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Land Adjacent to Kingsclere Avenue Ecological Survey

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Executive Summary

The site located along Kingsclere Avenue currently comprises of public open space. Currently utilised by a low number of dog walkers and as a cut through for people on foot the site is under continual management to fit its amenity purpose. Because of this the main body of the site is considered to be of negligible to low ecological value. The mature trees and unmanaged buffer around the boundary of the site possess the highest levels of diversity and general ecological value. Because of this the majority of this unmanaged area and all trees are set to be retained. The site supports a low population of Slow Worms and is a Local value for commuting bats. In line with this measures have been proposed to ensure that these protected species are not negatively impacted upon. Finally a number of ecological features have been recommended to enhance the development so that it will positively contribute towards local biodiversity and conservation of protected species.

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1.0 INTRODUCTION

1.1 Brief

ecosupport Ltd were commissioned by Adrian Legg of Portsmouth City Council to carry out a Phase I Survey Ecological Survey and associated follow up work at the site located adjacent to Kingsclere Avenue. The objectives of these surveys were as follows:

- Identify current land use and habitat types
- Identify any priority habitats
- Identify any signs of protected species and potential features that may support them
- Identify all relevant legislation and policy
- Carry out further survey work as appropriate
- Assess the ecological value of the site
- Make recommendations for appropriate enhancements

1.2 Site Description

The site is located adjacent to Kingsclere Avenue (Grid Reference SU 71052 08453). The site currently comprises of public open space. Riders Infant School and its associated infrastructure is located to the south of the site. The remaining periphery is bounded by housing associated with Brockenhurst Avenue, Dunsbury Way and Kingsclere Avenue to the North, East and West respectively. Dunsbury Way Industrial Estate is located just east of Dunsbury Way with vast areas of housing surrounding the site in all other directions making the setting highly residential (**Figure 1**).

Figure 1. Aerial image of the site.



1.3 Scope of Proposed Development

The proposals involve the development of the site to make way for new housing.

2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 *The Conservation of Habitats and Species Regulations (2010)*

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

2.1.2 *The Wildlife and Countryside Act (1981) (as amended)*

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it 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. Similarly this Act makes it an offence to kill or injure any species of British reptiles and 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).

2.1.3 *The Countryside and Rights of Way Act (2000)*

This Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.3 *Natural Environment and Rural Communities Act (2006)*

This places a duty on authorities to have due regard for biodiversity and nature conservation during the course of a development.

2.2 Policy

The development would seek to comply with relevant Planning Policy at a local, regional and national level.

2.2.1 *National Planning Policy and Framework (2012)*

This sets out the Government's vision for biodiversity in England. It states that the planning system should maintain, enhance, restore or add to biodiversity and geological conservation interests. Key principles of the framework include the creation, protection, enhancement and management of networks of biodiversity, the preservation, restoration and recreation of priority habitats and ecological networks and the recovery of priority species populations, including sections on legally protected species.

2.2.2 *Havant Borough Core Strategy (2011)*

Part of the 'Vision for Havant Borough in 2026' is to protect and enhance biodiversity. Similarly policy CS11: Protecting and Enhancing the Special Environment and Heritage of Havant Borough states that planning permission will only be granted when development protects habitats and features of biological interest and prevents the fragmentation of existing habitats.

3.0 METHODOLOGY

3.1 Desk Based Survey

A data request was submitted to Hampshire Biodiversity Information Centre to ascertain the proximity of nearby designated sites and any records of protected species.

3.2 Zone of Influence

The approach of the CIEEM guidelines (2006) is to assess potential impacts to all features of ecological interest that could be affected by a scheme. As a scheme may have effects beyond its site boundaries, it is important to identify the 'zone of influence' of the scheme and to assess the potential for significant impacts throughout this area.

Quantifying this area is complex and is rarely limited to the development site or some set distance from the project area. The zone of influence is often dependent on the impacting factor (both direct and indirect) and the affected resource. Certain impacts associated with a develop can be calculated using various factors, for example for water pollution you can use the volume and flow of that water body, the nature of the pollutant and the chemical characteristics of the water body and with air pollution models can be used. You cannot accurately predict factors associated with inhabitants of a new development. Although the area of influence will, in general, be localized and restricted to the project footprint and immediate surroundings, land use is more complex. For example how people will utilize areas for recreation and how far they will travel. Ecological resources are impacted by the zone of influence of the above factors combined along with others.

3.3 Phase I Survey

The initial site walkover was carried out by Tristanna Cornwell and Nicky Britton-Williams of ecosupport Ltd, on the 12th of March 2015. This incorporated a visual assessment of the site and the surrounding landscape, loosely following the methodology outlined within the Joint Nature Conservation Committees (JNCC) *Phase I habitat survey handbook* (2003). The habitats present were described, paying particular attention to their potential to support protected species.

As the initial site survey took place in March, outside of the optimum survey season, the surveyors returned to carry out a detailed assessment of the vegetation on site on the 8th of June 2015. All species noted were recorded.

3.4 Phase II Bat Surveys

The site is classified as 'Small' consisting of 'Low quality habitat' as per the BCT guidelines. As a result two transect surveys were carried out, in order to inform the lighting strategy.

The transect surveys involved experienced surveyors of ecosupport Ltd. on foot carrying bat detectors along a route throughout the site. Surveyors walked at a constant speed recording bat passes, and associated details such as species, time and direction of flight. Also echolocations for subsequent analysis were logged. Spot counts were also incorporated within the survey design. This involved standing at set points along the transect for an allotted period of time and recording all activity. The transect route and location of spot counts were decided prior to surveys getting underway through the use of aerial imagery (**Figure 2**) and a plan was issued to the surveyor. During the first survey, surveyors went

clockwise around the site. During the second they swapped direction as walked anti-clockwise to record bat use of the site at different times. The surveys started just before sunset and continued for two hours.

Figure 2. Transect Route.



3.5 Reptile Survey

The initial site walkover identified habitat that was considered suitable for reptiles. Therefore a full reptile survey was carried out at the site during April and May of 2015 in accordance with best practice guidance (Froglife, 1999). The aim of the survey was to establish the presence/likely absence of reptiles on the site. Artificial refugia were distributed evenly across the site on 16th April 2015 (**Figure 4**). Once sufficient time had passed to allow it to bed in (seven days), the refugia were checked seven times during suitable weather conditions by experienced reptile workers. The species, approximate life stage and sex of any reptiles found was recorded. Surveyors utilized the survey as an opportunity to carry out a transect search for reptiles which involved being vigilant and visually searching for reptiles whilst walking between points.

4.0 SURVEY RESULTS

4.1 Desk Based Search

4.1.1 Protected Sites

The site was located within 4km of the following sites designated for their nature conservation value (see attached for map of the location of these):

South Downs National Park (2.64km northeast)

The South Downs National Park has a vast array of wildlife habitats, many of which are recognised as National and European priorities. Over 85% of the Downs is classified as farmland, which includes wildlife habitats such as grassland, arable land, and hedgerows. Chalk grassland, formed as a result of sheep farming, is one of the iconic habitats of the National Park, much of which has been ploughed and has since remained in cultivation. West of the River Arun, the Downs are more wooded with features such as the yew groves of Kingley Vale, northwest of Chichester.

Species present in the National Park include Otter *Lutra lutra* and Barn Owl *Tyto alba* as well as species such as the Barbastelle Bat *Barbastella barbastellus*, the Chalk Carpet Moth *Scotopteryx bipunctaria* and Sundew *Drosera sp.*, a carnivorous plant.

The National park includes a number of rare and threatened species including the Bee Orchid *Ophrys apifera*, Adonis Blue Butterfly *Polyommatus bellargus* and Nightjar *Caprimulgidae europaeus*.

Langstone Harbour Site of Special Scientific Interest (SSSI) (3.13km south)

A tidal basin with extensive low-water mud flats. One of the largest areas of mixed saltmarsh on the south coast, with an extensive Cord-grass *Spartina anglica* marsh in an advanced state of degeneration and extensive eelgrass beds (*Zostera angustifolia* and *Aostera noltii*). The Harbour is of international importance as a rich intertidal system (in the top 20 in Britain), supporting high intertidal invertebrate densities alongside large populations of migrant and overwintering waders and wildfowl for example Dunlin *Calidris alpina*, whose numbers often exceed 30,000 individuals (6% of the British overwintering population). The total numbers of waders at this site often exceed 40,000; Langstone Harbour, Portsmouth Harbour and Chichester Harbour form a single, coherent ecosystem which is among the 10 most important intertidal areas for waders in Britain.

Solent Maritime Special Area of Conservation (SAC) (3.27km south)

The Solent Maritime encompasses a number of Annex I habitats, combining to afford it SAC status; estuaries (priority reason for selection), *Spartina* swards (priority), Atlantic salt meadows (priority), sandbanks which are slightly covered by sea water all the time, mudflats and sandflats not covered by sea water at low tide, coastal lagoons, annual vegetation of drift lines, perennial vegetation of stony banks, Salicornia and other annuals colonising mud and sand, and white dunes.

The Solent encompasses a major estuarine system on the south coast of England, with four coastal plain estuaries (Yar, Medina, King's Quay Shore, Hamble) and four bar-built estuaries (Newton Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four daily tides and

the complexity of marine and estuarine habitats present. Sediment habitats include extensive estuarine flats, often with intertidal areas supporting Eelgrass *Zostera sp.* and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches to very sheltered, almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour. Solent Maritime is the only site for Smooth Cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of Small Cord-grass *S. maritima* are found. Townsend's Cord-grass *S. x townsendii* and Common Cord-grass *S. angelica*, all four taxa thus occurring in the Solent in close proximity. The Solent also contains the second largest aggregation of ungrazed Atlantic salt meadows in south and southwest England. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland.

Chichester & Langstone Harbours Ramsar and SPA (3.54km south)

This site is designated as a wetland of international importance under Article 4.2 of the Habitats Directive by regularly supporting at least 20,000 waterfowl. The site supports populations of European importance for a number of species listed under Annex 1 of the EU Habitats Directive, such as Little Tern *Sterna albifrons* and Sandwich Tern *Sterna Sandvicensis* during the breeding season, Little Egret *Egretta garzetta* and Ringed Plover *Charadrius hiaticula* on passage, and Bar-tailed Godwit *Limosa lapponica* and Little Egret *Egretta garzetta* over winter.

Warblington Meadow SSSI (3.67km southeast)

An unimproved grazing marsh adjoining Chichester Harbour of particular importance for its distinct graduation from freshwater, base-rich marsh to old reclaimed saltmarsh and for its rich associated flora, with 158 species of flowering plant. A small bed of reed *Phragmites australis* and a clear, unpolluted stream lined with English Oak *Quercus robur*, Alder *Alnus glutinosa* and Willow *Salix sp.* add additional habitat diversity.

Chichester Harbour SSSI (3.44km southeast)

A large coastal estuarine basin with extensive mud and sand flats at low water, with a wide range of intertidal and associated terrestrial habitats present. The range of habitats on site support important plant communities. The site is of particular importance for its international densities of waders, wildfowl and breeding bird populations, both within the Harbour and the surrounding pastures and woodlands, such as Ringed Plover *Charadrius hiaticula*, Curlew *Numenius sp.* and Greenshank *Tringa nebularia*, with Bar-tailed Godwit *Limosa lapponica* numbers of international importance.

Farlington Marshes LNR (3.72km southwest)

125 acres of botanically rich grazing marsh on the shore of Langstone Harbour. A site internationally important for the bird populations it supports, as well as butterflies and botanical interest.

Hayling Billy Local Nature Reserve (LNR) (4.12km south)

Protected due to its abundance of rare plants, butterflies and small birds, and for its views of Langstone Harbour.

West Hayling LNR (4.3km south)

Intertidal mudflats. Home on a permanent and migratory basis for tens of thousands of seabirds and a large assemblage of marine invertebrates.

Brook Meadow (Emsworth) LNR and Site of Importance for Nature Conservation (SINC) (4.38km southwest)

5 acres of grassland, surrounded by woodlands and flanked by two streams. European Water Vole *Arvicola amphibius* are present in the river.

In addition the following Sites of Importance for Nature Conservation (SINC) were identified:

SINC Name	Distance	Reason for designation
Thicket Bottom	2.13km NE	Pasture woodland and wooded commons.
Stake's Coppice Remnant 5	1.9km W	Ancient semi-natural woodlands.
Stake's Coppice Remnant 6	1.95km W	Ancient semi-natural woodlands.
Stake's Coppice Remnant 7	1.79km W	Ancient semi-natural woodlands. Sites of nature conservation interest which occur in areas otherwise deficient in such interest, and/or are known to be of particularly high value to local communities.
Johnston's Coppice	2.02km SW	Ancient semi-natural woodlands supporting Dormice (<i>Muscardinus avellanarius</i>).
Meadow Adjacent to Johnston's Copse	1.96km SW	Ancient semi-natural woodlands supporting Dormice. Along with semi-improved grasslands which retain a significant element of unimproved grassland and fens that support a flora and fauna characteristic of unimproved and waterlogged conditions.
Hurst Wood, Havant	2.04km NW	Ancient semi-natural woodlands.
Neville's Park West Wood	1.57km W	Woodland where there is a significant element of ancient semi-natural woodland surviving.
Littlepark Wood (East)	2.06km SW	Ancient semi-natural woodland and Yew woodland, which is of restricted distribution.
Hulbert Road Meadow	1.61km SW	Grasslands which have become impoverished through inappropriate management but which retain sufficient elements of relic unimproved grassland to enable recovery and Fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged (seasonal or permanent)

		conditions.
Outhurst/Inhurst/Beech Woods	1.82km NW	Ancient semi-natural woodland.
Neville's Park East Wood	1.45km W	Ancient semi-natural woodland.
Neville's Park Areas 4-10	1.3km SW	Surviving areas of ancient semi-natural woodland and areas of semi-natural woodland comprising of restricted habitats. Also supports agriculturally unimproved grassland and grasslands which have become impoverished through inappropriate management but which retain sufficient elements of relic unimproved grassland to enable recovery. The site supports Meadow Brome (<i>Bromus commutatus</i>).
Neville's Park Areas 2 & 3	1.3km W	Agriculturally unimproved grasslands
Cherry Tree Row	1.33km NW	Ancient semi-natural woodland/woodland where there is a significant element of ancient semi-natural woodland surviving.
Beech Wood East	1.57km NW	Ancient semi-natural woodland.
Bushy Lease	1.15km W	Ancient semi-natural woodland.
Dunsbury Hill - Areas 5 & 6	1.77km NW	Agriculturally unimproved grasslands.
Dunsbury Hill - Area 1	1.93km NW	Agriculturally unimproved grasslands.
Meadow by Bells Copse	1.59km NW	Agriculturally unimproved grasslands/grasslands which have become impoverished through inappropriate management but which retain sufficient elements of relic unimproved grassland to enable recovery.
The Warren, Havant	1.01km NW	A significant element of ancient semi-natural woodland dis present as well as woodland comprising of restructured woodland habitat.
Dunsbury Hill Wood	1.28km NW	Semi-natural woodland that comprises important community types of restricted distribution in the County, such as yew woods and alder swamp woods.
Bell's Copse	1.74km NW	Ancient1 semi-natural woodland/other woodland where there is a significant element of ancient semi-natural woodland

		surviving.
Dunsbury Hill Grassland 2	1.31km N	Semi-improved grasslands which retain a significant element of unimproved grassland.
Cabbagefield Row	1.11km N	Ancient semi-natural woodland.
Blendworth Common (South)	2.28km N	Agriculturally unimproved grasslands.
Havant Thicket (South-West Corner)	2.05km N	Woodland where there is a significant element of ancient semi-natural woodland surviving/areas of heathland which are afforested or have succeeded to woodland that retains significant remnants of heathland vegetation which would enable their recovery.
Middle Clearing	1.17km N	Ancient semi-natural woodland.
Havant Thicket	2.1km NE	Woodland where there is a significant element of ancient semi-natural woodland surviving comprising important community types of restricted distribution in the County as well a pasture woodland/wooded commons which is of considerable biological and historical interest. Semi-improved grasslands which retain a significant element of unimproved grassland. Areas of heathland which are afforested or have succeeded to woodland which retain significant remnants of heathland vegetation which would enable their recovery. The site also supports Silver-washed Fritillary (<i>Argynnis paphia</i>), Scarce Merveille du Jour (<i>Moma alpium</i>) and various other notable moths.
Thicket Lawn	775m NE	The site consists of agriculturally unimproved grassland supporting Smooth Brome (<i>Bromus racemosus</i>).
Great Copse, Havant	748m E	Ancient semi-natural woodland.
Battins Copse	1.03km SE	Ancient semi-natural woodland.
High Lawn	959m NE	The site contains an element of semi-natural ancient woodland.

Thicket Bottom Woods & Lake	1.2km NE	Ancient semi-natural woodland.
Lower Beacon Field	1.3km NE	Semi-improved grasslands which retain a significant element of unimproved grassland.
Hammond's Lands Copse	1.57km NE	Ancient semi-natural woodland.
Wakefords Copse, Havant	1.42km E	Ancient semi-natural woodland.

4.1.2 Protected Species

Within 2km of the site, Slow Worms (*Anguis fragilis*), Grass Snake (*Natrix natrix*) and Adder (*Vipera berus*) were identified along with mammals such as eight species of bat Water Vole (*Arvicola amphibius*) and Badgers (*Meles meles*) (see **Appendix I** for full records).

4.2 Zone of Influence

4.2.1 Construction Phase

Change in Land Use

The change of use of the site will result in the physical structure of the present site being altered by the proposed development. Site preparation activities will include earthworks and earth stripping. Therefore the zone of influence is predicted to extend across the development footprint but no further.

Noise Pollution

Noise disturbance occurs as a result of plant operation, traffic movements, and movements of site personnel associated with the continued extraction, crushing, screening and tipping within the application area.

When ground cover or normal unpacked earth is present between the source and receptor, the ground becomes absorptive to noise energy and is called a soft site. This can reduce in-air noise over distance. As these conditions are present on site it is considered that the noise from construction will not travel far past the development boundary. This will be aided by the presence of screening vegetation around a large proportion of the site boundary. The retention of this will reduce noise levels outside of the development footprint. It is therefore considered that the zone of influence for noise will be within the development boundary itself and 50meters outside of the boundary.

Air Pollution

Particulates associated with the construction phase of this development will come from vehicles on site, from exhaust emissions, the contact of tyres on the road surface or dust blowing from materials carried via vehicles, stripping of topsoil/vegetation and excavation of footings for the new properties.

The zone of influence for air pollution, particularly dust, will depend on the time of year/weather condition within which works are carried out. For example in dry conditions there may be dust generated by activities taking place during the construction phase, where

as in wet weather less dust will be generated. It is also dependant on the wind speed at the time of the activity as this determines how far the air pollution will be transported and indeed the direction.

Fugitive dust from development sites is typically deposited within 100-200m of the source; the greatest proportion of which comprise larger particles (greater than 30 microns) is deposited within 100m (Greater London Authority, 2006). Therefore the zone of influence for air pollution during construction will be the development footprint itself with a 200meter buffer.

Water Pollution

Hermitage Stream runs to the west of the site along with a drainage system to the east (**Figure 3**). However they are separated from the site by public open space and residential development. Therefore there is not considered that water sources will be impacted by the development and so a zone of influence is not applicable.

Figure 3. Proximity of flowing water (Bing Maps, 2015).



4.2.2 Operational Phase

The zone of influence associated with the operational phase is extended beyond the site boundaries due to the nature of the development resulting in an increase in human activity and disturbance in the direct vicinity and further afield.

Human Disturbance

Recreational Pressure

The results of the Solent Disturbance Mitigation Project (SDMP) found that visitors arriving by car lived within 5.04km from the area they visited. Therefore the zone of influence for people visiting Designated and/or protected sites outside of the development boundary will be defined at 5km.

Walking

A study in 2002 found that 38% of walking trips were for personal errands, 28% were for exercise, 21% were for recreation or leisure and 5% for work. The average trip length was 2.1km (National Highway Traffic and Safety Administration and the Bureau of Transportation Statistics, 2002). With this in mind the zone of influence for disturbance in the form of people on foot will be 2.1km.

Dog Walking

The visitor survey supporting the SDMP found that people participating in dog walking lived within 1.20km of the location at which they choose to walk their dog. Therefore the zone of influence for Dog Walking will be 1.2km.

Light Pollution

This impact of lighting will be confined within the development footprint itself. There is the possibility of light spilling into adjacent land however by retaining and enhancing existing vegetation it is considered this will be minimal. Therefore the zone of influence will encompass the development footprint with a one meter buffer along the outside of the boundary.

Air Pollution

Pollution will arise from the increased level of traffic and vehicles associated with a housing development of this size. It is outside of the expertise of this report to model the spatial patterns of air dispersion and deposition for various chemicals to allow for close delineation of the area of influence. Therefore a general consideration of the impacts on nearby notable ecological features will be taken into account.

Noise Pollution

As the noise associated with this development will not reach high levels, it is considered that the zone of influence for this development in operation will integrate the development site and 10meters to the south of the development boundary.

4.2 Phase I Survey

Managed Amenity Grassland – The main body of the site is made up of amenity grassland, which is under continual management (evident in **Figure 4**). The species within this area included common grasses such as False Brome (*Brachypodium sylvaticum*), Barren Brome (*Bromus sterilis*), Wall Barley (*Hordeum murinum*), Rough Meadow Grass (*Poa trivialis*), Perennial Ryegrass (*Lolium perenne*), Cock's Foot (*Dactylis glomerata*), False Oat Grass (*Arrhenatherum elatius*) and Yorkshire Fog (*Holcus lanatus*) with Meadow Buttercup (*Ranunculus acris*), Creeping Buttercup (*Ranunculus repens*), White Clover (*Trifolium repens*), Red Clover (*Trifolium pratense*), Cat's ear (*Hypochaeris radicata*), Sheep's Sorrel (*Rumex acetosella*), Common Sorrel (*Rumex acetosa*), Common Daisy (*Bellis perennis*), Dandelion (*Taraxacum officinale*), Ribwort Plantain (*Plantago lanceolata*) and Common Chickweed (*Stellaria media*).

Figure 4. Image of the site.



Unmanaged Buffer – A buffer of unmanaged grassland surrounds the periphery of the site (this is also evident along the fence line in **Figure 4**). This was dominated by Bramble (*Rubus fruticosus*) with Common Nettle (*Urtica dioica*), Bristly Ox-tongue (*Helminthotheca echinoides*), Spotted Medick (*Medicago arabica*), Wood Avens (*Geum urbanum*), White Dead Nettle (*Lamium album*), Cow Parsley (*Anthriscus sylvestris*), Hogweed (*Heracleum sphondylium*), Broad-Leaved Dock (*Rumex obtusifolius*) and Pink Sorrel (*Oxalis articulata*) Within the understory of this area.

The grass within this strip had not been subject to the same management regime as the centre of the site and so the structure was significantly more diverse.

Boundary Trees – Along the boundary of the site a number of mature trees were noted including Sycamore (*Acer pseudoplatanus*) and Apple (*Malus Sp.*). Although most of these were located outside of the site boundary two Oaks (*Quercus Sp.*) and two Ash (*Fraxinus excelsior*) trees were identified on site.

4.4 Phase II Bat Survey

Two Phase II bat surveys were carried out. The dates and information on survey conditions are provided in **Table 1**.

Table 1. Relevant survey information.

Date	Temp (°C)	Cloud Cover (%)	Wind	Start time	Finish time
07/07/2015	19	100	Gusts of Wind	21:15	23:18
31/08/2015	17	100	None	19:47	21:27

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Both Common (*Pipistrellus pipistrellus*) and Soprano Pipistrelles (*Pipistrellus pygmaeus*) were recorded on site. The full results are contained within **Table 2** below.

Table 2. Bat Activity During the First Survey.

Point No.	Start Time at Point	Time of Activity	Species	Activity	Direction of Flight
1	21:15				
2	21:38	21:42	Common Pipistrelle	Commute	South
3	21:55	22:03	Common Pipistrelle	Commute – Heard not seen	N/A
		22:07	Common Pipistrelle	Commute	Northwest along site boundary
4	22:12	22:20	Common Pipistrelle	Forage – Heard not seen	N/A
		22:21	Soprano Pipistrelle	Commute	South
5	22:27	22:27 – 22:32	Common and Soprano Pipistrelle	Forage and Commute	Within bottom eastern corner
		22:37	Common Pipistrelle	Forage and Commute	West – East
		22:42	Common Pipistrelle	Commute	West
6	22:43	22:43	Common Pipistrelle	Forage	West
		22:50 – 22:57	Common Pipistrelle	Forage	Within bottom western

					corner.
7	22:58	22:58	Common Pipistrelle	Commute -	N/A
		23:02	Common Pipistrelle	Heard not seen Commute	South

31th August 2015

High levels of bat activity were recorded during the early part of the second survey with almost constant foraging and commuting behaviour from both Common and Soprano Pipistrelles. However after 20:50, activity dramatically decreased. **Table 3** below provides details.

Table 3. Bat Activity During the Second Survey.

Point No.	Start Time at Point	Time of Activity	Species	Activity	Direction of Flight
1	19:47				
2	20:03	20:09	Common Pipistrelle	Commute	West
		20:10	2 x Soprano Pipistrelle	Commute	West – East
		20:12	2 x Soprano Pipistrelle	Commute	West – East
		20:14	Common Pipistrelle	Forage	North into centre of site
		20:15	2 x Common Pipistrelle	Commute	West
		20:16 – 20:18	Common and Soprano Pipistrelle in pursuit	Forage	East – West
3	20:20	20:20 – 20:31	Common Pipistrelle	Commute & Forage	North – South
		20:21	Soprano Pipistrelle	Commute	North – South
		20:34	Soprano Pipistrelle	Forage	North – South
4	20:37	20:39	Common Pipistrelle	Commute	N/A
		20:40	Soprano Pipistrelle	Commute	North – South

		20:41	Common Pipistrelle	Commute – Heard not seen	N/A
		20:46	Soprano Pipistrelle	Forage	South – North
		20:49	Common Pipistrelle	Forage	North – South
5	20:52	20:52	Common Pipistrelle	Forage – Heard not seen	N/A
6	21:05	21:05	Common Pipistrelle	Commute – Heard Not Seen	N/A
		21:15	Common Pipistrelle	Commute – Heard Not Seen	N/A
7	21:20				

4.5 Reptile Survey

The vegetation within the boundary vegetation was considered suitable to support reptiles, as a result a dedicated reptile survey was undertaken. **Table 4** below contains the data from the reptile survey. A maximum of three Slow Worms were recorded. All records were limited to this buffer vegetation and no reptiles were recorded within the centre of the site.

Table 4. Reptile Survey Results.

Date	Time and temperature	Number of Females	Number of Juveniles	Number of Males	Total Slow worms
23/04/15	11:00, 17°C				0
04/04/15	16:55, 16°C				0
27/04/15	14:30, 18°C	1		1	
29/04/15	15:30, 19°C	1	1	1	3
01/05/15	16:30, 20°C	1	1		2
21/05/15	11:35, 21°C	1	1		2
27/05/15	13:00, 20°C		1		1

4.6 Limitations

It was not considered that there were any significant limitations during any stage of the surveying process. Both the Phase II bat and reptile surveys took place within the optimal survey window and weather conditions were consistently favourable for the species.

5.0 EVALUATION OF RESULTS

5.1 Desk Based Search

5.1.1 Protected Sites

As the development falls within 5.6km of Special Protection Areas within and around the Solent it falls in the zone within which Natural England's advise states that development 'would be likely to have a significant effect'.

5.1.2 Protected Species

No evidence of Badgers was identified during the visits to site. Similarly as there are no water courses on, or adjacent to, the site it is considered unlikely Water Vole will be impacted. It was considered that areas of the site held potential for reptiles and therefore a full reptile survey was undertaken. Similarly bat activity surveys were carried out to assess the level of bat activity on site.

5.2 Phase I Survey

Managed Amenity Grassland – The amenity grassland covering the centre of the site does not provide the diverse vegetation structure and cover that Reptiles favour (Edgar et al., 2010). In addition all floral species present are common and widespread and therefore of negligible botanical value. Therefore this was considered to be of **negligible** ecological value.

Boundary Trees – The trees on and adjacent to the site are considered to be of **local** ecological value as they are of a mature age and provide habitat for nesting birds.

Unmanaged Buffer – The buffer vegetation also provides opportunities for nesting birds. Similarly due to a lack of management this area was considered optimal to support reptiles. The subsequent reptile survey confirmed the presence of Slow Worms. Therefore this scrub is considered to be of **local** value.

5.3 Reptiles

Three Slow Worms was the maximum recorded on site. Based on the area of the site this is classified as a Low Population. Slow Worms are widespread but facing general declines in the UK. They are also listed under UK BAP species. Although there are a number of Slow Worm records around local area the site is considered to be of **local** value for Reptiles.

5.4 Bats on Site

Only Common and Soprano Pipistrelle were recorded on site. Common and Soprano Pipistrelle bats fall within the Common category of bats (Wray et al 2010). Similarly, no roosts were identified on or adjacent to the site. Therefore using the points-based system, developed by Wray et al. (2010), a score of 11 points for commuting and 10 points foraging bats was produced (see **Table 5**). This classifies the site as **local value** for commuting bats but **negligible** for foraging.

Table 5. Valuation of habitat for (a) commuting and (b) foraging bats (Wray et al. 2010).

Species	Number of bats	Roosts nearby	Habitat features
(a) Commuting habitat			
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Un-vegetated fences and large field sizes (2)
Rarer (5)	Small numbers (10)	Moderate number/not known (4)	Walls, gappy or flailed hedges, isolated well grown hedges, moderate field sizes (3)
		Large number of roosts or close to a SSSI for the species (5)	Well grown and well connected hedges, small field sizes (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Complex network of well-established hedges, small fields and rivers/streams (5)
(b) foraging habitat			
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established legislation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small numbers (10)	Moderate number/not known (4)	Isolated woodland patches, less intensive arable and/or small towns/villages (3)
		Large number of roosts or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

6.0 LIKLEY ECOLOGICAL IMPACTS IN THE ABSENCE OF MITIGATION

6.1 Introduction

The CIEEM guidelines (IEEM, 2006) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

6.2 Site Preparation & Construction

6.2.1 Change in Land Use

Habitats and Vegetation

Site preparations will see the removal of the buffer vegetation and stripping of topsoil. This activity would have the potential to harm/kill resident reptiles. This would constitute an offence under wildlife legislation, and an **adverse impact** on local reptile populations.

Due to the open nature of the site the main body does not provide nesting opportunities for birds. Therefore development of this area will have a **negligible impact**. The removal of the vegetation within the buffer could lead to the potential disturbance of nesting birds. Therefore an **adverse impact is likely** if this was to take place during bird nesting season.

It is not considered that the change in the land use of the site from amenity grassland to residential development will have a significant ecological impact. In its current state it does not provide a valuable habitat. As a relatively large proportion of the site will be incorporated into garden spaces, thus returned back to amenity grassland with the addition of floral diversity, the impact is considered to be **negligible**.

6.2.2 Noise

Noise disturbance can have a range of impacts upon ecology dependent upon the sensitivity of the species, the nature and duration of the noise and the timing of the disturbance. Noise associated with vegetation stripping will only be a temporary disturbance and is considered to only contribute to a very small proportion of the cumulative potential for wildlife disturbance associated with these activities.

Activities associated with high levels of anthropogenic noise can re-structure animal communities (Barber et al. 2009). Reproductive, territorial, alarm and contact calls are forms of acoustical communication that noise can impact (Barber et al. 2009). This can result in a number of issues such as increased predation, and therefore death and injury, and decreased reproductive efficiency. These can both result in decreased numbers of certain species.

Bats

Gleaning bats, who use sounds generated by their prey to hunt, avoid noise when foraging. Thus suggesting that noise is a fragmenting agent for some bats. As construction works will take place during the day, and no roosts have been identified on site therefore daytime disturbance is not applicable, the **impact will be negligible**.

Birds

Acoustic masking resulting from increasing background sound levels will reduce the number of individuals that utilize communication networks and could have consequences for reproductive processes. For example, songbirds show greater nest desertion and abandonment within 100m of noise disturbance. Noise within close proximity to the scrub is likely to have an **adverse impact**.

Reptiles

Reptiles will respond to the vibrations associated with noise. It may also negatively interfere with prey detection therefore noise associated with the construction phase is likely to have an **adverse impact** when taking place within the areas containing reptiles.

Protected sites

All identified protected sites are located much further than the 50meter buffer surrounding the site, considered to be the zone of influence therefore noise is **unlikely to be negatively impact** upon nearby protected sites.

6.2.3 Air Pollution

The deposition of dust can result from the chemical or physical effects of particles on the vegetation surface or from changes in soil chemistry. Where large amounts of dust are deposited on vegetation over a long time scale (a full growing season for example) there may be adverse effects through reduced photosynthesis. This can cause reduced growth rates in vegetation within the defined zone of influence. As the majority of vegetation within the footprint is set to be removed this will not have an impact. Similarly there is a lack of vegetation of ecological importance within the defined zone of influence. Therefore it is **unlikely to result in negative impacts**.

6.3 Site Operation

6.3.1 Human Disturbance on Protected Sites

A number of designated sites fall within 5km of the proposals. As this development will result in increased numbers of inhabitants in the local area there is the possibility that protected sites will experience increased visitor pressure as a result of the development. This could **result in negative impacts**.

No statutory protected sites fall within the 2.1km zone of influence. Therefore the impacts from walking and dog walking are considered to be **negligible**. The majority of the SINCs identified fall within 2.1km of the proposed development. The majority of these sites are already subject to visitor pressure and as a result there are established footpaths already in place along with facilities such as rubbish bins. As this development is focused within a built up environment it is considered likely that inhabitants will be more likely to utilise the system of footpaths for walking and/or dog walking as opposed to walking the larger distances to the SINCs. However there is a possibility they will venture to these areas. As the number of inhabitants introduced will not be large, it is considered this would result in **low to moderate negative impacts**.

6.3.2 Human Disturbance on Protected Species

Anthropogenic disturbance events are perceived by animals as predation risk, regardless of the associated noise levels (Barber et al. 2009). Therefore even a relatively quiet activity, such as walking can impact upon species.

Bats

The development will result in an increase in lighting from streetlights and external lights on the new dwellings. This can affect the foraging behaviour of bats. Therefore this is **likely to have an adverse impact**.

Reptiles

The vibrations of people walking through habitat contain reptiles, could potentially lead to the disturbance of reptile populations on site. It is not considered this will have a significant effect as the reptile populations recorded on site were within areas that already experience regular human disturbance. However there will be increased numbers of people and it if therefore considered there will be a **low negative impact**.

Pet Predation

Pet predation associated with the introduction of pets as a result of the operation of the development is **likely to have an adverse impact** upon small mammals and birds. However as the site is already located within a residential setting, with dwellings in close proximity to the site, it is not considered this will have a significant impact.

7.0 MITIGATION

A more detailed Mitigation Strategy has been developed for the reptile population on site (see **Appendix II**) however some general considerations in regard to ecology are detailed below.

7.1 Constructional Phase

7.1.1 Air Pollution

Haul routes can account for a significant proportion of dust emissions, especially in dry or windy conditions, when the generation of dust through the movement of vehicles is exacerbated (Greater London Authority, 2006). It is recommended that developers should ensure that hard surfaces are used for all haul routes, even if routes are temporary. For example the use of consolidated surfaces. It will also be important to regularly inspect the integrity of these and repair routes if required (Greater London Authority, 2006). If weather conditions are particularly dry haul routes will need to be washed or dampen down (Greater London Authority, 2006). Similarly if footings are being excavated during dry weather the ground should be dampened to reduce the amount of dust generated.

With regard to vehicles used during the construction phase, the key mechanism to reduce ecological impacts will be to ensure that there is no 'idling' and that all vehicles should switch off their engines when not in use. In addition cleaning or washing all vehicles effectively before they leave a site reduces the risk of affecting nearby sensitive receptors. Finally all loads entering and/or leaving the site should be covered.

7.1.2 Noise Pollution

A certain level of noise pollution will be unavoidable due to the nature of the development (e.g. the need to excavate footings, mix cement, high numbers of contractor personnel). However by turning off vehicles and machinery when not in use will reduce engine noise. Similarly retaining all boundary vegetation will help retain the noise within the development footprint.

7.1.3 Vegetation Removal

As some of the buffer vegetation will need to be removed (see **Appendix II** for more details), which provides suitable habitat for nesting birds, this should take place prior to or after the bird-nesting season (March – August inclusive). If this is not possible then a check by a suitably qualified ecologist should precede removal. If any nests are found then a 3 meter buffer will be left and the nest must be deemed inactive by the ecologist prior to removal.

7.1.4 Protection of Trees

Tree protective fencing will protect trees from direct impact and from severance or asphyxiation of the roots. Fences must be installed at the distance of the branch spread away from the tree trunk (British Standard 5837:2012 Trees in relation to construction) at a distance half the height of the tree and be of chestnut paling or of another similarly robust style of fencing. No vehicles should enter the protective ring fencing and no materials should be stored within their circumference. All protective fencing must be in place prior to any construction machinery arriving on site, before any works on site get underway, and will remain in place until all work is completed.

7.2 Operational Phase

7.2.1 Bats

All street lighting should be down facing and ideally hooded to minimize light pollution in line with appropriate guidance (BCT, 2009). Low-pressure sodium lamps should be utilised on site instead of mercury or metal halide lamps. Glass glazing is preferred due to its UV filtration characteristics. Finally, the time when lighting is utilised should be limited to provide maintain dark periods for as long as possible. New dwellings will be fitted with sensor-controlled lighting.

7.3 Proximity to Protected Sites

The site is located within the proximity of sites designated for their nature conservation. Due to the proposed development involving an increase in residents to the area, the impact in terms of increased visitor pressure to these sites must be considered and, where possible, mitigated.

The site lies within the vicinity of the Solent Special Protection Area (SPA). In order to mitigate for the likely increases in residential pressure upon this SPA, and the associated impacts upon high densities of wildfowl and waders for which the area is predominantly protected, the Solent Disturbance Mitigation Project (SDMP) has been introduced. This is a collaboration with Natural England and local councils, including Havant Borough Council. Mitigation towards the SPA must be provided for all new residential developments within the 5.6km of the SPA.

The report associated with Phase III of the Solent Disturbance Mitigation Project (SDMP) considers avoidance and mitigation measures relating to the impacts associated with new development and it focuses on increased recreational disturbance to wintering and passage waterfowl. Such measures are necessary to protect the SPA and Ramsar site interests on the Solent. It outlines a number of techniques that may form the mitigation framework (see **Box 1**) (Liley and Tyldesley, 2013).

Box 1. Proposed Mitigation for the SDMP.

- A 'Delivery Office' post is required to initiate the elements of the strategy, manage the initial delivery of the mitigation and ensure the necessary procedures, reporting and monitoring is in place.
- A team of 'Wardens' to provide an on-site presence, talking to visitors, engaging with the public about birds and wildlife, help with the delivery of other elements of the strategy and undertaking monitoring.
- 'Solent Dog Project' to engage with dog walkers, promote sites for dog walking and provide information on dog-walking around the Solent.
- A 'Review of Parking and Access' will lead to recommendations relating to creating additional parking in some locations, reducing parking in others, revised parking charges and may provide evidence for the exclusion zones.
- A 'Review of Watersport Zones and Watersport Access' will interact with user groups and set out a series of clearly defined zones with necessary infrastructure.
- The development of the 'Codes of Conduct Pack' will be undertaken with users groups, helping to establish clear communication and discussion, covering watersports and

shorebased activities. The codes should include maps and fit together as a single pack of separate codes.

- 'Site Specific Projects', relating to both shore-based and water-based access, would include path re-routing, creation of new paths, dedicated areas for dogs, enhanced facilities for watersports, marking of dedicated watersport zones, changes to car-parks.
- Once 'Watersport permits and Enforcement' is established, monitoring results will indicate whether further measures are necessary. Various more restrictive options are then available for example dog control orders, permit systems for particular watersports at particular locations and enforcement of byelaws could be introduced as required and targeted as necessary.
- SANGS/ADDITIONAL GI/ALTERNATIVE ROOST SITES: these measures are large, costly and are unlikely to be 'quick wins'. As such they should be considered as
- Elements to be adopted at a later part of the strategy include the creation of 'Alternative Roost Sites' and Suitable Alternative Natural Green Spaces (SANGS).

The measures will need to be provided either directly by individual developments or indirectly via funding contributions. As it states within the report 'In most cases it will not be possible for an individual development to implement any direct measures in order to wholly or partly offset its effects on the Solent SPAs' therefore 'the effects of the development can be mitigated by it making a proportionate contribution to the cost of implementing the Strategy'.

The SDMP necessitates that financial contributions are made to help mitigate against likely significant impacts from new developments with the defined 5.6km disturbance zone. A financial contribution of £174 per dwelling will be made either before planning permission is granted or by entering into a Section 106 Planning Obligation.

The Liley and Tyldesley (2013) report states that 'contributions of individual proposals to the strategic funding ensures that they will not be likely to have a significant effect on the SPAs, either

- a) alone (usually because they are too small); or
- b) in combination with other plans or projects (because the combined effects are eliminated by the implementation of the strategy to which the development has made a fair and proportional contribution in order to avoid any significant effects on the site).

8.0 ECOLOGICAL ENHANCEMENTS

8.1 Landscape Planting

As a general enhancement, in line with the CIEEM guidance (2012) any proposed planting should aim for a 70:30 ratio in favour of native species over non-natives and ornamentals. Ideally fruit bearing species, providing food sources for birds and small mammals during the autumn and winter and nest sites during the spring and summer, should be utilised. Species that should be considered include:

- Hawthorn
- Alder Buckthorn (*Frangula alnus*)
- Blackthorn (*Prunus spinosa*)
- Wild Cherry (*Prunus avium*)
- Crab Apple (*Malus sylvestris*)
- Elder (*Sambucus nigra*)
- Rowan (*Sorbus aucuparia*)

Shrubs to be considered within the landscape planting include:

- Dogwood (*Cornus sanguinea*)
- Holly (*Ilex aquifolium*)
- Privet (*Ligustrum vulgare*)
- Dog Rose (*Rosa canina*)
- Guelder Rose (*Viburnum opulus*)

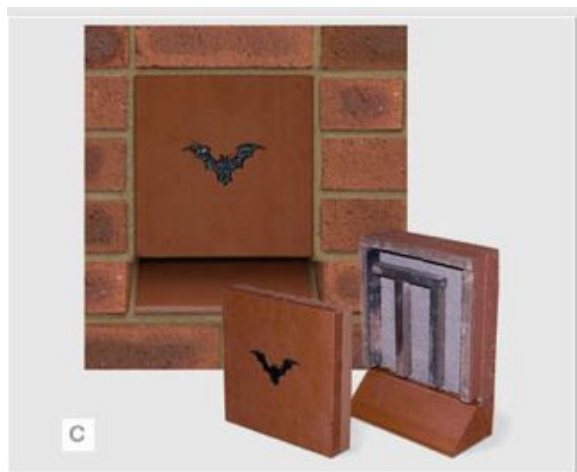
8.2 Nesting Birds

It is recommended that two 1B Schwegler Nest Boxes with 32mm entrance hole should be erected within trees on site, or with permission the boundary trees to the south, to attract a variety of birds.

8.3 Bats

In the interest of promoting ecology and to keep in line with National and Local policy it is recommended that a minimum of five bat boxes are integrated within at least five of the new dwellings. The Bat Box C design (**Figure 6**) has been designed specifically for crevice dwelling bat species such as the Common and Soprano Pipistrelles recorded on site.

Figure 6. Bat Box C available from IBSTOCK.



Inline with Natural England guidance (2015) roofing felt should be utilised as apposed to Breathable Roof Membrane (BRM) as there is considerable evidence to suggest that BRM poses a threat to bats occupying loft voids due to entanglement of bats in the fibres (Natural England, 2015).

9.0 REFERENCES

Bat Conservation Trust (BCT) Bat surveys: Good practice guidelines, 2nd edition.

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Mitchell-Jones, T (2004) Bat Mitigation Guidelines, English Nature

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Protected and Notable Species (Excluding Birds)

Search Area: **Within 2km of SU 71056 08458, Land off of Kingsclere Avenue**

Date: **18/03/2015**

HBIC Ref: **5408**

See this [Legislation Explanatory Document](#) for a document explaining notable species statuses and legislation.

HBIC has its own extensive database of habitat and higher plant data for the County. In addition, HBIC hold copies of datasets belonging to partner organisations. Through data exchange agreements with these organisations HBIC is provided with regular database updates and can supply species information on their behalf. HBIC currently holds copies of the following datasets:

- Botanical Society of the British Isles' (BSBI) vascular plant database for Hampshire
- British Bryological Society (Mosses, Liverworts, Hornworts)
- Butterfly Conservation's butterfly and moth database for Hampshire
- Hampshire Bat Group (HBG) Records of bat roost visits and sightings
- Data administered by the Hampshire Wildlife Trust (HWT) on behalf of the species recording groups below:
 - Hampshire Amphibian and Reptile Group (HARG)
 - Hampshire Mammal Group (HMG) (excluding records for bats and badgers)
- UK Bees, Wasps and Ants Recording Society (BWARS) the full dataset as of March 2014

It is important that these species recording groups (where relevant to the data provided) are acknowledged in any document produced by the data requester where data is incorporated into the document, as a matter of course.

The following are protected and notable species records (Excluding Birds) from the above datasets within the search area recorded in the last 15 years. For plants this has been extended to 20 years, for bats there is no time restriction:

Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
Amphibians & Reptiles								
<i>Anguis fragilis</i>	Slow-worm	NERC_s41 WCA_s5s91(t)	SU696088	Hulbert Road, Havant - Su6968008878	2002	2002	1	2
			SU69700899	A3(m)	2010	2010	1	1
			SU697089	A3(m), Havant - Su6974208994	2002	2002	1	1

sharing information about Hampshire's wildlife

The Hampshire Biodiversity Information Centre Partnership includes local authorities, government agencies, wildlife charities and biological recording groups.

Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU697089	Hulbert Road, Havant - Su6967108906	2002	2002	1	2
			SU697089	Hulbert Road, Havant - Su6968708890	2002	2002	1	1
			SU697090	- Su6995290111	2002	2002	1	1
			SU697090	A3(m), Havant - Su6972509037	2002	2002	1	1
			SU697090	A3(m), Havant - Su6972709021	2002	2002	1	1
			SU697090	A3(m), Havant - Su6973009021	2002	2002	1	1
			SU697090	A3(m), Havant - Su6973609004	2002	2002	1	1
			SU697090	A3(m), Havant - Su6973909005	2002	2002	1	1
			SU697090	A3(m), Havant - Su6974009159	2002	2002	1	2
			SU697090	A3(m), Havant - Su6974208997	2002	2002	1	1
			SU697090	A3(m), Havant - Su6974309153	2002	2002	1	2
			SU697091	A3(m), Havant - Su6974509171	2002	2002	1	1
			SU697092	A3(m), Havant - Su6972809026	2002	2002	1	1
			SU697092	A3(m), Havant - Su6974709158	2002	2002	1	1
			SU697092	A3(m), Havant - Su6975309196	2002	2002	1	1
			SU697092	A3(m), Havant - Su6981409356	2002	2002	1	1
			SU697092	A3(m), Havant - Su6983309384	2002	2002	1	3
			SU698092	Park Lane, Havant - Su7003209655	2002	2002	1	1
			SU698094	A3(m), Havant - Su6987809512	2002	2002	1	2
			SU698094	Cavendish Drive, Havant - Su6897509571	2002	2002	1	1
			SU698094	Park Lane, Havant - Su7002809652	2002	2002	1	1
			SU699095	A3(m), Havant - Su6986209515	2002	2002	1	1
			SU699095	Park Lane, Havant - Su6999209727	2002	2002	1	1
			SU700095	A3(m), Havant - Su6987109493	2002	2002	1	1
			SU700096	A3(m), Havant - Su6974309182	2002	2002	1	1
			SU700096	Park Lane, Havant - Su7003909649	2002	2002	1	1
			SU700097	Dunbury Hill Farm - Su6988109521	2002	2002	1	1
			SU700097	Park Lane, Havant - Su7000009712	2002	2002	1	1
			SU700097	Park Lane, Havant - Su7000109727	2002	2002	1	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU700097	Park Lane, Havant - Su7000209728	2002	2002	1	1
			SU700097	Park Lane, Havant - Su7002309651	2002	2002	1	3
			SU700097	Park Lane, Havant - Su7002309674	2002	2002	1	1
			SU700097	Park Lane, Havant - Su7003209642	2002	2002	1	1
			SU700097	Park Lane, Havant - Su7029409651	2002	2002	1	1
			SU700097	Park Lane, Havant - Su7031709645	2002	2002	1	3
			SU700097	Park Lane, Havant - Su7032009605	2002	2002	1	1
			SU700098	Hulbert Road, Havant - Su6962308771	2002	2002	1	2
			SU703096	A3(m), Havant - Su6974409008	2002	2002	1	1
			SU703096	Park Lane, Havant - Su7025209307	2002	2002	1	1
			SU703096	Park Lane, Havant - Su7028109653	2002	2002	1	1
			SU703096	Park Lane, Havant - Su7030909645	2002	2002	1	1
			SU703096	Park Lane, Havant - Su7031109645	2002	2002	1	1
			SU703096	Park Lane, Havant - Su7031809599	2002	2002	1	1
			SU703097	A3(m), Havant - Su6973609017	2002	2002	1	1
			SU717102	Havant Thicket (release Site)	2007	2007	2	73
<i>Bufo bufo</i>	Common Toad	NERC_s41	SU717084	Great Copse, Havant	2001	2001	1	0
<i>Natrix natrix</i>	Grass Snake	NERC_s41 WCA_s5s91(t)	SU697090	A3(m), Havant - Su6973009021	2002	2002	1	0
			SU697090	A3(m), Havant - Su6973609022	2002	2002	1	1
			SU697090	A3(m), Havant - Su6973909005	2002	2002	1	1
			SU697092	A3(m), Havant - Su6974309153	2002	2002	1	0
			SU697092	A3(m), Havant - Su6974709158	2002	2002	1	0
			SU698094	A3(m), Havant - Su6981409356	2002	2002	1	0
			SU699095	A3(m), Havant - Su6986209515	2002	2002	1	1
			SU699095	A3(m), Havant - Su6987109493	2002	2002	1	0
			SU700097	Park Lane, Havant - Su6999209727	2002	2002	1	2
			SU700098	Park Lane, Havant - Su7001409787	2002	2002	1	0
			SU703096	Park Lane, Havant - Su7032009605	2002	2002	1	1
			SU703097	Park Lane, Havant - Su7029409651	2002	2002	1	0

Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU719090	North Of Leigh Park Havant	1999	1999	1	1
			SU726095	Durrants Road Rowlands Castle	1999	1999	1	1
<i>Vipera berus</i>	Adder	NERC_s41 WCA_s5s91(t)	SU697090	A3(m), Havant - Su6972509037	2002	2002	1	1
			SU697090	A3(m), Havant - Su6973009021	2002	2002	1	0
			SU697092	A3(m), Havant - Su6974309153	2002	2002	1	0
			SU697092	A3(m), Havant - Su6974709158	2002	2002	1	1
			SU698094	A3(m), Havant - Su6981409356	2002	2002	1	0
			SU699095	A3(m), Havant - Su6987109493	2002	2002	1	0
			SU700098	Park Lane, Havant - Su7001409787	2002	2002	1	0
			SU703095	Park Lane, Havant - Su7026909535	2002	2002	1	1
			SU703097	Park Lane, Havant - Su7029409651	2002	2002	1	0
			SU716086	Havant, Staunton Country Park	2003	2003	1	0
			su716086	Staunton Country Park, Havant	2006	2006	1	0
<i>Zootoca vivipara</i>	Common Lizard	NERC_s41 WCA_s5s91(t)	SU697090	A3(m), Havant - Su6972809026	2002	2002	1	1
			SU697090	A3(m), Havant - Su6973009021	2002	2002	1	0
			SU697092	A3(m), Havant - Su6974309153	2002	2002	1	0
			SU697092	A3(m), Havant - Su6974709158	2002	2002	1	0
			SU698094	A3(m), Havant - Su6981409356	2002	2002	1	0
			SU699091	Park Lane, Havant - Su6991009121	2002	2002	1	1
			SU699095	A3(m), Havant - Su6987109493	2002	2002	1	1
			SU699095	Dunbury Hill Farm	2002	2002	1	1
			SU699095	Park Lane, Havant - Su6987109517	2002	2002	1	2
			SU700090	- Su6995209011	2002	2002	1	1
			SU700096	Park Lane, Havant - Su7003209642	2002	2002	1	1
			SU700096	Park Lane, Havant - Su7004409593	2002	2002	1	1
			SU700098	Park Lane, Havant - Su7001409787	2002	2002	1	0
			SU702090	Park Lane, Havant - Su7021509045	2002	2002	1	1
			SU703093	Park Lane, Havant - Su7025209307	2002	2002	1	0
			SU703096	Park Lane, Havant - Su7030909645	2002	2002	1	1
			SU703097	Park Lane, Havant - Su7028109653	2002	2002	1	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU703097	Park Lane, Havant - Su7029409651	2002	2002	1	1
Higher plants - Flowering Plants								
<i>Arabis hirsuta</i>	Hairy Rock-cress	CS	SU7308	Barton's Copse	1997	1997	1	0
<i>Bromus commutatus</i>	Meadow Brome	CS	SU698079	Neville's Park Area 10	1996	1996	1 *	0
<i>Chamaemelum nobile</i>	Chamomile	IUCN_GB_2001:VU HBAP NERC_s41	SU720090	Durrants	2009	2009	1	0
<i>Crepis biennis</i>	Rough Hawk's-beard	CR	SU7308	Comley Hill	1997	1997	1	1
<i>Euphorbia pepis</i>	Purple Spurge	IUCN_GB_2001:EX	SU717084	Great Copse, Havant	2002	2002	1	0
<i>Misopates orontium</i>	Weasel's-snout	IUCN_GB_2001:VU	SU7206	Havant New Lane	2008	2008	2	0
			SU723068	Allotments By New Lane In Havant	2005	2005	1	0
			SU723068	Denvilles	1997	1997	1	1
<i>Orobancha hederaceae</i>	Ivy Broomrape	CR	SU7106	Havant Town	2008	2008	1	0
<i>Potentilla erecta x anglica = P. x suberecta</i>	Cinquefoil	CR	SU7110	Havant Thicket	2009	2009	1	0
<i>Ranunculus baudotii</i>	Brackish Water-crowfoot	CS	SU7106	Havant Town Centre	2008	2008	1	0
<i>Sambucus ebulus</i>	Dwarf Elder	CR	SU7206	Havant Town	2008	2008	1	0
<i>Saxifraga tridactylites</i>	Rue-leaved Saxifrage	CS	SU7106	Havant Town	2008	2008	1	0
			SU7206	Havant Town	2008	2008	1	0
<i>Securigera varia</i>	Crown Vetch	CI	SU7208	Havant Leigh Park	2008	2008	1	0
<i>Spergula arvensis</i>	Corn Spurrey	IUCN_GB_2001:VU	SU722086	West Leigh	1998	1998	1	1
Invertebrates - Coleoptera								
<i>Lucanus cervus</i>	Stag Beetle	EU_Hab_2np NS HBAP NERC_s41	SU693085	Su693085	2006	2006	1	1
			SU7106	Havant Area 7106	2002	2002	1	1
			SU7106	Su7106	2002	2002	1	1
			SU717065	Su717065	2002	2002	1	1
			SU718068	Su718068	2002	2002	1	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU718080	Su718080	2007	2007	1	1
			SU720066	Su720066	2002	2002	1	1
			SU7206	Su7206	2007	2007	1	1
			SU723076	Su723076	2006	2006	1	1
Invertebrates - Lepidoptera								
<i>Abrostola triplasia</i>	Dark Spectacle	CS	SU713089	Leigh Park Hants	2004	2012	2	1
<i>Acronicta psi</i>	Grey Dagger	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Acronicta rumicis</i>	Knot Grass	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	109	7
			SU7210	1-km Square Su7210	2000	2000	1	0
			SU723096	Gipsies Plain, Staunton Country Park	2008	2008	1	1
<i>Agrochola litura</i>	Brown-spot Pinion	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2011	11	3
<i>Agrochola lychnidis</i>	Beaded Chestnut	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	41	9
<i>Allophyes oxyacanthae</i>	Green-brindled Crescent	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	17	2
<i>Amphipoea fucosa</i>	Saltern Ear	CS	SU713089	Leigh Park Hants	2013	2013	1	1
<i>Amphipoea oculea</i>	Ear Moth	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1986	2013	32	3
<i>Amphipyra tragopoginis</i>	Mouse Moth	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2004	32	4
<i>Apamea remissa</i>	Dusky Brocade	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	27	5
<i>Apamea unanimitis</i>	Small Clouded Brindle	CS	SU713089	Leigh Park Hants	2013	2013	1	1
<i>Apatura iris</i>	Purple Emperor	IUCN_GB_2001:NT HBAP	SU706100	Bell's Copse, Havant Thicket	2013	2013	1	1
			SU708103	Havant Thicket	2013	2013	1	2

Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
		CS	SU7110 SU715098	Havant Thicket Staunton Country Park	2012 2013	2013 2013	2 1	1 1
<i>Apoda limacodes</i>	Festoon	HBAP	SU7108 SU713089 SU713089 SU7210	1-km Square Su7108 69, Winterslow Drive, Leigh Park Leigh Park Hants 1-km Square Su7210	2000 2005 1985 2000	2000 2005 2011 2000	1 1 22 1	0 2 6 0
<i>Arctia caja</i>	Garden Tiger	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2013	1 90	0 19
<i>Argynnis aglaja</i>	Dark Green Fritillary	CS	SU721095 SU722093 SU723096 SU724092	Staunton Country Park Transect: Section No 6 Staunton Country Park Transect: Section No 2 Staunton Country Park Transect: Section No 5 Staunton Country Park Transect: Section No 4	2008 2008 2008 2008	2008 2008 2008 2008	1 3 2 1	2 2 1 1
<i>Argynnis paphia</i>	Silver-washed Fritillary	HBAP CI	SU708103 SU7109 SU7110 SU715098 SU717092 SU717095 SU719092 SU719092 SU719093 SU720098 SU721091 SU721095 SU721101	Havant Thicket Staunton Country Park Havant Thicket Staunton Country Park Staunton Country Park Transect: Section No 7 Staunton Country Park Leigh Park Gardens, Staunton Country Park Leigh Park Wood, Havant Staunton Country Park Staunton Country Park Staunton Country Park/leigh Park Gardens Staunton Country Park Transect: Section No 6 Rowland's Castle	2013 2003 2006 2013 2008 2005 2012 2012 2013 2006 2011 2008 2010	2013 2003 2012 2013 2008 2005 2012 2012 2013 2006 2011 2010 2010	1 1 4 1 1 1 3 1 1 1 1 13 1	12 0 5 2 1 3 5 2 4 15 3 9 5

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU722088	Staunton Country Park Transect: Section No 1	2009	2010	3	1
			SU722093	Staunton Country Park Transect: Section No 2	2008	2009	2	1
			SU723092	Staunton Country Park Transect: Section No 3	2008	2010	4	5
			SU723096	Staunton Country Park Transect: Section No 5	2008	2010	12	6
			SU723097	Havant Thicket	2007	2007	1	5
			SU724092	Staunton Country Park Transect: Section No 4	2008	2010	4	4
<i>Argyresthia glabratella</i>	Spruce Argent	CR	SU7210	Havant Thicket	2013	2013	1	1
<i>Asteroscopus sphinx</i>	Sprawler	NERC_s41 CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Atethmia centrargo</i>	Centre-barred Sallow	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Atolmis rubicollis</i>	Red-necked Footman	CS	SU713089	Leigh Park Hants	2004	2004	1	1
<i>Brachylomia viminalis</i>	Minor Shoulder-knot	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1995	2000 2011	1 5	0 2
<i>Calamotropha paludella</i>	Bulrush Veneer	NS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1996	2000 2003	1 3	0 1
<i>Caloptilia populetorum</i>	Clouded Slender	CR	SU7210	Havant Thicket	2009	2009	1	0
<i>Caradrina morpheus</i>	Mottled Rustic	NERC_s41	SU7108 SU713089 SU7210	1-km Square Su7108 Leigh Park Hants 1-km Square Su7210	2000 1985 2000	2000 2011 2000	1 86 1	0 6 0
<i>Catarhoe cuculata</i>	Royal Mantle	CS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1996	2000 2000	1 3	0 1
<i>Celaena leucostigma</i>	Crescent	NERC_s41 CS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1996	2000 2012	1 3	0 1
<i>Cerapteryx graminis</i>	Antler Moth	CS	SU713089	Leigh Park Hants	2011	2011	1	1
<i>Clostera pigra</i>	Small Chocolate-tip	CS	SU7210	Havant Thicket	2008	2008	1	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
<i>Coenonympha pamphilus</i>	Small Heath	IUCN_GB_2001:NT NERC_s41	SU7110	Havant Thicket	2008	2008	1	2
			SU717091	Staunton Country Park Transect: Section No 8	2009	2009	3	1
			SU717092	Staunton Country Park Transect: Section No 7	2009	2010	2	1
			SU721088	Staunton Country Park	2010	2010	1	1
			SU721095	Staunton Country Park Transect: Section No 6	2009	2010	2	1
			SU722088	Staunton Country Park Transect: Section No 1	2010	2010	1	1
			SU723096	Staunton Country Park Transect: Section No 5	2008	2008	2	3
			SU724092	Staunton Country Park Transect: Section No 4	2009	2009	1	3
<i>Cosmia affinis</i>	Lesser-spotted Pinion	CS	SU713089	Leigh Park Hants	2008	2008	1	1
<i>Cryphia muralis</i>	Marbled Green	CS	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	62	6
<i>Cupido minimus</i>	Small Blue	IUCN_GB_2001:NT HBAP NERC_s41 CS	SU717084	Great Copse, Havant	2001	2001	1 *	0
<i>Cymatophorima diluta</i>	Oak Lutestring	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Deileptenia ribeata</i>	Satin Beauty	CS	SU7210	1-km Square Su7210	2000	2000	1	0
<i>Diarsia rubi</i>	Small Square-spot	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	131	46
<i>Diloba caeruleocephala</i>	Figure of Eight	NERC_s41 CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Ecliptopera silaceata</i>	Small Phoenix	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Ectoedemia argyropeza</i>	Virgin Pigmy	CR	SU7109	Staunton Country Park	2006	2006	2	24
			SU7110	Havant Thicket	2013	2013	1	0

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU7210	Havant Thicket	1989	2013	4	0
<i>Eilema sororcula</i>	Orange Footman	HBAP	SU713089	Leigh Park Hants	2004	2013	4	2
<i>Elaphria venustula</i>	Rosy Marbled	CS	SU7210	1-km Square Su7210	2000	2000	1	0
<i>Elegia similella</i>	White-barred Knot-horn	NS HBAP	SU7210	1-km Square Su7210	2000	2000	1	0
<i>Ennomos erosaria</i>	September Thorn	NERC_s41	SU7108 SU713089 SU7209	1-km Square Su7108 Leigh Park Hants Staunton Country Park	2000 1985 2005	2000 2013 2005	1 66 1	0 6 1
<i>Ennomos fuscantaria</i>	Dusky Thorn	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2009	1 11	0 2
<i>Epinotia fraternana</i>	Silver-barred Bell	CR	SU7210	Havant Thicket	2000	2000	1	1
<i>Epinotia tedella</i>	Common Spruce Bell	CR	SU7210	Havant Thicket	1975	2013	6	1
<i>Epirrhoe rivata</i>	Wood Carpet	CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Erynnis tages</i>	Dingy Skipper	IUCN_GB_2001:VU NERC_s41 CI	SU723092	Staunton Country Park Transect: Section No 3	2008	2008	1	1
<i>Eudonia delunella</i>	Pied Grey	NS	SU7210	1-km Square Su7210	2000	2000	1	0
<i>Eulithis mellinata</i>	Spinach	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1986	2000 2005	1 3	0 1
<i>Eupithecia simpliciata</i>	Plain Pug	CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Eupithecia venosata</i>	Netted Pug	CS	SU7108 SU7210	1-km Square Su7108 1-km Square Su7210	2000 2000	2000 2000	1 1	0 0
<i>Euplagia quadripunctaria</i>	Jersey Tiger	EU_Hab_2np	SU713089	Leigh Park Hants	2012	2012	1	1
<i>Euxoa tritici</i>	White-line Dart	NERC_s41 CS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2012	1 2	0 1
<i>Furcula bifida</i>	Poplar Kitten	CS	SU713089	Leigh Park Hants	2012	2012	1	1
<i>Hadena confusa</i>	Marbled Coronet	CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Hadena perplexa</i>	Tawny Shears	CS	SU713089	Leigh Park Hants	2006	2006	1	1
<i>Heliozela hammoniella</i>	Birch Lift	CR	SU7110	Havant Thicket	2009	2009	1	1

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<i>Hemistola chrysoprasaria</i>	Small Emerald	NERC_s41	SU7108 SU713089 SU7210	1-km Square Su7108 Leigh Park Hants 1-km Square Su7210	2000 1985 2000	2000 2013 2000	1 10 1	0 2 0
<i>Hepialus humuli</i>	Ghost Moth	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Hipparchia semele</i>	Grayling	IUCN_GB_2001:VU NERC_s41	SU717084	Great Copse, Havant	2001	2001	1	0
<i>Hoplodrina blanda</i>	Rustic	NERC_s41	SU7108 SU713089 SU7209	1-km Square Su7108 Leigh Park Hants Staunton Country Park	2000 1985 2005	2000 2013 2005	1 235 1	0 56 1
<i>Hydraecia micacea</i>	Rosy Rustic	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2013	1 65	0 3
<i>Hydraecia petasitis</i>	Butterbur	CR	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Idaea emarginata</i>	Small Scallop	CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Lacanobia suasa</i>	Dog's Tooth	CS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2005	1 11	0 2
<i>Leucoma salicis</i>	White Satin Moth	CS	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Limenitis camilla</i>	White Admiral	IUCN_GB_2001:VU NERC_s41	SU706100 SU708103 SU7109 SU7110 SU715098 SU717095 SU719092 SU719093 SU719102 SU720098 SU7210 SU721091 SU721095	Bell's Copse, Havant Thicket Havant Thicket Staunton Country Park Havant Thicket Staunton Country Park Staunton Country Park Leigh Park Gardens, Staunton Country Park Staunton Country Park Havant Thicket Staunton Country Park Havant Thicket Staunton Country Park/leigh Park Gardens Staunton Country Park Transect: Section No 6	2013 2013 2003 2006 2013 2005 2012 2013 2008 2006 2007 2011 2008	2013 2013 2003 2012 2013 2005 2012 2013 2008 2006 2007 2011 2010	1 1 1 4 1 1 3 1 1 1 1 1 9	1 5 0 5 2 5 2 2 2 3 2 4 7

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU721101	Rowland's Castle	2010	2010	1	4
			SU723096	Staunton Country Park Transect: Section No 5	2008	2010	6	1
			SU724092	Staunton Country Park Transect: Section No 4	2009	2010	3	2
<i>Lithosia quadra</i>	Four-spotted Footman	CR	SU713089	Leigh Park Hants	2006	2013	2	1
<i>Lycia hirtaria</i>	Brindled Beauty	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1994	2007	3	3
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Macaria wauaria</i>	V-moth	NERC_s41 CR	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Malacosoma neustria</i>	Lackey	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2012	86	8
<i>Mecyna flavalis</i>	Yellow Pearl	HBAP	SU713089	Leigh Park Hants	2013	2013	1	1
<i>Melanchra persicariae</i>	Dot Moth	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	39	2
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Mesoleuca albicillata</i>	Beautiful Carpet	CS	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	2012	2012	1	1
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Mesoligia literosa</i>	Rosy Minor	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	11	4
<i>Moma alpium</i>	Scarce Merveille Du Jour	IUCN_GB_pre94:R HBAP	SU7210	1-km Square Su7210	2000	2000	1	0
<i>Mythimna comma</i>	Shoulder-striped Wainscot	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	100	14
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Mythimna obsoleta</i>	Obscure Wainscot	CS	SU713089	Leigh Park Hants	2006	2006	1	1
<i>Mythimna pudorina</i>	Striped Wainscot	CS	SU7210	1-km Square Su7210	2000	2000	1	0

Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
<i>Orthosia gracilis</i>	Powdered Quaker	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2008	1 10	0 2
<i>Panemeria tenebrata</i>	Small Yellow Underwing	CS	SU7110	1-km Square Su7110	2000	2000	1	0
<i>Parectopa ononidis</i>	Clover Slender	CR	SU7110 SU7210	Havant Thicket Havant Thicket	2008 2008	2009 2008	2 1	0 0
<i>Perittia obscurepunctella</i>	Honeysuckle Dwarf	CR	SU7210	Havant Thicket	1982	2000	2	2
<i>Perizoma albulata</i>	Grass Rivulet	CS	SU713089	Leigh Park Hants	2009	2013	2	1
<i>Phyllocnistis xenia</i>	Kent Bent-wing	IUCN_GB_pre94:VU	SU7109	Staunton Country Park	2011	2011	1	0
<i>Phyllonorycter hilarella</i>	Sallow Midget	CR	SU7210	Havant Thicket	2013	2013	1	1
<i>Phyllonorycter salictella</i>	Willow Midget	CR	SU7110	Havant Thicket	1998	2013	3	2
<i>Plagodis pulveraria</i>	Barred Umber	CS	SU713089	Leigh Park Hants	2012	2012	1	1
<i>Plusia festucae</i>	Gold Spot	CS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 2002	2000 2011	1 7	0 1
<i>Polymixis flavicincta</i>	Large Ranunculus	CS	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1994	2000 2000	1 7	0 1
<i>Ptilodon cucullina</i>	Maple Prominent	CS	SU713089 SU7210	Leigh Park Hants 1-km Square Su7210	2003 2000	2013 2000	4 1	1 0
<i>Rhizodra lutosa</i>	Large Wainscot	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Scopula marginipunctata</i>	Mullein Wave	NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 1985	2000 2003	1 4	0 1
<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	NERC_s41	SU713089	Leigh Park Hants	2003	2012	3	1
<i>Shargacucullia lychnitis</i>	Striped Lychnis	HBAP NERC_s41	SU7108 SU713089	1-km Square Su7108 Leigh Park Hants	2000 2000	2000 2003	1 2	0 1
<i>Sitochroa palealis</i>	Sulphur Pearl	NN	SU7108 SU713089 SU7210	1-km Square Su7108 Leigh Park Hants 1-km Square Su7210	2000 1994 2000	2000 2000 2000	1 5 1	0 5 0
<i>Spilosoma lubricipeda</i>	White Ermine	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU713089	Leigh Park Hants	1985	2013	47	3
<i>Spilosoma luteum</i>	Buff Ermine	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	161	15
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Spilosoma urticae</i>	Water Ermine	HBAP CR	SU7108	1-km Square Su7108	2000	2000	1	0
<i>Stigmella assimilella</i>	Aspen Pigmy	CR	SU7010	Bell's Copse, Havant Thicket	2007	2007	1	0
			SU7210	Havant Thicket	1986	2008	3	2
<i>Telechrysis tripuncta</i>	Treble-spot Tubic	CR	SU7210	Havant Thicket	2007	2007	1	1
<i>Tethea or</i>	Poplar Lutestring	CS	SU7108	1-km Square Su7108	2000	2000	1	0
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Tholera cespitis</i>	Hedge Rustic	NERC_s41 CS	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	2000	2013	6	3
<i>Tholera decimalis</i>	Feathered Gothic	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	15	8
<i>Timandra comae</i>	Blood-Vein	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	89	5
			SU7210	1-km Square Su7210	2000	2000	1	0
<i>Tyria jacobaeae</i>	Cinnabar	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU7110	1-km Square Su7110	2000	2000	1	0
			SU713089	Leigh Park Hants	1994	2009	14	4
<i>Watsonalla binaria</i>	Oak Hook-tip	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	102	8
			SU7209	Staunton Country Park	2005	2005	1	1
<i>Xanthia gilvago</i>	Dusky-lemon Sallow	NERC_s41 CR	SU702075	10 St Johns Road, Bedhampton	2004	2004	1	1
<i>Xanthia ictertia</i>	Sallow	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2013	40	3
<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	NERC_s41	SU7108	1-km Square Su7108	2000	2000	1	0
			SU713089	Leigh Park Hants	1985	2012	8	5

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
<i>Xestia baja</i>	Dotted Clay	CS	SU7108	1-km Square Su7108	2000	2000	1	0
Lower plants - Liverworts, Hornworts & Mosses								
<i>Lejeunea lamacerina</i>	Western Pouncewort	HBAP	SU7010	* UK Vice-counties	1996	1996	1 *	0
Mammals - Terrestrial (bats)								
<i>Eptesicus serotinus</i>	Serotine	EU_Hab_4 HBAP WCA_s5s94b WCA_s5s94c HabReg_s2	SU7010	Sensitive	2005	2005	1	1
			SU7106	Sensitive	2003	2003	1	1
			SU7106	Sensitive	2014	2014	1	1
			SU7107	Sensitive	2001	2011	2	28
			SU7107	Sensitive	2002	2014	44	28
			SU7107	Sensitive	2007	2007	1	7
			SU7109	Sensitive	2005	2005	1	3
			SU7110	Sensitive	2008	2013	6	17
<i>Myotis</i>	Unidentified Bat	WCA_s5s94b WCA_s5s94c HabReg_s2	SU6907	Sensitive	2011	2011	1	2
			SU6908	Sensitive	2011	2011	1	0
			SU6908	Sensitive	2012	2012	1	0
			SU6908	Sensitive	2013	2013	1	1
			SU6908	Sensitive	2014	2014	1	0
			SU6909	Sensitive	2011	2011	1	0
			SU7008	Sensitive	2012	2012	1	1
			SU7008	Sensitive	2012	2012	1	1
			SU7009	Sensitive	2010	2010	1	0
			SU7010	Sensitive	2005	2005	1	1
			SU7107	Sensitive	2012	2012	1	1
			SU7107	Sensitive	2013	2013	1	1
			SU7109	Sensitive	2005	2005	1	1
			SU7109	Sensitive	2005	2005	1	1
			SU7209	Sensitive	2005	2005	1	1
<i>Myotis bechsteinii</i>	Bechstein's Bat	EU_Hab_2np EU_Hab_4	SU70E	Sensitive	2006	2006	1	1
			SU70E	Sensitive	2008	2008	1	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
		HBAP	SU70J	Sensitive	2008	2008	1	22
		NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2 CI	SU70J	Sensitive	2008	2008	2	5
<i>Myotis brandtii</i>	Brandt's Bat	EU_Hab_4 WCA_s5s94b WCA_s5s94c HabReg_s2	SU7110	Sensitive	2008	2008	1	1
<i>Myotis mystacinus</i>	Whiskered Bat	EU_Hab_4 WCA_s5s94b WCA_s5s94c HabReg_s2	SU7110	Sensitive	2008	2008	2	2
			SU7209	Sensitive	2008	2008	2	1
<i>Myotis mystacinus/brandtii</i>	Whiskered/Brandt's Bat	WCA_s5s94b WCA_s5s94c HabReg_s2	SU7107	Sensitive	2001	2001	1	1
			SU7109	Sensitive	2005	2005	1	3
			SU7110	Sensitive	2005	2005	1	3
			SU7110	Sensitive	2009	2009	2	1
			SU7209	Sensitive	2008	2008	1	1
			SU7209	Sensitive	2008	2008	1	20
<i>Myotis nattereri</i>	Natterer's Bat	EU_Hab_4 WCA_s5s94b WCA_s5s94c HabReg_s2	SU7109	Sensitive	2005	2005	1	1
			SU7109	Sensitive	2005	2005	1	4
			SU7109	Sensitive	2008	2008	1	1
			SU7110	Sensitive	2008	2009	4	3
			SU7209	Sensitive	2005	2005	1	1
			SU7209	Sensitive	2008	2008	3	3
			SU7209	Sensitive	2008	2009	2	21

Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
<i>Nyctalus noctula</i>	Noctule Bat	EU_Hab_4 NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU6908	Sensitive	2011	2011	1	0
			SU6908	Sensitive	2011	2012	2	0
			SU6908	Sensitive	2013	2013	1	1
			SU6908	Sensitive	2014	2014	1	0
			SU7008	Sensitive	2014	2014	1	1
			SU7009	Sensitive	2010	2011	2	0
			SU7106	Sensitive	2000	2013	6	2
			SU7106	Sensitive	2010	2010	1	1
			SU7106	Sensitive	2012	2012	1	1
			SU7107	Sensitive	2007	2007	1	1
			SU7107	Sensitive	2007	2007	1	1
			SU7107	Sensitive	2007	2014	6	1
			SU7107	Sensitive	2011	2011	1	1
			SU7107	Sensitive	2013	2013	1	1
			SU7109	Sensitive	2003	2003	1	1
			SU7109	Sensitive	2005	2005	1	2
			SU7109	Sensitive	2005	2005	2	3
			SU7110	Sensitive	2008	2010	3	7
			SU7209	Sensitive	2014	2014	1	1
<i>Pipistrellus</i>	Pipistrelle Bat species	WCA_s5s94b WCA_s5s94c HabReg_s2	SU6910	Sensitive	1985	1985	1	1
			SU696088	Sensitive	2013	2013	1	1
			SU699074	Sensitive	1986	2000	2	62
			SU703072	Sensitive	2002	2002	1	0
			SU703072	Sensitive	2002	2002	1	1
			SU704077	Sensitive	2003	2003	1	1
			SU704086	Sensitive	1999	1999	1	0
			SU709072	Sensitive	2012	2012	1	1
			SU7106	Sensitive	1999	2013	11	5
			SU7110	Sensitive	2008	2013	3	3
			SU712069	Sensitive	2008	2009	2	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU713073	Sensitive	2008	2010	4	2
			SU714101	Sensitive	2008	2008	1	4
			SU716082	Sensitive	2002	2002	1	1
			SU717069	Sensitive	2009	2009	1	1
			SU718068	Sensitive	2009	2009	1	3
			SU724088	Sensitive	2010	2010	1	0
			SU724096	Sensitive	2008	2008	1	2
			SU726094	Sensitive	2013	2013	1	0
<i>Pipistrellus nathusii</i>	Nathusius's Pipistrelle	EU_Hab_4 WCA_s5s94b WCA_s5s94c HabReg_s2	SU70E	Sensitive	2014	2014	1	1
			SU691080	Sensitive	2014	2014	1	0
			SU696086	Sensitive	2011	2011	1	0
			SU696088	Sensitive	2013	2013	5	6
			SU697088	Sensitive	2011	2012	2	0
			SU697089	Sensitive	2011	2011	1	0
			SU698092	Sensitive	2011	2011	1	0
			SU699088	Sensitive	2014	2014	1	1
			SU699090	Sensitive	2011	2011	1	0
			SU700086	Sensitive	2014	2014	1	1
			SU700089	Sensitive	2011	2011	1	0
			SU700090	Sensitive	2010	2011	4	0
			SU701083	Sensitive	2012	2012	1	1
			SU701088	Sensitive	2014	2014	1	1
			SU701089	Sensitive	2011	2011	1	0
			SU702093	Sensitive	2010	2010	1	0
			SU703081	Sensitive	2012	2012	1	1
			SU707078	Sensitive	2013	2013	1	2
<i>Pipistrellus pipistrellus</i>	Pipistrelle	EU_Hab_4 HBAP WCA_s5s94b WCA_s5s94c HabReg_s2						

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU708077	Sensitive	2012	2013	2	1
			SU7106	Sensitive	2000	2013	7	8
			SU7110	Sensitive	2008	2013	12	41
			SU711068	Sensitive	2012	2012	2	1
			SU711069	Sensitive	2012	2012	1	1
			SU711073	Sensitive	2012	2012	1	1
			SU712069	Sensitive	2012	2014	2	1
			SU712072	Sensitive	2013	2013	1	1
			SU712096	Sensitive	2005	2005	1	1
			SU713066	Sensitive	2010	2010	1	2
			SU713073	Sensitive	2007	2014	7	2
			SU714067	Sensitive	2010	2010	1	5
			SU715066	Sensitive	2014	2014	1	1
			SU716085	Sensitive	2014	2014	1	1
			SU717068	Sensitive	2012	2012	1	1
			SU717084	Sensitive	2001	2001	2	0
			SU717084	Sensitive	2001	2001	1	0
			SU718084	Sensitive	2014	2014	1	2
			SU718091	Sensitive	2011	2011	1	1
			SU720090	Sensitive	2013	2013	1	6
			SU722089	Sensitive	2012	2012	1	1
			SU723086	Sensitive	2008	2008	1	1
			SU724087	Sensitive	2007	2010	2	6
			SU724088	Sensitive	2013	2013	1	2
			SU729077	Sensitive	2002	2002	1	1
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	EU_Hab_4	SU691080	Sensitive	2014	2014	1	0
		HBAP	SU695070	Sensitive	2011	2011	1	2
		NERC_s41	SU696088	Sensitive	2013	2013	3	4
		WCA_s5s94b	SU697088	Sensitive	2011	2011	1	0
		WCA_s5s94c	SU697090	Sensitive	2010	2010	1	0

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
		HabReg_s2	SU699094	Sensitive	2011	2011	1	0
			SU700090	Sensitive	2011	2011	1	0
			SU708077	Sensitive	2012	2012	1	1
			SU710073	Sensitive	2013	2013	1	1
			SU7106	Sensitive	2010	2013	3	11
			SU7110	Sensitive	2008	2008	1	3
			SU711068	Sensitive	2012	2012	1	1
			SU711069	Sensitive	2012	2012	1	1
			SU711073	Sensitive	2012	2013	2	1
			SU712069	Sensitive	2014	2014	1	1
			SU712096	Sensitive	2005	2005	1	1
			SU713073	Sensitive	2009	2009	1	1
			SU714100	Sensitive	2005	2005	1	1
			SU716085	Sensitive	2014	2014	1	1
			SU717097	Sensitive	2005	2005	1	1
			SU718069	Sensitive	2010	2010	1	1
			SU720090	Sensitive	2013	2013	1	2
			SU723072	Sensitive	2003	2003	1	1
			SU724096	Sensitive	2008	2008	1	20
<i>Plecotus</i>	Long-eared Bat species	WCA_s5s94b	SU696088	Sensitive	2013	2013	1	1
		WCA_s5s94c	SU701083	Sensitive	2012	2012	1	1
		HabReg_s2	SU717097	Sensitive	2005	2005	1	1
<i>Plecotus auritus</i>	Brown Long-eared Bat	EU_Hab_4 NERC_s41 WCA_s5s94b WCA_s5s94c HabReg_s2	SU691080	Sensitive	2014	2014	1	0
			SU7010	Sensitive	2008	2008	1	1
			SU702078	Sensitive	1999	1999	1	1
			SU712097	Sensitive	2008	2008	2	5
			SU714101	Sensitive	2008	2008	5	16
			SU717095	Sensitive	2008	2008	2	1
			SU722089	Sensitive	2012	2012	1	1

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Taxon Name	Common Name	Status	Grid Ref.	Location	First Year	Last Year	No. of Records	Max Count
			SU723093	Sensitive	1997	2008	5	11
			SU724096	Sensitive	2008	2008	1	22
Mammals - Terrestrial (non-bats)								
<i>Erinaceus europaeus</i>	West European Hedgehog	NERC_s41	SU706076	Purbrook Way, Leigh Park, Havant	2008	2008	1	3
<i>Muscardinus avellanarius</i>	Hazel Dormouse	EU_Hab_4 HBAP NERC_s41	SU6907	Sensitive	2007	2007	1	0
		WCA_s5s94b WCA_s5s94c HabReg_s2 CI	SU6907	Sensitive	2007	2007	1	21

Confidential records

HBIC holds a small number of records that are to be treated as confidential. Confidentiality can be for a variety of reasons and may relate to a whole site or only to specific species. These records may be withheld or released depending on the nature of the data request and in accordance with the Environmental Information Regulations 2004.

Sensitive species

A small number of species are considered as sensitive by the relevant specialist species recording groups and will be indicated as such on all lists. Species may be considered sensitive for a variety of reasons. Location details for these records will not be disclosed unless the relevant species recording group has given their permission. Grid references will be altered to give a less precise position. Contact HBIC if further information is needed on these records.

Further notes

- Records of species such as the Nationally Rare Box (*Buxus sempervirens*) may not appear on the list as there may be many records but their provenance is not known.
- The location names, where shown, are the originals given by the recorders and may not match any formal name for the location or other colloquial names by which the location may also be known.

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- The grid references, where shown, are the originals given by the recorders and may indicate the specific location of the species, a central grid reference representing a larger survey area, or a grid square.
- Where species have been deemed as 'sensitive' by the relevant specialist species recording group the location name will not be shown and the grid reference will have been altered to give a less precise position specified by the species recording group.
- Many of the records have been supplied by specialist species recording groups. Whilst every reasonable effort is made to validate information supplied to the Hampshire Biodiversity Information Centre the accuracy or comprehensiveness of this information cannot be guaranteed.
- Records do not necessarily represent evidence of breeding at a site; please contact HBIC if further details are required for any of these records.
- Whilst a species may have been recorded at a site, this does not indicate that the species is still present. Equally, the absence of a species from a site does not signify that it is absent, only that it has not been recorded, that the site has not been surveyed for this species, or that HBIC has not been informed of its presence.
- Quantities of '0' (zero) indicate that the species was 'present' but the number of individuals seen was not recorded. Negative quantities correspond to the DAFOR scale (plus very rare and 'locally' criteria) as follows:
 - -1 = Dominant (DAFOR)
 - -2 = Abundant (DAFOR)
 - -3 = Frequent (DAFOR)
 - -4 = Occasional (DAFOR)
 - -5 = Rare (DAFOR)
 - -6 = Very Rare
 - -21 = Locally Dominant
 - -22 = Locally Abundant
 - -23 = Locally Frequent
- Negative quantities of '-7' (minus seven) indicates that the species was 'not found'. These records are not included in protected and notable species lists.
- Max_Count values of '0' (zero) indicate that none of the records had a positive quantity count and hence the highest count numerical value was '0' (indicating 'present'). Max_Count values of blank indicate that none of the records had a numerical count value and instead they all had frequency values (e.g. using the DAFOR scale).

Status codes and abbreviations:

EU_Bird_1	Annex I of the Birds Directive
EU_Hab_2	Annex II of the Habitats Directive (priority species)
EU_Hab_2np	Annex II of the Habitats Directive (non-priority species)
EU_Hab_4	Annex IV of the Habitats Directive
EU_Hab_5	Annex V of the Habitats Directive
IUCN_(pre 94)	See IUCN (pre 1994) guidelines

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IUCN_(1994)	See IUCN (1994) guidelines
IUCN_(2001)	See IUCN (2001) guidelines
BOCC_Red	Birds of Conservation Concern Red list
NR	Nationally rare (occurring in 15 or fewer 10km squares in Great Britain)
NS	Nationally scarce (occurring in 16 - 100 10km squares in Great Britain)
NN	Nationally notable (occurring in 16 - 100 10km squares in Great Britain or less than 20 Vice Counties)
HBAP	Hampshire Biodiversity Action Plan species
NERC_s41	Priority Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006
WCA_s1p1	Schedule 1 Part 1 of the Wildlife and Countryside Act 1981 (as amended)
WCA_s5s91(k)	Schedule 5 Section 9 Part 1 (killing/injuring) of the Wildlife and Countryside Act 1981 (as amended)
WCA_s5s91(t)	Schedule 5 Section 9 Part 1 (taking) of the Wildlife and Countryside Act 1981 (as amended)
WCA_s5s94a	Schedule 5 Section 9 Part 4a of the Wildlife and Countryside Act 1981 (as amended)
WCA_s5s94b	Schedule 5 Section 9 Part 4b of the Wildlife and Countryside Act 1981 (as amended)
WCA_s5s94c	Schedule 5 Section 9 Part 4c of the Wildlife and Countryside Act 1981 (as amended)
WCA_s8	Schedule 8 of the Wildlife and Countryside Act 1981 (as amended)
HabReg_2	Schedule 2 of Conservation of Habitats and Species Regulations 2010 (European Protected Species animal)
HabReg_5	Schedule 5 of Conservation of Habitats and Species Regulations 2010 (European Protected Species plant)
PBA	Protection of Badgers Act 1992
NI	National Interest
CR	County Rare
CS	County Scarce
CI	County Interest
nHR	North Hampshire Rare (VC12)
sHR	South Hampshire Rare (VC11)
nHS	North Hampshire Scarce (VC12)
sHS	South Hampshire Scarce (VC11)

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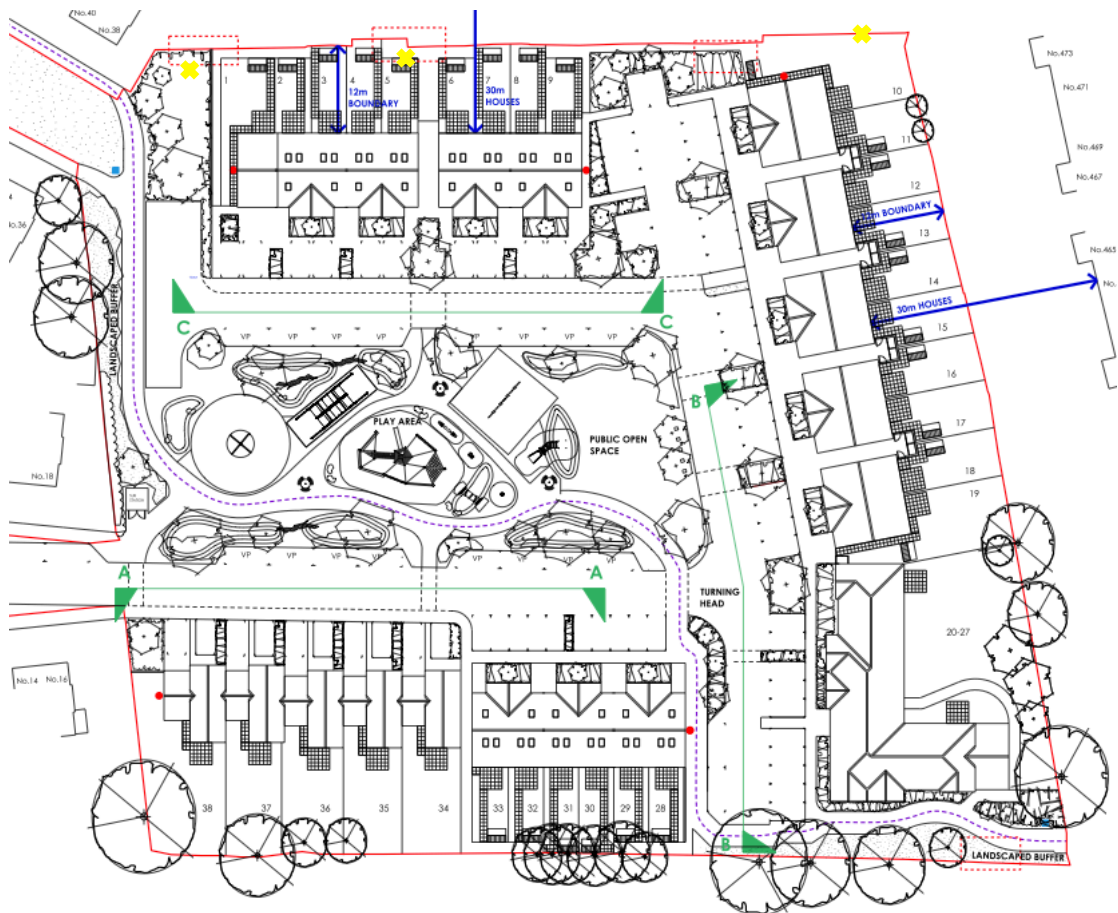
Appendix I – Reptile Mitigation Strategy

1.0 Introduction

As all British reptiles are protected under the Wildlife & Countryside Act (1981) (as amended) and are listed in the UK Biodiversity Action Plan (BAP) priority species list as UK priority species. In the absence of appropriate mitigation, the proposed development would likely result in a breach in legislation. It is therefore necessary to implement the Mitigation Strategy below to ensure no reptiles are killed or injured as a result of the development and that the development will not impact the conservation status of reptiles within the local area.

Once the population of Slow Worms was identified the design team were notified immediately. As a result proposals now see the retention of all areas identified as supporting the onsite reptiles. Therefore this particular Mitigation Strategy takes on a precautionary approach to ensure the reptiles within these areas are not harmed (see **Figure 1** for location of Slow Worms in relation to the retained areas and new gardens). The mitigation strategy has been informed by best practice guidelines published by English Nature (2004) and the Herpetofauna Groups of the British Isles (HGBI) (1998).

Figure 1. Proposed development layout at Kingsclere Avenue with locations of reptiles.



1.1 Reptiles on Site

The survey identified a maximum count of three Slow Worms. Based on the results of the survey, it is estimated that the site supports a low population of Slow Worm as defined by HGBI (1998) guidelines. The Slow Worms were found to be present within the boundary vegetation. The results do not indicate that the site constitutes a Key Reptile Site (Froglife, 1999). The majority of the site is bounded by residential gardens therefore it is considered likely that the reptiles identified on site are part of a wider metapopulation.

1.2 Site Status Assessment

Slow Worms are considered relatively widespread in Hampshire and across the South of England, with those identified on site considered likely to be part of a larger population in the local area. That said they are still protected by wildlife legislation. Consequentially, the site is considered to hold **LOCAL VALUE** with regards to reptiles.

1.3 Impacts in the Absence of Mitigation

1.3.1 Initial Impacts

Prior to the retention of the boundary vegetation buffer, the site preparation and construction phases of the proposed works would have had the potential to harm/kill resident reptiles, due to the removal of vegetation, top soil and the excavation of footings. This would have likely constituted an offence under wildlife legislation, and an **adverse impact** on local reptile populations. Although this is no longer the case there is still the risk of machinery entering areas of suitable reptile habitat or accidentally clearing in part or the entirety of these areas. It is still likely that this would constitute an offence under wildlife legislation, and an **adverse impact** on local reptile populations, without measures put in place to protect the buffer.

1.3.2 Isolation and Fragmentation

Without mitigation the boundary vegetation could have been removed and so there would have been a lack of connectivity from the site to the adjacent gardens. As the proposed development will retain the majority of this, which connects the site to the wider landscape, is not considered likely that any significant habitat fragmentation and/or isolation will be caused to local reptile population.

1.3.3 Post-development Impacts

In the absence of mitigation/compensation, the proposed works could have resulted in the loss of suitable reptile habitat on site, which would constitute an **adverse impact** on local reptile populations. As it now stands, it is considered once the development is complete, there will be no post-development impacts.

2.0 MITIGATION AND COMPENSATION

2.1 Aims

The general principles of reptile mitigation entail the protection of reptiles from harm by removing them from within the footprint of the development. The favourable conservation

status of reptiles within the local area must also be maintained by ensuring there is sufficient suitable reptile habitat to support the reptile population.

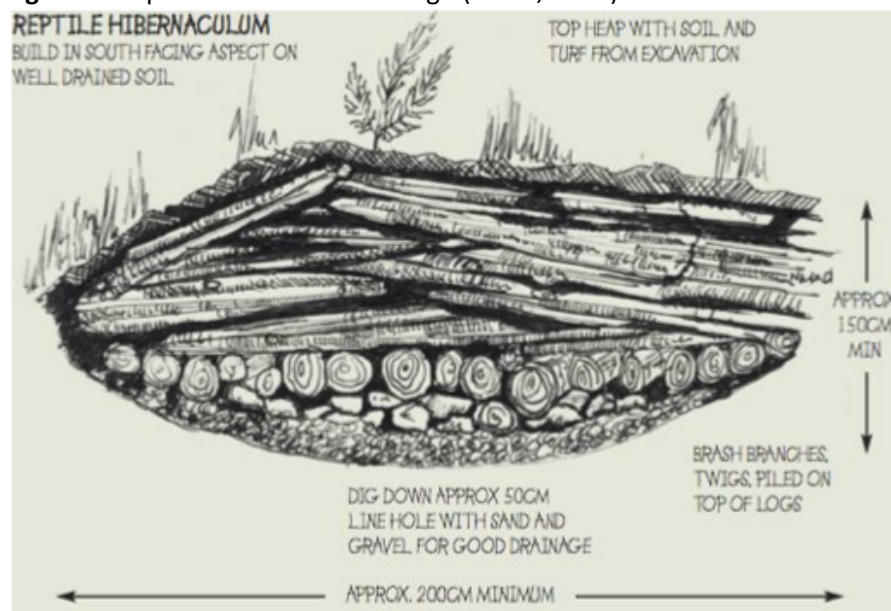
Wherever possible, reptiles should be retained on site, or released immediately adjacent to the site. *In-situ* relocation schemes, where reptiles are retained in suitable areas of a development site or released into immediately adjacent habitat are preferable (English Nature, 2004). This will be the case for this development.

2.2 Protected Area

In order to enhance this area sensitive habitat works will be undertaken prior to works getting underway. This should be cut back to ensure it does not encroach further and thus reduce the favourability of the area for reptiles. This will take place outside of bird nesting season (March – August). Works should not impact ground level, particularly if being carried out in the winter months, to ensure that hibernating reptiles are not harmed.

An artificial hibernacula will be constructed along the southern boundary of the site to provide shelter and hibernation opportunities as well as providing a significant habitat resource for invertebrates as a food resource for reptiles. The design of the hibernacula will follow best practice guidelines (HART, 2009), comprising a mixture of rubble and organic materials with a turf cover (**Figure 2**) however due to the limited size of the site itself it will be made slightly smaller. It is considered that these measures will increase the carrying capacity of the habitat to support the translocated reptiles.

Figure 2. Reptile hibernaculum design (HART, 2009).

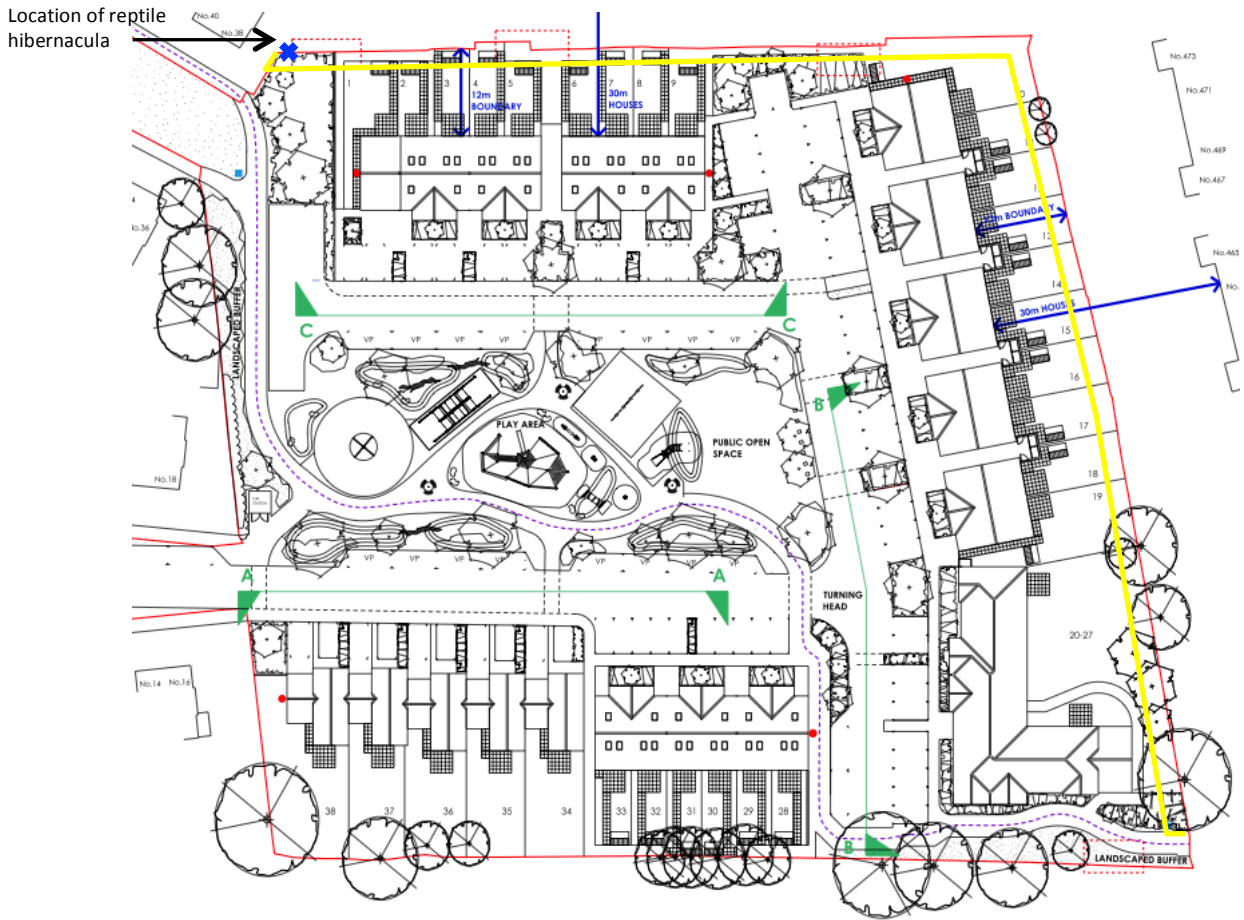


2.3 Fencing

Once the habitat enhancements have taken place reptile exclusion fencing will be installed around the perimeter of the suitable reptile habitat. This will provide a division between the reptile area and the 'working' areas i.e. those areas where humans and machinery will disturb the ground. The fencing will remain in place until all works are completed. **Figure 3**

shows the location of the fencing in yellow.

Figure 3. Location of reptile exclusion fencing.



2.3 Safeguarding

The proposed protected area of the site will be protected in perpetuity from any works that could reduce its suitability to support reptiles and/or pose any risk to the reptiles present, including but not limited to development. Initial habitat enhancement works to the reptile receptor site will be the responsibility of, and funded by Portsmouth City Council.

3.0 Conclusion

It is considered that, providing the above steps are implemented, there will be no negative impacts towards reptiles on site.