8.0 ECOLOGY

INTRODUCTION

8.1 This Chapter assesses the likely significant effects of the construction (including demolition) and operational phases of the proposed development in terms of ecology.

8.2 This Chapter describes the legislative and policy framework; the assessment methodology; the baseline conditions at the site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed. It should be read in conjunction with the following reports and assessments:

- Preliminary Ecological Appraisal (PEA) Report (Appendix 8.1);
- Bat Emergence Survey Report (Appendix 8.2);
- Arboricultural Impact Assessment (Appendix 8.3);
- Biodiversity Net Gain Assessment (Appendix 8.4); and
- Ecological Management Plan (Appendix 8.5).

LEGISLATION AND PLANNING POLICY CONTEXT

8.3 This section outlines the legislative framework, the national, regional and local planning policy and supplementary policy guidance/best practice that has been considered in this assessment.

Legislation

International

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2017

8.4 The Conservation of Habitats & Species Regulations 2017 (as amended)[1], and transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ('EU Habitats Directive')[2], and Council Directive 79/409/EEC on the Conservation of Wild Birds ('Birds Directive')[3] into UK law (in conjunction with the Wildlife and Countryside Act).

8.5 Regulation 43 and 47 respectively of the Conservation of Habitats & Species Regulations makes it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2 (European protected species of animals), or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5 (European protected species of plant). Development that would contravene the protection afforded

to European protected species requires a derogation (in the form of a licence) from the provisions of the Habitats Directive.

8.6 Regulation 63 (1) of the Regulations states: '*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 (either alone or in combination with other plans or projects); and

(b) is not directly connected with or necessary to the management of that site;

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

National

8.7 The protection afforded to individual species/group of species e.g. bats and birds is detailed below under the specific species/group of species headings. This approach has been taken as species/groups of species can receive protection under more than one piece of legislation. Bats, badgers, hedgehogs and birds are the only species of relevance to the development site that are subject to national protection, as informed by the survey work carried out by Greengage to date.

The Environment Act, 2021

8.8 The Environment Act, 2021[4] will mandate the requirement for new development in England to deliver a minimum 10% biodiversity net gain (BNG), as measured by the agreed metric (the current relevant version being the Natural England metric 3.0), secured through planning condition as standard (as per schedule 14 of the Act). Approach to the delivery of BNG must follow the mitigation hierarchy, with avoidance of impact and on-site compensation/gains prioritised, ahead of the use of offsite biodiversity unit offsets, or the purchase of biodiversity credits.

8.9 The Act introduces the condition that no development may begin unless a biodiversity net gain plan has been submitted and approved by the local planning authority (LPA).

8.10 The Act also amends requirements of the NERC Act, 2006, adding the need to not just conserve, but enhance biodiversity through planning projects. Furthermore, it introduces the need for the LPA to have regard to relevant local nature recovery strategies and relevant species/protected site conservation strategies, when making their decision.

8.11 Under the Act, the enhancements must be maintained for at least 30 years.

Wildlife and Countryside Act 1981 (as amended)

8.12 The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which

the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the Birds Directive and EU Habitats Directive are implemented in Great Britain.

The Countryside and Rights of Way Act 2000

8.13 The Wildlife and Countryside Act has been updated by the CRoW Act. The CRoW Act amends the law relating to nature conservation and protection of wildlife. In relation to threatened species it strengthens the legal protection and broadens the offences of damaging, disturbing, or obstructing access to any structure or place a protected species uses for shelter or protection, and disturbing any protected species whilst it is occupying a structure or place it uses for shelter or protection to include any such acts committed recklessly.

The Natural Environment and Rural Communities Act 2006

8.14 The Natural Environment and Rural Communities Act 2006 states that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Biodiversity Action Plans provide a framework for prioritising conservation actions for biodiversity.

8.15 Section 41 of the Natural Environment and Rural Communities Act requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. The list, a result of the most comprehensive analysis ever undertaken in the UK, currently contains 1,149 species, including for example, hedgehog (*Erinaceus europaeus*), and 65 habitats that were listed as priorities for conservation action under the now defunct UK Biodiversity Action Plan[5] (UK BAP). Despite the devolution of the UK BAP and succession of the UK Post-2010 Biodiversity Framework[6] (and Biodiversity 2020 strategy[7] in England), as a response to the Convention on Biological Diversity's (CBD's) Strategic Plan for Biodiversity 2011-2020[8] and EU Biodiversity Strategy (EUBS)[9], this list (now referred to as the list of Species and Habitats of Principal Importance in England) will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 *'to have regard'* to the conservation of biodiversity in England, when carrying out their normal functions.

Legislation Relating to Badgers

8.16 Badgers and their setts are protected under the Protection of Badgers Act 1992, in England and Wales. The Act makes it an offence to:

- Intentionally capture, kill or injure a badger;
- Damage, destroy or block access to their setts;

- Disturb badgers in setts;
- Treat a badger cruelly;
- Deliberately send or intentionally allow a dog into a sett;
- Bait or dig for badgers;
- Have or sell a badger, or offer a live badger for sale;
- Have or possess a dead badger or parts of a badger; and
- Make or attach a marking device to a badger.

8.17 Disturbing badgers and damaging or blocking access to their setts should be avoided in most cases. However, if it cannot be avoided, licences may be granted by Natural England allowing interference with a sett.

8.18 Badgers are also protected under the Wildlife and Countryside Act 1981, prohibiting the use of certain methods of taking or killing wild animals.

8.19 Other legislation relevant to badgers (and dogs which may be used in badger offences) is the Protection of Animals Act 1911 and Abandonment of Animals Act 1990. Actions deemed to be offences under these Acts are the unnecessary suffering and fighting or baiting animals.

Legislation Relating to Bats

8.20 All UK bats and their roosts are protected by law. Since the first legislation was introduced in 1981, which gave strong legal protection to all bat species and their roosts in England, Scotland and Wales, additional legislation and amendments have been implemented throughout the UK.

8.21 Six of the 18 British species of bat have Biodiversity Action Plans (BAPs) assigned to them, which highlights the importance of specific habitats to species, details of the threats they face and proposes measures to aid in the reduction of population declines.

8.22 Although habitats that are important for foraging and commuting bats are not legally protected, unlike their roosts, care should be taken when dealing with the modification or development of an area if aspects of it are deemed important to bats such as flight corridors and foraging areas.

8.23 The Wildlife & Countryside Act 1981 (WCA) was the first legislation to provide protection for all bats and their roosts in England, Scotland and Wales (earlier legislation gave protection to horseshoe bats only.)

8.24 All eighteen British bat species are listed in Schedule 5 of the Wildlife and Countryside Act, 1981 and under Annexe IV of the Habitats Directive, 1992 as a European protected species. They are therefore fully protected under Section 9 of the 1981 Act and under

Regulation 43 of The Conservation of Habitats and Species Regulations 2017. It is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

8.25 This legislation applies to all bat life stages.

Legislation Relating to Nesting Birds

8.26 Nesting birds, with certain exceptions, are protected from disturbance under the Wildlife and Countryside Act 1981 (as amended) and the CRoW Act. Any clearance of suitable habitat should therefore be undertaken outside of the nesting bird season, taken to run conservatively from March to August inclusive, unless an ecologist confirms the absence of active nests prior to clearance. Under this legislation it is an offence to:

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

8.27 The implications of the above in relation to the proposals are that where it is necessary during construction to remove trees and buildings which are suitable to support nesting birds, this should be done outside of the nesting bird season (March-August inclusive). If this is not possible an ecologist must be present to confirm absence of nesting birds prior to completion of works.

Policy

National Planning Policy Framework, 2021

8.28 The National Planning Policy Framework (NPPF) 2021 sets out the Government's planning policies for England, including how plans and decisions are expected to apply a presumption in favour of sustainable development. Chapter 15 of the NPPF focuses on conservation and enhancement of the natural environment, stating plans should 'identify and pursue opportunities for securing measurable net gains for biodiversity'.

8.29 It goes on to state: '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'. Alongside this, it acknowledges that planning should be refused where irreplaceable habitats such as ancient woodland are lost.

London Plan, 2021

8.30 Policy G1 Green Infrastructure:

A) London's network of green and open spaces, and green features in the built environment, should be protected and enhanced. Green infrastructure should be planned, designed and managed in an integrated way to achieve multiple benefits.

B) Boroughs should prepare green infrastructure strategies that identify opportunities for cross-borough collaboration, ensure green infrastructure is optimised and consider green infrastructure in an integrated way as part of a network consistent with Part A.

C) Development Plans and area-based strategies should use evidence, including green infrastructure strategies, to:

1) identify key green infrastructure assets, their function and their potential function

2) identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.

D) Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network.

8.31 Policy G5 Urban Greening:

A) Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

B) Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses)…….

8.32 Policy G6 Biodiversity and access to nature

A) Sites of Importance for Nature Conservation (SINCs) should be protected.

B) Boroughs, in developing Development Plans, should:

1) use up-to-date information about the natural environment and the relevant procedures to identify SINCs and ecological corridors to identify coherent ecological networks

2) identify areas of deficiency in access to nature (i.e. areas that are more than 1km walking distance from an accessible Metropolitan or Borough SINC) and seek opportunities to address them

3) support the protection and conservation of priority species and habitats that sit outside the SINC network, and promote opportunities for enhancing them using Biodiversity Action Plans

4) seek opportunities to create other habitats, or features such as artificial nest sites, that are of particular relevance and benefit in an urban context

5) ensure designated sites of European or national nature conservation importance are clearly identified and impacts assessed in accordance with legislative requirements.

C) Where harm to a SINC is unavoidable, and where the benefits of the development proposal clearly outweigh the impacts on biodiversity, the following mitigation hierarchy should be applied to minimise development impacts:

1) avoid damaging the significant ecological features of the site

2) minimise the overall spatial impact and mitigate it by improving the quality or management of the rest of the site

3) deliver off-site compensation of better biodiversity value.

D) Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

E) Proposals which reduce deficiencies in access to nature should be considered positively.

London Environment Strategy 2018

8.33 The Mayor's Environment Strategy was published in May 2018. This document sets out the strategic vision for the environment throughout London. Although not primarily a planning guidance document, it does set strategic objectives, policies and proposals that are of relevance to the delivery of new development in a planning context, including:

Objective 5.1 Make more than half of London green by 2050

8.34 Policy 5.1.1 Protect, enhance and increase green areas in the city, to provide green infrastructure services and benefits that London needs now and in the future.

8.35 This policy states:

"New development proposals should avoid reducing the overall amount of green cover and, where possible, seek to enhance the wider green infrastructure network to increase the benefits this provides. […] New developments should aim to avoid fragmentation of existing green space, reduce storm water run-off rates by using sustainable drainage, and include new tree planting, wildlife-friendly landscaping, or features such as green roofs to mitigate any unavoidable loss.

8.36 *This supports the 'environmental net gain' approach promoted by government in the 25 Year Environment Plan*".

8.37 Proposal 5.1.1.d The London Plan includes policies to green streets and buildings, including increasing the extent of green roofs, green walls and sustainable drainage.

Objective 5.2 conserving and enhancing wildlife and natural habitats

8.38 Policy 5.2.1 Protect a core network of nature conservation sites and ensure a net gain in biodiversity

8.39 This policy requires new development to include new wildlife habitat, nesting and roosting sites, and ecologically appropriate landscaping will provide more resources for wildlife and help to strengthen ecological corridors. It states:

"Opportunities should be sought to create or restore priority habitats (previously known as UK Biodiversity Action Plan habitats) that have been identified as conservation priorities in London [and] all land managers and landowners should take BAP priority species into account".

London Borough of Richmond Local Plan 2018-2033

Policy LP12 Green Infrastructure

8.40 The policy states:

Green infrastructure is a network of multi-functional green spaces and green features, which provides multiple benefits for people, nature and the economy. To ensure all development proposals protect, and where opportunities arise enhance, green infrastructure, the following will be taken into account when assessing development proposals:

a) The need to protect the integrity of the green spaces and features that are part of the wider green infrastructure network; improvements and enhancements to the green infrastructure network are supported;

b) Its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation;

c) Incorporating green infrastructure features, which make a positive contribution to the wider green infrastructure network.

Policy LP15 Biodiversity

8.41 The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, SSSIs and other SINCs as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames BAPs. This will be achieved by:

1. Protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;

2. Supporting enhancements to biodiversity;

3. Incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;

4. Ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats wherever possible;

5. Enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and

6.Maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan.

8.42 Part B:

Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:

1. Firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts);
2. Secondly be adequately mitigated; or

3. As a last resort, appropriately compensated for.Policy LP17 Green roofs and walls

8.43 Green roofs and/or brown roofs should be incorporated into new major developments with roof plate area of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green/brown roof. The use of green/brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions.

Ham and Petersham Neighbourhood Plan (2018 to 2033)

Policy G1 - Open Spaces

8.44 The value of Ham and Petersham's green spaces [including Ham Village Green] will be conserved and enhanced by their protection from development and its adverse impacts.

Policy G2 - Light Pollution

8.45 Any proposals on or adjacent to green spaces which include external artificial lighting, or which are likely to result in significant increases in artificial light levels affecting wildlife corridors, will be required to address the following:

1. Light should only be installed where it is needed;
2. Timers should be installed to limit periods of use;
3. Light levels should be limited to the minimum required to enhance visibility;
4. Lights should not be directed upwards;
5. Lights should always be shielded;
6. Light spread should be kept to or below the horizontal;
7. Narrow spectrum bulbs should be used;
8. Light sources emitting ultra-violet light must be avoided;
9. Lighting columns should be as short as practicable.

ASSESSMENT METHODOLOGY

Desktop Study

8.46 A review of readily available ecological information and other relevant environmental databases (including Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) website[10]) was undertaken for the development site and its vicinity. In addition, a biological records search from Greenspace Information for Greater London (GIGL) was reviewed to identify the location and citations of local non-statutory designated sites and presence of records for notable and protected species.

Surveys

2021 Preliminary Ecological Appraisal (Appendix 8.1)

8.47 A PEA walkover survey was conducted on the 8th and 14th September 2021 based on the techniques and methodologies described in the Joint Nature Conservation Committee (JNCC) Handbook for Phase 1 Habitat Survey[11] and using standard nomenclature[12]. The habitats present were recorded on to a field map with written target notes providing supplementary information on, for example, species composition structure and management where relevant (see Appendix 8.1).

8.48 This was extended to include notes on fauna and habitats which could potentially support protected species, an approach commonly referred to as an Extended Phase 1 Habitat Survey. The presence of, or potential for, protected species was noted on the field map and in the written target notes during the survey.

2021 Bat Survey (Appendix 8.2)

Bat Scoping Assessment

8.49 During the PEA (Appendix 8.1) site visit the buildings and trees on site were assessed to determine their potential to support roosting bats. External inspections were carried out on all buildings.

8.50 The site visit was undertaken in daylight and the evaluation of bat potential comprised an assessment of natural features on site that aimed to identify characteristics suitable for roosting, foraging and commuting bats. The survery was undertaken in accordance with the Bat Conservation Trust's (BCT) Good Practice Guidelines and methods given in English Nature's (now Natural England) Bat Mitigation Guidelines. Consideration was given to:

- The availability of access to roosts for bats;
- The presence and suitability of crevices and other places as roosts; and
- Signs of bat activity or presence.

8.51 Definite signs of bat activity were taken to be:

- The bats themselves;
- Droppings;
- Grease marks;
- Scratch marks; and
- Urine spatter.

8.52 Signs of possible bat presence were taken to be:

- Stains; and
- Moth and butterfly wings.

8.53 Examples of features with potential as roost sites include mature trees with holes, crevices or splits (the most utilised trees being oak, ash, beech, willow and Scots pine), caves, bridges, tunnels and buildings with cracks or gaps serving as possible access points to voids or crevices.

8.54 Additionally, linear natural features such as tree lines, hedgerows and river corridors are often considered valuable for commuting and semi-natural habitats such as woodland, meadows and waterbodies can provide important foraging resources. Consideration was given to the presence of these features both immediately within and adjacent to the assessment area.

Emergence/Re-entry Surveys (Appendix 8.2)

8.55 Emergence and re-entry surveys have been undertaken on the site to confirm the current baseline with regards to roosting bats. These surveys have been conducted following the methodology below.

8.56 The emergence/re-entry surveys have been undertaken on various dates between the 21st September and 29th September 2021 in suitable conditions in accordance with Bat Conservation Trust (BCT) guidelines[13].

8.57 Emergence surveys commenced 15 minutes prior to sunset and continued for 90 minutes after sunset. Re-entry surveys commenced 90 minutes prior to sunrise and continued for 15 minutes after sunrise. Each building was allocated a set number of surveyors to ensure all features with potential to support roosting bats could be assessed.

8.58 All surveyors were equipped with an Echometer Touch bat detector to hear, visualize and record bat calls and identify bats to species level.

8.59 The surveys confirmed roosting bats are likely absent from the site as there was no evidence observed during the emergence/re-entry survey visits.

Assessment of Conservation Value of Receptors

8.60 Following the completion of the desktop and site surveys the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment[14] have been used to establish the value, or sensitivity, of terrestrial habitats and species impacted by the proposed development.

Key Terms

8.61 An impact is defined as 'the resulting changes to an ecological feature' with an effect being the 'outcome to an ecological feature from an impact.'

8.62 The ecological feature which is being affected by the impact is termed the receptor. Key ecological receptors are features that have been assessed as being of value within the context of the proposals and the EIA.

Criteria for Assessing Conservation Value of Terrestrial Ecology Receptors

8.63 The approach to ecological evaluation advocated by the CIEEM guidelines[14] involves professional judgement, based on available guidance and information, together with advice from experts who know the locality of the project and / or the distribution and status of the species or features that are being considered. The analysis aims to assign value to an ecological feature with reference to a defined geographical scale, i.e.:

- International;
- National;
- Regional;
- Borough;
- Local.

8.64 Sites which are subject to statutory and/or non-statutory designation may be readily assigned a value on this scale, for example:

- Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are internationally important sites;
- SSSIs are nationally important sites; and
- Sites of Importance for Nature Conservation (SINCs) (non-statutory) are of borough value.

8.65 Where an area has more than one designation, the highest of these has been used to assign significance. Features of a site that are not the reasons for its designation(s) are assessed and valued according to their intrinsic value.

8.66 In assigning value to species, reference to a species' geographical distribution, and its population status (e.g. widespread, common, rare) and trends (e.g. declining, stable) has been made. A species that is rare and declining may be assigned a higher level of importance than one that is rare but known to be stable. Species which have a significant proportion of their European population in the UK may also be highly valued.

Methods for Assessing Nature and Significance of Ecological Impacts

Impact Identification

8.67 The sensitivity (and recoverability) of receptors to an impact was identified, as far as current knowledge allows, during the EIA process. Generally, this was, by necessity, a

qualitative assessment based on published literature and best available scientific information.

Impact Characterisation

8.68 Impacts were characterised by reference to the following terms and definitions:

- **Positive** (a change that improves the quality of the environment);
- **Negative** (a change which reduces the quality of the environment);
- **Extent** (the spatial or geographical area over which the impact/effect may occur);
- **Magnitude** (size, amount, intensity and volume);
- **Duration** (should be defined in relation to ecological characteristics (such as a species' lifecycle) as well as human timeframes);
- **Timing** (timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons e.g. bird nesting season.);
- **Frequency** (the number of times an activity occurs will influence the resulting effect.); and
- **Reversibility** (is it possible to reverse the outcome of an impact).

8.69 Consideration was given to the potential for impacts to interact with other impacts (either arising from the proposed development or a different (external) source), thus producing a cumulative effect (often of greater magnitude).

Significance

8.70 For the purpose of EIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general.

Residual Impacts

8.71 During the EIA process the available means to avoid, minimise or mitigate for negative impacts were identified. Then, subject to their acceptability, these means were incorporated in the design of the proposal, so that the final assessment was of identified impacts that would be left. The consequences for development control, policy guidance and legislative compliance were then identified from the predicted residual impacts.

Assessment of Potential Impacts

8.72 The following table provides definitions for the terms used to describe impacts in each of the sections below covering impacts on terrestrial ecology.

Table 8.1 Definition of Terms Used in Assessment of Ecological Impacts

Severity	Periodicity	Extent
Positive	Temporary	Within the Site Boundary
Negative	Short-term	Local
	Medium-term	Borough
	Long-term	Regional – within Southeast England
	Permanent - no recovery to previous state within lifespan of project	National – national population context
		International – international context

8.73 In accordance with Chapter 1.0: Introduction and EIA Methodology, 'Neutral' has been used for severity 'where no discernible improvement or deterioration to the existing environment is anticipated'.

ASSUMPTIONS AND LIMITATIONS

8.74 The site walkover survey visits were completed in September during the optimal season for botanical identification.

8.75 An internal inspection of the buildings on site was not possible at the time of the survey, owing to access constraints relating to the covid-19 pandemic. However, as all buildings on site are flat roofed (no internal roof void space) this is not considered to be a significant constraint to the assessment of bat roosting potential on site.

8.76 A small section of the western site boundary was not accessible owing to access constraints associated with the adjacent school. However, a suitable level of assessment was made from the boundary of the school.

8.77 Additionally, the bat survey was completed in September (outside of the optimal survey season). However, weather conditions were highly suitable being well-above 10°C and with bats still recorded and therefore clearly still active. These timings of the surveys were therefore not considered to be a significant limitation.

BASELINE CONDITIONS

Nature Conservation Designations

8.78 Consultations with the local biological record centre (GiGL) and the MAGIC dataset have confirmed that there are no statutory designations of national or international

importance within the boundary of the site. However, Richmond Park which is covered by three statutory designations (see table below) is located 1.3km from the site. Further to this there are two statutory sites of local importance within a 2km radius of the site. Both of these sites are Local Nature Reserves (LNRs), the closest being Ham Lands located 300m to the southwest of the site. Further details of these sites can be found in table 8.2 below.

8.79 Records from GIGL also identified 18 non-statutory sites, all Sites of Importance for Nature Conservation (SINCs) within 2km of the site boundary. SINCs are recognised by Local Planning Authorities (LPAs) as important wildlife sites.

8.80 Table 8.2 below gives the locations and descriptions of a selection of the nearest/most relevant local designations.

Table 8.2 Statutory and Non-Statutory Designated Sites within Search Radius

Site Name and Value	Approximate Location	Description
Statutory Designations		
Richmond Park Special Area of Conservation (SAC) National Nature Reserve (NNR) Site of Special Scientific Interest (SSSI) Metropolitan SINC **International** value	1.3km northeast	Richmond Park has been managed as a royal deer park since the seventeenth century, producing a range of habitats of value to wildlife. In particular, Richmond Park is of importance for its diverse deadwood beetle fauna associated with the ancient trees found throughout the parkland. Many of these beetles are indicative of ancient forest areas where there has been a long continuous presence of over-mature timber. The site is at the heart of the south London centre of distribution for stag beetle *Lucanus cervus* (qualifying feature of the SAC). Habitats include dry acid and neutral grassland, species-poor wet grassland, mire, plantation woodlands, streams, ponds, veteran trees, scrub and bracken.
Ham Lands Local Nature Reserve (LNR) **Borough** value	300m southwest	Ham Lands is an area of infilled gravel pits, some old water meadows and a narrow belt of woodland. The area has developed into a mosaic of different ecological zones. The site is of considerable value for informal recreation and is well used by local people and children.
Ham Common LNR **Borough** value	660m southeast	Most of the site has been succeeded by birch and oak woodland. There is a lot of dead wood habitat valuable for invertebrates, fungi and cavity-nesting birds such as woodpeckers. There are several wet hollows within the woodland which support breeding frogs during wet springs where there is sufficient standing water. The common is divided in two by a road—in the northern section the woodland is generally younger with a denser understorey and more diverse ground flora. A more extensive area of grassland survives at the western end of the common with a wide range of plants typical of dry acid grassland.
Non-Statutory		

Site Name and Value	Approximate Location	Description
SINCs of Metropolitan Importance		
River Thames and Tidal Tributaries **Regional** value	350m southwest	The River Thames and the tidal sections of creeks and rivers which flow into it comprise a number of valuable habitats not found elsewhere in London. The mud-flats, shingle beach, inter-tidal vegetation, islands and river channel itself support many species from freshwater, estuarine and marine communities which are rare in London. The site is of particular importance for wildfowl and wading birds.
SINCs of Borough Grade II Importance		
The Copse, Holly Hedge Field and Ham Avenues **Borough** value	220m east	A flowery meadow, a stand of ancient oaks and an historic avenue of lime trees combine to provide habitat for a wealth of animals and plants.
Petersham Lodge Wood and Ham House Meadows **Borough** value	670m north	A small wood and two grassy fields beside the River Thames, which flood on high spring tides, introducing an interesting wetland element to the plants at this site.
SINCs of Local Importance		
Ham Common West **Local** value	350m south	The western part of Ham Common consists of close-mown acid grassland, with an attractive pond. The wooded, eastern section of the common is included in the Richmond Park Site of Metropolitan Importance
Cassel Hospital **Local** value	580m south	Pleasant hospital grounds, with lawns of acid grassland, a fringe of woodland and an old walled garden.

Habitats

8.81 The following habitats were recorded on site and are described below. Further detail on each of these habitats is presented in Appendix 8.1. The code in brackets relates to the JNCC habitat classifications:

- Buildings and hardstanding (J3);
- Amenity grassland (J1.2);
- Scattered trees (A3.3); and
- Introduced shrub (J1.4).

Buildings

8.82 There are several building types on site as summarised below:

- Residential blocks:

  - Five storey residential blocks of brick with render construction with flat roofs.
  - Four storey deck access flats of brick with render construction with flat roofs.
  - Three storey 'T' shaped residential blocks of brick with render construction with flat roofs.
- Single storey garage buildings of brick construction with corrugated roofs.
- Outbuildings:
  - Single storey brick refuse/storage buildings associated with residential blocks.
  - Single storey brick building with a pitched tiled roof.
- Part concrete, part brick, community centre.

8.83 Based on the lack of ecological value of these structures, this habitat is accordingly considered to be of **Negligible** value. The value these building have for bats is discussed in the bats section below, and as such buildings are not carried any further forward in this assessment.

Hardstanding

8.84 Hardstanding largely comprises internal roads, pavements and parking areas. In many areas across the site ephemeral/short perennial vegetation has populated the cracks in the hardstanding, with dominant species including dandelion (*Taraxacum officinalis*), chickweed (*Stellaria media*), perennial rye grass (*Lolium Perenne*) and moss species.

8.85 Due to the common and widespread species mix, their early colonising nature and their relatively small percentage coverage of site, this habitat is therefore considered to be of **Negligible** value and is not considered further in this assessment.

Amenity Grassland

8.86 The majority of grassland on site is comprised of regularly mown, short amenity grassland. Species present include perennial ryegrass, wall barley (*Hordeum murinum*), white clover (*Trifolium repens*), self-heal (*Prunella vulgaris*), daisy (*Bellis perennis*), ribwort plantain (*Plantago lanceolata*) and dandelion. This habitat is considered to be of **Within the Site Boundary** value.

8.87 In several areas of Ham Village Green the grassland appears to be less regularly mown and is understood to be managed as wildflower meadow. As a consequence of this a greater diversity of species is visible including, in addition to the species above, yarrow (*Achillea millefolium*), mallow (*Malva sylvestris*), ragwort (*Jacobaea vulgaris*), poppy (*Papaver rhoeas*) and red clover (*Trifolium pratense*) which were flowering at the time of the survey. These areas are considered to be of **Local** value.

Scattered Trees

8.88 Trees of varying ages (ranging up to mature) are scattered across the amenity grassland on site. Prominent species include ash (*Fraxinus excelsior*), silver birch (*Betula pendula*), cherry (*Prunus* sp.), Norway maple (*Acer platanoides*), whitebeam (*Sorbus* sp.) and Lombardy poplar (*Populus nigra*).

8.89 The trees provide nesting opportunities for common bird species. Viewed in the context of the surrounding tree lined streets, private residential gardens and wooded green spaces, the trees on site are considered to be of **Local** value.

Introduced Shrub

8.90 Beds of maintained, low, introduced shrub sit adjacent to many of the buildings. Species present include *Salvia* sp., *Rosa* sp., *Weigela* sp., *Laurus* sp., *Euonymus* sp., *Yucca* sp., *Berberis* sp. and *Clematis* sp.

8.91 At the southern edge of the site, in addition to the formally planted introduced shrub, are two overgrown raised planters which would appear to have previously been used for growing food.

8.92 A wider, less formally maintained, strip of shrub is present within the grounds of the school at the very western edge of the site.

8.93 Based on the small area of planting present on site, this habitat is considered to be of **Within the Site Boundary** value.

Species and Species Groups

Badger

8.94 There are several records for badger within a 2km radius of the site with large areas of grassland and woodland within the wider area. However, whilst the grassland on site would present suitable foraging habitat, it is significantly isolated from the aforementioned offsite habitat by existing buildings and roads. Given the limited suitability of the existing site (including the proposed development footprint and the adjacent Ham Village Green) for badger it is considered to be **Within the Site Boundary** value.

Bats

8.95 During the scoping survey undertaken as a part of the PEA (Appendix 8.1) a number of features of potential value for bats were noted. These included the following:

- Possible gaps under fascia, with no wire mesh visible.
- Missing roof tile.

8.96 Further to this, the mature trees on site were identified as providing a foraging resource.

8.97 Further bat emergence/re-entry surveys were therefore undertaken during the 2021 survey season (Appendix 8.2).

8.98 During the surveys, low levels of commuting and foraging were recorded but no roosting behaviour. Bat species recorded were largely common pipistrelle (*Pipistrellus pipistrelles*) and soprano pipistrelle (*Pipistrellus pygmaeus*) with a single noctule (*Nyctalus noctule*) pass. During the surveys, high levels of existing artificial lighting were noted including security lighting on the eastern façade of the existing Youth Centre building that faces Ham Village Green. Given the presence of roosting features in the buildings and the existing trees, the area of the site within the development footprint provides **Within Site Boundary** value for bats.

8.99 Greater value is associated with Ham Village Green which, with the exception of security lighting from the Youth Centre building, is significantly darker than built up areas of the site. Value for bats of this area, outside of the proposed development footprint is **Local**.

Birds

8.100 The scattered trees and shrubs on site provide nesting habitat for a range of common and widespread bird species. In addition to the this, a significant number of ring-necked parakeet (London Invasive Species Initiative species) were observed loafing on the roofs of a number of buildings with one individual noted removing the wire mesh from beneath the fascia board on a five storey block. Whilst nesting could not be confirmed there is considered to be potential.

8.101 Additional bird species noted on site during the site walkover were woodpigeon (*Columba palumbus*), feral pigeon (*Columba livia*), carrion crow (*Corvus corone*), blue tit (*Cyanistes caeruleus*) and starling (Section 41/BAP species).

8.102 As the site provides nesting habitat for other common and widespread species only, the site (including the proposed development footprint and the adjacent Ham Village Green) is considered to be of **Within the Site Boundary** value only.

Hedgehogs

8.103 There are records of hedgehog (Section 41/BAP species) within a 2km radius of the site. The development site itself provides some suitability for hedgehog in the form of shrubs and grassland with additional surrounding offsite habitat in the form of the private residential gardens. Given the availability of surrounding habitat the value of the site (including the proposed development footprint and the adjacent Ham Village Green) is likely to be **Within the Site Boundary**.

Invertebrates

8.104 The existing trees and shrubs on site are likely to provide a foraging resource for common invertebrate species. Whilst stag beetle (a Section 41/BAP species and

qualifying species of Richmond Park) have been recorded in the locality, the site is considered to be of limited value for this species given the lack of deadwood. Overall the site is likely to be of **Within the Site Boundary**.

Other Rare, Notable or Protected Species

8.105 The potential for all other protected and notable species including water vole, otter, dormouse, GCN, and reptiles was considered **Negligible** given the nature of the existing site (including the proposed development footprint and the adjacent Ham Village Green) with formal landscaping present.

Receptors Scoped Out

8.106 All habitats and species given **Negligible** value in this section will not be further assessed.

POTENTIAL IMPACTS

During Construction

Designated Sites

Statutory Sites – International and National

8.107 The site is 1.3km from the Richmond Park SAC (also NNR, SSSI and SINC). Due to the distance between the site and the SAC, no construction stage effects (e.g noise and light disturbance, or dust deposition) are anticipated. The potential impact during construction is therefore considered to be **Negligible.**

Statutory Sites – Local

8.108 Ham Lands and Ham Common are 300m and 660m from the site respectively (see Table 8.2). Both LNRs are isolated from the site by a buffer of residential housing. Therefore, no construction stage effects (e.g. noise and light disturbance, or dust deposition) are anticipated. The potential impact during construction is considered to be **Negligible.** Whilst no impacts are anticipated, best practice construction mitigation will be implemented as outlined within the following section.

Non-Statutory Sites

8.109 The site is 220m from the closest SINC (The Copse, Holly Hedge Field and Ham Avenues). As above, the SINCs are isolated from the site by a buffer of residential housing. Therefore, no construction stage effects (e.g. noise and light disturbance, or dust deposition) are anticipated. The potential impact during construction is considered to be **Negligible.** Whilst no impacts are anticipated, best practice construction mitigation will be implemented as outlined within the following section.

Habitats

8.110 The development proposals seek the removal of the majority of habitats within the development footprint with the exception of the existing trees that are proposed to be retained (see Appendix 8.3). The impacts associated with this are discussed in the following section.

8.111 Ham Village Green makes up the eastern portion of the site but sits outside of the proposed development footprint and is proposed to be retained. Without appropriate consideration there is potential for damage to the habitats present through dust deposition which would cause a **Significant Short-term Negative** effect at the **Local** Scale.

Species and Species Groups

Badger

8.112 Due to the limited suitability of habitats on site and the development's urbanised context, it is considered that the loss of the habitats present within the proposed development footprint would have a **Negligible** effect on the local badger population.

8.113 Construction activities have the potential to trap badgers within holes, trenches, ditches and foundations which could result in injury or possible death. This would have a **Non - Significant Short-term Negative** effect at a **Within Site Boundary** level.

Bats

8.114 Development proposals will lead to the loss of bat foraging and commuting resources on site. Given the limited value of the site for bats, in the absence of mitigation, there is potential for a **Significant Short-term Negative** effects at a **Within Site Boundary** scale on foraging and commuting bats.

8.115 All the existing buildings will be lost to development. This would have a **Negligible** effect on roosting bats, based on current data. Given the phased nature of the development there is potential for the buildings in the latter phases of the development to become occupied by roosting bats. Therefore, in the absence of updated emergence/re-entry surveys for these phases there would be potential for bat roosts to be destroyed meaning there would be a **Significant Permanent Negative** effect at a **Local** scale.

Birds

8.116 Proposals will see the removal of some trees and all buildings on-site. The killing or injuring of adult birds is highly unlikely as individuals can disperse from the construction zone. Therefore, the potential impacts of the construction phase on birds includes the:

- killing and injury of a bird's dependant young and/or eggs;
- loss of potential nesting habitat; and

- disturbance of nesting birds in surrounding areas.

8.117 In consideration of the above, in the absence of mitigation, the proposed development has the potential for a **Non-significant Temporary Negative** effect at the **Within the Site Boundary** scale.

8.118 The removal of nesting opportunities for ringed necked parakeet would be considered a **Non-significant Long-term Positive** effect at the **Within Site Boundary** scale.

Hedgehog

8.119 Due to the limited suitability of habitats on site, the phased nature of the development and the development's urbanised context, it is considered that the loss of the habitats present within the proposed development footprint would have a **Negligible** effect on foraging hedgehog.

8.120 Construction activities could have the potential to trap hedgehogs within holes, trenches, ditches and foundations which would result in injury or possible death. This would have a **Significant Short-term Negative** effect at a **Within Site Boundary** scale.

Invertebrates

8.121 The development proposals seek the removal of the majority of suitable invertebrate habitat within the proposed development footprint with the exception of the existing trees that are proposed to be retained (see Appendix 8.3). The impacts associated with this are discussed in the following section.

8.122 Ham Village Green, including sections of wildflower meadow of value for invertebrates, makes up the eastern portion of the site but sits outside of the proposed development footprint and is proposed to be retained. Without appropriate consideration there is potential for damage to these habitats through dust deposition which would cause a **Significant Short-term Negative** effect at the **Local** scale.

During Operation

Designated Sites

Statutory Sites – International and National

8.1 An assessment of potential atmospheric pollution from increased traffic movements from the proposed development on Richmond Park SAC (also NNR, SSSI and SINC) has been undertaken in Chapter 5.0: Air Quality. The assessment concluded an **Insignificant** impact and atmospheric pollution in the SAC is therefore not considered further within this Chapter.

Statutory Sites – Borough

8.2 There is potential for recreational use of Ham Common and Ham Lands LNRs by residents of the proposed development. However, significant negative impacts are not anticipated as these existing sites are anticipated to be subject to existing management for recreation and there are additional greenspaces within closer proximity to the development site, with Ham Village Green sitting on the site itself. Further to this, the nature of the designated sites means that footfall is likely to remain on existing paths (e.g along the River Thames) and therefore effects to sensitive receptors (woodland and grassland) would be minimal. Impacts on the LNRs during the operational phase of the proposed development are considered to be **Negligible**.

Non-Statutory Sites

8.3 There is potential for recreational use of all SINCs listed in Table 8.2 by residents of the proposed development. As with the LNRs, significant negative effects are not anticipated as these existing sites are anticipated to be subject to existing management for recreation and there are additional greenspaces within closer proximity to the site, with Ham Village Green sitting on the site itself. Further to this, the nature of the designated sites means that footfall is likely to remain on existing paths (e.g along the River Thames) and therefore effects to sensitive receptors (woodland and grassland) would be minimal. Effects on the SINCs during the operational phase of the proposed development are considered to be **Negligible**.

Habitats

8.4 The development proposals seek the removal of the majority of habitats within the proposed development footprint with the exception of the existing trees that are proposed to be retained (see Appendix 8.3). If these habitats are removed without compensation, the loss of their ecological function within the site boundaries would be considered to cause a **Significant Permanent Negative** impact at the **Local** scale.

8.5 The retained trees within the development could be subjected to damage from play or damage where branches overhang into residential dwellings/gardens. This would cause specimens health to suffer, where there would be a **Non-Significant Long-term Negative** effect at a **Within Site Boundary** scale.

8.6 Without appropriate design and management considerations the use of Ham Village Green by the increased number of residents associated with the proposed development could lead to damage and degradation of this part of the development site. This could potentially lead to a **Non-Significant Long-term Negative** effect at a **Local** scale.

8.7 According to the Daylight, Sunlight and Overshadowing report produced by Avison Young for the application, Ham Village Green will be subject to minimal additional overshading

from the proposed buildings. Further to this, the habitats present in the areas adjacent to proposed buildings (short modified grassland) are not considered to be sensitive to shading. A **Negligible** effect from overshadowing is therefore anticipated.

Species and Species Groups

Badger

8.8 Due to the existing urbanised nature of the site, the proposals are unlikely to have significant effects upon the local badger population, as the development itself does not provide the only foraging resource. The operational effects upon badgers are considered to be **Negligible**.

Bats

8.9 The site is surrounded by urban development and existing lighting schemes are present along all roads and around buildings. A disturbance effect upon bats is possible from the new external light of buildings, car park and footpaths which would lead to a **Significant Long-term Negative** effect at a **Local** scale.

Birds

8.10 There would be no further impacts upon birds through loss of habitat during the operational phase as the required vegetation clearance would be undertaken during construction (**Negligible** effect).

Hedgehog

8.11 As the development itself does not provide the only foraging resource in the locality effects are considered to be limited. The operational effects upon hedgehogs are considered to be **Negligible**.

Invertebrates

8.12 There would be no further impacts upon invertebrates through loss of habitat during the operational phase as the required vegetation clearance would be undertaken during construction (**Negligible** effect).

MITIGATION

During Construction

Construction Environmental Management Plan (CEMP)

8.13 A Framework CEMP has been produced. This will be developed and updated by the principal contractor to form a Detailed CEMP (secured by planning condition). Implementation of the CEMP will ensure the proposed development will sufficiently

avoid, minimise or mitigate the effects on the environment and surrounding area, in particular the nearby SINCs and the adjacent Ham Village Green. Measures to reduce noise and dust pollution are set out in Chapters 6.0: Noise and Vibration and 5.0: Air Quality and are incorporated into the CEMP.

Retained Habitats

8.14 All retained habitats will be suitably protected from disturbance through encroachment of construction activities by appropriate fencing. The root protection zone around retained trees will be fenced off prior to commencement of works to ensure that roots are not damaged (see Appendix 8.3 for further details).

8.15 The possibility of fuel and other spillages during construction will be minimised through effective and rigorous development management including a contingency plan should an accident occur. Any environmentally hazardous material used would be kept in dedicated stores and storage tanks would have appropriate bunding. In order to mitigate for the potential indirect effects of pollution caused by construction activities (including dust chemicals, silt etc) appropriate measures will be implemented in line with best practice guidelines.

Badger

8.16 Given the potential presence of badger on site and in the vicinity, best practice protection measures will be implemented and incorporated into the CEMP to ensure badgers (and other small to medium sized mammals) are protected throughout the works:

- Any trenches or deep pits within the development site that are to be left open overnight should be provided with a means of escape should a badger enter. The simplest method for this would 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.
- Any trenches/pits should be inspected each morning to ensure no badgers have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, by forming a temporary sett.
- The storage of topsoil or other 'soft' building materials on site should be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these should be kept to a minimum and any essential mounds subject to daily inspections with consideration given to temporarily fencing any such mounds to exclude badgers.
- The storage of any chemicals/liquids on site should be well away from the boundaries, and contained in such a way that they cannot be accessed or knocked over by any roaming badgers.

- Fires should only be lit in secure compounds away from areas of potential badger activity and not allowed to remain lit during the night.
- Food and litter should not be left within the working area overnight.
- The above recommendations will also ensure the protection of hedgehogs and other mammals.

Bats

8.17 Given the phased nature of the proposed development, as a minimum it is recommended that an updated bat scoping survey should be undertaken prior to the commencement of works on Phases 2 and 3. This survey will inform the requirement for updated emergence/re-entry surveys and any associated mitigation. This requirement can be secured by planning condition.

Lighting

8.18 Artificial lighting will be minimised during construction and set out in a Lighting Management Plan incorporated into the detailed CEMP. The lighting will be installed so as to not cause unnecessary light spill onto sensitive areas (e.g. Ham Village Green). This will be achieved through directional lighting and the use of hoods. There will be no uncontrolled lighting; the lighting will be switched off when not in use.

Birds

8.19 The clearance/demolition of the vegetation and buildings with nesting bird potential/confirmed nesting activity will be undertaken outside of the bird nesting season (taken to run from March to August inclusive) or after a suitably qualified ecologist has confirmed absence. Any nests recorded by the ecologist would be protected until they are no longer active (to be confirmed by an ecologist).

Hedgehog

8.20 In order to minimise the potential for killing or injuring of hedgehogs (and other small to medium sized mammals) during site clearance, removal of dense vegetation should be undertaken in two phases, by cutting to 30cm in the first instance, then to ground level after that. The vegetation should be checked for mammals by hand search between these two cuts. Should any hedgehogs be found, they should be moved to a suitable area of habitat that is not subject to clearance. Hedgehogs will also benefit from the badger mitigation discussed above.

During Operation

Landscaping

8.21 Landscaping proposals for the completed development incorporate a suite of ecological enhancements including:

- Biodiverse living roofs (3428 sqm);
- Flower rich perennial planting (18-1.08 sqm);
- Species rich SUDS planting (388.61 sqm);
- Wildflower grassland (1729 sqm);
- Green walls implemented on a trellis system;
- Planting of over 200 new trees;
- 24 integrated bird boxes targeting house sparrow and swift;
- 10 generalist bird boxes;
- 15 integrated bat boxes;
- Three stag beetle loggeries; and
- Four invertebrate habitat features.

Ecological Management Plan (EMP)

8.22 As detailed above, extensive landscaping has been proposed which incorporates multiple features of ecological value. These will be managed and implemented in accordance with an EMP (Appendix 8.5) which will ensure that ecological elements of the landscape design, and suitable management, provide continued ecological functionality, as per conservation objectives. The EMP includes:

- Required management actions ranging from general maintenance to more specific requirements for specialist enhancements such as green roofs;
- Details of timing of required management actions;
- Detail of any required monitoring requirements; and
- Allocation of management and maintenance responsibility.

Lighting

8.23 The development proposals will introduce artificial lighting at street level and from the proposed residential blocks. This increase in lighting can cause disturbance to foraging and commuting bats, as well as other wildlife in the locality. To minimise this impact measures to limit additional light disturbance, on-site and in the zone of influence of the proposed development, will be implemented. The final detailed Lighting Strategy

(secured by condition) will follow guidance provided by *The Institute of Lighting Professionals and BCT*[15] and Policy G2 - Light Pollution of the Ham and Petersham Neighbourhood Plan. This involves the use of:

- Low-UV warm-white LED Bulbs;
- Directional, downward facing and shielded lights;
- Lighting which points away from green features such as trees or areas of landscaping; and
- Lighting subject to curfew controls and movement sensors where possible.

RESIDUAL IMPACTS

8.24 Residual impacts are set out below and summarised in Table 8.3 at the end of this section.

During Construction

Designated Sites

Statutory Sites – International and National (Richmond Park)

8.25 The residual impact is consistent with the potential impact and is considered **Negligible**.

Statutory Sites – Local (LNR)

8.26 The residual impact is consistent with the potential impact and is considered **Negligible**.

Non-Statutory Sites (SINC)

8.27 The residual impact is consistent with the potential impact and is considered **Negligible**.

Habitats

8.28 Proposals will lead to the loss a number of existing habitats on site which are proposed to be replaced and enhanced through the landscaping proposals (achieving a biodiversity net gain of 23.2%, Appendix 8.4). However, there will be a **Short-term Significant Negative** effect at a **Within the Site Boundary** scale whilst habitat matures.

8.29 The effective implementation of the CEMP to manage impacts such as dust generation and deposition, in addition to noise and light disturbance, will ensure a **Negligible** impact on the site's retained habitats**.**

Species and Species Groups

Badger

8.30 With the implementation of badger protection measures then a **Negligible** overall residual effect is anticipated.

Bats

8.31 Proposals will lead to the loss of existing bat foraging habitat which is proposed to be replaced and enhanced through the landscaping proposals. However, there will be a **Short-term Significant Negative** effect at a **Within the Site Boundary** scale on foraging bats whilst this landscaping matures.

8.32 Assuming updated surveys are undertaken prior to commencement of works on Phases 2 and 3, with any relevant subsequent mitigation implemented, then a **Negligible** effect is likely to occur for roosting bats**.**

Birds

8.33 Proposals will lead to the loss of existing nesting and foraging opportunities which are proposed to be replaced and enhanced through the landscaping proposals. However, there will be a **Non-significant Short-term Negative** effect at a **Within the Site Boundary** level on foraging bats whilst this landscaping matures.

8.34 Mitigation relating to the timing of clearance works and the need for ecological supervision will be implemented during the construction phase.

8.35 The removal of nesting opportunities for ringed necked parakeet would be considered a **Non-significant Permanent Positive** effect at the **Within Site Boundary** Scale.

Hedgehog

8.36 Assuming construction phase protection measures are implemented then a **Negligible** overall residual effect is anticipated during the construction phase.

Invertebrates

8.37 Proposals will lead to the loss of existing invertebrate foraging opportunities which are proposed to be replaced and enhanced through the landscaping proposals. However, there will be a **Significant Short-term Negative** effect at a **Within the Site Boundary** scale on invertebrates whilst this landscaping matures.

During Operation

Designated Sites

Statutory Sites – International and National (Richmond Park)

8.38 **Insignificant**, as identified in the potential impacts section.

Statutory Sites – Borough (LNR)

8.39 Residual effect is considered **Negligible**, no mitigation required.

Non-Statutory Sites (SINC)

8.40 Residual effect is considered **Negligible**, no mitigation required.

Habitats

8.41 Features incorporated into the landscaping proposals (e.g green roofs, green walls and tree planting) will create a net gain in the site's biodiversity value as evidenced in the BNG assessment in Appendix 8.4 of this ES. The BNG assessment demonstrates there will be a 23.2% total net increase in ecological value post development which is above the 10% increase targeted by the emerging legislation. These habitats provided at multiple levels will maintain connectivity across the development site. Therefore, as a result of these landscaping interventions, and assuming the appropriate implementation of management measures set out in the EMP (Appendix 8.5), there will be a **Significant Permanent Positive** residual impact at a **Local** scale.

Species and Species Groups

Badgers

8.42 Residual effect is considered **Negligible**, no mitigation required.

Bats

8.43 Landscaping proposals incorporate replacement and additional tree planting and extensive biodiverse roof coverage to ensure connectivity across the development site is maintained for bats. Further to this, the provision of new bat roosting features in buildings and trees on site, alongside a sensitively designed lighting strategy, will enhance the value of the development site for bats. The overall residual effect is likely to be **Significant Permanent Positive** at the **Within Site Boundary** scale.

Birds

8.44 There would be no further impacts upon birds through loss of habitat during the operational phase as the required vegetation clearance would be undertaken during construction. Proposed landscaping provides additional nesting and foraging opportunities for bird species in the area, including Section 41/BAP species. This would be considered a **Significant Permanent Positive** effect at the **Local** scale.

Hedgehog

8.45 Residual effect is considered **Negligible**, no mitigation required.

Invertebrates

8.46 Proposed landscaping provides additional opportunities for invertebrate species in the area, including Section 41/BAP species. This would be considered a **Significant Permanent Positive** effect at the **Local** scale.

Summary

Table 8.3 Summary of Residual Impacts and Mitigation

Description of Impact/Receptor	Mitigation/ Enhancement	Residual Impact
During Construction		
Statutory Designated Sites	None-required.	Negligible (Not Significant)
Non-statutory Designated Sites	None required. Implementation of detailed CEMP including measures to control dust (secured by planning condition).	Negligible (Not Significant)
Habitats	The existing habitats will largely be replaced as part of the landscaping design proposals. Implementation of detailed CEMP including measures to control noise, dust and pollutants (secured by planning condition).	Short-term Negative (Significant, Within development footprint) Negligible (Not Significant, Outside development footprint)
Badger	Implementation of construction phase protection measures (incorporated into detailed CEMP)	Negligible (Not Significant)
Bats	Updated surveys prior to commencement of Phases 2 and 3.	Short-term Negative (Significant, Foraging) Negligible (Roosting)
Birds	Clearance/demolition of the vegetation and buildings undertaken outside of bird nesting season or after a suitably qualified ecologist has confirmed absence.	Short-term Negative (Significant, Native species) Permanent Positive (Significant, Invasive non-native species)
Hedgehog	Implementation of construction phase protection measures (incorporated into detailed CEMP)	Negligible (Not Significant)

Invertebrates	Implementation of construction phase protection measures (incorporated into detailed CEMP)	Short-term Negative (Significant)
During Operation		
Statutory Designated Sites	None required	Insignificant
Non-statutory Designated Sites	None required	Negligible (Not Significant)
Habitats	Landscaping design and implementation of EMP	Permanent Positive (Significant)
Badgers	None required	Negligible (Not Significant)
Bats	Provision of new bat roosting features in buildings and trees on site will compensate and enhance the on site roosting opportunities. Sensitively designed lighting strategy.	Permanent Positive (Significant)
Birds	Landscaping provides additional nesting and foraging opportunities for bird species in the area, including Section 41/ BAP species.	Permanent Positive (Significant)
Hedgehog	None required	Negligible (Not Significant)
Invertebrates	Landscaping design and implementation of EMP	Permanent Positive (Significant)

CUMULATIVE IMPACTS

During Construction

8.47 The majority of residual impacts at the construction stage are anticipated to be Negligible and therefore there is no potential for cumulative impacts. There may be **Short-term Negative** effects for a number of receptors on site whilst landscaping matures. However, cumulative effects are not anticipated owing to the separation distances between the site and the cumulative schemes listed in Chapter 11.0.

During Operation

8.48 The landscaping associated with the proposed development is anticipated to have a **Permanent Positive** impact which should be replicated across the cumulative developments (set out in Chapter 11.0: Cumulative Impacts) in accordance with relevant planning policy and emerging legislation.

SUMMARY AND CONCLUSION

8.49 The development site was identified as being of potential value to a number of ecological receptors including, bats, badgers, nesting birds, hedgehogs and invertebrates. In addition, a number of designated sites were identified in the development site's vicinity which would potentially be impacted by the development proposals.

8.50 Mitigation actions have accordingly been recommended and included within the proposals to ensure any residual impacts are fully avoided or compensated for. Subject to the undertaking of these actions detailed within this Chapter, the proposed development is likely to comply with all legislation and planning policy with regards to ecology.

8.51 If the recommended ecological enhancement measures are incorporated into the scheme, the overall proposed development is predicted to have a **Permanent Positive** impact on **Local** biodiversity. The BNG assessment demonstrates there will be a 23.2% total net increase in ecological value post development which is above the 10% increase targeted by the emerging legislation.

REFERENCES

1 HM Government, (1994); The Conservation (Natural Habitats, &c.) Regulations. HMSO
2 CEC (Council of the European Communities), (1992); Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
3 The European Parliament And Of The Council, (30 November 2009); Directive 2009/147/EC On The Conservation Of Wild Birds (Codified Version)
4 Environment Act (2021)
5 UK Biodiversity Action Plan (2007). UKBAP Priority Species and Habitats. http://www.ukbap.org.uk/newprioritylist.aspx
6 JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012). UK Post-2010 Biodiversity Framework. July 2012. Available from: http://jncc.defra.gov.uk/page-6189
7 Defra (2011). Biodiversity 2020: A strategy for England's wildlife and ecosystem services
8 Convention on Biological Diversity (CBD) (2010). Decision X/2 Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets. Available at https://www.cbd.int/decision/cop/?id=12268
9 European Commission (2012). Our life insurance, our natural capital: an EU biodiversity strategy to 2020 European Parliament resolution of 20 April 2012 on our life insurance, our natural capital: an EU biodiversity strategy to 2020 (2011/2307(INI))
10 MAGIC (2021); Interactive Map. (Partnership project involving six government organisations: Defra (Department for Environment, Food and Rural Affairs); English Heritage; Natural England; Environment Agency; Forestry Commission; Department for Communities and Local Government). Available at: www.magic.gov.uk.
11 Joint Nature Conservation Committee (JNCC) (2010) Handbook for Phase 1 Habitat Survey
12 Stace, C. (2010) New Flora of the British Isles
13 Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust 3 edn
14 Chartered Institute of Ecology and Environmental Management (2016). Guidelines for Ecological Impact Assessment in the United Kingdom http://www.cieem.net/ecia-guidelines-terrestrial-
15 Bat Conservation Trust (2018) Artificial Lighting Guidance Note