



Ecological Impact Appraisal

Mill Meadows, Bexley

On Behalf of:

Cray Mill Leisure Ltd.

October 2021

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Report Status	Final
Date of Issue	08 October 2021

Ecology, Countryside Management

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Executive Summary

1. This report presents the results of a preliminary ecological appraisal (PEA) and a suite of relevant phase 2 surveys carried out on land at Mill Meadows, Bexley.
2. The proposal for the site is for the renovation and extension of the stable building, together with the renovation of the large shed by the vehicular entrance. All other buildings, notably those to the west of the stable, are to be demolished and the creation of two hockey pitches.
3. There are three Sites of Special Scientific Interest (SSSI) and four Local Nature Reserves (LNR) within 5km. The site does not fall within Natural England SSSI Impact Risk Zones that relate to sports-related planning applications.
4. The site is within a designated "Area of Metropolitan Importance for Nature Conservation" or SINC, due to the proximity of the River Cray. Bexley's SINC's form part of the green infrastructure provision in the borough. Due regard must be given to protecting habitats and species, whilst taking opportunities to enhance them wherever possible.
5. The site predominantly consists of a semi-improved grassland field approximately 2.6ha in size, previously used for grazing. The River Cray runs the length of the site's western and eastern boundary. Broadleaved trees line sections of the river on the eastern boundary. Several buildings occupy the north-east corner of the site, including a brick-built stable block, a corrugated stable block, and several individual stables/outbuildings which are a mix of timber and corrugated sheeting. Hardstanding, bare ground, ephemeral, and tall ruderal growth is present among the buildings, as are several organic and inorganic refuse piles.
6. The extended Phase 1 Habitat Survey (which formed part of the PEA) was conducted outside of the optimal survey window, and therefore further botanical surveys were carried out in July.
7. There is a potential outlier badger sett on site but is outside of the works area. As such further mitigation measures for the sett are not required. Standard mitigation measures for the badgers are recommended including pre-commencement walkovers, and covering of ground works and night.
8. The brick-built stable on site was considered to offer high suitability for roosting bats due to the features present and surrounding suitable habitat both on site and within the wider area. Follow up dusk emergence / dawn re-entry surveys were conducted on this building in July-September 2021 and a common pipistrelle *Pipistrellus pipistrellus* day roost was found within the building. A European Protected Species Mitigation (EPSM) licence should be sought from Natural England to enable development works on this building. Likely mitigation/compensation measures include provision of bat boxes, soft strip of roofing tiles and works to be carried out under an ecological clerk of works (ECoW). All other buildings were considered to be of negligible suitability for roosting bats.
9. The site was considered to have potential to support otter and water vole, due to the presence of the River Cray adjacent to the site. Follow up presence / likely absence surveys were therefore undertaken, and results showed these species are likely absent.
10. Botanical surveys found the presence of Himalayan balsam *Impatiens glandulifera*, Giant hogweed *Heracleum mantegazzianum* and Japanese knotweed *Reynoutria japonica*. Specialist removal should be undertaken for the giant hogweed which represents a health and safety risk to visitors to site .

Contents

1.0	Introduction.....	1
2.0	Methods.....	2
3.0	Baseline Ecological Conditions.....	5
4.0	Impacts, Mitigation and Enhancement Measures.....	17
5.0	Conclusions.....	24
6.0	References.....	26

Tables

Table 1:	Nationally Designated Sites within 5km of the Site.....	5
Table 2:	Non-Statutory Designated sites within 1km of the site.....	6
Table 3:	Summary of recent bat records within 2km of the Site.....	10
Table 4:	Results of the preliminary bat roost inspection of buildings.....	11
Table 5:	Summary of confirmed bat roosts in buildings.....	12
Table 6:	Summary evaluation of features.....	15
Table 7:	Summary of likely impacts, mitigation and enhancement measures and residual effects.....	24

Appendices

Appendix 1:	Site Plans.....	27
Appendix 2:	Legislative and Policy Framework.....	29
Appendix 3:	Detailed Survey Methods.....	32
Appendix 4:	Phase 1 Habitat Plan.....	35
Appendix 5:	Plant Species.....	36
Appendix 6:	Site Photographs.....	39
Appendix 7:	Ecological Constraints and Opportunities Plan.....	42

1.0 Introduction

- 1.1 Southern Ecological Solutions Ltd. (SES) was commissioned by Cray Mill Leisure Ltd to undertake a suite of ecological surveys and produce an ecological impact assessment (EclA) report of Mill Meadows, Bexley. The site is located at Ordnance Survey Grid Reference TQ 49647 73530, is approximately 6.2ha in extent, and is currently occupied by a semi-improved grassland field; dense scrub; semi-improved grassland; woodland; scattered trees; tall ruderal herb; improved grassland; and the River Cray running along the Eastern site boundary.
- 1.2 A site location plan is provided in **Error! Reference source not found.**
- 1.3 The proposal for the site is for the renovation and extension of the stable building, together with the renovation of the large shed by the vehicular entrance and associated works. All other buildings, notably those to the west of the stable, are to be demolished and a sports playing area created in the grassland on site.
- 1.4 To complete an EclA of the proposed development, a desk-based assessment, preliminary ecological appraisal (PEA) and subsequent protected species were undertaken in accordance with current guidance (CIEEM, 2018). Development proposals provided by the client in the indicative masterplan (Appendix 1) were reviewed to assess potential impacts and mitigation options are outlined in relation to legal and planning policy obligations and residual effects assessed. The aims of the report are to:
- Map the main ecological features within the site and classify habitat types based on standard Phase 1 Habitat survey methodology by compiling a plant species list for each habitat type;
 - Determine the presence or likely absence of protected/priority species or habitats;
 - Identify any legal and planning policy constraints relevant to nature conservation which may affect the development (see Appendix 2);
 - Identify likely significant effects on ecological features; and
 - Make recommendations for minimising impacts on biodiversity and providing net gains in biodiversity where possible in accordance with Chapter 15: *Conserving and Enhancing the Natural Environment*, of the National Planning Policy Framework (MHCLG, 2021), relevant nature conservation policies within the *London Borough of Bexley Core Strategy* (February 2012).
- 1.5 Details of relevant wildlife legislation and planning policies are provided in Appendix 2.

2.0 Methods

Desk Study

- 2.1 SES commissioned a data search for records of protected and notable species as well as non-statutory designated sites from the Greenspace Information for Greater London (GIGL). The data search encompassed the study area, and up to 2km from the boundary. Data was received on 19 April 2021.
- 2.2 A web-based search for statutory designated sites via the Multi Agency Geographic Information for the Countryside (MAGIC) spatial data resource www.magic.gov.uk was undertaken on 12 March 2021 for the following designations: European (up to 10km from the site boundary); and national (5km from the site boundary).
- 2.3 An online search was undertaken for waterbodies within 500m of the site boundary utilising MAGIC Map on 12 March 2021.
- 2.4 Previous ecology survey and assessment work including a Phase 1 update together with bat and reptile surveys (Hybrid Ecology, July 2019) was reviewed.

Field Surveys

- 2.5 The following is a summary of the methods employed during field surveys; full details of each survey method are provided in Appendix 3.

Habitats & Flora

Phase 1 Habitat Survey

- 2.6 An extended Phase 1 Habitat Survey was carried out on 11 March 2021 by suitably qualified ecologist Rosie Tobin-Moss BSc (Hons) MRes in appropriate weather conditions.

Phase 2 Botanical Survey

- 2.7 A detailed Phase 2 botanical survey was subsequently undertaken by Sven Wair of SES, a highly experienced botanist on 1 July 2021. The key focus of this survey was to record a comprehensive plant species list for the areas of semi-natural grassland and early successional ephemeral/perennial vegetation communities on site, assess their comparative botanical value, and identify the presence of protected, rare and notable plant species. Botanical nomenclature followed New Flora of the British Isles by Stace (2010).

Badgers

Scoping Survey

- 2.8 An updated badger scoping survey was undertaken on 14 June 2021 by Gwilym Pask-Hale MSc, BSc (Hons) ACIEEM and Hetty Wakefield. The site was systematically searched for signs of badger activity including setts, prints, paths, hairs, latrines and foraging signs. An assessment was also undertaken of the suitability of habitats on site for badger sett building, foraging and dispersal.

Bats

- 2.9 All surveys were undertaken in accordance with Bat Conservation Trust (BCT) Guidelines (Collins, 2016).

Preliminary Assessment

- 2.10** An updated first stage assessment of the sites' suitability to support roosting, foraging and commuting bats was undertaken during the April 2021 extended Phase 1 Habitat Survey.
- 2.11** A preliminary assessment of the suitability of trees and buildings on site for roosting bats was undertaken by Rosie Tobin-Moss BSc (Hons) MSc ACIEEM of SES on 25 May 2021. Trees and buildings were visually assessed, externally, from ground level.

Dusk Emergence / Dawn Re-entry Surveys

- 2.12** Dusk emergence / dawn re-entry surveys were undertaken for one building identified to have high bat roosting suitability with the potential to be impacted by the development. Surveys were undertaken on 8 July, 27 August and 8 September 2021 and led by Gwilym Pask-Hale, supported by Sarah Coulson, Nora Camann, Belhadj Lyamine, Charlotte Pink and Richard Ball all of whom are experienced bat surveyors.

Otter and Water Vole

Preliminary Assessment

- 2.13** The site was assessed for its current potential to support water vole *Arvicola amphibius* and otter *Lutra lutra* as part of the April 2021 update extended Phase 1 Habitat Survey. Otters have been recorded exploiting virtually all types of waterbodies and waterways in the UK and found on still waters (canals, lakes, ponds and reservoirs) as well as rivers and streams of all sizes. Water voles will inhabit most open water and wetland habitats including streams, canals, wet ditches and ponds.

Detailed Scoping Survey

- 2.14** The River Cray adjacent to the site was surveyed for water vole and otter on the 14 June 2021 and 27 August 2021 via a walkover of all accessible banks looking for field signs of these two species, i.e. footprints, mammal runs, latrines/spraints as well as potential burrows / holts. Survey methodology followed Strachan & Moorhouse (2011), Jeffries (2003) and Strachan and Jeffries (1993).

Assessment of Nature Conservation Value

- 2.15** CIEEM guidelines for Ecological Assessment in the United Kingdom (2018) have been utilised to assess the impacts upon habitats within the zone of influence of the site. CIEEM suggests that it is best to use the geographical scale (i.e. international, national, regional etc.) at which a feature (i.e. a habitat, species or other ecological resource) may or may not be important as the appropriate measure of value. As such, data from the data search and extended Phase 1 Habitat Survey have been reviewed and the likely occurrence of protected and notable species/species groups assessed. This has allowed predictions of impacts to be made along with recommendations for mitigation, compensation and enhancement. Further targeted survey will refine the evaluation and associated recommendations.
- 2.16** The following geographical scale categories are considered appropriate:
- International;
 - National (England);
 - Regional (South);
 - County (Greater London);

- District (South-east London);
- Local (Bexley); and
- Site.

Constraints

2.17 Desktop data searches are a valuable tool in evaluating a site's potential to hold rare and protected species, it is not however an absolute in confirming presence or absence of notable species due to the nature of how the records are collected.

3.0 Baseline Ecological Conditions

Statutory and Non-Statutory Designated Sites

Statutory Designated Sites

- 3.1** There are no sites designated under the Conservation of Habitats and Species Regulations 2019 considered to be of **international** importance within 10km of the site boundary.
- 3.2** There are three Sites of Special Scientific Interest (SSSIs) considered to be of **national** importance, within 5km; Wansunt Pit SSSI, Ruxley Gravel Pits SSSI, and Abbey Wood SSSI. The site does not fall within Natural England SSSI Impact Risk Zones that relate to sports-related planning applications.
- 3.3** There are four statutory designated Local Nature Reserves (LNRs) located within 5km: Foots Cray Meadows LNR, Danson Park Bog Garden LNR, Scadbury Park LNR, and Abbey Wood LNR.

Table 1: Nationally Designated Sites within 5km of the Site

Site Name	Distance Direction	Size (ha)	Description & Reason for Designation
UK Statutory Designated Sites			
Foots Cray Meadows LNR	1km SE	30	Site supports ancient woodland, grassland, wildflower, and river habitats.
Wansunt Pit SSSI	1.9km E	1.44	Site is designated for archaeological reasons.
Danson Park Bog Garden LNR	2.7 NW	1	Site supports a large lake with a bog garden at the western end.
Ruxley Gravel Pits SSSI	3.3km S	18.7	Ruxley Gravel Pits are one of the few areas of relatively undisturbed open water in Greater London south of the Thames. They contain a high diversity of habitats and species; the variety of insects and breeding wetland birds are also notable features
Scadbury Park LNR	4km SW	117	Site supports grassland and woodland habitats and forms a wildlife corridor to other greenspaces in London.
Abbey Wood LNR	4.8km N	73	Site supports ancient woodland, heathland, and hedgerow habitats.
Abbey Wood SSSI	4.8km N	6.7	Site supports ancient woodland, heathland, and hedgerow habitats. An important site for wild daffodil <i>Narcissus pseudonarcissus</i> , bluebells <i>Hyacinthoides non-scripta</i> , and wood anemones <i>Anemone nemorosa</i> . Notable fauna species present include stag beetle <i>Lucanus cervus</i> , bats, newts, redwing <i>Turdus iliacus</i> and fieldfare <i>Turdus pilaris</i> .

Non-statutory Designated Sites

- 3.4** There were 20 Sites of Importance for Nature Conservation (SINCs) within 2km of the site. There were five within 1km and which are listed in Table 3. The nearest is River Cray Metropolitan SINC of which Foot's Cray Meadows is located within the site.

Table 2: Non-Statutory Designated sites within 1km of the site

Site Name	Ref	Distance Direction	Size (ha)	Description & Reason for Designation
River Cray	M106	Within Site	184.99	The River Cray is one of the Thames' cleanest tributaries and still possesses a relatively natural profile in places. A chalk stream rising at Priory Gardens in Orpington, the river flows north-east through M105 (Ruxley Gravel Pits) to join the Darent Creek in Bexley. Several associated areas are incorporated within this site, the largest being Footscray Meadows open space, which contains important areas of neutral grassland, species-rich fen and the ancient North Cray Wood.
Sidcup Line Railsides	BxBII23	Adjacent N	14.0	These railsides provide wildlife habitats and an important green corridor extending across the borough boundary into Greenwich, where they are known as Mottingham and New Eltham railsides. The site is a mosaic of woodland, scrub and rough grassland, offering habitats for a range of invertebrates, birds, mammals, reptiles and flowering plants.
Upper College Farm	BxBII17	0.1km SW	29.54	A species-rich wasteland site with several successional stages including bare earth, ruderal communities, grassland and scrubland. Notable plant species include thyme-leaved sandwort (<i>Arenaria serpyllifolia</i>) and narrow-leaved birdsfoot-trefoil (<i>Lotus glaber</i>). Breeding birds include skylark and a large population of whitethroats.
River Shuttle	BxBII16	0.8km NE	8.05	The River Shuttle is second in importance to the River Cray in Bexley. A large proportion of the river has been straightened, but in recent years stretches of the river have been naturalised. The rivers supports a good wetland flora, including curled pondweed (<i>Potamogeton crispus</i>), cyperus sedge (<i>Carex pseudocyperus</i>), arrowhead (<i>Sagittaria sagittifolia</i>), common club-rush (<i>Schoenoplectus lacustris</i>), flowering-rush (<i>Butomus umbellatus</i>), brooklime (<i>Veronica beccabunga</i>), water forget-me-not (<i>Myosotis scorpioides</i>), square-stalked St John's-wort (<i>Hypericum tetrapterum</i>) and sea club-rush (<i>Bolboschoenus maritimus</i>).The rivers support varied populations of fish, including chub and bullhead, the latter a UK BAP priority species. Breeding birds include kingfisher.
The Warren	BxBIO8	0.8km NW	4.83	This small area of probably ancient woodland is dominated by pedunculate oak (<i>Quercus robur</i>) and elm (<i>Ulmus</i> sp). The ground flora is dominated by bramble (<i>Rubus fruticosus</i> agg), and also contains bluebell (<i>Hyacinthoides non-scripta</i>), wood anemone (<i>Anemone nemorosa</i>) and stinking iris (<i>Iris foetidissima</i>). The woodland supports an abundant population of the purple hairstreak butterfly.

Habitats

3.5 A Phase 1 Habitat map of the site is provided within Appendix 3. Plant species recorded per habitat type are tabled in Appendix 4. Site photographs are illustrated in **Error! Reference source not found.** 5.

3.6 The Phase 1 Habitat types (JNCC, 2010) within the site were:

- Broadleaved woodland semi-natural;
- Buildings, hardstanding and bare ground;
- Dense scrub;
- Improved grassland;
- Refuse piles;
- Running water;
- Scattered scrub;
- Scattered trees;
- Semi-Improved grassland; and
- Tall ruderal herb.

Broadleaved woodland semi-natural

3.7 There was a rectangular area of newly developed broadleaved woodland, approximately 1ha in size at roughly the centre of the northern site boundary. This area was previously dense scrub, but stands of young goat willow *Salix caprea*, dog rose *Rosa canina* and poplar *Populus sp* have since emerged. The understory was dominated by bramble *Rubus fruticosus*.

3.8 A wooded copse fringe is present on the south-eastern site boundary. This habitat contains mature stands of London plane *Platanus x acerifolia*, sycamore *Acer pseudoplatanus*, alder *Alnus sp*, and elder *Sambucus nigra*.

Buildings and hardstanding

3.9 In the north-east corner of the site was some existing development. There are two main existing structures on site, comprising a brick-built stable block (B1), and a corrugated metal stable block (B2). There are also several timber and corrugated built single stable blocks and outbuildings grouped together. Hardstanding is present throughout the developed area.

3.10 The main stable block (B1) was a brick-built structure, with clay tiled roofing, and wooden framed single glazed windows. The building has a rectangular structure comprises several stables within, and was split in two sections, made up of the original building and a more recent extension along the eastern elevation. The recent extension has brick-built elevations with corrugated asbestos roofing.

3.11 The smaller stable block (B2) was a corrugated metal structure, with corrugated asbestos roofing and corrugated plastic windows with metal framing.

3.12 The grouped outbuildings (B3) are smaller windowless stables designed to house 1-2 horses. They are comprised primarily of wooden boarding, shiplap, weatherboarding, and corrugated sheeting, with corrugated asbestos or metal roofing.

Dense scrub

3.13 Dense scrub was present in the centre of the northern site boundary, and along the south-eastern site boundary. Small patches of this habitat were also present on the southern boundary of the goat willow

woodland stand. There was also dense scrub in the developed area in the north-east corner of the site. The dominant species was bramble *Rubus fruticosus*.

Improved grassland

- 3.14** The northern site boundary intersects a small section of a sports field. The habitat present here was amenity grassland and was predominantly perennial rye grass *Lolium perenne* with few herbaceous species present.

Refuse piles

- 3.15** There were several organic and inorganic refuse piles throughout the developed area in the north-east corner of the site, comprising wood, wooden boards, corrugated sheeting, rubble, and other discarded man-made building materials.

Running water

- 3.16** Running the entire length of the south-eastern facing site boundary was the river Cray. The flow ran east to west, and the water was oligotrophic in nature. Within the river was aquatic vegetation including: watermint *Mentha aquatica*, iris *Iris sp*, and sedge *Carex sp*. Much of the bank of the river is concreted to prevent erosion.

Scattered scrub

- 3.17** Areas of scattered scrub were present among the developed area in the north-east corner of the site. The dominant species was bramble *Rubus fruticosus*.

Scattered trees

- 3.18** There were several scattered trees within developed area in the north-east corner of the site, comprising young stands of ash *Fraxinus excelsior* and elder. Scattered trees were present along the bank of the river Cray, including mature ash stands with dense ivy *Hedera helix* cover.

Semi-Improved grassland

- 3.19** The majority of the site was made up of a semi-improved grassland field, previously used as horse pasture and approximately 2.6ha in size. The sward shows signs of previous management but was beginning to form small tussocks in some areas. It comprises common grassland species, dominated by perennial rye-grass, with Yorkshire fog *Holcus lanatus*, and cocks-foot *Dactylis glomerata* interspersed. Common herbaceous species are present such as creeping thistle *Cirsium arvense*, common ragwort *Jacobaea vulgaris*, and white clover *Trifolium repens*. The quality of the grassland was difficult to determine because of the grazing pressure and the time of year.

Tall ruderal herb

- 3.20** Areas of tall ruderal herb are present throughout the developed area in the north-east of the site, and along the length of the south-eastern facing boundary, with a large patch of this habitat in the southern corner of the site. This habitat was dominated by common hogweed and other umbellifers, and also includes common nettle *Urtica dioica*, cleavers *Galium aparine*, broadleaved dock *Rumex obtusifolius*, and bramble.

Summary

- 3.21** The habitats within the site are considered to be common within the wider landscape but have potential to support protected species and those of conservation concern. Taken together, habitats on site are considered to be of **up to local** value with adjacent habitats being of **up to district** value. Confidence in this assessment is high.

Protected Habitats

- 3.22** The River Cray is one of the Thames' cleanest tributaries and still exhibits relatively natural conditions and good water quality. This river is designated as an Area of Metropolitan Importance for Nature Conservation, also known as a SINCI it was located along the south-eastern boundary of the site.

Protected and Notable Species

- 3.23** Protected species are animals and plants which receive protection in the UK under the Conservation of Habitats and Species Regulations 2019 as amended. UK protected species are animals and plants protected within The Wildlife and Countryside Act as amended (WCA) 1981, The Protection of Badgers Act 1992, or listed in Section 40 or 41 of the NERC 2006. Protected and notable species with existing records within 2km of the site are detailed below.

Rare and Notable Flora

Desk Study

- 3.24** There were recent records of two species listed on Schedule 8 of the WCA and located within 2km of the site; these were stinking goosefoot *Chenopodium vulvaria* (2011) and bluebell *Hyacinthoides non-scripta* (2013).
- 3.25** There was a wide range (26) of invasive non-native plant species listed on Schedule 9 of the WCA within 2km of the site including Himalayan balsam *Impatiens glandulifera*, Giant hogweed *Heracleum mantegazzianum* and Japanese knotweed *Reynoutria japonica*.

Field Survey

- 3.26** Generally, flora recorded during the Phase 1 Habitat Survey comprised of common species that are frequently associated with the common habitats present on site. A follow up botanical survey was carried out 1 July 2021. The primary findings were a high presence of Himalayan balsam along the riverbank, a stand of Japanese knotweed in the south of the site and frequent occurrence of giant hogweed across much of the site which appears to have been managed to a degree as the plants were short in size. Indicative locations and extents are provided in Appendix 6, no protected or notable plant species were recorded on site.
- 3.27** Additionally in discussion with site managers the area is known to be treated with herbicide to attempt to contain the invasive species on site.

Importance

- 3.28** The site is considered to be of **negligible** importance for rare and notable plants. Confidence in this assessment is high.

Badger

Desk Study

3.29 There were nine confidential records of badger within 2km of the site between 2003 and 2011.

Scoping Survey

3.30 A possible badger sett was observed at the northern site boundary adjacent to the new woodland stand during the walkover for the preliminary ecological appraisal. This showed signs of active use at present. There were no other field signs observed in the form of additional setts, foraging signs (snuffle holes), hairs, or latrines. A follow up walkover found this potential sett to be completely overgrown and blunt upon subsequent visits. Though a possible outlier sett was found near the southern border of the site.

3.31 The grassland, woodland, tall ruderal and scrub habitats on site offer suitable foraging habitats for badgers. In addition, there is suitable foraging habitat within good ecological connectivity to the site in the form of woodland and greenfield land. The site is therefore assessed as being of **site** value for badgers; confidence in this assessment is moderate.

Importance

3.32 The site is considered of **site** level of importance for badgers and confidence in this assessment is high.

Bats

Desk Study

3.33 A summary of bat records is available in Table 3. There were seven identified bat species recorded within 2km of the site; all apart from Nathusius's pipistrelle *Pipistrellus nathusii* are considered widespread in southern England.

3.34 A search of European Protected species licenses revealed only one for bats within 2km. This was granted in 2009 for the destruction of a non-breeding common pipistrelle *Pipistrellus pipistrellus* roost located approximately 100m south-east of the site.

Table 3: Summary of recent bat records within 2km of the Site

Species	Nearest approximate distance to site (km)	Total No. of Records	Date of Most Recent Record
Brown long-eared bat <i>Plecotus auritus</i>	>1km	3	2010
Common pipistrelle <i>Pipistrellus pipistrellus</i>	>1km	15	2011
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	>1km	2	2010
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0.7km	10	2010
Daubenton's <i>Myotis daubentonii</i>	>1km	22	2016
Noctule <i>Nyctalus noctula</i>	0.7km	5	2016
Serotine <i>Eptesicus serotinus</i>	>1km	3	2010
Myotis sp.	<1km	2	2010

Bats – Roosting

- 3.35** Trees on site were inspected from ground level. There were several trees along the south-eastern and south-western site boundaries which were considered to be suitable for roosting bats. Roosting features included dense ivy cover, rot holes, and canker holes. Due to the presence of these features, and the immediate surrounding suitable foraging habitat, these trees were considered to be of **high** suitability for roosting bats. See Appendix 3 for approximate locations.
- 3.36** All of the buildings on site were inspected internally and externally for features with the potential to support roosting bats.
- 3.37** B1 was considered to have high suitability for roosting bats. Due to the level of unsuitability, lack of evidence, and lack of roosting features present within the other two structures on site, all other buildings were considered to be of **negligible** suitability for roosting bats. Table 4 provides the results of the assessment of buildings regarding their suitability for roosting bats.

Table 4: Results of the preliminary bat roost inspection of buildings

Building	Description	Bat roost potential	Evidence of bats	Suitability
1	Brick-built stable building	Poorly maintained building, with deteriorated pointing, and brickwork. Missing and broken tiles in several areas throughout the roof. Interior of the building is wooden boarded with wooden and metal frames. Wooden framed windows and doors, with gaps and crevices under doorframes. The western part of the building has a large hole in the roof, which allows access to the interior of the stables. Walls are breeze blocks, with areas of wooden boarding. No signs of bats.	None found.	High
2	Metal stable building	Several access points to the interior of the building due to holes in the corrugated sheeting. Thick dense cobwebs throughout. No signs of bats. Corrugated structures are associated with temperature fluctuations and therefore unsuitable for roosting bats.	None found.	Negligible
3	Grouped outbuildings/stables	Poorly maintained buildings with access points due to holes in wooden elevations. Gaps underneath boarding throughout. However, no signs of bats were found, and the interiors of each building were full of dense cobwebs, indicating no presence of bats. Thorough searching with torches revealed no signs of bats. Few suitable crevices noted within the buildings, with only a few minor crevices present beneath weatherboarding.	None found.	Negligible

Bats - Foraging/Commuting

- 3.38** The semi-improved grassland, scrub, tall ruderal, and linear habitats on site offer opportunities for foraging and commuting bats. In addition, the boundary features on site offer connection to wider suitable foraging areas in the form of woodland, hedgerows, waterbodies, and green space. The treelined river provides good foraging habitat for rarer more light sensitive species. Therefore, the site as a whole is assessed as being of **moderate** suitability for foraging and commuting bats.
- 3.39** Overall, the site is considered to be of **up to local** value for roosting, foraging and commuting bats. Confidence in this assessment is high.

Bat Emergence/Re-entry Surveys

- 3.40** Bat roosts were recorded within B1 which are likely to be impacted by the proposals. The details relating to these roosts are summarised in Table 5 with full details provided in Appendix 7.

Table 5: Summary of confirmed bat roosts in buildings

Building number	Species	Number of roost locations	Type of roost	Roost location
1	Common pipistrelle	1	Day	One day roost located in B1 with entrances at northern and southern ends of the buildings. The building itself being a single internal space and the entrances located in the eaves of the building suggest the roof supports or tiles may act as the roost itself though this cannot be confirmed.

Birds

- 3.41** There were records for 81 bird species within 2km of which four species, kingfisher *Alcedo atthis*, red kite *Milvus milvus*, red-backed shrike *Lanius collurio* and marsh harrier *Circus aeruginosus*, were listed under Schedule 1 of the WCA 1981.
- 3.42** Species of bird recorded on site included magpie *Pica pica*, robin *Erithacus rubecula*, great tit *Parus major*, wood pigeon *Columba palumbus*, jackdaw *Corvus monedula*, mallard *Anas platyrhynchos*, moorhen *Gallinula Chloropus*, canada goose *Branta canadensis* and grey heron *Ardea cinerea*.
- 3.43** There are no hedgerows or habitats on site suitable for providing high-quality nesting habitat for farmland species of conservation concern. The semi-improved grassland areas are too recently managed so lack the species diversity and long sward needed to provide resources for seed and invertebrate feeding species such as yellowhammer and linnet. It is considered the trees, woodland, and scrub on site may be used by low numbers of common passerine species. Species such as kingfisher may use the river to forage.
- 3.44** With on-site habitats providing foraging and nesting resources and good connection to the surrounding landscape, the site is considered to be of **site** value for breeding birds; confidence in this assessment is **high**.

Great Crested Newt

- 3.45 There were two records of great crested newt within 2km of the site, the most recent in 2009 (i.e. over 10 years ago) and the nearest >1km from the site. There are no EPS mitigation licenses, District class licenses or surveys for this species within 2km.
- 3.46 The scrub, tall ruderal, woodland, and semi-improved grassland areas of the site are considered to provide suitable terrestrial opportunities for sheltering and commuting great crested newt. The organic refuse piles on site may also provide shelter for this species during hibernation.
- 3.47 The aquatic habitat on site in the form of the River Cray is not considered suitable breeding habitat for great crested newt due to it being running water. There were no suitable waterbodies with ecological connectivity to the site identified within 500m. A fishing pond approximately 8ha in size is present to immediately south of the site however this waterbody is not considered suitable for breeding great crested newt due to the size, water quality, and presence of fish and waterfowl.
- 3.48 Therefore, although there is some suitable terrestrial habitat on site, the lack of suitable waterbodies within 500m and lack of recent records within 2km, drive the conclusion that the likelihood of great crested newt being present on site is very low. Furthermore, given the limited extent of the terrestrial habitat on site, the risk of an offence in relation to great crested newt occurring as a result of the proposed development is considered to be negligible.
- 3.49 Habitats on site are therefore assessed as being of **negligible** value for the potential great crested newt population, and this species is not considered further in this report.

Hazel Dormouse

- 3.50 There were no records of hazel dormouse within 2km of the site. There are no EPS mitigation licenses for hazel dormouse within 2km of the site.
- 3.51 The woodland and scrub on site have the potential to provide suitable habitat for hazel dormice. There is connectivity from the site to suitable woodland and hedgerow habitats in the wider area to the south-east. The A223 road acts as a significant barrier for dispersal to suitable habitats beyond this. The newly developed goat willow woodland stand does not have good ecological connectivity to the wider area. The site is situated within urban development, therefore the suitable habitat that is present within the wider area is not extensive enough to support this species within isolation.
- 3.52 Given the limited suitable habitat present on site and in the surrounding area, and lack of records, it is considered highly unlikely that dormouse is present on site, and further surveys are not required. The site is considered to be of **negligible** value for hazel dormouse and this species is not considered further in this report.

Invertebrates

- 3.53 There were a range of invertebrate records associated with the river such as Odonata species and mature trees including 19 beetle species including stag beetle *Lucanus cervus*. However, no records of stag beetle were recorded in the last 10 years, the most recent of the two records was from 2002.
- 3.54 The semi-improved grassland, tall ruderal, woodland, and scrub habitats on site were considered suitable for supporting invertebrates. However, the extent and age of these habitats is limited, and it is considered unlikely that the site would support a notable invertebrate assemblage. Therefore, the site is considered to have **site** value for invertebrates; confidence in this assessment is **high**.

Otter and Water Vole

Desk Study

- 3.55** There was one record of water vole *Arvicola amphibius* recorded in 2016 0.9km from the site. No field signs for either of these species were observed on site.
- 3.56** The River Cray located on site was considered suitable for otter and water vole due to the good water quality, suitable aquatic vegetation, and connection to other waterways to the west. Previous otter and water vole surveys conducted on site in January 2018 revealed no evidence for these species.

Field Survey

- 3.57** Much of the bank of the adjacent river Cray is comprised of concrete and unsuitable for water voles or otters.
- 3.58** There were no field signs (latrines, footprints, burrows, feeding stations, runways in the vegetation etc.) for water vole on site. As such it was considered that water vole are not currently using the proposed development site.
- 3.59** In addition, there were no spraints, footprints, holts, mammal runs into the water etc. indicative of otter. Local knowledge and the desk study both indicate that otter can use the site, with a record for an RTA on the A12 adjacent site and anecdotal reports from fisherman of having observed otter at the lake (pond 2) in the past; however, the lack of field signs and/or holts during the detailed scoping surveys in 2018 and 2021 suggests otters are currently absent from the site.
- 3.60** It is considered that water voles and otters are likely absent from the site and the site is of **negligible** importance to this species; hence water vole are not discussed further in this report.

Reptiles

Desk Study

- 3.61** There were recent records of slow-worm (24), grass snake (15) and common lizard (26) within 2km of the site.
- 3.62** Previous reptile surveys on site conducted June-July 2019 found one adult common lizard and one juvenile grass snake along with an adult grass snake slough, confirming presence of both species on the site. Therefore, the site is considered to be of **site** value for reptiles; confidence in this assessment is high.

Field Survey

- 3.63** The scrub, hedgerows, semi-improved grassland, woodland, tall ruderal vegetation, refuse piles, and river were considered to provide suitable habitats for foraging/hunting, sheltering, hibernating, and basking reptiles. There was connectivity from these habitats to suitable habitat in the wider area, and residential gardens. These habitats are consistent with previous surveys.

Other Notable Species

- 3.64** There were 21 records of West European hedgehog *Erinaceus europaeus*, and 12 records for common toad *Bufo bufo* within 2km of the site. No records were found for European polecat *Mustela putorius* or European hare *Lepus europaeus*.
- 3.65** The semi-improved grassland, improved grassland, tall ruderal, scrub, and organic refuse piles habitats are considered to provide suitable sheltering and foraging habitat for hedgehog and common toad. Other notable species were considered likely absent due to lack of records and suitable habitat.
- 3.66** The site is considered to have **site** value for these species; confidence in this assessment is **high**.

Summary

- 3.67** A summary evaluation of site features is provided in Table 6.

Table 6: Summary evaluation of features

Feature	Summary Description	Value	Confidence
Statutory Designated Sites	Wansunt Pit SSSI, Ruxley Gravel Pits SSSI, and Abbey Wood SSSI. Footh Cray Meadows LNR, Danson Park Bog Garden LNR, Scadbury Park LNR, and Abbey Wood LNR.	National Regional	High
Non-statutory Designated Sites	20 SINC within 2km and 5 of these within 1km; River Cray Metropolitan SINC located within the site.	District	High
Habitats	Majority defined by semi-improved grassland pasture. High intrinsic ecological value habitats include woodland, scrub, trees, river, tall ruderal herb. River Cray is designated a priority habitat.	Up to Local	High
Rare and notable flora	No notable species found.	Site	High
Non-native invasive flora	Himalayan balsam, giant hogweed and Japanese knotweed present on site.	-	High
Badger	One possible outlier sett on site. No field signs observed. Suitable foraging habitat on site, and good connectivity to the wider landscape.	Site	High
Bats (roosting)	Common pipistrelle day roost found within B1.	Site	High
Bat (foraging and commuting)	Adjacent River Cray, scrub and tree boundary habitats.	Up to Local	High
Birds	Good quality habitat on site to support a common passerine assemblage.	Site	High
Great crested newt	Likely absent	Negligible	High
Hazel dormouse	Likely absent	Negligible	High
Invertebrates	River Cray likely to support range of species. Limited valuable terrestrial habitat on site. Lacks the structural diversity to support a notable assemblage.	Site	High

Feature	Summary Description	Value	Confidence
Otter and water vole	Record of water vole within 1km. No evidence found of water vole or otters along River Cray	Negligible	High
Reptiles	Numerous records for three species. Good quality habitat on site and good connectivity to the wider area. Previous surveys in 2019 revealed a low population of common reptile species.	Local	High
Notable mammals	Suitable habitat for hedgehog and toad.	Site	High

4.0 Impacts, Mitigation and Enhancement Measures

Description of Proposals

- 4.1** The proposal for the site is for the renovation and extension of the stable building, together with the renovation of the large shed by the vehicular entrance and associated works. All other buildings, notably those to the west of the stable, are to be demolished and two sports pitches are to be created on site.

Statutory Designated Sites

- 4.2** Due to the distances between the site and the nearest statutory designated site (i.e. at least 1km), direct impacts are not predicted. Due to the small scale and the non-residential nature of the proposed development, it is considered unlikely that there will be significant impacts on these designated sites. Hence effects on statutory designated sites are no considered likely significant and not considered further in this assessment.

Non-statutory Designated Sites

- 4.3** The site is located within the River Cray Site of Metropolitan Importance for Nature Conservation (SINC). The site is therefore located within an important part of the green infrastructure provision in the borough. Due regard must be given to the legal duties associated with protecting habitats and species, whilst taking opportunities to enhance them wherever possible. The hierarchy of avoid, minimise, compensate must be followed in relation to biodiversity.
- 4.4** The proposed works are not expected to have a direct impact on the River Cray as works are not happening to the river or its banks. The only works taking place within the riparian corridor is construction of a car park, within an area of hardstanding, and thus is not predicted to have any significant impact on the river.
- 4.5** Concerning indirect impacts, the following pollution prevention measures will likely mitigate risk to contamination of the adjacent River Cray both during construction and operational phases of the works, though should a COSHH assessment be undertaken it will supersede these recommendations:
- Fuel, oil and chemicals will be stored in secure bunded facilities at least 10 m away from watercourses and drains;
 - A designated area for washing out of concrete wagons, shoots and mortar bins will be provided.
 - Suitable protection for watercourses potentially affected by the works will be installed prior to works commencing and these systems will be subsequently monitored.
 - Dust levels are not expected to be problematic as most construction activities will take place some distance from the vegetation that forms the site boundary. However, under dry conditions dust suppression will be carried out.
 - Planting of EM10 grassland mix with high growing wildflowers between the pitches and the ruderal/scrub vegetation along the bank of the river which can absorb herbicide if usage is continued in onsite maintenance of the pitches. The proposed location is shown in Appendix 7.

Habitats

- 4.6** The current proposals indicate that the majority of the ecological valuable habitat on site is to be retained, including the woodland strip on the south-western facing boundary, and all scattered trees. The scrub habitat along the north boundary is also anticipated for retention. As such it is recommended

that these habitats are protected during works through the provision of suitable fencing such as Heras fencing.

- 4.7** If new external lighting is required, then a sensitive strategy that avoids lighting of the ecologically valuable areas of the site should be implemented, to help mitigate potential indirect impacts on protected species such as bats which may be utilising the site and boundary habitats for foraging and commuting.
- 4.8** The onsite site can be enhanced through the removal of the invasive species on site by a suitably qualified specialist. Additionally, the previously mentioned EM10 grassland mixture will improve the habitat quality on site from a botanical perspective and the site suitability for various protected fauna.

Protected and Notable Species

Rare and Notable Flora

- 4.9** No rare or notable protected flora observed on site and thus no protective mitigation is required.
- 4.10** Current plans do not directly impact the current extents of the Japanese knotweed and Himalayan balsam. Thus, the development does not require mitigation to prevent the further spread of these species, though it is recommended that the Japanese knotweed is removed by a specialist contractor. The higher footfall expected to the site however increases the likelihood of indirectly contributing to the spread of the Himalayan balsam.
- 4.11** It is recommended that a buffer habitat is planted between the pitch areas and the embankment vegetation to reduce the likelihood of visitor inadvertently coming into contact the balsam species and spreading the seeds through contaminated clothing. The EM10 tussocky grassland mix with well suited as it requires little in the way of ongoing maintenance and grows tall enough to act as deterrent.
- 4.12** It is highly recommended that the giant hogweed is removed by a specialist contractor as the species represents a health and safety risk to visitors to the site.
- 4.13** Should these recommendations be carried out, it is anticipated that the development will have a **positive** impact on local flora.

Badger

- 4.14** There is a potential badger sett on site, however it is outside of the proposed works and operational areas and thus does not represent a constraint to the proposed development. Should plans change, the sett will need to be monitored to inform further mitigation.
- 4.15** General precautionary techniques sympathetic to badgers (applicable to most sites) are recommended due to the potential for badgers to forage/disperse within the site:
- Covering trenches at night or leaving a plank of wood leant against the side to ensure badgers can escape if they were to accidentally fall in;
 - Storing chemicals safely (e.g., locked away); and
 - A toolbox talk will be given to on-site operatives detailing these precautionary measures.

Bats

Bats - Roosting

- 4.16** The brick-built stable (B1) on site is confirmed to contain a common pipistrelle day roost. A European Protected Species Mitigation (EPSM) licence will be sought from Natural England to demolish B1 and develop the site. Given the roost found being a day roost, it is likely this can be achieved with a low impact class licence (LICL). Until the licence is received, the below must strictly be followed:
- No demolition or alteration works should take place to B1.
 - No existing trees in the vicinity of these buildings should be removed. Advice should be sought from the project ecologist if there is a need to fell any trees or hedgerows on site. Low lying vegetation below 2m may be removed.
 - No new artificial light shall be directed upon any of the boundary vegetation, existing hedgerows, mature trees, or B1.
- 4.17** Natural England will further determine the exact mitigation design during the licensing process. Notwithstanding, the following is guidance on the mitigation considered to be required.
- 4.18** As it is not considered feasible to retain the existing roosts in-situ post-development, compensatory roosts will need to be provided. This will comprise four bat boxes installed on trees to be retained within the development. These could comprise, for example, 2F Schwegler General Purpose Bat Boxes (Figure 1), Schwegler 1FD (Figure 2), and / or Schwegler 1FF (Figure 3) or similar.

Figure 1. Schwegler 2F general purpose bat box



Figure 2. Schwegler 1FD bat box



Figure 3. Schwegler 1FF bat box



- 4.19** Bat boxes will be put in place on trees to be retained before the commencement of construction and demolition of existing roosts (proposed locations shown in Appendix 7). The boxes will be left in situ in perpetuity thereafter to provide compensatory roost locations for bats.

- 4.20** Boxes will be located with appropriate connectivity to the wider landscape and where possible, close to where the original roosts were located. They will be situated at a minimum height of 3m above ground level.
- 4.21** In terms of the demolition of B1, this work can only begin once the Natural England licence is received and must avoid the bat hibernation season (when they are most vulnerable). Therefore, B1 could be demolished between April and November. This is subject to the exact conditions of the licence from Natural England which cannot be known at this time but will likely include variants on the measures detailed below.
- 4.22** Internal features (e.g. mortice and tenon joints in the frame of the buildings) will be inspected by the ecologist using torches, endoscopes, ladders and elevated working platforms, as appropriate. If any roosting bats are located, features will be fitted with exclusion devices where possible, to allow the bats to leave of their own accord overnight while preventing re-entry the following dawn.
- 4.23** The roof covering on B1 will be subject to a soft strip. The contractor will have a site meeting with the named ecologist ahead of works, where the ecologist will brief the roofers on safe methods of working with bats. The soft strip will be undertaken under the supervision of the named ecologist or accredited agent, avoiding periods of cold weather, high winds or heavy rain. Roof coverings will be lifted by hand, from the top down, to reduce risk of crush injury when lifted, and the use of tools to knock out mortar minimised wherever possible. The ecologist will be provided with safe access to the roof so that s/he can observe the roofers at work to ensure compliance and can get access if a bat is found.
- 4.24** Should a bat be found during works, if it is safe to do so, it will be taken by hand (by the named ecologist / accredited agent) and put into a ventilated holding box or bat holding bag. If the bat cannot safely be extracted, a 5m works exclusion zone will be put in place to allow the bat to leave overnight and the roost then sealed where possible as previously described. Any collected bats will be put into the pre-erected bat boxes on retained trees, with access points stopped off until the end of the working day or for at least 30 minutes to allow the bat to settle and reduce the risk of them leaving and day-flying (when they would be at risk from predation).#
- 4.25** If bats are injured during works, the BCT helpline will be called (0345 1300 228) to organise care by a bat volunteer. The licensee commits to paying for reasonable expenses incurred by the carer and if necessary, veterinary bills.

Bats - Foraging/Commuting

- 4.26** The site is assessed as having overall **moderate** suitability with the presence of higher quality habitats at the boundaries, such as rivers, lines of trees and woodlands. Foraging opportunities are present within the semi-improved grassland.
- 4.27** The majority of the most valuable habitat on site is being retained and protected (i.e., the boundary habitats). The only expected foraging/commuting habitat to be impacted will be grassland being increasingly mown and a small area of scrub lost to create access.
- 4.28** Given that the majority of the more valuable habitats will be retained, activity surveys are not required unless plans change to impact the habitats and/or until floodlighting is proposed. A survey should then comprise a suitable scope to assess effects of the floodlights and include a minimum of three visits across the bat active season; one in spring (April/May), another in summer (June/July/August) and the final in autumn (September/October). Surveys should include a walked transect as well as at least five nights of static monitoring surveys at suitable locations across the site per season.

4.29 In general, it is recommended that site lighting around key features likely to be used by roosting, foraging or commuting bats is avoided during both the construction and operational phases. If lighting is necessary, then there are a number of ways to minimise the effect of lighting on bats. The following mitigation strategies have been taken from the Institution of Lighting Professionals and Bat Conservation Trust's Guidance Note 08/18 Bats and artificial lighting in the UK (2018) and other referenced sources:

- In general, light sources should not emit ultra-violet light so as to avoid attracting insects and thus potentially reducing numbers in adjacent areas, which bats may use for foraging. Metal halide and fluorescent sources should not be used.
- LED luminaires should be used where possible. A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Limiting the height of lighting columns to 8m and increasing the spacing of lighting columns (Fure, 2006) can reduce spill of light into unwanted areas. Only luminaires with an upward light ratio of 0% and with good optical control should be used. Luminaires should always be mounted on the horizontal, i.e., no upward tilt.
- Other ways to reduce light spill include the use of directional luminaires, shields, baffles and/or louvres. Flat, cut-off lanterns are best. Additionally, lights should be located away from reflective surfaces where the reflection of light will spill onto potential foraging/commuting corridors. Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill. Where windows and glass facades etc. cannot be avoided, low transmission glazing treatments may be a suitable option in achieving reduced illuminance targets.
- Lighting that is required for security or access should use a lamp of no greater than 2000 lumens and be PIR sensor activated on a short timer (1 minute), to ensure that the lights are only on when required and turned off when not in use (Jones, 2000; Hundt, 2012). A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Birds

4.30 The site is considered to provide habitat ubiquitous with the surrounding landscape and suitable for common species. The significant majority of the nesting bird habitats on site are to be retained and no further survey work is required.

4.31 Where clearance or trimming of nesting bird habitat (grassland, scattered trees, scrub, hedgerows and woodland) is required, then this should be undertaken outside the nesting bird season (March to August inclusive), or only once a habitat inspection has been carried out by a suitably qualified ecologist immediately prior to clearance.

4.32 The site can be enhanced for nesting birds by the inclusion of nest boxes on retained trees and buildings. Schwegler 1b and 35 nest boxes are shown below as an example.

Figure 4. Schwegler 1b – Bird Nest Box



Figure 5. Schwegler 35 – Starling Bird Box



- 4.33** If such enhancements can be provided the impact of the development is expected to be **positive** for nesting birds.

Invertebrates

- 4.34** The site is considered unlikely to currently support significant assemblages of rare or notable invertebrates due to the common habitats restricting variety and density of micro-habitats available. As such, no further surveys are recommended to adhere to wildlife legislation or planning policy.
- 4.35** Several of the refuse piles on site are suitable for stag beetle. It is proposed that organic refuse piles containing dead wood are retained and relocated to the boundary habitats on site in order to provide a source of food and shelter for this species. In addition, dead wood piles should be created to provide additional habitat for invertebrates, namely stag beetle.

Reptiles

- 4.36** The site provides high quality habitat for reptiles in the form of the semi-improved grassland, scrub, tall ruderal, hedgerows, woodland, and river. There is good connectivity to the wider area, and other suitable habitat. Previous reptile surveys conducted in 2019 revealed a low population of common reptiles are present in the boundary habitats on site.
- 4.37** To prevent reptiles from colonising the main area of site and therefore guarding them against residual risk of harm, it is advised that the semi-improved grassland habitat on site is to be regularly maintained in the period leading up to construction works. The sward should be kept short through regular mowing. Any clearance of the longer grass and ruderal habitats should be undertaken in two phases. The first cut should be to a height of no less than 15cm above ground level, then a minimum of 24 hours should be allowed to elapse before full clearance to ground level, which gives time for any reptiles disturbed to move into the any adjacent suitable habitat offsite. Once these taller vegetative areas are cut, they are to be maintained regularly to keep the sward short. In addition, potential reptile refugia such as the refuse piles should be removed by hand to mitigate risk of death/injury. If the regular maintenance is not carried out the staged clearance will need to be extended to the entire works space.

4.38 Previous surveys for this species (Hybrid Ecology, 2019) are currently still in date and the boundary habitats where reptiles were found to be present, are to be retained. For these reasons, an update survey for the presence/absence of reptiles on this site is not considered necessary to prevent injury and death to this species during the construction phase.

Other Notable Species

4.39 Potential impacts to other notable species include risk of death/injury to European hedgehog and common toad. Loss of habitat is not considered to be a significant effect, given the suitable habitat is largely being retained, and this species can still use the semi-improved grassland area of the site for foraging even after the development.

4.40 General precautionary measures recommended to protect badgers during the construction phase will also serve to protect hedgehogs during construction.

4.41 If any suitable hedgehog habitats (refuse piles or tall ruderal vegetation) are to be cleared, this should be undertaken outside of the hedgehog hibernating season (generally November to February inclusive) in a staged way to ensure animals can move from the area (method detailed in 4.36). The optimum time to remove vegetation would be during September/October as this avoids both the nesting bird season and hedgehog hibernation season, whilst still within the reptile active season.

5.0 Conclusions

5.1 It is considered that the site may provide suitable habitat for a number of protected and/or notable species. A summary of likely impacts and mitigation is provided in the table below.

Table 7: Summary of likely impacts, mitigation and enhancement measures and residual effects

Feature	Likely Impacts	Further Surveys / Assessment	Likely Mitigation Measures and Enhancements	Likely Residual Effect
SSSI/LNR	No likely impacts	N/A	No mitigation, consultation either Natural England is considered unnecessary due to the scale and nature of proposed development.	Neutral
SINC	Located within River Cray Metropolitan SINC	N/A	Habitat enhancement within wider site to offset loss of grassland from hockey pitches. See habitats section below.	Neutral
Habitats	Damage to retained trees and woodland during construction. Lighting impacts during/post construction.	N/A	Use of Heras fencing around trees, woodland and scrub. Management of remaining grassland around pitches as wildflower meadows. Implementation of wildlife sensitive lighting.	Neutral
Rare and notable flora	No notable or protected species on site	N/A	N/A	Neutral
Invasive Species	Risk of spreading through works. Risk of injury to public from exposure to giant hogweed	N/A	Removal by specialist contractor.	Positive
Badger	Possible badger sett on site. Injury/death during construction	No further surveys required (to be re-assessed if plans change)	Pre-commencement badger survey. Standard precautionary measures; covering trenches overnight or installing a plank/mammal ladder, sensible storage of chemicals/equipment, avoidance of littering.	Neutral
Bats	Loss of roost in brick-built building (B1). Diminished quality of foraging and commuting habitat if flood lighting is to be included within the proposals.	N/A	Implementation of wildlife sensitive lighting. Retention of site boundary habitats. Demolition of B1 under a low impact class licence (LICL) from Natural England. Provision of bat boxes as compensation for roost	Neutral

Feature	Likely Impacts	Further Surveys / Assessment	Likely Mitigation Measures and Enhancements	Likely Residual Effect
Birds	Injury/death of birds and eggs during construction	Nesting bird checks	Works to clear trees or scrub to be undertaken outside of breeding bird season or after an ecologist has confirmed no active nests are present. Provision of bird boxes	Neutral
Invertebrates	No likely impacts	N/A	Implementation of wildlife sensitive lighting. Relocation of suitable habitat piles to retained habitat. Provision of dead wood for stag beetle and other invertebrates.	Neutral
Reptiles	Risk of Injury/ and or death	N/A	Keep current maintenance of grasslands to prevent habitats increasing in suitability for reptiles Precautionary methods for vegetation clearance. Exclusion fencing to be erected around the construction area.	Neutral
Other notable species	Injury/death during construction for European hedgehog or common toad.	N/A	Precautionary methods for vegetation clearance. Standard precautionary measures during construction phase (see paragraph 4.36)	Neutral

5.2 Through the above enhancement strategies, it is considered that all significant impacts upon biodiversity, including any potential adverse impacts upon specific protected species, habitats and designated sites, will likely be able to be wholly mitigated in line with relevant wildlife legislation, chapter 15 of the NPPF (MHCLG, 2019); and local policies CS18 of the *London Borough of Bexley Core Strategy (February 2012)*.

6.0 References

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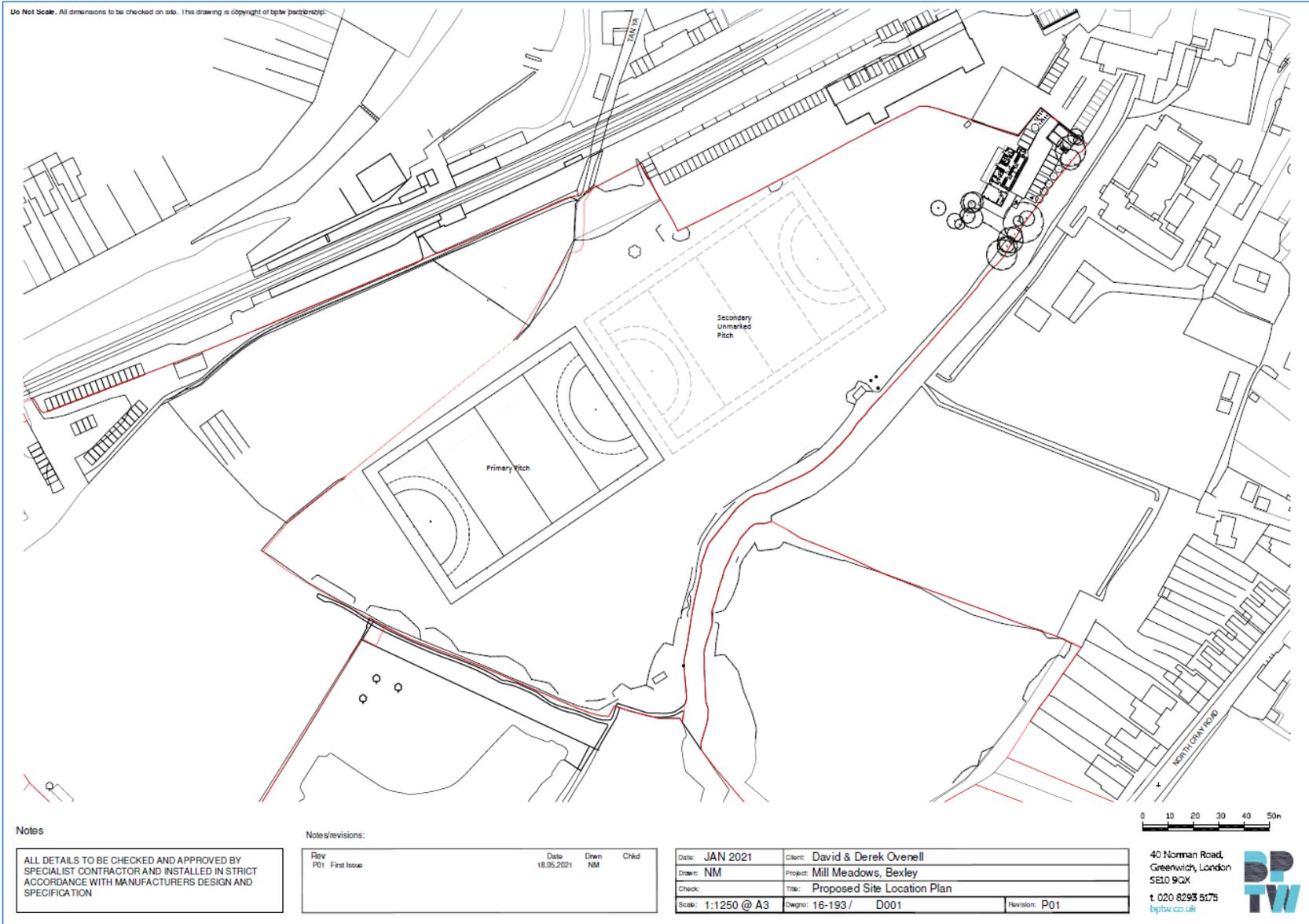
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Appendix 1: Site Plans

Site Location Plan



Development Proposal



Appendix 2. Legislative and Policy Framework

National Planning Policy

This document has not been prepared by a legal or planning professional and should be read as an interpretation of relevant statutes and planning policy guidance only. The information presented within this document has been reported in good faith and are the genuine opinion of SES on such matters. SES does not accept any liability resulting from outcomes relating to the use of this information or its interpretation within this document.

National Planning Policy

The NPPF (MHCLG, 2019) states that:

Paragraph 170

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services - including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

Paragraph 175

When determining planning applications, local planning authorities should apply the following principles:

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

Local Planning Policy

The policies related to nature conservation *London Borough of Bexley Core Strategy* (February 2012) are set out below.

Policy CS18 Biodiversity and geology

The Council will protect and enhance its biodiversity and geological assets, whilst complying with national and regional policy and guidance by:

- Ensuring development in Bexley does not adversely affect the integrity of any European site of nature conservation importance (including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) outside the borough. In particular, consideration will be given to potential impacts on the Thames Estuary and Marshes SPA through increased visitor pressure and reduced water quality, and on Epping Forest SAC through reduced air quality;
- Protecting, conserving and enhancing Bexley's Sites of Special Scientific Interest (SSSI) and Sites of Importance for Nature Conservation (SINC);
- Resisting development that will have a significant impact on the population or conservation status of protected species and priority species as identified in the UK, London and Bexley Biodiversity Action Plans;
- Protecting and enhancing the natural habitat as far as practicable, seeking biodiversity enhancements and improved access to nature, particularly in areas of deficiency, through new development, including new residential development and projects that help deliver the Open Space Strategy. Preference will also be given to enhancements which help to deliver the targets for habitats and species set out in the London Plan and Bexley Biodiversity Action Plan;
- Recognising the value of landforms, landscapes, geological processes and soils as contributors to the geodiversity of the borough, and evaluating whether it is appropriate to designate any Regionally or Locally Important Geological Sites (RIGS or LIGS) in the borough;
- Enabling environmental education opportunities at the borough's schools, and investigating opportunities to involve the wider community in biodiversity or geodiversity restoration and enhancement through projects; and
- Seeking opportunities to provide for greening of the built environment, including green roofs and walls in new buildings.

Wildlife Legislation

The two principal wildlife statutes are the Conservation of Habitats and Species Regulations (The Habitats Regulations 2019) that deals with internationally important sites and species, and the Wildlife and Countryside Act (WCA) 1981 that deals with nationally important sites and species.

Certain habitats and species within discrete sites are protected as SSSI under the WCA 1981. A proportion of these are more strictly protected as proposed or designated SPA, SAC and Ramsar sites under the Conservation of Habitats and Species Regulations (2019). These designations protect features and resources listed as being of international importance from both direct and indirect effects arising from a range of issues including proposed development. In addition, non-statutory designated

sites (e.g. Local Wildlife Sites) are protected under the National Parks and Access to the Countryside Act, (1949) Section 21.

Certain species listed on Schedule 5 of the WCA 1981, including all bat species, great crested newt *Triturus cristatus*, hazel dormouse *Muscardinus avellanarius* and otter *Lutra lutra* are also protected under Schedule 2 of the Habitats Regulations 2010 making them European Protected Species (EPS). Taken together it is illegal to:

- Deliberately kill, injure or capture any wild animal of EPS;
- Deliberately disturb wild animals of any EPS in such a way to be likely to significantly affect:
 - The ability of any significant groups of animals of that species to survive, breed, rear or nurture their young; or
 - The local distribution of that species.
- Recklessly disturb an EPS or obstruct access to their place of rest;
- Damage or destroy breeding sites or resting places of such animals;
- Deliberately take or destroy the eggs of such an animal;
- Possess or transport any part of an EPS, unless acquired legally; and/or
- Sell, barter or exchange any part of an EPS.

A range of species other than birds, including water vole *Arvicola amphibius*, is protected from disturbance and destruction under the WCA 1981 through inclusion on Schedule 5.

All breeding birds are protected from deliberate destruction under the WCA 1981. Certain species are further protected from disturbance at their nest sites being listed on Schedule 1 of the WCA 1981.

Common reptiles including common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus* are protected under the WCA 1981, they are listed as schedule 5 species, therefore part of Section 9(1) and section 9(5) apply; the Countryside and Rights of Way Act 2000 (CROW) also strengthens their protection.

Badger *Meles meles* is protected from sett disturbance and destruction under the Protection of Badgers Act 1992.

Section 40 of The Natural Environment and Rural Communities Act (NERC) 2006 places a legal duty on Local Authorities to conserve biodiversity. Section 41 (S41) sets out a list of 943 species and habitats of principal importance. These species are known as England Biodiversity Priority (EBP) species and are those identified as requiring action under the former UK Biodiversity Action Plan (BAP) and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

Native, species-rich hedgerows that fit certain criteria are protected as being 'important' under the Hedgerow Regulations (1997).

Appendix 3: Detailed Survey Methods

Badgers

Surveys were carried out using standard guidelines for classifying badger setts and categorising entrance holes (Harris *et al.*, 1989; Scottish Badgers, 2018; Natural England, 2009). The survey comprised a detailed systematic walkover survey of the site with signs of badger noted. The badger signs looked for were:

- Additional holes/setts;
- Prints;
- Badger runs;
- Hairs;
- Latrines;
- Scratching posts, and;
- Snuffle marks.

Bats

Preliminary Assessment

Habitats on and adjacent site were assessed for their suitability to support roosting, foraging and commuting bats using guidelines issued by the Bat Conservation Trust (Collins, 2016). All potential roosting habitats (existing trees) with potential to be impacted from the proposals were assigned a level of suitability according to the descriptions outlined in Table A3.1. There were no buildings on the site. The trees were initially assessed from ground level, using binoculars where necessary to identify potential roost features and bat access points.

The site as a whole was also assigned a level of suitability for foraging and commuting bats according to the descriptions outlined in Table A3.1.

Table A3.1. Assessment of the potential suitability of a proposed development site for roosting, foraging and commuting bats (Collins, 2016)

Suitability	Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting and foraging bats
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically but not enough space, shelter, protection and appropriate conditions to be used on a regular basis or by larger numbers of bats</p> <p>A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by another habitat</p> <p>Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or patch of scrub</p>

Suitability	Roosting habitats	Commuting and foraging habitats
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge High-quality habitat that is well-connected to the wider landscape that is likely used regularly by foraging bats such as broad-leaved woodland, tree-lined watercourses and grazed parkland Site is close to and connected to known roosts

Emergence/re-entry Surveys

Bat dusk emergence / dawn re-entry surveys were carried out on buildings and trees in accordance with current guidance (Collins, 2016). Surveys were focused on buildings and trees with which were due to be impacted (either directly or indirectly) by the proposed development. BCT guidelines recommends a series of dusk emergence or dawn re-entry surveys, carried out between May and September, depending on the level of suitability for roosting bats (see Table A3.2).

Table A3.2. Recommended further survey requirement for structures and trees with suitability for roosting bats (Collins, 2016).

Suitability	Number of survey visits required	Timing
Low	One survey visit (one dusk emergence or dawn re-entry survey) (structures). No further surveys required (trees).	May to August (inclusive).
Moderate	Two separate survey visits (one dusk emergence and a separate dawn re-entry survey) (structures and trees).	May to September with at least one of surveys between May and August and at least two weeks between each survey visit.
High	Three separate survey visits (at least one dusk emergence and a separate dawn re-entry survey. The third visit could be either a dusk emergence or dawn re-entry) (structures and trees).	May to September with at least two of surveys between May and August and at least two weeks between each survey visit.

Dusk emergence and dawn re-entry surveys were conducted on the dates provided in Table A3.3 and A3.4, with dusk emergence surveys commencing 15 minutes before sunset and continuing until approximately 1.5

hours after sunset. Dawn re-entry surveys commenced 1.5 hours before sunrise, and continued for 15 minutes after sunrise. The surveys were carried out under appropriate weather conditions (avoiding strong winds, cold temperatures and heavy rainfall).

Table A3.3. Dates, timings and weather conditions for dusk emergence / dawn re-entry surveys on buildings

Building	Suitability for roosting bats	Visit number	Survey date	Survey type	Timings	Weather conditions
1	High	1	06/05/2021	Dusk	Survey start: 20:15 Sunset: 20:30 Survey end: 22:00	9°C Cloud cover 20% Wind Beaufort 1 No rain
		2	03/08/2021	Dawn	Survey start: 03:50 Sunrise 05:24 Survey end: 05:39	13°C Cloud cover 100% Wind Beaufort 0-1 No rain
		3	17/08/2021	Dusk	Survey start: 03:50 Sunrise 05:24 Survey end: 05:39	13°C Cloud cover 100% Wind Beaufort 0-1 No rain

Surveyors maintained static positions around the buildings and trees, focusing their attention on features that could potentially be utilised by roosting bats and watching closely for any emergence / re-entry, while also recording bat activity incidentally observed in the immediate surroundings.

Surveyors used Batlogger and Batbox Duet bat detectors with Edirol/Tascam digital recorders to record bat activity. Calls were subsequently analysed using Kaleidoscope and BatExplorer computer software.

Appendix 4: Phase 1 Habitat Plan



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Key

- Red line
- Trees with bat roost potential
 - High
- Habitats Pt
 - Broad-leaved tree
- Habitats Ply
 - A1.1.1 - Broadleaved woodland - semi-natural
 - ▨ A2.1 - Scrub - dense/continuous
 - ▨ A2.2 - Scrub - scattered
 - ▨ B2.2 - Neutral grassland - semi-improved
 - ▨ B4 - Improved grassland
 - ▨ C3.1 - Other tall herb and fern - ruderal
 - J3.6 - Buildings
 - J4 - Bare ground



Mill Meadows, Bexley

Phase 1 Habitat Map

Date: September 2021

Map data: Google, QuickMapServices © 2021

Appendix 5: Plant Species

Table 7. Plant Assemblages Recorded during Botanical Survey

Common Name	Latin Name	Relative Abundance
Sycamore	<i>Acer pseudoplatanus</i>	O
Yarrow	<i>Achillea millefolium</i>	F
Ground-elder	<i>Aegopodium podagraria</i>	F
Horse-chestnut	<i>Aesculus hippocastanum</i>	R
Common Bent	<i>Agrostis capillaris</i>	A
Creeping Bent	<i>Agrostis stolonifera</i>	A
Garlic Mustard	<i>Alliaria petiolata</i>	O
Alder	<i>Alnus glutinosa</i>	R
Great Brome	<i>Anisantha diandra</i>	O
Barren Brome	<i>Anisantha sterilis</i>	A
Cow Parsley	<i>Anthriscus sylvestris</i>	A
Lesser Burdock	<i>Arctium minus</i>	A
Horse-radish	<i>Armoracia rusticana</i>	F
False Oat-Grass	<i>Arrhenatherum elatius</i>	A
Mugwort	<i>Artemisia vulgaris</i>	A
Michaelmas Daisy (A. lanceolatus x novi-belgii)	<i>Aster x salignus</i>	R
Common Orache	<i>Atriplex patula</i>	O
Black Horehound	<i>Ballota nigra</i>	A
Daisy	<i>Bellis perennis</i>	O
Silver Birch	<i>Betula pendula</i>	R
Hairy-brome	<i>Bromopsis ramosa</i>	R
Common Soft-brome	<i>Bromus hordeaceus subsp. hordeaceus</i>	F
Rye Brome	<i>Bromus secalinus</i>	F
White Bryony	<i>Bryonia dioica</i>	R
Butterfly-bush	<i>Buddleja davidii</i>	O
Hedge Bindweed	<i>Calystegia sepium</i>	A
Large Bindweed	<i>Calystegia silvatica</i>	F
Hairy Sedge	<i>Carex hirta</i>	F
Pendulous Sedge	<i>Carex pendula</i>	O
Spiked Sedge	<i>Carex spicata</i>	O
Common Mouse-ear	<i>Cerastium fontanum subsp. vulgare</i>	O
Rosebay Willowherb	<i>Chamerion angustifolium</i>	O
Enchanter's-nightshade	<i>Circaea lutetiana</i>	O
Creeping Thistle	<i>Cirsium arvense</i>	A
Spear Thistle	<i>Cirsium vulgare</i>	F
Traveller's-joy	<i>Clematis vitalba</i>	O
Field Bindweed	<i>Convolvulus arvensis</i>	F
Hawthorn	<i>Crataegus monogyna</i>	O
Smooth Hawk's-beard	<i>Crepis capillaris</i>	O
Beaked Hawk's-beard	<i>Crepis vesicaria</i>	F
Ivy-leaved Toadflax	<i>Cymbalaria muralis</i>	O on brick building only
Cock's-foot	<i>Dactylis glomerata</i>	A
Carrot	<i>Daucus carota</i>	O
Male-fern	<i>Dryopteris filix-mas</i>	O
Common Couch	<i>Elytrigia repens</i>	A

Great Willowherb	<i>Epilobium hirsutum</i>	F
Square-stalked Willowherb	<i>Epilobium tetragonum</i>	O
Field Horsetail	<i>Equisetum arvense</i>	O
Hemp-agrimony	<i>Eupatorium cannabinum</i>	R
Petty Spurge	<i>Euphorbia peplus</i>	R
Japanese Knotweed	<i>Fallopia japonica</i>	O
Red Fescue	<i>Festuca rubra subsp. rubra</i>	A
Meadowsweet	<i>Filipendula ulmaria</i>	O
Ash	<i>Fraxinus excelsior</i>	O
Cleavers	<i>Galium aparine</i>	A
Cut-leaved Crane's-bill	<i>Geranium dissectum</i>	A
Dove's-foot Crane's-bill	<i>Geranium molle</i>	O
Herb-Robert	<i>Geranium robertianum</i>	R
Round-leaved Crane's-bill	<i>Geranium rotundifolium</i>	R
Wood Avens	<i>Geum urbanum</i>	F
Common Ivy	<i>Hedera helix</i>	F
Bristly Oxtongue	<i>Helminthotheca echioides</i>	F
Giant Hogweed	<i>Heracleum mantegazzianum</i>	F
Hogweed	<i>Heracleum sphondylium</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Wall Barley	<i>Hordeum murinum</i>	R
Perforate St John's-wort	<i>Hypericum perforatum</i>	O
Indian Balsam	<i>Impatiens glandulifera</i>	F
Yellow Iris	<i>Iris pseudacorus</i>	O
Jointed Rush	<i>Juncus articulatus</i>	O
Prickly Lettuce	<i>Lactuca serriola</i>	R
White Dead-nettle	<i>Lamium album</i>	A
Nipplewort	<i>Lapsana communis</i>	R
Purple Toadflax	<i>Linaria purpurea</i>	R
Perennial Rye-grass	<i>Lolium perenne</i>	A
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>	F
Gypsywort	<i>Lycopus europaeus</i>	O
Common Mallow	<i>Malva sylvestris</i>	F
Black Medick	<i>Medicago lupulina</i>	O
Water Mint	<i>Mentha aquatica</i>	O
Water Forget-me-not	<i>Myosotis scorpioides</i>	R
Water-cress	<i>Nasturtium officinale</i>	O
Green Alkanet	<i>Pentaglottis sempervirens</i>	O
Amphibious Bistort	<i>Persicaria amphibia</i>	O
Reed Canary-grass	<i>Phalaris arundinacea</i>	O
Mock-orange	<i>Philadelphus coronarius</i>	R
Smaller Cat's-tail	<i>Phleum bertolonii</i>	F
Timothy	<i>Phleum pratense</i>	O
Hawkweed Oxtongue	<i>Picris hieracioides</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	F
Greater Plantain	<i>Plantago major subsp. major</i>	O
London Plane (P. occidentalis x orientalis)	<i>Platanus x hispanica</i>	O
Annual Meadow-grass	<i>Poa annua</i>	O
Smooth Meadow-grass	<i>Poa pratensis</i>	F
Rough Meadow-grass	<i>Poa trivialis</i>	A
Plantier's Poplar	<i>Populus nigra 'Plantierensis'</i>	R

Silverweed	<i>Potentilla anserina</i>	F
Creeping Cinquefoil	<i>Potentilla reptans</i>	A
Selfheal	<i>Prunella vulgaris</i>	F
Wild Plum	<i>Prunus domestica</i>	R
Cherry Laurel	<i>Prunus laurocerasus</i>	R
Common Fleabane	<i>Pulicaria dysenterica</i>	O
Evergreen Oak	<i>Quercus ilex</i>	R
Pedunculate Oak	<i>Quercus robur</i>	O
Meadow Buttercup	<i>Ranunculus acris</i>	O
var pseudofluitans	<i>Ranunculus penicillatus</i> subsp. <i>pseudofluitans</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	F
Dog-rose	<i>Rosa canina</i> agg.	O
Bramble	<i>Rubus fruticosus</i> agg.	F
Clustered Dock	<i>Rumex conglomeratus</i>	A
Curled Dock	<i>Rumex crispus</i>	O
Broad-leaved Dock	<i>Rumex obtusifolius</i>	F
White Willow	<i>Salix alba</i> var. <i>alba</i>	O
Goat Willow	<i>Salix caprea</i>	O
Rusty Willow	<i>Salix cinerea</i> subsp. <i>oleifolia</i>	R
Osier	<i>Salix viminalis</i>	O
Crack Willow	<i>Salix x fragilis</i> 'russelliana'	R
Hybrid Osier x Goat Willow	<i>Salix x smithiana</i>	O
Elder	<i>Sambucus nigra</i>	F
Water Figwort	<i>Scrophularia auriculata</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	A
Hedge Mustard	<i>Sisymbrium officinale</i>	F
Canadian Goldenrod	<i>Solidago canadensis</i>	R
Prickly Sow-thistle	<i>Sonchus asper</i>	F
Smooth Sow-thistle	<i>Sonchus oleraceus</i>	F
Branched Bur-reed	<i>Sparganium erectum</i>	O
Hedge Woundwort	<i>Stachys sylvatica</i>	A
Lesser Stitchwort	<i>Stellaria graminea</i>	O
Common Comfrey	<i>Symphytum officinale</i>	O
Tansy	<i>Tanacetum vulgare</i>	F
Dandelion	<i>Taraxacum</i> agg.	O
Yew	<i>Taxus baccata</i>	R
Goat's-beard	<i>Tragopogon pratensis</i>	O
Red Clover	<i>Trifolium pratense</i>	O
White Clover	<i>Trifolium repens</i>	O
Common Nettle	<i>Urtica dioica</i>	A
Thyme-leaved Speedwell	<i>Veronica serpyllifolia</i> subsp. <i>serpyllifolia</i>	O
Tufted Vetch	<i>Vicia cracca</i>	R
Common Vetch	<i>Vicia sativa</i> subsp. <i>segetalis</i>	R

Appendix 6: Site Photographs

Photo 1: Possible badger sett



Photo 2: Young goat willow wooded stand.



Photo 3: Dense scrub.



Photo 4: Semi-improved grassland field.



Photo 5: Improved grassland.



Photo 6: Tree with canker hole (west boundary).



Photo 7: Trees with dense ivy cover (west boundary).



Photo 8: Tall ruderal herb.



Photo 9: Dense scrub.



Photo 10: Tree with dense ivy cover (east boundary).



Photo 11: Refuse piles.



Photo 12: River Cray



Photo 13: Brick-built Stable block.



Photo 14: Brick-built Stable block interior.



Photo 15: Corrugated stable block.



Photo 16: Corrugated stable block interior.



Photo 17: Wooden stable.



Photo 18: Wooden stable.



Appendix 7: Ecological Constraints and Opportunities Plan

