BEAM PARK

Phase 2 Ecology Report

Phase 2A Reserved Matters Application (Works within the London Borough of Havering) - Submission to the GLA

July 2019

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BEAM PARK

ECOLOGICAL APPRAISAL: PHASE 2

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Ecological Appraisal
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EXECUTIVE SUMMARY

- This report summarises the ecological baseline, impacts and mitigation associated with the development of Phase 2 of Beam Park, London Borough of Barking & Dagenham and London Borough of Havering. It includes an updated desk study and Phase 1 habitat survey.
- The Beam Park development comprises eight phases of residential properties with associated retail, employment, education and leisure facilities, and supporting infrastructure, with the total number of new dwellings capped at 3,000. This report is concerned with the development of Phase 2, which consists of 514 new homes, and associated infrastructure.
- The wider Beam Park site is located south-east of Dagenham in east London. It is located in both London Boroughs of Havering and the London Borough of Barking and Dagenham. It is approximately 31.4 ha in size. A railway line runs along the south of the site boundary and the A1306 New Road runs along the north of the site boundary. Similar habitat is present to the east and west of the site. Chain-link fencing runs around the site boundary.
- Phase 2 incorporates the central section of the wider site both to the east of the River Beam adjacent to Phase 1, and west of the River Beam where it is adjacent to Phases 3 and 4. The Phase 2 Site is approximately 9.24 ha in size. Phase 2 consists of the former Beam Park and PTA areas, and is bisected by Beam River. This area is within both the London Borough of Havering and London Borough of Barking and Dagenham.
- The majority of the Phase 2 site comprised bare concrete hard standing, and bare ground was present where construction had commenced at the eastern side of site. Invasive scrub species such as Buddleia and Giant Hogweed were recorded in places. Improved grassland and scattered trees also occur on site. The Beam River and Thames Avenue road run through the centre of the site. At the northern end of the River a marketing suite area had been constructed which comprised two new buildings and formal landscaping.
- Dagenham Breach and the Lower Beam River in Dagenham Sit of Borough Importance for Nature Conservation Grade 1 SBI(I) is located within the site boundary in the London Borough of Barking and Dagenham, Lower River Beam and Ford Works Ditches SBI (I) is located within the site boundary in the London Borough of Havering. In addition, Rainham Railsides SBI(II) is located adjacent to the southern boundary of the site east of the River Beam. There is, therefore, potential for impacts during construction and operation of the proposed development on these designated sites. Riparian habitat along the river will be lost as part of works to increase flood storage capacity, and this impact will be mitigated via replacement habitat creation.
- Potential construction impacts on habitats include dust generation, accidental discharge of pollutants, surface water discharge and litter and other construction debris blowing onto the site. These impacts will be minimised through adoption of best practice construction measures, formalised through the production of a Construction and Environmental Management Plan.
- The majority of habitats present on site are of limited intrinsic ecological value as the proposed development would lead to the loss of hard standing and bare ground. The River Beam qualifies as the UKBAP and LBAP habitat Rivers & Streams. Impacts on riparian habitats will be mitigated by creation of new habitats along the River Beam, and an Ecological Management Plan will be produced detailing management of new habitats.

- Retained trees should be protected during construction by the erection of Tree Protection Fencing to prevent site machinery from compacting the root zone.
- The trees and scrub within the boundary of Phase 2 Site have potential to support low numbers of breeding birds. Measures should be undertaken to avoid damaging or destroying active bird nests during tree and scrub clearance works on site.
- No Black Redstart were seen or heard on site during the site walkover in 2016 and the site is not considered to contain habitat suitable for breeding Black Redstart. However, this species could forage on site.
- Ten mature trees along the river corridor had potential to be used by roosting bats, and therefore further surveys to determine whether bat roosts are present are being undertaken. Two of these trees will be removed, and if bat roosts are found in these trees, mitigation in the form of provision of replacement roost sites will be provided, secured via a Natural England protected species licence.
- A survey of Water Voles carried out in June 2019 found signs of recent Water Vole activity along the River Beam south of the main road bridge crossing the river, including latrines and feeding signs. Bankside vegetation will be protected during construction, and management of the bankside vegetation will be carried out in a suitable manner to protect Water Voles and maintain habitat in a suitable condition for them.
- Mitigation and / or enhancement measures for Black Redstart, breeding birds, Water Voles, bats and hedgehogs have been recommended.
- Lighting should be carefully modelled and designed to ensure that mature trees and the river habitat that provide foraging and commuting habitat for bats are not subjected to elevated light levels to avoid disturbing bats and their invertebrate prey.
- Japanese Knotweed were recorded outside the site boundary although no evidence of these species was seen on site. Himalayan Balsam, two species of Cotoneaster, Buddleia and Giant Hogweed were recorded on site. Himalayan Balsam was recorded in habitats adjacent to the River Beam. All of these species are highly invasive and difficult to eradicate. Measures will be undertaken to prevent the spread of these species during and after construction.
- Opportunities for ecological enhancements include provision of brown roofs, installation of bat and bird boxes on retained trees or new buildings, installation of invertebrate boxes, the provision of gaps in fences for hedgehogs and the use of native species in landscaping schemes.
- Overall the development of Phase 2 will provide a net gain in habitat area along the River Beam, and together with the retention of mature trees along the river, the provision of brown and green roofs and the provision of bat and bird boxes, it is considered that overall the development will have a net benefit to biodiversity compared with the existing baseline.

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1 INTRODUCTION

1.1 Purpose and scope of this report

1.1.1 RPS was commissioned by Countryside Properties to undertake ecological surveys and assessment of ecological impacts for the Reserved Matters application for Phase 2 of Beam Park, London Borough of Barking & Dagenham and London Borough of Havering.

1.1.2 Previous ecology reports (RPS 2017a, 2017b, 2017c and 2017d) were submitted with the ES June 2017 produced for the original planning application, and comprised a site-wide Ecological Appraisal, results of reptile, bat and water vole surveys, an ecological appraisal for Phase 1 surcharging works and an outline Ecological Management Plan (EMP).

1.1.3 This report updates the baseline desk study, Phase 1 habitat survey and survey of trees with bat roost potential. It summarises the relevant parts of the impact assessment reported in the June 2017 Environmental Statement, and outlines the mitigation measures required to minimise ecological impacts and to provide ecological enhancements within Phase 2.

1.1.4 The aims of this report are to:

- undertake a desk-based review of designated sites and records of protected species and other species that could present a constraint;
- map and assess the habitats present on site;
- summarise the ecological impacts associated with the development of Phase 2;
- summarise mitigation measures required to address those impacts; and
- summarise measures for appropriate biodiversity enhancements in line with national and local planning policy.

1.2 Previous surveys and assessment

1.2.1 An initial survey of the entire Beam Park site was undertaken in July 2016 (RPS, 2017a) and further surveys for reptiles, Water Voles and bats within Phase 2 were recommended. These surveys were undertaken in August and October 2016 (RPS, 2017b).

1.2.2 The Ecology chapter of the ES June 2017 summarised the Important Ecological Features (IEFs) for which potential impacts were identified, assessed those impacts and where necessary identified mitigation measures required to address those impacts.

1.2.3 When responding to comments on the planning application by the Ecology Officers, some additional desk-based assessment of bat activity was undertaken (RPS, 2017d).

1.2.4 Since the original surveys were undertaken, separate applications with accompanying ecological reports have been submitted for enabling works to prepare the site for development, including clearing of on-site structures, addressing contamination, importation and positioning of crushed material on site for up to 9 months (preventing future settlement), localised piling and installation of band drainage in Phase 1 (RPS, 2017c) and Phase 2 (RPS, 2018a). Following approval, these works have now started on the eastern half of the site.

1.2.5 In addition, a temporary marketing suite area has been constructed around the northern end of the river within the Phase 2 site. An ecological assessment was undertaken in advance of a planning application for the works (RPS, 2018b). The redline boundary of the marketing suite is shown in Drawing Numbers 18-032 / L(00)-102 and 18-032 / L(00)-103 produced by BPTW Partnership, and Drawing Number 11430-00-7006 produced by Brand Consulting.

1.3 Study area

1.3.1 The wider Beam Park site is located south-east of Dagenham in east London. It is located in both London Boroughs of Havering and the London Borough of Barking and Dagenham. It is approximately 31.4 ha in size. A railway line runs along the south of the site boundary and the A1306 New Road runs along the north of the site boundary. Similar habitat is present to the east and west of the site. Chain-link fencing runs around the site boundary.

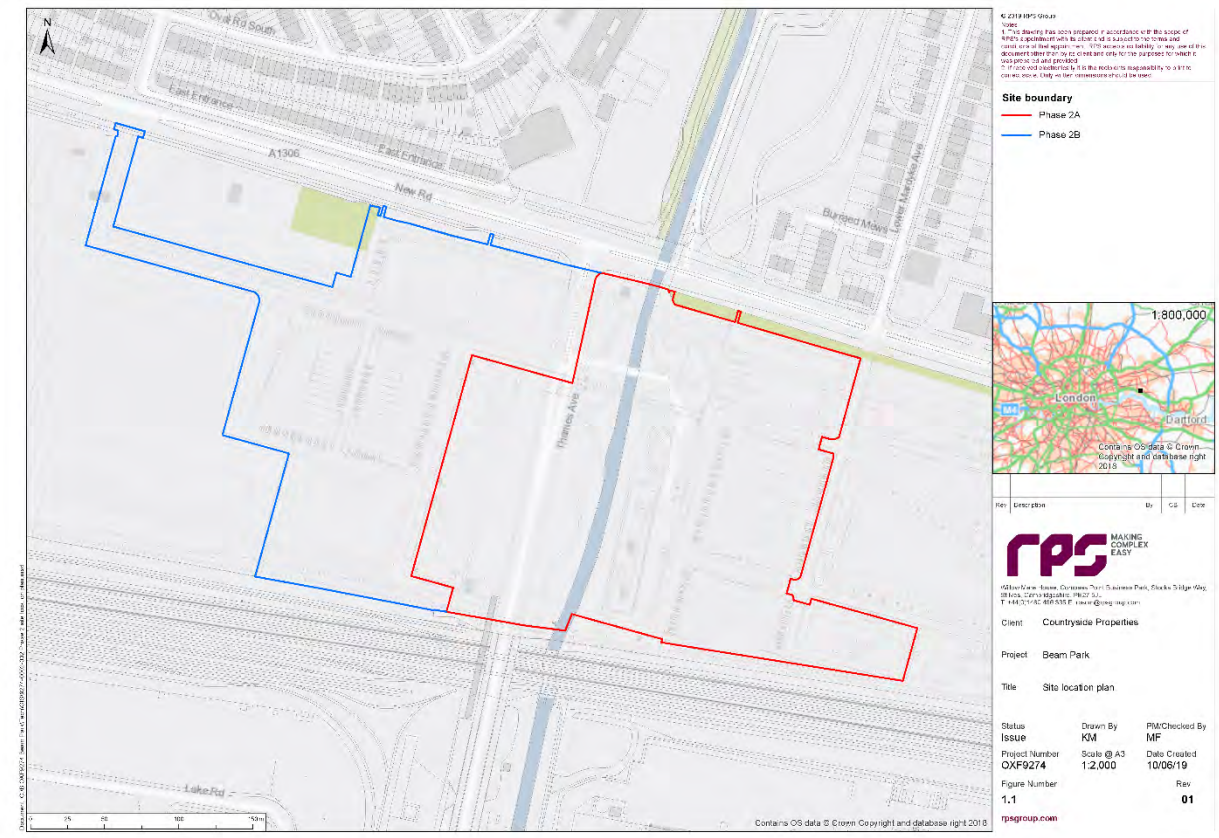
1.3.2 Phase 2 incorporates the central section of the wider site both to the east of the River Beam adjacent to Phase 1, and west of the River Beam where it is adjacent to Phases 3 and 4. The Phase 2 Site is approximately 9.24 ha in size. Phase 2 consists of the former Beam Park and PTA areas, and is bisected by the River Beam. This area is within both the London Borough of Havering and London Borough of Barking and Dagenham.

1.3.3 The National Grid coordinates for the centre of the site are TQ 5019 8292. The red line boundary of Phase 2 is shown in Drawing Number 448-PT-MP-PL-1119 produced by Patel Taylor.

1.3.4 The majority of the site comprised bare concrete hard standing, and bare ground was present where enabling works had commenced at the eastern side of site. Invasive scrub species such as Buddleia and Giant Hogweed are colonising in places. Improved grassland, scattered trees also occur on site. The Beam River and Thames Avenue road run through the centre of the site. At the northern end of the River a marketing suite area had been constructed which comprised two new buildings and formal landscaping.

1.3.5 The site location is shown on Figure 1.1. Aerial imaging available via Google Earth Pro was also reviewed to assess the site in relation to its context in the wider landscape. Beam River running through the centre of the site and the railway line along the southern site boundary provide ecological connections to the wider landscape including designated sites for nature conservation (see Section 3).

Figure 1.1 Site location plan



1.4 Development proposals

1.4.1 The main development comprises eight phases of residential properties with associated retail, employment, education and leisure facilities, and supporting infrastructure. The total number of new dwellings is capped at 3,000. This report is concerned with the development of Phase 2, which consists of 514 new homes, and associated infrastructure.

1.4.2 Phase 2 enabling works for surcharging the site commenced in in June 2018. The enabling works for phase 2 are being carried out in two sections of work, either side of Thames Avenue. The eastern side commenced in June 2018 and largely comprised the movement of existing material from Phase 1. Surcharging in the western area within London Borough of Barking and Dagenham has yet to commence at the time of writing.

1.5 Legislation and policy

1.5.1 Relevant legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to throughout this report where appropriate.

1.5.2 The relevant legislation and policy are:

- The National Planning Policy Framework (NPPF, 2019);
- ODPM Circular 06/2005 (retained as Technical Guidance on NPPF 2019);
- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way Act 2000;
- The Natural Environment and Rural Communities Act 2006;
- The London Plan (March 2016);
- London Borough of Havering, Core Strategy and Development Control Policies. Development Control Plan Document (Adopted 2008)
- London Borough of Barking and Dagenham, Planning for the Future of Barking and Dagenham, Core Strategy (Adopted July 2010)
- Biodiversity: How biodiversity can be protected and enhanced in the development process Supplementary Planning Document SPG (February 2012):

1.5.3 A summary of legislation relevant to protected or other species identified as potential constraints in this report is provided in Appendix A.

2 METHODS

2.1 Desk Study

2.1.1 Ecological records within a 2 km radius of the site were requested from Greenspace Information for Greater London (GIGL). Data requests were limited to records for protected species recorded within the last ten years and sites of nature conservation interest within 2 km of the site. This included a review of existing statutory sites of nature conservation interest, such as Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Area of Conservation (SACs) and National Nature Reserves (NNRs), and non-statutory sites, such as Sites of Importance for Nature Conservation (SINCs) and Local Wildlife Sites (LWSs).

2.1.2 Locations of statutory designated sites were accessed via the government 'MAGIC' website (MagicMap, 2019).

2.1.3 A 1:25,000 OS map was used to identify nearby features such as ponds or green corridors that could provide habitat or connectivity to other areas.

2.2 Ecological Appraisal

2.2.1 An updated Phase 1 Habitat survey and a scoping survey for protected species and other species of conservation concern, which could present a constraint to development.

2.2.2 The surveys were carried out on 26th of February 2019.

2.2.3 The Phase 1 Habitat surveys followed the standard methodology (JNCC, 2010), and as described in the Guidelines for Preliminary Ecological Assessment (CIEEM, 2017). In summary, this comprised walking over the survey area and recording the habitat types and boundary features present.

2.2.4 A protected species scoping survey was carried out in conjunction with the Phase 1 Habitat survey. The site was assessed for its suitability to support protected species, in particular Great Crested Newts *Triturus cristatus*, reptiles, birds, Badgers *Meles meles*, bats, and other species of conservation importance that could pose a planning constraint.

2.2.5 The surveyor looked for evidence of use including signs such as burrows, droppings, footprints, paths, hairs, refugia and particular habitat types known to be used by certain groups such as ponds. Any mammal paths were also noted down and where possible followed. Fence boundaries were walked to establish any entry points or animal signs such as latrines. Areas of bare earth were inspected for mammal prints. Areas of habitat considered suitable for protected species or those of conservation interest were recorded.

2.2.6 In addition, the London Borough of Havering Protecting and Enhancing the Borough's Biodiversity Supplementary Planning Document contains a Biodiversity Checklist which sets out the types of surveys that might be required for a given type of development or development location (Appendix B). This document has been taken into consideration when deciding on the further survey effort required on site (see Section 4).

2.3 Water Vole survey

2.3.1 Two suitably experienced ecologists visited the site to carry out the Water Vole survey on 25th June 2019.

2.3.2 The survey involved walking slowly along both banks of the Beam River, checking for the presence of Water Vole burrows, latrines, footprints / paths, and feeding remains. The survey followed the methodology given by Strachan *et al*. (2011).

2.3.3 The survey was undertaken during the optimal survey period, when breeding territories are well marked by latrines.

2.4 Bat Roost Assessment

2.4.1 A detailed bat roost assessment was carried out on the buildings and trees on site by qualified ecologists on the 26th February 2019 following best practice as described by the Bat Conservation Trust (Collins, 2016), English Nature's Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Joint Nature Conservation Committee's Bat Worker's Manual (Mitchell-Jones & McLeish, 2004).

2.4.2 The buildings were examined externally and trees were examined externally and internally, where accessible, for potential roosting places and access points for bats and for any evidence of bat use, using binoculars (Bushnell Legend), endoscope, 3m ladder, and a powerful torch (Cluson CB2).

2.4.3 Signs that could indicate use by bats include:

- bat droppings;
- staining of access points used by bats to enter the structure; and
- feeding remains such as moth and butterfly wings.

2.4.4 The buildings' suitability for bat roosting was assessed by examining structural features. Structural features that may influence the suitability of a building to support roosting bats include the presence of a roof void, the presence of access points into the building (including gaps beneath barge boards, soffits and fascias, gaps under lead flashing, gaps within masonry and under loose tiles), the complexity and size of any roof void and daytime light levels in the roof void.

2.4.5 Trees were assessed for the potential to support bats roosts by checking for features such as holes, cavities or splits, and evidence like dark staining on a tree below a feature caused by the natural oils in the bats' fur, scratch marks around the feature or droppings below.

2.4.6 The buildings' and trees' suitability for roosting bats was also assessed by examining the surrounding habitat. Important habitat features surrounding the structure which may influence roost potential include whether the structure is in a semi-rural or parkland location, its proximity to a significant linear habitat features such as a watercourse, mature hedgerow, wooded lane or an area of woodland.

2.5 Impact Appraisal

2.5.1 The methodology for identifying and evaluating Important Ecological Features (IEFs) and for assessing the significance of potential impacts upon these, is summarised in Chapter 15 Section 3 of the ES June 2017.

2.6 Limitations

Desk Based Assessment

2.6.1 The desk study data is third party controlled data, purchased for the purposes of this report only. RPS cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

Survey

2.6.2 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

2.6.3 The protected/notable species assessment provides a preliminary view of the likelihood of these species occurring on the site, based on the suitability of the habitat, known distribution of the species in the local area provided in response to our enquiries and any direct evidence on the site. It should not be taken as providing a full and definitive survey of any protected/notable species group.

2.6.4 Bats can have seasonal use of roosts and being so mobile may arrive and start using a site after it has been surveyed, or roost somewhere else during the period it was surveyed.

2.6.5 The Phase 1 habitat survey was carried out outside of the optimal survey season (April to October). Although the survey was carried out at a sub-optimal time of year, it is considered that sufficient information was obtained to enable an accurate assessment of the site to be carried out.

Accurate Lifespan of Ecological Data

2.6.6 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for two years, assuming no significant considerable changes to the site conditions.

3 RESULTS

3.1 Designated Sites

3.1.1 There are five statutory designated sites for nature conservation value within 2 km of the site. The closest of these is Beam Valley Local Nature Reserve (LNR), 0.2 km north of the site across New Road.

3.1.2 Sixteen non-statutory sites are located within the 2 km search radius of the site all of which are Sites of Importance to Nature Conservation (SINC). These are designated hierarchically within London as Sites of Metropolitan Importance (SMI), Sites of Borough Importance (SBI) and Sites of Local Importance (SLI). Two of these sites: 'Dagenham Breach and the Lower Beam River in Dagenham' SBI and Lower Beam River and Ford Works Ditches SBI are located within the site boundary on either side of Beam River. Rainham Railsides SBI is located adjacent to the southern site boundary.

3.1.3 A summary of these sites is provided in Table 3.1 below and the location of each site is detailed in Figure 3.1.

Table 3.1: Designated sites within 2 km of the study area

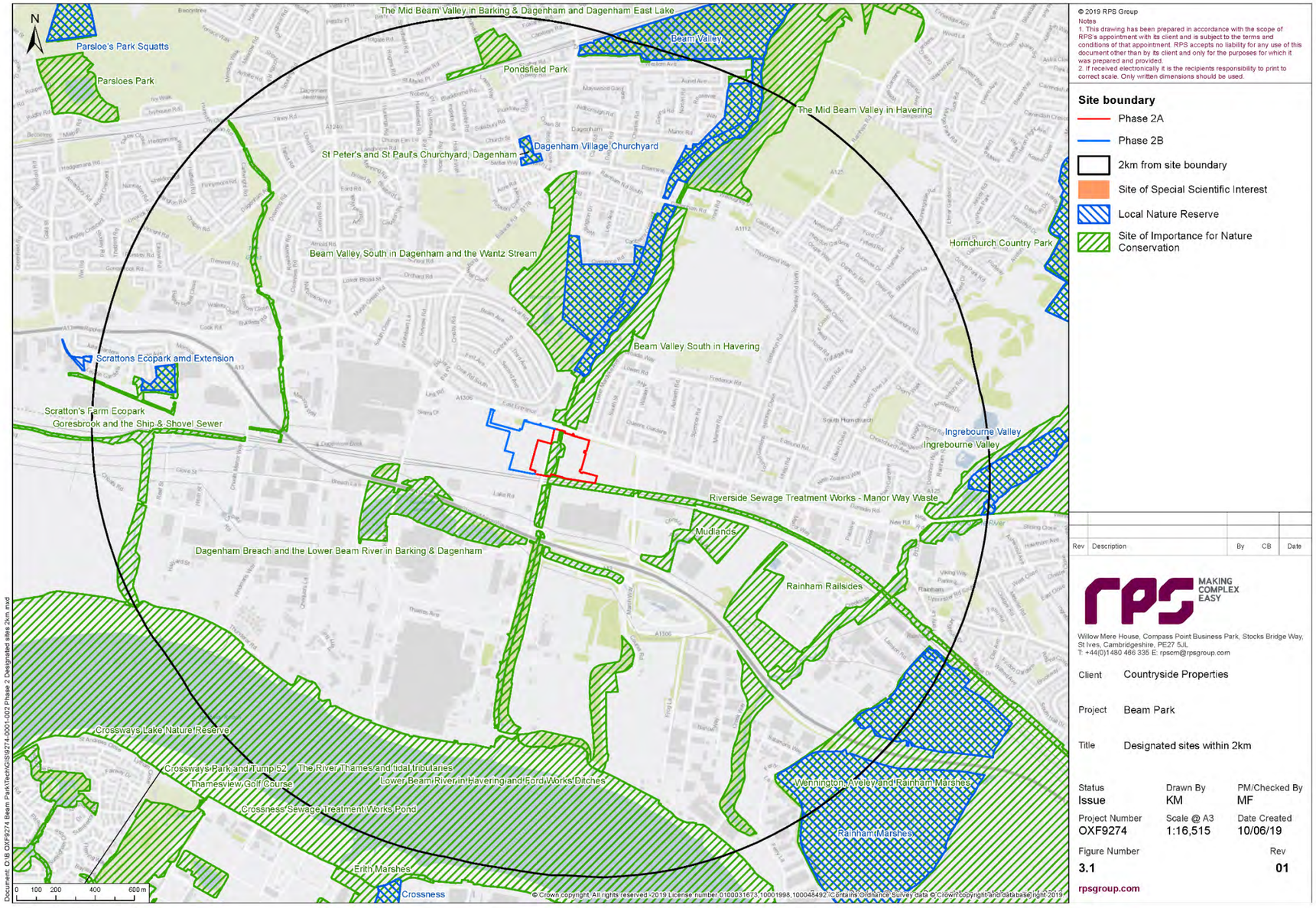
Site name	Type	Approx. area (ha)	Interest Features	Distance from site (km)
Statutory Sites				
Ingrebourne Marshes	SSSI	65.6	The Ingrebourne Valley supports the largest and one of the most diverse coherent areas of freshwater marshland in Greater London. The variety of habitat includes extensive areas of reed sweet-grass Glyceria maxima and common reed *Phragmites australis* swamp; wet neutral grassland, and tall fen. These habitats also support a rich assemblage of associated invertebrates and breeding birds.	1.1
Inner Thames Marshes	SSSI	485.9	The Inner Thames Marshes form the largest remaining expanse of wetland bordering the upper reaches of the Thames Estuary. The site is of particular note for its diverse ornithological interest and especially for the variety of breeding birds and the numbers of wintering wildfowl, waders, finches and birds of prey, with wintering teal populations reaching levels of international importance. The marshes also support a wide range of wetland plants and insects with a restricted distribution in the London area, including some that are nationally rare or scarce.	1.1
Beam Valley	LNR	39.3	Consists of former derelict land, woodland & scrub, neutral and acid grasslands, former gravel pits and Beam River and Wantz stream.	0.2
Dagenham Village Churchyard	LNR	0.87	The long grass, bramble and trees provide the obvious habitats. The old walls and headstones are valuable for lichens and mosses and are not common in the borough. For most recent years a kestrel has nested on the church tower. Woodpeckers regularly feed on the avenue of lime trees. A family of foxes live in the churchyard.	1.0

Site name	Type	Approx. area (ha)	Interest Features	Distance from site (km)
Scratton's Ecopark and Extension	LNR	1.92	Former marshland and allotments with small areas of recently planted woodland, grassland, scrub, shrubs and trees. The overall aim being to create a diverse range of habitats for plants, birds, insects and mammals.	1.9
Non-statutory Sites				
River Thames and tidal tributaries	SMI	2304.92	The mud-flats, shingle beach, inter-tidal vegetation, islands and river channel itself support many species from freshwater, estuarine and marine communities which are rare in London. The site is of particular importance for wildfowl and wading birds. The river walls, particularly in south and east London, also provide important feeding areas for the nationally rare and specially-protected black redstart.	1.11
Ingrebourne Valley	SMI	262.56	One of the most natural river corridors in London, with nationally important wetlands at the lower end and ancient alder woods further upstream. Habitats present: Ancient woodland, Bare ground, Hedge, Marsh/swamp, Pond/lake, Reed bed, Running water, Scrub, Secondary woodland, Improved neutral grassland, Wet ditches, Wet grassland, Wet woodland/carr	1.56
Wennington, Aveley and Rainham Marshes	SMI	413.98	This site is the largest remaining expanse of wetland bordering the upper reaches of the Thames Estuary. The majority is now managed as a nature reserve by the RSPB. It is one of the few remaining ancient landscapes in London and its previous use by the Ministry of Defence has meant that much of the original landscape has remained undisturbed. The site's habitats include reedbeds, grasslands, drainage ditches and seasonally wet areas. Sheep and cattle graze the reserve to maintain a range of suitable grassland habitats and are a central part of the land management regime. The water levels and other habitats are also managed to make the place as attractive as possible for wildlife.	1.74
Dagenham Breach and the lower Beam River in Dagenham	SBI(I)	18.04	A popular angling lake in a region historically subject to flooding, and a stretch of the Beam that runs through the Ford car plant. The Beam River runs through the Ford Works between strips of amenity grassland until the southernmost 500 m of the site, where it is fringed by reed beds, tall herbs, rough grassland and scattered scrub. Stonechat and Black Redstart have bred in this area.	On site
Lower Beam River and Ford Works Ditches	SBI(I)	14.03	The Beam River and ditches around it are home to water vole, while the nearby grassland contains some uncommon plants.	On site
Beam Valley South in Havering	SBI(I)	10.27	The Beam River and the damp pasture around it are home to a good range of plants and animals, including Water Vole.	0.02
Beam Valley South in Dagenham and the Wantz Stream	SBI(I)	36.24	This is a substantial expanse of open land, extending over the borough boundary into Havering, where it is called Beam Valley South in Havering, in the valleys of the Beam River and Wantz Stream. The Beam has rather steep sides, and thus supports little marginal vegetation, but the Wantz has more natural banks and supports good growths of watercress and fool's watercress. Ditches, hollows and other wet areas support a wide variety of wetland. Snipe are frequent visitors on passage and in winter, and the area is important for amphibians, including the Great Crested Newt.	0.03

Site name	Type	Approx. area (ha)	Interest Features	Distance from site (km)
Mudlands	SBI(I)	5.91	The site was landscaped as a nature reserve in 2001 and includes sinuous banks, ditches, ponds and islands that will benefit water vole, reptiles, birds and invertebrates. Reptile translocation to the site from an adjacent development area took place in the summer of 2001. There is good ecological data for the site and records include the nationally rare scarce emerald damselfly (Lestes dryas), water vole, common lizard, grass snake and slow worm, while green sandpiper and snipe occur on passage.	0.43
Goresbrook and the Ship & Shovel Sewer	SBI(I)	11.26	The brooks support a population of the specially protected water vole, a priority species in both UK and London Biodivesity Action Plans, as well as interesting invertebrate communities.	1.00
Mid Beam Valley in Dagenham and Dagenham East Lake	SBI(I)	35.87	This section of the Beam Valley has extensive open spaces extending across the borough boundary into Havering, where the site is called Mid Beam Valley in Havering, and with a good suite of high quality habitats. There is also a sizeable lake, much used by anglers, which supports breeding great crested grebes and attracts tufted duck, pochard and shoveler in winter. A number of smaller pools support a diverse wetland flora, including marsh ragwort (Senecio aquaticus) at probably its only site in the borough.	1.29
Mid Beam Valley in Havering	SBI(I)	28.77	The Mid Beam Valley in Havering forms part of a larger site with land in Barking & Dagenham along the west bank of the Beam, known as Mid Beam Valley in Dagenham and Dagenham East Lake. The large angling lake in the south of the site represents a significant body of standing water in the borough and attracts great crested grebe and kingfisher, and is probably of value to wintering wildfowl. The margins of the lake have small amounts of willow (Salix sp.) scrub, common reed (Phragmites australis) and other emergent plants, and small areas of wet grassland. The site has free public access and is well used.	1.29
Rainham Railsides	SBI(II)	8.23	Havering's railsides form a network of valuable undisturbed habitats, acting as corridors for wildlife moving around the borough.	Adjacent
Riverside Sewage Treatment Works	SBI(II)	9.86	A sizeable wood with a large pond on the edge of a large sewage treatment works.	0.91
Scratton's Farm Ecopark	SBI(II)	2.94	A newly created wildlife site on land previously occupied by old overgrown allotments.	1.57
St Peter's and St Paul's Churchyard, Dagenham	SLI	0.87	Several fine old Ash trees to the north of the church provide shade where Hart's-tongue Fern thrives - this is a rare plant in the borough.	1.25
Pondsfield Park and adjacent railside	SLI	3.22	Pondsfield Park is a formal park providing vital green space for residents of the Becontree Estate. Habitats present are Acid grassland, Amenity grassland, scattered trees and scrub.	1.69

Abbreviations used in Table 3.1: SAC: Special Area of Conservation; SPA: Special Protection Area; SSSI: Site of Special Scientific Interest; LNR: Local Nature Reserve; SINC: Sites of Importance to Nature Conservation; SMI: Sites of Metropolitan importance. SBI (I) : Sites of Borough Importances (borough 1). SBI (II): Sites of Borough Importances (borough 2). SLI: Sites of Local Importance; ha: hectare.

Figure 3.1: Designated sites within 2km



3.2 Species

3.2.1 Records of protected species were obtained from the Greenspace Information for Greater London. A number of species of conservation importance or otherwise notable were recorded within the 2 km search radius of the site. A summary of these records is provided in Table 3.2.

3.2.2 In order to simplify the results, only records of species from the last 10 years are shown. In addition, only data with a 6 figure grid reference resolution or higher are provided, since locations given at a lower resolution do not allow accurate calculation of distance to the site boundary.

Table 3.2: Species records from the last 10 years within 2 km of the site

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Invertebrates				
Emerald Damselfly	*Lestes sponsa*	1.95	2010	LSCC
Ruddy Darter	*Sympetrum sanguineum*	0.99	2010	LSCC
Long-winged Cone-head	*Conocephalus fuscus*	1.89	2010	LSCC
	Raglius alboacuminatus	1.80	2010	Nb
	Demetrias (Risophilus) imperialis	1.89	2010	Nb
Adonis' Ladybird	*Hippodamia (Adonia) variegata*	1.79	2010	LSCC, Nb
	Longitarsus ballotae	1.80	2010	Nb
Stag Beetle	*Lucanus cervus*	1.65	2009	NERC, UKBAP, HabDir2, LBAP, Nb, LSCC
Small Heath	*Coenonympha pamphilus*	0.91	2013	NERC, UKBAP, LBAP, LSCC, RedList_GB-Lr(NT)
	Micropeza lateralis	1891	2010	N
	Tetanocera arrogans	1.89	2010	LSCC
	Volucella zonaria	1.59	2010	N, LSCC
Amphibians				
Common Toad	*Bufo bufo*	1.17	2009	NERC, WCA5 (S9(5) sale), Bern3, UKBAP
Common Frog	*Rana temporaria*	1.17	2009	Bern3, WCA5, HabDir 5, RedList_Global_post2001_LC
Great Crested Newt	*Triturus cristatus*	1.04	2010	WCA5, NERC, UKBAP, Bern2, HabDir2, 4, HabRegs2, RedList_Global_post2001_LC
Birds				
Lesser Redpoll	*Acanthis cabaret*	1.71	2010	NERC Act Section 41, UKBAP, Bird-Red
Skylark	*Alauda arvensis*	0.93	2009	NERC Act section 41, BAP priority London, LSCC, Bird-Red
Bar-tailed Godwit	*Limosa lapponica*	Not Supplied	2010	BD1

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Shoveler	*Anas clypeata*	1.71	2010	Birds:Amber, EC CITES C, WCA2
Teal	*Anas crecca*	0.75	2013	Birds:Amber, EC CITES C, BD2, WCA2
Gadwall	*Anas strepera*	1.15	2012	Birds:Amber, Bern2, WCA2
Meadow Pipit	*Anthus pratensis*	1.01	2014	LSCC
Swift	*Apus apus*	0.85	2009	Birds:Amber
Grey Heron	*Ardea cinerea*	221	2013	LSCC
Pochard	*Aythya ferina*	0.745	2010	Bird-Red
Dunlin	*Calidris alpine*	1.48	2011	WCA1i, Birds:Amber, Bern2
Ringed Plover	*Charadrius hiaticula*	1.55	2012	Birds:Red, Bern2
Marsh Harrier	*Circus aeruginosus*	1.71	2012	Birds Dir Anx 1, WCA1i
Stock Dove	*Columba oenas*	0.93	2010	Birds:Amber, BD2
Rook	*Corvus frugilegus*	1.69	2011	LSCC
Cuckoo	*Cuculus canorus*	0.93	2009	NERC Act section 41, UKBAP, BAP priority London, LSCC, Bird-Red
Mute Swan	*Cygnus olor*	0.61	2013	Birds:Amber, BD2
House Martin	*Delichon urbicum*	1.04	2014	LSCC
Little Egret	*Egretta garzetta*	1.65	2009	Birds Dir Anx 1, LSCC
Reed Bunting	*Emberiza schoeniclus*	0.85	2017	NERC Act section 41, UKBAP, BAP priority London, LSCC
Kestrel	*Falco tinnunculus*	0.78	2011	Birds:Amber, Bern2, EC CITES A
Brambling	*Fringila montifringilla*	1.71	2010	WCA1i
Snipe	*Gallinago gallinago*	1.02	2012	Birds:Amber, BD2, WCA2
Swallow	*Hirundo rustica*	1.3	2014	LSCC
Herring Gull	*Larus argentatus subsp. Argenteus*	0.34	2017	NERC, Birds:Red, UKBAP
Mediterranean Gull	*Larus melanocephalus*	0.85	2014	Birds Dir Anx 1, WCA1i
Black-tailed Godwit	*Limosa limosa*	1.55	2012	WCA1i, UKBAP, Birds:Red
Linnet	*Linaria cannabina*	0.85	2011	NERC, BAP priority London, LSCC, Bird-Red
Smew	*Mergellus albellus*	0.67	2011	Birds Dir Anx 1
Grey Wagtail	*Motacilla cinerea*	0.85	2014	LSCC, Bird-Red Bern2
Yellow Wagtail	*Motacilla flava*	2.04	2014	BAP priority London, LSCC, Bird-Red
Curlew	*Numenius arquata*	1.48	2013	NERC, UKBAP, Birds:Red
House Sparrow	*Passer domesticus*	0.69	2014	NERC, Birds:Red, UKBAP
Dunnock	*Prunella modularis*	0.93	2009	Birds:Amber
Bullfinch	*Pyrrhula pyrrhula*	0.85	2011	BAP Priority London
Goldcrest	*Regulus regulus*	1.71	2012	LSCC
Woodcock	*Scolopax rusticola*	1.71	2012	LSCC
Arctic Skua	*Stercorarius parasiticus*	1.71	2011	UKBAP Bird-Red
Common Tern	*Sterna hirundo*	0.85	2011	Birds:Amber, WCA1i

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Starling	*Sturnus vulgaris*	0.55	2017	UKBAP, NERC, Birds:Red
Ruddy Shelduck	*Tadorna ferruginea*	0.75	2010	Birds Dir Anx 1
Shelduck	*Tadorna tadorna*	0.67	2013	Birds:Amber, Bern2
Greenshank	*Tringa nebularia*	1.71	2011	WCA1i
Green Sandpiper	*Tringa ochropus*	1.73	2010	Birds:Amber
Redshank	*Tringa totanus*	1.55	2013	Birds:Amber, BD2
Redwing	*Turdus iliacus*	1.56	2012	WCA1i, Birds:Red
Song Thrush	*Turdus philomelos*	0.85	2017	UKBAP, NERC, Birds:Red
Mistle Thrush	*Turdus viscivorus*	0.85	2011	Birds:Red, BD2
Lapwing	*Vanellus vanellus*	0.85	2013	NERC, Birds:Red, UKBAP
Mammals				
Water Vole	*Arvicola amphibius*	0.37	2012	NERC; UKBAP; WCA5; RedList_Global_post2001_LC
European Hedgehog	*Erinaceus europaeus*	0.81	2018	NERC Act Section 41 UKBAP Bap priority London LSCC
Serotine Bat	*Eptescicus serotinus*	0.12	2016	Hab&spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 sec 9.4b W&CA sch5 Sec 9.4c BAP priority London LSCC
Myotis Bat species	*Myotis sp*	0.12	2016	Hab&spp Dir Anx 2 Hab&spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 sec 9.4b W&CA sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP priority London LSCC
Nyctalus Bat species	*Nyctalus sp.*	1.69	2007	Hab&spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 sec 9.4b W&CA sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP priority London LSCC
Leisler's Bat	*Nyctalus leisleri*	1.68	2007	WCA5; RedList_Global_post2001_LC; CROW ACT; EUROBATS; HabDir4, CMS_A2; HabRegs2
Noctule Bat	*Nyctalus noctula*	0.12	2016	Hab&spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 sec 9.4b W&CA sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP priority London LSCC

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
Nathusius's Pipistrelle	*Pipistrellus nathusii*	0.12	2016	Hab&spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 sec 9.4b W&CA sch5 Sec 9.4c UKBAP BAP priority London LSCC
Common Pipistrelle	*Pipistrellus pipistrellus*	0.12	2016	Bern2, 3, RedList_Global_post2001_LC, CROW ACT, EUROBATS, HabDir4, WCA5, CMS_A2, HabRegs2
Soprano Pipistrelle	*Pipistrellus pygmaeus*	0.12	2016	Bern2, 3, RedList_Global_post2001_LC, CROW ACT, EUROBATS, HabDir4, WCA5, CMS_A2, HabRegs2

Abbreviations used in Table 3.2: WCA1i: Wildlife & Countryside Act Schedule 1, part 1; WCA2: Wildlife & Countryside Act Schedule 2; WCA5: Wildlife & Countryside Act Schedule 5; WCA8: Wildlife & Countryside Act Schedule 8; WCA9: Wildlife & Countryside Act Schedule 9; N: Nationally Notable; Nb: Notable B; NERC: Natural Environment & Rural Communities Act Species of Principal Importance; UKBAP: UK Biodiversity Action Plan priority species; HabDir2, 4, 5: Habitats Directive Annex 2, 4, 5; RedList_GB_Pre94-R : Red List (pre 1994 IUCN guidelines) Rare; RedList_Global_post2001_LC: Global Red list status: Lower risk - least concern; HabRegs2: The Conservation (Natural Habitats, &) Regulations 2017 (Schedule 2); HabRegs4: The Conservation (Natural Habitats, &) Regulations 2017 (Schedule 4); Birds:Red: Bird Population Status: red; Birds:Amber: Bird Population Status: amber; CROWACT: Countryside and Rights of Way Act 2000; LSCC: Local Species of Conservation Concern; Bern: The Bern Convention

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3.3 Phase 1 Habitat Survey

3.3.1 The survey results are presented in the form of a map with the habitat types and boundary features marked (Figure 3.2). Photographs can be found in Appendix C.

3.3.2 Descriptions of the habitat types and boundary features are detailed below. Habitat descriptions are defined by broad habitat types (JNCC, 2010).

Bare Ground / hard standing

3.3.3 The majority of the site comprised bare concrete hard standing, and bare ground was present where construction had commenced at the eastern side of site (Photograph 1). The stacked bales of paper east of the river that were present on the previous survey in 2016 were no longer present and the majority of the rubble and rubbish piles had been removed.

3.3.4 Several species of plants associated with waste ground and disturbed ground occurred within the hard standing on site. These included common weed species such as Teasel *Dipsacus sp*., Broad-leaved Dock *Rumex obtusifolius*, Cow Parsley *Anthriscus sylvestris*, Common Nettle *Urtica dioica*, Creeping Thistle *Cirsium arvense*, Mugwort *Artemisia vulgaris,* Yarrow *Achillea millefolium*, Common Ragwort *Jacobaea vulgaris*, and Bristly Oxtongue *Helminthotheca echioides*.

Scrub

3.3.5 Buddleia *Buddleia davidii*, Elder *Sambucus nigra*, Giant Hogweed *Heracleum mantegazzianum,* (Photographs 2 and 3) and Bramble Rubus *Fruticosus agg* occurred throughout the site. Buddleia in particular was present everywhere on site with growth visible on the hard standing.

3.3.6 Two species of Cotoneaster *Cotoneaster sp*. occurred on site (Photograph 4).

3.3.7 Ornamental hedges, scrub and flowerbeds had reacently been planted within the marketing suite area (Target note 1, Photographs 5). Speces appeared to all be non-native or cultivars.

Scattered Trees

3.3.8 Few mature trees occurred within the Phase 2 Site at the northern boundary. Species present included Goat Willow *Salix caprea*, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna* and Cherry *Prunus sp*. trees.

3.3.9 Mature Balsam Poplar *Populus balsamifera* and Weeping Willow *Salix* × *sepulcralis* trees lined Beam River (Photograph 6).

3.3.10 Within the marketing suite along with retained mature trees, immature native and non-native trees had recently been planted (Target Note 1, Photographs 5 and 6).

3.3.11 A line of Silver Maple *Acer saccharinum*, Norway Maple and Oak *Quercus sp*. trees occur on the western side of Thames Avenue within an area of scrub.

3.3.12 Offsite, along part of the northern boundary, west of the River Beam, semi-mature Cherry, Ash, Norway Maple *Acer platanoides* and Goat Willow are located along the northern boundary of the development.

Grassland

3.3.13 A large area of improved grassland occurred on both banks of Beam River. Grasses including Yorkshire Fog *Holcus lanatus* and Wall Barley *Hordeum murinum* as well as common weed species were present throughout the site (Photograph 7).

3.3.14 Flowering species present on site included Orange-Ball-Tree *Buddleja globosa*, Mallow *Malva sp*., Red Valerian *Centranthus ruber*, Common Vetch *Vicia sativa*, Tufted Vetch *Vicia cracca*, Field Rose *Rosa arvensis*, Cranesbill *Geranium s*p., Herb Robert *Geranium robertianum* and Greater Celandine *Chelidonium majus*.

3.3.15 Amenity grass turf had recently been laid within the marketing suite area.

Watercourses

3.3.16 Beam River flows north to south through Phase 2 of the development site (Target Note 2). The river at this point is relatively slow flowing and 10 m wide. The banks are shallow and mainly well-vegetated although there is little aquatic vegetation present.

3.3.17 The banks of the river within the area of the marketing suite were bare earth at the time of the survey. However, landscaping in the area was actively ongoing and it is likely the banks will be revegetated as landscaping continues (Photograph 6).

Boundaries

3.3.18 A chain-link fence runs around the wider site boundary.

3.3.19 Several stands of Japanese Knotweed *Fallopia japonica* occurred along the railway line, immediately south of the Application Site (Photograph 8). This is shown in Figure 3.2. However, this species was not found within the red line boundary of the site.

3.3.20 Himalayan Balsam *Impatiens glandulifera* occurred on the banks of the River Beam next to the railway line, south of the development site (Photograph 9). This species could not be seen within the red line boundary of the site.

Figure 3.2: Phase 1 habitat map

3.4 Ecological Scoping Survey

Plants

3.4.1 No nationally rare, nationally scarce or species listed as being of principal conservation importance in England, under NERC of the Natural Environment and Rural Communities Act 2006 were identified during the walkover.

3.4.2 Japanese Knotweed is located immediately south of the redline boundary of the development. Japanese Knotweed is an invasive plant included on Schedule 9 of the Wildlife and Countryside act 1981 (as amended).

3.4.3 Giant Hogweed and Buddleia are present throughout the site. Buddleia is an invasive plant, although it is not included on Schedule 9 of the Wildlife and Countryside act 1981 (as amended). Giant Hogweed is an invasive plant included on Schedule 9 of the Wildlife and Countryside act 1981 (as amended).

3.4.4 Two species of Cotoneaster *Cotoneaster* sp. occurred on site.

3.4.5 Himalayan Balsam *Impatiens glandulifera* occurred in habitat adjacent to the River Beam. It was also noted west of the site boundary next to the railway line.

Invertebrates

3.4.6 The majority of the site has little scope to support invertebrates of any particular interest. However, the river corridor with its associated mature trees of different species, open grassland, scrub and ruderal vegetation is likely to support an assemblage of local interest given the range of habitats present.

3.4.7 Stag Beetle *Lucanus cervus*, and Small Heath Butterfly *Coenonympha pamphilus,* have been recorded within 2 km of the site. These species are UK BAP species but no habitats capable of supporting these species occurs on site.

3.4.8 Five-banded Weevil-wasp *Cerceris quinquefasciata*, Phoenix Fly *Dorycera graminum* and Black-headed Mason Wasp *Odynerus melanocephalus* have all been previously recorded within 2 km of the site, however records are over 10 years old. These species are all UK BAP species commonly associated with brownfield sites.

Amphibians and reptiles

3.4.9 The majority of the site contains no suitable habitat to support amphibians or reptiles although a limited amount of suitable habitat occurs along the river. There are no ponds suitable for breeding amphibians within the Phase 2 Site or on the wider Beam Park site.

3.4.10 While records of GCN occur from nearby wildlife sites, it is not considered likely that they occur on site (see Section 4). Previous surveys of reptiles have found them to be absent (RPS, 2017b).

Birds

3.4.11 The trees and scrub provide habitat for a range of breeding garden bird species, including species of conservation concern (Eaton et al., 2015).

3.4.12 Stonechat and Black Redstart have been known to have bred in Dagenham Breach and the lower Beam River in Dagenham SINC where the Beam River runs through the Ford Works, approximately 800 m south of the site boundary.

3.4.13 A male Teal *Anas crecca,* an amber population status species, was recorded on Beam river during the the visit.

3.4.14 A scoping survey undertaken in 2016 (RPS, 2017a), identified no buildings or features considered suitable to support nesting Black Redstart.

Mammals

Bats

3.4.15 There were five buildings present on site. Within the marketing suite area was a single storey brick substation with a flat roof, a new two-storey marketing suite with a flat roof, and a three storey brick-built show home with a sloped roof (Photograph 10). there were also two single storey brick buildings in the western area of the site. A gas valve compound to the east of Beam River was no longer present. The structures of the substation and the other two single storey brick buildings are considered to make these structure unsuitable for roosting bats.

3.4.16 Three trees (T1 -3) were identified as having low to moderate potential during the 2016 surveys. The condition of the trees on site has changed in the intervening years, and the updated tree inspection found ten trees (T1-4 and T6-11) on site had features suitable for bat roosts.

3.4.17 Results of the roost assessment of the trees are detailed in Table 3.3. Locations are shown in Figure 3.2.

Table 3.3: Tree assessment results

Tree Number	Species	Age Class	Description of potential roost features	Results of internal Inspection (Incl. any evidence of bats)	Roosting Potential	Recommendations	Photo Reference in Appendix C
T1	*Salix* × *sepulcralis*	Mature	West: • split at 2m • Woodpecker hole at 3m • Woodpecker hole at 3.5m • Woodpecker hole at 5m	• Leads to a 10cm deep cavity • Goes in horizontally for 15cm • Goes in horizontally for 5cm • Goes in horizontally for 5cm No evidence of bats	• Low • Negligible to low • Negligible • Negligible **Overall Low**	Inspect features in the presence of a licensed bat ecologist prior to tree works or soft felling.	11
T2	*Salix* × *sepulcralis*	Mature	North: • Tearout crack at 10m	• Small crevice along tear suitable for small numbers of bats No evidence of bats	**Low**	Inspect features in the presence of a licensed bat ecologist prior to tree works or soft felling.	11
T3	*Salix* × *sepulcralis*	Mature	North: • Hazard beam at 8m East: • Fresh tearout with hanging limb South: • Hazard beam at 7m West: • Hazard beam at 5m on limb overhanging river	N/A Tree is in too poor a state to climb No evidence of bats externally	**High**	Three dusk emergence / dawn re-entry surveys	11

Tree Number	Species	Age Class	Description of potential roost features	Results of internal Inspection (Incl. any evidence of bats)	Roosting Potential	Recommendations	Photo Reference in Appendix C
T4	*Salix* × *sepulcralis*	Mature	North: • Hole in stem at 1m West: • Upward facing hole in stem at 3m	• Doesn't go in far enough for a bat • Goes down, but not up No evidence of bats	**Low**	Inspect features in the presence of a licensed bat ecologist prior to tree works or soft felling.	12
T5	*Populus balsamifera*	Mature	East: • Woodpecker hole in stem at 2m	• Blind end No evidence of bats	**Negligible**	None	12
T6	*Populus balsamifera*	Mature	East: • Woodpecker hole in stem at 4m South: • Crack in dead wood at 50cm • Two Woodpecker holes in stem at 1.5m and 2m within frost crack • Crevice behind bark to left of 2m hole	• Very small, too smll for bat to roost • Recedes behind deadwood for 20cm • Don't extend in far enough to be usable • Extends up 30cm, 5cm in diameter, wet at top No evidence of bats externally	• Negligible • Moderate • Negligible • Moderate **Overall Moderate**	Two dusk emergence / dawn re-entry surveys	12
T7	*Populus balsamifera*	Mature	South: • Wound on stem at 1m within frost crack	• leads to cavity15cm in diameter and 60cm long	**High**	Three dusk emergence / dawn re-entry surveys	13

Tree Number	Species	Age Class	Description of potential roost features	Results of internal Inspection (Incl. any evidence of bats)	Roosting Potential	Recommendations	Photo Reference in Appendix C
T8	*Salix* × *sepulcralis*	Mature	North: • Lost limb wound at 4m East: • Lost limb wound	• Goes in horizonitally for 7cm, dry and clean • Goes in horizonitally for 10 - 15cm, not great, maybe suitable for a few bats	**Low**	Inspect features in the presence of a licensed bat ecologist prior to tree works or soft felling.	13
T9	*Salix* × *sepulcralis*	Mature	North: • Hazard beam with possible cavity South: • Dead limb with hazard beam at 6m and loose bark • Limb overhanging river with hazard beam at 5m West: • Limb with split underneath which goes through limb, but possibly sheltered places for bats	N/A Tree is in too poor a state to climb No evidence of bats externally	**High**	Three dusk emergence / dawn re-entry surveys	13
T10	*Salix* × *sepulcralis*	Mature	North: • Split in limb at 2m • Other minor splits and features in crown	• Heavily matted with debris and cobwebs at both crevices, 25cm in diamiter, goes up 25cm and down 10cm. Has potential but not used any time recently • Not reachable for inspection	• Moderate • Negligible **Overall Moderate**	Two dusk emergence / dawn re-entry surveys	14

Tree Number	Species	Age Class	Description of potential roost features	Results of internal Inspection (Incl. any evidence of bats)	Roosting Potential	Recommendations	Photo Reference in Appendix C
T11	*Salix* × *sepulcralis*	Mature	North: • Woodpecker hole at 4m West: • Wound in stem at 2m	• Leads to cavity 25cm in diameter that goes up 25-30cm and down approx 10-15cm which is clean inside. Large lump of material at bottom with droppings, possibly bat, but likely bird. Feathers at entrance. • Goes in 30cm and 5cm in diameter. Dusty, not smooth, and cobwebs present	• High • High **Overall High**	Three dusk emergence / dawn re-entry surveys	14

Badgers

3.4.18 No Badgers have been recorded within 2 km of the site. There is no habitat for sett-building and little foraging habitat on site although the river edge was considered to contain sub-optimal foraging habitat.

Water Voles and Otters

3.4.19 The river contains suitable habitat for foraging Otters *Lutra lutra* but no Otter records have been noted within 2 km of the site.

3.4.20 The river contains suitable habitat for Water Voles *Arvicola amphibious*. This species has been recorded within Beam Valley South in Havering SBI and Mudlands SBI, located 0.02 km and 0.43 km from the site boundary respectively. A small mammal run was recorded on the eastern bank of the river (Target Note 3), but this was considered to be made by a rat. A further survey for Water Voles was carried out in June 2019.

3.4.21 This survey found evidence of recent Water Vole activity in the locations shown on Figure 3.3. This included feeding signs and three latrines. Potential burrows were also found although none showed signs of current use. In places the river edge is difficult to access because of the presence of scrub and it is therefore possible that active burrows are present but undetected. Water Voles were absent at the time of the last survey in 2016, and are likely to have colonised the site from populations further north in the Beam Valley Park.

Other mammals

3.4.22 Hedgehogs *Erinaceus europaeus* have been recorded within 2 km of the site. There is a small quantity of foraging habitat along the river edge but the majority of the Phase 2 Site contains little foraging opportunity.

3.4.23 Previous surveys found Fox *Vulpes vulpes* tracks on site and there were records of foxes occurring on site. However, no signs were present during the recent survey.

3.4.24 No habitat for other mammal species of conservation significance occurred on site.

Figure 3.3: Water Vole survey results

4 EVALUATION

4.1 Designated sites

4.1.1 There are five statutory designated sites for nature conservation value within 2 km of the site.

4.1.2 Ingrebourne Marshes SSSI and Inner Thames Marshes SSSI are located 1.1 km from the site. The potential for these sites to be affected by changes in air quality from aerial emissions and by increases in visitor pressure was assessed in the ES June 2017 accompanying the original application, and no significant impacts were identified. These sites are therefore not considered further in this report.

4.1.3 Beam Valley LNR, 0.2 km north of the site across New Road which runs along the northern boundary of the site. This site is also designated as a Country Park. Dagenham Village Churchyard LNR is located 1.0 km away. Scratton's Ecopark and Extension LNR is located 1.9km from the site.

4.1.4 Sixteen non-statutory sites are located within the 2 km search radius of the site, comprising Sites of Metropolitan Importance (SMI), Sites of Borough Importance (SBI (grades 1 and 2) and Sites of Local Importance (SLI).

4.1.5 Dagenham Breach and the Lower Beam River in Dagenham SBI(I) and the Lower River Beam and Ford Works Ditches SBI(I) are both located within the Phase 2 site. These sites will be directly affected during construction and areas of these sites located downriver of the Phase 2 boundary could be affected by accidental discharge of pollutants and surface water discharge.

4.1.6 Rainham Railsides SBI(II) is also located adjacent to the southern site boundary. This site is located outside the red line boundary of the development and as such, will not be directly affected by construction although during construction there is potential for dust generation and noise and light impacts within the designated site. Measures to minimise construction impacts are also outlined in Section 5.

4.1.7 Beam Valley LNR, Beam Valley South in Dagenham SINC and Beam Valley South in Havering SINC are separated from the proposed development by a busy dual carriageway road and as such would not to be affected by construction.

4.1.8 The assessment of ecological impacts for the ES June 2017 and ES Addendum August 2018 found no significant impacts on designated sites from visitor pressure would occur, and no impacts on designated sites were considered likely other than for Dagenham Breach and the Lower Beam River in Dagenham SBI(I), the Lower River Beam and Ford Works Ditches SBI(I) and the Rainham Railsides SBI. Further consideration of impacts on these sites is therefore provided in Section 5. The remaining statutory and non-statutory sites are not considered further in this report.

4.2 Habitats

4.2.1 The majority of the area within Phase 2 comprises hard standing and unvegetated, loose bare substrate. This habitat does not meet the criteria necessary to be classified as the UKBAP priority habitat Open Mosaic Habitats on Previously Developed Land or the LBAP habitat Wasteland.

4.2.2 The River Beam qualifies as the UKBAP and LBAP habitat Rivers & Streams. Potential impacts on the River Beam would occur as a result of reprofiling works to the river banks, and an assessment of impacts was therefore undertaken.

4.3 Species

4.3.1 The section below details the results of the ecological scoping survey for species, and identifies where further survey is required to determine whether protected species or other species of conservation interest are present. It has been compiled with reference to the London Borough of Havering Biodiversity Checklist (reproduced in Appendix B).

4.3.2 This checklist is taken from the Havering 2009 LDF document Protecting and enhancing the Borough's biodiversity: Supplementary Planning Document, and indicates the kinds of surveys that might be required for various types of development and locations. Where the desk study and preliminary site scoping survey has been sufficient to rule out the requirement for further surveys for a particular group, the reasons for this conclusion are set out below.

Plants

4.3.3 Based on the habitats currently present it is not considered likely that plant species of significant conservation interest are present.

4.3.4 In April 2010, many stands of Giant Hogweed and Japanese Knotweed were recorded, mainly along the railway south of the redline boundary of the site (Capita Symonds Ltd, 2010). In October 2014, Mott MacDonald recorded numerous stands of Giant Hogweed but no Japanese Knotweed on site. Buddleia was also recorded on site at this time.

4.3.5 The presence of these invasive species was confirmed by the site visit in 2016. A three-year eradication programme was started for Giant Hogweed and Japanese Hogweed on site in July 2014. The Giant Hogweed plants on site and Japanese Knotweed plants adjacent to the site during the 2016 site visit appeared to be large and healthy, suggesting that no treatment has been carried out recently.

4.3.6 Heathy specimens of Giant Hogweed were recorded along the southern boundary of the site during the survey in 2019. Cotoneaster and Buddleia specimens were also recorded within the site.

4.3.7 Himalayan Balsam was recorded in habitats adjacent to the River Beam in June 2019. This species is strongly associated with riparian habitats, as seeds can be easily spread in watercourses. A control programme for Himalayan Balsam will be implemented to ensure that this species is not spread during or after construction of Phase 2.

4.3.8 Japanese Knotweed plants were not recorded, however this could be due to the timing of the survey.

Invertebrates

4.3.9 The grassland and river habitats, as well as the scrub and mature trees on site provide suitable habitat for a range of invertebrates, including aquatic species. However, given the habitat resource outside the development boundary, it is not considered that the development would significantly affect the invertebrate assemblage in the local area.

4.3.10 Despite the unmanaged and derelict nature of the site, the majority of the site comprises un vegetated hard standing and bare ground, and it is not considered likely that a significant assemblage of invertebrate species associated with brownfield sites currently occurs on site. No further surveys are considered necessary.

Amphibians and Reptiles

4.3.11 The habitats present on the majority of the site are unlikely to support amphibians, including GCN. No ponds suitable for breeding Great Crested Newt are located on site. Amphibians were considered unlikely to occur along the ditch on the eastern wider site boundary since this habitat is isolated within the landscape and only holds water intermittently. No ponds suitable for breeding GCN are located on site although Great Crested Newts occur in Beam Valley South in Dagenham and the Wantz Stream SBI1 and Mudlands SBI1 located 0.03 and 0.43 km from the site respectively as well as within Beam Valley LNR, 0.2 km away.

4.3.12 No terrestrial amphibians were recorded under refugia during the reptile survey in 2016 (RPS 2017b).

4.3.13 Despite to the proximity to sites where GCN are known to occur (Beam Valley to the north and Mudlands to the south east), the site is relatively isolated from these sites. Large areas of hardstanding including two railway lines separate the site from Mudlands SINC, and New Road separates the site from Beam Valley. Although the site is connected to Beam Valley by the Beam River, there is no terrestrial pathway through the culvert that amphibians could traverse and in general, rivers act a barrier to amphibian dispersal.

4.3.14 As such, Great Crested Newts are considered unlikely to be present on site, and no further surveys were considered necessary.

4.3.15 The habitats present on the majority of the site are unlikely to support reptiles although there is suitable foraging and hibernating habitat present both within the grassland along the Beam River and in the surrounding area.

4.3.16 The reptile survey carried out in 2016 did not find any reptiles and given the lack of connectivity to habitats offsite, reptiles are not considered a constraint and no further surveys are required.

Birds

4.3.17 The trees, river, and scrub on site provide potential habitat for a range of bird species.

4.3.18 An assessment of the potential of the site to support Black Redstart, a species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) with regard to England and Wales, was undertaken in June 2016. No Black Redstarts were seen or heard on site during the site walkover or during any subsequent surveys, and the site is not considered to contain habitat suitable for breeding Black Redstart.

4.3.19 Cetti's Warbler *Cettia cetti*, a species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) was recorded east of Phase 1 in 2016 but there is no potential habitat for this species in or adjacent to Phase 2.

4.3.20 The breeding bird assemblage on site is considered to be of no more than local importance.

4.3.21 All birds, their nests and eggs are protected during the breeding season under the Wildlife and Countryside Act 1981 (and as amended) and it is recommended that a further survey for breeding

birds is undertaken immediately prior to any vegetation clearance on site during the breeding bird season which runs from mid-March to late August. It is worth noting that species listed on Schedule 1 of the Wildlife & Countryside Act are protected from disturbance during the nesting season.

4.3.22 Recommendations to minimise impacts on breeding birds during the development are made in Section 5.

Mammals

Water Voles

4.3.23 From the data search, Water Vole populations are known to occur along the River Beam north of the Site (e.g. the Mid Beam Valley in Havering SBI1), and they are also present in Mudlands SBI1, which is located south-east of the Site the other side of the railway line. It is considered that the populations in the Beam Valley are the most likely source of colonising animals.

4.3.24 Photographs of the site from years prior to 2016 indicate that the river banks within the site boundary were closely mown, and therefore not suitable for Water Voles. In recent years the lack of management has allowed denser vegetation to develop along the banks, resulting in the habitat becoming more suitable for the species. No signs were present in 2016 but successful colonisation appears to have occurred recently.

4.3.25 Given the presence of Water Voles in nearby sites, the colonisation of the river on site will assist the robustness of the population by increasing population size and range. The population of Water Voles on site is considered to be of Borough importance.

Bats

4.3.26 Several species of bat have been recorded within 2 km of the site.

Roosting bats

4.3.27 Ten mature trees along the river corridor had potential to be used by roosting bats. An assessment of bat activity calls recorded during surveys undertaken in 2016 was carried out in 2017 (RPS, 2017b). This concluded that:

- Evaluation of the times of first contacts for Common Pipistrelle suggested that a roost of this species was present reasonably close to the Application Site, probably to the north of New Road.
- Evaluation of the times of first contacts for Noctules suggested that an occasional roost for a single Noctule may also be present within the vicinity of the site.
- No roosts of other bat species were considered to be present within the vicinity of the site.
- No bat roosts were considered to occur within the Application boundary.

4.3.28 Given the time that has elapsed since the survey and analysis was undertaken, further emergence surveys of trees with bat potential are being undertaken commencing in June 2019 to assess presence / absence of roosts, as described in Table 3.3. These results will be reported separately and provided to the Planning Authorities as soon as they are available.

4.3.29 No buildings within the Phase 2 Site are considered suitable for roosting bats, and no further survey of the buildings is required.

4.3.30 Of the ten trees assessed to have potential for roosting bats, three (T6, T7 and T10 on Figure 3.2) will be removed. The remaining trees along the River Beam will be retained. Should bat roosts be found in the three trees that will be removed, a Natural England licence will be required before the trees are felled, and appropriate mitigation would be required. This is discussed further in Section 5.

Foraging and Commuting bats

4.3.31 Surveys in 2016 showed the river corridor was the main commuting and foraging route for bats on site (RPS, 2017b). The surveys found high numbers of Common Pipistrelle, fluctuating numbers of Soprano Pipistrelle and Nathusius' Pipistrelle, and much lower numbers of the other bat species recorded.

4.3.32 Low numbers of bats were also recorded commuting or foraging along the vegetated site boundaries from the river corridor. However, it is considered that the development of the site boundaries would not have a significant impact on the local bat population. The bat assemblage on site is considered to be of Borough importance.

4.3.33 Potential impacts on foraging bats as assessed by the original ES were primarily flightline severance due to vegetation removal along the River Beam. At the time the original ES was produced, it was assumed that all the mature trees along the River Beam would need to be removed. A more detailed assessment of the area has since been undertaken, and it is now no longer necessary to remove the majority of the trees along the river. Given this, the magnitiude of the impact assessed in the original ES is considerably reduced, which is discussed further in Section 5.

4.3.34 In addition, the lighting design post-construction could affect the ability of bats to commute and forage along the river if significantly elevated light levels would occur.

4.3.35 Recommendations to avoid impacts on foraging and commuting bats are provided in Section 5.

4.3.36 Further information on the legislation regarding bats is included in Appendix A.

Badger

4.3.37 The site offers little habitat for Badgers and there are no records of Badgers within 2 km of the site.

4.3.38 No Badger signs were identified on site and they are not considered to be a constraint.

Water Vole and Otter

4.3.39 The river corridor provides suitable habitat for foraging or dispersing Otters although none have been recorded within 2 km of the site. No Otter holts or spraint were identified on site during 2016 surveys and no further surveys are therefore considered necessary.

4.3.40 The river also contains habitat for Water Voles. A survey carried out in 2016 did not find any evidence of Water Voles. Water Voles have been recorded in the surrounding area, and it was considered possible that Water Voles could establish on site in the future. Therefore, it is recommended that the management of the river corridor retains habitat suitable for Water Voles post-construction.

Other mammals

4.3.41 The site offers little habitat for Hedgehogs, a Section 41 species (NERC Act). There are records of Hedgehogs within 2 km of the site. Although Hedgehogs could forage within the improved grassland along the River Beam, this habitat lacks good connectivity to other areas where Hedgehogs could forage. Further survey is not required but enhancement opportunities post-construction are proposed in Section 5.

4.3.42 No further surveys for other protected mammals are considered necessary.

4.4 Summary of Important Ecological Features

4.4.1 Table 4.1 below summarises the Important Ecological Features relevant to Phase 2 for which potential impacts requiring mitigation were assessed in the ecology chapter of the Environmental Statement.

Table 4.1. Summary of Important Ecological Features relevant to Phase 2

Important Ecological Feature	Protection status	Value
Dagenham Breach and the Lower Beam River in Dagenham SBI1	Material consideration for planning	Borough
Lower River Beam and Ford Works Ditches SBI1	Material consideration for planning	Borough
Rainham Railsides SBI2	Material consideration for planning	Borough
Rivers and Streams UK BAP Habitat / LBAP	Material consideration for planning	Borough
Breeding birds	Legally protected	Local
Water Voles	Legally protected	Borough
Bats	Legally protected	Borough

5 IMPACTS, MITIGATION AND ENHANCEMENT

5.1 Designated sites and habitats

5.1.1 Dagenham Breach and the Lower Beam River in Dagenham SBI(1) and Lower River Beam and Ford Works Ditches SBI(1) are located within the Phase 2 boundary and Rainham Railsides SINC is located adjacent to the southern boundary of the site. There is, therefore, potential for impacts during construction and operation of the proposed development on this designated site.

5.1.2 Potential construction impacts on habitats of conservation importance (the River Beam) include dust generation, accidental discharge of pollutants, surface water discharge and litter and other construction debris blowing onto the site.

5.1.3 Impacts on designated sites and habitats will be minimised through adoption of best practice construction measures, formalised through the production of a Construction and Environmental Management Plan (CEMP).

5.1.4 The CEMP will include:

- Dust suppression measures. Standard High risk mitigation measures from the SPG on ‘The control of dust and emissions during construction and demolition’ are recommended. An Air Quality and Dust Management Plan will be submitted to the Local Authority prior to works commencing on site.
- A surface water drainage system will be implemented, designed and managed to comply with BS6031:2009 'The British Standard Code of Practice for Earthworks', which details methods that should be considered for the general control of drainage on construction sites. All Site works will take account of the EA's previous Pollution Prevention Guidelines (PPG) 6: 'Working at Construction and Demolition Sites'. This will include, as appropriate, the use of bunding, settlement lagoons and / or silt fencing to prevent contaminated water from discharging to the river. Dewatering activities, if any, may require a temporary abstraction licence and this would need to be discussed with the EA prior to commencement of construction works; however, given the underlying geology, excavations are not expected to require dewatering apart from accumulated rainfall.
- A non-native species management strategy, to detail measures to be undertaken to control Giant Hogweed on site and prevent the spread of spoil containing Giant Hogweed seeds to other areas of the site;
- A lighting design to minimise light spillage on the river corridor and the southern railway line embankment. Light for working will only be required during the winter months when the days are short and will only be operational during the site working hours (8am - 6 pm Monday - Friday and 8 am - 1 pm Saturday). Security lighting should ideally be limited to the site compound areas and will be positioned to minimise light spillage onto the river and site boundaries;
- Standard best practice measures to reduce construction noise and vibration, including hoarding around the site boundary, site traffic plans to minimise reversing and regular maintenance of plant, using modern plant and equipment fitted with suitable silencers, the use of crushers in lieu of impact breakers where possible, and through use of non-percussive piling methods where possible; and

- Standard best practice measures to reduce pollution, such as provision of drip trays and spill kits, safe storage of fuel etc.

5.1.5 Groundworks for flood storage adjacent to the River Beam will result in the loss of 1.1ha of habitat adjacent to the River Beam, comprising 0.78ha of riparian habitat within the Dagenham Breach and lower Beam River in Dagenham SBI1 and 0.33ha of riparian habitat within the Lower River Beam and Ford Works Ditches SBI1.

5.1.6 This loss will be fully mitigated by the creation of new habitats. In addition, an overall gain of riparian habitat will be provided on both sides of the river. A total of 1.87 ha of habitat will be created, a net gain of 0.76 ha, comprising 0.85ha on the west bank and 1.02 ha on the east bank.

5.1.7 The loss of riparian vegetation along the river where this is affected by reprofling works will be mitigated by provision of replacement habitat comprising appropriate native species planting and natural colonisation, as set out in the Landscape Design.

5.1.8 Working within existing constraints (e.g. buried services located adjacent to the river), small bays and meanders will be introduced to the river channel, creating microhabitats that will increase the habitat diversity of the river corridor.

5.1.9 The margins of the river channel will be planted with marginal species such as Common Reed and Reed Sweet-grass. This will provide habitat for breeding birds and will provide a natural habitat corridor for riparian species, as well as providing some screening of the river channel from visual disturbance.

5.1.10 Impacts on habitats as assessed in the ES June 2017 was based on the assumption that all mature trees along the River Beam would be removed. An updated assessment of the landscaping and flood storage works required in Phase 2 has been carried out and has concluded that the majority of trees along the river can now be retained. Further screening in the form of hedgerow and / or scrub / tree planting will also be provided. As this planting matures it will further strengthen the habitat corridor and overall the habitat creation will retain connectivity between sites to the north and south of the site for mobile species such as bats.

5.1.11 Further back from the site boundary, habitats to be created will include grassland, scrub and tree planting. Recreational use of the area will be formalised through footpaths, minimising disturbance to the river channel itself.

5.1.12 Other options to increase habitat diversity include creation of hummocks and hollows to provide variation in microhabitats such as wetter and drier areas that will maximise plant and other species diversity, and the provision of refuges for wildlife such as log piles and rock piles where this would not conflict with amenity use.

5.1.13 In addition, approximately 1.43 ha of green space will be created west of the river on the other side of the existing road which runs north-south across the site.

5.1.14 Habitats created adjacent to the river will be managed for the benefit of biodiversity as well as providing a recreational resource for residents.

5.1.15 Further areas of open green space will be created adjacent to the railway line.

5.1.16 A surface water swale system will be created to store surface fluvial water to allow some treatment and settlement before it is pumped into the River Beam. This will be an improvement on the current situation for water quality and quantity. Drainage features such as swales and

drainage channels will provide some biodiversity benefits, although management of these features will prioritise their drainage function.

5.1.17 Overall therefore the habitats along the river corridor will be significantly enhanced.

5.1.18 Brown / green roofs are being provided. Brown roofs will provide undisturbed habitat for a range of species associated with low-nutrient open substrate habitats characteristic of waste ground, including invertebrates and foraging Black Redstarts.

5.1.19 Management of habitats is detailed in an Ecological Management Plan for Phase 2. An Outline Ecological Management Plan was submitted with the ES June 2017 (RPS, 2017d).

5.2 Species

Plants

5.2.1 A control strategy for non-native species will be implemented to ensure that invasive species such as Japanese Knotweed and Giant Hogweed are not spread further around the site during construction activities. The control of invasive species on site will provide an environmental benefit.

5.2.2 Retained trees should be protected during construction by the erection of Tree Protection Fencing to prevent site machinery from compacting the root zone.

Invertebrates

5.2.3 It is recommended that flowering native plant species are included within the landscape design wherever practicable to provide some replacement habitat for invertebrates.

5.2.4 The provision of brown roofs will provide habitat for a range of invertebrate species.

Birds

5.2.5 A suitably qualified ecologist should be on site to check vegetation prior to any site clearance if this takes place within the breeding bird season (March – August inclusive). Any nests found must be left undisturbed until the chicks have fledged.

5.2.6 The proposed development will lead to a loss in sub-optimal breeding bird habitat. However, this effect will be temporary and will be minimised through adoption of best practice construction measures and the production of a Landscape and Ecology Management Plan.

5.2.7 To mitigate for the loss of existing bird nesting habitat, it is proposed to install bird boxes in appropriate locations on new buildings. Boxes suitable for UKBAP / LBAP Priority Species including House Sparrow, Swift and Black Redstart will be provided, and this would represent an overall enhancement compared to the existing situation for these species.

Mammals

Water Voles

5.2.8 Water Vole burrows are likely to be present along the river banks. During construction, works are required in the habitat adjacent to the River Beam for flood storage capacity purposes. The river banks themselves are not directly affected by groundworks, and there would therefore be no potential for Water Vole mortality from destruction of burrows. However, in the absence of mitigation, plant and machinery working close to the river banks might disturb animals in their burrows.

5.2.9 In order to protect Water Voles during construction, the following measures are recommended:

- A re-survey of Water Voles should be undertaken prior to the commencement of works and the locations of any active burrows should be marked.
- A barrier comprising Heras fencing or similar should be erected a suitable distance (c 5 m) from the top of the bank to prevent plant, machinery and site operatives from accessing the river corridor while reprofiling works are being undertaken.
- If any works are required close (within 10m) to an active burrow, an Ecological Clerk of Works should be present during those works to advise on appropriate methods to reduce the likelihood of disturbance.

5.2.10 Measures to protect Water Voles during construction should be detailed in a Construction & Environment Management Plan or similar document prior to commencement.

5.2.11 During the operational lifetime of the site, management of riparian habitat will be undertaken. In the absence of mitigation, clearing bankside vegetation risks disturbing Water Voles and can result in habitat becoming temporarily unsuitable, reducing the amount of foraging habitat and leading to mortality or displacement.

5.2.12 In order to minimise impacts on Water Voles from vegetation management, the Ecological Management Plan would include measures specifying management actions so that vegetation management can be carried out in a manner sympathetic to Water Voles and to ensure that suitable habitat persists on site. This would comprise standard best practice measures for management of watercourses that support Water Voles, such as seasonal constraints on clearance works and phased clearance of vegetation such that some suitable habitat is maintained on site at all times.

5.2.13 Maintenance of riparian habitat in a good condition for Water Voles will ensure that the Water Vole population can be maintained, and compared to the current situation of no management would result in an overall improvement of the site for Water Voles, as in the absence of management the banks would eventually become too shaded with scrub to support ground flora for foraging Water Voles.

Bats

5.2.14 Further bat survey of the trees with moderate and high bat roost potential will be undertaken between May and September, and will inform any further required mitigation in the event that bats are found to be roosting in the three trees with bat potential that will be removed. The majority of trees with bat potential along the River Beam are being retained.

5.2.15 Should a roost be discovered in the trees with bat potential to be removed, mitigation would be secured via a Natural England licence. Mitigation would comprise felling of trees in a sensitive manner and at a time when bats are least likely to be present, along with provision of replacement bat roosts in the form of boxes erected on retained mature trees adjacent to the river. Overall there would be no significant impact on roosting bats.

5.2.16 Trees with low bat roost potential that will be affected by the development will need to be inspected by a licenced bat ecologist prior to soft felling or works. This can be undertaken at any time of the year, but preferably between April and October to avoid the potential disturbance of hibernating bats.

5.2.17 Impacts on habitats as assessed in the ES June 2017 was based on the assumption that all mature trees along the River Beam would be removed. An updated assessment of the landscaping and flood storage works required in Phase 2 has been carried out and has concluded that the majority of trees along the river can now be retained. The retention of significant numbers of retained trees will ensure that connectivity along the river corridor will be retained even while the riparian and other vegetation adjacent to the river at ground level is being restored. Therefore while the temporary loss of habitat along the river corridor will represent an unavoidable short-term adverse effect on bats in terms of availability of foraging habitat, it is no longer considered that the ability of bats to disperse along the river will be affected – the retention of the trees will maintain the flightline in a similar condition to that existing prior to commencement.

5.2.18 It is therefore no longer considered that the artificial flightline proposed during post-submission discussions with the LPAs following the ES June 2017 is required.

5.2.19 Once the marginal planting and additional tree planting proposed for the green space adjacent to the River Beam begins to mature, this will start to restore foraging habitat as well as reinforcing connectivity.

5.2.20 Bats are nocturnal and adapted to roost and forage in low light conditions therefore increases in artificial lighting can cause disturbance or disrupt existing flight paths. The points listed below will help to minimise potential impacts from lighting:

- Avoid illumination of retained boundary features;
- No direct illumination of any new roost entrances, whether bat boxes or features on new buildings;
- Use light sources that emit minimal ultraviolet light and avoid white or blue wavelengths to avoid attracting lots of insects (attracting insects to lamps may reduce their abundance in darker foraging areas favoured by bats);
- Individual lamps should be hooded and directed where needed to avoid unnecessary light spillage.

5.2.21 Design recommendations for wildlife friendly lighting is included in the Statement on the impact and design of artificial light on bats produced by BCT in 2011. This list can be found in Appendix D.

5.2.22 To mitigate for the loss of existing potential bat roosting opportunities, it is proposed to install bird and bat boxes in appropriate locations on new buildings and retained trees.

Additional enhancement opportunities

5.2.23 In addition to the mitigation measures outlined above, opportunities for enhancements include:

- Provision of native species in landscaping schemes including flower-, berry- and fruit-bearing species to enhance the habitat for birds, bats and invertebrates;
- Provision of 13 cm by 13 cm gaps at the bottom of fences to allow hedgehogs to move throughout the site in locations where that would be appropriate (e.g. fences that border the railway line habitat to the south of the site).

6 CONCLUSIONS

6.1.1 The majority of Phase 2 comprised bare concrete hard standing, and bare ground was present where surcharging works had commenced at the eastern side of site. The majority of habitats present on site are of limited intrinsic ecological value. Habitats of interest comprise riparian habitat and mature trees along and adjacent to the River Beam.

6.1.2 Dagenham Breach and the Lower Beam River in Dagenham Sit of Borough Importance for Nature Conservation Grade 1 SBI(I) is located within the site boundary in the London Borough of Barking and Dagenham, Lower River Beam and Ford Works Ditches SBI (I) is located within the site boundary in the London Borough of Havering. In addition, Rainham Railsides SBI(II) is located adjacent to the southern boundary of the site east of the River Beam. There is, therefore, potential for impacts during construction and operation of the proposed development on these designated sites.

6.1.3 Potential construction impacts on habitats include dust generation, accidental discharge of pollutants, surface water discharge and litter and other construction debris blowing onto the site.

6.1.4 These impacts will be minimised through adoption of best practice construction measures, formalised through the production of a Construction and Environmental Management Plan.

6.1.5 The majority of mature trees along the river are being retained. Other riparian habitat along the river will be lost as part of works to increase flood storage capacity, and this impact will therefore be mitigated via habitat restoration. An overall gain in the extent of habitats along the River Beam will be provided.

6.1.6 Retained trees should be protected during construction by the erection of Tree Protection Fencing to prevent site machinery from compacting the root zone.

6.1.7 A control programme for invasive plant species including Giant Hogweed and Himalayan Balsam should be implemented to ensure that invasive species are not spread during construction.

6.1.8 The trees and scrub within the boundary of Phase 2 Site have potential to support low numbers of breeding birds. Vegetation clearance should be undertaken outside of the breeding bird season (which runs from March – August inclusive). If any vegetation clearance is undertaken between March – August, a check for breeding birds should be undertaken prior to clearance works and any active nests left undisturbed until the chicks have fledged.

6.1.9 Water Voles have colonised the River Beam since the last survey was undertaken in 2016. Measures to protect Water Voles and their habitat during and post-construction are therefore required. Management of the bankside habitat will maintain suitable habitat for Water Voles on site in the long term and would therefore be beneficial for this species.

6.1.10 Ten mature trees along the river corridor had potential to be used by roosting bats, of which three will be removed. Further surveys are being undertaken in June – August 2019 and if bats are found in trees to be removed, mitigation would be secured via a Natural England licence and replacement roosting sites provided in the form of bat boxes erected on retained trees.

6.1.11 The assessment of impacts on foraging and commuting bats in the ES June 2017 was based on the assumption that all mature trees along the river would be removed. The majority of these trees are now being retained, with the result that habitat connectivity for bats should be maintained throughout construction, and the artificial flightline proposed in post-ES discussions with the LPAs is no longer required.

6.1.12 Lighting should be carefully modelled and designed to ensure that mature trees and the river habitat that provide foraging and commuting habitat for bats are not subjected to elevated light levels to avoid disturbing bats and their invertebrate prey.

6.1.13 Brown and green roofs will be provided. These will provide habitat for a range of species including Black Redstart and invertebrates. Bat and bird boxes will be installed in suitable locations on new buildings.

6.1.14 Overall the development of Phase 2 will provide a net gain in habitat area along the River Beam, and together with the retention of mature trees along the river, the provision of brown and green roofs and the provision of bat and bird boxes, it is considered that overall the development will have a net benefit to biodiversity compared with the existing baseline.

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APPENDICES

Appendix A: Relevant Legislation

Invasive species

Non-native Invasive Species of particular concern are listed under Schedule 9 Part 2 of the Wildlife and Countryside Act 1981 (as amended) (WCA).

It is an offence under the WCA to plant or otherwise cause to grow in the wild plants on Schedule 9 of the Wildlife and Countryside Act 1981, punishable by fines.

If charged with committing an offence, it is a defence against prosecution to prove that all reasonable steps were taken and all due diligence exercised in attempting to avoid committing the offence.

Waste containing any part of a Schedule 9 plants (including soil contaminated) that could facilitate the spread of the species is classified as controlled waste and there is a duty of care for its proper disposal (Environmental Protection Act 1990).

The Royal Institute of Chartered Surveyors (RICS) considers Japanese Knotweed to be 'very high risk' if it is within 7 metres of a habitable space, conservatory and/or garage, regardless of if it is on your property or not. RICS considers Japanese Knotweed to be 'high risk' if it is within the boundary of your property. Consequently, many mortgage lenders will not lend on a property that is considered to be high risk or above. Buyers are increasingly reluctant to purchase property near Japanese Knotweed infestations for this reason.

Birds

All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

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

Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

Water Voles

Water Voles and their habitats are fully protected under the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to:

- Capture, kill or injure a Water Vole;
- Damage, destroy or obstruct access to a breeding site or resting place (i.e. burrow);
- Disturb a Water Vole whilst in a place of shelter;
- Possess or control a Water Vole (live or dead), any part of a Water Vole or anything derived from a Water Vole;
- Sell, barter or exchange a Water Vole (live or dead), any part of a Water Vole or anything derived from a Water Vole; and / or
- Advertise or offer for sale, barter or exchange a Water Vole (live or dead), any part of a Water Vole or anything derived from a Water Vole.

Bats

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species. It is an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts

A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe, and Lesser Horseshoe.

Appendix B: London Borough of Havering Biodiversity Checklist

The planning authority has a duty to consider the conservation of biodiversity when determining a planning application; this includes having regard to the safeguard of species protected under the Wildlife and Countryside Act 1981, the Conservation (Natural Habitats etc) Regulations 1994 or the Badgers Act 1992. Biodiversity Action Plan (BAP) priority species are also a material consideration under PPS9. Where a proposed development is likely to affect protected and BAP priority species, the applicant must submit a ***Protected Species Survey and Assessment***. Where a proposed development is likely to affect a BAP priority species, the applicant must submit a ***BAP Species Survey and Assessment***.

If the application involves any of the development proposals shown in **Table 1** (Column 1), a protected and/or BAP priority species survey and assessment must be submitted with the application. Exceptions to when a survey and assessment may not be required are also explained in this table. The **Survey** should be undertaken and prepared by competent persons with suitable qualifications and experience and must be carried out at an appropriate time and month of year, in suitable weather conditions and using nationally recognised survey guidelines/methods where available. The survey may be informed by the results of a search for ecological data from a local environmental records centre such as GiGL – for which a charge may apply - or field club such as Essex Field Club. The survey must be to an appropriate level of scope and detail and must:

- Record which species are present and identify their numbers (may be approximate);
- Map their distribution and use of the area, site, structure or feature (e.g. for feeding, shelter, breeding).

The **Assessment** must identify and describe potential development impacts likely to harm the protected species and/or their habitats identified by the survey (these should include both direct and indirect effects both during construction and afterwards). Where harm is likely, evidence must be submitted to show:

- How alternative designs or locations have been considered;
- How adverse effects will be avoided wherever possible;
- How unavoidable impacts will be mitigated or reduced;
- How impacts that cannot be avoided or mitigated will be compensated.

In addition, proposals are to be encouraged that will enhance, restore or add to features or habitats used by protected/BAP priority species. The Assessment should also give an indication of how species numbers are likely to change, if at all, after development *e.g.* whether there will be a net loss or gain.

The information provided in response to the above requirements are consistent with those required for an application to Natural England for a European Protected Species Licence. A protected species survey and assessment may form part of a wider Ecological Assessment and/or part of an Environmental Impact Assessment.

Table 1: Local Requirement for Protected Species: Criteria and Indicative Thresholds (Trigger List) for when a Survey and Assessment is Required

Proposals for Development That Will Trigger a Protected and/or BAP Species Survey	Species Likely To Be Affected And For Which A Survey Will Be Required														
	Bats	Barn owl	Breeding Birds***	Gt crested newt	Water Vole	Badger	Reptiles	Amphibians	Plants	Invertebrates	Harvest mouse	Stag beetle	Brown hare	Other BAP species	
Proposed development which includes the modification conversion, demolition or removal of buildings and structures (especially roof voids) involving the following: • all agricultural buildings (*e.g.* farmhouses and barns) particularly of traditional brick or stone construction and/or with exposed wooden beams greater than 20cm thick; • all buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water; • pre-1960 detached buildings and structures within 200m of woodland and/or water; • pre-1914 buildings within 400m of woodland and/or water; • pre-1914 buildings with gable ends or slate roofs, regardless of location; • all tunnels, mines, kilns, ice-houses, adits, military fortifications, air raid shelters, cellars and similar underground ducts and structures; • all bridge structures, aqueducts and viaducts (especially over water and wet ground).	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓	✓												
Proposals involving lighting of churches and listed buildings or flood lighting of green space within 50m of woodland, water, field hedgerows or lines of trees with obvious connectivity to woodland or water.	✓	✓	✓												
Proposals affecting woodland, or field hedgerows and/or lines of trees with obvious connectivity to woodland or water bodies.	✓		✓			✓	✓		✓						
Proposals affecting established grassland (i.e. not ploughed or seeded for 5 or more years) or 'roughland' (i.e. grassland partially covered with scrub or trees), *excluding* residential gardens and grassland managed intensively for sports or amenity use and *including* roadside verges			✓				✓		✓	✓	✓		✓		
Proposed tree work (felling or lopping) and/or development affecting: • old and veteran trees that are older than 100 years; • trees with obvious holes, cracks or cavities, • trees with a girth greater than 1m at chest height; • Proposals affecting gravel pits or quarries and natural cliff faces and rock outcrops with crevices or caves	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓												
Major proposals within 500*m of a pond or Minor proposals within 100*m of pond (Note: A major proposals is one that is more than 10 dwellings or more than 0.5 hectares or for non-residential development is more than 1000m^2 floor area or more than 1 hectare)				✓											
Major proposals affecting or within 200*m of rivers, streams, canals, lakes, or other aquatic habitats such as fenland, marshland or reedbed.	✓				✓			✓	✓		✓				
Proposals affecting 'derelict' land (brownfield sites), allotments and railway land.			✓	✓		✓	✓	✓		✓	✓				
Proposed development affecting any buildings, structures, feature or locations where Protected/BAP species are known to be present **.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

* Distances may be amended to suit local circumstance on the advice of the local Natural England team and/or Havering Wildlife Partnership.

Appendix C:
Photographs

Photo 1. Hardstanding and bare ground on site.

Photo 2. Buddleia on site.

Photo 3. Giant Hogweed on site.

Photo 4. Cotoneaster on site (photo taken 2016).

Photo 5. Formal planting within marketing suite area.

Photo 6. Trees along Beam River.

Photo 7. Grassland along the river corridor.

Photo 8. Japanese Knotweed south of the site boundary (photo taken 2016).

Photo 9. Offsite Himalayan Balsam (photo taken 2016).

Photo 10. Buildings within marketing suite area.

Photo 11. Trees with bat roost potential feature: T1, 2 and 3 (left to right).

Photo 12. Trees with bat roost potential feature: T4, 5 (neglible potential) and 6 (left to right).

Photo 13. Trees with bat roost potential feature: T7, 8 and 9 (left to right).

Photo 14. Trees with bat roost potential feature: T10 and 11 (left to right).

Appendix D: Impact and design of artificial light for bats

Design recommendations for wildlife-friendly lighting include:

- Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light;
- Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal;
- Use narrow spectrum bulbs to lower the range of species affected by lighting;
- Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation;
- Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the luminaire or with accessories, such as hoods, cowls, louvers and shields to direct the light;
- Reduce the height of lighting columns. Light at a low level reduces ecological impact. However, higher mounting heights allow lower main beam angles, which can assist in reducing glare;
- For pedestrian lighting, use low level lighting that is directional as possible and below 3 lux at ground level;
- Use embedded road lights to illuminate the roadway and light only high-risk stretches of roads, such as crossings and merges, allowing headlights to take up the slack at other times;
- Limit the times that lights are on to provide some dark periods for wildlife; and
- Use lighting design computer programs and professional lighting designers to predict where light spill will occur.