

Site of Metropolitan Importance for Nature Conservation**Site Reference:** M071**Site Name:** Lea Valley**Summary:** This sprawling series of open spaces, in the valley of the River Lea, includes lakes, reservoirs, marshes and wet grassland. The wonderfully diverse range of wetland habitats has made this area a haven for many rare plants and a tremendous range of birds.**Grid ref:** TQ 354 906**Area (ha):** 947.15**Borough(s):**

Enfield, Hackney, Haringey, Newham, Tower Hamlets, Waltham Forest

Habitat(s):

Canal, Marsh/swamp, Pond/lake, Reed bed, Ruderal, Running water, Scrub, Secondary woodland, Semi-improved neutral grassland, Wet ditches, Wet grassland, Wet woodland/carr

Access: Free public access (part of site)**Ownership:** Lee Valley Regional Park Authority, Thames Water, British Waterways, London Borough of Hackney**Site Description:**

This large site includes the River Lee Navigation, River Lea and associated watercourses downstream to the tidal limit in Tower Hamlets; Rammey Marsh; King George V and William Girling Reservoirs; Walthamstow Marshes and Reservoirs; and the new Middlesex Filler Beds nature reserve. The river below the tidal limit is included in the River Thames and tidal tributaries Metropolitan Site.

The watercourses support a diverse aquatic flora including many regionally uncommon species; river water-dropwort (*Oenanthe fluviatilis*), tubular water-dropwort (*O. fistulosa*), whorl-grass (*Catabrosa aquatica*), arrowhead (*Sagittaria sagittifolia*), flowering-rush (*Butomus umbellatus*) and stream water-crowfoot (*Ranunculus penicillatus*). A population of the nationally rare and specially-protected creeping marshwort (*Apium repens*) has recently been discovered beside a ditch on Walthamstow Marshes, the second of only two sites remaining in the country. Brookweed (*Samolus valerandi*) and blunt-flowered rush (*Juncus subnodulosus*), both very rare in London, grow nearby. Wet marshy grassland supports marsh arrowgrass (*Triglochin palustre*), marsh-marigold (*Caltha palustris*), adder's-tongue fern (*Ophioglossum vulgatum*) and the hybrid sedge *Carex x subgracilis*. Drier neutral grassland supports bee orchid (*Ophrys apifera*), grass vetchling (*Lathyrus nissolia*) and the nationally scarce yellow vetchling (*Lathyrus aphaca*).

The site is immensely important for its avifauna; the valley holds internationally important numbers of wintering gadwall and shoveler. Breeding birds include kingfisher, little ringed plover, skylark and yellow wagtail; London's largest heronry is at Walthamstow Reservoirs. The Chingford and Walthamstow Reservoirs are a major refuge for national and regionally important numbers of waterfowl, including tufted duck, great crested grebe, goosander and goldeneye. Nationally rare wintering and passage species are regularly recorded.

The site is very important for the specially-protected water vole, which is locally abundant. The specially-protected great crested newt also occurs; fish include the declining bullhead. The reed beds and other riparian habitats support a nationally important assemblage of invertebrates. This includes several nationally scarce moths, such as the dotted fan-foot, Webb's wainscot and brown-veined wainscot. The red-eyed damselfly (*Erythromma najas*) which is scarce in London, also occurs.

Walthamstow Marshes; Chingford Reservoirs; and Walthamstow Reservoirs are Site of Special Scientific Interest and part of an Important Bird Area. Walthamstow Reservoirs are within the Lea Valley Special Protection Area (EU Birds Directive) and Ramsar Site. Walthamstow Marshes and Waterworks Nature Reserve won Green Flag Awards for 2006/7.

Site first notified: 19/09/1988**Boundary last changed:** 01/05/2002

Citation last edited: 14/08/2006 **Mayor Agreed:** 25/11/2002
Defunct: N
Last Updated: 11/04/2007

Site of Borough Grade I Importance for Nature Conservation**Site Reference:** HgBI13**Site Name:** Tottenham Marshes**Summary:** A large expanse of rough grassland, popular with local people.**Grid ref:** TQ 352 908**Area (ha):** 31.42**Borough(s):**

Haringey

Habitat(s):

Running water, Scattered trees, Scrub, Semi-improved neutral grassland, Tall herbs, Wet grassland

Access: Free public access (all/most of site)**Ownership:** Lee Valley Regional Park Authority**Site Description:**

A large expanse of rough grassland, some of it damp, with smaller areas of scrub and tall herbs. A very diverse flora includes the nationally scarce wall bedstraw (*Galium parisiense*) and yellow vetchling (*Lathyrus aphaca*), as well as several species which are uncommon in London, such as bee orchid (*Ophrys apifera*), grass vetchling (*Lathyrus. nissolia*), and Babington's poppy (*Papaver dubium* ssp *lecoquii*). Butterflies include a colony of brown argus, which is rare in Haringey. Skylarks breed here and short-eared owls are occasionally seen in winter. The Pymme's Brook runs through the site. Tottenham Marshes have long been popular for leisure activities. On Bank Holiday Monday in 1877, 20,000 day trippers travelled to Bruce Grove Station to spend the day on the marshes and to go dancing at the Ferry Boat Inn in the evening. Tottenham Hotspur played here in the late 1800s, until they rented their first ground.

Site first notified: 01/04/1990**Boundary last changed:** 06/10/1999**Citation last edited:** 09/12/2005**Mayor Agreed:****Defunct:** N**Last Updated:** 27/03/2006

Site of Borough Grade II Importance for Nature Conservation**Site Reference:** HgBII03**Site Name:** Tottenham Cemetery, All Hallows Churchyard and Bruce Castle Park**Summary:** A large park, and adjacent cemetery and churchyard, with some fine old trees.**Grid ref:** TQ 332 909**Area (ha):** 29.5**Borough(s):**

Haringey

Habitat(s):

Amenity grassland, Planted shrubbery, Pond/lake, Running water, Scattered trees, Semi-improved neutral grassland, Veteran trees

Access: Free public access (all/most of site)**Ownership:** London Borough of Haringey**Site Description:**

This is a large area of open parkland, with some fine old oak trees in the park, churchyard and cemetery. The site attracts numerous migrant birds in spring and autumn. Small areas of grass are managed as meadow. The cemetery contains a large pond with two islands, which provide nest sites for common waterfowl, and a stream, the Moselle Brook, runs across the site. Bruce Castle Park won a Green Flag Award again for 2006/7.

Site first notified: 01/04/1990**Boundary last changed:** 01/11/2002**Citation last edited:** 24/07/2006**Mayor Agreed:****Defunct:** N**Last Updated:** 06/06/2007

Site of Borough Grade II Importance for Nature Conservation**Site Reference:** HgBII15**Site Name:** Tottenham Hale to Northumberland Park Railsides**Summary:** A long stretch of vegetated rail sides containing a good range of habitats.**Grid ref:** TQ 347 905**Area (ha):** 7.52**Borough(s):**

Haringey

Habitat(s):

Roughland, Ruderal, Scattered trees, Secondary woodland

Access: Can be viewed from adjacent paths or roads only**Ownership:** Network Rail**Site Description:**

This long stretch of vegetated railsides contains a good range of habitats. Much of the site is a mosaic of rough grassland and scrub of bramble, willows and buddleia, with a scattering of silver birch trees. There are some areas of more mature woodland, dominated by sycamore, and patches of tall herbs. The rare hybrid "Wurzell's wormwood" (*Artemisia vulgaris* x *verlotiorum*) is abundant around Northumberland Park station.

Site first notified: 01/11/2002**Boundary last changed:** 01/11/2002**Citation last edited:** 09/12/2005**Mayor Agreed:****Defunct:** N**Last Updated:** 01/02/2006

Site of Local Importance for Nature Conservation**Site Reference:** EnL05**Site Name:** Pymmes Park**Summary:** A large park with a lake supporting a good range of water birds.**Grid ref:** TQ 337 927**Area (ha):** 20.48**Borough(s):**

Enfield

Habitat(s):

Amenity grassland, Flower beds, Planted shrubbery, Pond/lake, Scattered trees

Access: Free public access (all/most of site)**Ownership:** London Borough of Enfield**Site Description:**

The main feature of wildlife interest in this popular park is the large lake. This has a fairly good marginal flora, including water figwort (*Scrophularia auriculata*), remote sedge (*Carex remota*) and gypsywort (*Lycopus europaeus*). A good range of common breeding wildfowl includes mallard, tufted duck, coot, moorhen, mute swan and Canada goose.

There is free public access in daylight hours. Pymmes Park won a Green Flag Award for 2006/7.

This site is not currently designated as a Site of Nature Conservation Importance in Enfield's Unitary Development Plan, and therefore has no special protection under the nature conservation policies in the plan.

Site first notified: 30/08/2000**Boundary last changed:** 30/08/2000**Citation last edited:** 11/04/2007**Mayor Agreed:****Defunct:** N**Last Updated:** 11/04/2007

Site of Local Importance for Nature Conservation

Site Reference: HgL19C
Site Name: Devonshire Hill Allotments
Summary: A large allotment site with a variety of wildlife habitats, including hedges and scrub.
Grid ref: TQ 328 916
Area (ha): 2.61
Borough(s):
Haringey

Habitat(s):

Allotments, Amenity grassland, Hedge, Roughland, Ruderal, Scattered trees, Semi-improved neutral grassland, Tall herbs

Access: No public access

Ownership: London Borough of Haringey

Site Description:

All allotments in Haringey have been identified as being of Local Importance for Nature Conservation. Allotments provide a valuable resource for wildlife, as well as giving contact with the natural world for allotment holders. They can support important populations of amphibians and reptiles, especially slow worms and grass snakes (grass snakes are known from at least two allotment sites in the north of the borough), as well as birds, mammals and invertebrates.

Devonshire Hill Allotments are large and contain a variety of wildlife habitats, including boundary hedges of pedunculate oak (*Quercus robur*), ornamental apple (*Malus* sp.) and hawthorn (*Crataegus monogyna*) and scattered unused plots with scrub and rough grassland or ruderal vegetation.

Access is restricted to keyholders.

Site first notified: 01/03/1998 **Boundary last changed:** 01/03/1998

Citation last edited: 21/03/2007 **Mayor Agreed:**

Defunct: N

Last Updated: 21/03/2007

Site of Local Importance for Nature Conservation**Site Reference:** HgL19H**Site Name:** Marsh Lane Allotments**Summary:** Allotments with fruit trees and climbers providing a resource for wildlife, as well as contact with the natural world for allotment holders.**Grid ref:** TQ 351 909**Area (ha):** 1.78**Borough(s):**

Haringey

Habitat(s):

Allotments, Scattered trees

Access: No public access**Ownership:** London Borough of Haringey**Site Description:**

All allotments in Haringey have been identified as being of Local Importance for Nature Conservation. Allotments provide a valuable resource for wildlife, as well as giving contact with the natural world for allotment holders. They can support important populations of amphibians and reptiles, especially slow worms and grass snakes (grass snakes are known from at least two allotment sites in the north of the borough), as well as birds, mammals and invertebrates.

Marsh Lane Allotments are very well-used. Scattered fruit trees and climbers along the fence provide wildlife habitat. Access is restricted to allotment holders.

Site first notified: 01/03/1998**Boundary last changed:** 01/03/1998**Citation last edited:** 20/02/2007**Mayor Agreed:****Defunct:** N**Last Updated:** 20/02/2007

Site of Local Importance for Nature Conservation**Site Reference:** HgL20**Site Name:** Tower Gardens**Summary:** A small park with numerous mature trees and areas of native woodland and scrub planting.**Grid ref:** TQ 328 906**Area (ha):** 1.33**Borough(s):**

Haringey

Habitat(s):

Amenity grassland, Scattered trees, Scrub, Secondary woodland

Access: No public access**Ownership:** London Borough of Haringey**Site Description:**

This small park contains several features of value to wildlife, including numerous mature trees and areas of native woodland and scrub planting. The trees are mostly towards the edges of the site, and include some fine large London planes (*Platanus x hispanica*) and common limes (*Tilia x europaea*). There is a dense stand of blackthorn (*Prunus spinosa*) scrub on the northern edge, and extensive shrubberies around much of the perimeter. These provide nest sites and food for a good range of common birds. Also on the northern edge is a sunny bank, covered in rough grassland and tall herbs, which is likely to support a good diversity of invertebrates.

Site first notified: 01/11/2002**Boundary last changed:** 01/11/2002**Citation last edited:** 20/02/2007**Mayor Agreed:****Defunct:** N**Last Updated:** 20/02/2007

Site of Local Importance for Nature Conservation

Site Reference: HgL22
Site Name: Bruce Grove Wood
Summary: A small site with a range of habitats, tucked away at the back of Bruce Grove School.
Grid ref: TQ 336 901
Area (ha): 0.78
Borough(s):
Haringey
Habitat(s):
Amenity grassland, Secondary woodland, Semi-improved neutral grassland, Veteran trees
Access: No public access
Ownership: London Borough of Haringey and private

Site Description:

Bruce Grove Wood is a remarkable site tucked away at the back of Bruce Grove School, but not easily seen from the surrounding roads. There are a range of habitats on the site, including overgrown allotments, mown grass, and secondary woodland of ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*). The woodland contains some venerable planted trees, including a very large beech (*Fagus sylvatica*). A planning agreement from a nearby redevelopment has provided funding for management of the site, to allow educational use by the school.

Site first notified: 01/03/1998 **Boundary last changed:** 01/03/1998
Citation last edited: 21/03/2007 **Mayor Agreed:**
Defunct: N
Last Updated: 21/03/2007

3.0 Species

A list of protected species* and those that are National or London Biodiversity Action Plan (BAP) priority species can be seen on the following pages.

Note that GiGL does not currently hold comprehensive species data for all areas. Even where data is held, a lack of records for a species in a defined geographical area does not necessarily mean that the species does not occur there – the area may simply not have been surveyed.

Distances and direction to each species record are calculated from the centre-point of a search area. Note that because the resolution of grid references varies between surveys the accuracy of these figures will also vary.

The species, listed by taxon name, were recorded from a broad range of surveys - from public and species specific surveys to formal surveys carried out during the GLA's rolling program. Bat records collected by the London Bat Group are provided in a separate section (below).

If you would like further information regarding rare, notable and protected species please contact a relevant person listed in the Further Contacts section of this report.

* Protected species are those listed on EC Habitats Directive – Annexes II and IV, EC Birds Directive – Annex I, Conservation (Natural Habitats) Regulations 1994 – Schedules 2 & 4, Wildlife and Countryside Act 1981 (as amended) – Schedules 1, 5 & 8, Protection of Badgers Act 1992

3.1 Protected and BAP Species

Taxon Name	Common Name	Protected Status	Distance (m)	Bearing	Date
<i>Bupleurum tenuissimum</i>	Slender Hare's-Ear	BAP Priority National	1371	SE	1990
<i>Populus nigra betulifolia</i>	Black Poplar	BAP Priority London	1365	SE	2003
<i>Timandra comae</i>	Blood-Vein	BAP Priority National BAP Priority London	1282	SE	14/07/2006
			1282	SE	27/04/2006
			1282	SE	13/06/2006
<i>Tyria jacobaeae</i>	Cinnabar	BAP Priority National BAP Priority London	1282	SE	14/07/2006
			1282	SE	27/04/2006
			1282	SE	13/06/2006
<i>Triturus vulgaris</i>	Smooth Newt	W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.5b	1206	NW	16/08/2007
<i>Bufo bufo</i>	Common Toad	W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.5a BAP Priority National BAP Priority London	1327	NW	1999
<i>Rana temporaria</i>	Common Frog	W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.5a	512	SW	2000
			1100	N	1999
			1327	NW	1999
<i>Falco subbuteo</i>	Hobby	W&CA Sch I Part I	655	SW	03/08/1987
<i>Alcedo atthis</i>	Kingfisher	Birds Dir Anx I W&CA Sch I Part I	1431	SE	04/09/2002
<i>Riparia riparia</i>	Sand Martin	BAP Priority London	1431	SE	04/09/2002
			1446	SE	01/05/2002
<i>Phoenicurus ochruros</i>	Black Redstart	W&CA Sch I Part I BAP Priority London	1211	SE	Apr 1987
<i>Turdus pilaris</i>	Fieldfare	W&CA Sch I Part I	655	SW	13/04/1987
			1211	SE	13/11/1987
			1211	SE	17/11/1987
			1211	SE	18/11/1987
			1211	SE	05/11/1987
			1211	SE	13/12/1987
<i>Turdus philomelos</i>	Song Thrush	BAP Priority National BAP Priority London	840	W	02/10/2002
<i>Turdus iliacus</i>	Redwing	W&CA Sch I Part I	655	SW	02/04/1987
			1211	SE	18/11/1987

Taxon Name	Common Name	Protected Status	Distance (m)	Bearing	Date
			1211	SE	17/11/1987
Sturnus vulgaris	Starling	BAP Priority National BAP Priority London	730	SW	31/08/2001
			840	W	02/10/2002
			919	W	17/08/2007
			968	W	02/10/2002
			1059	SE	Unknown
			1124	N	16/08/2007
			1192	E	10/09/2002
			1227	SE	10/09/2002
Passer domesticus	House Sparrow	BAP Priority National BAP Priority London	213	E	2002
			373	SE	2002
			512	SW	2001
			512	SW	2000
			566	NE	2002
			791	SE	2001
			805	W	2002
			846	E	2002
			871	SW	2002
			933	NW	2002
			990	NW	2002
			1003	N	2002
			1011	SE	2001
			1045	SW	2002
			1052	NW	2002
			1055	E	Unknown
			1124	N	16/08/2007
			1126	W	2002
			1145	W	2002
			1145	W	2001
			1329	NE	2002
Erinaceus europaeus	Hedgehog	BAP Priority National BAP Priority London	512	SW	2001
			1145	W	2001
			1211	NW	2002

Taxon Name	Common Name	Protected Status	Distance (m)	Bearing	Date
Eptesicus serotinus	Serotine	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np BAP Priority London	1422	SE	05/08/1997
Nyctalus noctula	Noctule	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np BAP Priority National BAP Priority London	1422	SE	04/08/1999
			1427	SE	14/08/1986
Pipistrellus	Pipistrellus	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np	313	W	07/09/1993
			442	W	12/08/1992
			1059	NE	14/08/1993
			1495	SE	30/09/2006
Pipistrellus pipistrellus 55kHz	55 Khz Pipistrelle	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np	1422	SE	04/08/1999

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Haringey, North London and surrounding land to a 2.5x2.5km radius.

CSa Environmental Planning (08/176)

Reports giving only the genus indicate identification to genus level only – Vespertilionidae indicates unidentified bat species. The data is a collection of incidental reports and is not the result of any systematic survey.

All information provided here has been collected by a London Bat Group Recorder and is believed to be correct. However, no responsibility can be accepted by the London Bat Group or any of its partners or officers for any consequences of errors or omissions, nor responsibility for loss occasioned to any person acting or refraining from action as a result of this information and no claims for compensation for damage or negligence will be accepted.

This information is provided solely for the purpose of aiding an assessment of the potential impact of a proposal on bats. The absence of records does not mean that bats are not present or have a place of shelter within any particular site or area. The London Bat Group advises that competent personnel should survey and assess any site, structure or tree that may be affected by any planned work at the earliest possible stage, and certainly before any proposed work starts.

NOTE: TO ENSURE COMPLETENESS DATA COLLECTED BY THE LONDON BAT GROUP ALSO APPEARS IN THE PROTECTED AND NOTABLE SPECIES LIST.

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3.2 Bat Roosts

Taxon Name	Common Name	Protected Status	Distance (m)	Bearing	Date
Pipistrellus	Pipistrellus	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np	442	W	12/08/1992

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3.3 Bat Sightings

Taxon Name	Common Name	Protected Status	Distance (m)	Bearing	Date
Eptesicus serotinus	Serotine	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np BAP Priority London	1422	SE	05/08/1997
Nyctalus noctula	Noctule	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np BAP Priority National BAP Priority London	1422	SE	04/08/1999
			1427	SE	14/08/1986
Pipistrellus	Pipistrellus	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np	313	W	07/09/1993
			1059	NE	14/08/1993

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Taxon Name	Common Name	Protected Status	Distance (m)	Bearing	Date
Pipistrellus pipistrellus 55kHz	55 KHz Pipistrelle	Conservation Regs 1994 Sch2 W&CA Sch 5 Sec 9.1 W&CA Sch 5 Sec 9.2 W&CA Sch5 Sec 9.5a W&CA Sch5 Sec 9.4a W&CA Sch5 Sec 9.5b W&CA Sch5 Sec 9.4b W&CA Sch 5 Sec 9.1 Hab&Spp Directive Anx 2np	1422	SE	04/08/1999

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4.0 Contacts

4.1 Borough contacts

Further details of sites and species within the search area may be gathered from the following borough contacts:

London Borough of Enfield

Keith Townsend
 Countryside Manager
 Percival House
 14-16 Uxbridge Road
 London
 W5 2LH

Tel: 020 8758 5916

London Borough of Haringey

Ian Holt
 Project Officer (Nature Conservation)
 Recreation Services
 Contract House
 Park View Road
 London
 N17 9AY

Tel: 020 8489 5733

Email: ian.holt@haringey.gov.uk

London Borough of Waltham Forest

Ron Presswell
 Planning Implementation
 Chingford Municipal Offices
 16 The Ridgeway
 Chingford
 E4 6PS

Tel: 020 8496 6019

Email: ron.presswell@walthamforest.gov.uk

4.2 Further Contacts

The following contacts work closely with GiGL and are the best source for further advice or interpretation of the data provided by us. They are widely recognised in Greater London as the experts in their fields, and have provided the following information as the preferred method of contact.

Areas of expertise	General conservation advice
<i>Name</i>	Renata Kowalik
<i>Organisation</i>	London Wildlife Trust
<i>Email</i>	rkowalik@wildlondon.org.uk
<i>Website</i>	www.wildlondon.org.uk

Areas of expertise	LWT reserve information
<i>Name</i>	Tom Clarke
<i>Organisation</i>	London Wildlife Trust
<i>Email</i>	tclarke@wildlondon.org.uk
<i>Website</i>	www.wildlondon.org.uk

Areas of expertise	Water vole data interpretation
<i>Name</i>	Louise Wells
<i>Organisation</i>	London Wildlife Trust
<i>Email</i>	lwells@wildlondon.org.uk
<i>Website</i>	www.wildlondon.org.uk

Areas of expertise	London BAP species and habitats
<i>Name</i>	Nick White
<i>Organisation</i>	London Biodiversity Partnership
<i>Email</i>	nwhite@lbp.org.uk
<i>Website</i>	www.lbp.org.uk

Areas of expertise	SINCs, open space and habitat survey data advice
Name	John Archer
Organisation	GLA - Greater London Authority
Email	john.archer@london.gov.uk
Website	www.london.gov.uk

Areas of expertise	Statutory site advice
Name	Conservation Officer
Organisation	Natural England
Email	london@naturalengland.org.uk
Website	www.naturalengland.org.uk

Areas of expertise	Bats
Organisation	London Bat Group
Email	enquiries@londonbats.org.uk
Website	www.londonbats.org.uk

Areas of expertise	Black redstarts, birds, brown and green roofs
Name	Dusty Gedge
Organisation	Livingroofs.org
Email	dustygedge@yahoo.co.uk
Website	www.livingroofs.org

Areas of expertise	Vascular plants
Name	Rodney Burton
Organisation	London Natural History Society
Email	rodney.burton@lineone.net
Website	www.lnhs.org.uk

Areas of expertise	Plant galls, mollusca (freshwater and land), myriapoda and isopoda, ladybirds, bumble bees
Name	Ken Hill
Organisation	London Natural History Society
Email	Ken@kenneth17.fsnet.co.uk
Website	www.lnhs.org.uk

Areas of expertise	Spiders — identification and recording. Beetles also recorded.
Name	Edward Milner
Organisation	London Natural History Society
Email	acacia@dial.pipex.com
Website	www.lnhs.org.uk

Areas of expertise	Invertebrates
Name	Colin W Plant
Organisation	London Natural History Society
Email	cpauk1@ntlworld.com
Website	www.lnhs.org.uk

Areas of expertise	Lichens
Name	Amanda Waterfield
Organisation	London Natural History Society
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Areas of expertise	Fungi
Name	Ted Tuddenham
Organisation	London Natural History Society
Email	mycorec@blueyonder.co.uk
Website	www.lnhs.org.uk

Areas of expertise	Odonata – dragonflies and damselflies
<i>Name</i>	Neil Anderson
<i>Organisation</i>	London Natural History Society
<i>Email</i>	neil@anders42.freemove.co.uk
<i>Website</i>	www.lnhs.org.uk

Annex A - Maps

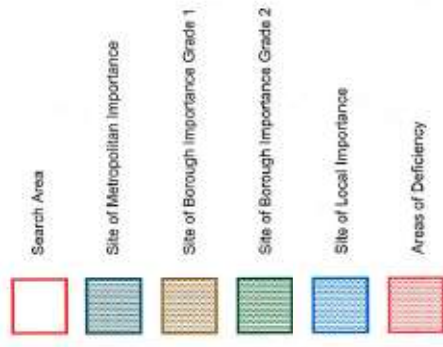
SINCs Map

GREATER LONDON AUTHORITY Sites of Importance for Nature Conservation

Ecological Data Search
for CSA Environmental Planning
(08/176)

1 May 2008

Haringey, North London

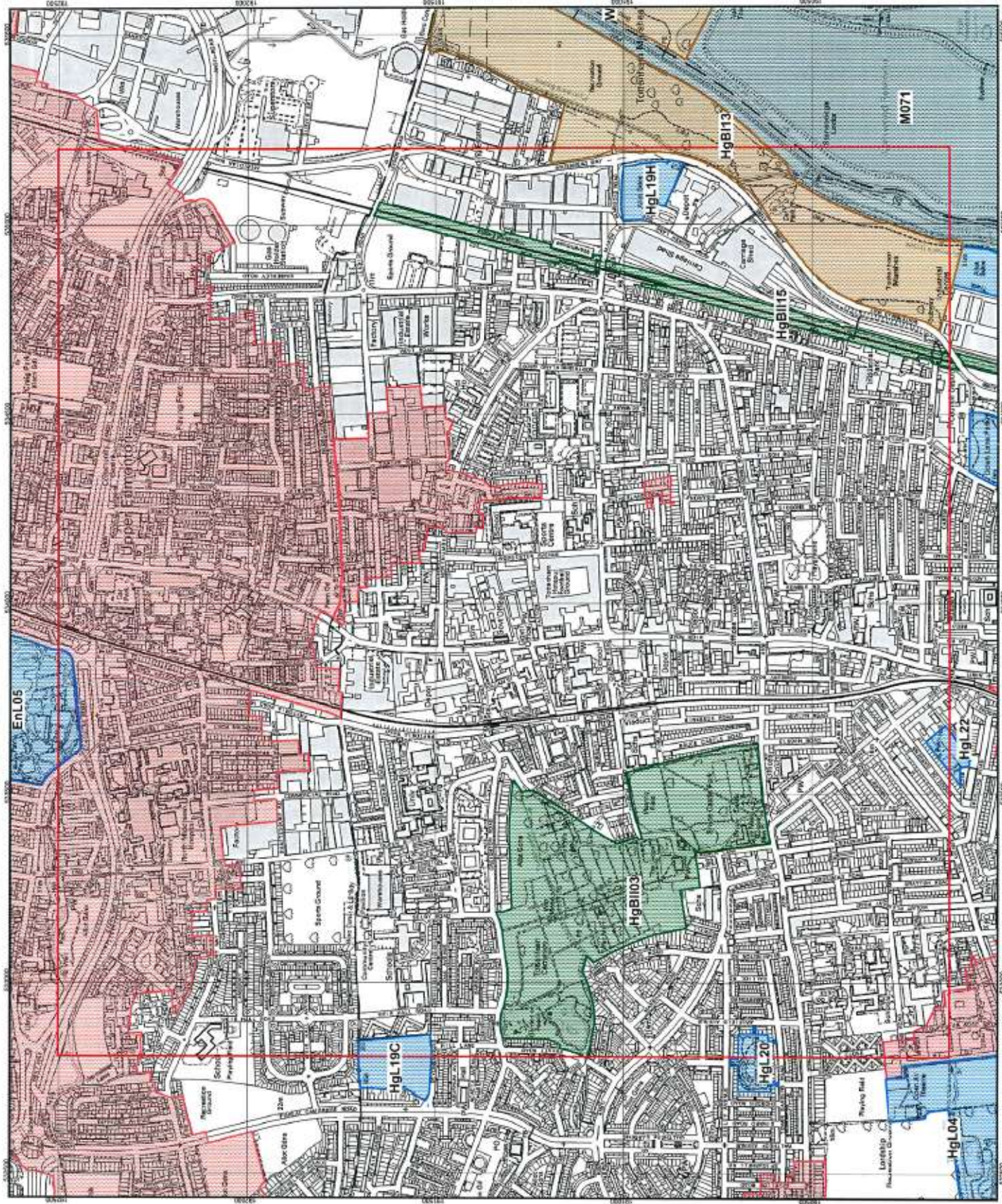


Scale 1:10000

The Sites of Importance for Nature Conservation have been identified since 1986 using procedures which have now been adopted by the Mayor of London. They are recommended for protection in planning. The boundaries and site grades reflect the most recent consideration of each site, details of which are available from the Trust and the Greater London Authority. Note that boundaries and grades may change as new information becomes available.

Produced by Greenspace
Information for Greater London

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London No. 01/0002379



Annex B - Supporting Information

Statutory Site Designations

Local Nature Reserve (LNR)

Land owned, leased or managed by Local Authorities and designated under the National Parks and Access to the Countryside Act. A site of some nature conservation value managed for educational objectives — no need for SSSI status. In some cases it is managed by a non-statutory body (e.g. London Wildlife Trust). Local Authorities have the power to pass bylaws controlling (e.g.) access, special protection measures.

Site of Special Scientific Interest (SSSI)

Area notified under the Wildlife and Countryside Act, 1981, by English Nature, the Countryside Council for Wales or Scottish Heritage as being of special interest for nature conservation. Consultation and some form of agreement with the national statutory conservation agency is mandatory before any listed, potentially damaging development, change in land use, etc. can be carried out. SSSI notification forms the statutory bedrock for site protection, although experience has shown that even SSSIs are not sacrosanct.

Biological SSSIs form a national network of wildlife sites in which each site is a distinct discrete link. Sites are selected in such a way that the protection of each site, and hence the network, aims to conserve the minimum area of wildlife habitat necessary to maintain the natural diversity and distribution of Britain's native flora and fauna and the communities they comprise. Each site, therefore, is of national significance for its nature conservation value. The vast majority of SSSIs, and indeed most areas of semi-natural habitat, cannot be created within human time scales and are therefore considered irreplaceable.

Geological SSSIs—more correctly termed Earth Science SSSIs—are the best sites chosen for their research value, the criterion being that they are of national or international importance. Earth Science conservation is concerned with the maintenance of our geological and geomorphological heritage.

National Nature Reserve (NNR)

Statutory reserve established for the nation under the Wildlife and Countryside Act, 1981. NNRs may be owned by a relevant national body (e.g. English Nature in England) or by established agreement; a few are owned and managed by non-statutory bodies. NNRs cover a selection of the most important sites for nature conservation in the UK.

Special Area of Conservation (SAC) and Special Protection Area (SPA)

SACs and SPAs are areas designated under European law and are the most important sites for wildlife in the UK. SACs are designated under the European Habitats Directive (Council Directive 92/43/EEC) and SPAs under the European Birds Directive (Council Directive 79/409/EEC). Both the Habitats and Birds Directive provide for the creation of a network of protected wildlife areas across the EU, to be known as "Natura 2000". The designations aim to conserve important or threatened species and habitats and provide them with increased protection and management.

Ramsar sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. The initial emphasis was on selecting sites of importance to waterbirds within the UK, and consequently many Ramsar sites are also Special Protection Areas (SPAs) classified under the Birds Directive. Non-bird features are now increasingly taken into account, both in the selection of new sites and when reviewing existing sites.

SINC Designations

Sites of Importance for Nature Conservation

1 The different kinds of sites and areas

- 1.1 There are three kinds of site, which are chosen on the basis of their importance to a particular defined geographic area. This use of search areas is an attempt, not only to protect the best sites in London, but also to provide each part of London with a nearby site, so that people are able to have access to enjoy nature.

Sites of Metropolitan Importance

- 1.2 Sites of Metropolitan Importance for Nature Conservation are those sites which contain the best examples of London's habitats, sites which contain particularly rare species, rare assemblages of species or important populations of species, or sites which are of particular significance within otherwise heavily built-up areas of London.
- 1.3 They are of the highest priority for protection. The identification and protection of Metropolitan Sites is necessary, not only to support a significant proportion of London's wildlife, but also to provide opportunities for people to have contact with the natural environment.
 - 1.3.1 The best examples of London's habitats include the main variants of each major habitat type, for example hornbeam woodland, wet heathland, or chalk downland. Habitats typical of urban areas are also included, e.g. various types of abandoned land colonised by nature ('wasteland' or 'unofficial countryside'). Those habitats which are particularly rare in London may have all or most of their examples selected as Metropolitan Sites.
 - 1.3.2 Sites of Metropolitan Importance include not only the best examples of each habitat type, but also areas which are outstanding because of their assemblage of habitats, for example the Crane corridor, which contains the River Crane, reservoirs, pasture, woodland and heathland.
 - 1.3.3 Rare species include those that are nationally scarce or rare (including Red Data Book species) and species which are rare in London.
 - 1.3.4 A small number of sites are selected which are of particular significance within heavily built up areas of London. Although these are of lesser intrinsic quality than those sites selected as the best examples of habitats on a London-wide basis they are outstanding oases and provide the opportunity for enjoyment of nature in extensive built environments. Examples include St James's Park, Nunhead Cemetery, Camley Street Natural Park and Sydenham Hill Woods. In some cases (e.g. inner London parks) this is the primary reason for their selection. For sites of higher intrinsic interest it may only be a contributory factor. Only those sites that provide a significant contribution to the ecology of an area are identified.
- 1.4 The list of sites was updated regularly by the London Ecology Committee. This list, and details of the site boundaries, can be obtained from the Greater London Authority.
- 1.5 Should one of these sites be lost or damaged, something would be lost which exists in a very few other places in London. Management of these sites should as a first priority seek to maintain and enhance their interest, but use by the public for education and passive recreation should be encouraged unless these are inconsistent with nature conservation.

Sites of Borough Importance

- 1.6 These are sites which are important on a borough perspective in the same way as the Metropolitan sites are important to the whole of London. Although sites of similar quality may be found elsewhere in London, damage to these sites would mean a significant loss to the borough. As with Metropolitan sites, while protection is important, management of Borough sites should usually allow and encourage their enjoyment by people and their use for education.
- 1.7 Since 1988 Borough sites have been divided, on the basis of their quality, into two grades, but it must be stressed that they are all important on a borough-wide view.
- 1.8 In defining Sites of Borough Importance, the search is not confined rigidly to borough boundaries; these are used for convenience of defining areas substantially smaller than the whole of Greater London, and the needs of neighbouring boroughs should be taken into account. In the same way as for Sites of Metropolitan Importance, parts of some boroughs are more heavily built-up and some borough sites are chosen there as oases providing the opportunity for enjoyment of nature in extensive built environments.
- 1.9 The borough is an appropriate search area in relation to Planning Policy Guidance on nature conservation (1994) which, in paragraphs 15 and 25, states that local plans should identify, and include policies for, areas of local nature conservation importance.
- 1.10 Since essentially a comparison within a given borough is made when choosing Sites of Borough Importance, there is considerable variation in quality between those for different boroughs; for example, those designated in Barnet will frequently be of higher intrinsic quality than those in Hammersmith and Fulham, a borough comparatively deficient in wildlife habitat. Only those sites that provide a significant contribution to the ecology of an area are identified.

Sites of Local Importance

- 1.11 A Site of Local Importance is one which is, or may be, of particular value to people nearby (such as residents or schools). These sites may already be used for nature study or be run by management committees mainly composed of local people. Where a Site of Metropolitan or Borough Importance may be so enjoyed it acts as a Local site, but further sites are given this designation in recognition of their role. This local importance means that these sites are also deserving protection in planning.
- 1.12 Local sites are particularly important in areas otherwise deficient in nearby wildlife sites. To aid the choice of these further local sites, Areas of Deficiency (see below) are identified. Further Local sites are chosen as the best available to alleviate this deficiency; such sites need not lie in the Area of Deficiency, but should be as near to it as possible. Where no such sites are available, opportunities should be taken to provide them by habitat enhancement or creation, by negotiating access and management agreements, or by direct acquisition. Only those sites that provide a significant contribution to the ecology of an area are identified.

Areas of Deficiency

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

Statutory Species Protections

Statutory Protections

Relevant statutory protections plus brief definitions

Source: - Betts C. J. (1998) *Checklist of Protected British Species 2nd Ed*, Christopher Betts Environmental Biology, Worcester, U.K.

Full Title	Explanation
Appendix I of Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats)	The Berne Convention is designed to protect important populations of listed species and their habitats. This appendix lists flora which are required to be specially protected against deliberate picking, collecting, cutting, uprooting, possession, sale, etc.
Appendix II of Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats)	The appendix lists strictly protected fauna. The Berne Convention places particular emphasis on migratory species and their breeding and resting sites (see also Bonn below). Listed fauna are required to be strictly protected against deliberate killing, capture, damage/destruction of breeding and nesting sites, disturbance, taking of eggs, trading (including parts and derivatives), etc. Various exceptions can be invoked to avoid, for example, inappropriate situations arising over species which, although listed, are common and widespread.
Appendix III of Berne Convention (Convention on the conservation of European Wildlife and Natural Habitats)	Listed in its appendix are all animals not on Appendix II whose populations are required to be protected from exploitation (indiscriminate mass killing, trading any means of causing local disappearance or serious disturbance to a species) and managed to keep them out of danger, all other reptiles and amphibians and many other mammals.
Appendix I of Bonn Convention on the Conservation of Migratory Species of Wild Animals	Species on Appendix I are considered to be in danger of extinction and require stringent efforts to ensure protection from virtually any threat. 'Migratory' is a broad term and includes dispersal, recruitment, etc.
Appendix II of Bonn Convention on the conservation of Migratory Species of Wild Animals	Appendix II species are generally of conservation concern and/or deemed to be able to benefit from international co-operation. Signatories are encouraged to draw up agreements (several have been or are being concluded) to restore/maintain species conservation status through management and other appropriate measures.
European Communities Council Directive on the Conservation of Wild Birds	The Directive relates to the conservation of all species or birds naturally occurring in the wild in the European territory of the Member States (but not Greenland), as well as their nests and habitats. A list of taxa (species and sub-species) requiring special conservation measures, such as designation and maintenance of Special Protection Areas, is cited in Annex to this directive and these species which are included in this Checklist. Birds generally are protected from deliberate killing, taking from the wild, egg collecting, nest destruction and keeping in captivity but allowances are made for game birds. Pest species can be derogated by Member States (carrion crow, collared dove, feral and wood pigeons, rook, jackdaw, great and lesser black-backed gulls, herring gull, jay, magpie, house sparrow and starling in Britain).
Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora	Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation SACs
Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora	Animal and plant species of community interest in need of strict protection. All life stages are protected against (as appropriate) deliberate capture, killing, disturbance, destruction of eggs, breeding sites or resting places, picking, collecting, cutting, uprooting or destruction in the wild as well as (except for specimens taken before enforcement of the regulations) keeping, transport, sale/exchange.

Full Title	Explanation
Annex V of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora	Animal and plant species of community interest whose taking part in the wild and exploitation may be subject to management measures.
Protection of the Badgers Act 1992	Badgers are extensively protected by this Act, covering virtually any deliberate interference with the animals themselves or their setts.
Schedule 1 Part 1 of Wildlife and Countryside Act 1981 (and later amendments)	This Schedule lists birds protected by special penalties at all times. International killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives, eggs, nests, etc. as applicable) as well as damaging, destroying or disturbing nests in current use or dependent young, etc. are prohibited.
Schedule 1 Part 2 of Wildlife and Countryside Act (including amendments)	Birds are protected by special penalties (as above) during close season.
Schedule 5 of Wildlife Act and Countryside Act 1981 (and later amendments)	Protected animals (other than birds). Deliberate killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing any structure or places of refuge, etc. are prohibited. NB. Protection of some species is limited to certain Sections of the Act which are indicated in the lists as follows: S9(1) Protection limited to intentional killing, injury or taking. S9(2) Protection limited to protecting and controlling S9(4a) Protection limited to damaging, destroying, or obstructing access to, any place used by the animal for shelter or protection. S9(4b) Protection limited to disturbing the animal while it is occupying any structure or place which it uses for shelter or protection. S9(5) Protection limited to selling, offering for sale, possessing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of or anything derived from such animal.
Schedule 6 of Wildlife and Countryside Act 1981 (and later amendments)	Animals which may not be killed or taken by certain methods (traps and nets, poisons, automatic weapons, electrical devices, smokes/gases and various others). Even humane trapping for research requires a licence. Note that bows, explosives, self-locking snares and live bird or mammal decoys are generally prohibited for use against wild animals, irrespective of this Schedule.
Schedule 8 of Wildlife and Countryside Act 1981 (and later amendments)	Protected plants and fungi. Intentional picking, uprooting, destroying, trading (including parts and derivatives), etc. are prohibited. It should be noted that under the Wildlife and Countryside Act, all wild plants in Britain are protected from international uprooting by an unauthorised person (but landowners, land occupiers, persons authorised by either of these, or persons authorised in writing by the Local Authority for the area are exempt). NB. Protection for some species may be limited to certain Sections of the Act and where this is the case it is indicated in the lists as follows: SI3(2) Protection limited to selling, offering for sale, possessing or transporting for purpose of sale, or advertising for sale, any live or dead plant, or any part of, or anything derived from, such plant.

Notable Species

Full Title	Explanation
Birds of Conservation Concern (BoCC)	<i>The Population status of birds in the UK - Birds of Conservation Concern: 2002-2007</i> is an assessment of the population status of the UK's bird species. It is a list agreed by a group of the UK's statutory and leading non-governmental bird conservation organisations in 2002, chaired by the Royal Society for the Protection of Birds (RSPB). The group reviewed the status of the 247 species which occur regularly in the UK, Channel Islands and the Isle of Man and divided into three lists: Red, Amber and Green. The Red List comprises 40 species whose populations or range are rapidly declining, and those of global conservation concern. Several common, but rapidly declining farmland birds are included on the Red List. The Amber List comprises the 121 species whose populations are in moderate decline, rare breeders, internationally important, restricted to a small number of sites, or those of an unfavourable conservation status in Europe. All other species occurring in the UK, Channel Islands and Isle of Man are on the Green List.
Biodiversity Lists	The UK Biodiversity Steering Group listed a total of 1250 species—the Long List—which qualify for inclusion in the national Biodiversity Action Plan in one or more of the following categories: • threatened endemic and other globally threatened species • species where the UK has more than 25% of the world or appropriate biogeographical population • species where numbers or range have declined by more than 25% in the last 25 years • in some instances where the species is found in fewer than 15 ten-kilometre squares in the UK • species which are listed in the EU Birds or Habitats Directives, the Bern, Bonn or CITES Conventions, or under the Wildlife and Countryside Act 1981 and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 From the Long List, about 400 species were identified as being either globally threatened or rapidly declining in the UK (by more than 50% in the last 25 years). These comprise the Short List, for which Action Plans have been prepared, and the Middle List for which Action Plans are currently being prepared.

London Biodiversity Action Plan Species

Rationale for selecting priority species for action

1. Background

The *Greater London Authority Act 1999* requires the elected Mayor to produce a Spatial Development Strategy for London, called the London Plan. The first London Plan was published in February 2004. The Act (clause 334(5)) requires the London Plan to deal with matters of strategic importance only. The required content of the plan is set out in a government guidance note (Circular 1/2000).

The London Plan includes an important policy (3D.12) Biodiversity and nature conservation, which links to policies and proposals on approaches to strategic planning in the Mayor's Biodiversity Strategy¹. Policy 3D.12 contains the following statement;

"The Mayor will and boroughs should resist development that would have a significant adverse impact on the population or conservation status of protected species or priority species identified in the London Biodiversity Action Plan and borough BAPs. Appropriate policies for their protection and enhancement and to achieve the targets set out in BAPs, should be included in UDPs."

This policy is employed by the Mayor of London when considering those larger planning applications referred to him for direction under the *Town and Country Planning (Mayor of London) Order 2000*. Also the London Unitary Development Plans and, increasingly with time, the new Local Development Frameworks of the London Boroughs have to be in general conformity with the London Plan. It is through these local policies that most protection of priority species will occur. The planning protection for priority species should be equivalent to that applying to statutory protected species, although of course development planning can only provide protection from planning-related activities.

The London Biodiversity Partnership published its original Audit of habitats and species in 2000. This lists all habitats of interest in London, as these relate to the UK BAP. The Audit also lists some 300 species of conservation interest occurring in London. All of these could not practically be considered as priorities for conservation action in the London BAP. Importantly, the LBP has adopted a practical approach to species conservation, whereby action for species should be considered and incorporated within the action proposed for their relevant habitats whenever possible. Species Action Plans have been produced only for prioritised species that are not so conveniently habitat-specific.

Ecological survey has re-discovered and recorded many new species resident in Greater London since the Audit was first published. A review of our Species of Conservation Concern has been undertaken to consider these new findings and to identify BAP Priority Species to which the London Plan Policy 3D.12 would apply.

2. The evaluation process

2.1 Species of Conservation Concern in London

Not all of the criteria used for selecting species for the London Species Audit are of primary relevance to a list of species of conservation concern. For reasons explained in the Audit, a suite

¹Connecting with London's nature, *The Mayor's Biodiversity Strategy*, GLA July 2000

of species was selected to include: species that are relatively ubiquitous and therefore characteristic of London (ie. suitable as “flagships”); that are “culturally valued”; easy to monitor; and/or that are good indicators of their supportive habitats. None of these criteria is directly relevant to species’ conservation status.

Criteria for the selection of UK BAP² Species of Conservation Concern are as follows:

- Threatened endemic and other globally threatened species;
- Species where the UK has more than 25% of the world or appropriate biogeographical population;
- Species where the UK numbers or range have declined by more than 25% in the last 25 years;
- In some instances where the species is found in fewer than 15 ten km squares in the UK;
- Species listed for protection in the EU Birds or Habitats Directives, the Bern, Bonn or CITES Conventions, or under the *Wildlife and Countryside Act 1981*.

Data is deficient for rates of decline of many species groups locally. Adaptation of the UK SCC criteria to the Greater London regional context has involved the following:

- All UK SCC; nationally threatened (ie. Red Data listed); Nationally Scarce (Na, Nb, N); and (for birds) RSPB Red/Amber List species, with native or long-established naturalised populations occurring in Greater London;
- Species with native or long-established naturalised populations, which are rare³ in Greater London and are known to be in national or regional decline (as ascertained from national distribution atlases);
- Some further species that are known to have declined significantly in Greater London in recent years.

The list of Species of Conservation Concern in Greater London is presented as four taxonomically grouped spreadsheets, titled Plants, Fungi, Vertebrates and Invertebrates. The list is not comprehensive in respect of the above criteria for some invertebrates and lower plants, for which presence in London and threat categories are less certain. The list should be viewed as the regional equivalent of the original UK BAP ‘long list’. From the list of Species of Conservation Concern in Greater London, our Priority BAP Species have been identified (see next).

2.2 Priority Species in London

Criteria for selection of UK BAP Priority Species are as follows:

- Species that are globally threatened;
- Species that are rapidly declining in the UK, ie. by more than 50% in the last 25 years.

In accordance with national guidance, London BAP Priority Species must include;

- All UK BAP Priority Species with native or long-established naturalised populations in Greater London.

Further species have been selected using the following criteria;

- Species for which Species Action Plans are currently being implemented in the London BAP;
- Nationally threatened (Red Data listed) species with native or long-established naturalised populations in Greater London;
- UK SCC and declining Nationally Scarce species with significant⁴ native or long-established naturalised populations within Greater London, (ie. for which a regional responsibility for conservation may be clearly demonstrated).

² The UK BAP; www.ukbap.org.uk

³ occurring in <5% (=20) of Greater London tetrads or equivalent

- Species with native or long-established naturalised populations that are known to have undergone a recent significant decline in Greater London, or for which Greater London holds the majority of the known UK population.

⁴ for example: the only population within its 10km grid square; a population at the edge of a declining species' UK range; a constituent of an isolated UK population; an exceptionally strong core area population

Habitat Surveys

1 Survey information

- 1.1 In order to choose sites for protection it is necessary to have good survey information on the habitats and species of all candidate areas.

The London Wildlife Habitat Survey

- 1.2 Information on wildlife habitats can be collected in a standardised, comprehensive survey. We are fortunate in London in having such a survey, first carried out by the London Wildlife Trust for the Greater London Council in 1984/85, and updated and extended in various surveys since, including re-examination of sites to be described in the handbook series or in relation to proposed developments or management. In a number of London boroughs a systematic survey has been carried out using the London Ecology Unit's specification since 1985. The specification was updated in 2000, when the GLA was established, to collect additional data required for open space planning. The format of the survey is similar to those usually described as 'Phase I' or 'Field by Field', but is enhanced by the extensive use of standardised written notes. The Authority holds this survey information.
- 1.3 The initial survey documented areas with semi-natural habitats (more natural than well-gardened allotments or heavily mown urban playing fields) and was also confined to large areas (above 0.5 ha for inner boroughs and 1 ha for outer boroughs). Much subsequent survey work has documented open spaces regardless of their natural quality and has used a much lower area threshold, to provide a more comprehensive coverage.
- 1.4 The wildlife habitat survey helps to ensure that candidate sites are not overlooked and that the same essential minimum of information is available for each. There is usually little other information available on the quality of the wildlife habitats, but any information provided is taken into account.

Information on species

- 1.5 Information on species, which has been obtained in a consistent and standardised manner as part of the systematic survey of habitats may be used by the Authority in reaching decisions on site quality. Other information on species, relating to individual sites, is frequently available but has rarely been collected in a systematic way so as to allow straightforward comparisons with other sites.
- 1.6 Information on species is often available from local naturalists, who are able to observe sites throughout seasons and years to provide an accurate and quite comprehensive listing of these and who may publish accounts of particular species or sites. Valuable though this information is, it often proves difficult to use it to compare candidate sites, as the recording effort put into each site may differ greatly and so may the completeness of the list. The length of the species list and the detection of rare species therefore depends upon the searching effort. For these reasons, such information on species is used only together with knowledge of how the information was obtained and of the way in which the ecology of individual species affects their apparent status.
- 1.7 The policy of the Authority is to take considerable care in interpreting site-based species data to ensure that fully professional standards are maintained.

Habitat Types

A list of habitats for open space survey in London

Code	Name	Definition
01/02/03	Woodland	Stands of trees forming at least 75% cover, including coppice and trees of shrub size, but excluding fen carr (19). Includes stands of willow except <i>Salix cinerea</i> , <i>caprea</i> and <i>viminialis</i> , but excludes hawthorn, hazel (except hazel coppice with standards), elder, juniper and the three willow species listed above, which are always scrub (06) regardless of height. Where the species composition does not fulfil any of 01, 02 or 03 below, code as a mixture. Always record % shrub layer under the qualifiers.
01	Native broadleaved woodland	Woodland (see above) with native broadleaved species (i.e. excluding sycamore and sweet chestnut) comprising at least 75% of the canopy.
02	Non-native broadleaved woodland	Woodland (see above) with non-native broadleaved species (including sycamore and sweet chestnut) comprising 75% of the canopy.
03	Coniferous woodland	Woodland (see above) with coniferous species (including yew) comprising 75% of the canopy.
37	Scattered trees	Trees forming less than 75% canopy cover over another habitat (excluding coppice with standards, which is coded as woodland). Record percentage tree cover here, and the rest of the area under the appropriate habitat.
05	Recently felled woodland	Does not include coppice, which is coded as woodland.
06	Scrub	Dominated (at least 75% cover) by shrubs (usually less than 5 metres tall), excluding fen carr (19), heathland (15), young woodland, coppice, hedges (25, 34) and planted shrubberies (38). Includes stands of hawthorn, hazel (except coppice with standards), elder and <i>Salix cinerea</i> , <i>caprea</i> and <i>viminialis</i> regardless of height.
38	Planted shrubbery	Dominated (at least 75% cover) by shrubs, usually non-native species, the majority of which have clearly been planted. Excludes hedges (25, 34).
25	Native hedge	Line of shrubs, with or without treeline, one or two mature shrubs wide (wider belts should be coded as scrub or woodland), with native species comprising at least 75% of the shrubs.
34	Non-native hedge	As above but with non-native species comprising at least 75% of the shrubs. If neither 25 nor 34 apply, code as a mixture.
31	Orchard	Planted fruit or nut trees forming at least 50% canopy cover.
36	Vegetated walls, tombstones, etc	Includes ruins, fences and other artificial structures with an appreciable amount of vegetation (including mosses and lichens) but excluding artificial water margins, which should be coded as wet marginal vegetation (18) if vegetated.
26	Bare soil and rock	Includes active quarries, fresh road workings, spoil or tipping and earth banks of water habitats, where these are minimally vegetated. Excludes

Code	Name	Definition
		arable land (28).
27	Bare artificial habitat	Includes tarmac, concrete, railway ballast, gravel paths, buildings and artificial margins to aquatic habitats, where these are minimally vegetated.
08	Acid grassland	Un- or semi-improved grassland on acidic soils, with less than 25% cover of heather or dwarf gorse. Excludes reedswamp (17). Usually with one or more of <i>Deschampsia flexuosa</i> , <i>Molinia caerulea</i> , <i>Nardus stricta</i> , <i>Juncus squarrosus</i> , <i>Galium saxatile</i> , <i>Potentilla erecta</i> or <i>Rumex acetosella</i> in abundance.
09	Neutral grassland (semi-improved)	Mesotrophic grassland usually with one or more of <i>Arrhenatherum elatius</i> , <i>Deschampsia cespitosa</i> , <i>Alopecurus pratensis</i> , <i>Cynosurus cristatus</i> , <i>Dactylis glomerata</i> , <i>Festuca arundinacea</i> or <i>F.pratensis</i> . Contains more than just <i>Lolium perenne</i> , <i>Trifolium repens</i> , <i>Rumex acetosa</i> , <i>Taraxacum</i> , <i>Bellis perennis</i> and <i>Ranunculus</i> species (see 07 and 11), but lacks the characteristic forbs of 35. Excludes reedswamp (17).
35	Neutral grassland (herb-rich)	Mesotrophic grassland with more forbs typical of old grassland than 09. Likely to contain one or more of <i>Primula veris</i> , <i>Lychnis flos-cuculi</i> , <i>Achillea ptarmica</i> , <i>Silene silaus</i> , <i>Succisa pratensis</i> , <i>Stachys officinalis</i> , <i>Serratula tinctoria</i> , <i>Ophioglossum</i> , <i>Gensita tinctoria</i> , <i>Sanguisorba officinalis</i> or <i>Caltha palustris</i> , or an abundance of <i>Carex ovalis</i> , <i>Pimpinella saxifraga</i> , <i>Conopodium majus</i> , <i>Cardamine pratensis</i> , <i>Knautia</i> or <i>Filipendula ulmaria</i> .
10	Basic grassland	Un- or semi-improved grassland containing calcicoles. Usually with some of <i>Brachypodium pinnatum</i> , <i>Bromopsis erecta</i> , <i>Helictotrichon pratense</i> , <i>Thymus polytrichus</i> , <i>Sanguisorba minor</i> , <i>Centaurea scabiosa</i> or <i>Origanum vulgare</i> in some abundance.
11	Improved or re-seeded agricultural grassland	Species-poor mesotrophic grassland containing little but <i>Lolium perenne</i> , <i>Trifolium repens</i> , <i>Agrostis</i> species, <i>Bellis perennis</i> , <i>Taraxacum</i> and <i>Ranunculus</i> species. Distinguished from 07 by its agricultural use and hence usually less frequent mowing.
07	Amenity grassland	Usually frequently mown, species-poor mesotrophic grassland characteristic of parks and sports pitches, containing similar species to 11. Scattered trees and shrubberies in parks should be coded separately.
12	Ruderal or ephemeral	Communities composed of pioneer species such as occur in early succession of heavily modified substrates. Typical species include <i>Senecio squalidus</i> , <i>S.vulgaris</i> , <i>Sinapis arvensis</i> , <i>Poa annua</i> , <i>Hirschfeldia incana</i> and species of <i>Polygonum</i> , <i>Persicaria</i> , <i>Melilotus</i> , <i>Atriplex</i> , <i>Chenopodium</i> , <i>Medicago</i> , <i>Vulpia</i> , <i>Picris</i> , <i>Lactuca</i> , <i>Diptaxis</i> , <i>Conyza</i> and <i>Reseda</i> .
13	Bracken	Stands where bracken is dominant. Also used with other habitat codes to indicate scattered bracken.
14	Tall herbs	Stands of tall non-grass herbaceous species, often rhizomatous perennials, such as <i>Fallopia japonica</i> , <i>Conium maculatum</i> , <i>Chamerion angustifolium</i> , <i>Anthriscus sylvestris</i> , <i>Urtica dioica</i> , <i>Epilobium hirsutum</i> , <i>Solidago canadensis</i> and species of <i>Aster</i> and <i>Heracleum</i> . Excludes herbaceous fen vegetation 32).

Code	Name	Definition
33	Roughland	An intimate mix of semi-improved neutral grassland (09), tall herbs (14) and scrub (06). If these occur in large enough patches they should be coded separately. Usually the next successional stage after 12.
15	Heathland	Dwarf-shrub cover greater than 25% of species such as heathers and <i>Ulex minor</i> , with less than 50% cover of <i>Sphagnum</i> . May include a large amount of acid grassland (06) in a close mosaic, but code as a mixture if grassland areas are large.
39	Allotments (active)	Communal allotment gardens which are under cultivation. Code disused plots under other habitats as appropriate.
28	Arable	Cropland, horticultural land (excluding allotments), freshly ploughed land and livestock paddocks stocked so heavily as to have little vegetation.
16	Bog	Dominated by <i>Sphagnum</i> mosses (greater than 50% cover) with water table at or just below the surface.
17	Reedswamp	Stands of <i>Phragmites australis</i> with at least 75% cover of reeds. Includes dry and tidal stands.
40	Typha, etc swamp	Stands of <i>Glyceria maxima</i> , <i>Typha</i> species or <i>Phalaris arundinacea</i> where these species form at least 75% cover.
18	Wet marginal vegetation	Emergent vegetation with a permanently high water table in strips less than five metres wide on the margins of water bodies. Contains species such as <i>Iris pseudacorus</i> , <i>Apium nodiflorum</i> , <i>Acorus calamus</i> and species of <i>Rorippa</i> , <i>Alisma</i> and <i>Juncus</i> . May include <i>Phragmites</i> , <i>Typha</i> and <i>Glyceria maxima</i> but where these form single-species stands code as 17 or 40 respectively. Usually too small to map but must always be coded if present.
19	Fen carr	Woodland or scrub over herbaceous vegetation with the water table above ground for most of the year.
20	Standing water (includes canals)	Lakes, reservoirs, pools, wet gravel pits, ponds, canals, docks and brackish lagoons beyond the limit of swamp or wet marginal vegetation. Always code vegetated margins separately and note trophic status and whether saline or tidal.
21	Ditches (water filled)	Distinguished from 20 and 22 by their (often agricultural) drainage role. Always code vegetated margins separately and note trophic status and whether saline or tidal.
22	Running water	Rivers and streams. Always code vegetated margins separately and note trophic status and whether saline or tidal.
23	Intertidal mud, sand, shingle, etc	Intertidal areas without significant vegetation of higher plants. Try to record the extent at low tide.
24	Saltmarsh	Intertidal areas appreciably vegetated with higher plants, excluding reedswamp (17).
30	Habitat information not available	Areas which cannot be observed due to restricted access, etc.
29	Other	To be avoided if possible. Must be specified if used.

Code	Name	Definition
32	Species-rich herbaceous fen	Stands of herbaceous vegetation where the water table is above ground for most of the year, with less than 75% dominance of <i>Phragmites</i> , <i>Typha</i> , <i>Glyceria</i> and <i>Phalaris arundinacea</i> . Distinguished by width from 18. So rare in London that it is not on the survey form; write in under "Other" if required.

Open Space Designations

Green Belt – The London Plan Policy 3D.8

The Mayor will and boroughs should maintain the protection of London's Green Belt and proposals for alterations to Green Belt boundaries should be considered through the UDP process in accordance with government guidance in PPG2. There is a general presumption against inappropriate development in the Green Belt, and such development should not be approved except in very special circumstances.

3.247 The inclusion of land within the Green Belt performs a valuable role in preventing urban sprawl and promoting an urban renaissance. The Green Belt also protects the openness of the land in order to prevent towns merging, safeguards the countryside and preserves historic settlements. The use of Green Belt land should provide Londoners with access to the countryside, opportunities for outdoor recreation, protection and enhancement of attractive landscapes, the improvement of damaged and derelict land, protection and promotion of biodiversity and retention of agricultural land. The Green Belt is a permanent feature and its boundary should only be altered in exceptional circumstances. The quality of land within the Green Belt is not reason in itself for excluding land from the Green Belt or allowing development. Where Green Belt land is of poor quality, steps should be taken to improve it. This may include undertaking a review of a wide area and identifying actions to promote improvements.

Metropolitan Open Land – The London Plan Policy 3D.9

The Mayor will and boroughs should maintain the protection of Metropolitan Open Land (MOL) from inappropriate development. Any alterations to the boundary of MOL should be undertaken by boroughs through the UDP process, in consultation with the Mayor and adjoining authorities. Land designated as MOL should satisfy one or more of the following criteria:

- land that contributes to the physical structure of London by being clearly distinguishable from the built-up area
- land that includes open air facilities, especially for leisure, recreation, sport, arts and cultural activities and tourism which serve the whole or significant parts of London
- land that contains features or landscapes of historic, recreational, nature conservation or habitat interest, of value at a metropolitan or national level
- land that forms part of a Green Chain and meets one of the above criteria.

Policies should include a presumption against inappropriate development of MOL and give the same level of protection as the Green Belt. Essential facilities for appropriate uses will only be acceptable where they do not have an adverse impact on the openness of MOL.

3.248 The Metropolitan Open Land (MOL) designation is unique to London, and protects strategically important open spaces within the built environment. Although MOL may vary in size and primary function in different parts of London, it should be of strategic significance, for example by serving a wide catchment area or drawing visitors from several boroughs. MOL is the same as the Green Belt in terms of protection from development and serves a similar purpose. It performs three valuable functions:

- protecting open space to provide a clear break in the urban fabric and contributing to the green character of London
- protecting open space to serve the needs of Londoners outside their local area
- protecting open space that contains a feature or landscape of national or regional significance.

3.249 MOL will be protected as a permanent feature, and afforded the same level of protection as the Green Belt. Appropriate development should minimise any adverse impact on the open character of MOL through sensitive design and siting and be limited to small scale structures to support outdoor open space uses. The boundary of MOL should only be altered in exceptional circumstances and should be undertaken through the UDP process in consultation with the Mayor. Development that involves the loss of MOL in return for the creation of new open space elsewhere will not be considered appropriate.

3.250 Green Chains are important to London's open space network, recreation and biodiversity. They consist of footpaths and the open spaces that they link, which are accessible to the public. Because of their Londonwide significance, the open spaces and the links within a Green Chain should be designated as MOL.

Open Space Categories

i. Parks and Gardens

Park refers to traditional public open spaces laid out formally for leisure and recreation. They usually include a mixture of lakes, ponds, lidos, woodland, flower beds, shrubs, ornamental trees, play spaces, formal and informal pitches, bowling greens, tennis courts, golf pitch & put, footpaths, bandstands, toilets, cafes and car parks - but not necessarily all of these. Parts of some parks might be managed as so-called natural areas. Examples of parks include the Royal Parks, municipal parks such as Battersea and Victoria, and wilder places such as Hampstead Heath which, although having distinctly informal qualities, are maintained predominantly for the same purpose, and include the usual swings and roundabouts and playing pitches. Many parks are enclosed by walls or railings, although some parks that began as common land may not be enclosed.

Formal garden refers to spaces with well defined boundaries that display high standards of horticulture with intricate and detailed landscaping. It includes the London squares common to central London, which are typically square areas of grass with some shrub borders, bounded by railings, and surrounded by buildings. Examples include Belgrave Square and Soho Square.

ii. Natural and Semi Natural

Common refers to publicly accessible open space that has few if any 'facilities'. It will typically be mainly open rough grassland (not mown playing field or recreation ground type grass) and/or woodland, and may have a limited provision of facilities. In typology terms, commons are much less formal than parks or parkland. Examples include Wimbledon Common, Wanstead Flats, and parts of Epping Forest.

Private woodland refers to woodland which is not accessible for recreational use, nor managed for nature conservation. Record this under "other" until the survey form is revised to accommodate it.

Nature reserve is a category reserved for an open space that is managed primarily for nature conservation. Do not tick this box just because the site has a nature conservation designation. Many parks, etc. have such designations. An SSSI is likely to have park, common or agriculture as its type. Designated Local Nature Reserves, however, are recorded here. Also do not tick this box where you find small areas set aside for nature within parks, commons and other open spaces.

iii. Green Corridors

River should only be used for rivers and streams that do not form part of another land use, such as park, common or nature reserve.

Canal implies an artificial waterway which is navigable. Include docks in this category.

Railway cutting and **railway embankment** are self-explanatory.

Disused railway trackbed is usually obvious, with some traces of its former use. Where disused trackbeds are specifically managed for nature conservation, such as Parkland Walk, record as nature reserve.

Road island/verge is self-explanatory. Record as nature reserve if specifically managed for nature conservation.

Walking / cycling route is a designated footpath / cycleway through informal open space often along former railways or canals but record these examples as Disused railway trackbed or Canal.

iv. Outdoor Sports Facilities

Recreation ground is an area of mown grass used primarily for informal, unorganised ball games and similar activities (including dog walking). Not to be confused with playing fields, below.

Playing field is a site comprising playing pitches, usually for football, but also for rugby and hockey and, in the summer, for cricket. Playing pitches may not always be laid out in the summer, so look out for notice boards or changing rooms and pavilions for evidence. Include sites here even if they appear disused. Include school playing fields. Almost always, playing fields consist only of pitches; but they will sometimes have other bits of open land around the edges. Do not include sites that partly contain playing pitches but are more properly categorised as parks or commons. Pitches are often to be found in parks and commons, but the type here is concerned with sites that are exclusively or predominantly reserved for organised team sports.

Golf course: do not include golf courses that are part of parks, commons etc. This type does not include golf driving ranges, pitch & putt or crazy golf.

Other recreational is to be used for sites that are used exclusively or predominantly for other organised sports such as bowls, tennis and golf driving ranges (but not golf courses, see below).

v. Amenity

Village green is usually an expanse of grass in the centre of old villages, often used in the summer for cricket.

Hospital includes the grounds of any clinic or health centre.

Educational refers to school or college grounds and field study centres where school education is the primary function. Nature sites which cater for schools and for the general public should be recorded under nature reserves. School playing fields should be recorded under playing fields.

Back garden land is self-explanatory. While most surveys exclude private gardens, backlands are often surveyed for planning casework.

Landscaping around premises includes communal amenity space around housing estates and community centres, and also landscaping around industrial premises.

Reservoir includes covered reservoirs unless these form part of a park.

vi. Children and Teenagers

Play space is a site set aside mainly for children. It will contain the usual paraphernalia of swings, slides and roundabouts. Do not record play spaces here if they form part of parks, commons and other open spaces.

Adventure playground is a defined play area for children in a supervised environment. Boundaries and entrances are secure.

Youth area is a defined area for teenagers including skateboard parks, outdoor basketball hoops and other more informal areas such as 'hanging out' areas and teenage shelters.

vii Allotments, Community Gardens and City Farms

Allotments should be obvious. Include them even if they appear or are disused.

Community garden includes an area that is generally managed and maintained by the local population as a garden and/or for food growing and normally restricted in their access. For examples Phoenix Garden in Holborn.

City farm includes areas that are generally managed and maintained as a small farm by the local population, containing livestock and planting and normally restricted in their access. For example Freightliners Farm in Islington.

viii. Cemeteries and Churchyards

Churchyard/cemetery includes burial grounds, graveyards, crematorium grounds and memorial gardens, and gardens or grounds of non-Christian places of worship. Some former or burial grounds that have become full have been converted to informal leisure or recreation spaces; where the gravestones have been removed, these should be recorded as parks.

ix. Other Urban Fringe

Equestrian centre includes any land used for intensive horse keeping and riding, but not extensive horse grazing, which should be recorded as agriculture.

Agriculture includes arable and grazing land, including horse grazing, and market gardening (such as vegetables, often grown under cloches, etc.).

Nursery/horticulture does not include commercial retail nurseries (although these might legitimately form a part of a park or common, etc.). Horticulture includes areas of permanent glasshouses.

x. Civic Spaces

Civic/market square includes tarmac areas or paved open spaces, which may or may not include planting. However, they do not necessarily have seats and may just be a plaza area, with some planting (usually trees) and public art. Often provide a setting for civic buildings and opportunities for open air markets, demonstrations and civic events. Examples include the area in front of the jubilee line station at Canary Wharf, and the plaza in front of Westminster Cathedral.

Other hard surfaced areas include other areas designed for pedestrians. These typically are used as 'sitting out' areas, where workers can enjoy the sun and eat their sandwiches, and as such usually have seats or benches. For example, Emma Cons Gardens opposite the Old Vic Theatre. This category excludes pedestrianised streets, car parks, servicing areas to buildings, and housing amenity space such as communal courtyards.

xi. Other

Sewage/water works includes extensive sludge drying areas, filter beds, etc.

Disused quarry/gravel pit may be water-filled, but is not necessarily so.

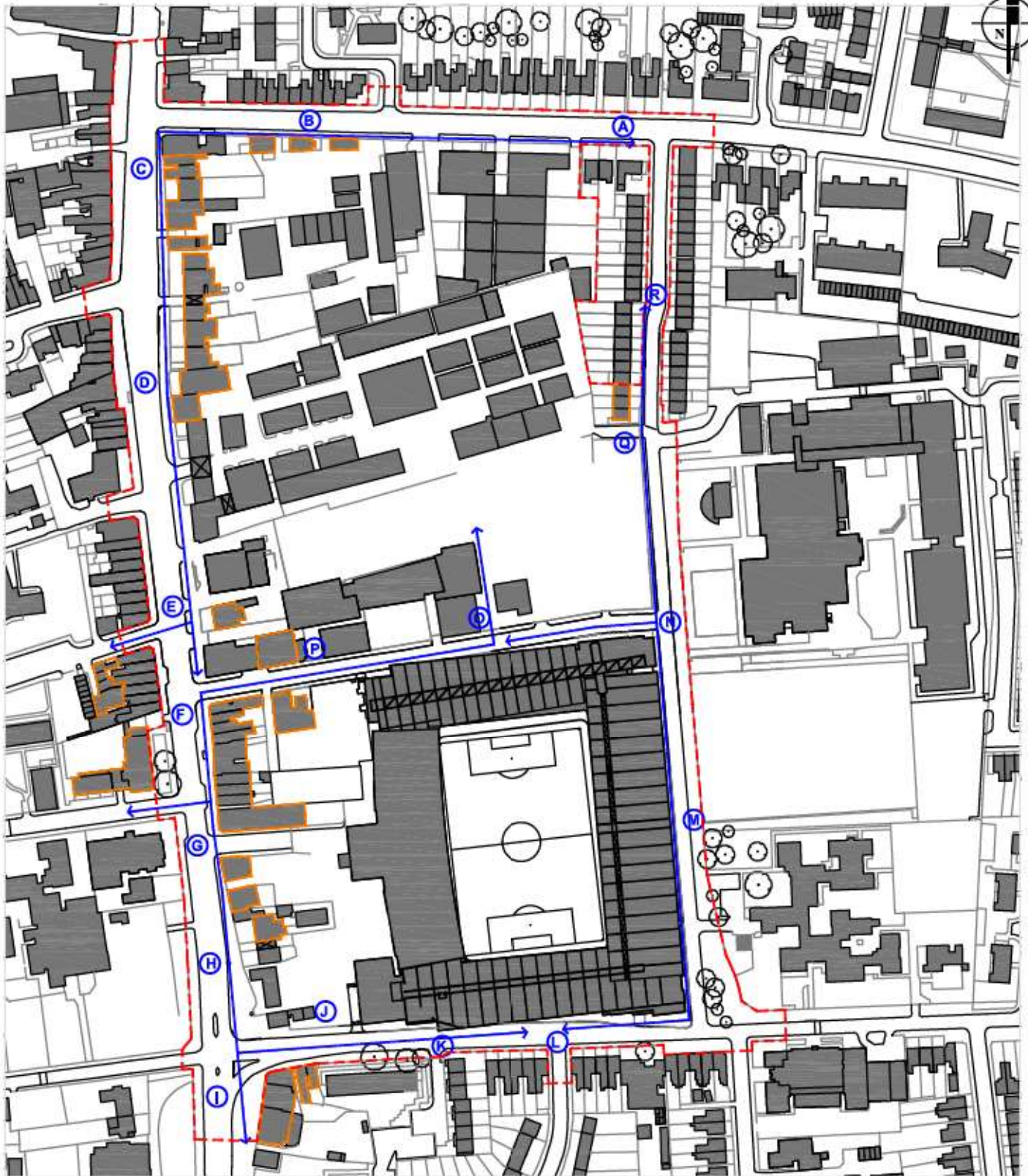
Vacant land is land with no formal land use. This includes many "urban commons" which are used by people for informal recreation and which may be very valuable for nature conservation. If sites have formalised access and management for nature conservation, record as commons or nature reserves as appropriate.

Land reclamation is land recently decontaminated or reclaimed from disuse, which has not yet been redeveloped.

Others could be anything that does not fit any of the above categories, such as airfields or forestry (not wooded commons or woodland nature reserves).

APPENDIX C

Bat Survey Transect Route Plan
CSA/1037/101

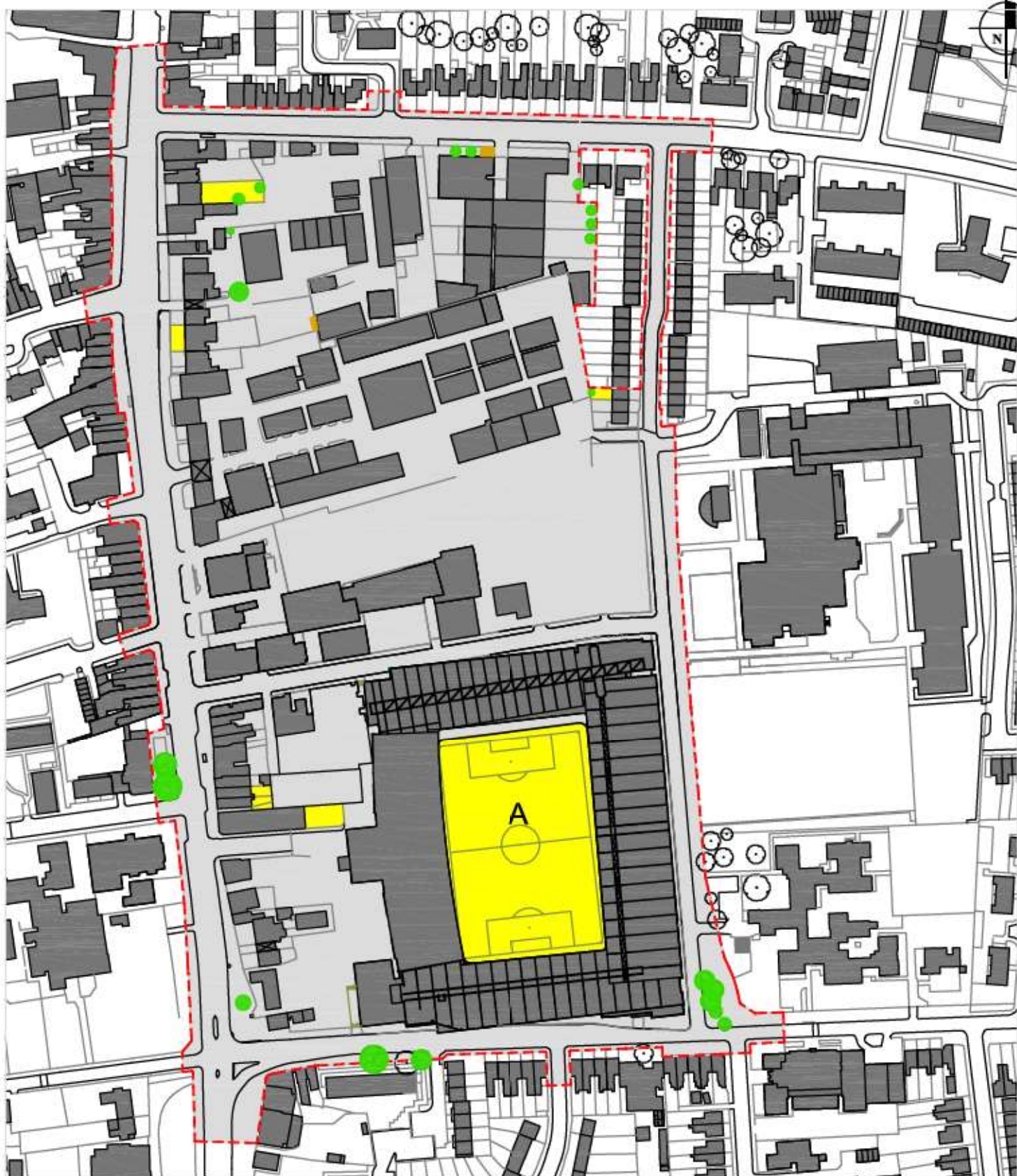


LEGEND

- Site boundary
- Building with significant bat potential
- Bat survey transect route
- A Bat survey transect point

APPENDIX D

Habitats Plan
CSA/1037/100



LEGEND

	Buildings		Broad-leaved Trees
	Hardstanding		Tall ruderals
	Amenity Grassland		Site boundary

APPENDIX E

Bat Survey Results

Survey date: 26 June 2008 (Dusk)

Time	Surveyor 1 LC	Surveyor 2 AM	Surveyor 3 KL
20.55	START OF SURVEY		
20.55-22.30	No activity	No activity	No activity
22.30	22.31. Noctule heard briefly midway between A & B		
22.35-22.55	No activity		
22.55	END OF SURVEY		

Survey date: 27 June 2008 (Dawn)

Time	Surveyor 1 LC	Surveyor 2 AM	Surveyor 3 KL
START OF SURVEY			
02.45-03.00	No activity		No activity
03.00			03.03. Common pipistrelle foraging briefly on corner midway between L & M
03.05			No activity
03.10			03.14. Common pipistrelle foraging briefly on corner midway between L & M
03.15-03.45			No activity
03.45	No activity		03.49.Common pipistrelle flying over off-site trees and buildings to east of southeast corner of site
03.50-04.10			
04.10			No activity
04.15	04.14. Noctule flying from east past point B and off to northwest over block of flats on Bennetts Close		No activity
	04.15. Noctule sighted from B over flats on Bennetts Close		
04.20-04.48	04.18. Noctule seen beyond block of flats from B. High up and flying west		
	No activity		
04.48	END OF SURVEY		

Survey date: 08 July 2008

Time	Surveyor 1 LC	Surveyor 2 AM	Surveyor 3 KL
21.00	START OF SURVEY		
21.00-21.45	No activity	No activity	No activity
21.45			21.49-21.54. Common pipistrelle foraging over trees and house nr southeast corner of site. Flew off to the east away from site.
21.55			21.55. Noctule heard in distance from midway between L and M
	21.56. Noctule heard in distance from midway between L and M		
	21.57. Noctule flying south along east stand of stadium		
22.00	No activity	No activity	
22.05	22.06. Noctule heard faintly midway between A and B.		
	22.09. Noctule heard midway between A and B.		
22.10-22.25			
22.25			22.28. Common pipistrelle heard at Point H
22.30		No activity	
22.35			
22.40			
22.45			
22.50-23.00			
23.00		23.00. Noctule heard at point I.	No activity
23.03	END OF SURVEY		

Survey date: 09 July 2008

Time	Surveyor 1 LC	Surveyor 2 AM	Surveyor 3 KL	
START OF SURVEY				
02.55-				
02.55-03.25	No activity	No activity	No activity	
03.25		03.28. Noctule heard in distance at point I		
03.30		No activity		03.39. Noctule heard at L
03.35				03.43. Common pipistrelle briefly heard midway between L & M
03.40				
03.45				
03.50		No activity	No activity	
03.55	03.55. Noctule heard between C and D 03.56. Noctule heard between C and D			
04.00	No activity		04.03. Noctule heard at L, probably flying from Worcester Avenue to Park Lane	
04.05	04.05. Noctule heard over Park Lane at J	04.05. Noctule heard at Point A	No activity	
04.10	No activity	04.12. Noctule flying north to south over Spurs car park 04.13. Noctule flying north to south over Spurs car park	No activity	
		No activity		
04.15	04.16. Probable noctule – faint call detected at Point B	No activity		
04.20	No activity	04.23. Bat sp. heard briefly at J		
04.25		04.27. Noctule flying northwest over Point J 04.28. Noctule flying northwest over Point J	04.27. Noctule heard in distance at Point N	
04.30-04.55		No activity	No activity	
04.55	END OF SURVEY			



October 2014

Northumberland Development Project

Nesting Bird Survey Report

Prepared by
CSa Environmental Planning

On behalf of
Tottenham Hotspur Property
Company Ltd.

Report No: CSa/1037/06

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	Date	Prepared by	Authorised by	File Ref
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Appendices

- Appendix A: Location of bird nests identified in 2014
Appendix B: Nesting Bird Location Plan (CSa/1037/102)

1.0 INTRODUCTION

- 1.1 This report has been prepared by CSa Environmental Planning on behalf of Tottenham Hotspur Property Company Ltd. It sets out the findings of a nesting bird survey undertaken at White Hart Lane football stadium in Tottenham. The report has been prepared to inform proposals for redevelopment of the stadium.
- 1.2 Full details of an ecological assessment undertaken at the site are provided within CSa's Ecological Assessment report dated June 2009 (Report Ref: CSA/1037/02b). This concluded that the highly urbanised nature of the site is unlikely to support a notable bird community. This report identified that the stadium could be used for nesting by common bird species.
- 1.3 The development timescale may require demolition of the existing stadium within the nesting bird season, taken to be March to August inclusive. If this becomes the case it will be necessary to implement bird proofing measures at the stadium before the end of February preceding demolition to prevent birds from nesting. The aim of this survey is to identify the locations of any existing nesting activity at the stadium to help to guide appropriate types and locations of bird proofing measures and/or deterrents.

2.0 LEGISLATION

- 2.1 All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981. It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests whilst in use or being built.
- 2.2 In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.
- 2.3 Bird species recorded during this report are also described in terms of their conservation status, following Birds of Conservation Concern (BoCC) criteria¹, as summarised in in Table 1 below.

Table 1. Criteria for classifying birds of conservation concern

Red listed	• those that are globally threatened according to The World Conservation Union (IUCN) criteria; • historical decline in breeding population and not shown substantial recent recovery • those that have shown a severe breeding decline over 25 years/longer term; • those that have shown a severe breeding range decline over 25 years/longer term; • species whose non-breeding population has declined over 25 years/longer term.
Amber listed	• species of European Conservation Concern; • those whose population has declined historically but made a substantial recent recovery; • those whose breeding population has declined moderately over 25 years /longer term; • those that have shown a moderate breeding range decline over 25 years/longer term; • those whose non-breeding population has declined moderately over 25 years /longer term; • rare breeders; or non-breeding rarity • species with internationally important or localised populations.
Green listed	• species that fulfil none of the criteria above.

¹ Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341

3.0 METHODOLOGY

- 3.1 Four breeding bird surveys were carried out at the stadium between the 23 April 2014 and 29 May 2014. Each survey commenced shortly after dawn, when birds are most active, and continued for several hours during suitable weather conditions as summarised in Table 2.

Table 2: Bird survey weather conditions

Date	Weather conditions
23.04.14	Quite clear (3/8cc), mild, light wind, dry
02.05.14	Overcast (8/8cc), mild, light wind, dry
22.05.14	Cloudy (7/8cc), mild, light breeze, dry
29.05.14	Mainly cloudy (6/8cc), warm, light breeze, dry

- 3.2 On each visit two experienced ornithologists walked a slow route both inside and around the outside of the stadium. Access was gained for a visual inspection of the stadium roof on one occasion. Birds were detected by sound or sight, using binoculars. The presence of singing males and their location in occupied territories was noted carefully, following the method outlined for territory mapping in Bibby *et al*, 2005². Any nests found were observed and photographed, with precise locations recorded.

² Bibby *et al* (2000). *Bird Census Techniques*. 2nd Edition. Academic press, London.

4.0 RESULTS

- 4.1 Four bird species were found to be breeding at the stadium, with a total of six nests recorded.
- 4.2 Nesting activity is described below and details and locations of the nests found are shown within Appendices A and B.
- 4.3 Within the stadium there is a kestrel *Falco tinnunculus* nest in the lower rear half of the north stand monitor screen (Photos A and B, Appendix A). There are two entrance holes to the east and west where the girders enter the back of the screen. One male and one female kestrel were observed around the nest site, calling, mating and carrying food. In May at least one juvenile kestrel was observed at the nest site.
- 4.4 Three feral pigeon *Columba livia domestica* nests were discovered, two of which are located in the southern half of the stadium. One of these nests is in the lower rear half of the south stand monitor screen, with an entrance hole to the west where the girders enter the back of the monitor screen (Photos C and D, Appendix A). Another is in the south west corner of the stadium situated on girders, under the ceiling which is the floor of the upper tier (Photos E and F, Appendix A). The third nest is at the north of the stadium inside the west end of the cafeteria, situated on flue just down from Gangway 17 (Photos G and H, Appendix A). All nests were thought to contain chicks at the beginning of the surveys due to pigeons regularly coming and going to these locations, with chicks observed in the May visits. It is a possible that a further feral pigeon nest is present high up on the exterior of the stadium in the north west corner but no access is possible so this could not be confirmed.
- 4.5 One starling *Sturnus vulgaris* nest was observed in the south east corner of the stadium exterior (Photos I and J, Appendix A). The nest hole is tight and set in the underside of a concrete ledge just above an entrance door to the stadium. During the surveys chicks were heard from inside the nest and adults were seen regularly feeding the chicks.
- 4.6 Carrion crows *Corvus corone* were observed on site in the first three surveys, and in the final survey an old crow's nest was found on the roof of the stadium thought to have been used this year (Photo K, Appendix A). It is located in a girder junction on top of the roof at the north east section of the stadium.
- 4.7 The full survey results are included within Table 3 below. In addition to the four species nesting, ten additional bird species were recorded on or adjacent to the survey area.

Table 3: Full breeding bird survey results

Bird species	Survey Date			
	23/4/2014	2/5/2014	22/5/2014	29/5/2014
Cormorant <i>Phalacrocorax carbo</i>	0	1 over stadium	0	2 over stadium
Little egret <i>Egretta garzetta</i>	0	0	1 seen flying over buildings in morning next to stadium boundary	0
Grey heron <i>Ardea cinerea</i>	1 over stadium boundary	0	0	0
Kestrel <i>Falco tinnunculus</i>	1 male & 1 female seen at and around nest site (K1) at back of north stand monitor screen. Good activity all morning including calling, mating and male with food. Must have chicks	1 male kestrel seen at stadium over SE corner but no activity seen in morning at nest site at north stand monitor	1 male kestrel with 1 fledged male juvenile at nest site K1. Food pass to juv from adult. Either only one young fledged or others are elsewhere that morning	1 juvenile seen at NW part of stadium roof then flew to nest site at north stand monitor screen. Waiting to be fed by adults perhaps
Black-headed gull <i>Chroicocephalus ridibundus</i>	2 over stadium	0	0	0
Lesser black-backed gull <i>Larus fuscus</i>	1 over stadium	3 over stadium	2 over stadium	1 over stadium
Feral pigeon <i>Columba livia domestica</i>	2 feral pigeon nests found with birds coming and going regularly – nests at FP1 & FP2. Both nests have chicks very likely	3 feral pigeon nests found with birds coming and going regularly – nests at FP1 & FP2 & FP3. 1 fledged chick seen in FP2 with adult	1 juvenile pigeon on flue nest site at FP3. But no activity at other two nest sites with all young fledged	Two nests at FP2 & FP3 have no activity with young fledged. Nest at FP1 has adult going into back of south stand monitor screen so could have a second clutch. 9 pigeons on pitch as well.
Common swift <i>Apus apus</i>	0	0	3 over stadium regularly	0
Pied wagtail <i>Motacilla alba</i>	1 seen over east stand and pitch twice	2 on stadium roof	0	2 foraging on roof of stadium but no nest noted, so must be nesting outside of stadium
Blackbird <i>Turdus merula</i>	0	1 male singing from trees outside of SW block of stadium	0	0
Magpie <i>Pica pica</i>	0	0	0	1 over stadium
Carrion crow <i>Corvus corone</i>	2 flew over pitch	1 over stadium	1 over stadium	Old crow nest found at CC1 on stadium roof from this year
Starling <i>Sturnus vulgaris</i>	1 over the pitch	Starling nest observed at ST1, with hole in underside of concrete ledge. Chicks can be heard in nest at the SE corner of stadium (external) and adults feeding chicks regularly	2 over stadium but all chicks have fledged from nest site	2 over stadium but nest not used anymore
Chaffinch <i>Fringilla coelebs</i>	0	0	1 male singing near to south end	0

5.0 DISCUSSION AND RECOMMENDATIONS

- 5.1 The stadium was used for nesting by six pairs of common bird species in 2014, as described in Appendices A and B. All of these nests would be protected from damage or destruction whilst in use under the Wildlife and Countryside Act 1981 (as amended). No bird species were recorded that would receive additional protection from disturbance under Schedule 1 of the Act.
- 5.2 The results confirm that the existing stadium would be highly likely to be used by nesting birds in future years during the period March to August inclusive. Demolition of the stadium whilst nesting birds were present would represent an offence under the Wildlife and Countryside Act 1981 (as amended).
- 5.3 To avoid an offence being committed with regards to nesting birds the following options are available:
- 1) Demolition proposed between March – August
Appoint a professional bird control contractor to advise on appropriate methods to prevent birds from nesting within the stadium, informed by the results of this survey. Measures may include the use of netting over nesting locations, installation of anti-perching spikes and/or flying birds of prey. Physical measures to block potential nest sites should be installed by the end of February within the year when demolition is scheduled.
 - 2) Demolition proposed between September - February
Demolition could proceed with minimal risk of impacting nesting birds. Nonetheless, it is possible that some species could still be nesting within this period and so demolition contractors should be made aware of this potential issue. Works should cease if nests are found whilst an ecologist is contacted to advise upon an appropriate course of action.
- 5.4 Two of the species found are declining species of conservation concern (starling and kestrel). Replacement nesting features for these species should be provided within the new design for the site

Appendix A

Location of bird nests identified in 2014

Note: All codes shown below refer to those on the plan of the stadium in Appendix B. The text, photographs and plan should allow the exact locations of the six individual nests to be found. It is possible that a further feral pigeon nest was present high up on the exterior of the stadium, in the NW corner, but this could not be confirmed because no access is possible to this location.

K1

Kestrel nest – Photos A & B

In lower rear half of the north stand monitor screen, with both east and west holes used by the breeding kestrels, but the east hole used mainly.

Photo A – east entrance hole shown where girders enter the back of the monitor screen



Photo B – more distant shot of the rear lower half of the north stand monitor that is used by the nesting kestrels



FP1

Feral pigeon nest – Photos C & D

In lower rear half of the south stand monitor screen, with the west hole used by the breeding pigeons

Photo C – the west entrance hole where the girders enter the rear lower half of the south stand monitor



Photo D – close up of the west entrance hole used by the nesting pigeons



FP2

Feral pigeon nest – Photos E & F

In south-west corner of stadium, on girders, under upper tier floor

Photo E – location of pigeon nest site under ceiling which is the floor of the upper tier



Photo F – close up of the same pigeon nest, tucked into corner



FP3

Feral pigeon nest – Photos G & H

Inside west end of cafeteria area at north end of stadium, with nest on flue, just down from Gangway 17. Has N1 on wall next to cafeteria

Photo G – pigeon nest on flue inside café area



Photo H – location of this flue with signage in front to help find location



ST1

Starling nest – Photos I & J

The nest hole is tight and in concrete above door at exterior of the south-east corner of stadium

Photo I – the starling entrance hole is the very small rectangular dark hole in centre of photo.



Photo J. The door and location directly below the overhang with the starling nest hole as shown in Photo I.



CC1

Carion crow nest – Photos K & L

The nest had been vacated when found but it was used in 2014. Located in girder junction on top of roof at north-east section. Collection of sticks can be clearly seen

Photo K – close up of crow nest on roof of stadium

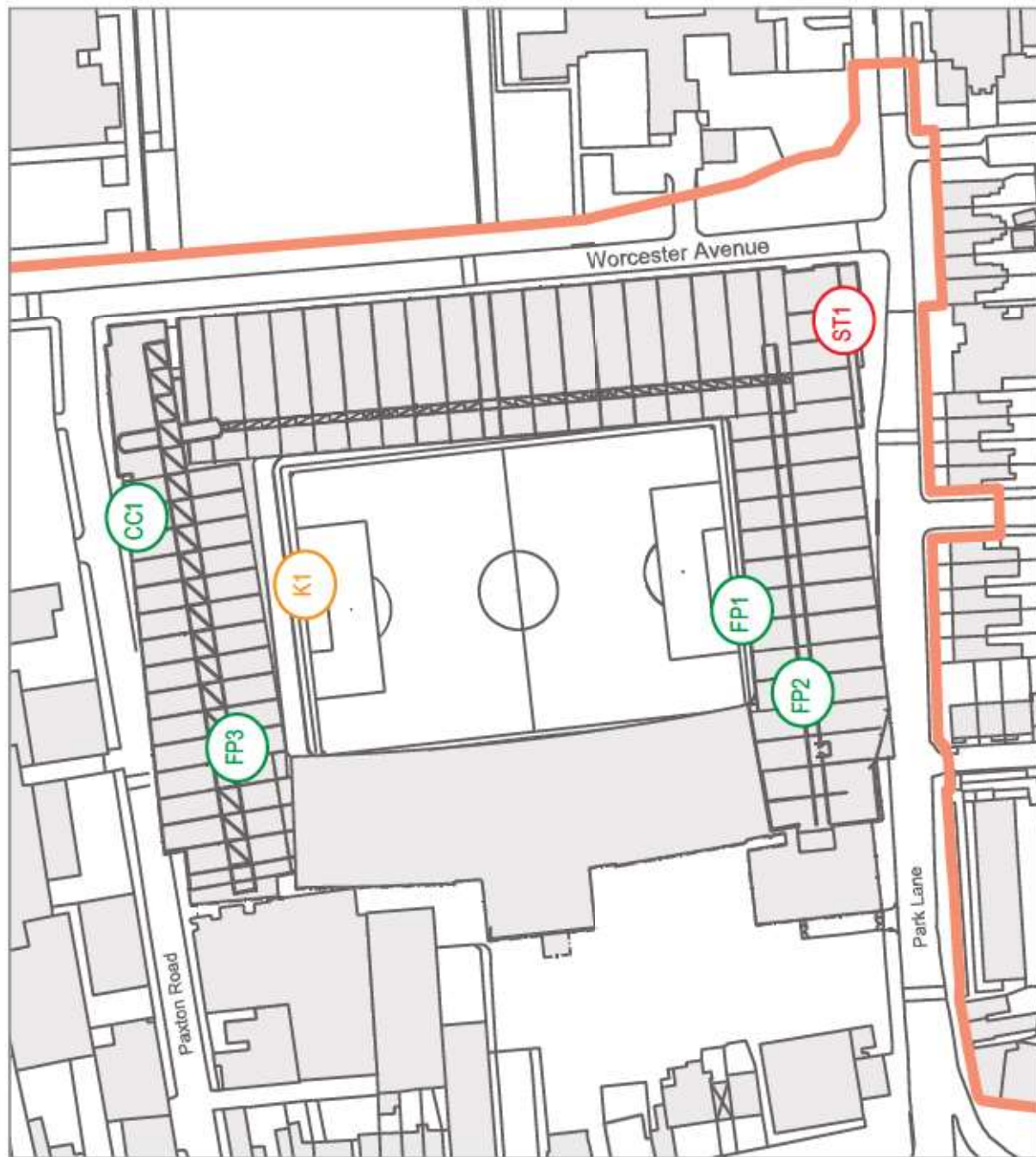




Photo L – more distant shot of same crow nest at girder junction

Appendix B

Breeding Bird Location Plan
CSa/1037/102



Legend

- Site boundary
- Nest location
- Red listed species
- Amber listed species
- Green listed species

Key to species codes

- ST. Starling *Sturnus vulgaris*
- K. Kestrel *Falco tinnunculus*
- CC. Carrion crow *Corvus corone*
- FP. Feral pigeon *Columba livia domestica*



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Ecological Data Search 1515 - Summary Page

A 1 km ecological data search was carried out for site Northumberland Development Project on behalf of CSa Environmental Planning on 02 Jun 2015.

The following datasets were consulted for this report:

- Statutory sites ✓
- Non-statutory sites ✓
- Protected species ✓
- London invasive species ✓
- Habitats ✓
- Open space ✓

Results

Statutory sites	None present within search area
Non-statutory sites	2 SINC's
Areas of Deficiency	Present within search area
Geological sites	None present within search area
Species	
Protected and notable species	229 species records
London invasive species	53 species records
Habitats	
BAP habitat suitability	Present within search area
Open space	Present within search area

The report is compiled using data held by GiGL at the time of the request. Note that GiGL does not currently hold comprehensive species data for all areas. Even where data is held, a lack of records for a species in a defined geographical area does not necessarily mean that the species does not occur there.

Permission

This data search report is valid until 02/06/2016 for the site named above.

Prepared by Maria Longley
 02 Jun 2015





Project	Northumberland Development Project	Date	July 2015	Drawing Number	CSa/1037/103
Title	Bat Survey Plan	Scale	Not to scale	Revision	-
Client	Tottenham Hotspur Property Company Ltd	Drawn	MB	Checked	JW

Table 1 – Transect Route A

Transect Point	9th June 2015 Dusk					22nd June 2015 Dusk					8th July 2015 Dusk				
	Survey Minutes	Common Pipistrelle	Common Pipistrelle / Min	Noctule	Noctule / Min	Survey Minutes	Common Pipistrelle	Common Pipistrelle / Min	Noctule	Noctule / Min	Survey Minutes	Common Pipistrelle	Common Pipistrelle / Min	Noctule	Noctule / Min
1	10	0	0.0	0	0.0	5	0	0.0	0	0.0	10	0	0.0	0	0.0
2	15	0	0.0	0	0.0	10	0	0.0	0	0.0	15	0	0.0	0	0.0
3	15	0	0.0	0	0.0	10	0	0.0	0	0.0	15	0	0.0	0	0.0
4	10	0	0.0	1	0.1	10	0	0.0	0	0.0	15	0	0.0	0	0.0
5	10	0	0.0	0	0.0	10	0	0.0	0	0.0	10	0	0.0	0	0.0
6	10	0	0.0	0	0.0	10	0	0.0	0	0.0	10	0	0.0	0	0.0
7	10	0	0.0	0	0.0	10	0	0.0	0	0.0	10	0	0.0	0	0.0
8	10	0	0.0	0	0.0	15	0	0.0	0	0.0	10	0	0.0	0	0.0
9	10	0	0.0	0	0.0	15	0	0.0	0	0.0	10	0	0.0	0	0.0
10	5	0	0.0	1	0.2	10	0	0.0	0	0.0	5	0	0.0	0	0.0
Grand Total	105	0	0.00	2	0.02	105	0	0.00	0	0.00	110	0	0.00	0	0.00

Table 2 – Transect Route B

Transect Point	9th June 2015 Dusk					22nd June 2015 Dusk					8th July 2015 Dusk				
	Survey Minutes	Common Pipistrelle	Common Pipistrelle / Min	Noctule	Noctule / Min	Survey Minutes	Common Pipistrelle	Common Pipistrelle / Min	Noctule	Noctule / Min	Survey Minutes	Common Pipistrelle	Common Pipistrelle / Min	Noctule	Noctule / Min
1	10	0	0.0	0	0.0	5	0	0.0	0	0.0	10	0	0.0	0	0.0
2	15	0	0.0	0	0.0	10	0	0.0	0	0.0	15	0	0.0	0	0.0
3	15	0	0.0	0	0.0	10	0	0.0	0	0.0	15	0	0.0	0	0.0
4	10	0	0.0	1	0.1	10	0	0.0	0	0.0	15	0	0.0	0	0.0
5	10	0	0.0	0	0.0	10	0	0.0	0	0.0	10	0	0.0	0	0.0
6	10	0	0.0	0	0.0	10	0	0.0	0	0.0	10	0	0.0	0	0.0
7	10	0	0.0	0	0.0	10	0	0.0	0	0.0	10	0	0.0	0	0.0
8	10	0	0.0	0	0.0	15	0	0.0	0	0.0	10	0	0.0	0	0.0
9	10	0	0.0	0	0.0	15	0	0.0	0	0.0	10	0	0.0	0	0.0
10	5	0	0.0	1	0.2	10	0	0.0	0	0.0	5	0	0.0	0	0.0
Grand Total	105	0	0.00	2	0.02	105	0	0.00	0	0.00	110	0	0.00	0	0.00

Northumberland Development PROJECT

Flood Risk Assessment Report

September 2015

Issue 3

Job number: 47071971

Prepared for:

Tottenham Hotspur Football

& Athletic Co Ltd

REVISION SCHEDULE					
Rev	Date	Details	Prepared by	Reviewed by	Approved by
1	July 2015	DRAFT	Janette Hunter Principal Engineer	Grant Paxton Senior Drainage Engineer	Will Rogers Technical Director
2	August 2015	Amendments requested by A Littler, LBH, for the consented 2010 FRA to be the main concept.	Janette Hunter Principal Engineer	Will Rogers Technical Director	Will Rogers Technical Director
3	September 2015	Amendments requested by THFC Planning Solicitor	Janette Hunter Principal Engineer	Will Rogers Technical Director	Will Rogers Technical Director

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APPENDICES

APPENDIX A

CONSENTED 2010 FLOOD RISK ASSESSMENT

APPENDIX B

INFORMATION FROM ENVIRONMENT AGENCY, 14-07-2015

- PRODUCT 4 INFORMATION,
- HISTORICAL 1947 FLOODING EXTENT,
- SUPERFICIAL GEOLOGY,
- ABSTRACTIONS

APPENDIX C

THAMES WATER ASSETS

APPENDIX D

SITE LAYOUT DRAWING

EXECUTIVE SUMMARY

AECOM Infrastructure and Environment UK Ltd (AECOM) was commissioned by Savills in May 2015, on behalf of the Tottenham Hotspur Football & Athletic Co Ltd, to carry out a Flood Risk Assessment, FRA, to support the planning application for the redevelopment of the existing Tottenham Hotspur Football Club, THFC, stadium, part of the Northumberland Development Project called the Project in this FRA.

Discussions were held with Adam Littler, senior drainage engineer, and Ray Matthews at the London Borough of Haringey Council offices on 18 August 2015. The council representatives stated that they do not want to receive a completely new Flood Risk Assessment, FRA, for the Project as there is already a consented 2010 FRA for the Northumberland Development Project. The concepts used in the 2010 FRA are to be used for the Project.

A review of the current legislation has been carried out and compared with the concepts of the 2010 FRA.

The assessment indicates that the Development is a low risk of flooding from surface water, sewers, ground water and reservoir flooding. Although the risk of a reservoir breach is low the consequences would be significant.

The remaining main risks are flooding from reservoir breaches and blockages in the drainage system and pump failure.

The development area is 6.5 hectares. 5.9 hectares will be drained by a pumped system and 0.6 hectares will be drained by a gravity drainage system. Attenuation is mainly by using underground geocellular tanks and oversized pipes.

As in the consented 2010 FRA, the design rainfall intensities have been increased by 20% for calculating the runoff from the stadium roof and the hotel complex and by 30% for the residential block to incorporate Climate change.

Averaged over the whole site, there is an 85% discharge rate betterment for the 1 in 100 year event plus climate change compared to the 1 in 100 year brown field discharge rate. The runoff from the existing site has been taken as the brown field discharge rate.

The exceedance routes in the Development will direct runoff to the stadium area

It is essential that the drainage system and SuDS components are maintained on a regular basis to ensure that they function properly and avoid localised flooding of the site. This will be carried out by the Tottenham Hotspur Football Club maintenance team.

As concluded in the 2010 FRA, the development of this site using on site attenuation would not increase either the existing surface water runoff rate or volume from the site, and therefore would not increase flood risk elsewhere.

1

INTRODUCTION

In 2010, URS Infrastructure and Environment UK Ltd was commissioned by Savills on behalf of the Tottenham Hotspur Football & Athletic Co Ltd, to carry out a Flood Risk Assessment to support the planning application for the Northumberland Development Project which was consented.

In May 2015, AECOM Infrastructure and Environment UK Ltd (AECOM) was commissioned by Savills, on behalf of the Tottenham Hotspur Football & Athletic Co Ltd, to carry out a Flood Risk Assessment to support the planning application for the redevelopment of the existing Tottenham Hotspur Football Club, THFC, stadium which is part of the Northumberland Development Project. This part of the Northumberland Development Project is referred to as the "Project" in the 2015 Flood Risk Assessment.

The Project Site is located in Tottenham in the London Borough of Haringey in North London at Ordnance survey coordinates 534000E and 191255N, post code N17 0BP. The location is shown in figure one.

Full Planning Permission will be sought for:

The main stadium building and the surrounding public realm;

The Tottenham Experience, a multi-use building comprising the club megastore, museum, cinema, café, Skywalk reception and changing facilities, stadium ticket office; and

The hotel and associated serviced apartments at upper floor level.

Outline Planning Permission will be sought for:

The four residential blocks and the flexible community/office floorspace in the lower floors of the podium below the residential. Detailed approval is sought at this stage for matters relating to "access", "layout" and "scale". The application seeks to reserve matters relating to "appearance" and "landscape";

The Extreme Sports building. Detailed approval is sought at this stage for matters relating to "access" and "layout". The application seeks to reserve matters relating to "appearance" and "scale". The landscaping associated with this building will be submitted in full; and

The Community Health Building. Detailed approval is sought at this stage for matters relating to "access", "layout" and "scale". The application seeks to reserve matters relating to "appearance". The landscaping associated with this building will be submitted as part of the full planning application for the main stadium.

Discussions were held with Adam Littler, senior drainage engineer, and Ray Mathews at the London Borough of Haringey Council offices on 18 August 2015. The council representatives stated that they do not want to receive a completely new Flood Risk Assessment, FRA, for the Southern Development as there is already a consented 2010 FRA for the Northumberland Development Project. The concepts used in the 2010 FRA are to be used for the FRA for the Project

The consented 2010 Flood Risk Assessment, FRA, is in Appendix A.

A review of the current legislation has been carried out and compared with the concepts of the 2010 FRA.

Based on National Planning Policy Framework (NPPF), (ref: 1), a Flood Risk Assessment (FRA) is required to ensure that flood risks to, or caused by, a proposed development are successfully managed. This FRA has been formatted as suggested in the NPPF, Planning Practice Guidance, Site Specific Flood Risk Assessment Checklist, (ref:2).

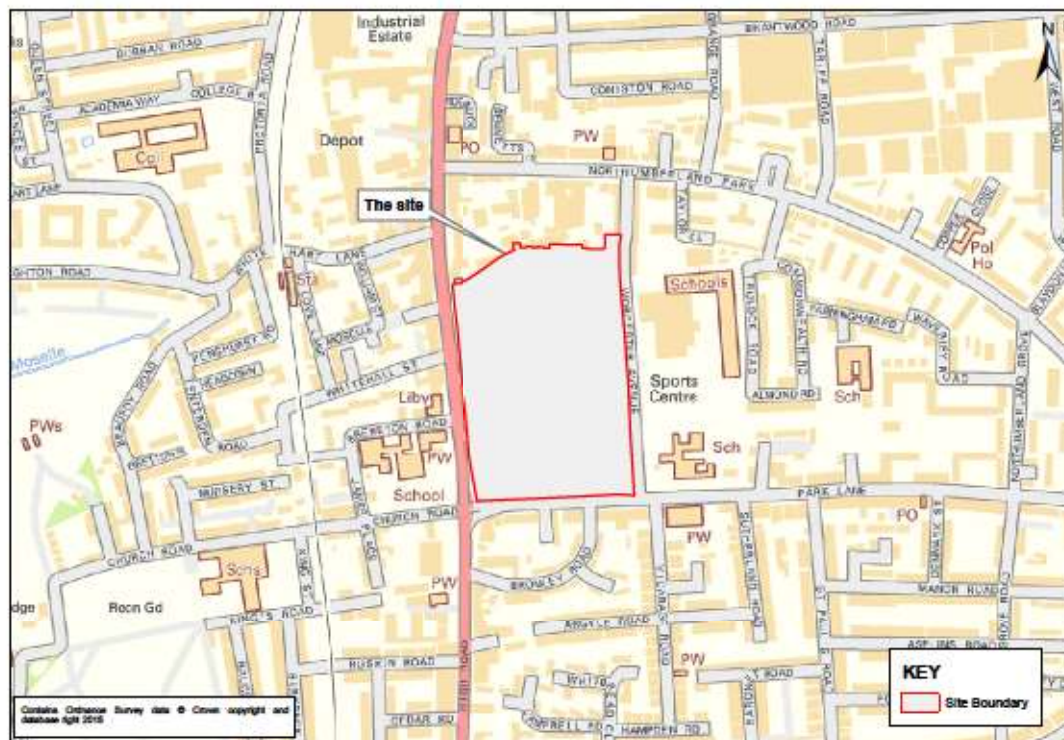


Figure 1 Site Location Plan

(The boundary in Figure 1 refers to the drainage design site boundary)

(OS map used for Figure 1 is dated 2010 before the area between the site boundary and Northumberland Park was developed)

2 DEVELOPMENT DESCRIPTION AND LOCATION

2.1 Type of development

The Project is a redevelopment of an existing brownfield site in Tottenham, North London. It consists of the demolition of the existing stadium and the construction of a new stadium and the redevelopment of the surrounding area.

The description in the planning application states:

"Proposed demolition and comprehensive phased redevelopment for stadium (Class D2) with hotel (Class C1), Tottenham Experience (sui generis), sports centre (Class D2); community (Class D1) and / or offices (Class B1); housing (Class C3); and health centre (Class D1) together with associated facilities including the construction of new and altered roads, footways; public and private open spaces; landscaping and related works. Details of "appearance" and "landscape" are reserved in relation to the residential buildings and associated community and / or office building. Details of "appearance" and "scale" are reserved in relation to the sports centre building. Details of "appearance" are reserved in relation to the health centre building."

2.2 Flood risk Vulnerability classification

The stadium has a flood risk vulnerability classification of "less vulnerable" whereas the residential units, hotel and medical facilities have a flood risk classification of "more vulnerable" in accordance with NPPF Table 2: Flood risk vulnerability classification (ref:3). The proposed use of the basement of the tower blocks and hotel is parking and not residential.

"More vulnerable" developments are appropriate in Flood Zone 1 and 2 and "less vulnerable" developments are appropriate in Flood Zone 1, 2 and 3a.

Flood Zone 1 is low probability of flooding and is land having a less than 1 in 1,000 annual probability of river or sea flooding. Flood zone 2 is medium probability of flooding and is Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. Flood Zone 3a is high probability of flooding and is land having a 1 in 100 or greater annual probability of river flooding; or land having a 1 in 200 or greater annual probability of sea flooding.

2.3 The Local Plan

On 18 March 2013, Haringey's Local Plan: Strategic Policies, (ref: 4) was formally adopted by Full Council. Policy SP5: WATER MANAGEMENT AND FLOODING states:

"The Council will require all development in Haringey to be water efficient during construction and operation and to reduce all forms of flood risk. All development shall:

- Improve the water environment, water quality and drainage systems;
- Minimise water use and illustrate how development would contribute to general and flash flooding;
- Take account of flood risk vulnerability classification as set out in paragraph 100 of the NPPF and will apply the NPPF Sequential Test and Exception Test;
- Implement measures to prevent (or mitigate as last resort) local surface water and downstream flooding;

- Implement Sustainable Drainage Systems from strategic to individual site level to improve water attenuation, quality and amenity;
- Restore and enhance the Blue Ribbon Network including Pymmes Brook, Moselle Brook, the River Lee and its tributaries, deculverting wherever feasible, to improve water quality and amenity of these waterways and to help reduce flood risk (in line with London River Action Plan); and
- Require higher resilience and levels of flood protection for critical infrastructure to ensure the protection of essential services such as water and power."

In order to facilitate this, the Council:

- Has carried out a joint SFRA (Strategic Flood Risk Assessment) Stage 1 for the whole borough;
- Has carried out a Sequential Test for the Areas of Development (Growth Areas and Areas of Change);
- Is carrying out, in association with other north London boroughs in the Drain London sub-region, a Surface Water Management Plan to identify issues with drainage networks and the effects of new development.

As a Lead Local Flood Authority and Local Planning Authority, the London Borough of Haringey has produced a Level 2 Strategic Flood Risk Assessment, February 2015, (ref: 5) to contribute to the evidence base for the London Borough of Haringey's Local Development Documents (LDDs) in accordance with the National Planning Policy Framework. See section 4.2 for details of the Critical Drainage area which the Project Site is in.

The London Plan (2015) (ref: 6) is the overall strategic development plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2036.

Policy 5.12 and 5.13 covers Flood risk management and sustainable drainage and gives a hierarchy to ensure surface water runoff is managed as close to its source as possible:

1. store rainwater for later use
2. use infiltration techniques, such as porous surfaces in non-clay areas
3. attenuate rainwater in ponds or open water features for gradual release
4. attenuate rainwater by storing in tanks or sealed water features for gradual release
5. discharge rainwater direct to a watercourse
6. discharge rainwater to a surface water sewer/drain
7. discharge rainwater to the combined sewer."

Guidance (ref: 7) has been produced by the Mayor of London to aid developers in meeting the policies.

- It states (3.4.8) that "Most developments referred to the Major have been able to achieve at least 50% attenuation of the site's (prior to re-development) surface water runoff at peak times. This is the minimum expectation from the development proposal. This is achieved with the Southern Development, see Section 6.2.
- It also states (3.4.10) "On previously developed sites, runoff rates should not be more than three times the calculated greenfield rate". There are two exceptions to this rule (i) where the surface water is to tidal water and (ii) when there is the use of pumped discharge. Pumped discharge will be used at the Project Site for the surface water

runoff due to the depth and position of the attenuation tanks. Using the three times greenfield runoff rule would create larger attenuation volumes and hence greater pumping needs creating a less sustainable scheme. The agreed discharge rate detailed in the consented 2010 FRA will be used in the drainage design, see section 6.2.

2.4 Sequential and Exception Test

2.4.1 *The Sequential Test*

The Sequential Test is the process that the Local Planning Authorities use to give priority in allocating and permitting sites for development, when drawing up or revising policies or in considering planning applications. In the case of flooding, the risk based Sequential Test is used to steer new development towards those sites with little or no risk of flooding (i.e. towards lowest probability of flooding, Flood Zone 1) in preference to areas of higher risk.

The Environment Agency indicative Flood Zone Map shows that the vast majority of the site is located within Flood Zone 1 although the extreme western edge of the scheme, which abuts the High Road, is located in Zone 2. The Environment Agency Flood Map for Planning, Figure 2, shows the position of Zone 2 in the site. Figure 3 shows the Flood Zone 2 outline on the Project plan and shows that the residential units and hotel are located in Flood Zone 1. The basement of these buildings is used for parking.

As the residential units and hotel are located in flood zone 1, the scheme would pass the Sequential Test and the Exception Test would not be required.

2.5 Impact on number of occupants and/or users

The proposed redevelopment will increase the number of visitors to the football stadium and there will be an increase in residential people on the site. As the majority of the site is in Flood Zone 1 it will not affect the flood risk to these people.

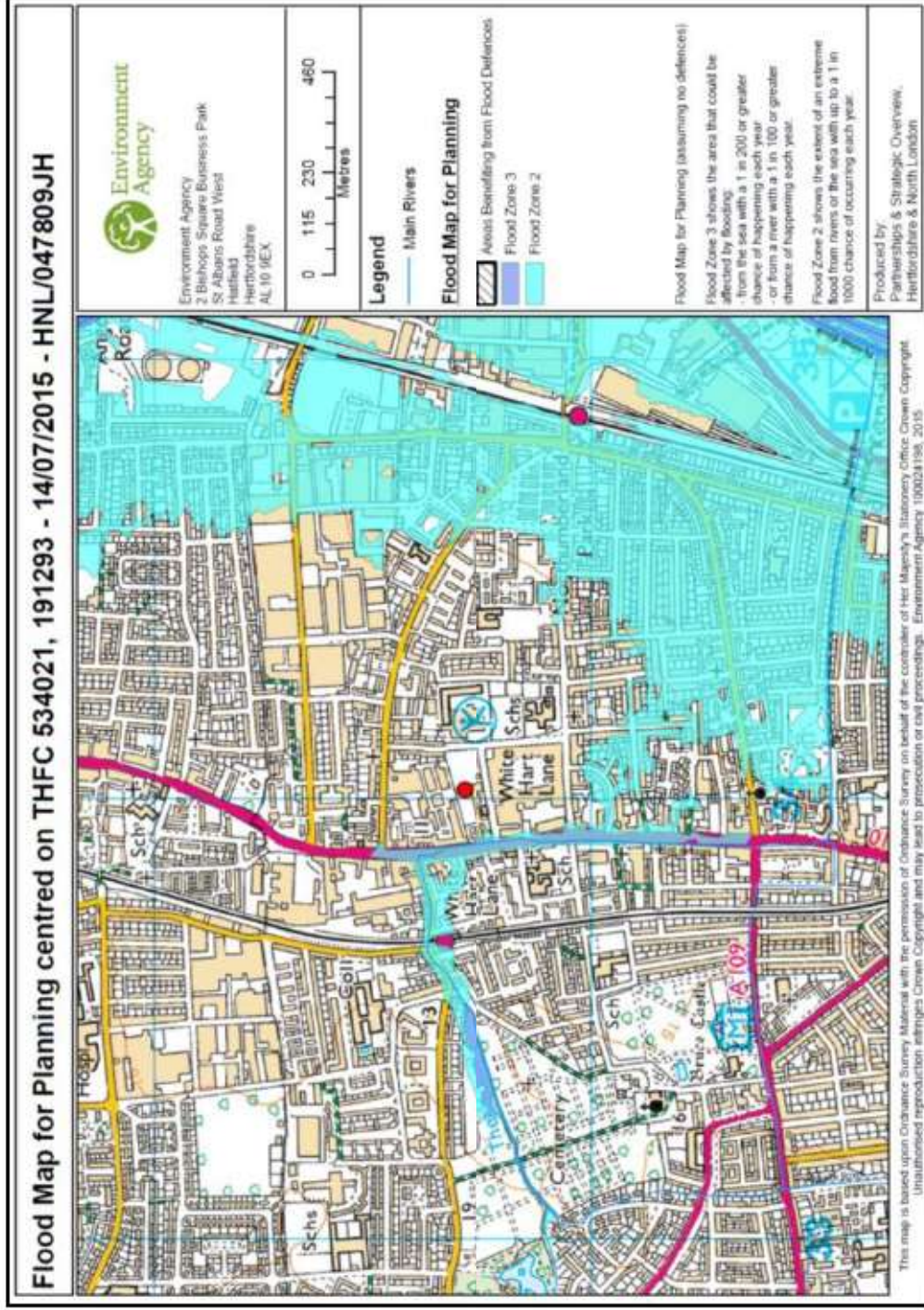


Figure 2 Environment Agency Flood Map for Planning

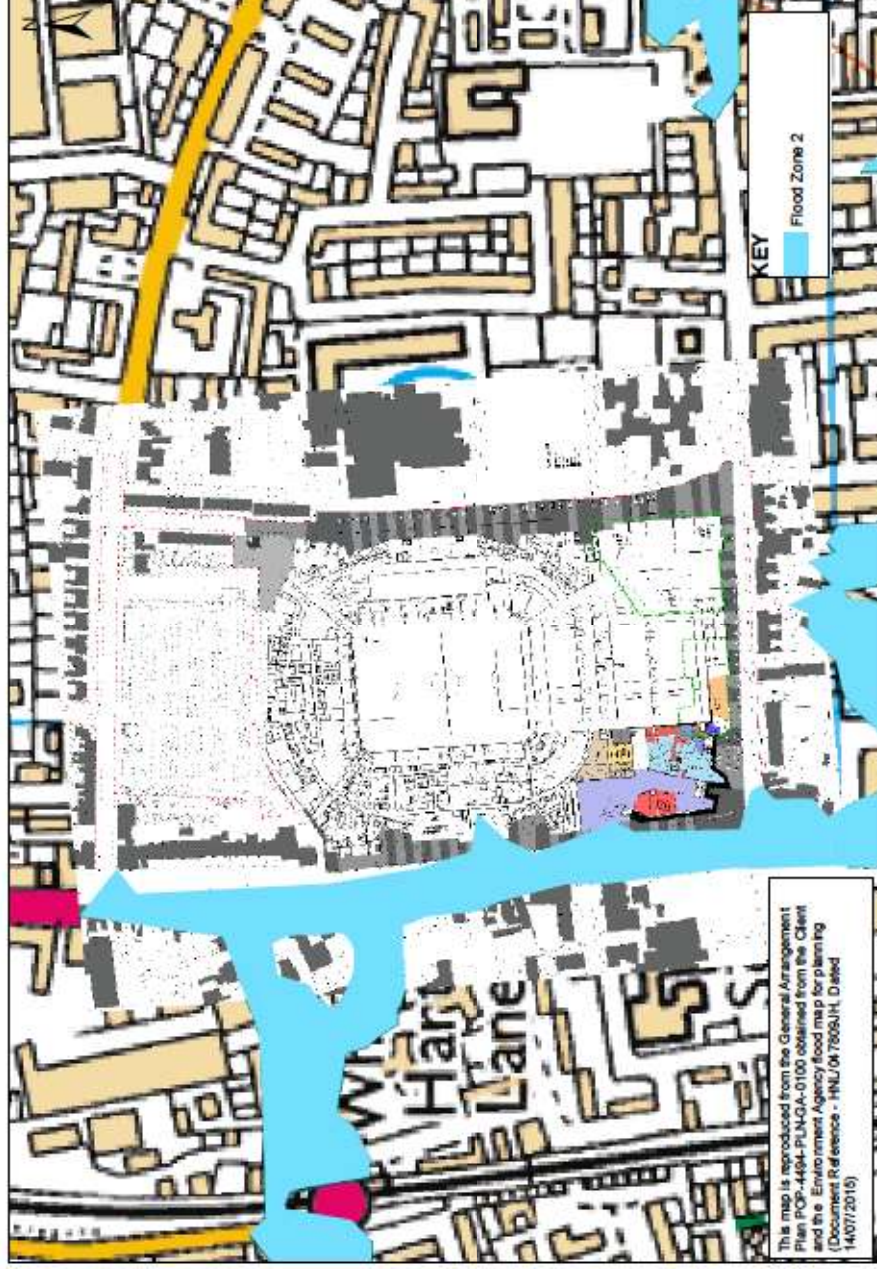


Figure 3 Flood Zone 2 Outline on Project Plan

3 DEFINITION OF THE FLOOD HAZARD

3.1 Sources of flooding

3.1.1 *Historical flooding*

A historical flood map has been obtained from the Environment Agency; see Appendix A, of the 1947 fluvial flood event. The development site is 750m from the flood extent.

There is no evidence that the site has ever flooded based on historical food data.

3.1.2 *Tidal flooding*

The Project Site is not affected by tidal flooding.

3.1.3 *Hydrology and Flooding from Rivers*

There are no surface watercourses within the site boundary, however Moselle Brook has been culverted and the culvert lies beneath High Road immediately west of the proposed development area.

In accordance with the findings of the North London Strategic Flood Risk Assessment (ref:10), Moselle Brook was "originally a natural tributary of the River Lee but has since been mostly culverted and now artificially flows into Pymmes Brook". The culvert outfalls into the Pymmes Brook approximately 1.9 km southeast of the project site. Pymmes Brook joins the Thames River approximately 12km south of the project site.

A new enquiry to the Environment Agency regarding Moselle Brook flood levels has been made. The enquiry response is Appendix B. In 2010, the Environment Agency supplied CDs containing the TUFLOW model. The results from the 2015 enquiry and the 2010 enquiry are similar and show that the majority of the site is outside the 1:1000 year flood event and is unlikely to be affected by climate change. See figure 4.

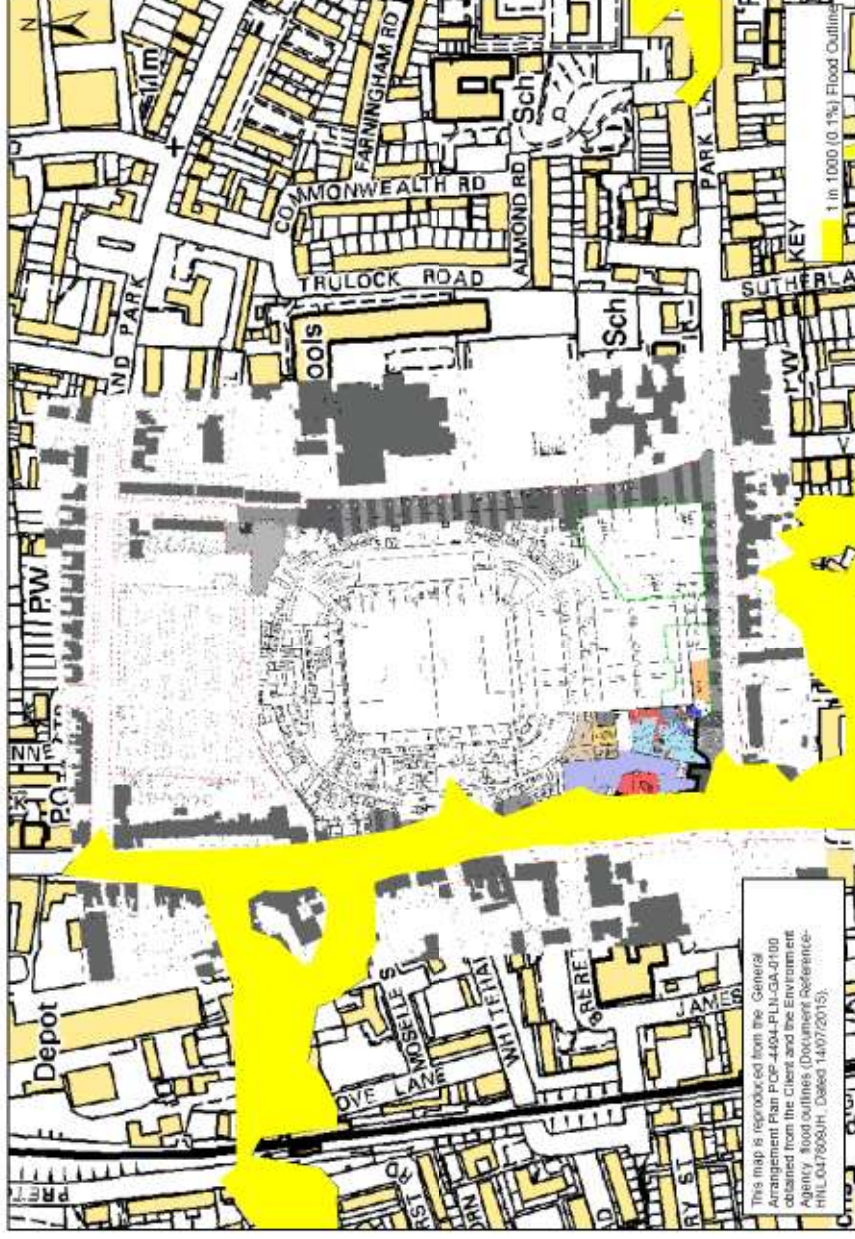


Figure 4 Environment Agency 1:1000 yr Flood Outline

3.1.4 *Surface Water Flooding*

The Environment Agency was funded by the government to produce new national surface water maps which went live in 2013. Figure 5 is an extract from the EA updated flood map for surface water, (ref:11), for the Project Site and surrounding area.



Figure 5 Risk of Flooding from Surface Water

It can be seen from Figure 5 that the majority of the site is at low risk to surface water flooding.

3.1.5 *Flooding from Groundwater*

The Surface Water Management Plan (ref:12) gives a record of groundwater flooding in the London Borough of Haringey. None of the historical flooding event would affect the proposed development site. As part of the drain London Project, ground water modelling was carried out to identify areas of "increased Potential Elevated Groundwater". These areas coincide with deposits of gravel, silt and alluvium. These areas do not affect the development site.

Based on the above evidence, the risk of flooding from groundwater is low.

3.1.6 *Flooding from Sewers*

In the Surface Water Management Plan (ref:12) only one Thames Water sewer flooding was reported with a postcode of N170 which was for a 1 in 10 year event.

In April 2012, flooding occurred on High Road Tottenham. Anecdotal evidence suggests that this was due to blocked drains in the area, (ref: 5).

Based on this evidence, the risk of flooding from the sewers is considered low.

3.1.7 Reservoir flooding

The National Reservoir Inundation maps show, Figure 6, that the low lying areas in the south east of the site and along the roads adjacent to the development site are in the Haringey Reservoir Flood outline.

The reservoirs are strictly inspected and monitored. Schedule 4 of the Flood and Water Management Act 2010 made a number of changes to the Reservoir Act 1975. The changes came into force in England in July 2013. "For large high risk reservoirs, at least once every 12 months, supervising engineers must provide a written statement to the reservoir owner or operator of any steps taken to maintain it". Thus reducing the likelihood of a reservoir breach.



Figure 6 Extract from Haringey Reservoir Inundation Map, (ref: 5)

3.2 Existing Service Water Drainage Arrangement

The existing surface water drainage discharges into the Thames Water surface water sewers in Worcester Avenue and Park Lane. The Thames Water sewers in the High Road discharge directly into the Moselle Brook culvert (designated as Main River) that runs parallel with and just to the west of the High Road.

Up to date Thames Water Services Asset maps have been obtained, see Appendix C and show the approximate location of public surface water and foul sewers and water mains adjacent to the site. Based on these maps the nearest public sewers are separate surface water and foul sewers located beneath all roads surrounding the development. The drainage below Paxton road has been diverted.

Internal, private sewers convey the surface water from within the existing site to the Thames Water surface water sewer mains in the surrounding roadways.

4 PROBABILITY

4.1 Flood Zone

The Environment Agency indicative Flood Zone Map shows that the vast majority of the site is located within Flood Zone 1 although the extreme western edge of the scheme, which abuts the High Road, is located in Zone 2. The Environment Agency Flood Map for Planning, Figure 2, shows the position of Zone 2 along the western boundary. It is estimated that less than 1% of the site area is in Zone 2.

4.2 Strategic Flood Risk Assessment, SFRA, and Critical Drainage Areas.

As a Lead Local Flood Authority and Local Planning Authority, the London Borough of Haringey has produced a Level 2 SFRA (ref: 5) , February 2015, to contribute to the evidence base for the London Borough of Haringey's Local Development Documents (LDDs) in accordance with the National Planning Policy Framework. The Level 2 SFRA is consistent with the Environment Agency Flood Zones.

The Surface Water Management Plan, 2011, (ref:12) has identified eight Critical Drainage Areas, CDA, and five were identified as priority CDAs. The proposed development is in CDA, Group 4_061, "Tottenham High Road and area surrounding Halefield Road, Tottenham". Group 4_061 was not identified as a priority CDA. The Surface Water Management Plan describes this CDA as "Surface water is observed to pond around Halefield Road as a result of overland flow from the west. Ponding water is also observed at the low point along Tottenham High Road. The largest depths of water occur along the roads with some residential properties and their back gardens flooded."

The Project will not increase surface water flooding elsewhere in Critical Drainage Area, Group 4_061, as the runoff rate from the site will be less than existing.

4.3 Probability of the site flooding

The Strategic Flood Risk Assessment, 2015, (ref: 5) summaries the flood risk in Haringey as: "Surface water runoff is the source of flood risk that potentially has the greatest effect in Haringey and is the flooding most likely to be experienced. There is also significant residual risk as a result of reservoir breach effecting large areas of the Borough which is much less likely to be experienced, but the consequences would be significant."

It is considered that the proposed development site is at minor risk of fluvial flooding from the culverted Moselle Brook and at minor risk of sewer flooding from the Thames Water sewerage network, groundwater and overland flow and from reservoir breaches.

4.4 Existing Rates and Volumes of Surface runoff

4.4.1 Brown Field Runoff Rates

The brown field runoff and volumes have been determined for each drainage area defined for the Project, see Appendix D, using the same methodology used in the consented 2010 FRA. The results are given in Table 2.

Table 2 BROWNFIELD RUNOFF RATES FOR THE EXISTING SITE

OUTFALL NR.	AREA, HA	STORM EVENT 15 MINUTE STORM DURATION					
		1 IN 1 YR		1 IN 30 YR		1 IN 100 YR	
		RATE (L/S)	VOLUME (M3)	RATE (L/S)	VOLUME (M3)	RATE (L/S)	VOLUME (M3)
A	0.419	36.70	33.03	106.31	95.71	150.93	135.86
A1	2.668	233.67	210.32	676.95	609.46	961.05	865.10
B	0.107	9.37	8.43	27.15	24.44	38.54	34.69
C	0.084	7.36	6.62	21.31	19.19	30.26	27.24
D	0.192	16.82	15.14	48.72	43.86	69.16	62.26
E	0.614	53.78	48.40	155.79	140.26	221.17	199.09
F	1.876	164.31	147.88	476.00	428.54	675.76	608.29
G	0.19	16.64	14.98	48.21	43.40	68.44	61.61
H	0.32	28.03	25.23	81.19	73.10	115.27	103.76
Total	6.47	566.66	510.03	1641.64	1477.97	2330.58	2097.90

5 CLIMATE CHANGE

5.1 Effect of Climate Change

Figure 4 shows that the Environment Agency 1 in 1000 year flood event only floods the western area of the site near the High Road and the majority of the site is outside the 1:1000year flood extent showing that the site is protected from extreme fluvial events.

The effects of climate change have been accounted for in the WinDes drainage software, which has been used to model the storage requirements for the site. As in the consented 2010 FRA, the design rainfall intensities have been increased by 20% for calculating the runoff from the stadium roof and the hotel complex and by 30% for the residential block. This is in agreement with the Planning Practice Guidance, 2015.

The 1 in 100 year event plus climate change, in excess to the discharge rates, is stored on site hence the effect on climate change to site is minimal.