Stag Brewery, Mortlake

Ecology EIA Report

For Reselton Properties

February 2018

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

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Comments

Comments

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Contents

Figures

Figures
Appendices

1. Introduction

This ecology EIA report has been prepared by Waterman Infrastructure and Environment Ltd (Waterman IE) on behalf of Reselton Properties Limited ('the Applicant') in relation to three linked planning applications for the comprehensive redevelopment of the former Stag Brewery site in Mortlake and land at Chalkers Corner ('the Site') within the London Borough of Richmond Upon Thames ('LBRuT').

This report presents the assessment of the likely significant effects on terrestrial ecology and nature conservation features associated with the proposed demolition, alteration, refurbishment and construction works ('the Works'), and once the Development is completed and operational (see below for a definition of the Development). This report comprises the Environmental Statement (ES) Chapter and associated figures and appendices.

1.1 Report Context and Approach

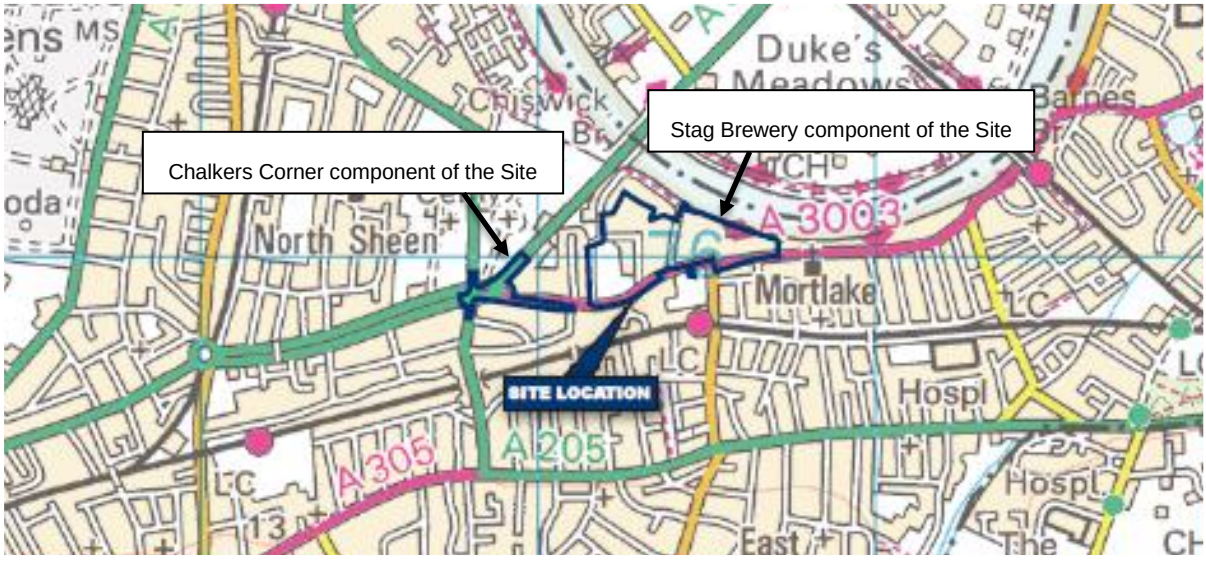
The Development is considered as EIA Development under Schedule 2, Category 10(b) (urban development projects) of the Town and Country Planning (Environmental Impact Assessment) Regulations, 2011 (as amended 2015)[1].

The ES reports the key findings of the EIA process undertaken for the Development and accompanies all three Planning Applications (as described below). At the request of the LBRuT, standalone reports have been provided, but do not differ from those contained within the ES. Justification as to the scope of the ES is summarised in ES Chapter 2: EIA Methodology. Further information on the description of the existing Site and surrounds, the proposed Development, the Works, alternatives and design evolution, and cumulative effects are provided in the ES.

1.2 Site Context and Development Proposals

The location of the Site is shown in Figure 1 below and comprises two components referred to as the 'Stag Brewery component of the Site' and the 'Chalkers Corner component of the Site'.

Figure 1: Site Location



The Stag Brewery component of the Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High

[1] HMSO (2015) Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended 2015).

Street) to the west. The Stag Brewery component of the Site is bisected by Ship Lane. The Stag Brewery component of the Site currently comprises a mixture of large scale industrial brewing structures, large areas of hardstanding and playing fields. The Chalkers Corner component of the Site comprises highway and associated landscaping referred to as Chalkers Corner junction which includes the junction with the A316 (Clifford Avenue, A3003 (Lower Richmond Road) and A205 (South Circular). Refer to ES Chapter 3: Existing Site and land uses for further information.

The redevelopment will provide homes (including affordable homes), accommodation for an older population, complementary commercial uses, community facilities, a new secondary school alongside new open and green spaces throughout. Associated highway improvements are also proposed, which include works at Chalkers Corner junction. The proposed floorspace of the Development (made up of the three planning applications) is provided in Table 1 below. Refer to ES Chapter 5: The Proposed Development for further information on the Development. The Works would be carried out over a period of approximately 8 years, anticipated to commence in June 2019 and complete in September 2027 (as set out in ES Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction).

Table 1: Proposed Floorspace of the Development

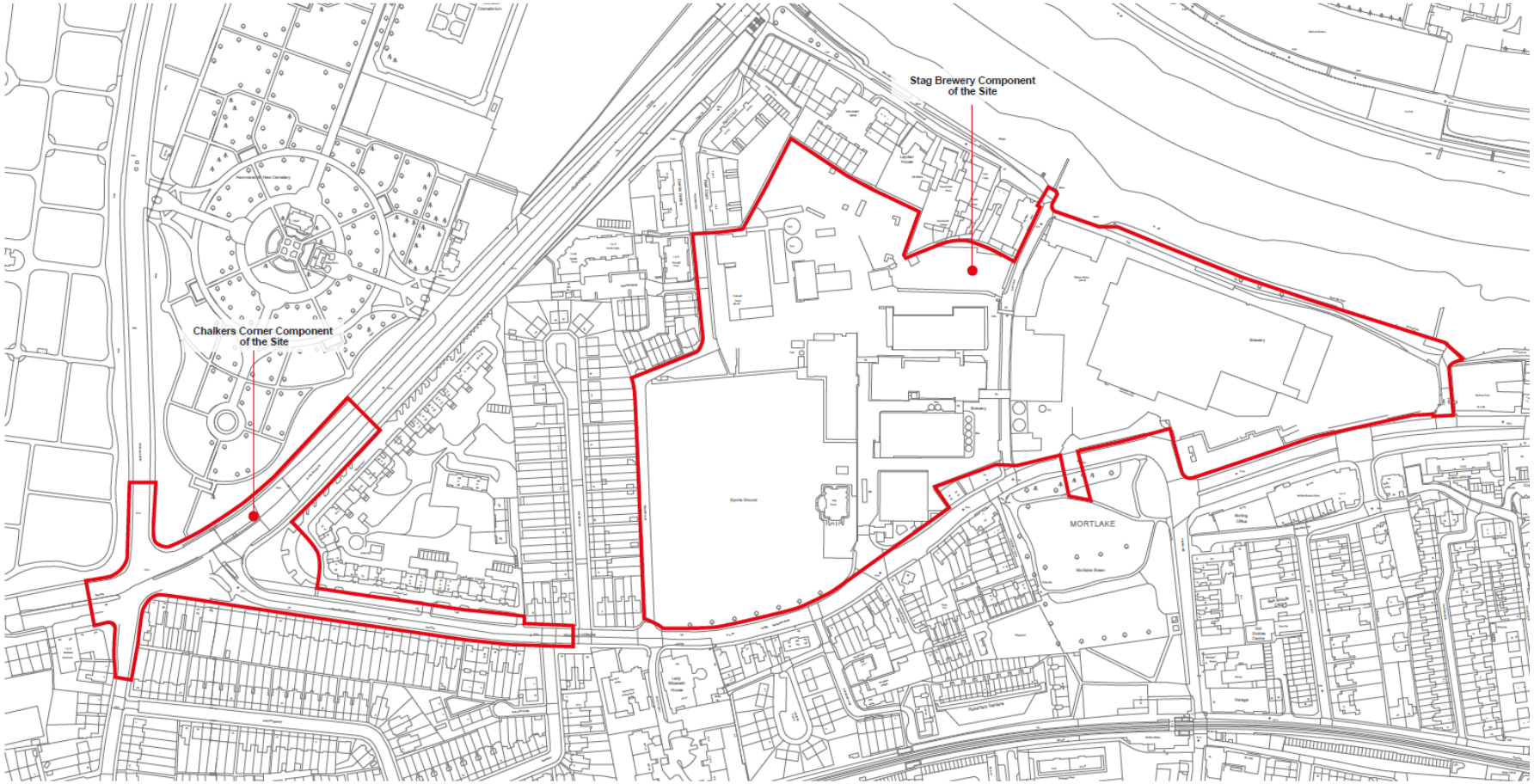
Land Use and Class	Floorspace Area (m^2)	
	Gross External Area (GEA)	Gross Internal Area (GIA)
Residential (Use Class C3, excluding assisted living)	Up to 84,639 (Up to 667 units)	Up to 75,119 (Up to 667 units)
Office (Use Class B1) (including Site management office)	2,674	2,457
Cinema (Use Class D2)	2,565	2,120
Gym (Use Class D2)	912	740
Flexible Uses - Restaurant / bar / retail / community / boathouse (Use Classes A1 / A2 / A3 / A4 / B1 / D1 / Boathouse)	5,308*	4,664*
Hotel (Use Class C1)	1,858	1,668
Assisted Living (Flexible Use Class C2 / C3)	Up to 16,246	Up to 14,738
Nursing and Care Home (Use Class C2)	Up to 10,293	Up to 9,472
School (Use Class D1)	11,430	9,319
Plant and storage.	Up to 4,536 (+ Plant and storage included in school)	Up to 4,244 (+ 249 included in school)
Car parking spaces.	Up to 708 spaces	Up to 708 spaces
Cycle parking spaces.	Up to 1,611 spaces	Up to 1,611 spaces
Basement residential access / circulation	1,868	1,810
Private amenity space.	Up to 5,912	Not applicable
Public amenity space (including external and internal play space for residents and school play space).	Up to 38,943	Not applicable
Play space (including external and internal play space for residents and school play space).	Up to 14,353	Not applicable

The three planning applications are as follows:

- Application A – hybrid planning application for comprehensive mixed use redevelopment of the Stag Brewery component of the Site consisting of:
  - Land to the east of Ship Lane applied for in detail (referred to as 'Development Area 1' throughout); and
  - Land to the west of Ship Lane (excluding the school) applied for in outline detail (referred to as 'Development Area 2' throughout).
- Application B – detailed planning application for the school (on land to the west of Ship Lane within the Stag Brewery component of the Site).
- Application C – detailed planning application for highways and landscape works at Chalkers Corner.

The three Planning Applications are separate applications, but will be linked through a S106 agreement to ensure that the Application B (school) land is handed over at an appropriate time and that the Application C (Chalkers Corner) works are carried out at an appropriate stage in conjunction with either Application A or B. For the purposes of assessment, all three Planning applications are therefore considered together as one comprehensive redevelopment proposal. As such, for the purposes of the EIA and ES, the proposals defined by the Planning Applications are collectively referred to as the 'Development'. Similarly, the collective parcels of land associated with the Planning Applications are referred to as the 'Site', as shown on Figure 2.

Figure 2: The Site for the Purposes of the EIA



2. Assessment

13. Ecology

Introduction

13.1. This Chapter, prepared by Waterman Infrastructure and Environment (IE), presents an assessment of the likely significant effects of the Development on terrestrial ecology and nature conservation features.

13.2. A description of the approach and methodology adopted for this assessment is presented in this Chapter. This is followed by a description of the ecological baseline conditions and an assessment of the likely significant effects of the Development during demolition, alteration, refurbishment and construction works ('the Works') and once the Development is completed and operational on the Important Ecological Features (IEFs) that have been scoped into this assessment.

13.3. Mitigation measures are identified where appropriate to avoid, reduce or offset any significant adverse ecological effects identified and enhancement measures are also presented to maximise, where practicable, beneficial ecological effects. Considering the mitigation and enhancement measures, the nature of the likely residual effects are then described.

13.4. The Chapter is supported by the following appendices:

- **Appendix 13.1**: Preliminary Ecological Appraisal (PEA);
- **Appendix 13.2**: Protect Species Report (PSR); and
- **Appendix 13.3**: Water Framework Directive screening request and response.

13.5. It should be noted that via consultation with the Environment Agency (EA) no Water Framework Directive (WFD) Assessment was deemed necessary for the Development. Further details can be obtained by reference to **Appendix 13.3**.

Assessment Methodology and Significance Criteria

Assessment Methodology

Methods of Baseline Data Collection

Ecological Data Search

13.6. An ecological data search undertaken as part of the PEA (refer to **Appendix 13.1**) was requested from eCountability / Greenspace Information for Greater London (GIGL)[1] in January 2016 where existing records were obtained for protected species and / or other notable fauna and flora, together with records of important statutory and non-statutory designated sites located within 2 km of the Site. Statutory sites were also searched for on the Multi-Agency Geographic Information for the Countryside maps (MAGIC map)[2] and aerial photography for the area was also reviewed.

13.7. The aim of an ecological data search is to collate existing ecological records for the Site and denoted Zone of Influence (ZoI) for the anticipated likely significant effects from the Development.

13.8. In addition to the above, Habitats of Principal Importance (HoPI) and Species of Principal Importance (SoPI) listed under Section 41 of the NERC Act[3], as well as Habitat Action Plans (HAPs) and Species Action Plans (SAPs) listed under the London Biodiversity Action Plan (LBAP)[4] and the London Borough of Richmond upon Thames (LBRuT) Biodiversity Action Plan (RBAP)[5] were reviewed to assign an ecological context to the Site.

'Extended' Phase 1 Habitat Survey

13.9. An 'Extended' Phase 1 Habitat Survey was undertaken on 15th February 2016 for the Stag Brewery component of the Site and on 11th April 2017 for the Chalkers Corner component of the Site using the Joint Nature Conservancy Council (JNCC, 2010)[6] standard 'Phase 1' survey technique to identify habitats on the Site. All habitat types within the Site were mapped with target notes where appropriate. The Phase 1 Habitat Survey methodology was 'Extended' by undertaking an assessment of the Site's potential to support protected and / or notable species. Adjacent habitats were also viewed to assess the Site within the wider context, and to provide information with which to assess the likely significant effects of the Development.

13.10. Further details of the 'Extended' Phase 1 Habitat Survey, including the invasive plant species assessment and external ground based preliminary roost inspections for bats are provided in **Appendix 13.1**.

Internal Preliminary Bat Roost Inspections of Buildings

13.11. On the 13th June 2016, an internal preliminary roost inspection for bats was undertaken at building B10 (refer to **Figure 13.1**). The survey was led by an experienced ecologist who holds a Natural England Bat Licence (Class 2). Due to specific surveying constraints (refer to **Appendix 13.2**), no internal preliminary roost inspections were undertaken at B8, B12, B13 and B14.

Bat Emergence / Re-entry Surveys

13.12. In line with best practice guidelines[7], evening emergence and dawn re-entry surveys (separated by more than 24 hours, where applicable) were undertaken on those buildings (B8, B10, B12, B13 and B14 on **Figure 13.1**) and trees (those in the south of Watney's Sports Ground playing fields, circled in orange on **Figure 13.1**) where bat potential had been identified as part of the preliminary roost inspections, to determine the presence / likely absence of roosting bats.

13.13. The evening emergence surveys were undertaken during optimum weather conditions and commenced at least 15 minutes prior to sunset and extended to between 1.5-2 hours thereafter or until it was too dark to see emerging bats, whilst the dawn re-entry survey commenced 1.5 hours before sunrise and extended 15 minutes thereafter if considered necessary. Surveyors were situated so that all potential bat roosting features could be viewed. A record of all bat activity (i.e. commuting, foraging, social calls) during the surveys was noted.

13.14. All bat surveys were undertaken in optimal weather conditions, i.e. wind levels below 4 on the Beaufort wind force scale, the absence of prolonged rain and above 10°C in temperature as per best practice guidelines. Table 1 within **Appendix 13.2** provides a summary of the bat emergence and re-entry surveys undertaken.

Bat Activity Surveys

13.15. To determine the use of the habitats along the northern Site boundary adjacent to the River Thames, three bat activity surveys were undertaken in accordance with the scope agreed with LBRuT (refer to **Appendix 13.1 and 13.2**).

13.16. The evening activity surveys commenced from sunset to two hours thereafter and the dawn activity survey was undertaken in reverse. A pair of surveyors followed a pre-determined transect route along the north boundary of the Site which lies adjacent to the River Thames (refer to **Figures 13.2, 13.3** and **13.4** and **Appendix 13.2**).

13.17. All surveys were undertaken in appropriate weather conditions and within the recognised optimal bat active season (May to September) for activity surveys at a Site of this nature. Table 2 within **Appendix 13.2** provides a summary of the bat activity surveys undertaken.

Automated Detector Bat Surveys

13.18. To supplement the bat activity data, an automated bat detector (Model Number: SM2BAT+) was placed on a wall at the northern boundary of the Stag Brewery component of the Site (with the microphone facing the River Thames, refer to **Figures 13.2, 13.3** and **13.4**) for five nights on three separate occasions, in accordance with the scope agreed with LBRuT (refer to **Appendix 13.1 and 13.2**). The automated detectors were set to record all night and were programmed to record from 30 minutes prior to sunset until 30 minutes post sunrise. Table 3 within **Appendix 13.2** provides a summary of the automated bat detector surveys undertaken.

Bat Data Analysis

13.19. All bat survey work was undertaken using time expansion (Pettersson D240X and SM2BAT+) bat detectors with data recorded onto solid state MP3 recorders (where applicable). This survey equipment is considered suitable for detecting all resident species of UK bats. Recorded bat calls were later analysed (using parameters stated within Russ 2012[8]) where appropriate using BatSound 4.1.2b and Analook software.

Black Redstart Surveys

13.20. A series of five black redstart surveys, occurring approximately every fortnight, were carried out between 13th May and 29th June 2016 to ascertain the status of this species at the Site and adjacent habitats (a c.25 m buffer around the Site was surveyed) (refer to Table 4 in **Appendix 13.2**). The methodology broadly followed the industry standard for this species as outlined in 'Bird Monitoring Methods'[9]. Each survey commenced between dawn and sunrise as this is the period when black redstarts are the most vocal and therefore most likely to locate.

Assessment Process Criteria

13.21. This assessment was undertaken with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for ecological impact assessments (the 'Guidelines')[10]. Although is the Guidelines are recognised as current industry guidance, they are also recognised as not being a prescriptive tool for carrying out ecological assessments. As such, the Guidelines: "provide guidance to practitioners for refining their own methodologies".

Important Ecological Features and Zone of Influence

13.22. Based on baseline data collection, ecological features (habitats, species, ecosystems and their functions / processes) that are considered to be 'important' and have the potential to be significantly affected by the Development have been identified as Important Ecological Features (IEFs) for assessment within this Chapter. Ecological features can be important for a variety of reasons with importance relating to, for example, the quality or extent of designated sites or habitats, to habitat / species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline.

13.23. To identify IEFs for the purposes of this assessment, professional judgement and experience was used, informed by the results of the baseline data collection for the Site. Consideration was given to habitats and species for nature conservation, such as designated sites, Biodiversity Action Plan (BAP) lists, red listed, rare and legally protected species. When an ecological feature is not listed, consideration was given to population, diversity and key functional role and connectivity within the wider environment. Details of the ecological features that are not considered 'important' or unlikely to be significantly affected by the Development (because of being sufficiently widespread, unthreatened and / or resilient habitats or species, insufficient size or diversity for example) have not been assessed within this Chapter. This is because, in line with the EIA Regulations[11], the assessment focuses on the likely significant effects of the Development. However, ecological features which are not considered 'important' are discussed further in the PEA and PSR (refer to **Appendices 13.1** and **13.2**).

13.24. In summary, ecological features either scoped in (and would therefore qualify as IEFs) or out of this assessment are detailed in **Table 13.1**.

Table 13. 1: Ecological Features Scoped in / out of the Assessment

Ecological Feature	Scoped In or Out?	Rationale
Designated Sites (River Thames and Tidal Tributaries SINC).	In.	In the absence of mitigation, indirect effects to the River Thames and Tidal Tributaries Site of Importance for Nature Conservation (SINC) could occur as a result of the Development.
On-Site habitats (all).	Out.	All habitat types recorded on-Site are commonly found locally and nationally and not assessed to be of geographical or legal importance. The Development is highly unlikely to give rise to significant effects upon such ecological features.
Roosting bats.	Out.	No roosting bats were found during the emergence / re-entry surveys. As such, the Development is highly unlikely to give rise to significant effects upon roosting bats.
Foraging and commuting bats.	In.	In the absence of mitigation, indirect effects to commuting and foraging bats along the River Thames could occur as a result of the Development.
Black redstart.	Out.	No black redstarts were found during surveys in 2016. As such, the Development is highly unlikely to give rise to significant effects to black redstarts.
Breeding birds.	Out.	The Development is highly unlikely to give rise to significant effects to breeding birds, however legal implications are required and detailed within the PSR (**Appendix 13.2**).

Ecological Feature	Scoped In or Out?	Rationale
Terrestrial invertebrates.	Out.	The Development is highly unlikely to give rise to significant effects upon invertebrates.
Invasive species.	Out.	No invasive species were identified on Site. Species listed under the London Invasive Species Initiative (LISI) were recorded at the Site but are not assessed to of geographical or legal importance. As such, the Development is highly unlikely to result in significant effects from invasive species.

13.25. The ZoI is the area in which IEFs would be affected by biophysical changes caused by the Development. The ZoI was determined through a review of baseline conditions, consideration of the wider local environment, and consideration of the type of development proposed.

13.26. To establish whether the IEFs would be significantly affected by the Development, consideration was given to whether the IEF would be directly affected (such as habitat loss) or indirectly through a potential pathway (such as the IEF being affected by emissions to air, soil or water). The area of the ZoI was defined using the criteria set out in **Chapter 2: EIA Methodology**.

- **'local'** effects are those affecting neighbouring receptors;
- **'district'** effects are those which are likely to occur to receptors within the wider Borough of the LBRuT;
- **'sub-regional'** effects are those affecting Boroughs adjacent to LBRuT; and
- **'regional'** effects are those affecting receptors across Greater London.

13.27. The ZoI for each IEF assessed within this Chapter is set out in **Table 13.2**.

Table 13.2: Important Ecological Feature Zone of Influence

Important Ecological Feature	ZoI
Designated Sites (River Thames and Tidal Tributaries SINC).	Local.
Foraging and Commuting Bats.	Local.

Evaluation to Determine Importance

13.28. Under the Guidelines the importance (value) of each IEF was considered within a defined geographical context, as follows:

- international and / or European value;
- national value;
- regional value;
- metropolitan, county, vice-county or other local authority-wide area value; and
- local value.

Designated Sites

13.29. In respect of the above, some ecological sites have already been assigned a level of nature conservation value via designation, and the Guidelines recommend that the reasons for this designation need to be considered in the assessment. Such designations include:

- internationally important sites such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites;
- nationally important sites such as Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs); and
- county / Local Authority important sites such as SINCs.

Habitats

13.30. The Guidelines recommend that the value of habitats and plant communities should be measured against published selection criteria where available. Where areas of a habitat or plant community do not meet the necessary criteria for designation at a specific level, the Guidelines recommend that the suitably qualified assessor (ecologist) may consider the local context if appropriate.

Species

13.31. The Guidelines deal with species that need to be assessed because they are of biodiversity value, rather than because they are legally protected (although some species may fit in to both categories). In assigning value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. The valuation of populations should make use of any relevant published evaluation criteria.

Assessment of Likely Significant Effects

13.32. Adverse and beneficial effects on IEFs were identified via a qualitative assessment using professional judgement and experience, based on predicted changes as a result of the Development. To establish the likely significant effects of the Development on IEFs, the assessment takes account of the following parameters:

- the importance (value) of an ecological feature (as described above);
- magnitude of the effect;
- the spatial extent or the ZoI (refer to **Table 13.2**) over which the effect would occur;
- the temporal duration of the effect (short, medium and long term);
- whether the effect is reversible and over what timeframe; and
- the timing and frequency of the effect.

Assessment Criteria

13.33. In accordance with the Guidelines, the assessment identifies adverse and beneficial effects of the Development which would be ‘significant’ based on the structure, function and conservation status of the IEF. The Guidelines defines an ecologically significant effect as:

"… *an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general…*".

13.34. The conservation status of habitats and species within a defined ZoI is described in the Guidelines as follows and was used in this assessment to determine whether the likely effects of the Development on non-designated habitats and species are likely to be significant:

- for habitats, *"… conservation status is determined by the sum of influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area…";* and
- for species, *"… conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area…".*

Significance Criteria

13.35. Once a likely effect is identified as 'significant', as described above, for the purposes of the EIA and in accordance with the general methodology of the EIA described in **Chapter 2: EIA Methodology**, the likely significant effect on an IEF is assigned a level of significance, based on the significance criteria set out in **Table 13.3**. Where the likely effect is identified as 'not significant' in accordance with the Guidelines, for the purposes of this assessment, is described as 'insignificant'. The significance criteria used for the purposes of this assessment was established using professional judgement and experience, taking into account the value of IEF, together with the extent, structure and functions of a habitat and abundance and distribution of species.

Table 13.3: Significance Criteria

Level of Significance	Description
Beneficial effect of major significance.	Considerable beneficial effect (by extent, duration or magnitude) on an IEF of greatest sensitivity or in breach of recognised acceptability, legislation, policy or standards.
Beneficial effect of moderate significance.	Moderate beneficial effect (by extent, duration or magnitude) on an IEF of greater sensitivity.
Beneficial effect of minor significance.	Slight, very short or localised beneficial effect on an IEF of lesser sensitivity.
Insignificant.	No discernible change to the value of an IEF would arise from the Development.
Adverse effect of minor significance.	Slight, very short or localised adverse effect on an IEF of lesser sensitivity.
Adverse effect of moderate significance.	Moderate adverse effect (by extent, duration or magnitude) on an IEF of greater sensitivity.
Adverse effect of major significance.	Considerable adverse effect (by extent, duration or magnitude) on an IEF of greatest sensitivity or in breach of recognised acceptability, legislation, policy or standards.

Baseline Conditions

13.36. The existing baseline conditions detailed below are provided for the IEFs that have been scoped into this assessment as detailed in **Table 13.1**. A summary of the habitats present at the Site is also provided for completeness and context.

Site Summary

13.37. The Site currently comprises a large former brewery complex (part of the Stag Brewery component of the Site) and a road junction known as Chalkers Corner (the Chalkers Corner component of the Site). The brewery complex is dominated by buildings and hard standing. Other habitats present at the Site include Watney's Sports Ground playing fields, amenity grassland, trees, ornamental planting, a hedge, scattered trees and ephemeral vegetation (refer to **Figure 13.1**). The Site is bounded by a mix of uses and areas, with the River Thames bounding the north east of the Stag Brewery component of the Site and Fulham (North Sheen) Cemetery bounding the north of the Chalkers Corner component of the Site.

Statutory Designated Sites

13.38. The Site itself is not subject to any statutory designations. However, the River Thames and Tidal Tributaries SINC is located adjacent to the northern boundary of the Stag Brewery component of the Site. Full citations of this SINC are detailed in **Appendix 13.1**.

13.39. The section of river that flows adjacent to the Site is tidal and the banks adjacent to the footpath are heavily modified being reinforced by stone and concrete. A small boat landing stage also fronts on to the River Thames at the top of Ship Lane adjacent to the northern boundary of the Stag Brewery component of the Site. A disused wharf is also situated within the north east of the Stag Brewery component of the Site with limited access via Bulls Alley. The banks of the River Thames comprise gravel and gently slope to the water's edge and support limited aquatic vegetation. The River Thames is of value to fish, birds and invertebrates, as well as acting as a wildlife corridor. The EA's closest and most recent river quality data[12] set for biology and chemistry indicates that the current ecological quality of the River Thames is 'Moderate'. The River Thames and Tidal Tributaries SINC is considered to be of **Metropolitan** value.

Commuting and Foraging Bats

13.40. The desk study results provided numerous records of bats within 2 km of the Site (refer to **Appendix 13.1**). The closest bat record provided is located approximately 330 m north of the Site (2005).

13.41. Species included:

- serotine (Eptesicus serotinus);
- myotis Myotis sp.;
- pipistrelle Pipistrellus sp.;
- brown long-eared bat Plecotus auritus;
- Natterer's bat Myotis nattereri;

- soprano pipistrelle Pipistrellus pygmaeus;
- Daubenton's bat Myotis daubentonii;
- Leisler's bat Nyctalus leisleri;
- noctule Nyctalus noctula;
- Nathusius's pipistrelle Pipistrellus nathusii; and
- common pipistrelle Pipistrellus pipistrellus.

13.42. During the bat activity surveys in 2017 (refer to **Appendix 13.2**), common pipistrelle and soprano pipistrelle were the only species recorded utilising the habitats associated with and adjacent to (i.e. the River Thames) to the northern boundary of the Stag Brewery component of the Site. It is also noted at a single commuting serotine and foraging noctule were recorded over the River Thames during the dawn re-entry survey conducted on 20th July 2016.

13.43. A total of five confirmed bat species were recorded by the automated detectors deployed at the Site (refer to **Appendix 13.2**) in 2017, namely common pipistrelle, soprano pipistrelle, noctule, serotine and Leisler's. In addition, at least two more species from the long-eared and myotis family were also recorded. Nearly all of the bat recordings from the automated detectors were of common and soprano pipistrelle (98.03% when combined) which is consistent with the results of the bat activity surveys. Noctule, serotine, Leisler's and long-eared species were also recorded on the automated bat detectors but in very low registrations.

13.44. Given the results of the bat surveys undertaken it is assessed that the habitats at the Site and adjacent to (i.e. the River Thames) to the northern boundary of the Stag Brewery component of the Site are used on a sporadic basis by urban bat species typically associated to be non-light sensitive (excluding long-eared and myotis species). The results of the bat activity and automated survey has demonstrated that bat activity is low at and adjacent to the northern boundary of the Stag Brewery component of the Site (i.e. the River Thames) and it is more readily used for commuting. However, bat species were recorded in good diversity with five identified to species level and a confirmed further two species present that could only be identified to family level. Bats are therefore assessed to be of **Local** value within and adjacent to the northern boundary of the Stag Brewery component of the Site, particularly with respect to the River Thames.

Likely Effects

The Works

Direct Effects to Designated Sites

13.45. The Works would not have a direct effect on the River Thames and Tidal Tributaries SINC. This is because the Works would be confined to the Site boundary (including the works to the river wall which would be behind the existing river wall). As such, the likely residual direct effect to River Thames and Tidal Tributaries SINC would be **insignificant**.

Indirect Effects to Designated Sites

13.46. There would potentially be an increase in dust and noise pollution, and vibration from demolition and construction activities during the Works (refer to **Chapter 9: Noise and Vibration** and **Chapter 10: Air Quality**) which has a low risk of disturbing faunal species and coating plant leaves within the SINC. In addition, there would be an increase in light spill and glare from temporary artificial lighting installed to facilitate the Works with the potential to indirectly disturb bat behaviour.

13.47. As detailed in **Chapter 11: Ground Conditions and Contamination** and **Chapter 5: The Proposed Development**, the new river wall would be formed within the north of the Stag Brewery component of the Site. This would comprise a sheet pile wall extending to -1m Above Ordnance Datum (AOD). Such intrusive works may mobilise contamination in the Made Ground, and create a pollutant pathway for contaminants to migrate to and impact the River Thames. The risk to the River Thames is therefore increased for the piling river wall works, in comparison to activities undertaken within the wider Site.

13.48. In the absence of mitigation, indirect effects such as dust, noise, vibration, surface water run-off and lighting may occur during the Works. The likely significant effect to the River Thames and Tidal Tributaries SINC would be **temporary**, **short** to **medium-term**, **local**, **adverse effect** of **moderate significance**.

Direct Effects to Commuting and Foraging Bats

13.49. Bats using the northern boundary of the Site and directly adjacent to the River Thames for foraging and commuting are considered unlikely to be directly affected during the Works given the retention of these areas. Some pruning of understorey vegetation to open key views would be undertaken along the towpath. However, this would not have a significant effect on bats. The loss of habitats within the remainder of the Site would not adversely impact bats given their limited value to bats. As such, the likely residual direct effect to bats would be **insignificant**.

Indirect Effects to Commuting and Foraging Bats

13.50. In the absence of mitigation, indirect effects to foraging and commuting bats along the River Thames including disturbance via increased noise and vibration, and lighting is likely to occur given the works to the river wall. Whilst it is proposed that the Works would be undertaken during daylight hours and therefore unlikely to affect bats, should night-time working be required, the effects of this would be temporary only and so it is considered that there would be a **temporary**, **short** to **medium-term, local**, **adverse effect** of **minor significance** to bats.

Completed Development

Direct Effects to Designated Sites

13.51. The completed Development is considered to have no direct impact on the River Thames and Tidal Tributaries SINC. As such, the likely residual effect to the River Thames and Tidal Tributaries SINC would be **insignificant**.

Indirect Effects of Public Disturbance to Designated Sites

13.52. During the operational phase of the Development, the River Thames and Tidal Tributaries SINC could potentially be adversely impacted by increased public disturbance as a result in a change in surrounding land use (i.e. residential use). However, the River Thames is already well used for recreational purposes, including heavy boat use adjacent to the northern boundary of the Stag Brewery component of the Site, and as such the effect is considered to be insignificant. Furthermore, the provision of green space within the Development design would provide amenity space for the future residents, alleviating pressure on the adjacent non-statutory sites. As such, the likely residual effects of public disturbance to the River Thames and Tidal Tributaries SINC are **insignificant**.

Indirect Effects of Lighting to Designated Sites

As detailed in the indicative lighting strategy prepared by Michael Grub Studio (submitted as a standalone document in support of the Planning Applications), the proposed River Terrace would be subject to low level lighting. High level lighting has been avoided in this part of the Site so that light spill upon the River Thames is avoided. A small amount of lighting would be implemented to the steps that lead down to the towpath for safety reasons. However, the lighting used would have no glare or upward spill and therefore light spill upon the River Thames would be minimal. The internal lighting for the buildings fronting the river has not been designed at this stage. The uses on ground floor are flexible with residential uses on upper floors. The final lighting design will be mindful of light spill to the river and levels will comply with the suggestions of the Institute of Lighting Professionals (ILP) and not exceed 5 Lux post curfew. Furthermore, the floodlighting for the proposed sports pitch would be located too far from any designated sites to have a significant effect. As such, the likely residual effects of lighting to the River Thames and Tidal Tributaries SINC are **insignificant**.

Indirect Effects of Overshadowing to Designated Sites

13.53. As detailed in **Chapter 18: Daylight, Sunlight, Overshadowing and Light Pollution**, the results of the sunlight amenity assessment has shown that all amenity areas surrounding the Site would experience direct sunlight across more than 50% of their area for 2 hours or more on the 21st of March or see a reduction of less than 20% from the existing level. The Development does cause some shadow to the towpath, however, it should be noted that the existing buildings on Site already cause a level of overshadowing in the afternoon. The buildings within the Stag Brewery component of the Development (East of Ship Lane) have been designed to have gaps facing onto the towpath in order to allow a good level of direct sunlight to penetrate. As such, levels of overshadowing would be less than in the baseline condition at specific times during the day. The likely significant effect of overshadowing to existing surrounding amenity areas (i.e. the River Thames) once the Development is completed is therefore **insignificant**.

Indirect Effects of Pollution to Designated Sites

13.54. As detailed in **Chapter 11: Ground Conditions and Contamination**, the Development does not propose any land uses that would be classified as hazardous. In addition, the drainage system would be designed to incorporate drainage solutions such as interceptors, filters or silt traps to

avoid the discharge or any fuels of oils associated with the three proposed drainage outfalls to the River Thames (refer to **Chapter 12: Water Resources and Flood Risk**). Such inherent design features of the Development would likely reduce the silt and oil deposition into the River Thames when compared to the existing situation. As such, the likely significant effect of pollution to the River Thames and Tidal Tributaries SINC would be a **long-term**, **local**, **beneficial effect** of **minor significance**.

Direct Effect on Commuting and Foraging Bats

13.55. The completed Development is not anticipated to have a direct impact on existing foraging and commuting bats using the northern boundary of the Stag Brewery component of the Site given the retention of trees in this part of the Site.

13.56. As detailed in **Chapter 5: The Proposed Development**, soft landscaping as well as artificial habitats would be provided in the Development, inherent to the scheme design, which would provide enhanced opportunities at the Site for roosting, foraging and commuting bats. The Stag Brewery component of the Site would include:

- up to 160 new trees and up to 51 retained trees;
- hedge planting (1.5 m high) enclosing all ground level residential courtyards east of Ship Lane in the detailed part of the Stag Brewery component of the Development;
- a minimum of ten bat boxes incorporated in the Development Area 1 (number of bat boxes within the outline component of the Site would be determined following the reserved matters application);
- provision of new trees including the use of native species, or species of benefit to wildlife. This includes littoral plant species in areas close to the river edge responding to existing riverside vegetation and fruit / berry and nut bearing trees located in the community park south of the proposed school;
- provision of biodiversity roofs, including a mix of green and brown roofs; and
- a green link connecting the River Thames and Mortlake Green.

13.57. In addition, the Chalkers Corner component of the Site would provide a new pocket park and replacement and additional tree planting.

13.58. In view of the above, the completed Development would have a **temporary**, **medium-term**, **local**, **beneficial effect** of **minor significance** on bats.

Indirect Effect on Commuting and Foraging Bats

13.59. As detailed above, light spill upon the River Thames would be avoided given the design of the lighting strategy and distance of the proposed floodlighting for the sports pitch. Both the existing sports field and proposed sports pitch hold little habitat value for bats, particularly given the proposed sports pitch would be made of artificial grass. The proposed floodlighting at this location would therefore not result in a significant effect on bats. Given the nature of commuting and foraging bats, it is highly likely that commuting and foraging bats are already commuting between various highly lit areas and are therefore well adapted to artificially lit environments. The results of the bat surveys undertaken assessed that the habitats at the Site and adjacent to (i.e. the River

Thames) to the northern boundary of the Stag Brewery component of the Site are used on a sporadic basis by urban bat species typically associated to be non-light sensitive (excluding long-eared and myotis species). As such, the likely significant effect of light spill to foraging and commuting bats using the River Thames is **insignificant**.

Mitigation Measures and Likely Residual Effects

The Works

Designated Sites

13.60. A Construction Environmental Management Plan (CEMP) would be produced to ensure appropriate environmental controls to protect the River Thames and Tidal Tributaries SINC from dust, noise, vibration, surface water run-off and lighting. As detailed within **Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction**, such protective measures would include:

- the Contractor would minimise disturbance to the River Thames and Tidal Tributaries SINC by minimising noise and dust arisings through the use of environmental screens, water jet suppression, dust monitoring devices and other best working practices;
- no waste materials, including silt laden drainage and spillages, hazardous / contaminated materials, chemicals or fuels shall be allowed to enter the River Thames and Tidal Tributaries SINC through measures such as the use of appropriately tanked and bunded storage areas; and
- all construction lighting would be positioned so that no increased light levels are spilled on to the adjacent River Thames and Tidal Tributaries SINC. In addition, the main hours of the Works would be undertaken during typical working hours minimising the requirement for additional lighting during the night.

13.61. With the implementation and adherence to the measures detailed in the CEMP, the likely residual effects on the River Thames and Tidal Tributaries SINC during the Works (both direct and indirectly) would be **insignificant**.

Bats

13.62. Specifications for external lighting controls would be set out in the CEMP (as detailed above and in **Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction**). Lighting during the Works would be designed so that retained commuting and foraging habitats along the northern boundary of the Stag Brewery component of the Site and adjacent to the River Thames would remain dark and no excessive light spill on to these habitats would occur. As detailed above, the main hours of the Works would be undertaken during typical working hours minimising the requirement for additional lighting during the night. The CEMP would also include measures to minimise noise along the northern boundary of the Stag Brewery component of the Site and adjacent to the River Thames.

13.63. With the implementation of the mitigation listed above, the likely residual effects during the Works (both direct and indirectly) on bats would be **insignificant**.

Completed Development

Designated Sites

13.64. The inherent design of the Development would avoid light spill on the River Thames as well as reduce silt and oil deposition. The massing of the completed Development would also not result in any significant overshadowing effects on the River Thames and towpath. Furthermore, the provision of green space within the Development would provide amenity space for the future residents, alleviating pressure on the adjacent non-statutory sites. The likely residual effect on the River Thames and Tidal Tributaries SINC (both direct and indirectly) would therefore remain **insignificant**.

Bats

13.65. Without appropriate management, the permanence of the roosting, foraging and commuting habitats provided within the Development cannot be guaranteed in the long-term. As such, appropriate mitigation in the form of a Landscape and Environment Management Plan (LEMP) would be implemented to manage and ensure the permanence of the roosting, foraging and commuting habitats provided within the Development.

13.66. The assessment of likely significant effects identified that the completed and operational Development would likely give rise to a temporary, medium-term, local, beneficial effect of minor significance on bats. This would be a result of the inherent design of the Development which would avoid light spill on the River Thames as well as provide roosting and foraging / commuting habitats for bats. Given the implementation of mitigation in the form of a LEMP, the likely residual effect (both direct and indirectly) would therefore result in a **long-term**, **local**, **beneficial effect of minor significance.**

Summary

13.67. **Table 13.4** summarises the likely significant effects, mitigation measures, and likely residual effects identified within this Chapter.

Table 13.4: Summary of Likely Significant Effects, Mitigation Measures and Likely Residual Effects

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effect
The Works			
Direct effects on the River Thames and Tidal Tributaries SINC.	**Insignificant**.	None required.	**Insignificant**.
Indirect effects on the River Thames and Tidal Tributaries SINC from dust, noise, vibration,	**Temporary, short** to **medium-term, local, adverse effect** of **moderate significance**.	Implementation of a CEMP to include measures to minimise dust, noise, vibration,	**Insignificant**.

Issue	Likely Significant Effect	Mitigation Measures	Likely Residual Effect
surface water run-off and lighting.		surface water run-off and lighting.	
Direct effects on commuting and foraging bats.	**Insignificant**.	None required.	**Insignificant**.
Indirect effects on commuting and foraging bats from noise and lighting.	**Temporary, short** to **medium-term, local, adverse effect** of **minor significance**.	Implementation of a CEMP to include measures to minimise noise and lighting.	**Insignificant**.
Completed Development			
Direct effects on the River Thames and Tidal Tributaries SINC.	**Insignificant**.	None required.	**Insignificant**.
Indirect effects on the River Thames and Tidal Tributaries SINC from public disturbance.	**Insignificant**.	None required.	**Insignificant**.
Indirect effects on the River Thames and Tidal Tributaries SINC from lighting.	**Insignificant**.	None required.	**Insignificant**.
Indirect effects on the River Thames and Tidal Tributaries SINC from overshadowing.	**Insignificant**.	None required.	**Insignificant**.
Indirect effects on the River Thames and Tidal Tributaries SINC from pollution.	**Long-term**, **local**, **beneficial effect** of **minor significance**.	None required.	**Long-term**, **local**, **beneficial effect** of **minor significance**.
Direct effects on commuting and foraging bats.	**Temporary**, **medium-term**, **local**, **beneficial effect** of **minor significance**.	Implementation of a LEMP.	**Long-term**, **local**, **beneficial effect** of **minor significance**.
Indirect effects on commuting and foraging bats from lighting.	**Insignificant**.	None required.	**Insignificant**.

References

1 GIGL (2016); 'An Ecological Data Search for Stag Brewery'. Report reference 569.

2 Magic.defra.gov.uk. (2017); Magic. [online] Available at: http://magic.defra.gov.uk/

3 ODPM (2006); 'Natural Environment and Rural Communities Act (2006)'.

4 The London Biodiversity Partnership (2004); 'London Biodiversity Action Plan'.

5 London Borough of Richmond upon Thames (2013); 'Biodiversity Action Plan'.

6 JNCC. (2010); 'Handbook for Phase 1 Habitat Survey'. Nature Conservancy Council.

7 Collins, J. (ed) (2016); 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)'. The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

8 Russ. J. (2012); 'British Bat Calls: A Guide to Species Identification', Pelagic Publishing.

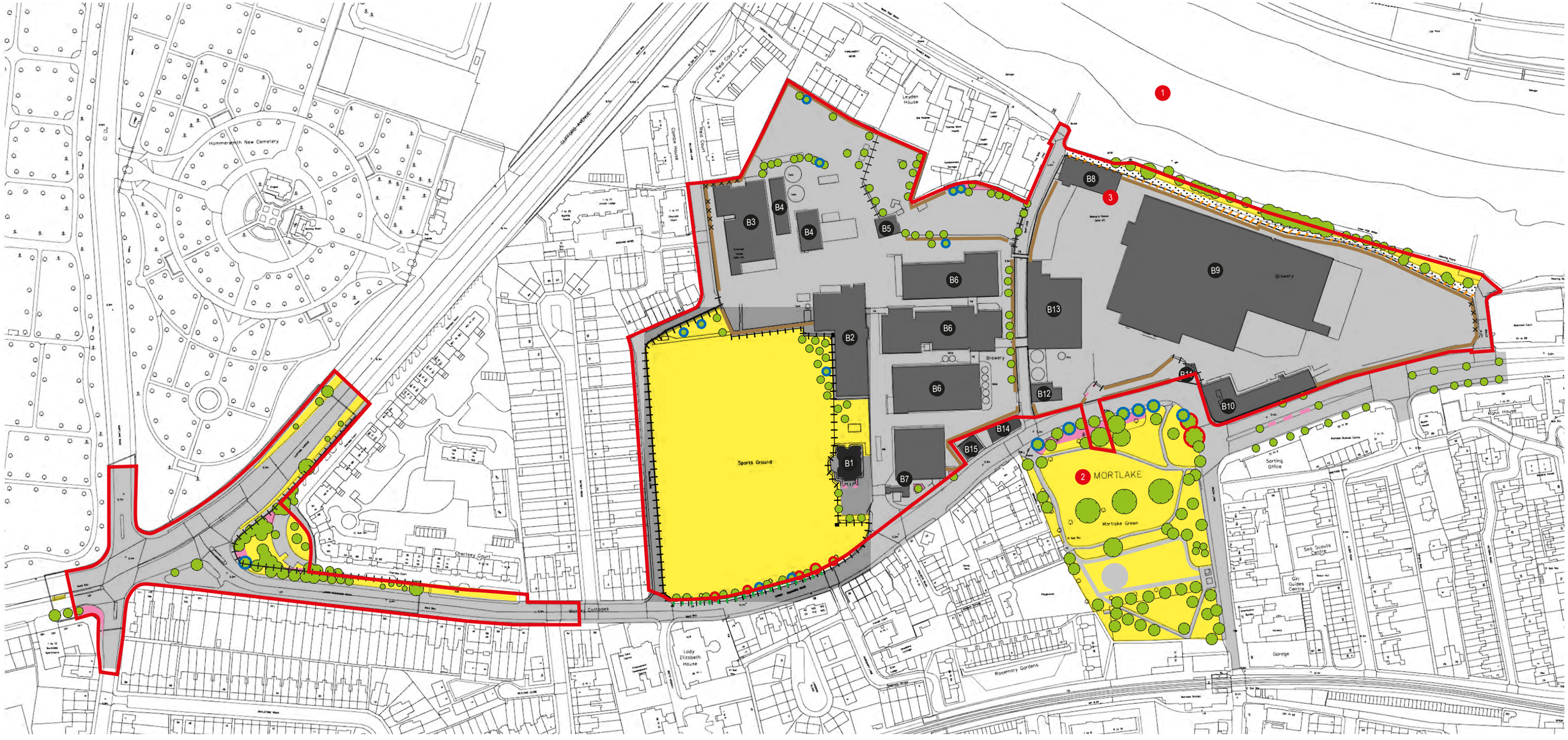
9 Gilbert, G. (2011); 'Bird Monitoring Methods – A manual of techniques for key species'. RSPB.

10 Chartered Institute of Ecology and Environmental Management (2016); 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal'. Technical Guidance Series.

11 HMSO, 2011, Statutory Instrument 2011 No. 1824 - Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended).

12 Environment Agency (2009); 'River Thames, Wey - Mole Stretch'. Available on-line at http://maps.environment-agency.gov.uk

FIGURES



- The Site
- Building with Building Numbers
- Hardstanding
- Ornamental Planting
- Bare Ground
- Amenity Grassland
- Ephemeral
- Scattered Tree
- Wall
- Hedge
- Fence
- Tall Ruderal Vegetation
- Target Note

Bat Roost Potential within Trees

- Negligible Potential
- Low Potential
- Moderate Potential

N

Project Details	WIE10667-101: Stag Brewery
Figure Title	Figure 13.1: Habitat Features Plan
Figure Ref	WIE10667-101_GR_ES_13.1A
Date	2018
File Location	\\s-lncs\wiel\projects\wie10667\101\graphics\es\issued figures

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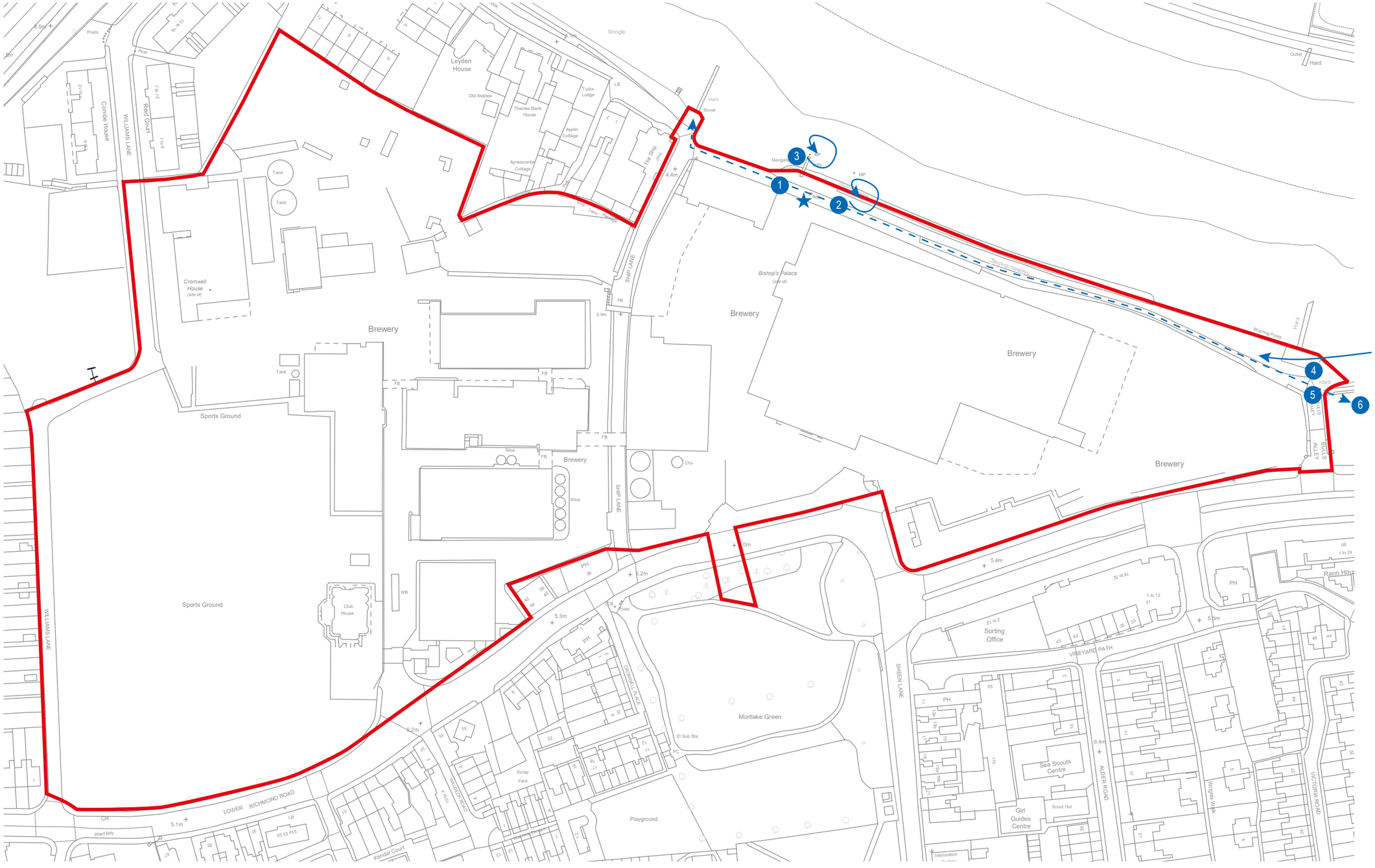

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The SIte

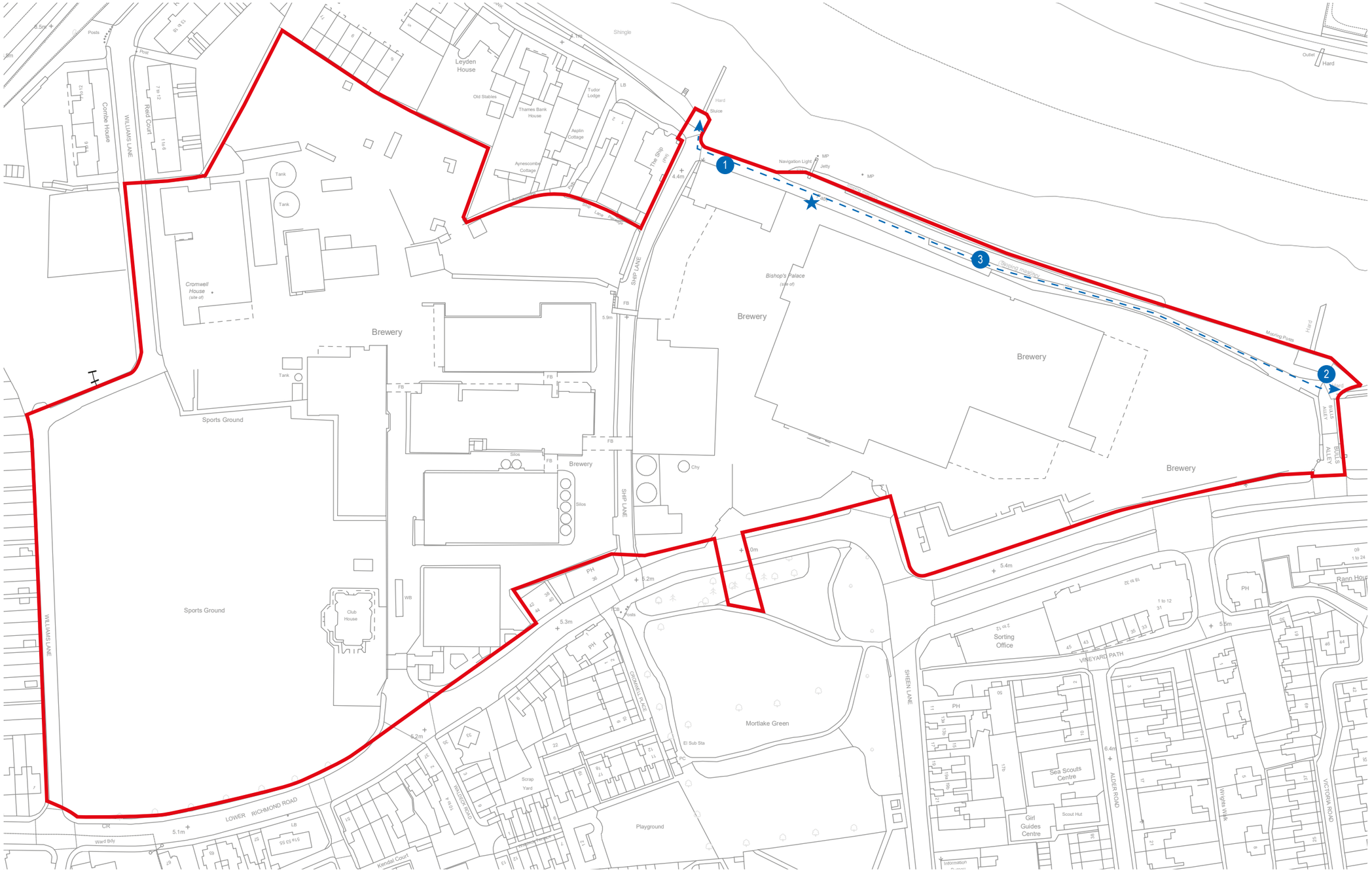
Location of Automated Bat Detector

Bat Activity Transect

Bat Registration

Bat Flight Path

Project Details	WIE10667-101: Stag Brewery
Figure Title	Figure 13.2: Results of the Evening Bat Activity Survey 13/07/17
Figure Ref	WIE10667-101_GR_ES_13.2A
Date	2018
File Location	\\s-lncs\wiel\projects\wie10667\101\graphics\es\issued figures



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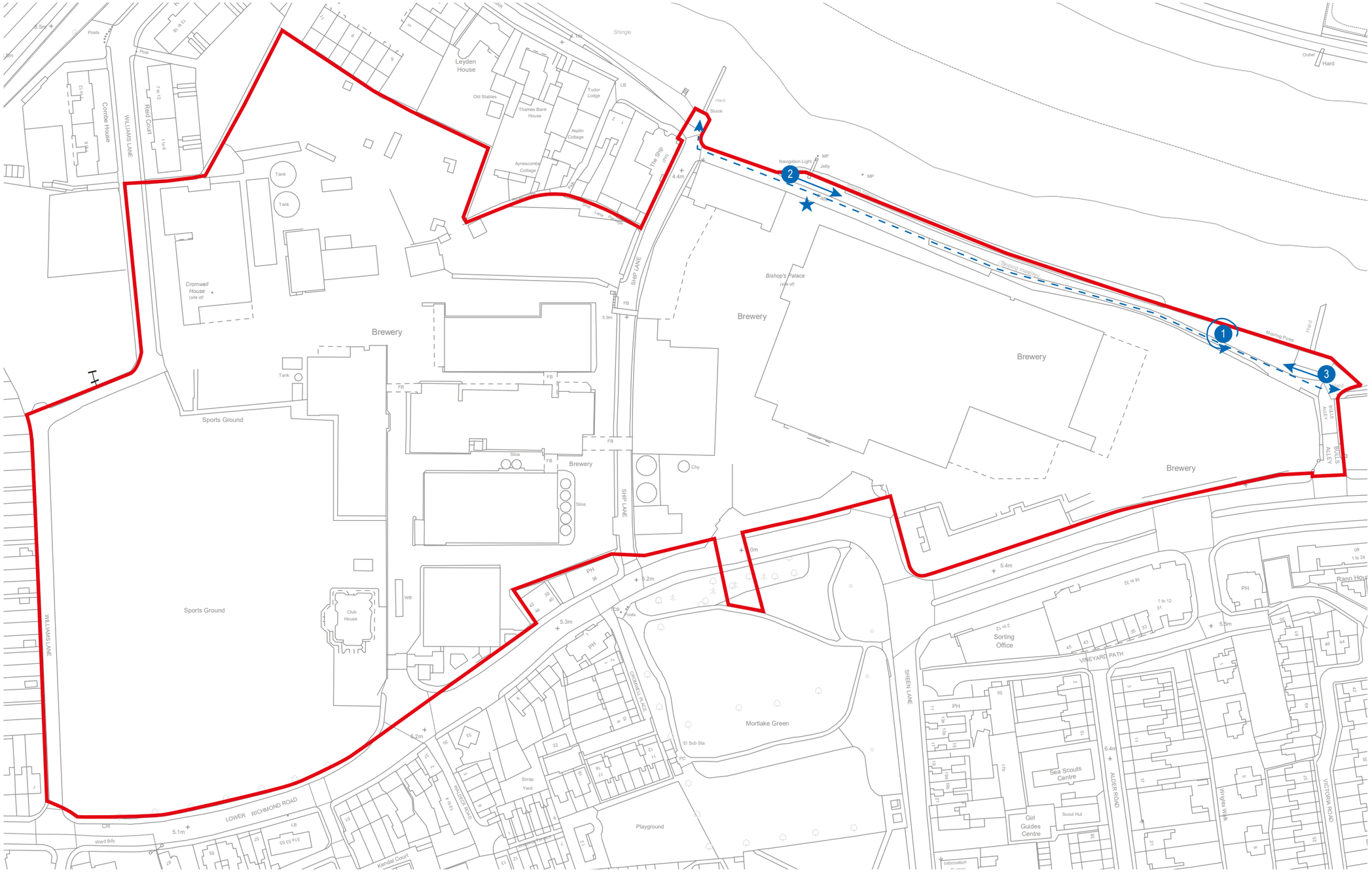
The Site

Location of Automated Bat Detector

Bat Activity Transect

Bat Registration

Project Details	WIE10667-101: Stag Brewery
Figure Title	Figure 13.3: Results of the Dawn Bat Activity Survey 08/08/17
Figure Ref	WIE10667-101_GR_ES_13.3A
Date	2018
File Location	\\s-lncs\wiel\projects\wie10667\101\graphics\es\issued figures



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The Site

Location of Automated Bat Detector

Bat Activity Transect

Bat Registration

Bat Flight Path

Project Details	WIE10667-101: Stag Brewery
Figure Title	Figure 13.4: Results of the Evening Bat Activity Survey 04/09/17
Figure Ref	WIE10667-101_GR_EC_13.4A
Date	2018
File Location	\\s-lncs\wiel\projects\wie10667\100\graphics\es\issued figures

APPENDICES

A. Appendix 13.1: Preliminary Ecological Appraisal

APPENDIX 13.1
PRELIMINARY ECOLOGICAL APPRAISAL

The Former Stag Brewery, Mortlake

Preliminary Ecological Appraisal

February 2018

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Client Name:	Reselton Properties Limited
Document Reference:	WIE10667-100-R-1-3-1-RA
Project Number:	WIE10667-100

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007)

Issue	Date	Prepared by	Checked by	Approved by
Third	February 2018	Robyn Ablitt Consultant Ecologist	Hayley Bishop Principal Ecologist	Lee Mantle Associate Director

Comments

Comments

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Contents

Tables

Figures

Appendices

A. Species and Habitat Legislation

B. Target Notes

C. Consultation with Tasha Hunter (Ecology Policy and Planning Officer serving Richmond and Wandsworth Councils)

D. Photographs

1. Introduction

1.1. This Preliminary Ecological Appraisal (PEA) has been prepared by Waterman Infrastructure & Environment Ltd (Waterman IE) on behalf of Reselton Properties Limited ('the Applicant') in support of three linked planning applications for the comprehensive redevelopment of the former Stag Brewery Site in Mortlake ('the Site') within the London Borough of Richmond Upon Thames ('LBRuT').

1.2. The former Stag Brewery Site is bounded by Lower Richmond Road to the south, the river Thames and the Thames Bank to the north, Williams Lane to the east and Bulls Alley (off Mortlake High Street) to the west. The Site is bisected by Ship Lane. The Site currently comprises a mixture of large scale industrial brewing structures, large areas of hardstanding and playing fields.

1.3. The redevelopment will provide homes (including affordable homes), complementary commercial uses, community facilities, a new secondary school alongside new open and green spaces throughout. Associated highway improvements are also proposed, which include works at Chalkers Corner junction.

1.4. The three planning applications are as follows:

- Application A – hybrid planning application for comprehensive mixed use redevelopment of the former Stag Brewery site consisting of:
  i. Land to the east of Ship Lane applied for in detail (referred to as 'Development Area 1' throughout); and
  ii. Land to the west of Ship Lane (excluding the school) applied for in outline (referred to as 'Development Area 2' throughout).
- Application B – detailed planning application for the school (on land to the west of Ship Lane).
- Application C – detailed planning application for highways and landscape works at Chalkers Corner.

1.5. Full details and scope of all three planning applications are described in the submitted Planning Statement, prepared by Gerald Eve LLP.

1.6. This report includes an ecological desk study and 'Extended' Phase 1 Habitat Survey. During the 'Extended' Phase 1 Habitat Survey, a search for common invasive floral species was undertaken alongside an external building inspection and ground based inspection of on-Site trees in respect of roosting bats. The purpose of this report is to:

- establish and evaluate the current ecological baseline value of the Site;
- identify any ecological issues, highlighted through the PEA that could constrain the Development in relation to relevant nature conservation planning policy and legislation;
- make recommendations for further survey and assessment work, if required, to enable the Development works to be carried out; and
- provide ecological mitigation where required, and identify opportunities for ecological enhancement, in line with relevant planning policy and legislation.

2. Relevant Legislation and Planning Policy

Legislation

2.1. Specific habitats and species, of relevance to the Site, receive legal protection in the UK under various legislation, including:

- The Conservation of Habitats and Species Regulations 2010 (as amended)1;
- The Wildlife and Countryside Act (WCA) 1981 (as amended)2;
- The Countryside and Rights of Way (CRoW) Act 20003; and
- The Natural Environment and Rural Communities (NERC) Act 20064.

2.2. Further details in respect to of the above are provided in **Appendix A.**

Planning Policy

National Planning Policy

National Planning Policy Framework, 2012

2.3. The National Planning Policy Framework[5] (NPPF) was published in March 2012. Section 11 (outlined below) of the NPPF, 'Conserving and Enhancing the Natural Environment', effectively replaces former Planning Policy Statement 9: Biodiversity and Geological Conservation. However, Government Circular 06/2005[6] - Biodiversity and Geological Conservation: Statutory Obligations and Their Impact within the Planning System, remains valid and is referenced within the NPPF.

2.4. The NPPF encourages the planning system to contribute to and enhance the natural and local environment. This should be achieved by:

- *"Recognising the wider benefits of ecosystem services; and*
- *Minimising* impacts *on biodiversity and providing net gains in biodiversity where possible, contributing to the government's commitment to halt the overall decline in biodiversity, including by establishing ecological networks that are more resilient to current and future pressures."*

2.5. The NPPF also stipulates that Local Planning Authorities (LPAs), when determining planning applications, should seek to conserve and enhance biodiversity, by applying the following principles:

- *"Development* proposals *where the primary objective is to conserve or enhance biodiversity should be permitted; and*
- *Opportunities* to *incorporate biodiversity in and around developments should be encouraged".*

National Planning Practice Guidance, 2014

2.6. The Government's Planning Practice Guidance[7] (PPG) is intended to provide guidance to LPAs and developers on the implementation of the planning policies set out within the NPPF. The

1 HMSO (2010); 'The Conservation of Habitats and Species Regulations 2010 (as amended)'.
2 HMSO (1981); 'Wildlife and Countryside Act 1981 (as amended)'.
3 HMSO (2000); 'The Countryside and Rights of Way Act 2000'.
4 HMSO (2006); 'Natural Environment and Rural Communities Act 2006'.
5 Department of Communities and Local Government (2012); 'National Planning Policy Framework'.
6 Department of Communities and Local Government (2005); 'Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System'.
7 Department for Communities and Local Government (2014); 'National Planning Practice Guidance. DCLG, London'.

guidance of most relevant to ecology and biodiversity is the Natural Environment Chapter, which explains key issues in implementing policy to protect biodiversity, including local requirements.

Regional Planning Policy

The London Plan: The Spatial Development Strategy for London (consolidated with alterations since 2011), 2016

2.7. The London Plan: The Spatial Development Strategy for London[8] (London Plan) sets out the overall strategic plan, setting out a framework for development over the next 20 to 25 years and includes a number of policies relating to ecology. Key to the London Plan is Policy 7.19 'Biodiversity and Access to Nature' which sets out the Mayor's policy in relation to biodiversity and access to nature. In outline, it includes the following:

"A) The Mayor will work with all relevant partners to ensure a proactive approach to the protection, enhancement, creation, promotion and management of biodiversity in support of the Mayor's Biodiversity Strategy. This means planning for nature from the beginning of the development process and taking opportunities for positive gains for nature through the layout, design and materials of development proposals and appropriate biodiversity action plans; …

C) Development proposals should:

- *Wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity;*
- *Prioritise assisting in achieving targets in biodiversity action plans (BAPs) set out in Table 7.3 (refer to original document) and / or improving access to nature in areas deficient in accessible wildlife sites*
- *Not adversely affect … on the population or conservation status of a protected species or a priority species or habitat identified in a UK, London or appropriate regional BAP or borough BAP.*

D) On Sites of Importance for Nature Conservation development proposals should:

- *b) give strong protection to sites of metropolitan importance for nature conservation (SMIs). These are sites jointly identified by the Mayor and boroughs as having strategic nature conservation importance*
- *c) give sites of borough and local importance for nature conservation the level of protection commensurate with their importance."*

The Mayor's Biodiversity Strategy: Connecting with London's Nature, 2002

2.8. The Mayor's Biodiversity Strategy[9] complements the adopted London Plan. It sets out how London's biodiversity can be protected. Relevant policies within the Biodiversity Strategy include:

- *Policy 1: "The Mayor will work with partners to protect, manage and enhance London's biodiversity";*
- *Policy 3: "The Mayor will encourage and promote the management, enhancement and creation of green space for biodiversity, and promote public access and appreciation of nature";*
- *Policy 5: "The Mayor will seek to ensure that opportunities are taken to green the built*

[8] Mayor of London (2016); 'The London Plan, The Spatial Development Strategy for London Consolidated with Alterations Since 2011. March 2016'. Available from: http://www.london.gov.uk/priorities/planning/londonplan

[9] Mayor of London (2002); 'The Mayor's Biodiversity Strategy: Connecting with London's Nature'.

environment within development proposals and to use open spaces in ecologically sensitive ways. This is particularly important in areas deficient in open spaces and in areas of regeneration"; and

- *Policy 13: "The Mayor is committed to increasing the funding for biodiversity projects in London, and wishes to ensure that major new development projects include provision for biodiversity".*

Mayor of London's Supplementary Planning Guides: Sustainable Design and Construction, 2014

2.9. The Mayor republished the Supplementary Planning Guidance (SPG) for Sustainable Design and Construction in April 2014[10]. The SPG refers to nature conservation and biodiversity and suggests that in order to conserve and enhance the natural environment and biodiversity, there should be no net loss in the quality and quantity of biodiversity across a site. The SPG also states that developments should be designed so the biodiversity is enhanced and connectivity between patches of urban habitat is increased. The design of a development should reduce indirect adverse impacts of the development on species, habitats and landscapes.

Local Planning Policy

London Borough of Richmond upon Thames: New Local Plan

2.10. LBRuT are currently preparing a new Local Plan for the borough, which will replace existing policies within the Core Strategy and Development Management Plan (see below). The Plan will set out policies and guidance for the development of the borough over the next 15 years. On 19th May 2017, LBRuT submitted the final draft of the Local Plan[11], along with other publication and submission documents, evidence and supporting documents to the Secretary of State for Communities and Local Government for independent Examination. The following strategic visions, objectives and policies within the final draft of the Local Plan are of relevance to biodiversity:

2.11. Strategic vision 'Natural Environment, Open Spaces and the Borough's Rivers' states:

"The outstanding natural environment and green infrastructure network, including the borough's parks and open spaces, biodiversity and habitats as well as the unique environment of the borough's rivers and their corridors will have been protected and enhanced where possible. Residents will continue to highly value and cherish the borough's exceptional environmental quality"

2.12. Strategic objective 'Protecting Local Character' states:

"…..3) Protect and improve the borough's parks and open spaces to provide a high quality environment for local communities and provide a balance between areas for quiet enjoyment and wildlife and areas to be used for sports, games and recreation;

4) Protect and enhance the borough's network of green infrastructure that performs a wide range of functions for residents, visitors, biodiversity and the economy;

5) Protect and enhance the borough's biodiversity, including trees and landscape, both within open spaces but also within the built environment and along wildlife corridors; and

6) Protect and improve the unique environment of the borough's rivers, especially the River Thames and its tributaries as wildlife corridors, as opportunities for recreation and river transport where possible, increasing access to and alongside the rivers where appropriate, and gain wider local community benefits when sites are redeveloped."

[10] Greater London Authority (April 2014); 'Sustainable Design and Construction Supplementary Planning Guidance, London'.

[11] London Borough of Richmond Upon Thames (2017); 'Local Plan: Public version for consultation, 4 January – 15 February 2017'.

2.13. Policy LP 12 ‘Green Infrastructure’ states:

“Green infrastructure is a network of multi-functional green spaces and natural elements, which provides multiple benefits for people, nature and the economy.

A) To ensure all development proposals protect, and where opportunities arise enhance, green infrastructure, the following will be taken into account when assessing development proposals:

- *the need to protect the integrity of the green spaces and assets that are part of the wider green infrastructure network; improvements and enhancements to the green infrastructure network are supported;*
- *its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation;*
- *its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation*

*B) The hierarchy of open spaces, as set out in the table below (*refer to original document*), will be protected and used in accordance with the functions shown.”*

2.14. Policy LP 15 ‘Biodiversity’ states:

“A) 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 the connectivity between habitats. Weighted priority interms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. 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;*
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.*

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."*

2.15. LP 16 'Trees, Woodlands and Landscape' states:

"A) The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.

B) To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:

Trees and Woodlands:

1) *resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;*

2) *resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;*

3) *require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);*

4) *require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate;*

5) *require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations).*

The Council may serve Tree Preservation Orders or attach planning conditions to protect trees considered to be of value to the townscape and amenity and which are threatened by development.

Landscape:

1) *require the retention of important existing landscape features where practicable;*

2) *require landscape design and materials to be of high quality and compatible with the surrounding landscape and character; and*

3) *encourage planting, including new trees, shrubs and other significant vegetation where appropriate."*

2.16. Policy LP 17 'Green Roofs and Walls' states:

"Green roofs and / or brown roofs should be incorporated into new major developments with roof plate areas 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 onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.

The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions."

2.17. Policy LP 18 'River Corridors' states:

"A) The natural, historic and built environment of the River Thames corridor and the various water courses in the borough… will be protected. Development adjacent to the river corridors will be expected to contribute to improvements and enhancements to the river environment.

B) Development proposals within the Thames Policy Area should respect and take account of the special character of the reach as set out in the Thames Landscape Strategy and Thames Strategy as well as the Council's Conservation Area Statements, and where available Conservation Area Studies, and / or Management Plans."

London Borough of Richmond upon Thames: Core Strategy, 2009

2.18. The LBRuT Core Strategy[12] was adopted on 21 April 2009 and it forms one of the documents that make up the Local Development Framework. The Core Strategy contains strategic policies to guide the future development of the Borough over the next 15 years.

2.19. LBRuT's adopted Core Strategy identifies the spatial vision for the Borough. With regards to biodiversity, the following Spatial Strategy Summary is stated within the Core Strategy:

"Open spaces, biodiversity and the historic environment will be protected and enhanced."

2.20. Spatial Policy CP4 'Biodiversity' states:

"The Borough's biodiversity including the SSSIs and Other Sites of Nature Importance will be safeguarded and enhanced. Biodiversity enhancements will be encouraged particularly in areas of deficiency (parts of Whitton, Hampton, Teddington, Twickenham and South Kew), in areas of new development and along wildlife corridors and green chains such as the River Thames and River Crane corridors'.; and

"Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats in the UK, Regional and Richmond upon Thames Biodiversity Action Plans".

2.21. Spatial Policy CP11 'River Thames Corridor' states:

"The natural and built environment and the unique historic landscape of the River Thames corridor within the Borough will be protected and enhanced."

London Borough of Richmond upon Thames: Development Management Plan, 2011

2.22. The Development Management Plan[13] was adopted on 1st November 2011. It builds on the Core Strategy and includes more detailed policies for managing development. Several policies relate to biodiversity and these are outlined below:

2.23. Policy DM OS 5 'Biodiversity and New Development' states:

[12] London Borough of Richmond upon Thames (2009); 'Local Development Framework Core Strategy'.
[13] London Borough of Richmond upon Thames (2009); 'Local Development Framework Development Management Plan'.

"All new development will be expected to preserve and where possible enhance existing habitats including river corridors and biodiversity features, including trees;

All developments will be required to enhance existing and incorporate new biodiversity features and habitats into the design of buildings themselves as well as in appropriate design and landscaping schemes of new developments with the aim to attract wildlife and promote biodiversity, where possible;

When designing new habitats and biodiversity features, consideration should be given to the use of native species as well as the adaptability to the likely effects of climate change; and

New habitats and biodiversity features should make a positive contribution to and should be integrated and linked to the wider green and blue infrastructure network, including de-culverting rivers, where possible."

2.24. Policy DM DC 4 'Trees and Landscape' states:

"The boroughs trees and landscape will be protected and enhanced by:

i. planting and encouraging others to plant trees, clumps and thickets particularly in areas of deficiency as shown on the Proposals Map and of a type and species as set out in the Borough's Tree Strategy;

ii. continuing to maintain trees in streets and public open spaces and of selectively clearing and replanting trees; and

iii. requiring landscape proposals in submissions for new development, which retain existing trees and other important landscape features where practicable and include new trees and other planting. Where trees are removed, appropriate replacement planting will normally be required. There will be a presumption against schemes that result in a significant loss of trees, unless replacements are proposed and there is good reason such as the health of the trees, public amenity, street scene or restoration of an historic garden. Landscaping schemes should take account of the Borough's Tree Strategy."

London Borough of Richmond upon Thames: Supplementary Planning Documents and Guidance

2.25. A series of Supplementary Planning Guidance (SPG) and Supplementary Planning Documents (SPDs) has been produced by LBRuT to provide greater detail on existing local planning policies to support decisions on planning applications. LBRuT no longer produces SPGs as they have been replaced with SPDs since 2004. However, they remain material considerations in planning decisions. With regards to biodiversity, a SPG titled 'Nature Conservation and Development'[14] has been published by LBRuT. This SPG states:

iv. "It is important that nature conservation should be integrated at the planning stage with all new development. Schemes should be designed to retain existing features and habitats of wildlife value on site, and to create new habitats where appropriate."

2.26. Currently, the only parts of the UDP that remain saved and have not been superseded are those Proposal sites that were originally saved. The eastern part of the Stag Brewery component of the Site is allocated on the Proposals Map as site S4 (Budweiser Stag Brewery)[15].

2.27. The LBRuT adopted a planning brief for the Site in July 2011 with SPD[16] status. This document

[14] London Borough of Richmond upon Thames (no-date); 'Design Guidelines for Nature Conservation & Development'.
[15] London Borough of Richmond upon Thames (2005); 'Unitary Development Plan. Chapter 12 – Local Strategies and Plan Proposals'.
[16] London Borough of Richmond upon Thames (2011); 'Stag Brewery, Mortlake, SW14 Planning Brief. Supplementary Planning Guidance'.

sets out opportunities and constraints regarding the redevelopment of the Site. With regard to biodiversity, this SPD states:

"Opportunities should be taken to enhance biodiversity throughout the site and particularly along the River."

Site Allocations

2.28. LBRuT have also produced a suite of 14 Village Plan SPDs, one for each Village Area in the Borough. Each Village Plan SPD provides a vision for the area, identifying the local character and setting out key policies and design principles that will apply to both new development and changes to existing buildings. These are used as material considerations in determining planning applications in each area.

2.29. The Site is located within the 'Mortlake Village Plan'[17]. It sets out that the vision for Mortlake is to create a new heart to the village by the redevelopment of the Stag Brewery Site creating a recreational and living quarter and a vibrant link between the village and the riverside.

Biodiversity Action Plans

UK Post-2010 Biodiversity Framework

2.30. The Environment Departments of all four governments in the UK work together through the Four Countries Biodiversity Group. Together they have agreed, and Ministers have signed, a framework of priorities for UK-level work for the Convention on Biological Diversity. Published on 17 July 2012, the 'UK Post-2010 Biodiversity Framework'[18] covers the period from 2011 to 2020. This now supersedes the UK Biodiversity Action Plan (UK BAP)[19]. However, many of the tools developed under UK BAP remain of use. For example, background information about the lists of priority habitats and species. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work in the countries.

2.31. Although the UK Post-2010 Biodiversity Framework does not confer any statutory legal protection, in practice many of the species listed already receive statutory legal protection under UK and / or European legislation. In addition, the majority of Priority national (English) BAP habitats and species are now those listed as Habitats of Principal Importance (HoPI) and Species of Principal Importance (SoPI) in England listed under Section 41 (S41) of the NERC Act 2006. For the purpose of this PEA, habitats and species listed under S41 of the NERC Act are referred to as having superseded the UK BAP. All public bodies have a legal obligation or 'biodiversity duty' under Section 40 of the NERC Act 2006 to conserve biodiversity by having particular regard to those species and habitats listed under S41.

Local Biodiversity Action Plans

2.32. At a local level, the Site is covered by the London Biodiversity Action Plan[20] (LBAP) and the LBRuT Biodiversity Action Plan[21] (RBAP). These documents set out the framework for the protection, conservation and enhancement of wildlife within London and LBRuT.

2.33. A number of HoPI and SoPI listed under S41 of the NERC Act, together with London BAP and

[17] London Borough of Richmond upon Thames (2015); 'Mortlake Village Planning Guidance. Supplementary Planning Guidance'.
[18] JNCC and DEFRA (on behalf of the Four Countries' Biodiversity Group) (2012); 'UK Post-2010 Biodiversity Framework'.
[19] HMSO (1994); 'Biodiversity The UK Action Plan'.
[20] The London Biodiversity Partnership (2004); 'London Biodiversity Action Plan'.
[21] London Borough of Richmond upon Thames (2013); 'Biodiversity Action Plan'.

RBAP priority species (SAPs) and habitats (HAPs) are considered to be of potential value on and/or immediately adjacent to the Site, including:

- Tidal Thames (RBAP), Rivers and Streams (LBAP) and Rivers (HoPI);
- Bats (RBAP & LBAP) (soprano pipistrelle Pipistrellus pygmaeus and noctule Nyctalus noctula bat - SoPI);
- Black redstart Phoenicurus ochruros (LBAP);
- House sparrow Passer domesticus (LBAP and SoPI);
- Starling Sturnus vulgaris (SoPI);
- Song thrush Turdus philomelos (RBAP and SoPI); and
- Built structures (LBAP).

Guidance

Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services

2.34. In October 2010, over 190 countries signed a global agreement in Nagoya, Japan to take urgent and effective action to halt the alarming global declines in biodiversity. It established a new global vision for biodiversity, including a set of strategic goals and targets to drive action. England's response to this agreement was the publication of '*Biodiversity 2020: A strategy for England's wildlife and ecosystem services*'[22]. The mission for this strategy is:

"to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people."

BS 42020: 2013 Biodiversity: Code of Practice for Planning and Development

2.35. The UK commitment to halt overall loss of biodiversity by 2020 in line with the European Biodiversity Strategy and UN Aichi targets[23], is passed down to LPAs to implement, mainly through planning policy. To assist organisations affected by these commitments, BSI has published BS 42020[24] which offers a coherent methodology for biodiversity management.

2.36. This British Standard sets out to assist those concerned with ecological issues as they arise through the planning process in matters relating to permitted development and activities involved in the management of land outside the scope of land use planning, which could have site-specific ecological implications.

2.37. The standard has been produced with input from a number of organisations including the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Association of Local Government Ecologists (ALGE) and provides:

- guidance on how to produce clear and concise ecological information to accompany planning applications;
- recommendations on professional ethics, conduct, competence and judgement to give confidence that proposals for biodiversity conservation, and consequent decisions/actions taken, are sound and appropriate; and
- direction on effective decision-making in biodiversity management a framework to demonstrate how biodiversity has been managed during the development process to minimise impact.

[22] Defra (2011); 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services'.

[23] https://www.cbd.int/sp/targets/

[24] British Standards Institution (2013); 'BS 42040:2013: Biodiversity. Code of practice for planning and development'.

3. Methodology

3.1. This section summarises the methodologies used for undertaking the PEA based on current guidelines[25].

Ecological Desk Study

3.2. The aim of the ecological desk study is to collate existing ecological records for the Site and adjacent areas. Obtaining existing records is an important part of the evaluation process, as it provides additional information that may not be apparent during a site survey.

3.3. An ecological desk study was undertaken in January 2016, during which all records of protected species, and / or other notable fauna and flora within 2km of the Site were requested from eCountability / Greenspace Information for Greater London (GIGL)[26]. Records also included those species listed on the London Invasive Species Initiative (LISI)[27]. Given the scale of the Site and the nature of the habitats recorded historically, it was considered the 2 km search area for the ecological records is sufficient to inform this PEA.

3.4. Records of important statutory and non-statutory sites designated for their nature conservation value within 5 km (for Natura 2000 Sites i.e. Special Areas of Conservation and Special Protection Areas) and 2 km (all other designated sites) of the Site were also requested from eCountability / GIGL and searched for on the Multi-Agency Geographic Information for the Countryside (MAGIC)[28]. Sites with statutory, national or international designations could typically include Local Nature Reserves (LNR), notified or candidate Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA) or Ramsar sites.

3.5. Within London, non-statutory sites are ranked at varying levels of nature conservation importance:

- Site of Metropolitan Importance (SMI) for Nature Conservation, important at the county scale for nature conservation;
- Site of Borough Grade 1 and Grade 2 Importance (SBI) for Nature Conservation, important at the district scale for nature conservation; and
- Site of Local Importance for Nature Conservation (SLINC), important at the local scale for nature conservation.

3.6. Areas of Deficiency are defined as built-up areas more than one kilometre actual walking distance from an accessible Metropolitan or Borough site. These aid the choice of Sites of Local Importance (refer to above).

3.7. In addition, HoPI and SoPI under S41 of the NERC Act, as well as HAPs and SAPs listed under the LBAP and RBAP, were consulted to assign an ecological context to the Site.

'Extended' Phase 1 Habitat Survey

3.8. An 'Extended' Phase 1 Habitat Survey of the Stag Brewery Component of the Site was undertaken on 15th February 2016 and on 11th April 2017 at the Chalker's Corner Component of the Site using the Joint Nature Conservancy Council (JNCC, 2010)[29] standard 'Phase 1' survey technique. The

[25] Chartered Institute of Ecology and Environmental Management (2015); 'Guidelines for Preliminary Ecological Assessment. Technical Guidance Series'.
[26] GIGL (2016); 'An Ecological Data Search for Stag Brewery. Report reference 569'.
[27] London Invasive Species Initiative (LISI). Available online at http://www.londonisi.org.uk/
[28] Defra; Magic . Available at: http://magic.defra.gov.uk/.
[29] JNCC. (2010). Handbook for Phase 1 Habitat Survey. Nature Conservancy Council.

Phase 1 Habitat Survey methodology was 'Extended' by undertaking an assessment of the Site to support protected and notable faunal species. All habitat types within the Site were mapped (**Figure 1**) with Target Notes (**Appendix B**) where appropriate.

3.9. Where access allowed, adjacent habitats were also considered to assess the Site within the wider landscape.

3.10. During the 'Extended' Phase 1 Habitat Survey, a check for the presence of common invasive species (as listed on Schedule 9 of the WCA including; Japanese knotweed *Fallopia japonica*, giant knotweed *Fallopia sachalinensis*, hybrid knotweed *Fallopia baldschuanica*, giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera*) was undertaken.

External Building Inspections for Bat Roost Potential

3.11. An external building inspection for bats was undertaken at the Site on 15 February 2016 in combination with the 'Extended' Phase 1 Habitat Survey, this included buildings immediately adjacent to the Site (B14 and B15, refer to **Figure 1**). The survey was led by an experienced ecologist who holds a Natural England Class 2 bat licence for all bat species and counties of England. The survey was based on the Bat Conservation Trust's (BCT) current best practice guidelines[30].

3.12. An assessment of each building was made in terms of its suitability to support roosting bats. The survey consisted of a ground based visual inspection of the exterior of each building for evidence of bat use (e.g. droppings, scratch marks, staining and sightings). A number of factors were considered, including presence of features suitable for use by roosting bats, proximity to foraging habitats or cover and potential for disturbance. Notes were made relating to relevant characteristics of features providing potential access points and roosting opportunities for bats. Based on the findings of the inspections, a potential rating for each building to be used as a bat roost was assigned (i.e. negligible, low, moderate or high) in accordance with to the criteria set out in Table 4.1 of BCT's 2016 good practice guidelines.

Ground Based Tree Inspections for Bat Roost Potential

3.13. A preliminary ground based visual inspection of trees on the Site for bat roost potential was undertaken in combination with the 'Extended' Phase 1 Habitat Surveys, based on current best practice guidelines. This included any trees immediately outside the Site boundary.

3.14. Binoculars were used where required to inspect the trees from the ground to the canopy to look for potential roosting features such as split limbs, cavities, woodpecker holes, cracked and lifted bark. Signs of bat use such as droppings, staining from the fur or urine and scratches around potential roosting points were also inspected where applicable.

3.15. Following the ground based visual inspections, the trees were scored according to the criteria set out in Table 4.1 of BCT's good practice guidelines (i.e negligible, low, moderate or high) to determine their potential to support roosting bats.

Evaluation

3.16. The PEA evaluation of habitats and species is based on published guidance[31]. The value of

[30] Collins, J. (ed.) (2016); 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust', London. ISBN-13 978-1-872745-96-1.

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

specific ecological receptors is assigned using a geographic frame of reference, i.e. international and European value being the most important, followed by national, regional, metropolitan / county / vice-county, district and local value. For purposes of this PEA, features which are assessed to have below a district, borough or local value, have been assigned a geographical frame of reference of either Site value or where the feature has low or limited ecological value a negligible ecological value has been assigned.

3.17. Value judgements are based on various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include site designations (such as SSSIs), or for undesignated features, the size, conservation status (locally, nationally or internationally), and the quality of the ecological resource. In terms of the latter, 'quality' can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

3.18. Value judgements are also based on the Ecologist's academic and professional qualifications, in addition to past experience of undertaking similar assessments.

Constraints and Limitations

3.19. Although the Site survey for the Stag Brewery component of the Site (not the Chalker's Corner Component of the Site) was conducted outside of the optimal season for survey (April-September, when the majority of plant species are visible) for Phase 1 Habitat Surveys, the timing of the survey was considered suitable given the context of the Site (i.e. highly urbanised) within its surroundings and the limited habitats it supports. All plants were identified through their floristic (where possible) and vegetative characteristics.

Consultation

3.20. An Environmental Impact Assessment (EIA) Scoping Report[32] was issued to LBRuT in March 2017. This included an ecology and biodiversity section under the 'Key issues to be addressed by the EIA' section. A formal Scoping Opinion was received from LBRuT on 30th June 2016[33]. With regards to ecology, LBRuT requested the scope of ecology surveys to be increased to cover commuting bats at the whole Site. Subsequent consultation (**Appendix C**) with Tasha Hunter (Ecology and Planning Officer serving Richmond and Wandsworth Councils) was undertaken to agree the scope of bat activity surveys. The results of the bat activity surveys are presented in a Protected Species Report (WIE10667-100-R-7-2-5-HMB).

[32] Waterman IE (2017); 'Stag Brewery, Mortlake: Environmental Impact Assessment Scoping Report', (Ref: WIE10667-101-1-3-4-RB).

[33] London Borough of Richmond Upon Thames (2017); 'Stag Brewery, Mortlake and Chalkers Corner, Richmond: Formal scoping opinion'.

4. Results and Evaluation

Ecological Desk Study

Statutory Sites

4.1. The Site is not subject to any statutory designations. However, there are three statutory nature conservation designations within 2 km of the Site and a further Natura 2000 site within 5 km of the Site. These have been detailed in **Table 1**.

Non-Statutory Sites

4.2. The Site is not subject to any non-statutory designations. However, there are twenty-one non-statutory nature conservation designations which lie within 2 km of the Site. The closest of these have been detailed in **Table 1**.

Table 1: Summary of Statutory and Non-Statutory Designated Sites Within Proximity to the Site

Site Name	Designation	Approximate Distance from Site (m)	Description / Citation
River Thames and Tidal Tributaries.	Site of Importance for Nature Conservation (SINC) (SMI).	Adjacent to northern boundary of the Stag Brewery component of the Site.	The Thames is home to many fish and birds, creating a wildlife corridor running right across the capital.
North Sheen and Mortlake Cemeteries.	SINC (SLI).	140 m north west of the Chalker's Corner component of the Site.	These extensive cemeteries, which are bisected by Mortlake Road, are among the largest in the LBRuT. They are both in active use and managed relatively intensively, with most of the grasslands being mown frequently. They have considerable wildlife interest due to their large size and the diversity of plants and animals that they support.
Old Mortlake Burial Ground.	SINC (SLI).	435 m south east of the Stag Brewery component of the Site.	This small cemetery is quite intensively managed, but its grasslands contain a reasonable diversity of wild flowers.
Kew Meadow Path.	SINC (SBI2).	500 m north west of the Stag Brewery component of the Site.	This public footpath, totally unremarkable in appearance, is one of only a handful of British sites for the two-lipped door snail *Balea biplicata*.
Barnes Common.	LNR, SINC (SMI).	1,190 m east of the Stag Brewery component of the Site.	Barnes Common contains several habitats including acid grassland, acid scrub, woodland and neutral grassland. Part of the Common is a cemetery (Barnes Old Burial Ground). Barnes Common is of considerable value for educational purposes and informal enjoyment by the public.
Richmond Park.	SAC, NNR, SSSI, SINC (SMI).	1,330 m south of the Stag Brewery component of the Site.	Richmond Park has been managed as a royal deer park since the seventeenth century, producing a range of habitats of value to wildlife such as a mosaic of dry acid grassland, marshy and unimproved neutral grassland. The primary reason for the SAC designation is the presence of stag beetle. Richmond Park is a site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees. Richmond Park is also London's largest National Nature Reserve covering approximately 850 ha.
Leg of Mutton Reservoir.	LNR, SINC (SBI1).	1,410 m north east of the Stag Brewery component of the Site.	A former reservoir saved from development by local action. It supports a diverse bird assemblage.
Wimbledon Common.	SAC, SSSI.	3,500 m south east of the Stag Brewery component of the Site.	The primary reason for the SAC designation is the presence of stag beetle. Wimbledon Common has a large number of old trees and much fallen decaying timber. The site supports a number of other scarce invertebrate species associated with decaying timber.

Protected and Notable Species

4.3. Records of legally protected or otherwise notable species of flora and fauna within 2 km of the Site were provided by eCountability / GIGL. A summary of the most significant results of relevance to the Site are provided in **Table 2** below. Full results can be obtained from the data providers but cannot be presented in this report as a result of copyright. For some records only a four figure grid reference has been provided by GIGL and therefore 'within 2 km' has been stated in **Table 2**. It should be noted that the distances provided in **Table 2** below are taken from the central grid reference of the Site and therefore are approximate.

Table 2: Summary of Flora and Fauna Within 2 km of the Site

Species	Location of Records Relevant to the Survey Area (m)
Amphibians Records of common toad *Bufo bufo* and common frog *Rana temporaria*.	Nearest amphibian record (common frog) is 360 m north (2002) of the Site.
Badger Nine records of badger *Meles meles* within 2 km of the Site recorded between 1999 and 2014.	Exact locations cannot be specified in this report owing to the confidentiality of this species.
Bats Records of serotine *Eptesicus serotinus*, myotis *Myotis* sp., pipistrelle *Pipistrellus sp.,* brown long-eared bat *Plecotus auritus*, Natterer's bat *Myotis nattereri*, soprano pipistrelle *Pipistrellus pygmaeus*, Daubenton's bat *Myotis daubentonii*, Leisler's bat *Nyctalus leisleri*, noctule *Nyctalus noctula*, Nathusius's pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*.	The nearest bat record to the Site is for a pipistrelle species recorded 300 m north (1995) of the Site. All other bat species detailed adjacent have been recorded 318 m or more from the Site.
Birds Records include lesser redpoll *Acanthis cabaret*, common redpoll *Acanthis flammea*, merlin *Falco columbarius*, reed bunting *Emberiza schoeniclus*, kingfisher *Alcedo atthis*, pintail *Anas acuta*, lesser spotted woodpecker *Dendrocopos minor*, wigeon *Anas penelope*, gadwall *Anas strepera*, rook *Corvus frugilegus*, Lapland bunting *Calcarius lapponicus*, bittern *Botaurus stellaris*, tree pipit *Anthus trivialis*, meadow pipit *Anthus pratensis*, swift *Apus apus*, barnacle goose *Branta leucopsis,* goldeneye *Bucephala clangula,* dunlin *Calidris alpine*, tawny owl *Strix aluco*, white stork *Ciconia ciconia*, osprey *Pandion haliaetus*, curlew *Numenius arquata*, lesser black-backed gull *Larus fuscus*, grey partridge *Perdix perdix*, grey wagtail *Motacilla cinerea*, tree sparrow *Passer montanus*, linnet *Linaria cannabina*, spotted flycatcher *Muscicapa striata*, golden plover *Pluvialis apricaria*, swallow *Hirundo rustica*, grey heron *Ardea cinerea*, common kestrel *Falco tinnunculus*, shelduck *Tadorna tadorna*, brambling *Fringilla montifringilla*, water rail *Rallus aquaticus*, skylark *Alauda arvensis*, teal *Anas crecca*, house martin *Delichon urbicum*, redshank *Tringa tetanus*, redwing *Turdus iliacus*, house sparrow *Passer domesticus*, common tern *Sterna hirundo*, common starling *Sturnus vulgaris*, turtle dove *Streptopelia turtur*, hobby *Falco subbuteo*, song thrush *Turdus philomelos*, shoveler *Anas clypeata*, stock dove *Columba oenas*, cuckoo *Cuculus canorus*, mute swan *Cygnus olor*, little egret *Egretta garzetta*, snipe *Gallinago gallinago*, Cetti's warbler *Cettia cetti*, grasshopper warbler *Locustella naevia*, yellowhammer *Emberiza citronella*, lapwing *Vanellus vanellus*, nightingale *Luscinia megarhynchos*, herring gull *Larus argentatus*, black redstart *Phoenicurus ochruros*, stonechat *Saxicola rubicola*, bullfinch *Pyrrhula pyrrhula*, marsh tit *Poecile palustris*,	The nearest bird record to the Site is for lesser black-backed gull (141 m north, 1999). All other bird species detailed adjacent have been recorded 223 m or more from the Site or within 2 km (where only a four figure Grid Reference has been provided).

Species	Location of Records Relevant to the Survey Area (m)
Slavonian grebe *Podiceps auritus*, willow warbler *Phylloscopus trochilus*, dunnock *Prunella modularis*, firecrest *Regulus ignicapilla*, sand martin *Riparia riparia*, goldcrest *Regulus regulus*, woodcock *Scolopax rusticola*, fieldfare *Turdus pilaris* and mistle thrush *Turdus viscivorus*.	
Fungi Records of oak polypore *Piptoporus quercinus, Phleogena faginea, Coriolopsis gallica, Boletus riparielllus* and *Boletus declivitatum*.	Nearest fungi records (*Boletus declivitatum* and *Coriolopsis gallica*) are 1,456 m north (1991 and 2004) of the Site.
Hedgehog Several records of **h**edgehog *Erinaceus europaeus* were returned within 2 km of the Site.	Nearest record is 360 m north (2002) of the Site.
Invertebrates Records of swollen spire snail *Mercuria cf. similis*, *Laciniaria biplicata*, depressed (or compressed) river mussel *Pseudanodonta complanata*, cardinal click beetle *Ampedus cardinalis*, stag beetle *Lucanus cervus*, small heath *Coenonympha pamphilus*, latticed heath *Chiasmia clathrate*, white admiral *Limenitis camilla*, grizzled skipper *Pyrgus malvae*, ear moth *Amphipoea oculea*, mottled rustic *Caradrina morpheus*, September thorn *Ennomos erosaria*, dusky thorn *Ennomos fuscantaria*, Autumnal rustic *Eugnorisma glareosa*, August thorn *Ennomos quercinaria*, rustic *Hoplodrina blanda*, rosy minor *Mesoligia literosa*, rosy rustic *Hydraecia micacea*, hedge rustic *Tholera cespitis*, feathered gothic *Tholera decimalis*, knotgrass *Acronicta rumicis*, oak hook-tip *Watsonalla binaria*, shoulder-striped wainscot *Mythimna comma*, spinach *Eulithis mellinata*, flounced chestnut *Agrochola helvola*, dark spinach *Pelurga comitata*, brown-spot pinion *Agrochola litura*, beaded chestnut *Agrochola lychnidis*, double-line *Mythimna turca*, crescent *Celaena leucostigma*, streak *Chesias legatella*, dusky-lemon sallow *Xanthia gilvago*, mullein wave *Scopula marginepunctata*, dark-barred twin-spot carpet *Xanthorhoe ferrugata*, brindled beauty *Lycia hirtaria*, shaded broad-bar *Scotopteryx chenopodiata*, green-brindled crescent *Allophyes oxyacanthae*, powdered quaker *Orthosia gracilis*, lackey *Malacosoma neustria*, v-moth *Macaria wauaria*, ear moth *Amphipoea oculea*, four-spotted *Tyta luctuosa*, mouse moth *Amphipyra tragopoginis*, dusky brocade *Apamea remissa*, deep-brown dart *Aporophyla lutulenta*, sprawler *Asteroscopus sphinx*, dark brocade *Blepharita adusta*, garden dart *Euxoa nigricans*, blood-vein *Timandra comae*, small square-spot *Diarsia rubi*, garden tiger *Arctia caja*, Jersey tiger *Euplagia quadripunctaria*, goat moth *Cossus cossus*, ghost moth *Hepialus humuli*, dot moth *Melanchra persicariae*, broom moth *Melanchra pisi*, white ermine *Spilosoma lubricipeda*, buff ermine *Spilosoma luteum* and cinnabar *Tyria jacobaeae*. Other invertebrate records were provided in the data search. However, only those protected by legislation or listed as SoPI, LBAP or RBAP are detailed here.	Nearest invertebrate record is for stag beetle located 300 m north (1998). All other invertebrate species detailed adjacent have been recorded 1,019 m or more from the Site or within 2 km (where only a four figure Grid Reference has been provided).

Species	Location of Records Relevant to the Survey Area (m)
Reptiles Records of grass snake *Natrix natrix* and common lizard *Zootoca vivipara.*	The nearest reptile record to Site is for grass snake recorded 1,608 m north (2005) of the Site.
Flora Records include marsh clubmoss *Lycopodiella inundata,* ribbonwort *Pallavicinia lyellii*, crested buckler-fern *Dryopteris cristata*, pilwort *Pilularia globulifera*, common juniper *Juniperus communis subsp. communis*, lamb's succory *Arnoseris minima*, red star-thistle *Centaurea calcitrapa*, chamomile *Chamaemelum nobile*, stinking goosefoot *Chenopodium vulvaria*, dodder *Cuscuta epithymum*, brown galingale *Cyperus fuscus*, starfruit *Damasonium alisma*, Deptford pink *Dianthus armeria*, field eryngo *Eryngium campestre*, copse-bindweed *Fallopia dumetorum*, broad-leaved cudweed *Filago pyramidata*, grass-wrack pondweed *Potamogeton compressus*, shepherd's-needle *Scandix pecten-veneris*, marsh stitchwort *Stellaria palustris*, black poplar *Populus nigra subsp. Betulifolia,* divided sedge *Carex divisia*, corn cleavers *Galium tricornutum*, annual knawel *Scleranthus annuus*, spreading hedge-parsley *Torilis arvensis*, round-headed leek *Allium sphaerocephalon*, tower mustard *Arabis glabra*, small-flowered catchfly *Silene gallica*, autumn squill *Scilla autumnalis*, cut-grass *Leersia oryzoides*, field cow-wheat *Melampyrum arvense*, grape hyacinth *Muscari neglectum*, tubular water-dropwort *Oenanthe fistulosa*, childing pink *Petrorhagia nanteuilii*, triangular club-rush *Schoenoplectus triqueter*, bluebell *Hyacinthoides non-scripta*, corn buttercup *Ranunculus arvensis*, greater water-parsnip *Sium latifolium*, mistletoe *Viscum album* and cornflower *Centaurea cyanus.* Other flora records were provided in the data search. However, only those protected by legislation or listed as SoPI, LBAP or RBAP are detailed here.	Nearest flora record is for mistletoe located 412 m west (2001) of the Site. All other flora species detailed adjacent have been recorded 509 m or more from the Site or within 2 km (where only a four figure Grid Reference has been provided).
Invasive Species Records include ring-necked parakeet *Psittacula krameri*, monk parakeet *Myiopsitta monachus*, zebra mussel *Dreissena polymorpha*, Chinese mitten crab *Eriocheir sinensis*, oak processionary *Thaumetopoea processionea*, water fern *Azolla filiculoides*, few-flowered garlic *Allium paradoxum*, ragweed *Ambrosia artemisiifolia*, three-corned garlic *Allium triquetrum*, cotoneaster *Cotoneaster sp*., open-fruited cotoneaster *Cotoneaster bacillaris*, Tibetan cotoneaster *Cotoneaster conspicuous*, late cotoneaster *Cotoneaster lacteus*, Diels' cotoneaster *Cotoneaster dielsianus*, Franchet's cotoneaster *Cotoneaster franchetii*, Hjelmqvist's cotoneaster *Cotoneaster hjelmqvistii*, waterer's cotoneaster *Cotoneaster frigidus x salicifolius*, tree cotoneaster *Cotoneaster frigidus*, montbretia *Crocosmia pottsii x aurea*, Canadian waterweed *Elodea canadensis*, Nuttall's waterweed *Elodea nuttallii*, New Zealand pigmyweed *Crassula helmsii*, *pale galingale*, tree-of-heaven *Ailanthus altissima*, butterfly bush *Buddleja davidii*, Dartford cotoneaster *Cotoneaster obtusus*, floating	The nearest record to the Site is tree-of-heaven (on or immediately adjacent to the site) recorded in 2005. All other species stated adjacent have been recorded within 1km of the Site or within 2 km (where only a four figure Grid Reference has been provided).

Species	Location of Records Relevant to the Survey Area (m)
pennywort *Hydrocotyle ranunculoides*, Himalayan cotoneaster *Contoneaster simonsii*, gallant soldier *Galinsoga parviflora*, curley *waterweed Lagarosiphon major*, giant hogweed *Heracleum mantegazzianum*, shaggy soldier *Galinsoga quadriradiata*, green alkanet *Pentaglottis sempervirens*, Uruguayan Hampshire-purslane *Ludwigia grandiflora*, Japanese knotweed *Fallopia japonica*, goat's-rue *Galega officinalis*, fox-glove tree *Paulownia tomentosa*, cherry laurel *Prunus laurocerasus*, orange balsam *Impatiens capensis*, Indian balsam *Impatiens glandulifera*, small balsam *Impatiens parviflora*, perfoliate Alexanders *Smyrnium perfoliatum*, yellow archangel *Lamium galeobdolon subsp. argentatum*, evergreen oak *Quercus ilex*, Turkey oak *Quercus cerris*, least duckweed *Lemna minuta*, highclere holly *Ilex aquifolium x perado*, parrot's-feather *Myriophyllum aquaticum*, snowberry *Symphoricarpos albus*, rhododendron *Rhododendron ponticum*, Spanish bluebell *Hyacinthoides hispanica* and false-acacia *Robinia pseudoacacia*.	

‘Extended’ Phase 1 Habitat Survey

Habitats

4.4. The following habitat types, described in more detail below, were identified on the Site during the ‘Extended’ Phase 1 Habitat Survey:

- amenity grassland;
- bare ground;
- buildings;
- ephemeral vegetation;
- hardstanding;
- ornamental planting;
- hedge;
- scattered trees;
- tall ruderal; and
- walls.

4.5. The habitat descriptions given below should be read in conjunction with **Figure 1**, the Target Notes presented in **Appendix B** and the photographs (Plates) presented in **Appendix D**.

Amenity Grassland

4.6. Amenity grassland is present at the Site within Watney’s Sports Ground playing fields (**Plate 1**), Mortlake Green and the footpath / roadside verges at Chalker’s Corner and along the boundary with the River Thames. The short length of sward (approximately 5 cm) and limited species diversity recorded indicate that the amenity grassland is subject to an intensive mowing regime. The dominant species recorded was perennial rye grass *Lolium perenne*. Where the edges of the amenity grassland have avoided the mowing regime, this has a longer sward and is more species rich with wall barley *Hordeum murinum*, yarrow *Achillea millefolium*, red clover *Trifolium pratense*, meadow cranesbill *Geranium pratense*, common dandelion *Taraxacum officinale,* cleavers *Galium aparine,* ribwort plantain *Plantago lanceolata* and Yorkshire fog *Holcus lanatus* present.

4.7. The managed amenity grassland lacks ecological interest and is therefore considered to be of **negligible** ecological value.

Bare Ground

4.8. Bare ground, predominantly gravel, is present along the footpath (towpath) at the northern boundary of the Stag Brewery component of the Site adjacent to the River Thames.

4.9. The bare ground lacks ecological interest and is therefore considered to be of **negligible** ecological value.

Buildings

4.10. Fifteen buildings are present within or directly adjacent to the Site (**Figure 1** and **Table 3**). These buildings comprise industrial warehouses and storage buildings associated with redundant brewing

processes, offices, security offices and a club house. An office building and a pub located immediately adjacent to the Site boundary were also included in the survey. There are no buildings located within the Chalker's Corner component of the Site.

4.11. A description of each building and its potential to support roosting bats is detailed in the fauna section below. However, to summarise, B1-B7, B9 and B11 are considered to offer negligible value to roosting bats, B8, B10, B12, B13 and B15 are considered to offer low potential to support roosting bats and the off-Site B14 is considered to offer moderate potential to support roosting bats.

4.12. The buildings offer limited opportunities for nesting birds, most likely common species such as feral pigeon *Columba livia* nesting on the roofs, but also potentially other species.

4.13. A number of built structures associated with the former brewing activities within the Stag Brewery component of the Site are present, including tanks, vessels, storage containers, forecourt structures and loading bays. These structures are considered to offer limited nesting potential for nesting birds including black redstart given the presence of bird-prevention measures such as spikes and netting on many features.

4.14. Buildings are however common within the local area. As such, the buildings on-Site are considered to be of **Site value**.

Ephemeral Vegetation

4.15. Ephemeral vegetation has colonised cracked and disturbed areas of hardstanding at the Site. The species diversity of the ephemeral vegetation is limited to bristly ox-tongue *Helminthotheca echioides*, bramble *Rubus fruticosus,* cleavers, common ragwort *Jacobaea vulgaris*, broad leaved dock *Rumex obtusifolius*, common dandelion, butterfly bush *Buddleja davidii* and fleabane *conyza sp.* with colonisation covering approximately 5% of the hardstanding area.

4.16. Owing to the limited extent and species diversity of the ephemeral vegetation at the Site it is considered that this habitat is of **negligible** ecological value.

Hardstanding

4.17. Hardstanding areas are extensive at the Site providing redundant car parking facilities together with roads, and vehicular / pedestrian access.

4.18. This habitat lacks any value for ecology and is therefore considered to be of **negligible** ecological value.

Ornamental Planting

4.19. Several areas of ornamental planting are present across the Site within both raised and ground level planting beds. Formally managed ornamental planting is present at the base of B1 and adjacent to B7 (**Plate 2**), with less formal areas which appear unmanaged present towards the north of the Stag Brewery component of the Site. Ornamental planting is also present at the boundary of Mortlake Green and within the Chalker's Corner component of the Site. Species recorded include *Pyracantha sp.,* spindle *Euonymus japonicas,* barberry *Berberis darwinii,* senecio sunshine *Brachyglottis sp.,* holly *Ilex aquifolium, Euonymus fortune,* Mexican orange blossom *Choisya x dewitteana* 'Aztec Pearl', Cordyline *Cordyline sp.,* spotted laurel *Aucus japonica,* red robin *Photinia x fraseri,* broom *Cytisus scioparius.,* cotoneaster tree *Cotoneaster cornubia*, lilac *Syringa sp.,* clematis *Clematis* sp.*,* false castor oil *Fatsia japonica,* sweet bay *Laurus nobilis,*

daffodil *Narcissus sp.* and laurel *Laurus* sp.

4.20. The ornamental planting at the Site presents opportunities for invertebrates as well as nesting and foraging birds. Such habitat is however common and widespread within the local area and as such, this habitat is considered to be of **Site value**.

Hedge

4.21. A length (of approximately 90 m) of privet *Ligustrum sp* hedge (**Plate 3**) is present along the edge of Watney's Sports Ground playing fields along the southern boundary of the Stag Brewery component of the Site. This hedge is approximately 0.75 m in height and 0.5 m wide and appears to be subject to a regular management regime.

4.22. This habitat provides some limited opportunities for invertebrates and nesting and foraging birds. Owing to its small extent and limited species diversity it is considered to be of **Site value**.

Tall Ruderal

4.23. Tall ruderal is present at the northern boundary of the Stag Brewery component of the Site (East of Ship Lane), notably at the base of the river wall and beneath the tree line. Species recorded comprise dandelion, common hogweed *Heracleum sphondylium*, hemlock *Conium maculatum*, nettle *Urtica dioica*, cleavers, cow parsley *Anthriscus sylvestris*, perennial rye-grass, herb Robert *Geranium robertianum*, broad-leaved dock *Rumex obtusifolius* and greater plantain *Plantago major*.

4.24. This habitat provides some limited opportunities for invertebrates owing to its small extent and limited species diversity. As such, it is considered to be of **Site value**.

Trees

4.25. Scattered trees are present across the Site (**Plate 3**). These trees vary in age and comprise false acacia *Robinia pseudoacacia*, sycamore *Acer pseudoplatanus*, London plane *Platanus x hispanica*, fastigiate hornbeam *Carpinus betulus* 'Pyramidalis', small-leaved lime *Tilia cordata*, wild cherry *Prunus avium*, Himalayan birch *Betula utilis*, ash *Fraxinus excelsior*, elder *Sambucus nigra*, holly, whitebeam *Sorbus aria*, Swedish whitebeam *Sorbus intermedia*, tree-of-heaven *Ailanthus altissima*, shrub willow *Salix sp*, English elm *Ulmus procera*, fastigiate oak *Quercus robur* Fastigiata, Norway maple *Acer platanoides*, horse chestnut *Aesculus hippocastanum*, red horse chestnut *Aesculus x carnea*, hawthorn *Crataegus sp.,* Indian bean tree *Catalpa bignonioides* and manna ash *Fraxinus ornus*.

4.26. Several trees on-Site are considered to be of potential value to roosting bats (referred to later in this PEA), with all trees considered to be of potential value to nesting birds, as well as providing foraging opportunities for invertebrates and in turn foraging birds and bats. Trees are however common and widespread within the local area, and are therefore are considered to be of **Site value**.

Wall

4.27. Several free-standing walls are present within and forming boundaries of the Site as shown on **Figure 1** and **Plate 4**. All walls are constructed from brick. The brickwork is generally in good condition, with no signs of missing mortar or features which may provide suitable roosting opportunities for bats.

4.28. As such, this habitat is considered to be of **negligible** ecological value.

Invasive Species

4.29. Several species listed under Schedule 9 of the WCA (as amended) were returned within the data search.

4.30. No commonly known invasive plant species listed on Schedule 9 of the WCA (as amended) were recorded at the Site during the 'Extended' Phase 1 Habitat Survey.

4.31. Several floral species listed under the LISI including butterfly bush, tree of heaven and false acacia are present at the Site.

4.32. Furthermore, a number of ring-necked parakeet (listed under Schedule 9 of the WCA and under the LISI) were observed on-Site during the 'Extended' Phase 1 Habitat Survey.

4.33. All invasive species are assessed to be of **negligible** ecological value.

Protected or Notable Flora

4.34. No other protected or notable flora species were recorded at the Site during the 'Extended' Phase 1 Habitat Survey. As such the Site is considered to be of **negligible** value to protected and notable flora species. Therefore no further reference is made to such species group within this PEA.

Adjacent Habitats

4.35. The River Thames is located adjacent to the north of the Site. A public footpath (towpath) separates the Stag Brewery component of the Site from the River Thames (see **Plate 5** and **Target Note 1**). The section of river that flows adjacent to the Site is tidal and the banks adjacent to the footpath are heavily modified being reinforced by stone and concrete. A small boat landing stage also fronts on to the River Thames at the top of Ship Lane adjacent to the northern Site boundary. The banks of the River Thames comprise gravel and gently slope to the water's edge and support limited aquatic vegetation. The River Thames is of value to fish, birds and invertebrates, as well as acting as a wildlife corridor. The Environment Agency's closest and most recent river quality data[34] set for biology and chemistry indicates that the current ecological quality of the River Thames is 'Moderate'. The River Thames is considered to be of **metropolitan value**.

4.36. The Jolly Gardener's Pub (B14) and an office building (B15) are located adjacent to the Stag Brewery component of the Site as shown on **Figure 1**. B14 is considered to have moderate potential to support roosting bats (refer to later in this PEA) and limited potential to support nesting birds. Based on the current assessment B14 and its proximity to the Site boundary is considered to be of **Site value**. Building B15 is considered to have negligible potential to support roosting bats and nesting birds (refer to later in this PEA) and therefore is assessed to be of **negligible value**.

4.37. Mortlake Green, an area of public open space, lies adjacent to the southern boundary of the Stag Brewery component of the Site (**Plate 6** and **Target Note 2**). This green comprises amenity grassland, scattered trees, ornamental planting and hardstanding pathways. These habitats are well managed and regularly utilized by the local community. The habitats such as the shrubs and trees are likely to offer opportunities for birds, bats and invertebrates. As such, Mortlake Green is considered to be of **Site value**.

4.38. The remainder of the Site is bound by residential and commercial properties and / or roads on all

[34] Environment Agency (2009). River Thames, Wey - Mole Stretch. Available on-line at http://maps.environment-agency.gov.uk/wiyby/wiybyController?latest=true&topic=wfd_estuaries&ep=query&lang=_e&x=520467.89

sides which are considered to be of **negligible** ecological value.

Protected and Notable Fauna

4.39. As a result of the 'Extended' Phase 1 Habitat Survey, external building inspections, ground based inspection of trees and a review of the ecological desk study, an assessment is made below on the potential of the Site to support:

- bats;
- birds; and
- terrestrial invertebrates.

4.40. The fauna descriptions provided below should be read in conjunction with **Figure 1**, the Target Notes presented in **Appendix B** and the photographs (Plates) presented in **Appendix D**.

Bats

4.41. Numerous bat species records were returned in the desk study from within 2 km of the Site.

4.42. Thirteen buildings (B1-B13) are present within the Stag Brewery component of the Site and a further two buildings (B14 and B15) are located directly adjacent to the Stag Brewery component of the Site. A description of each building and its potential to support roosting bats is detailed in **Table 3**. Each building has a reference code (B1-B15) with its location shown on **Figure 1**. In summary, the majority of buildings are considered to be of **negligible** bat roosting potential. However, the Maltings (B8), L Block (B10), Production building (B12) and Power House building (B13) are considered to have **low** bat roosting potential, whist the Jolly Gardener's Pub (B14) (adjacent to the Stag Brewery component of the Site) is considered to have **moderate** bat roosting potential.

Table 3: Building Inspection Results

Building Description	Building Photographs	Bat Roost Rating
B1 – Club House at the Sports Club The Club House comprises a two storey concrete framed building with brick walls and a flat roof. Overall, the building is in good condition and no features of potential value to roosting bats were observed.		**Negligible potential.**
B2 to B7 – Industrial Units There are several industrial units across the Stag Brewery component of the Site including the Process Building (B2), Stables Court (B3), Defunct Production Buildings including effluent treatment (B4), Powder Store (B5), Finishing Cellar / Chip Cellar / Brew House (B6) and Offices (P.O.B) / and the west gatehouse (B7). These buildings are all of similar construction, with most buildings comprising brick walls at the ground level and corrugated metal cladding above with flat roofs. Other structures include units with shallow pitched corrugated asbestos roofs, tanks and portacabins. All of these buildings are simple in their construction and offer no opportunities for roosting bats.	 	**Negligible potential.**
B8 – Maltings The majority of this building comprises eight storeys, whilst the eastern section comprises nine storeys. It has brick walls and a pitched roof covered in slate tiles with lead flashing along the ridge line. All of the windows have been boarded up on the exterior. On the southern aspect there is a gap (approximately 20 cm x 5 cm) in the brickwork above one of the windows which could provide potential opportunities for roosting bats. Several other smaller crevices were observed within the brickwork in various locations at the building. The pitched roof is in		**Low potential.**

Building Description	Building Photographs	Bat Roost Rating
good condition with no obvious features for roosting bats observed during the external inspection. Personal communication with the Site manager confirmed that this building has no floors inside and is therefore open to the pitch internally.		
<u>B9 – Packaging Building</u> The majority of the Packaging Building comprises a warehouse style building which has brick walls to 1 m high then corrugated plastic cladding above. The roof consists of hipped and pitched sections constructed from corrugated plastic sheeting with skylights present in some areas. A section on the southern aspect of the building comprises two storeys and is constructed from brick walls with a flat roof. Overall the building is in good condition and no features of potential value to roosting bats were observed.		**Negligible potential.**
<u>B10 – L Block</u> L Block comprises the Former Bottling Building in the eastern section and a Former Hotel in the western section. The Former Bottling Building is three storeys and has a mixture of brick and concrete walls. The roof is mostly pitched and covered in roofing felt with dormer windows protruding. There is a hole in the north facing wall where it appears that a former window has been removed, which could provide opportunities for roosting bats. Other crevices were observed within the brickwork along the northern side of the Former Bottling Building. The Former Hotel comprises two storeys at the northern end and three storeys at the southern end. The walls are constructed from brick and it has a slate tiled pitched roof. The external brickwork is in good condition. However, a missing ridge tile was observed on the south-west facing aspect of the roof which could provide potential opportunities for roosting bats.		**Low potential.**

Building Description	Building Photographs	Bat Roost Rating
B11 – East Gatehouse A single storey brick built building. The roof comprises a mixture of flat and shallow pitched sections covered in roofing felt. There is a plastic soffit box around the top of the external perimeter wall. Overall the building is in good condition and no features of potential value to roosting bats were observed.		**Negligible potential.**
B12 & B13 – Power House and Production (CO2 Block) The CO2 Block (B12) and Power House building (B13) are similar in construction with brick walls at the base and corrugated metal cladding above with flat roofs. On the eastern aspect of both buildings it appears that a former shutter has been removed resulting in the exposure of the cavity walls around the perimeter of where the removal works have been undertaken. The exposed cavity walls could lead to a potential roosting space for bats.		**Low potential.**
B14 – The Jolly Gardener's Pub This building is located outside the Site boundary, but lies adjacent to the Stag Brewery component of the Site's southern boundary. The main section (eastern aspect) of this pub comprises three storeys, whilst the western aspect comprises one storey. It is constructed from brick with a hipped clay tiled roof at the eastern aspect and a flat roof at the western aspect. Dormer windows and chimney stacks protrude from the hipped roof. Numerous missing and slipped tiles were noted on the hipped roof which could provide potential opportunities for roosting bats.		**Moderate potential.**
B15 This building is located outside the Site boundary, but lies adjacent to the Stag Brewery component of the Site's southern boundary. It is a building of modern construction. The walls are constructed from metal and it has a metal flat roof. No features of potential value to roosting bats were observed.		**Negligible potential.**

4.43. A number of trees on-Site and on the Site boundary contain potential roosting features for bats, as shown on **Figure 1**. A total of 17 trees including London plane, lime, cherry, sycamore, red horse chestnut, wingnut and two unidentified species are assessed as having **low** potential (denoted as blue on **Figure 1**) to support roosting bats due to the presence of features such as ivy and cavities, with a further seven trees (red horse chestnut, horse chestnut and London plane) assessed to have **moderate** potential (denoted as red on **Figure 1**) to support roosting bats owing to the presence of a large number of crevices. All other trees on-Site and on the Site boundary are assessed as not offering any opportunities for roosting bats and therefore are considered to have **negligible** bat roosting potential.

4.44. The Site itself is considered to offer limited foraging and commuting opportunities for bats owing to the predominant habitat type comprising buildings and hardstanding. The trees around the periphery of the Site offer some foraging and commuting opportunities for bats. However, given their context and limited extent at the Site, it is unlikely that the Site is an important foraging resource for local bat populations.

4.45. Given the evidence presented above, it is currently considered that the Site is of **Site value** to bats. Further surveys are recommended in this PEA to determine the value of the Site to bats. Further surveys were subsequently been carried out and the results are presented in a Protected Species Report.

Birds

4.46. Numerous bird species records were returned in the data search from within 2 km of the Site.

4.47. No records were returned from GiGL for peregrine falcon within 2 km of the Site. Peregrine falcon is a species fully protected under Schedule 1 of the WCA and is the subject of a Species Action Plan (SAP) in the LBAP. Peregrines breed on tall buildings (typically 20 m-200 m above ground level[35]) which have suitable ledges for nesting. Although tall buildings exist on-Site, the majority of these buildings are of simple warehouse style construction and as such lack any suitable ledges for nesting peregrines. The Maltings building (B8) is approximately 18-20 m in height and does have one suitable ledge feature (**Plate 7** and **Target Note 3**) on the southern aspect which could be used by nesting peregrine falcons. No peregrine falcons were observed during the 'Extended' Phase 1 Habitat Survey. However, feral pigeons *Columba livia* were observed upon the roof of the Maltings building.

4.48. GiGL returned three non-confidential records of black redstart within 2 km of the Site, with the closest and most recent record located 1,902 m (1996) north of the Site. Black redstart is a species fully protected under Schedule 1 of the WCA and is the subject of a SAP in the LBAP. Areas of sparse wasteland vegetation, usually typical of brownfield sites, are the optimal foraging habitat for black redstarts. The sparse patches of ephemeral vegetation / gravel present at the Site are not considered extensive enough to provide suitable foraging habitat for black redstart. However, the River Thames which lies adjacent to the northern boundary of the Stag Brewery of the Site is known to be an important habitat corridor for black redstarts in London. It is considered that the majority of existing buildings at the Site do not offer suitable nesting habitat for black redstarts owing to their simple structure resulting in a lack of holes and singing posts. In addition, bird prevention spikes and netting were observed at numerous locations at buildings across the Site. However, it cannot be ruled out that black redstarts are not utilising the more complex buildings or built structures at the Site in areas where bird prevention measures are not installed. As such, given the habitats present on the Site, it is considered that the Site and the adjacent River Thames could offer potential habitat for black redstarts and therefore further surveys for this species are

[35] Dixon, D & Shawyer, C. Peregrine Falcons: Provision of artificial nest sites on built structures. Advice note for conservation organisations, local authorities and developers.

recommended (refer to Section 5 of this PEA and the subsequent Protected Species Report).

4.49. During the 'Extended' Phase 1 Habitat Survey feral pigeon, blackbird *Turdus merula*, ring-necked parakeet *Psittacula krameri*, magpie *Pica pica* and carrion crow *Corvus corone* were observed on-Site. As stated previously, bird prevention spikes and netting are present on some buildings and therefore nesting opportunities are limited. However, the areas of the buildings where bird prevention measures are absent together with the trees on-Site offer potential opportunities for nesting birds at the Site. Foraging opportunities on the Site for birds are limited given that the dominant habitats at the Site comprise buildings and hard standing, however the trees and ornamental planting are considered to provide some bird foraging opportunities.

4.50. The Site provides some nesting opportunities for bird species owing to the presence of buildings and trees. Given the size of the Site and the extent of the habitats of value to birds, it is considered unlikely that any significant bird populations are present at the Site. As such, it is currently considered that the Site is of **Site value** to birds. Further surveys are recommended to determine the value of the Site to black redstarts.

Terrestrial Invertebrates

4.51. Numerous invertebrate species records were returned in the data search from within 2 km of the Site.

4.52. The ornamental planting and trees are likely to offer opportunities for common species of invertebrates. However, owing to the extent of these habitats and species diversity recorded, it is considered unlikely that they would support any large populations or notable species. The Site is therefore considered to be of **negligible value** to protected or notable invertebrates, but of **Site value** to common invertebrate species.

4.53. The adjacent River Thames offers opportunities for aquatic invertebrate species.

5. Discussion and Recommendations

Designated Sites

Statutory Sites

5.1. The nearest statutory designated sites are Barnes Common LNR (1,190 m east of the Stag Brewery component of the Site) and Richmond Park SAC, NNR, SSSI (1,330 m south of the Stag Brewery component of the Site). Given the distance between the Site and these statutory designated sites, it is considered highly unlikely that there would be any direct or indirect adverse effects to Barnes Common LNR and Richmond SAC, NNR, SSSI, or any other further statutory designated sites as a result of the Development.

Non-Statutory Sites

5.2. The nearest non-statutory designated site is the River Thames SINC, which lies adjacent to the north of the Stag Brewery component of the Site. The water quality of the River Thames could be adversely affected by the Development as a result of pollution run-off or silt entering the river during the demolition, alteration, refurbishment and construction phase (the 'Works) of the Development. This in turn could affect the wildlife associated with the river such as invertebrates and fish. Other potential indirect effects associated with the Works could include increased levels of noise, dust, vibration and light pollution.

5.3. It is recommended that a Construction Environmental Management Plan (CEMP) (see below for further details) be implemented to minimise the potential adverse effects on the River Thames SINC during the Works.

5.4. It is considered unlikely that there would be any direct or indirect effects on any other non-statutory designated sites as a result of the Development owing to the separation and distance (all other non-statutory site are greater than 140 m from the Site) of the non-statutory sites from the Site by surrounding urban development and infrastructure.

5.5. During the operational phase of the Development, the River Thames SINC could potentially be adversely impacted by increased public disturbance as a result in a change in land use (brought about by the Development). However, the River Thames is already well used for recreational purposes, including heavy boat use adjacent to the northern boundary of the Stag Brewery component of the Site, and as such the impact is considered to be negligible. Furthermore, the provision of green space (as recommended later in this PEA) within the Development design would provide amenity space for the future residents, alleviating pressure on the adjacent non-statutory sites.

Habitats

5.6. The Site comprises habitats assessed to be of value **within the boundary of the Site only** (buildings, ornamental planting, hedge, tall ruderal and trees) and of **negligible** value (amenity grassland, bare ground, ephemeral vegetation, hardstanding and walls).

5.7. In line with the NPPF, Regional Planning Policy and Local Planning Policy, the following protection measures should be adhered to during the Works associated with the Development:

- any trees to be retained on-Site and adjacent to the Site during the Works should be appropriately protected in accordance with BS 5837:2012 - "*Trees in relation to design,*

demolition and construction – Recommendations"[36]; and

- as a matter of best practice, it is recommended that a CEMP (refer to later in this PEA) is produced for the Works associated with the Development. The CEMP will include measures to minimise potential pollution events such as surface run-off, dust arisings, noise and vibration, where appropriate.

5.8. To conserve and increase the ecological value of habitats at the Site and in line with planning policy, the following recommendations and enhancements should be considered as part of the Development:

- it is recommended the trees on-Site are retained, where possible, and placed under a suitable management regime, as part of the Development;
- the Development proposals should include green infrastructure corridors within landscape proposals to create and connect habitats of value to wildlife;
- the use of native species, or species of benefit to wildlife, within the Development's landscape scheme should be used to provide foraging opportunities for birds, bats, invertebrates and other fauna is recommended to enhance the Site for wildlife;
- where new landscaping is to be undertaken as part of the Development proposals, horticultural practice should include the use of peat-free composts, mulches and soil conditioners. The use of pesticides (herbicides, insecticides, fungicides and slug pellets) should be discouraged to prevent fatal effects on the food chain particularly invertebrates, birds and / or mammals. Any pesticides used should be non-residual; and
- subject to feasibility, additional habitat could be created above ground level within the Development utilising roof top space. Green roofs could be provided by creating grassland on roofs by sowing sedum and hardy plant species in shallow low-nutrient soils. If these are accessible to the public they could provide amenity space for residents within the Site. Areas of brown roof could be provided with a gravel substrate and could be sown with London rocket *Sysimbrium irio* and tower mustard *Arabis glabra* (London SAP) if seed is available from local populations. The brown roofs could otherwise be allowed to self-seed with ruderal species, potentially providing a food source for invertebrates on which, in turn, other invertebrates and birds and bats may feed. These brown roofs can provide breeding and nesting habitat for invertebrates and birds (including the house sparrow, a SoPI and London BAP priority species). Brown roofs would also provide suitable foraging for black redstarts (London BAP priority species). Nest box provision for this species could also be provided on overlooking vertical structures. Both green / brown roofs are ideal for including bird boxes on (refer to Bird section below). Rooftop provision of this kind is in line with London Planning Policy 7.19 (Biodiversity and Access to Nature).

Adjacent Habitats

5.9. As previously detailed, it is recommended that a CEMP (refer to later in this PEA) is implemented to minimise the potential adverse effects on the adjacent River Thames SINC and Mortlake Green during the Works.

5.10. The remainder of the Site is bound by habitats of **negligible** ecological value and therefore no specific protection of these habitats is required.

Invasive Species

5.11. Butterfly bush and tree of heaven are listed as LISI Category 3, the explanation for this category is

[36] BSI (2012); 'BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations'.

as follows:

"*Species of high impact or concern which are widespread in London and require concerted, coordinated and extensive action to control / eradicate*".

5.12. As a matter of best practice, it is recommended that butterfly bush and tree of heaven are removed from the Site via a suitable eradication programme prior to the commencement of the Works associated with the Development, where feasible, and not included within the planting schedule of any future landscape proposals.

5.13. False acacia is present on-Site and ring-necked parakeets were also observed on-Site. These species are listed as LISI Category 4 which states:

"*Species which are widespread for which eradication is not feasible but where avoiding spread to other sites may be required.*"

5.14. As such, the presence of these species on-Site does not require any further consideration.

Construction Environmental Management Plan

5.15. A Construction Environmental Management Plan (CEMP) should be produced and implemented to allow the Development proposals to be implemented whilst minimising the impacts on any retained habitats on-Site and adjacent habitats of value such as the River Thames SINC. Measures to be included within the CEMP could comprise:

- works to be undertaken during daylight hours or lighting to be controlled to ensure there is minimal light spill on adjacent habitats during construction works;
- the use of British Standards Best Practice Guidelines to reduce disturbance resulting from noise, surface run-off and vibration during construction works;
- careful siting and appropriate bunding of storage facilities for fuel and hazardous materials;
- delivery of oils and fuels to be supervised at all times;
- dust build up and mud deposits should be avoided and stockpiled material to be covered or stored within a contained area to enable run-off to be treated;
- use of drip trays when filling smaller containers from tanks or drums to avoid spillage entering the ground or drainage systems;
- drainage outlets into the water course should be located, sealed and periodically checked to prevent surface runoff entering the water course; and
- measures should be put in place to minimise debris, dust and contaminants entering the water courses and flowing downstream via placement of interceptors (and appropriately treated / filtered) and watering down the buildings and machinery during works.

Protected and Notable Fauna

Bats

5.16. The Maltings (B8), L Block (B10), CO2 Block (B12), and Power House (B13) have been identified as having **low** potential to support bat roosts and the Jolly Gardener's Pub (B14) (adjacent to the Stag Brewery component of the Site) has been identified as having **moderate** potential to support bat roosts. Furthermore seven trees (**Figure 1**) have been identified as having **moderate** potential to support roosting bats. In accordance with current best practice guidelines these buildings and

trees should be subject to further surveys. As such, if any of these buildings and trees are likely to be impacted upon as a result of the Development, it is recommended that the following further survey work is undertaken (refer to the Protected Species Report for the results of the further survey work undertaken as recommended within this PEA):

- low potential buildings (i.e. B8, B10, B12, B13): a single evening emergence or dawn re-entry survey; and
- moderate potential trees (i.e. those circled red on **Figure 1**) and the Jolly Gardener's Pub (B14): a single evening emergence and dawn re-entry survey spread at least two weeks apart.

5.17. All of the evening emergence and dawn re-entry surveys should be carried out when bats are most active (May to August / September), to determine the presence or absence of roosting bats.

5.18. If any buildings or trees are confirmed to support roosting bats the survey effort detailed above would need to be increased to conform to current best practice guidelines. The additional surveys would assist in adequately assessing the number of bats present and the roost classification to advise the requirement for mitigation. Furthermore, if any of the buildings or trees that would be directly impacted on by the Development are confirmed as supporting a bat roost, it is recommended that a detailed mitigation strategy to support a Natural England European Protected Species (EPS) development licence is prepared, in order to avoid infringement of relevant legislation. The licence application would detail the proposed mitigation including provisions of alternative bat roosting opportunities on the Site, timing of the proposed works and the provision of ecological supervision during the building demolition / tree removal phase. Post-development monitoring of the mitigation provided may also be required as part of the licence and the survey data would need to be within 18 months of age to support the licence application. It should be noted that Natural England require a minimum of 30 working days to process a licence application.

5.19. A total of 17 trees on-Site and on the Site boundary are assessed as having **low** potential to support roosting bats. In accordance with best practice guidelines no further survey of these trees is necessary. However, if any of these trees require removal as part of the Works, then it is recommended that this is undertaken using soft felling techniques.

5.20. All other buildings and trees on-Site and on the Site boundary have been assessed as being of **negligible** potential to support roosting bats. Current best practice guidelines state that buildings and trees with negligible potential for roosting bats do not require further survey.

5.21. If there is a significant period of time (18 months is considered standard in most LPAs) between authorising this PEA and the Works, these buildings and trees may deteriorate in condition and therefore should be subject to an update survey to determine if their potential to support roosting bats has changed.

5.22. The habitats at the Site offer limited potential for foraging and commuting bats given that the predominant habitat type is buildings and hardstanding. The adjacent River Thames is likely to provide foraging and commuting habitat for bats. However, this riparian feature will not be directly impacted by the Development. A sensitive lighting strategy will be designed within the Development to reduce light spill onto the River Thames. Furthermore, the corridor adjacent to the River Thames will be enhanced for foraging and commuting bats by the provision of soft landscaping as part of the Development.

5.23. As previously discussed, following consultation with LBRuT (**Appendix C**), three bat activity surveys supplemented by three automated detector surveys were undertaken along the northern Site boundary adjacent to the River Thames (refer to the Protected Species Report for details on

the results).

5.24. Bat roosting opportunities at the Site could be enhanced through the provision of bat boxes / tubes and / or bricks incorporated into any proposed buildings / structures and / or mounted onto existing / newly planted trees. It is recommended that bat boxes / tubes and / or bricks are targeted at SoPI species. Appropriate bat box / tube and / or brick models include Schwegler N27 bat box brick, Schwegler 1FD bat box and Schwegler 1FR bat tube. Bat bricks (e.g. Schwegler N27) can be incorporated into the fabric of the buildings and are available in a variety of external fascia materials; providing bat roosting opportunities which are aesthetically unobtrusive. The location of the bat boxes / tubes and / or bricks would be specified by an ecologist but face vegetated habitats and be away from publicly accessible roof spaces (if included). The boxes / tubes and / or bricks should be orientated facing between south-east and south-west, and at least 4 m above ground level (to prevent vandalism) with a clear aspect.

Birds

5.25. The ledge on the southern aspect of the Maltings building (B8) has potential to provide perching and nesting opportunities for peregrine falcon. However, this species was not observed on-Site during the 'Extended' Phase 1 Habitat Survey and there were no records of this species within the data search. No other habitats at the Site are considered to be of value to peregrine falcons and therefore no further surveys are recommended. It is however recommended as a precautionary measure that a pre-demolition survey is undertaken of the Maltings building (B8) ensure that no peregrines are utilising the building in advance of the Works.

5.26. Given that the Site lies adjacent to the River Thames and the presence of buildings on-Site which could be utilised by perching or nesting black redstarts it is recommended that further surveys are undertaken to determine if this species is present on or adjacent to the Site. Five surveys would be required between mid-April and June in accordance with industry standard methodology[37] (refer to the Protected Species Report for details on the results of these surveys). Should black redstarts be recorded on-Site, appropriate mitigation and enhancement for this species should be provided within the Development. This may include the provision of suitable nest boxes (see below) and brown roofs.

5.27. The habitats at the Site including buildings and trees are considered to provide nesting opportunities for low numbers of common species of breeding birds. As such, the following mitigation and enhancement measures are recommended:

- should any habitats of value to nesting birds require removal to facilitate the any future development this will be undertaken outside of the breeding bird season (March to August inclusive). However, if works cannot be undertaken outside the breeding bird season an ecologist will inspect any vegetation / building to be removed. An experienced ecologist will be deployed to carry out an inspection at least within 24-hours prior to the clearance. If an occupied nest is detected, a buffer zone (area dependant on species) will be created around the nest, and clearance of this area delayed until the young have fledged;
- it is recommended that the habitats of value to nesting birds are retained on the Site where possible, to retain the interest for nesting birds. Should these habitats require removal to facilitate any future development, they should be replaced by habitats of value to nesting birds; and
- the use of native plants species as recommended above would provide additional foraging

[37] Gilbert G, Gibbons DW & Evans J. Bird Monitoring Methods (1998): 'A manual of techniques for key UK species'. RSPB, (reprinted in 2011).

habitat for local bird species.

5.28. In addition, opportunities to enhance the Site for birds could be incorporated into the Development. Simple measures could include provision of artificial nest sites within new habitats. It is recommended that artificial nest sites are targeted at bird species of conservation value such as SoPI species, LBAP and RBAP species. The following bird boxes are recommended:

- 'Schwegler Starling Next Box 3S' – This nest box has been designed with a large, deep cavity and 45 mm entrance hole to attract starlings and can be installed on mature trees or buildings. As well as starlings, this nest box is suitable for woodpecker species. These bird boxes should be placed at least 3 m above ground level to prevent vandalism and face east or west;
- 'Schwegler Swift Brick No.25' – Swift bricks should be installed under the roof, in shaded areas out of direct sunlight and away from windows. They should be installed at least 5 m above ground level. Swift bricks, if competently installed, do not require any maintenance;
- 'Schwegler Sparrow Terrace 1SP' – Suitable for house sparrows and tree sparrows. The nest box contains three separate nesting cavities. They can be installed on buildings either affixed to the exterior wall or incorporated into the wall. These bird boxes should be placed at least 3 m above ground level to prevent vandalism and face east or west; and
- 'Schwegler Nest Box 2H' – An open fronted box suitable for a number of bird species including black redstart. These boxes should be installed on buildings not trees (unless in dense climbing plant cover i.e. ivy) and should be hung sideways with the entrance at a 90° angle to the wall, preferably placed below 2 m in height in areas with restricted public access (i.e. upon rooftops), or if this is not feasible, 3 m above ground level to prevent vandalism and face east or west.

5.29. As detailed previously, the provision of green space would provide foraging and nesting opportunities at the Site for local bird species.

Invertebrates

5.30. Only common UK invertebrate species are considered to utilise the Site's habitats. As such, any loss of these habitats is not considered to impact any protected or notable invertebrate species.

5.31. Opportunities at the Site for invertebrates could be enhanced through new landscape planting. The incorporation of deadwood features within landscape areas, plus the use of native plants species, as recommended above, would provide increased opportunities for a range of invertebrates.

5.32. The adjacent River Thames offers opportunities for aquatic invertebrate species and therefore a detailed CEMP should be developed and implemented (as detailed previously) to prevent any adverse effects on aquatic invertebrates as a result of the Works.

6. Conclusions

6.1. The Site is not subject to any statutory or non-statutory designations. The nearest designated site is the River Thames SINC, which lies adjacent to the northern Site boundary. The adjacent River Thames is assessed to be of value to fish, birds and aquatic invertebrates. It is recommended that a CEMP is implemented to minimise any potential effects to this SINC.

6.2. The Site comprises of habitats assessed to be of value **within the boundary of the Site only** (buildings, ornamental planting, hedge, tall ruderal and trees) and of **negligible** value (amenity grassland, bare ground, ephemeral vegetation, hardstanding and wall).

6.3. Based on the results of this PEA, the Site has potential to support notable and legally protected species including bats and nesting birds. **Table 4** below outlines the further survey requirements, which have subsequently been undertaken (refer to the Protected Species Report).

6.4. The results of the recommended additional surveys will confirm the presence or likely absence of roosting bats and black redstarts and determine how they are using the Site. This information is required to inform the emerging design of the development masterplan and include appropriate mitigation and enhancement at the Site, if required.

Table 4: Summary of Further Survey Work Required

Habitats/Species	Survey	Timing
Bats	Emergence / Re-entry Surveys of low and moderate potential buildings and moderate potential trees Bat Activity Surveys Automated Detector Surveys	May to August / September inclusive
Black redstart	Presence / likely absence surveys	Mid-April to June inclusive.

FIGURES