LINDSAY CARRINGTON
ECOLOGICAL SERVICES

ECOLOGICAL APPRAISAL
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UDNEY PARK ROAD
TEDDINGTON
TW11 9BB

MARCH 2016

ON BEHALF OF QUANTUM GROUP

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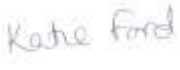
Report prepared by:	Katie Ford	16/03/2016	
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SUMMARY

1. Lindsay Carrington Ecological Services Limited were commissioned by Quantum Group to conduct an Ecological Appraisal on land at Teddington Sports Ground, Udney Park Road, Teddington, TW11 9BB (OS Grid Reference: TQ16351 70951).

2. This survey was required to support a planning application to redevelop the land for commercial and/or residential purposes; however no proposals are available at this stage.

3. An Ecological Appraisal is essentially a multi-disciplinary walk-over survey and was conducted with the objective of identifying any ecological constraints associated with the proposals such as the site's potential to support any legally protected species or habitats of high nature conservation value.

4. The site comprises a large sports ground with three buildings and areas of hardstanding, tall ruderal vegetation and surrounding hedgerows. The site is flanked by houses and associated gardens to the north and by roads to the east, west and south.

5. The main pavilion building on site was considered to hold high potential for roosting bats due to numerous access points and roosting opportunities available. As such Phase 2 bat surveys have been recommended in Section 5.2.

6. The hedgerows, scattered trees and ornamental planting on site provide nesting opportunities for birds. Further recommendations have been made in section 5.3.

7. Suitable reptile habitat was identified on site within the hedgerows, brash pile and tall ruderal vegetation. Therefore further recommendations have been made in section 5.5.

8. Recommendations have been made in Section 5.7 to increase the biodiversity value of the site, which includes the planting of native shrubs in any landscaping and providing nesting opportunities for birds.

1.0 INTRODUCTION

Lindsay Carrington Ecological Services Limited were commissioned by Quantum Group to conduct an Ecological Appraisal on land at Teddington Sports Ground, Udney Park Road, TW11 9BB (Ordnance Survey Grid Reference: TQ16351 70951).

This survey was required to inform a planning application to redevelop the land for commercial and/or residential purposes; however no proposals are available at this stage.

An Ecological Appraisal is essentially a multi-disciplinary walk-over survey and was conducted with the objective of identifying any ecological constraints associated with the proposals such as the site's potential to support any legally protected species or habitats of high nature conservation value.

Section 2 of the report provides some background information on legislative requirements and relevant policy. Section 3 details the methodologies adopted for the ecological surveys that were conducted and Section 4 provides an account of the survey results. Section 5 provides information on the relevance of the results to any proposed development and makes recommendations for measures to mitigate and compensate for the effects on a particular habitat or species.

2.0 LEGISLATION AND POLICY

2.1 Legislation

The following legislation may be of relevance to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DCLG Circular 06/2005.

- **The Conservation of Habitats and Species Regulations 2010:**
  This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The Regulations provide protection for a number of species including:
  - All species of bat;
  - Dormouse; and
  - Great crested newt.

  This legislation makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect: (i) the ability of any significant group of the species to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of the species[1];

  This legal protection means that where development has the potential to impact on bats, or other European protected species, the results of a protected species survey must be submitted with a planning application.

  Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are also protected under this legislation. These are a network of sites designated for supporting habitats or species of high nature conservation importance in the European context. Any activity that has a detrimental effect on these European sites is made an offence under the Regulations. Where a development is likely to have a significant impact on a European site, the Regulations require a rigorous assessment of the impacts, known as an Appropriate Assessment.

- **The Wildlife and Countryside Act 1981 (and amendments):** Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species likely to be of relevance include:
  - All species of **bat**. It is an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost;

[1] Note that the amendment to the Habitats Regulations in August 2007 and January 2009 has resulted in an increase in the threshold of illegal levels of disturbance to European Protected Species (EPS). An offence is only committed if the deliberate disturbance would result in significant impacts to the EPS population. However, it should be noted that activities that cause low levels of disturbance to these species continue to constitute an offence under Section 9 of the Wildlife and Countryside Act (see below).

- All species of **British reptile** (in particular grass snake, common lizard, adder and slow-worm). It is illegal to kill or injure these species; and
- **Great crested newt**. It is illegal to obstruct access to any structure or place which great crested newts use for shelter or protection or to disturb any great crested newt while it is using such a place.

This Act also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). In addition, it is an offence to disturb any nesting bird listed on Schedule 1 or their young.

Schedule 9 of the Act lists those species for which it is an offence to plant or cause their spread. Species listed under Schedule 9 that are most likely to be encountered are Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*).

Sites of Special Scientific Interest (SSSIs) are also protected under the Wildlife and Countryside Act 1981. These are a network of sites identified as being of national nature conservation importance and hence afforded legal protection.

- **The Countryside and Rights of Way Act 2000:** This Act strengthens nature conservation and wildlife protection through a number of mechanisms. It places a duty on Government Ministers and Departments to conserve biological diversity, provides police with stronger powers relating to wildlife crimes, and improves protection and management of SSSIs.

- **The Protection of Badgers Act 1992:** This Act makes it an offence to wilfully take, injure or kill a badger (*Meles meles*); cruelly mistreat a badger; interfere with badger setts, sell or possess a live badger; mark or ring a badger. A licence may be required for work if it will disturb or damage a sett.

- **Wild Mammals (Protection) Act 1996:** This Act provides protection for all wild mammals from intentional acts of cruelty.

- **Hedgerow Regulations 1997:** These Regulations establish a set of criteria for assessing the importance of hedgerows. Where a hedgerow is deemed to be 'important' its removal is prohibited without consent from the local Planning Authority.

2.2 Policy

The following policy is of relevance to the proposed works:

- **National Planning Policy Framework (NPPF):** This sets out the Government's vision for biodiversity in England with the broad aim that planning, construction, development and regeneration should maintain and enhance, restore or add to biodiversity and geological conservation interests. NPPF includes sections on legally protected species and sites (see Section 2.1).

- **Local Sites (including Sites of Nature Conservation Interest (SNCIs), Local Nature Reserves (LNR), and Biological Notification Sites (BNSs)/County Wildlife Sites (CWSs)):** These are a network of sites designated for their nature conservation importance in a local context. Although they are not afforded legal protection they contribute towards local and national biodiversity. Where such development is permitted, the local planning authority will use conditions and/or planning obligations to minimise the damage and to provide compensatory and site management measures where appropriate.

- **Biodiversity Action Plans (BAPs):** BAPs set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets was strengthened through the Countryside and Rights of Way Act 2000. Habitat and Species Action Plans that are likely to be of relevance include:

    - Slow worm (UK BAP).
    - Soprano pipistrelle bat (UK BAP).
    - Hedgerow (UK BAP).

3.0 METHODOLOGY

3.1 Desk study

The Multi-Agency Geographical Information for the Countryside (MAGIC) website was accessed for information on statutory sites designated for nature conservation within 5 km of the site. Greenspace information for Greater London (GiGL) provided information on protected species and non-statutory sites designated for nature conservation within 2 km of the site.

3.2 Field study

3.2.1 Vegetation

The standard Phase 1 habitat survey methodology (JNCC, 2010) was adopted whereby habitats are mapped using colour codes (see Appendix I). A detailed walkover survey was undertaken on the 1st March 2016 by Katie Ford and Ben Grasby, directly searching for legally protected and invasive species of plant and categorising any habitats of ecological value that were encountered. A general description of the vegetation was also noted, listing species encountered and scoring their abundance using the DAFOR scale:

D Dominant;
A Abundant;
F Frequent;
O Occasional;
R Rare;
L Local (used as a prefix to any of the above).

3.2.2 Protected Species Assessment

Habitats and features were assessed for their potential to support protected species (see Section 2). In many cases determining the presence, distribution and population size of protected species will require additional, specialist surveys.

Badgers

A direct search was undertaken for signs of badger. Signs of badger may include setts, dung pits, latrines, paths or hairs on fences and vegetation. Any setts encountered were classified according to the number of entrances and the extent of their use.

Reptiles

Reptiles are widespread in habitats that provide both cover, in the form of scrub or tall vegetation, and basking areas such as areas of hard standing or short grassland communities. Piles of debris or rubble also provide excellent cover and hibernation sites

for reptiles. Reptiles are a notoriously difficult group to survey due to their secrecy. They do, however, have an affinity for hiding under debris exposed or partially exposed to the sun. Where suitable habitat is identified in the field, further surveys will be recommended where appropriate.

Bats

Buildings

Bats roost in a wide variety of sites within buildings, with many species roosting in cracks and crevices, within brick work, under slates and tiles, and within timber beam joints where they are difficult to see.

Bats often access roosts at key areas such as the gable end, soffits, barge boards, ridge tiles, between double lintels, around window frames, through open joints in the brickwork or broken tiles through open doors / entrances to the buildings.

The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings, staining, bat droppings, or bats themselves. The absence of these cannot, however, be treated as conclusive evidence that bats are not using the buildings. An assessment was therefore also made of the potential of the building to support bats based on the following scale:

Table 1 – Roosting potential classification

Confirmed Roost	Evidence of bat occupation found
High Roosting Potential	With significant roosting potential, either because they contain a large number of suitable features or those features present appear optimal
Medium Roosting Potential	Features with moderate roosting potential, with roosting features appearing less suitable
Low or Negligible Roosting Potential	Buildings with few, if any, features suitable for roosting

Trees

Bats often roost in trees. Features such as old woodpecker holes, splits, cavities and rot holes, loose or flaking bark and ivy creepers will be exploited by bats to roost. Any trees present on site were therefore assessed for their potential to support roosting bats by searching for such features. The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings, staining, bat droppings, or bats themselves. The absence of these cannot, however, be treated as conclusive evidence that bats are not present, and therefore an assessment was made of the potential of the trees to support bats based on the scale presented below in Table 2, adapted from the *Good Practice Guidelines* (Collins, 2016):

Table 2 - Criteria for assessing bat roosting potential of trees

High Roosting Potential	Trees with multiple, highly suitable features capable of supporting larger roosts or with evidence of bat occupation found
Moderate Roosting Potential	Trees with definite bat potential, supporting fewer suitable features than high roosting potential trees or with potential for use by single bats
Low or Negligible Roosting Potential	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features which may have limited potential to support bats or trees with no potential to support bats

A direct search for evidence of bats within the trees was therefore conducted on 1st March 2016 by Ben Grasby and Katie Ford.

Great crested newts

Suitable breeding ponds are essential to support populations of great crested newt (*Triturus cristatus*) although they actually only spend a relatively short period of the year in the ponds during the spring for breeding. The remainder of the year is spent in suitable 'foraging' habitat such as tall grassland and woodland. During the winter the great crested newt hibernates, often amongst the roots of trees and scrub or in places such as piles of rubble, amongst foundations of buildings or under fallen trees and logs.

Great crested newts are known to forage up to five hundred metres from their breeding sites and suitable habitats that fall within five hundred metres must be considered even in situations where the breeding site itself will not be affected. Ponds within a five hundred metre radius were not identified during this survey and habitats within and immediately adjacent to the site were assessed in terms of their suitability as foraging habitat. Further specialist surveys will be recommended where appropriate.

Dormice

The habitat on the site was assessed for the potential to support dormice (*Muscardinus avellanarius*), which are found in habitats such as woodlands, scrub and hedgerows with good connectivity and suitable food plants. A visual inspection for their distinctive nests was undertaken. Where fruiting hazel (*Corylus avellana*) is present nuts are checked for dormice distinctive opening holes. Satellite images were used to assess the connectivity of any suitable habitat present on the site to other areas of woodland and hedgerow networks.

4.0 RESULTS

4.1 Desk study

Statutory and non-statutory sites

Table 3 below lists statutory sites designated for nature conservation located within 5 km of the site and non-statutory sites within 2 km.

Table 3: Statutory sites within a 5 km radius and non-statutory sites within a 2 km radius of Teddington Sports Ground.

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Richmond Park	SAC[2]	2.42	846.43	The site comprises areas of mixed and broad-leaved woodlands, heath, lowland grassland and ponds. Annex II species which are a reason for site designation include the stag beetle (*Lucanus cervus*) which are associated with the decaying timber of ancient trees on site.
South-West London Waterbodies	Ramsar[3]	4.5	829.69	The site comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open water habitats. Supports qualifying species including gadwall (*Anas strepera*) and northern shoveler (*Anas clypeata*).

[2] SAC: Special Area of Conservation
[3] Ramsar: Wetlands of international importance designated under the Ramsar Convention (1976)

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Wimbledon Common	SAC	4.97	351.38	The site supports a large area of broad-leaved woodland, heathland, dry and improved grasslands with some areas of fen. Annex II species which are a reason for site selection include the stag beetle, with the site supporting large populations.
Richmond Park	NNR[4]	2.42	846.43	The Richmond Park NNR supports lowland grassland and broad-leaved woodland habitats. The trees and associated decaying wood support nationally endangered species of fungi, as well as a range of nationally scarce invertebrates such as the cardinal click beetle (*Ampedus cardinalis*) and the stag beetle (*Lucanus cervus*). Over one thousand species of beetle (more than one quarter of the British list) have been recorded in the NNR.
South-West London Waterbodies	SPA[5]	4.5	829.69	The South-West London Water Bodies SPA comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open water habitats. Supports species of European importance including overwintering gadwall and shoveler.

[4] NNR: National Nature Reserve
[5] SPA: Special Protection Area

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Bushy Park and Home Park	SSSI[6]	0. 5	540.39	Designated for its nationally important saproxylic (dead and decaying wood associated) invertebrate assemblage, population of veteran trees an acid grassland communities. Long term management of the site as a deer park has maintained a large area of acid grassland habitat, a rare resource nationally.
Richmond Park	SSSI	2.42	846.43	Richmond Park is of importance for its diverse deadwood beetle fauna associated with the ancient trees found throughout the parkland. Two nationally restricted species occurring in Richmond Park are the click beetles listed and are listed as Red Data book species.
Kempton Park Reservoirs	SSSI	4.1	25.29	Kempton Park Reservoirs comprises two artificially embanked basins. In addition to the nationally important numbers of gadwall, the site also supports significant numbers of wintering shoveler, lapwing (*Vanellus vanellus*) and redshank (*Tringa botanus*). Bats on site include noctule (*Nyctalus noctula*), pipistrelle (*Pipistrellus sp.*) and Daubenton's bat (*Myotis daubentoni*). Other notable species include water vole (*Arvicola amphibius*) and grass snake (*Natrix natrix*).

[6] SSSI: Site of Special Scientific Interest

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Knight and Bessborough Reservoirs	SSSI	4.5	62.89	The site comprises two connected artificially embanked water storage reservoirs. The site supports nationally important numbers of shoveler, wintering gadwall and goldeneye (*Bucephala clangula*).
Wimbledon Common	SSSI	4.9	351.38	Wimbledon Common supports the most extensive area of open, wet heath on acidic soil in Greater London. A woodland is also present along with several ponds and a streams. The woodland and scrub support important breeding birds including green (*Picus viridis*) and great spotted woodpeckers (*Dendrocopos major*), lesser whitethroat (*Sylvia curruca*), nuthatch (*Sitta europaea*), kestrel (*Falco tinnunculus*) and lesser spotted woodpecker (*Dryobates minor*).
Ham Lands	LNR[7]	0.75 north east	60.01	The site is an area of infilled gravel pits with old water meadows and a narrow belt of woodland. These areas form a mosaic of different ecological niches.
Ham Common	LNR	1.4	40.27	Ham Common supports birch (*Betula sp.*) and oak (*Quercus sp.*) woodland with wet hollows and acid grassland. Notable species include remote sedge (*Carex remota*), cow-wheat (*Melampyrum pratense*) and purple hairstreak butterfly (*Favonius quercus*).

[7] LNR – Local Nature Reserve

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Crane Park Island	LNR	3.9	2.67	Habitats include grassland, wet woodland, reedbed and a pond. Animals include kingfishers (*Alcedo atthis*), water voles and frogs (*Rana temporaria*).
The Wood and Richard Jefferies Bird Sanctuary	LNR	4.0	1.46	The Woods was a large Victorian house with a lake and mixed woodland in the grounds. A strong woodland bird community is represented including great spotted woodpecker and tawny owl (*Strix aluco*). The site also supports the stag beetle.
Oak Avenue Hampton	LNR	4.0	1.85	Oak Avenue is a LNR which has a rich variety of habitats consisting of woodland and scrubland located around the boundary edges.
Kempton Nature Reserves	LNR	4.1	22.8	Kempton Nature Reserves supports reed beds which provide habitat for bearded tits (*Panurus biarmicus*) and sedge warblers (*Acrocephalus schoenobaenus*), as well as dragonflies around the ponds.
Rose Walk	LNR	4.2	2.69	The site is unmanaged grassland with scattered wild flowers.
Molesley Heath	LNR	4.3	17.79	Molesey Heath is a reclaimed landfill site, which was formerly a gravel pit. The whole site has been colonised naturally by rough grassland and scrub. The site is rich in bird life including redshanks and little ringed plovers (*Charadrius dubius*), plus burrowing bees and wasps.

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Elmridge Open Space	LNR	4.3	9.35	The site comprises wild open space with a network of grass and surfaced paths. There are many different bird species on site including kingfishers.
Isleworth Ait	LNR	4.5	3.49	The island provides excellent habitat for a variety of birds including treecreeper (*Certhia brachydactyla*), kingfisher and heron (*Ardea cinerea*).
Pevensey Road	LNR	4.6	10.21	The site features areas of meadow scrubland, woodland and wetlands alongside the River Crane.
Stokes Field	LNR	4.6	5.85	Stokes Field is an urban fringe site with a variety of habitats including woodland, grassland and scrub. It also has a pond. Plant species of note include crab apple (*Malus sylvestris*), cuckoo flower (*Cardamine pratensis*) and pyramidal orchid (*Anacamptis pyramidalis*).
Edith Gardens Nature Reserve	LNR	4.8	0.44	The site supports wildflower grasslands and supports many bird species.
Raeburn Open Space	LNR	4.9	5.0	The site supports grasslands communities and notable species include kingfisher and ringlet butterfly (*Aphantopus hyperantus*).
Hounslow Heath	LNR	4.9	83.14	The site supports areas of heathland and acid grassland, hay meadows (cattle grazed), scrub, woodland and marsh. Heathland flora includes reptiles, scrubland birds and invertebrates.

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Churchyard of St. Mary with St. Alban, Teddington	SINC[8]	0. 38 north east	0.56	A churchyard comprising amenity grassland, secondary woodland, semi-improved neutral grassland and vegetated wall/tombstones. Flowers thrive in the section away from the road which is allowed to grow long, with an annual hay cut in late summer.
The copse at Hampton Wick and Normansfield Hospital	SINC	0.86 south east	13.02	The copse is a small educational nature reserve run by the Borough Council. Habitats here include amenity grassland, coniferous woodland, scattered trees and veteran trees. The woodland supports a good range of common birds as well as other animals.
Bushy Park and Home Park	SINC	0.91 south west	644.54	These two adjacent Royal Parks comprise a large area of old parkland habitats including acid grassland and a variety of wetlands.
Royal Park Gate Open Space	SINC	0.98 north east	1.56	The area consists of scrub, trees and a significant area of semi-improved neutral grassland where patches of rough grassland are interspersed with frequently-mown grass paths. A range of birds such as whitethroat (*Sylvia communis*) and goldfinch (*Carduelis carduelis*) are found throughout the site.

[8] SINC – Site of Importance for Nature Conservation

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Hogsmill River in Central Kingston	SINC	0.99 north east	1.42	The final stretch of the River Hogsmill before it flows into the River Thames, habitats present include ruderal, running water, scattered trees, scrub and semi-improved neutral grassland with tall herbs. Birds notable in the area include mallard (*Anas platyrhynchos*), mute swan (*Cygnus olor*), moorhen (*Gallinula chloropus*) and coot (*Fulica atra*).
Ham Lands	SINC	1.23 north east	72.27	An area of scrub and grassland beside the River Thames, well known for its remarkably diverse plant assemblage. Areas of the site support breeding reed bunting and kingfisher.
Teddington Cemetery	SINC	1.30 north west	5.49	The cemetery contains mature trees, including conifers and ornamental cherries (*Prunus sp.*). These provide habitat for a range of common birds.
River Thames and tidal tributaries	SINC	1.34 east	0.88	The mud-flats, shingle beach, inter-tidal vegetation, islands and river channel support many species from freshwater, estuarine and marine communities. The site is of particular importance for wildfowl and wading birds. The river walls provide important feeding areas for black redstart (*Phoenicurus ochruros*). Over 100 species of fish are now present within the River Thames.

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Cassel Hospital	SINC	1.40 north east	3.63	Extensive lawns with a fringe of woodland and an old walled garden. The lawns, dominated by common bent (*Agrostis capillaris*) and red fescue (*Festuca rubra*). The lawn is surrounded on three sides by a narrow fringe of woodland with an oak (*Quercus robur*), ash (*Fraxinus excelsior*) and beech (*Fagus sylvatica*) canopy.
Richmond Park and associated areas	SINC	1.42 south east	1063.55	The Park and its associated areas form an extensive area of high quality wildlife habitat. Many ancient pollarded oaks are present and these are of international importance for invertebrates . The stag beetle is common here while many other insect species present are nationally rare or scarce. Acid grassland is the most extensive habitat on site and includes both dry and damp areas.
Strawberry Hill Golf Course	SINC	1.50 north west	20.39	Fine old oaks are scattered around the course with small areas of woodland and scrub. A stream runs at the bottom of a deep grassy ditch. It is an important area for birds and butterflies that favour a woodland edge type habitat.
Ham Common West	SINC	1.55 north east	8.51	The western part of Ham Common comprises close-mown acid grassland with a pond area.
The Copse, Holly Hedge Field and Ham Avenues	SINC	1.93 north east	11.88	A wildflower meadow, a stand of ancient oaks and an historic avenue of lime trees combine to provide habitat for a wide variety of animals and plants.

Site name	Conservation status	Distance from site (km)	Size (ha)	Habitat description
Hampton Court House Grounds	SINC	1.94 south west	2.3	The site is a landscaped garden centred on a pond with many fine mature trees including sweet chestnut (*Castanea sativa*), pedunculate oak (*Quercus robur*), silver birch (*Betula pendula*) and Scots pine (*Pinus sylvestris*). The lawns contain a good range of plants typical of dry acid grassland.
Fulwell and Twickenham Golf Courses	SINC	1.96 north west	83.22	The two golf courses contain fine acid grassland, with small areas of woodland and scrub, several wet ditches and a pond. The acid grassland supports a good population of the small copper butterfly (*Lycaena phlaeas*). The site also includes the abandoned allotments and a hedgerow to the northeast of the golf course.

There are currently no proposals for this site however the development is located a sufficient distance from the statutory designated sites. As such there is no anticipated impact from the proposed works to these sites. Richmond Park SAC lies within 5km, if the development is for housing then increased recreational pressure is unlikely to have an impact on this designated site due to the high density of housing currently present in the area and the size of the site. Studies in London show that stag beetles have relatively low dispersal distances of approximately 50m (Harvey 2011). The site is therefore considered too great a distance from Richmond Park SAC to have an impact on the population of stag beetles. The site lies within 500 m of Churchyard of St. Mary with St. Alban, Teddington SINC and further recommendations have been made in section 5.1

Protected species records

Table 4 below presents the results of protected species records provided by GiGL for a 2 km radius of the site.

Table 4: Protected and notable Species recorded within 2km of the site

Common name	Scientific name	Status	Number of records
Mammals - Bats			
Serotine	*Eptesicus serotinus*	Schedule 2 Habs Regs[9], Schedule 5 WCA[10]	30 records within 2km of the site, most recently recent dated 2012
Daubenton's bat	*Myotis daubentonii*	Schedule 2 Habs Regs, Schedule 5 WCA	150 records within 2km of the site, most recently dated 2014
Natterer's bat	*Myotis nattereri*	Schedule 2 Habs Regs, Schedule 5 WCA	11 records within 2km of the site, most recently dated 2013
Myotis bats	*Myotis sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	50 records within 2km of the site, most recently dated 2014
Leisler's bat	*Nyctalus leisleri*	Schedule 2 Habs Regs, Schedule 5 WCA	23 records within 2km of the site, most recently dated 2014
Noctule	*Nyctalus noctula*	Schedule 2 Habs Regs, Schedule 5 WCA	101 records within 2km of the site, most recently dated 2014
Unidentified Nyctalus bat	*Nyctalus sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	3 records within 2km of the site most recently dated 2014
Nathusius pipistrelle	*Pipistrellus nathusii*	Schedule 2 Habs Regs, Schedule 5 WCA	26 records within 2km of the site most recently dated 2013

[9] Habs Regs: Conservation of Habitats and Species Regulations 2010
[10] WCA: Wildlife and Countryside Act 1981 (as amended)

Common name	Scientific name	Status	Number of records
Common pipistrelle	*Pipistrellus pipistrellus*	Schedule 2 Habs Regs, Schedule 5 WCA	151 records within 2km of the site, most recently dated 2014
Soprano pipistrelle	*Pipistrellus pygmaeus*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP[11]	248 records within 2km of the site, most recently dated 2014
Unidentified pipistrelle bat	*Pipistrellus sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	119 records within 2km of the site most recently dated 2011
Brown long-eared bat	*Plecotus auritus*	Schedule 2 Habs Regs, Schedule 5 WCA	17 records within 2km of the site, most recently dated 2007
Unidentified long-eared bat	*Plecotus sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	2 records within 2km of the site most recently dated 2007
Unidentified Bat	*Vespertilionidae sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	330 records within 2km of the site most recently dated 2014
Terrestrial Mammals			
Water vole	*Arvicola amphibius*	Schedule 5, WCA, UK BAP	27 records within 2km most recent dated 2010
West European hedgehog	*Erinaceus europaeus*	NERC Act Section 41UK BAP,	383 records within 2km most recent dated 2013
Hazel dormouse	*Muscardinus avellanarius*	Schedule 2, Habs Regs, Schedule 5 WCA, UK BAP	2 records within 2km most recently dated 2004
Reptiles& Amphibians			
Great crested newt	*Triturus cristatus*	Habs Regs , Schedule 5 WCA, UK BAP	8 records within 2km of the site most recent dated 2014

[11] UKBAP: UK Biodiversity Action Plan

Common name	Scientific name	Status	Number of records
Slow worm	*Anguis fragilis*	Schedule 5, WCA[12], UK BAP[13]	1 record within 2km of the site from 1998
Grass snake	*Natrix natrix*	Schedule 5, WCA, UK BAP	6 records within 2km of the site most recent dated 2014
Birds			
Skylark	*Alauda arvensis*	Red List BoCC[14], UK BAP	238 records within 2km most recently dated 2014
Kingfisher	*Alcedo atthis*	Schedule 1 WCA, Annex 1, Amber List BoCC	153 records within 2km most recently dated 2014
Pintail	*Anas acuta*	Amber list BoCC	29 records within 2km most recently dated 2009
Shoveler	*Anas clypeata*	Amber list BoCC	40 records within 2km most recently dated 2009
Teal	*Anas crecca*	Amber list BoCC	63 records within 2km most recently dated 2012
Wigeon	*Anas penelope*	Amber list BoCC	52 records within 2km most recently dated 2009
Gadwall	*Anas strepera*	Amber list BoCC	63 records within 2km most recently dated 2010
Meadow pipit	*Anthus pratensis*	Amber list BoCC	340 records within 2km most recently dated 2012
Tree pipit	*Anthus trivialis*	Red list BoCC, UK BAP,	25 records within 2km most recently dated 2006
Swift	*Apus apus*	Amber list BoCC	209 records within 2km between 2001 and 2010
Barnacle Goose	*Branta leucopsis*	Annex 1	3 records within 2km most recently dated 2008
Goldeneye	*Bucephala clangula*	Amber list BoCC	40 records within 2km most recently dated 2006
Lesser redpoll	*Carduelis cabaret*	Red List BoCC, UK BAP	13 records within 2km most recently dated 2007

[12] WCA: Wildlife and Countryside Act 1981 (as amended)
[13] UK BAP: UK Biodiversity Action Plan
[14] BOCC: Birds of Conservation Concern

Common name	Scientific name	Status	Number of records
Linnet	*Carduelis cannabina*	Red List BoCC, UK BAP	42 records within 2km between 2006 and 2007
Stock dove	*Columba oenas*	Amber list BoCC	236 records within 2km most recently dated 2010
Cuckoo	*Cuculus canorus*	Red list BoCC, UK BAP	58 records within 2km most recently dated 2014
Mute swan	*Cygnus olor*	Amber list BoCC	364 records within 2km most recently dated 2010
House martin	*Delichon urbica*	Amber List BoCC	139 records within 2 km most recently dated 2010
Lesser spotted woodpecker	*Dendrocopos minor*	Red List BoCC, UK BAP	157 records within 2km most recently dated 2012
Little egret	*Egretta garzetta*	Annex 1	26 records within 2km in 2007
Yellowhammer	*Emberiza citronella*	Red List BoCC, UK BAP	2 records within 2km most recently dated 1992
Reed bunting	*Emberiza schoeniclus*	Amber list BoCC, UK BAP	176 records within 2km between 1999 and 2014
Merlin	*Falco columbarius*	Schedule 1 WCA, Annex 1, Red List BoCC	7 records within 2km between 1983 and 2003
Kestrel	*Falco tinnunculus*	Amber List BoCC	276 records within 2km most recently dated 2014
Brambling	*Fringilla montifringilla*	Schedule 1	16 records within 2km most recently dated 2008
Snipe	*Gallinago gallinago*	Amber List BoCC	38 records within 2km most recently dated 2012
Wryneck	*Jynx torquilla*	Schedule 1, UK BAP	2 records within 2km from 2006
Red-backed Shrike	*Lanius collurio*	Schedule 1 WCA, Annex 1, Red List BoCC, UK BAP	9 records within 2km from 2003
Herring gull	*Larus argentatus*	Red List BoCC, UK BAP	111 records within 2km most recently dated 2011
Lesser black-backed gull	*Larus fuscus*	Amber List BoCC	84 records within 2km most recently dated 2010

Common name	Scientific name	Status	Number of records
Mediterranean gull	*Larus melanocephalus*	Schedule 1, Annex 1, Amber List BoCC	1 record within 2 km from 2003
Common crossbill	*Loxia curvirostra*	Schedule 1 WCA	1 record within 2km from 2012
Red Kite	*Milvus milvus*	Schedule 1 WCA, Annex 1, Amber List BoCC	2 records within 2km most recently dated 2012
Grey wagtail	*Motacilla cinerea*	Red List BoCC	113 records within 2km most recently dated 2015
Yellow wagtail	*Motacilla flava*	Red List BoCC, UK BAP	19 records within 2km most recently dated 2006
Spotted flycatcher	*Muscicapa striata*	Red List BoCC, UK BAP	137 records within 2km most recently dated 2008
Whimbrel	*Numenius phaeopus*	Schedule 1 WCA, Red List BoCC	3 records within 2km from between 2005 and 2008
House sparrow	*Passer domesticus*	Red List BoCC, UK BAP	480 records within 2km most recently dated 2013
Honey buzzard	*Pernis apivorus*	Schedule 1 WCA, Annex 1, Amber List BoCC	1 record within 2km from 2000
Wood warbler	*Phylloscopus sibilatrix*	Red List BoCC,	4 records within 2km most recently dated and 2006
Willow warbler	*Phylloscopus trochilus*	Amber List BoCC	132 records within 2km most recently dated 2010
Marsh tit	*Poecile palustris*	Red List BoCC, UK BAP	4 records within 2km most recently dated 2003
Dunnock	*Prunella modularis*	Amber List BoCC, UK BAP	240 records within 2km between 2011 and 2013
Bullfinch	*Pyrrhula pyrrhula*	Amber List BoCC, UK BAP	71 records within 2km most recently dated 2012
Woodcock	*Scolopax rusticola*	Red List BoCC	14 records, most recently dated 2008

Common name	Scientific name	Status	Number of records
Common tern	*Sterna hirundo*	Annex 1, Amber List BoCC	66 records within 2km most recently dated 2013
Sandwich tern	*Sterna sandvicensis*	Annex 1, Amber List BoCC	6 records within 2km most recently dated 2006
Turtle dove	*Streptopelia turtur*	Red List BoCC, UK BAP	5 records within 2km most recently dated 2006
Tawny owl	*Strix aluco*	Amber List BoCC	203 records within 2km most recently dated 2014
Starling	*Sturnus vulgaris*	Red List BoCC, UK BAP	421 records within 2km most recently dated 2013
Shelduck	*Tadorna tadorna*	Amber List BoCC	31 records within 2km most recently dated 2008
Greenshank	*Tringa nebularia*	Schedule 1, Amber List BoCC	5 records within 2km most recently dated 2001
Green sandpiper	*Tringa ochropus*	Schedule 1 WCA, Amber List BoCC	13 records within 2km most recently dated 2012
Redshank	*Tringa totanus*	Amber List BoCC	5 records within 2km most recently dated 2012
Redwing	*Turdus iliacus*	Schedule 1 WCA, Red List BoCC	186 records within 2km most recently dated 2012
Song thrush	*Turdus philomelos*	Red List BoCC, UK BAP	594 records within 2km most recently dated 2014
Fieldfare	*Turdus pilaris*	Schedule 1 WCA, Red List BoCC	79 records within 2km most recently dated 2012
Ring ouzel	*Turdus torquatus*	Red List BoCC, UK BAP	15 records within 2km, most recently dated 2004
Mistle thrush	*Turdus viscivorus*	Red List BoCC	332 records within 2km, most recently dated 2010
Lapwing	*Vanellus vanellus*	Red List BoCC, UK BAP	38 records within 2km, most recently dated 2009

Common name	Scientific name	Status	Number of records
Invertebrates			
Girdled mining bee	*Andrena (Poecilandrena) labiata*	Nationally Notable A	3 records within 2km most recent dated 2004
Cleptes nitidulus	*Cleptes nitidulus*	Nationally Notable A	1 records within 2km most recent dated 2004
Crossocerus (Crossocerus) distinguendus	*Crossoscerus (Crossocerus) distinguendus*	Nationally Notable A	5 records within 2km most recent dated 2004
Dolichovespula (Dolichovespula) media	*Dolichovespula (Dolichovespula) media*	Nationally Notable A	2 records within 2km most recent dated 2004
Lasioglossum (Evylaeus) pauxillum	*Lasioglossum (Evylaeus) pauxillum*	Nationally Notable A	5 records within 2km most recent dated 2004
Nomada fucata	*Nomada fucata*	Nationally Notable A	5 records records within 2km most recent dated 2004
Sphecodes reticulatus	*Sphecodes reticulatus*	Nationally Notable A	2 records within 2km most recent dated 2004
Plants			
True fox-sedge	*Carex vulpina*	UKBAP	11 records within 2km most recent dated 2012
Chamomile	*Chamaemelum nobile*	UKBAP	1 record within 2km dated 2014
Northern hawk's-beard	*Crepis mollis*	UKBAP	1 record within 2km dated 2012
Bluebell	*Hyacinthoides non-scripta*	UKBAP, Schedule 8 WCA	2 records within 2km dated 2004

These records of protected and notable species in the vicinity of the site increase the likelihood of them being present where suitable habitat is identified in the field survey.

4.2 Field study

The results of the extended Phase 1 habitat survey are presented below. The Phase 1 habitat map provided in Appendix I shows the habitats recorded during the walkover survey and highlights areas of particular interest with target notes.

4.2.1 Vegetation

The site currently comprises a large two-storey pavillion, an outbuilding, and spectator seating area, hardstanding, colonised hardstanding, amenity grassland, four hedgerows, ornamental planting, two areas of scrub and a tree line. Descriptions of the habitats are provided below:

Amenity grassland (Target note 4)

The majority of the site comprises amenity grassland. Species recorded include dominant creeping bent (*Agrostis stolonifera*), locally dominant green alkanet (*Pentaglottis sempervirens*) and locally abundant yarrow (*Achillea millefolium*). A full species list is provided below in table 5 below:

Table 5: Species recorded within the amenity grassland

Common name	Latin name	Abundance	Status
Grasses, Sedges, rushes and ferns			
Creeping bent	*Agrostis stolonifera*	D	Common in grasslands of all kinds except on most acidic soils
Red fescue	*Festuca rubra*	LF	Common & widespread
Perennial rye-grass	*Lolium perenne*	LF	Common & widespread
Herbaceous plants			
Yarrow	*Achillea millefolium*	LA	Common & widespread
Daisy	*Bellis perennis*	F	Common & widespread
Common mouse-ear	*Cerastium fontanum*	F	Common & widespread
Creeping thistle	*Cirsium arvense*	F	Common & widespread
Doves-foot crane's bill	*Geranium columbinum*	O	Common & widespread
Cat's-ear	*Hypochaeris radicata*	F	Common in meadows, grasslands, not usually on very calcareous soils
Red dead-nettle	*Lamium purpureum*	LF	Common on arable, wasteland & hedgebanks
Green alkanet	*Pentaglottis sempervirens*	LD	Common in hedgebanks & wasteland
Ribwort plantain	*Plantago lanceolata*	O	Common & widespread
Creeping buttercup	*Ranunculus repens*	F	Common & widespread
Smooth sow thistle	*Sonchus sp.*	F	Common & widespread

Dandelion	*Taraxacum agg.*	O	Common & widespread

Species present within the amenity grassland are common and widespread and no further action is required.

Hardstanding (target note 15)

Two areas of hardstanding are present in the south west of the site, in the form of a tennis court and an area of concrete. No species are present within these areas.

This area has low ecological value and no further action is required

Colonised hardstanding (target note 5)

An area of colonised hardstanding is present along the western boundary of the site in the form of a car park. Species here include locally dominant green alkanet, frequent common mouse-ear (*Cerastium fontanum*), and dove's-foot cranes-bill (*Geranium columbinum*). A full species list can be seen below in table 6.

Table 6: Species found within the colonised hardstanding

Common name	Latin name	Abundance	Status
Trees/shrubs			
Sycamore	*Acer pseudoplatanus*	*R*	Introduced, common on richer soils
Alder	*Alnus glutinosa*	*R*	Common in wet woodlands, fen carr & streamsides
Grasses, Sedges, rushes and ferns			
Creeping bent	*Agrostis stolonifera*	O	Common in grasslands of all kinds except on most acidic soils
Red fescue	*Festuca rubra*	O	Common & widespread
Perennial rye-grass	*Lolium perenne*	O	Common & widespread
Herbaceous plants			
Yarrow	*Achillea millefolium*	O	Common & widespread
Common mouse-ear	*Cerastium fontanum*	F	Common & widespread
Creeping thistle	*Cirsium arvense*	F	Common & widespread
Purple spurge	*Euphorbia amygdaloide "purpea"*	LF	Common in woodlands on basic-neutral soil
Cleavers	*Galium aparine*	F	Common & widespread
Doves-foot crane's bill	*Geranium columbinum*	F	Common & widespread
Cat's-ear	*Hypochaeris radicata*	F	Common in meadows, grasslands, not usually on very calcareous soils

Common name	Latin name	Abundance	Status
Red dead-nettle	*Lamium purpureum*	O	Common on arable, wasteland & hedgebanks
Dandelion	*Pentaglottis sempervirens*	O	Common in hedgebanks & wasteland
Green alkanet	*Pentaglottis sempervirens*	LD	Common in hedgebanks & wasteland
Bristly Ox-tongue	*Picris echioides*	F	Common on clay or chalk soils
Creeping buttercup	*Ranunculus repens*	F	Common & widespread
Smooth sow-thistle	*Sonchus oleraceus*	F	Common & widespread

Species present within the colonised hardstanding are common and widespread and no further action is required.

Tall ruderal (Target note 6)

A small are of tall ruderal vegetation is present along the eastern boundary of the colonised hardstanding. Species present include creeping bent, creeping thistle (*Cirsium arvense*) and red dead-nettle (*Lamium purpureum*) were recorded in this area. A full species list can be seen in table 7 below.

Table 7: Species recorded within the tall ruderal areas

Common name	Latin name	Abundance	Status
Grasses, Sedges, rushes and ferns			
Creeping bent	*Agrostis stolonifera*	O	Common in grasslands of all kinds except on most acidic soils
Perennial rye-grass	*Lolium perenne*	A	Common & widespread
Herbaceous plants			
Creeping thistle	*Cirsium arvense*	O	Common & widespread
Cleavers	*Galium aparine*	LA	Common & widespread
Doves-foot crane's bill	*Geranium columbinum*	F	Common & widespread
Red dead-nettle	*Lamium purpureum*	F	Common on arable, wasteland & hedgebanks
Mahonia	*Mahonia sp.*	O	
Creeping buttercup	*Ranunculus repens*	F	Common & widespread
Broad-leaved dock	*Rumex obtusifolius*	O	Common & widespread
Smooth sow thistle	*Sonchus oleraceus*	O	Common & widespread
Dandelion	*Taraxacum agg.*	F	Common & widespread
Common nettle	*Urtica dioica*	F	Common & widespread

This habitat comprises common and widespread species and is of low botanical value but may provide shelter and foraging opportunities for reptiles. Recommendations have therefore been made in section 5.5.

Pavilion hedgerows (Target notes 7)

Four hedgerows of a similar composition are present surrounding the main pavilion building. Species recorded within these hedgerows are presented in table 8 below.

Table 8: Species included in the pavilion hedgerows

Common name	Latin name	Abundance	Status
Trees/shrubs			
Small-leaved cotoneaster	*Cotoneaster microphyllus*	F	Schedule 9 species
Privet	*Ligustrum sp.*	D	Common & widespread
Yew	*Taxus baccata*	F	Common on drier, lime-rich soils
Herbaceous plants			
Cleavers	*Galium aparine*	F	Common & widespread
Ivy	*Hedera helix*	F	Common & widespread
Green alkanet	*Pentaglottis sempervirens*	F	Common in hedgebanks & wasteland
Bristly ox-tongue	*Picris echioides*	O	Common on clay or chalk soils

Hedgerow 1 (target note 8)

Hedgerow 1 is present along the northern boundary of the colonised hardstanding. Species here include dominant privet (*Ligustrum sp.*), locally frequent leyland cypress (*Cupressus x leylandii*), frequent ivy (*Hedera helix*) and rare dandelion (*Taraxacum agg.*).

Hedgerow 2 (target note 9)

Hedgerow 2 is present along the western boundary of the site to the south of the sports stand. Species here include locally abundant ivy and locally frequent comfrey (*Symphytum officinale*). A full species list can be seen below in table 9.

Table 9: Species found within hedgerow 2.

Common name	Latin name	Abundance	Status
Trees/shrubs			
Silver birch	*Betula pendula*	R	Common & widespread in dry woodlands, downs & heaths
Hazel	*Corylus avellana*	O	Common & widespread, on less acid soils
Wall cotoneaster	*Cotoneaster horizontalis*	O	Schedule 9 Species
Lleylandi	*Cupressus × leylandii*	O	Common in introduced hedgerows

Common name	Latin name	Abundance	Status
Hebe	*Hebe sp.*	O	Ornamental
Holly	*Ilex aquifolium*	O	Common on drier soils
Cherry laurel	*Prunus laurocerasus*	O	Common in woodlands, wasteland & roadsides
Firethorn	*Pyracantha sp.*	O	Often used in hedges
Bramble	*Rubus fruticosus agg.*	O	Common & widespread
Lime	*Tilia x europaea*	R	Common & planted, rarely self-sown
Herbaceous plants			
Wood avens	*Geum urbanum*	R	Common on less acid soils
Ivy	*Hedera helix*	LA	Common & widespread
Daffodil	*Narcissus sp.*	R	Frequent on woodlands & old grasslands on clay and loam soils
Green alkanet	*Pentaglottis sempervirens*	F	Common in hedgebanks & wasteland
Greater stitchwort	*Stellaria holostea*	R	Common in hedgebanks & woodland, except on very acid soils
Comfrey	*Symphytum officinale*	LF	Common by riversides, marshes, ditches & damp roadsides
Dog violet	*Viola riviniana*	R	Common & widespread

Hedgerow 3 (Target note 10)

Hedgerow 3 is present along the southern boundary of the site. The hedgerow contains numerous gaps. Species here include locally abundant beech (*Fagus sylvatica*) and frequent oak (*Quercus robur*) and ivy. Other species are listed below in table 10.

Table 10: Species present within hedgerow 3.

Common name	Latin name	Abundance	Status
Trees/shrubs			
Sycamore	*Acer pseudoplatanus*	O	Introduced, common on richer soils
Butterfly bush	*Buddleja davidii*	O	Non-native, invasive
Sweet chestnut	*Castana sativa*	R	Common & widespread
Beech	*Fagus sylvatica*	LA	Common and widespread
Holly	*Ilex aquifolium*	O	Common on drier soils
Oak	*Quercus robur.*	F	Common and widespread
Herbaceous plants			
Cleavers	*Galium aparine*	LO	Common & widespread
Ivy	*Hedera helix*	F	Common & widespread

Common name	Latin name	Abundance	Status
Stinking iris	*Iris foetidissima*	R	Occasional introduced in woods, hedge banks, scrub on sea cliffs and inland, mainly on calcareous soils

The hedgerows are more than 20 m long, contain 80 % native species and are therefore considered as UK BAP habitat though do not qualify as 'important' under the Hedgerow Regulation 1997 due to the lack of species richness. The hedgerows also provide potential shelter for reptiles and nesting habitat for birds and should be retained where possible. Further recommendations and enhancement measures have been made in section 5.3.

Ornamental (Target note 11)

Two areas of ornamental planting are present to the south of the main pavilion building. Species here include locally dominant bamboo (*Bambusoideae sp.*), and cotoneaster (*Cotoneaster sp.*) and locally frequent winter flowering jasmine (*Jasminum nudiflorum*). Cotoneaster is an invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

This habitat is of low botanical value however recommendations have been made with regards to cotoneaster and the presence of nesting birds in section 5.4 and 5.6.

Scrub (Target note 12)

Two areas of scrub are present within the site. One area is directly to the west of the main pavilion building, the other area is present along the northern boundary of the site. Species here include locally dominant cherry laurel (*Prunus laurocerasus*) and abundant bramble (*Rubus fruticosus agg.*).

Table 11: Species present within the scrub

Common name	Latin name	Abundance	Status
Herbaceous plants			
Hedge bindweed	*Calystegia sepium*	LO	Common & widespread
Bluebell	*Hyacinthoides non-scripta*	LF	Common except high mountains or fens, Ancient woodland indicator, Schedule 8 Wildlife and Countryside Act 1981
Daffodil	*Narcissus sp.*	LF	Frequent on woodlands & old grasslands on clay and loam soils
Green alkanet	*Pentaglottis sempervirens*	LA	Common in hedgebanks & wasteland

Common name	Latin name	Abundance	Status
Cherry laurel	*Prunus laurocerasus*	LD	Common in woodlands, wasteland & roadsides
Bracken	*Pteridium aquilinum*	LA	Common & widespread
Bramble	*Rubus fruticosus agg.*	A	Common & widespread
Common nettle	*Urtica dioica*	LA	Common & widespread

The species present in the scrub are common and widespread. The scrub may provide potential shelter for reptiles and nesting habitat for birds. Further recommendations and enhancement measures have been made in section 5.4 and 5.5.

Tree line (Target note 13)

A tree line is present along the eastern boundary of the site. Species here include locally abundant beech (*Fagus sylvatica*), green alkanet, and frequent ivy and oak (*Quercus sp.*). A full species list can be seen below in table 12.

Table 12: Species found within the tree line.

Common name	Latin name	Abundance	Status
Trees/shrubs			
Sycamore	*Acer pseudoplatanus*	O	Introduced, common on richer soils
Alder	*Alnus glutinosa*	R	Common in wet woodlands, fen carr & streamsides
Hornbeam	*Carpinus betulus*	R	Common in woodlands & hedgebanks, especially on loamy & sandy soils
Sweet chestnut	*Castana sativa*	R	Common & widespread
Beech	*Fagus sylvatica*	LA	Common and widespread
Ash	*Fraxinus excelsior*	R	Common on moister, base-rich soils
Holly	*Ilex aquifolium*	LO	Common on drier soils
Apple	*Malus sp.*	R	Common & widespread
Oak	*Quercus sp.*	F	Common and widespread
Bramble	*Rubus fruticosus agg.*	O	Common & widespread
Lime	*Tilia x europaea*	O	Common & planted, rarely self-sown
Elm	*Ulmus procera*	R	Full-sized trees are rare, found in hedgerows, parks & riverside woods
Herbaceous plants			
Snowdrop	*Galanthus nivalis*	R	Frequent but generally regarded as introduced in damp woodlands
Cleavers	*Galium aparine*	LF	Common & widespread
Doves-foot cranesbill	*Geranium molle*	O	Common & widespread

Common name	Latin name	Abundance	Status
Ivy	*Hedera helix*	F	Common & widespread
Bluebell	*Hyacinthoides non-scripta*	O	Common except high mountains or fens, Ancient woodland indicator, Schedule 8 Wildlife and Countryside Act 1981
Red dead-nettle	*Lamium purpureum*	O	Common on arable, wasteland & hedgebanks
Daffodil	*Narcissus sp.*	O	Frequent on woodlands & old grasslands on clay and loam soils
Green alkanet	*Pentaglottis sempervirens*	LA	Common in hedgebanks & wasteland
Broad leaved dock	*Rumex obtusifolius*	R	Common & widespread
Perennial sow thistle	*Sonchus arvensis*	O	Common & widespread
Dog violet	*Viola riviniana*	LF	Common & widespread

Many of the scattered trees are mature enough to provide habitat for nesting birds therefore recommendations have been made in section 5.4.

4.2.2 Protected species

Badgers

During the survey 12 partially used mammals holes were identified along the eastern boundary of the site. However, these holes appeared either too small for badgers, lacked the characteristic D-shaped hole or were characteristically fox (*Vulpes vulpes*) shaped. In addition, there was no other evidence of badgers, such as hairs, latrines, or snuffle holes present on site. It is considered likely that the mammal holes belong to fox and rabbit (*Oryctolagus cuniculus*). It is therefore highly unlikely that badgers are present on site.

No further recommendations have been made.

Bats

Buildings

Three buildings are present on site. The Phase 1 habitat map provided in Appendix I shows the location of the buildings on site and a description of the buildings has been provided below.

Pavilion (Target note 1)

External

- The building is two-storey within the main section with a single-storey component and is constructed of brick.
- The building has a pitched roof with clay tiles, many of which are raised.
- A brick chimney is present with lead flashing which is well sealed.
- Hanging tiles are present on the western and eastern elevations with gaps present.
- A roof tile is missing on the eastern elevation.
- Clay ridge tiles are present and are in good condition.
- The window frames and soffits are wooden throughout. There are gaps present within the soffits.
- The roof space has two separate voids.

Internal roof void 1 – southern elevation

- The void is L-shaped with a pitched roof.
- The roof void is approximately 4 m wide, 20 m long and 2 m high at the apex.
- No internal lining or insulation is present.
- There is a typical truss roof design with wooden beams.
- Cobwebs are present throughout the roof void.
- Several large old wasp nests are present.
- A small dormer window is present on the western elevation. A hole is present in the wire covering the window.
- Mouse droppings are present throughout the roof void.
- No obvious roosting perches are present.
- Daylight was observed entering the void at various points.
- A draft could be felt throughout the void.

Internal roof void 2 – northern elevation.

- This is a C-shaped void measuring approximately 5 m wide, 20 m long and 2.5 m high at the apex. Each leg of the C protrudes by two metres.
- A water tank is present in the west of the roof void.
- There is a queen beam design constructed of wood.
- The roof is lined with bitumen felt.
- No insulation or boarding is present within the roof void.
- Cobwebs are present.
- No gaps or tears are present within the felt lining.

<u>Internal survey: evidence of bats</u>

No evidence of bats was found to be present within the roof void.

<u>External survey: evidence of bats</u>

Despite a thorough and detailed external survey of the pavilion, no evidence of bats was encountered.

Potential for bats

Opportunities and access points for bats are available within the gaps in the soffit boxes, cracks in bricks on the western elevation, through the missing tiles, raised tiles and gaps in tiles on both the eastern and western elevations.

Due to the large number of access points the building is considered to have high potential to support roosting bats.

The pavilion has been assessed as having high potential for bats and further recommendations have been made in section 5.1.

Garage out-building (target note 2)

- A single-storey garage with a flat corrugated metal roof.
- Metal garage doors are present on the western elevation.
- The walls are pebble dashed.
- The windows are boarded from the inside.
- There are no access points for bats and no evidence of bats was encountered.

The out-building provided negligible potential for roosting bats. No further recommendations have been made.

Spectator seating (target note 3)

Spectator seating is present on the southern boundary of the site. The seating is open on three elevations.

The seating area provides no potential to support roosting bats. No further recommendations have been made.

Trees

Trees within the site were assessed as holding negligible potential for roosting bats due to being immature and lacking suitable features such as holes, cracks and crevices.

No further action is required.

Foraging and commuting habitat

The site is situated in an urban area and the sports fields and hedgerows on the site may provide important foraging habitat for bats in the local area. The habitat is considered to

be low quality for foraging and commuting bats due to the surrounding area being heavily urbanised.

As the development may lead to the loss of foraging and commuting routes further recommendations have been made in section 5.1.

Dormice

The hedgerows on the boundaries of the site are well maintained and have poor connectivity to the surrounding area. GiGL provided no records of dormice in the local area and during the survey no evidence of dormice was recorded. Due to the poor habitat connectivity, lack of suitable woodland in the area and suitability of the hedgerows, dormice are not considered to be present on site.

No further action is required.

Great crested newts

No ponds were identified within 500 metres of the site. The tall ruderal and hedgerows on site provide potential terrestrial habitat for great crested newts. Despite suitable terrestrial habitat being present on site, the site is isolated and surrounded by roads and urban residential areas. Therefore due to the isolation of the site and the lack of breeding ponds in the area it is considered highly unlikely that great crested newts are present on site.

No further action is required.

Nesting birds

The hedgerows, scattered trees and area of ornamental planting on site provide opportunities for nesting birds.

Recommendations have been made in section 5.4.

Reptiles

Potential habitat to support reptiles in particular slow-worms (*Anguis fragilis*) was recorded within the site. A brash pile is present along the western boundary (target note 14), along with mammal holes, hedgerows and areas of tall ruderal vegetation. These areas could be used by reptiles in the winter months for hibernation and as refuge and foraging habitat during the spring and summer months. Should any of these areas be subject to clearance as part of the development, mitigation will be required.

Further recommendations have been made in section 5.5.

Invasive species

Small leaved cotoneaster (*Cotoneaster microphyllus*) and wall cotoneaster (*Cotoneaster horizontalis*) was recorded on the site within the hedgerows. These species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Further recommendations have been made in section 5.6.

Stag beetles

Stag beetles are found in areas of dead wood in which the larvae develop and live in before they pupate into adults. The site has no areas of dead standing wood or old stumps which could be used by stag beetle larvae. Stag beetles are therefore considered unlikely to be on the site due to the absence of suitable habitat on the site and therefore there will be no impact on the Richmond Park SAC.

Stag beetles are not likely to be absent from the site but there is the opportunity to provide enhancement measures for this species providing habitat for a locally important species. Further recommendations have been made in section 5.7

5.0 CONCLUSIONS AND RECOMMENDATIONS

The site was considered to hold low ecological value and issues relating to the following are present:

- The site is in close proximity to Churchyard of St. Mary with St. Alban, Teddington SINC.
- Potential for nesting birds within the hedgerows, ornamental and scattered trees.
- High potential for roosting bats within the main pavilion building and low quality foraging and commuting habitat on site.
- Potentially suitable foraging habitat and hibernacula for widespread reptiles within the hedgerows, scrub, brash pile and tall ruderal vegetation.

Mitigation and compensation measures for works that may affect nesting birds, reptiles and bats have been outlined below along with measures to increase the value of the site for wildlife. The mitigation strategy will be fine-tuned once full proposals for the site have been provided.

5.1 Designated sites

The development site lies within 400 metres of Churchyard of St. Mary with St. Alban, Teddington SINC. Due to the potential pollution that could infiltrate through to the groundwater during construction, a Construction Method Statement (CMS) will be prepared and implemented to minimise potential impacts to this site. This will set out detailed methods of construction to avoid impacts to this designated site. The following matters will be addressed in the CMS:

- Details of how materials / chemicals will be stored and controlled on-site to avoid pollution and siltation (for example, all plant will be fitted with drip trays in order to avoid potential pollution incidents and no re-fuelling will take place on the site).

- Details on the proposed construction methodology including factors such as construction access, methods of construction, timing of work and working hours.

5.2 Bats

<u>Buildings</u>

The main pavilion on site has been assessed as holding high potential to support roosting bats due to the numerous access and egress points available as well as roosting opportunities. The other buildings hold negligible potential and no further recommendations have been made for these.

Phase 2 bat surveys

If the pavilion is due to be impacted by the development, Phase 2 bat emergence-re-entry surveys will be required.

In accordance with the Bat Conservation Trust (BCT) survey guidelines (2016), where a roost has high potential, three evening dusk emergence survey and/or pre-dawn re-entry surveys are required on the pavilion. These surveys must be conducted between May and September with at least two between May and August.

The Phase 2 bat surveys involve a number of surveyors positioned around the building covering all potential access and egress points. Dusk surveys will commence 15 minutes before sunset and continue for 2 hours after sunset. The pre-dawn re-entry survey will commence 2 hours before sunrise and continue for 15 minutes after sunrise. Surveyors will use bat detectors and recording devices to record any bats that are seen emerging or re-entering the building along with general bat activity within the vicinity of the site. These surveys will confirm the number of bats, roost type and points of access that bats are using to enter the roost.

Mitigation

If bats are found to roost within the pavilion, then a suitable mitigation strategy for bats will be required. Depending on whether the works will affect a bat roost, a European Protected Species licence from Natural England may also be required before there are any works to the pavilion. This may include provisions of a permanent replacement roost, installing temporary roosts and appropriately timing works.

Foraging and commuting habitat

The site may also provide important commuting routes and foraging areas for bats. As the site has been assessed as having low quality habitat seasonal, spring, summer and autumn, bat activity transect surveys are required between April and October in accordance with the BCT's guidelines (Collins, 2016). This will involve a combination of transect surveys and static monitoring The results of these surveys will be used to design mitigation scheme for the development, which may include a suitable lighting plan.

5.3 Hedgerows

Any hedgerow removal must be compensated by replacement native planting within the landscaping on site. Suitable native species are provided in Table 13.

Table 13: Species to be included in replacement hedgerow planting

Species	Proportion within hedgerow
Spindle	15%
Hawthorn	10%

Blackthorn	5%
Field maple	25%
Elm	5%
Hazel	15%
Elder	5%
Crab apple	5%
Guelder-rose	15%

- A detailed specification will need to be drawn up for the hedgerow, together with an initial management regime for the first few years. However, in the long-term, it is recommended that any new hedgerows and any retained hedgerows are trimmed on a 2 to 3 year rotation in an "A" shape or a "topped A" shape where possible: the aim is to create a tall bushy hedge which has maximum wildlife potential.

Hedgerow planting

- Hedgerow species will be planted as whips. All species will be sourced from British-grown stock. Bare root specimens will be kept moist either by using a damp cloth or placing the roots in a bucket of water during planting.

- All plants need to be well heeled in after planting and watered in during dry weather. The planted hedgerow will be protected from rodent damage with the use of spiral tree guards. Spiral tree guards will be removed after 4 years.

Once any new hedgerows are mature, they will provide a Biodiversity Action Plan habitat for a range of insects, mammals and birds enhancing the ecological value of the site.

5.4 Nesting birds

The hedgerows and trees within the site include provide foraging and nesting habitat both for common and widespread species of bird. The following precautions should negate risk of harming, injuring birds during the nesting season:

- Vegetation clearance should be conducted outside of the bird nesting season which is considered to run from March to September. Where this is not possible a suitably qualified ecologist should check potential nesting habitat immediately prior to clearance. Any active nests must be retained in situ with a suitably vegetated buffer. Clearance in affected areas can only proceed once the nestlings have fledged the nest.

- Ecological enhancement measures described in Section 5.6 will provide foraging and nesting opportunities for many species and should be implemented in the event that any of the existing habitat is not retained.

5.5 Reptiles

The area along the eastern boundary provides small areas of scrub which may be used by reptiles. In addition there are spoil piles and areas of tall ruderal which provide low suitability.

Depending on the development proposals, a reptile survey and mitigation may be required if suitable areas are to be impacted by the proposals. The short sward amenity grassland is not currently suitable for reptiles and this should be maintained as short sward grassland to avoid reptiles colonising this area.

If required, a reptile presence/likely absence survey of the site would be completed in accordance with the *Advice Sheet 10 – Reptile Survey* (Froglife, 1999). This involves placing artificial refugia in suitable habitat and checking them for reptiles on seven occasions during March to October in suitable weather conditions.

If reptiles are confirmed to be on the site, mitigation is likely to involve a Method Statement that either incorporates reptile habitat within the development (e.g. within 5 m wide long grassy buffers around the edge of the development) or translocation of reptiles to a suitable off-site receptor.

Full surveys may not be required if only small areas of habitat are scheduled to be impacted and a 'strim and push' mitigation scheme can be implemented if areas are to be retained on site with connectivity.

5.6 Invasive Species

A small area of small leaved cotoneaster (*Cotoneaster microphyllus*) and wall cotoneaster (*Cotoneaster horizontalis*) is present within the site. These plants should not be allowed to spread outside the site boundary to avoid offences under the Wildlife and Countryside Act, 1981 (as amended). Precautionary measures to avoid the spread of these invasive plant species are provided below:

- Where possible remove the plants during the growing season when fruits are absent from the plant. Fruits are usually present in the autumn but it should be noted that the fruit of cotoneaster can persist well into the winter period.
- Plants to be removed must be cut and burnt on site to minimise the risk of spreading seeds.
- Where removal of the plants during the fruiting season is necessary, care must be taken to place each removed plant, or part thereof, into a plastic bag before transporting it for on-site burning.
- Work boots and machinery must be cleaned thoroughly after clearance of the cotoneaster and before continuing to other areas of the site or leaving site. This will minimise the risk of spreading seeds across and outside of the site.

5.7 Ecological enhancement

Ecological enhancements to incorportate within the development design are given below:

- Provision of bat boxes and nest boxes for bird species such as swift, house martin and house sparrow on the walls of the buildings or trees. Bat boxes and tubes, and bird boxes can be purchased from websites such as Alana Ecology http://www.alanaecology.com and Jacobi Jayne www.jacobijayne.co.uk, and their provision on site would enhance the habitat for the local bat and bird population.

- Sowing amenity grassland with a wildflower lawn mix (such as Emorsgate EL1) would provide better nectar sources for invertebrates and hence is of greater value for foraging birds.

- Use of native shrubs and trees for landscaping schemes provides foraging habitat for a range of bird species. Suitable species include hazel (*Corylus avellana*), dog-rose (*Rosa canina*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*) and field maple (*Acer campestre*).

Stag beetles

Provision of dead wood habitat will help increase the number of invertebrate species on site as well as providing habitat for mosses, lichens and fungi. This will be provided by burying a wooden 'log' up to one metre below the earth's surface. The wood should be a natural wood, with Table 14 outlining the species favoured by stag beetles.

Table 14: Species favoured by stag beetles

Common name	Scientific name
Oak	*Quercus robur*
Ash	*Fraxinus excelsior*
Elm	*Ulmus* sp.
Sycamore	*Acer pseudoplatanus*
Lime	*Tilia* sp.
Hornbeam	*Carpinus betulus*
Wild Apple	*Malus domestica*
Wild Cherry	*Prunus avium*

The logs should be placed in an area of shade to prevent desiccation. The area should incorporate a buffer with the vegetation not being cut within this area when adult stag beetles are active, between May and September.

6.0 REFERENCES

Collins, J (ed) (2016). *Bat Surveys for Professionals Ecologists: Good Practice Guidelines (3rd Edition).* The Bat Conservation Trust, London.

Department for Communities and Local Government (2005). *Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.*

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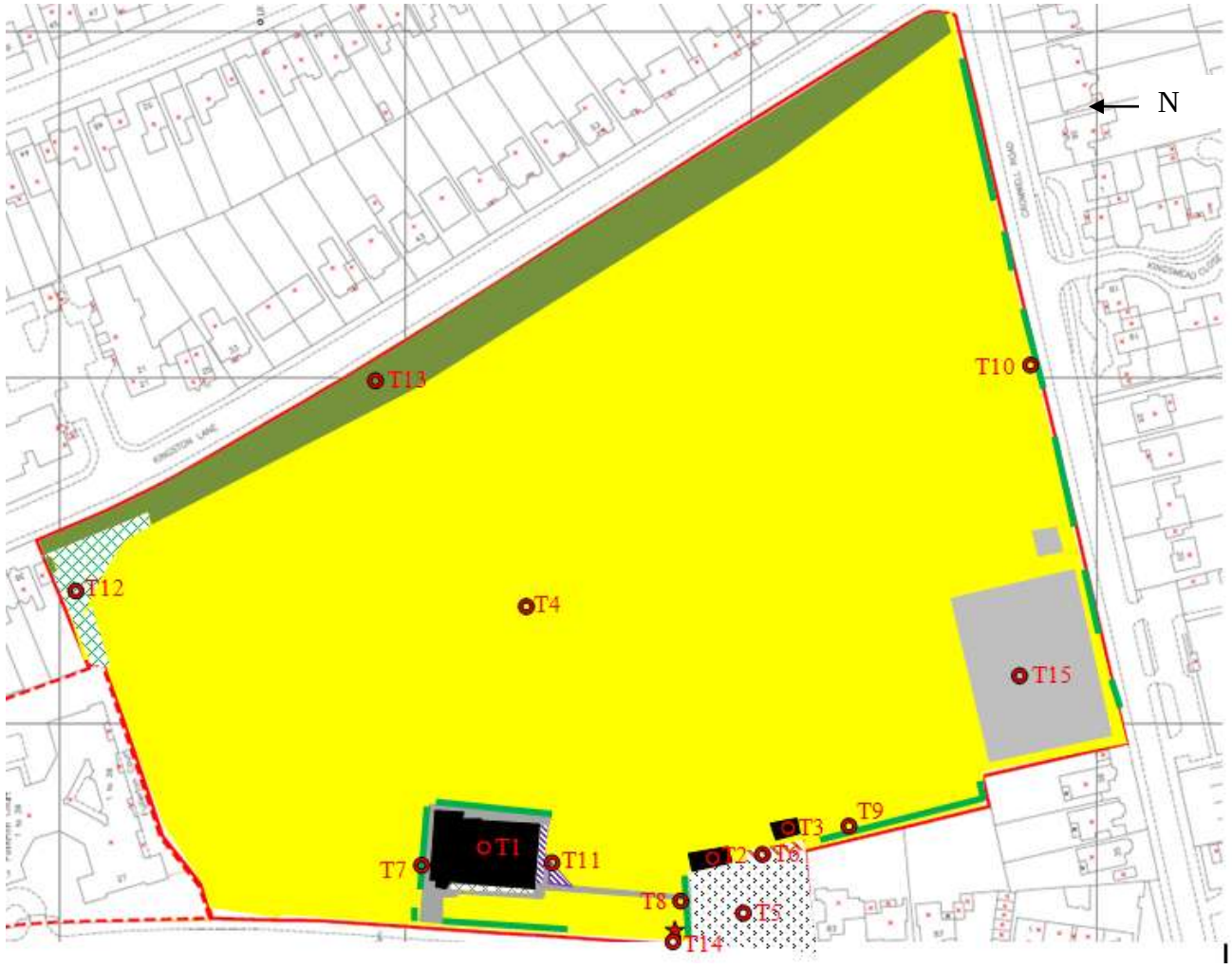
Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. And Gregory, R (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man, *British Birds*, 108, 708-746

Harvey DJ and Gange AC (2011) The stag beetle: a collaborative conservation study across Europe, Insect Conservation and Diversity (2011) 4, 2–3.

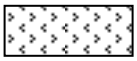
Joint Nature Conservation Committee (2010). *Handbook for Phase I Habitat Survey.* JNCC.

Multi-Agency Geographical Information for the Countryside (MAGIC) Website at www.magic.gov.uk

APPENDIX I – PHASE 1 HABITAT MAP



Key to phase 1 habitat map

	Hardstanding
	Colonised Bare ground
	Amenity grassland
	Tall ruderal
	Ornamental planting
	Scrub
	Building
	Tree
	Tree line
	Hedgerow
	Survey boundary
 T1	Target note
	Brash pile

Target notes to accompany phase 1 habitat map

Target Note	Description
T1	Pavilion
T2	Garage/outbuilding
T3	Spectator seating
T4	Amenity grassland consisting of dominant creeping bent (*Agrostis stolonifera*), locally frequent red fescue (*Festuca rubra*) and perennial ryegrass (*Lolium perenne*), locally dominant green alkanet (*Pentaglottis sempervirens*), locally abundant yarrow (*Achillea millefolium*), frequent daisy (*Bellis perennis*), common mouse-ear (*Cerastium fontanum*), cat's-ear (*Hypochaeris radicata*), creeping buttercup (*Ranunculus* repens), smooth sow thistle (*Sonchus oleraceus*) and creeping thistle (*Cirsium vulgare*) locally frequent red dead-nettle (*Lamium purpureum*) and occasional doves-foot crane's-bill (*Geranium columbinum*) and dandelion (*Taraxacum officinale agg.*)
T5	An area of hardstanding which has been partially colonised by species including frequent common mouse-ear and doves-foot crane's-bill, occasional yarrow (*Achillea millefolium*), red fescue, perennial ryegrass and creeping bent and rare alder (*Alnus glutinosa*) and sycamore (*Acer pseudoplatanus*).
T6	Tall ruderal habitat comprising abundant perennial ryegrass, locally abundant cleavers (*Galium aparine*), frequent doves-foot crane's-bill, creeping buttercup, red dead-nettle, dandelion and common nettle (*Urtica dioica*), occasional creeping bent, smooth sow thistle, creeping thistle (*Cirsium arvense*), broad-leaved dock (*Rumex obtusifolius*) and Mahonia (*Mahonia sp.*).
T7	The pavilion hedgerows comprise four sections surrounding the main pavilion and consists of dominant privet (*Ligustrum sp.*), frequent small-leaved cotoneaster (*Cotoneaster microphyllus*), yew (*Taxus baccata*), cleavers (*Galium aparine*), ivy (*Hedera helix*) and green alkanet, occasional bristly ox-tongue (*Picris echioides*) is also present.
T8	Hedgerow 1 is present along the northern boundary of the colonised hardstanding. Species here include dominant privet (*Ligustrum sp.*), locally frequent lleylandii (*Cupressus x leylandii*), frequent ivy (*Hedera helix*) and rare dandelion (*Taraxacum agg.*).
T9	Hedgerow 2 is present along the western boundary of the site to the south of the sports stand. Species here include locally abundant ivy, frequent green alkanet, locally frequent comfrey (*Symphytum officinale*), occasional hazel (*Corylus avellana*), Leylandii (*Cupressus x leylandii*), Hebe (*Hebe sp.*), firethorn (*Pyracantha sp.*), holly (*Ilex aquifolium*), cherry laurel (*Prunus laurocerasus*), wall cotoneaster (*Cotoneaster horizontalis*), bramble (*Rubus fruticosus agg.*). Rare silver birch (*Betula pendula*), lime (*Tilia x europaea*) and daffodil (*Narcissus sp.*) were all present in the hedgerow.

Target Note	Description
T10	Hedgerow 3 is present along the southern boundary of the site, it contains several gaps, but species present include locally abundant beech (*Fagus sylvatica*), occasional butterfly bush (*Buddleia davidii*), holly and sycamore (*Acer pseudoplatanus*), locally occasional cleavers, rare sweet chestnut and stinking iris (*Iris fortidissima*)
T11	Ornamental planting exists in two areas to the south of the main pavilion building. The area is dominated by bamboo and cotoneaster, with locally frequent winter flowering jasmine (*Jasminum nudiflorum*).
T12	Scrub is present within the site. These areas are locally dominated by cherry laurel, with abundant bramble, locally abundant bracken (*Pteridium aquilinum*), green alkanet and common nettle and locally frequent bluebell (*Hyacinthoides non-scripta*) and daffodil
T13	The tree line present to the east of the site contains locally abundant beech, occasional sycamore, lime and bramble with locally occasional holly, Rare sweet chestnut, ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), elm (*Ulmus procera*), apple (*Malus sp.*) and hornbeam (*Carpinus betulus*) are all present. The understorey comprises locally abundant green alkanet, frequent ivy, locally frequent cleavers and dog violet (*Viola riviniana*), occasional red dead-nettle (*Lamium purpureum*), bluebell, daffodil, perennial sow thistle (*Sonchus arvensis*) and doves-foot crane's bill with rare broad leaved dock and snowdrop (*Galanthus rivalis*)
T14	Brash pile
T15	Hardstanding

APPENDIX II – PHOTOGRAPHS

North and eastern elevation

Western elevation of building

Amenity grassland

Tree line along eastern boundary of site

Spectator seating

Garage building

Brash pile with potential to support reptiles

Colonised hardstanding

Hedgerow 3

Hedgerow 4

Roof void 1

Roof void 2

Raised tiles providing bat access

Missing hanging tiles providing bat access