June / Larvae surveys from mid-May				Terrestrial habitat and larvae surveys		Terrestrial habitat survey		Newts hibernating	

Freshwater Pearl Mussel

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Surveys not possible			Optimal survey period							Surveys not possible	

Fish

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
For coastal, river and stream dwelling species, the timing of the surveys will depend on the migration pattern of the species concerned. Where surveys require information on breeding, the timing of surveys will need to coincide with the breeding period, which may be summer or winter months, depending on the											

Natterjack Toad

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernating			Surveys of breeding ponds for adults. Surveys for tadpoles from May onwards Surveys for adults on land.					Surveys for adults on land		Hibernating	

Otters

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limited by vegetation cover and weather conditions rather than seasons											

Pine Martins

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Surveys may be conducted all year round weather permitting. Optimum time is spring and summer. Surveys for breeding dens from March to May.											

Red Squirrel

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Surveys may be conducted all year round weather permitting. Optimum time is spring and summer. Surveys for breeding females from December to September.											

Reptiles

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Reptiles hibernating		Peak survey months are April and May				Reduced basking time reduces effectiveness of refugia survey		Peak survey month	Limited activity	Reptiles hibernating	

Water Voles

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Low activity	Initial habitat survey	Habitat and field signs / activity surveys May be limited by vegetation cover and weather								Initial habitat survey	Low activity

White-clawed Crayfish

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Reduced activity			Searching Torching Trapping	Breeding torchlight survey only (no handling due to females releasing their young)		Substrate search by hand Torchlight and trapping surveys				Reduced activity	

Surveys not possible | Limited survey period | Optimal survey period

Note: This survey calendar should be used as a reference guide only with advice being sought from a qualified ecologist as site and project specific circumstances may alter seasonal windows

Appendix 7: Native Planting Options

Trees and Shrubs

All of the plants recommended below are of recognized benefit to wildlife. This may be via the production of nectar for insects, berries and seeds for birds and mammals, foliage to support a range of insects, early flowering to provide an early source of nectar for insects, or provision of nesting, roosting and overwintering cover for a range of wildlife.

Climbers

Walls and fences provide a surface upon which a variety of plants can thrive, and provide alternative habitat for roosting, nesting and feeding. The species highlighted below are native or recommended by wildlife organizations. Some are evergreen, and will cover an unsightly wall or fence, softening the appearance of a new development.

Wildflowers

Native wildflower mixes (if applicable) can also provide a large number of additional species and can be found for a variety of meadow soils as well as woodland glades, woodland edges, hedgerows and ponds. The species listed in such mixes can also be used separately within any planting scheme. Removing the topsoil in fertile areas or over time regular mowing and removal grass cuttings reduces the vigour of grasses that compete with wildflowers. Always leave an area of grassland unmown preferably one third in a rotational cut to provide for wildlife.

NATIVE TREES		NATIVE CLIMBERS	
Acer campestre	Field maple	Hedera helix	Ivy
Alnus glutinosa	Alder	Lonicera periclymenum	Honeysuckle
Betula pendula	Silver birch		
Betula pubescens	Downy birch		
Buxus sempervirens	Box		
Calluna vulgaris	Heather		
Castanea sativa	Sweet chestnut	**Native Wildflowers**	
Carpinus betulus	Hornbeam	Wet & Damp Areas	
Chaenomeles spp.	Quince	*Fritillaria meleagris*	Fritillary
Cornus sanguinea	Dogwood	*Caltha palustris*	Marsh marigold
Corylus avellana	Hazel	*Cardamine pratensis*	Lady's smock
Crataegus monogyna	Hawthorn	*Lychnis flos-cuculi*	Ragged robin
Crataegus oxyacantha	Midland hawthorn	*Lotus pedunculatus*	Greater birdsfoot trefoil
Cytisus scoparius	Broom	*Succisa pratensis*	Devils bit scabious
Erica cinerea	Bell heather	*Hypericum perforatum*	Perforate St John's Wort
Erica tetralix	Cross leaved heather	Heavy Clay Soils	
Euonymus europaeus	Spindle	*Leontodon hispidus*	Rough hawkbit
Fagus sylvatica	Beech	*Rumex acetosa*	Common sorrel
Frangula alnus	Alder buckthorn	*Geranium pratense*	Meadow cranesbill
Hypericum androsaemum	Tutsan	*Centaurea nigra*	Common knapweed
Hypericum calycinum	St John's Wort	*Centaurea scabiosa*	Greater knapweed
Ilex aquifolium	Holly	*Ononis spinosa*	Spiny restharrow
Juniperus communis	Juniper	Moist Soils	
Larix decidua	European Larch	*Lotus corniculatus*	Common birdsfoot trefoil
Ligustrum vulgare	Privet	*Ajuga reptans*	Bugle
Malus domestica	Apple	*Sanguisorba minor*	Salad burnet
Pinus sylvestris	Scots pine	*Ranunculus acris*	Meadow buttercup
Populus alba	White poplar	*Silene latifolia*	White campion
Populus nigra	Black poplar	*Trifolium pratense*	Red clover
Potentilla fruticosa	Shrubby cinquefoil	*Primula veris*	Cowslip
Prunus avium	Wild cherry	*Leucanthemum vulgare*	Oxeye daisy
Prunus domestica	Wild plum	*Medicago lupulina*	Black medick
Prunus padas	Bird cherry	*Rhinanthus minor*	Yellow rattle
Prunus spinosa	Blackthorn	*Anthyllis vulneraria*	Kidney vetch
Pyrus communis	Pear	*Galium verum*	Lady's bedstraw
Pyrus pyraster	Wild pear	*Daucus carota*	Wild carrot
Quercus spp	Oaks	*Knautia arvensis*	Field scabious
Rosa arvensis	Field rose	*Prunella vulgaris*	Selfheal
Rosa rubiginosa	Sweet briar	*Vicia cracca*	Tufted vetch
Rosa spinosissima	Burnet rose	*Lathyrus pratensis*	Meadow vetchling
Rhamnus catharticus	Buckthorn	*Achillea millefolium*	Yarrow
Rubus idaeus	Raspberry	Light Sandy Soils	
Salix caprea, S.cinerea, S.fragilis, S.pentandra	Willows	*Myosotis arvensis*	Field forget-me-not
Sambucus nigra	Elder	*Trifolium dubium*	Lesser trefoil
Sorbus aucuparia	Rowan	*Campanula rotundifolia*	Harebell
Sorbus aria	Whitebeam	*Hypericum perforatum*	Perforate St Johns Wort
Sorbus torminalis	Wild Service Tree		= Early Flowering
Taxus baccata	Yew		= Late Flowering
Tilia europaea	Lime		
Ulex europaeus	Gorse		
Ulmus procera	English Elm		
Viburnum opulus	Guelder Rose		

Appendix 8: Nesting Provision for Birds

Birds

Nest boxes can be free standing (placed on buildings or trees) or integrated into the brickwork of buildings. If purchased as free standing, nest boxes should be made from woodcrete because this experiences less temperature fluctuations than wood and is longer lasting. Usually integrated boxes can be matched to rest of the brickwork of a building.

Place nest boxes between 2.5 and 5.5m from ground level, although heights vary between species and this should be checked prior to placement. The higher end of the height range should be chosen where cats may be a risk to chicks or adult birds at the nest. Nest boxes must be in a cool, secluded location, out of reach of cats. The boxes should be sited between north and east facing. Exposed/windy locations are to be avoided. Boxes should not be illuminated so siting them near street lights should be avoided. Following the lighting advice for bats in Appendix 9 will also benefit nesting birds. If boxes are stand-alone, they should be tilted down slightly to reduce issues with driving rain. The boxes should also be sited near vegetation to encourage use by birds.

Species	Special Features Required	Example Photos	Potential Sources
Starling	Entrance hole of 45mm diameter		Free standing: • CJ Wildlife: Birdfood.co.uk *e.g.* WoodStone® Starling Nest Box Integrated: • NHBS: Ecosurv Ecological Consultants – Starling Box – Smooth Brick • Birdbrickhouses.co.uk
House Sparrow	Should be sited in loose colonies of two-three boxes in close proximity. Entrance hole of 32mm diameter. Should not be sited near nest boxes for other bird species.		Free standing: • CJ Wildlife: Birdfood.co.uk: WoodStone® Estella House Sparrow Nest Box Integrated: • Birdbrickhouses.co.uk • Woodstone Build-in Swift Nest Box.
Swift	Need to be sited in colonies. Needs to be 6-7m above ground level in the eaves of a building.		Integrated boxes: • Birdbrickhouses.co.uk • NHBS: 17a Schwegler Swift Nest Box Triple Cavity; 16 Schwegler Swift Box; Woodstone Build-in Swift Nest Box.
Black Redstart	Open fronted nest boxes are suitable for this bird and ideally should be near water and brownfield habitats/green/brown roofs.		Integrated boxes: • Birdbrickhouses.co.uk • NHBS: Woodstone Build-in Open Nest Box Free standing: • NHBS: 1N Schwegler Deep Nest Box

Multiple species	Attracts wide range of cavity-nesting species such as great tit, blue tit, redstart, nuthatch, tree and house sparrows. Box can be attached to tree or wall using aluminium nail or hanging over a branch. Box should be placed at a minimum height of 1.5 metres (ideally between 4m to 7m). Should be angled facing away from prevailing wind.		Free-standing: • NHBS: Schwegler 1B nest box

NB: DF Clark Bionomique Ltd does not endorse the content of any of the websites listed and relevant checks should be made to ensure that the products supplied, meet the requirements outlined in this document. Photographs were sourced from the listed vendors.

Appendix 9:Lighting for Bats

Lighting Recommendations

Most bat species find artificial lighting very disturbing as they are adapted to low light conditions (Gunnell *et al.,* 2012). To avoid increasing predation risk and loss of suitable roosting, foraging and commuting habitats for bats, both on and immediately adjacent to the site, consider the following lighting recommendations (Gunnell *et al.,* 2012; Bat Conservation Trust, 2018):

- Reduce light intensity as far as possible. Light levels post-development should be considered in the context of light levels pre-development. Use the minimum amount of lighting for safety and minimise light spill. Eliminate bare bulbs and upward pointing light. It is recommended that artificial lighting does not directly illuminate any features or habitats of value to foraging bats such as hedgerows or treelines, waterbodies etc. Bat roosting sites should not be lit.

- Where appropriate, use lighting design software and professional lighting designers to predict light spill. Post-installation checks ensure the lighting installation is in accordance with the design and predictions were accurate, and mitigations successful.

- Limit the height of lighting columns. Occasionally a higher lighting column may be preferred to reduce horizontal spill or number of columns required.

- Use as steep a downward angle of light as possible and/or use a shield, hood, cowl, louvre that directs the light below the horizontal plane. Avoid lighting above 90° and 100° (*e.g.* with horizontal cut off units) and keep ideally under 70° above the horizontal. Directional accessories can be installed post-installation as a last resort to reduce light spill.

- Planting (e.g. hedgerows/trees) can minimise light spill, or man-made features can block light from certain directions. The effectiveness will depend on pre-development light surveys/modelling to understand the extent and level of light around the site. Use temporary close boarded fencing until vegetation matures to shield sensitive areas from lighting.

- Limit the times lights are on to provide dark periods using modern lighting control methods e.g. during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise) where this does not conflict with health and safety and security requirements.

- Use narrow spectrum light sources to lower the range of species affected by lighting and light sources should emit minimal ultra-violet (UV) light. Metal halide or mercury light sources emit high UV light. Low pressure sodium lights are a preferred option to high pressure sodium or mercury lamps.

- Avoid white and blue wavelengths. Warm-white wavelength lights are a good alternative (ideally <2700Kelvin). White LED lights do not emit UV but can affect bats. LED lamps allow for directional lighting and most luminaires are full cut-off. Lights should peak at over 550nm or use glass lantern covers to filter UV light. Further, altering the spacing between luminaires can allow for dark areas and reduce the impacts on bats.

- Lighting required for security/safety should use sensor activated lamps of no more than 2000 lumens (150 Watts). Low wattage lamps are preferable (<70W). '*Variable aim'* luminaires can allow the angle of the beam to be altered to reduce impacts. Security lighting should be set on motion sensors and short (1 minute) timers.

- Lighting for pedestrians should be low level, directional and below 3 lux at ground level (preferably below 1 lux).

- Glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features. Where windows and glass facades etc. cannot be avoided, low transmission glazing treatments may be suitable to achieve reduced illuminance targets. Products available include: retrofit window films and factory tinted glazing. 'Smart glass' can be set to automatically obscure on a timer during the hours of darkness, and automatic blinds can also be used.

- Use asymmetric beam floodlights, orientated so the glass is parallel to the ground to avoid horizontal spill. See http://www.nationaltrust.org.uk/main/w-bat05_events.pdf for further information.