The Ecology Consultancy

New Monks Farm / Preliminary Ecological Appraisal / **Report for Sheils Flynn on behalf of Adur DC**

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New Monks Farm, Lancing, West Sussex

Preliminary Ecological Appraisal

Report for Sheils Flynn

on behalf of Adur District Council

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Executive Summary

The Ecology Consultancy was commissioned by Sheils Flynn on behalf of Adur District Council to carry out a Preliminary Ecological Appraisal (PEA) of New Monks Farm on the edge of Lancing in West Sussex. This assessment is part of the landscape and ecological survey of potential strategic allocations within Adur District being carried out by Sheils Flynn for the Council's emerging Local Plan.

A PEA, including protected species risk assessment, was carried out on the 27th July 2012 and the main findings are as follows:

- The site supports a moderately diverse range of habitats, including; buildings, hardstanding, bare ground, amenity, improved and poor semi-improved grassland, ephemeral/short perennial and tall ruderal vegetation, standing and running water, marginal vegetation, swamp (reedbed), introduced shrub, continuous and scattered scrub, scattered trees, native and non-native hedgerows and mixed woodland.
- The site is not subject to any statutory or non-statutory nature conservation designations. The nearest statutory (and non-statutory) designated nature conservation site is Lancing Ring Local Nature Reserve and Site of Nature Conservation Importance, located 210m north-west of New Monk's Farm.
- Overall, and on the basis of the PEA, discrete parts of the site are considered to be of ecological value up to a district level. These areas are strongly associated with habitats in the north-west section of the site, along Mash Barn Lane and with the network of on-site ditches (2km in total). This value is based on their potential to support a range of protected, rare/notable and BAP species and the important hydrological role the ditches/streams play in maintaining the wider network of off-site water bodies present across Lancing Strategic Gap.
- It is strongly recommended that, where possible, construction works that may result in the loss of, or other impacts on the north-west section of the site, scrub/tree-lines along Mash Barn Lane and the network of ditches (and associated riparian habitats) is avoided. These habitats should be retained and protected, except where loss is unavoidable, and only after an appropriate programme of mitigation, compensation and enhancement has been put in place.
- Over 75% of the site is comprised of habitats that are common and widespread in the locality i.e. bare ground, improved grassland and ephemeral short/perennial and tall-ruderal vegetation. These habitats are concentrated in the south-west corner and east section of the site where the new golf course is being developed, are considered to be

of ecological value within the immediate vicinity of the site and have potential to support a limited range of protected species groups *viz.* breeding birds and widespread reptiles.

- The site provides an important secondary and supporting role to the network of ecological receptors surrounding it, primarily by providing wildlife corridors for species moving across the urban-rural fringe into Lancing Strategic Gap and north towards the South Downs National Park.
- A range of UK BAP habitats/species are present or have potential to be present within the site. BAP habitats/species are not necessarily rare, but under the National Planning Policy Framework (NPPF) 2012 and the Natural Environment and Rural Communities (NERC) Act 2006 are all of principal importance for the conservation of biodiversity and are of material consideration in the planning process. None of the BAP habitats or populations of BAP species currently known to be present on-site are considered as notable or exceptional examples of their type.
- Further surveys are recommended for winter and breeding birds, roosting and foraging bats, widespread species of reptile, badgers, terrestrial and aquatic invertebrates, aquatic plants, water vole and great crested newts. Details on further surveys, along with mitigation measures to minimise any adverse impacts on retained woodland/hedgerow/tree habitat, breeding birds, the network of ditches and through the use of artificial lighting and accidental spreading of invasive plant species are presented in Section 5 of this report.
- The potential development of the site presents opportunities to improve it for wildlife; ecological considerations should be an integral part of masterplanning. Proposals for compensation and enhancement measures are provided in Section 5 of this report. These include, amongst other thing, the use of Sustainable Drainage Systems including ponds and biodiverse green roofs, tree/scrub/hedgerow planting, landscape planting of recognised wildlife value, and artificial nesting/roosting opportunities for birds and bats.

1 Introduction

BACKGROUND

1.1 The Ecology Consultancy was commissioned by Sheils Flynn on behalf of Adur District Council (ADC) to prepare a Preliminary Ecological Appraisal (PEA) of New Monks Farm on the edge of Lancing in West Sussex. This report forms part of the landscape and ecological survey of potential strategic allocations within Adur District being carried out by Sheils Flynn for the Council's emerging Local Plan.

1.2 The draft version of the Local Plan proposes two alternative housing targets, a number of different spatial options for new greenfield housing, identifies key employment sites, and a 'broad location' for mixed use development at Shoreham Harbour. There are a number of place based policies and development management policies. Consultation on the Local Plan will be undertaken 2012-2013 with adoption in 2014.

1.3 The six sites being considered for potential strategic allocations are as follows:

- Shoreham Airport
- Sompting North
- Sompting Fringe
- New Monk's Farm
- Land North-west of Hasler Estate
- Land North-east of Hasler Estate

1.4 All six sites are located within 'Strategic Gaps[1] and have been assessed in regards to potential development impacts on landscape features, landscape character and ecological value. A stand-alone PEA for each of these sites has been produced by The

[1] Strategic Gaps are identified by Local Planning Authorities (LPAs) in their development documents as strategic areas of green field land which define and maintain the separate identity of a Borough/District's settlements. Both Sompting and Lancing Strategic Gaps are protected under the Strategic Gap policy (AC4) of Adur's adopted Local Plan (2006). They are referred to as Local Green Gaps in the emerging Local Plan. Due to the scale of government development targets it is highly likely that these areas will need to be redefined. This presents an opportunity to create new urban edges where masterplanning encourages a well designed built form and the provision of green infrastructure such as wildlife habitats, buffer zones and improved access to natural green space. They are referred to as Local Green Gaps in the emerging Local Plan.

Ecology Consultancy, with Landscape Assessments for each site produced by Sheils Flynn.

1.5 The ecology and landscape assessments have been combined to produce the *Landscape and Ecological Surveys of Key Sites within the Adur District Report* (Sheils Flynn, 2012), which should be read in conjunction with this PEA. This combined report uses the findings of both assessments to put forward indicative development principles for each of the potential allocations sites, including ecological opportunity and constraints mapping.

SCOPE OF REPORT

1.6 This report is based on a desk-top study and field survey using standard Phase 1 survey methodology (JNCC, 2010). This approach is designed to identify the broad habitat types present, to assess the potential of habitats to support protected species and to assist in providing an overview of the ecological interest at a site. It is generally the most widely used and professionally recognised method for initial ecological site appraisal.

SITE CONTEXT AND STATUS

1.7 This potential strategic allocation site is situated in Lancing Strategic Gap on the north-east edge of Lancing. It is located south of the Old Shoreham Road (A27) with its west boundary adjacent to housing off Manor Close, Hayley Road and Shadwells Road. The south and east boundary are continuous with land at New Monk's Farm. Mash Barn Lane runs through the centre of the site, providing access to housing and agricultural buildings at New Monks Farm Cottages, Daniels Barn and New Monks Farm.

1.8 At the time of the PEA the east section of the site at New Monks Farm was being developed into a golf course. The northern half of this area had already been re-profiled and seeded with an amenity grassland mix, whereas the southern half was an active construction site.

1.9 The National Grid Reference for the centre of the site is TQ 191 053 and includes an area of 24.5 hectares (ha).

DESCRIPTION OF THE PROPOSALS

1.10 This site is currently being assessed for the provision of new housing and employment development. Early capacity work has shown that between 450 and 600 new dwellings and 10,000m^2 (approximately. 360 jobs) of new employment floor space (in addition to ancillary leisure and retail floor space) could potentially be provided.

2 Methodology

DESK TOP STUDY

2.1 Information regarding protected and notable species, habitat and areas within a 2km radius of the site was supplied by the Sussex Biodiversity Record Centre (SxBRC). In addition, a search was completed using an on-line mapping service for statutory designated sites and landscape features (MAGIC, 2012).

HABITAT SURVEY

2.2 The habitat survey following standard Phase 1 survey methodology (JNCC, 2010) was carried out on 27th July 2012 and covered all accessible parts of the site, including boundary features. Habitats were described and mapped. A list of plant species was compiled (Appendix 3), together with an estimate of abundance made according to the DAFOR[2] scale. A Habitat Plan of the site is included in Appendix 1 together with photographs in Appendix 2. Incidental records of birds and other fauna noted during the course of the habitat survey were also compiled.

2.3 In this report of these surveys, scientific names are given after the first mention of a species, thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species.

PROTECTED SPECIES ASSESSMENT

2.4 The potential of the site to provide habitat for protected species was assessed from field observations carried out at the same time as the habitat survey and the results of the desk top study. The site was inspected for evidence of the presence of protected species as follows:

- The presence of nesting habitat for breeding birds, such as mature trees, dense scrub, hedgerows and buildings and/or field margins suitable for ground nesting

[2] The DAFOR scale has been used to measure the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover Abundant (A) – 51-75% cover Frequent (F) – 26-50% cover Occasional (O) – 11-25% cover Rare (R) – 1-10% cover. Locally Frequent (LF) is used where the frequency and distribution is irregular.

birds; and evidence of bird nesting including bird song, old nests, faecal marks etc;

- Scrub/grassland mosaic and potential hibernation sites for widespread species of reptile;
- Cover and topography suitable for badger *Meles meles* sett construction, as well as evidence of badger including runs, push-throughs, setts, hair and latrines;
- Assessment of water bodies, such as ditches as to their potential to support water vole *Arvicola amphibius*;
- Diversity/heterogeneity of habitat types with varied structure and mixture of foraging plant resources suitable for invertebrates;
- Assessment of any on-site water bodies as to their potential to support breeding amphibians specifically great crested newts *Triturus cristatus*, and suitable terrestrial habitats including rough grassland, scrub, hedgerows, woodland and refuges (logs and rubble piles); and,
- The presence of features in, and on trees, indicating potential for roosting bats such as fissures, holes, loose bark and ivy and those associated with buildings such as cavities, roof voids, hanging tiles, unenclosed soffits etc. Direct evidence such as the presence of bats, staining, droppings and feeding remains was also looked for.

2.5 The likelihood of occurrence is ranked as follows and relies on the findings of the current survey and an evaluation of existing data.

- Negligible – while presence cannot be absolutely discounted, the site includes very limited or poor quality habitat for a particular species or species group. No local records from a data search, surrounding habitat considered unlikely to support wider populations of a species/species group. The site may also be outside or peripheral to known national range for a species.
- Low – on-site habitat of poor to moderate quality for a given species/species group. Few or no records from data search, but presence cannot be discounted on the basis of national distribution, nature of surrounding habitats, habitat fragmentation, recent on-site disturbance etc.
- Medium – on-site habitat of moderate quality, providing all of the known key requirements of given species/species group. Local records form the data search, within national distribution, suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat severance, and disturbance.

- High – on-site habitat of high quality for given a species/species group. Local records provided by desk-top study. The site is within/peripheral to a national or regional stronghold. Good quality surrounding habitat and good connectivity.
- Present – presence confirmed from the current survey or by recent, confirmed records.

2.6 The purpose of this assessment is to identify whether more comprehensive Phase 2 surveys for protected species or mitigation should be recommended (see Section 5).

2.7 The potential presence of invasive species including those listed in Section 14 and Part 2 of Schedule 9 of the Wildlife and Countryside Act (1981) has also been considered.

SITE EVALUATION

2.8 The site has also been evaluated following guidance issued by the Institute of Ecology and Environmental Management (2006) which evaluates sites according to geographic scale (significance at the international level down to the local level) and uses a range of criteria for assigning ecological value, as follows:

- Presence of sites or features designated for their nature conservation interest. Examples include internationally or nationally designated sites such as Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves (LNRs) and locally designated sites such as Sites of Nature Conservation Importance (SNCIs);
- Biodiversity value, for example, habitats or species which are rare or uncommon, species rich assemblages, species which are endemic or on the edge of their range, large populations or concentrations of uncommon or threatened species, and/or plant communities that are typical of valued natural/semi-natural vegetation types;
- Secondary and supporting value, for example, habitats or features which provide a green infrastructure role such as buffering to valued features or links between otherwise isolated features;
- Social value in regard to the extent to which a site and its wildlife provide a resource that people use or enjoy;
- Economic value for example those relating to impacts on ecological features and resources that are financially viable such as paying for visits to bird hides or a shell fishery in an estuary;

- Presence of legally protected sites or species; and
- Presence of UKBAP and/or Sussex BAP habitats and species.

GREEN INFRASTRUCTURE APPRAISAL

2.9 A Green Infrastructure (GI) appraisal was carried out, by reviewing the following features, present either on-site or in the adjacent landscape:

- Core Areas that are defined as zones within the site with either high quality habitat, a diversity of habitats, potential to support a diversity of species groups and/or protected species;
- Water bodies and the local hydrological catchment;
- Existing green and blue corridors including hedgerows, lines of scattered trees/scrub, woodland belts, road verges, running water and associated riparian habitat etc., and;
- Public Rights of Way (PROW) including footpaths, cycle routes and bridleways.

2.10 This information has been used to produce Opportunities and Constraints Maps in the *Landscape and Ecological Surveys of Key Sites within the Adur District* report (see Section 5). These maps show priorities for the conservation and enhancement of on-site ecological features and wider ecological networks and assist in forming indicative GI and development principles for the site.

LIMITATIONS

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

Data Search

2.12 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest the area may simply be under-recorded.

2.13 Where only six figure grid references are provided for protected species by recorders submitting data to SxBRC, their precise location can be difficult to determine and they could potentially be present anywhere within the given 1km x 1km square.

2.14 Locations for badger, otter and breeding Schedule 1 bird species were not provided by SxBRC due to the sensitivity of these records.

Habitat Survey

2.15 The Phase 1 habitat survey does not constitute a full botanical survey, or a Phase 2 pre-construction survey that would include accurate GIS mapping for invasive or protected plant species.

2.16 Due to dense vegetation growth and health and safety risks it was not possible to fully assess the value of the ditch network in terms of its aquatic flora. A series of sample points were used to survey the ditches, at safe access points and, therefore, the results may not be a true representation of the diversity and distribution of vegetation, including that of invasive plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). .

Protected Species Assessment

2.17 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. This is based on the suitability of the habitat, known distribution of the species in the local area provided in response to our enquiries and any direct evidence on the site. It should not be taken as providing a full and definitive survey of any protected species group. It is only valid at the time the survey was carried out. Additional surveys may be recommended if on the basis of the preliminary assessment or during subsequent surveys it is considered reasonably likely that protected species may be present.

3 Results

DESK STUDY

3.1 The following information regarding the present and historical ecological interest of New Monks Farm, covering a 2km radius search area, was supplied by Sussex Biodiversity Records Centre (SxBRC) and on-line mapping services.

Designated Nature Conservation Sites

3.2 The site does not receive any statutory[3] or non-statutory[4] nature conservation designations. The nearest statutory designated site is Lancing Ring Local Nature Reserve (LNR) and Site of Nature Conservation Importance (SNCI), located 0.21km to the north-west of the site (see citation summary Table 1). Adur Estuary Site of Special Scientific Interest (SSSI) is located 1.3km to the east of the site.

Table 1: Lancing Ring LNR

Citation Summary
Much of the 24.3ha site consists of unmanaged grassland with scattered scrub. Coarse grasses dominate the sward with characteristic downland herbs such as squinancywort *Asperula cynanchica* and round-headed rampion *Phyteuma orbiculare*. There are localised patches of herb-rich sward on the shallow soils of the chalk pits. The horse-grazed pasture has an interesting chalk grassland flora with common restharrow *Ononis repens*, yellow rattle *Rhinanthus minor* and pyramidal orchid *Anacamptis pyramidalis*. The rich butterfly fauna includes breeding colonies of chalkhill blue *Lysandra coridon,* holly blue *Celastrina argiolus,* small copper *Lycaena phlaeas*, small heath *Coenonympha pamphilus* and wall brown *Lasiommata megera.* The rank grassland favours certain species such as the localised marbled white *Melanargia galathea*. Lancing Ring supports a good range of breeding warblers, including chiffchaff *Phylloscopus collybita*, willow warbler *Phylloscopus trochilus*, whitethroat *Sylvia communis* and lesser whitethroat *Sylvia curruca*, yellowhammer *Emberiza citrinella*, linnet *Carduelis cannabina* and cuckoo *Cuculus canorus* also breed. Adder *Vipera berus*, slow-worm *Anguis fragilis* and common lizard *Zootoca vivapara* are reported to occur.

[3] Principally sites receiving protection under the Wildlife and Countryside Act, 1981 (as amended) and including Local Nature Reserves (LNR), Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protected Areas (SPA), amongst others.

[4] They typically comprise a series of sites designated a county level that are recognised to be of local conservation importance and are often included in Local Planning Authority (LPA) development plans. In other areas of the country they are sometimes called SINCs (Sites of Importance for Nature Conservation), CWSs (County Wildlife Sites) or SBIs (Sites of Biological Importance). All are described generally as Local Wildlife sites by the UK Government.

3.3 In total there are six non-statutory designated sites within a 2km radius of the site, the closest being Lancing Ring SNCI and LNR (see Table 2 below).

Table 2: SNCIs within a 2km radius of the site

Site Name	Reason for designation	Area (ha)	Distance from Site (km)
Lancing Ring (also LNR)	See Table 1 above for site description.	24.3	0.21
Widewater Lagoon (also LNR)	A classic example of an isolated spit lagoon, lying between South Lancing and the well vegetated, broad shingle bank of Lancing Beach. It has no direct connection with the sea, but is apparently tidal. Areas of salt marsh and vegetated shingle (which are rare habitats in West Sussex) occur along its southern edge with species such as glasswort *Salicornia sp.*, rock samphire *Crithmum maritimum* and sea couch *Elytrigia atherica*. 16th Century maps depict the area as salt marsh.	8.2	1.0
Shoreham Beach	Includes all of the landward side of Shoreham Beach, from Widewater Lagoon in the west to the old fort by the entrance to Shoreham Harbour. Its main interest is its highly specialised shingle flora. Largely due to habitat destruction, this community is very rare in West Sussex. The plant starry clover *Trifolium stellatum* is of particular note.	11.2	1.2
River Adur Meadows	The site consists of two relatively herb-rich meadows, located on the eastern bank of the River Adur. The meadows are crossed by ditches, which contain an interesting variety of species including common reed *Phragmites australis* and spike-rush *Eleocharis* sp.	13.9	1.5
Applesham Farm	A curved, north-east facing slope with partial terraces in places on the upper slopes. The bank supports areas of excellent unimproved chalk grassland with a typically species-rich sward. The quality of the sward varies somewhat across the slope and the central section is the most herb-rich with locally frequent horseshoe vetch *Hippocrepis comosa*, kidney vetch *Anthyllis vulneraria*, greater knapweed *Centaurea scabiosa* and round-headed rampion *Phyteuma orbiculare*. Cowslip *Primula veris* is abundant on parts of the slope.	21.1	1.7
Mill Hill	A fine example of unimproved herb-rich downland on a steep west-facing slope. The site consists of a mosaic of open grassland, scattered scrub and dense scrub. In addition to an interesting herb and moss flora, the site is of high butterfly importance. Following extensive scrub removal and fencing, sheep-grazing was re-introduced to part of the hill in 1991.	35	1.7

Landscape and Habitat Designations/Classifications

Ancient Woodland

3.4 The nearest Ancient Semi-Natural Woodland (ASNW) within a 2km radius is Clapham Wood ANSW located approximately 8.1km to the west of the site.

National Parks

3.5 The South Downs National Park is located 0.03km north of the site on the opposite side of Upper Shoreham Road (A27).

Biodiversity Opportunity Areas

3.6 The distribution of BAP habitats present across the South-East has been used to identify Biodiversity Opportunity Areas (The South East Biodiversity Forum, 2009). BOAs represent a targeted landscape-scale approach to biodiversity conservation in the county and form the basis for an ecological network and opportunity for restoration and creation of BAP habitats[5]. There are 75 BOAs across Sussex and 6 within Adur District.

3.7 The site does not fall within a BOA. The nearest BOA is Shoreham Estuary and Beach BOA. The BOA covers approximately 136ha and is dominated by salt marsh, grazing marsh and mudflats and their associated brackish communities. Included within the BOA are Shoreham Beach SNCI and LNR that has some of the best vegetated shingle in the county despite high visitor pressure, and a saline lagoon and estuary (SSSI and RSPB Reserve) important for wading birds.

3.8 Opportunities identified for the BOA that are potentially relevant to the site include access improvements, restoration and creation of grazing marsh and reed bed are potentially applicable to the site.

Water bodies

3.9 Areas of running water (ditches) cross the site from west to east with connected ditches running north to south, parallel with Mash Barn Lane. These form part of a

[5] BOAs do not include opportunities for all BAP habitats present in the region or identify all areas where these could be applied. Work is still needed to develop opportunity areas in urban and marine environments in particular.

wider network of water bodies present between Mash Barn Lane and Shoreham Airport which flow south under the South Coast Railway Line. They then converge into one stream at East Lancing (The Fairway) which becomes subterranean before outfall into the sea. The site therefore forms part of the local hydrological system.

3.10 An area of standing water is present in the north-east section of the site, on the golf course. A large pond, created as part of the golf course, is also present 70m to the east of the site. The nearest standing water marked on a 1:50,000 OS map is a pond located 100m south of the site on the corner of Mash Barn Lane.

Records of Protected and BAP Species

3.11 SxBRC have supplied records from within a 2km radius for protected and rare species; those covered by the UK BAP (that are also Species of Principal Importance for Biodiversity under the NERC[6] Act (2006)); invasive species; and, otherwise notable species such as Birds of Conservation Concern[7] (BoCC)..

Plants

3.12 The data search returned records of 35 plant species, the majority being either associated with habitats not present at the site, such as chalk grassland and saltmarsh and/or are not nationally rare or scarce plants. Instead they are uncommon/rare in the county and included on the Sussex Rare Species Inventory Species.

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[6] Section 41 (S41) of the NERC Act (2006) includes a published list of habitats and species which are of principal importance for the conservation of biodiversity in England. It is used to guide decision-makers such as LPAs in implementing their duty under section 40 of the NERC Act (2006), to have regard to the conservation of biodiversity in England, when carrying out their normal functions Further details of the NERC Act can be found at: www.opsi.gov.uk/acts/acts2006/ukpga_20060016_en_1 (see Chapters 16 and 17).

[7] Birds of Conservation Concern status is prioritised into high concern (Red), medium concern (Amber) and low concern (Green) (Eaton *et al*, 2009). Red-list species are those that are globally threatened according to the IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and have not shown a substantial recent recovery. Amber-list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations. Green-list species are those that fulfill none of the criteria.

3.13 One on-site record for true fox-sedge *Carex vulpina* in 1999 was listed. This nationally rare[8] and UK BAP species is restricted to southern lowland England and grows in Sussex on river banks, ditch sides and damp meadows on heavy clay soils which are sometimes flooded in winter. It is currently confined to West Sussex with its classic site at Amberley Wild Brooks.

3.14 There is also a record for opposite-leaved pondweed *Groenlandia densa* (2003) for adjacent areas of New Monks Farm. This Sussex scarce[9] aquatic plant can be found in clean species-rich ditches, with 26 records in W. Sussex. It is often one of the first colonisers after ditch clearance and can reappear in quantity after dredging.

Invertebrates

3.15 130 invertebrate species records were returned, most being species of butterfly and moth. A large percentage of these are species associated with habitats not present within the site and/or are not nationally rare or scarce. Instead they are uncommon/rare at a county level and included on the Sussex Rare Species Inventory.

3.16 The following UK BAP butterfly and moth species are Species of Principal Importance for Biodiversity recorded within a 2km radius and for which suitable habitat is present on-site:

- Small heath butterfly *Coenonympha pamphilus*
- Wall butterfly *Lasiommata megera*
- Garden tiger moth *Arctia caja*

3.17 There were 17 records between 1998 and 2011 for stag beetle *Lucanus cervus*, the closest being a 2008 record for a site 0.4km north of the site.

Birds

3.18 There was a large number of bird records (14,851) returned for the search area. The following species have been recorded on-site; bullfinch *Pyrrhula pyrrhula*, blue tit

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[8] Nationally rare plants occur in less than 15 hectads (10x10km grid squares) throughout Britain and appear in the Red Data Book of Vascular Plants (Cheffings & Farrell (Eds), 2005). This category includes some species which occur in more than four sites in either vice county.

[9] Sussex scarce plants occur in less than four sites in either vice county (Briggs (Ed.), 2001).

Cyanistes caeruleus, grey partridge *Perdix perdix*, wood pigeon *Columba palumbus*, magpie *Pica pica*, reed warbler *Acrocephalus scirpaceus*, sedge warbler *Acrocephalus schoenobaes*, reed bunting *Emberiza schoeniclus*, pheasant *Phasianus colchicus*, wren *Troglodytes troglodytes*, sparrow hawk *Accipiter nisus*, carrion crow *Corvus corone*, kestrel *Falco tinnunculus*, moorhen *Gallinula chloropus*, blackbird *Turdus merula*, greenfinch *Carduelis chloris*, chaffinch *Fringilla coelebs*, dunnock *Prunella modularis* and mallard *Anas platyrhynchos*.

3.19 BoCC Red List species include; bullfinch and grey partridge. Along with dunnock (see below) these three birds are also UK BAP species (JNCC, 2010) and listed in the NERC Act (2006) as species of principal importance for the conservation of biodiversity. BoCC Amber List species include; reed bunting, kestrel and dunnock.

3.20 Other notable bird species records recorded within 200m and which may potentially utilise the site include; barn owl *Tyto alba* (BoCC amber list), corn bunting *Emberiza calandra* (BoCC red list) and wood warbler *Phylloscopus sibilatrix* (BoCC red list).

Bats

3.21 No bat records were returned for the site. There are records of fourteen different bat species within the search area including; serotine *Eptesicus serotinus*, Nathusius's pipistrelle *Pipistrellus nathusii*, noctule *Nyctalus noctula*, Bechstein's bat *Myotis bechsteinii*, Brandt's bat *Myotis brandtii*, brown-long eared *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, daubentons *Myotis daubentonii*, mouse eared bat *Myotis myotis*, Natterer's bat *Myotis nattereri*, parti-coloured bat *Vespertilio murinus*, soprano pipistrelle *Pipistrellus pygmaeus*, barbastelle *Barbastella barbastellus* and whiskered bat *Myotis mystacinus*. The record closest to New Monks Farm is of a serotine foraging 350m north-west of the site.

Reptiles

3.22 No records of reptiles were returned from the site. The following reptile species were recorded within the 2km search area:

- Seventy two slow-worm records, the closest being a 2001 record 467m to the north west of the site;
- Twenty five common lizard records, the closest being a 1993 record 210m north west of the site;

- Twenty three records of grass snake *Natrix natrix*, the closest being a 2001 record 467m to the north west of the site; and
- Thirteen adder records, the closest being a 1999 record 312m north of the site.

Amphibians

3.1 No records of amphibians were returned from the site. Six records of great crested newt were returned from The Meads, Victoria Road in Shoreham, approximately 1km south of the site.

3.2 There were twenty three records of common toad *Bufo bufo* returned from within the search area, the closest being a 1988 record at Monks Close, Lancing, 626m to the south west of the site.

Water vole

3.3 There were two records of water vole returned from within the search area, the closest being a 1988-1990 record at Shoreham Backwater, 1.3km south-east of the site.

3.4 A water vole survey of a ditch located 0.62km south-west of the site, at Shoreham Airport, was carried out in 2011 (The Ecology Consultancy, 2011). The survey identified past use of the ditch by water vole with a total of three old burrows located within the western bank of the ditch. No evidence of current water vole activity in the form of latrines, footprints, pathways in the vegetation or feeding remains was found.

Invasive species

3.23 The data search returned a number of records for invasive plant species that may potentially be present within the site. Invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) that are most likely to be present are entire-leaved cotoneaster *Cotoneaster integrifolius*, Himalayan cotoneaster *Cotoneaster simonsii,* Japanese knotweed *Fallopia japonica* and montbretia *Crocosmia x crocosmiiflora*.

HABITAT SURVEY

Overview

3.24 Habitats present on-site included; buildings, hardstanding, bare ground, amenity, improved and poor semi-improved grassland, ephemeral/short perennial and tall ruderal vegetation, standing and running water, marginal vegetation, swamp (reedbed), introduced shrub, continuous and scattered scrub, scattered trees, native and non-native hedgerows and mixed woodland.

3.25 A golf course covered approximately half the site and comprised all land to the east of Mash Barn Lane. It was dominated by modified habitats including recently created grassland and profiled bare ground with self-established vegetation. Field boundaries, in particular along Mash Barn Lane and water bodies (ditches) comprised semi-natural habitats. Recent dredging/vegetation clearance along water bodies had taken place in the north of the site. Two ditches marked on current OS maps had been filled in.

3.26 There were five groups of buildings/structures present on-site. New Monks Farm Cottages, Daniels Barn and New Monks Farm were located in the centre of the site, accessed by Mash Barn Lane. Residential and commercial properties were present in the north section of the site, including a number of temporary structures on land behind housing off Old Shoreham Road (A27). Farm buildings used for stables were present near to the north-west boundary, accessible via Manor Close.

3.27 A large field of improved grassland and tall-ruderal vegetation dominated the south-west section of the site, extending up to New Monks Farm. Four smaller parcels of land were present in the north-west section of the site, extending north from the large field towards housing off Old Shoreham Road. These included two horse grazed fields, one block of mixed woodland and an unmanaged area that was converting naturally to scrub/woodland. Wide scrub/tree boundaries divided these four parcels of land. This part of the site comprised a mixture of semi-natural habitats, parts of which received limited management, were irregularly accessed and therefore relatively undisturbed.

Buildings/structures

3.28 Thirty buildings/structures were present. These were clustered into five groups associated with New Monks Farm Cottages, Daniels Barn, New Monks Farm, land off Manor Close and land behind Old Shoreham Road (A27). They comprised a diverse range of building types including residential, commercial, agricultural and lightweight/temporary structures such as sheds, stables, workshops and glasshouses.

Hardstanding and bare ground

3.29 Tracks with both a hard surface and compacted bare ground were present along Mash Barn Lane, off Manor Close, in the north of the golf course and around the five clusters of buildings/structures. Mud from recent dredging/vegetation clearance lined the banks of ditches in the north of the site. Large areas of bare ground were present in the south of the golf course where land had been recently raised and profiled.

Ephemeral/short perennial vegetation

3.30 Ephemeral/short perennial species had become self-established on profiled bare ground in the golf course. Species included locally frequent to occasional redshank, *Persicaria maculosa*, knotgrass *Polygonum aviculare*, scarlet pimpernel *Anagallis arvensis*, groundsel *Senecio vulgaris*, creeping bent *Agrostis stolonifera*, black medick *Medicago lupulina*, common field-speedwell *Veronica persica* and petty spurge *Euphorbia peplus*. Of particular note was the presence of the arable weeds sharp-leaved fluellen *Kickxia elatine* and round-leaved fluellen *Kickxia spuria*.

Amenity and improved grassland

3.31 A small area of amenity grassland was present in the garden of Monk's Farm, but was not surveyed due to restricted access.

3.32 The large field in the east section of the site had been deep ploughed three years ago and due to lack of management a continuous cover of tall ruderal vegetation has developed. Grass species included dominant Yorkshire fog *Holcus lanatus* and locally abundant to frequent false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata* and common couch *Elytrigia repens*. Wildflower and tall ruderal species included, abundant to frequent ragwort *Senecio jacobaea*, broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, bristly ox-tongue *Helminthotheca echioides*, common nettle *Urtica dioica*, field bindweed *Convolvulus arvensis*, American willowherb *Epilobium ciliatum* and field horsetail *Equisetum arvense*.

3.33 The north and central parts of the golf course had been sown with a sports turf seed mix, but had high amounts of self-established (weed) species. Grasses included dominant perennial ryegrass *Lolium perenne* and red fescue *Festuca rubra* with abundant to frequent Yorkshire fog, common bent *Agrostis capillaris* and squirrel-tail fescue *Vulpia bromoides*. Wildflowers included common vetch *Vicia sativa* and occasional smooth tare *Vicia tetrasperma*.

Poor semi-improved grassland

3.34 Two fields in the north-west corner of the site comprised poor semi-improved grassland. The sward of the southernmost field comprised dominant perennial ryegrass and frequent to occasional common bent, Timothy *Phleum pratense*, meadow barley *Hordeum secalinum* and rough meadow grass *Poa trivialis*. Wildflowers included abundant white clover *Trifolium repens* and frequent to

occasional ragwort, selfheal *Prunella vulgaris*, daisy *Bellis perennis*, creeping buttercup *Ranunculus repens*, meadow buttercup *Ranunculus acris*, red clover *Trifolium pratense* and smooth hawk's-beard *Crepis capillaris*. Silverweed *Potentilla anserina* was locally frequent in poached areas near to ditches.

3.35 The northernmost field had a more diverse sward with a greater diversity of wildflowers. Grass species included locally abundant to frequent perennial ryegrass, common bent, Yorkshire fog, meadow barley, cock's-foot and crested dog's-tail *Cynosurus cristatus*. Wildflowers included abundant to frequent red clover, smooth hawk's-beard, creeping buttercup, dandelion *Taraxacum* agg. and red bartsia *Odontites vernus*. White clover, black medick, selfheal, bird's-foot trefoil *Lotus corniculatus* and ribwort plantain *Plantago lanceolata* were locally frequent to occasional.

Tall ruderal vegetation

3.36 Tall ruderal vegetation was a key component of most boundary habitats forming an intimate mix with scrub and scattered trees and often forming a dense band alongside ditches. Species included locally abundant field horsetail, common nettle, creeping thistle, great willowherb *Epilobium hirsutum*, hedge bindweed *Calystegia silvatica*, hogweed *Heracleum sphondylium*, bristly ox-tongue, teasel *Dipsacus fullonum*, fleabane *Pulicaria dysenterica* and spear thistle *Cirsium vulgare*. In addition, Alexanders *Smyrnium olusatrum*, lesser burdock *Arctium minus* and hemlock *Conium maculatum* were locally frequent on the bank adjacent to Old Shoreham Road.

3.37 Tall ruderal vegetation also formed extensive areas on recently disturbed ground of the golf course. Teasel, bristly ox-tongue, common nettle, willowherbs *Epilobium spp.*, fat-hen *Chenopodium album*, hedge mustard *Sisymbrium officinale*, scentless mayweed *Tripleurospermum inodorum* and thistles *Cirsium* spp. were locally abundant to frequent.

3.38 The unmanaged field behind housing off Old Shoreham Road included locally dominant creeping thistle with frequent great willowherb, ragwort, hedge bindweed, fleabane, lesser burdock, perforate St. John's-wort *Hypericum perforatum* and mugwort *Artemisia vulgaris*.

Running water, standing water, marginal vegetation and swamp

3.39 A series of ditches were present across the site, flowing from the north-west corner, parallel with Mash Barn Lane and across the east section of the site. Ditches along Mash Barn Lane and the northern half of the golf course, had been recently cleared. Spoil, consisting of mud and marginal vegetation had been spread along their banks (see Target Note 12). Two ditches marked on OS maps as running west-east across the east section of the site had been filled in during the construction of the golf course.

3.40 With exception to the recently cleared sections, ditches were poorly maintained, overgrown with vegetation and shaded. They were between 0.5-2m wide. Marginal, emergent and floating aquatic vegetation was generally limited to open areas, with the most commonly occurring species being common reed *Phragmites australis*, reed canary grass *Phalaris arundinacea*, branched bur-reed *Sparganium erectum* and lesser reedmace *Typha angustifolia*.

3.41 The ditch crossing the golf course at its northern end was notably wider (3-4m) than other ditches, with deeper areas of open water. It had been recently cleared, with spoil along the bank indicating that a band of marginal vegetation had lined the full length of the northern bank (see Target Note 12).

3.42 The ditch adjacent to the south boundary of the mixed woodland had shallow flowing water. It was heavily shaded with no marginal vegetation along its western half. Small pockets of marginal vegetation were present along its eastern half (see target Note 19). The southern bank was vegetated with dense scrub and tall-ruderal vegetation, with localised areas of poaching.

3.43 The ditch behind housing off Old Shoreham Road was not fully accessible due to dense vegetation and sections having been appropriated into back gardens. In some sections the bank profile had been altered by property owners. Areas adjacent to mixed woodland, scattered trees and scrub were heavily shaded. Pockets of marginal vegetation were present along its length (see Target Notes 8, 9 and 18).

3.44 Adjacent to housing off Manor Close there was a short section of ditch running north to south and connected to the two ditches described above. The channel was relatively open with marginal vegetation along its length (see target Note 5 and 6).

3.45 Three areas of standing water were present in the east section of the site (see Target Note 17) and a small area of swamp was present on the south-east boundary of the site (see Target Note 14).

Scattered trees and scrub

3.46 Field boundaries in the north-west corner of the site were dominated by belts of continuous scrub with scattered trees. Bramble *Rubus fruticosus* agg., ivy *Hedera helix* and hawthorn *Crataegus monogyna* were locally dominant to abundant with elder *Sambucus nigra* and blackthorn *Prunus spinosa* frequent. In some places, such as the southern boundary of the mixed woodland, single stands of dense bramble scrub were present.

3.47 Continuous scrub was present around derelict farm buildings at New Monks Farm Cottages and Daniels Barn, and comprised dominant bramble, abundant ivy and frequent elder.

3.48 The field behind housing off Old Shoreham Road was converting naturally to scrub/woodland. Scattered scrub comprised bramble and young crack willow *Salix fragilis*.

3.49 Lines of scrub and scattered trees alongside Mash Barn Lane comprised dominant to abundant bramble, English elm *Ulmus procera* and frequent blackthorn, hawthorn, ivy, elder, ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. With exception to one mature ash tree (see Target Note 1) and crack willow (see Target Note 4) scattered trees were either young or semi-mature.

3.50 Scattered scrub bordered ditches in the east section of the site. It comprised locally dominant to abundant bramble and hawthorn and frequent to occasional elder, blackthorn, grey willow *Salix cinerea* and white bryony *Bryonia dioica.*

3.51 Scattered trees, overhanging the ditch in the north-west corner of the site, included weeping willow *Salix x sepulcralis* and Lombardy poplar *Populus nigra 'italica'*.

Hedgerows

3.52 Non-native hedgerows marked boundaries at New Monk's Farm, Monk's Farm and the garage off Old Shoreham Road and included garden privet *Ligustrum ovalifolium*, cherry laurel *Prunus laurocerasus* and cypress *Cupressus spp*. A planted native

hedgerow comprised of hornbeam *Carpinus betulus* was also present at Monk's Farm.

3.53 An outgrown, species-poor hedge with trees was present at the southern end of Mash Barn Lane, covering both sides of the ditch. It was dominated by English elm with abundant bramble, ivy and blackthorn and occasional hawthorn. Much of the English elm was ivy clad with high amounts of standing deadwood due to die-back from Dutch elm disease.

3.54 A native species-poor hedge, dominated by hawthorn, was present along the field edge linking New Monk's Farm and Monk's Farm. A hedge of similar composition was present along most of the site's west boundary, adjacent to housing

Woodland

3.55 Mixed woodland was present in the north-west corner of the site, surrounded by ditches on three sides. Whilst it had been modified through planting it had been left unmanaged over the short-term with abundant fallen deadwood. The western half comprised frequent crack willow and occasional Monterey cypress *Cupressus macropcarpa* with abundant to frequent hawthorn, elder, bay tree *Laurus nobilis*, butterfly bush *Buddleja davidii* and Chinese dogwood *Cornus kousa* below. The ground flora was impoverished with dominant to abundant ivy, bramble, common nettle and ground elder *Aegopodium podagraria*.

3.56 The eastern half had a higher percentage of native species with a more developed ground flora. Ash, hawthorn, ivy and bramble were abundant to frequent. The ground flora comprised occasional hedge woundwort *Stachys silvatica*, wood false brome *Brachypodium sylvaticum*, garlic mustard *Alliaria petiolata* and wood avens *Geum urbanum*.

Target Notes

Target Note 1

3.57 Mature ash tree forming boundary on Mash Barn Lane. Dense ivy covering and occasional splits provide habitat of potential value to roosting bats.

Target Note 2

3.58 Waste material and horticultural piles of potential value to hibernating and egg laying (grass snakes) reptiles.

Target Note 3

3.59 Open area of ditch with marginal vegetation comprising locally abundant reed canary grass, fool's water-cress *Apium nodiflorum* and water mint *Mentha aquatica*.

Target Note 4

3.60 Crack willow tree with features of potential value to roosting bats.

Target Note 5

3.61 Open area of ditch adjacent to housing off Manor Close. Marginal vegetation with dominant hard rush *Juncus inflexus* and abundant to locally frequent floating sweet-grass *Glyceria fluitans*, common duckweed *Lemna minor* and water star-wort *Callitriche stagnalis*.

Target Note 6

3.62 Open area of ditch adjacent to housing off Manor Close. Marginal vegetation comprising locally abundant common reed, lesser reedmace and branched bur-reed.

Target Note 7

3.63 Badger sett with multiple entrances. No obvious signs of recent use and possible situated close to water table.

Target Note 8

3.64 Marginal vegetation with locally dominant common reed.

Target Note 9

3.65 Marginal vegetation with locally dominant reed canary grass and locally frequent lesser reedmace and water mint. Crack willow, great willowherb and common nettle locally frequent along the bank.

Target Note 10

3.66 Location of Japanese knotweed *Fallopia japonica*, an invasive plant species listed under schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Target Note 11

3.67 Marginal vegetation comprising lesser reedmace, great willowherb and common nettle, with elder and bramble on the bank.

Target Note 12

3.68 Mud spoil and marginal vegetation from recently excavated ditches. Visible plant material included common reed (dominant), reed canary grass, hemlock water-dropwort *Oenanthe crocata* and pendulous sedge *Carex pendula*.

Target Note 13

3.69 Marginal vegetation including locally abundant common reed, frequent reed canary grass and great willowherb.

Target Note 14

3.70 Marginal vegetation including locally dominant common reed, and locally abundant reed canary grass.

Target Note 15

3.71 Wet depression/pool caused by pathway across ditch without culvert.

Target Note 16

3.72 Marginal vegetation comprising lesser reedmace and branched bur-reed.

Target Note 17

3.73 Area of standing water with locally abundant annual beard grass, which is Sussex and nationally scarce[10] plant. It is known to occur as a casual of inland locations and/or recently disturbed ground and its status as a native at the site is undetermined. Associates included locally frequent marsh foxtail *Alopecurus geniculatus* and occasional fleabane and redshank.

[10] Nationally scarce plants appear in *Scarce Plants in Britain* (Stewart *et al*. 1994) and occur in 16-100 of the 10x10km grid squares throughout Britain.

Target Note 18

3.74 Marginal vegetation comprising common reed and lesser reedmace.

Target Note 19

3.75 Marginal vegetation comprising locally abundant water-cress *Nasturtium officinale*, and frequent to occasional water forget-me-not *Myosotis scorpioides*, fool's water-cress, common duckweed and bittersweet *Solanum dulcamara*.

Target Note 20

3.76 Area of in-filled ditch on recently landscaped golf course with jointed rush *Juncus articulatus* and redshank present in grassland.

Fauna

3.77 Twenty-nine bird species were recorded during the PEA. Additional species, to those already recorded at the site (see Section 3.18) included; house sparrow *Passer domesticus*, herring gull *Larus argentatus*, house martin *Delichon urbica*, swallow *Hirundo rustica*, swift *Apus apus*, skylark *Alauda arvensis*, buzzard *Buteo buteo*, little egret *Egretta garzetta*, garden warbler *Sylvia borin*, goldfinch *Carduelis carduelis*, jackdaw *Corvus monedula,* great spotted woodpecker *Dendrocopos major,* grey heron *Ardea cinerea,* pied wagtail *Motacilla alba,* collared dove *Streptopelia decaocto,* great tit *Parus major* and lapwing *Vanellus vanellus*.

3.78 House sparrow, herring gull, skylark and lapwing are BoCC Red List and UK BAP species and listed in the NERC Act (2006) as species of principal importance for the conservation of biodiversity. House martin, swallow, swift and little egret are BoCC Amber List species.

3.79 The site also provided suitable habitat for large and small mammals. Evidence of the presence of fox *Vulpes vulpes*, badger (see Target Note 7), and rabbit *Oryctolagus cuniculus* were observed during the survey. Anecdotal evidence of hare *Lepus europaeus* was provided by a local resident.

3.80 The following butterflies were recorded during the PEA; marbled white, large white *Pieris brassicae*, red admiral *Vanessa atal* and meadow brown *Maniola jurtina*.

PROTECTED AND INVASIVE SPECIES ASSESSMENT

3.81 The habitats at the site were evaluated as to their likelihood to provide sheltering, roosting, nesting and foraging habitat for the following species/species groups:

- Breeding birds;
- Reptiles;
- Bats;
- Water vole;
- Invertebrates;
- Badgers; and,
- Great crested newt.

3.82 These species were selected for further consideration because the results of the desk study revealed that they occur in the vicinity of New Monks Farm and potentially suitable habitat is present within the site. The results of the field survey, combined with information from the desk study, are presented in Table 3 below. The relevant legislation and policies relating to protected species is presented within Appendix 4.

Table 3: Assessment of potential presence of invasive, protected and/or BAP priority and notable species at the proposed development site

Species	Main legislation and policy (see Appendix 4)	Reason for consideration	Likelihood of occurrence
Breeding birds	Wildlife and Countryside Act 1981 (as amended) – selected species Schedule 1 and 8	Site located in Lancing Strategic Gap with large area of countryside to the east and south. Domestic gardens, adjacent to north and west boundary, may extend available habitat. On-site woodland, hedgerow, scrub, trees, reedbed, derelict farm buildings and pasture provide potential nesting and foraging habitat.	**HIGH.** Suitable breeding habitat present on-site for a wide range of species including those requiring tree/scrub and ground cover for nest building. Skylark seen flying above large field in south-west section. The PEA and data search confirms 36 species present on-site.
Widespread reptile species	Wildlife and Countryside Act, 1981 (as amended) - Schedule 5 (partial protection)	Field boundaries, long grassland and habitat mosaics provide suitable hibernation sites and foraging habitat for species such as slow worm and common lizard. Ditches and standing water may also support grass snake. Domestic gardens adjacent to the north and west boundary may extend available habitat. There are records for all four widespread species from the data search area, the closest being for common lizard, 210m to the north-west.	**HIGH.** The areas of greatest value are field margins especially where they border ditches, hedges, trees/scrub and gardens. Waste piles of value for hibernating and egg-laying are also present (see Target Note 2). Improved grassland has low potential for reptiles as it is a sub-optimal habitat with poor structure and low plant diversity, particularly at the golf course where it has also been heavily and recently disturbed.
Badger	Protection of Badgers Act 1992.	A widespread species in the UK, ranging over large distances. The site is located in Lancing Strategic Gap in close proximity to farmland which is a preferred location for badger populations. Hedgerows, grassland, scrub and woodland provide suitable foraging and breeding habitat.	**HIGH.** Sett building habitat is present on-site. Fields and their margins in the north-west section provide a large area of suitable foraging habitat. Evidence of a sett was found in mixed woodland (see Target Note 7).
Great crested newt	Wildlife and Countryside Act 1981 (as amended) - Schedule 5. The Conservation of Habitats and Species Regulations 2010 (as amended) - Schedule 2.	Lakes, ponds and seasonally wet areas provide suitable breeding habitat for great crested newt. Where blocked/slow-flowing ditches with a shallow profile are present they should also be considered. Woodland, hedgerows, scrub and tall grass provide suitable terrestrial habitat for foraging and hibernating amphibians.	**MEDIUM**. Habitats in the north-west section of the site and along Mash Barn Lane provide good quality terrestrial habitat. On-site breeding habitat includes standing water in the east section of the site and sections of the ditch network, notably in the north-west. Wider ditch sections with limited marginal vegetation and stronger flow are considered unsuitable. 1:50,000 OS and aerial maps show that there are two ponds that potentially provide suitable breeding habitat for great

Table 3: Assessment of potential presence of invasive, protected and/or BAP priority and notable species at the proposed development site

Species	Main legislation and policy (see Appendix 4)	Reason for consideration	Likelihood of occurrence
			crested newt within a distance of 500m of the site boundaries. One pond is located 70m to the east, the other is located 100m south of the site on the corner of Mash Barn Lane.
Bats	Wildlife and Countryside Act 1981 (as amended) - Schedule 5. The Conservation of Habitats and Species Regulations 2010 (as amended) - Schedule 2.	Buildings and mature/semi-mature trees provide suitable roosting habitat. Woodland and boundary features such as hedgerows, scrub/tree lines and ditches provide suitable foraging and commuting habitat. The site is located in Lancing Strategic Gap with connectivity to open countryside to the east and south and domestic buildings to the north and west. 30 buildings/structures are present on-site. Fourteen species of bat have been recorded within a 2km radius. The closest record is for serotine foraging 350m north-west of the site.	**HIGH.** A wide range of suitable building types are present, including derelict and densely vegetated farm buildings through to inhabited domestic properties with roof voids and crevices/crawl spaces suitable for roosting bats. Two mature trees provide features of high value to roosting bats such as split limbs and dense ivy growth (see Target Notes 1 and 4). All remaining on-site trees were generally too young to contain potential roosting features. Poor semi-improved grassland, field margins, mixed woodland, hedgerows and scrub/tree-lined boundaries provide suitable foraging and commuting habitat that has good connectivity to the wider landscape.
Invertebrates	69 species are protected by the Wildlife and Countryside Act, 1981 (as amended), including 25 butterflies.	The site comprises a range of habitat types providing a variety of foraging and nesting opportunities for both widespread and uncommon insect species. Seventeen records for stag beetle, the closest being within a 2km radius, the closest being 0.4km north. `	**MEDIUM/HIGH**. Improved grassland covers a large percentage of the site and is of low value to invertebrates. Field margins have greater value as they are more botanically diverse with graded edge habitats, particularly where they border ditches, hedgerows and scrub/tree-lines. Overall the site provides a moderately diverse range of terrestrial and aquatic habitats, particularly in the north-west section of the site. Resources include abundant fallen deadwood in the mixed woodland, standing deadwood on English elm, grassland/tall ruderal mosaics, nectar rich plants and bare ground/mixed substrates (for xeric species). Areas of open water are also present in the form of the ditch network, areas of standing water and a small area of reedbed.
Water vole	Wildlife and Countryside Act 1981 (as amended); Schedule 5.	Water courses within Sussex support populations of this species. Ditches are present on-site providing areas of bank above water level with cover from marginal vegetation. Evidence of past use of a ditch	**MEDIUM**. No specific survey for water voles and their signs was undertaken and access to banks was very restricted. The network of ditches (2km in length) provide habitat of potential value to water vole which is connected to a wider network of suitable off-site habitat located to the south-east. Ditch sections

Table 3: Assessment of potential presence of invasive, protected and/or BAP priority and notable species at the proposed development site

Species	Main legislation and policy (see Appendix 4)	Reason for consideration	Likelihood of occurrence
		located 0.62km south-east of the site was found in 2011 by The Ecology Consultancy. A 1990 record, 1.3km south-east of the site, was returned from the data search.	in woodland and along scrub/tree-lined boundaries were shallow, heavily shaded and considered sub-optimal. Remaining on-site ditches had suitable bank profiles, vegetation cover, food plants and areas of open water.
Invasive plant species	Section 14 and Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)	Invasive species are widespread in many habitats and commonly found on disturbed sites, old gardens and herb/grassland/scrub mosaics around woodland and stream/ditch edges. A number of commonly planted ornamental species are on the Schedule 9 list.	**PRESENT.** Japanese knotweed present in north of the site (see Target Note 10). No other Schedule 9 species were recorded during the PEA. However this does not preclude the possibility of their presence.

4 Evaluation

4.1 On the basis of the information available from the PEA, data search and review of national and regional BAPs, the site has been evaluated in terms of its potential for biodiversity, support of protected species and habitats, and the contribution the area makes as part of the wider landscape. The nature conservation value of the site has been assessed following standard criteria developed by IEEM (2006) and is provided in Table 4 below.

4.2 The biodiversity value of protected and BAP species within the site is a preliminary evaluation based upon the desk study records, habitat suitability and the conservation status of the species in question. It should be noted that where European Protected Species or BAP species are present on-site they may be valued at a lower level/scale where it is considered likely that populations would not be of sufficient importance to justify designation at a higher level. However, regardless of their biodiversity value, such species are still subject to national and/or European legislation.

4.3 Key aspects of relevant planning policy regarding conservation, including an explanation of species referred to as being of 'Principal Importance for Conservation of Biodiversity', European Protected Species and BAP species and habitats, are provided in Appendix 4.

Table 4: IEEM Evaluation

Criteria	Remarks
Features of International Importance	• The site is not subject to any international statutory nature conservation designations. • The closest site of International Importance is Arun Valley SAC, SPA and Ramsar Site located approximately 16.8km to the north-west. It is important for its wet meadows and ditches with surrounding woodland that support nationally important wintering wildfowl, breeding waders and rich aquatic flora and invertebrate fauna. It is one of the three main population centres for ramshorn snail *Anisus vorticulus* in the UK and is the main UK site for the BAP plant species cut-grass *Leersia oryzoides*. • No floodplain meadow or ditch habitat or any supporting habitats that maintain the integrity of this designated area are present within the site.

Table 4: IEEM Evaluation

Criteria	Remarks
Features of National Importance	• The site is not subject to any national statutory nature conservation designations and it is not considered that any habitats or populations or assemblages of species within the site would meet the criteria for the designation of SSSIs at an appropriate geographic level[11]. • The nearest statutory site is Lancing Ring Local Nature Reserve (LNR) located 0.21km to the north-west of the site.
Features of Regional (Sussex) Value	• The site is not subject to any non-statutory nature conservation designations such as SNCI and is not known to contain features that would meet the criteria for designation as a Local Wildlife Site following Defra (2006) guidance.
Features of District (Adur) Importance	• On-site ditches and associated marginal vegetation including reedbed, form part of a wider network of water bodies present across Lancing Strategic Gap. In this regard they perform an important hydrological role and are considered to be of up to district value. • The north-west section of the site and Mash Barn Lane (comprising mixed woodland, poor semi-improved grassland, tall-ruderal vegetation, hedgerows and scrub-tree lines) are also considered to be of up to district value for the following reasons: - potential to support a range of protected, rare/notable and BAP species - buffering role to the upper catchment of the ditch network.
Features of Local (Shoreham-Lancing-Sompting) Importance	• A number of protected and UK BAP species and habitats are present or may occur at the site, as follows: - Plants such as true fox-sedge (last recorded in 1999, but small populations may be persisting or have re-colonised after ditch management); - Reptiles, including slow-worm, common lizard and grass snake; - Birds such as house sparrow, reed bunting, linnet, skylark, lapwing; - Invertebrates such as stag beetle; - Amphibians such as common toad and great crested newt; and, - Mammals such as hedgehog; water vole, brown hare, badger and bats; • Based on the quality and extent of habitat present, it is considered that populations of these BAP species would be significant at, of least, the local level. • UK/Sussex BAP priority habitats present on-site include standing water, hedgerows and reedbed. These habitats are limited in extent and/or not considered to be outstanding examples of their type. They are therefore considered to be of local importance. • One nationally and county scarce plant (annual beard grass) is present on-site, but it is known to occur at other locations within Lancing Strategic Gap and is considered to be of at least local value.
Features of Value within the immediate vicinity of the	• The remaining habitats at the site comprising buildings, hardstanding, bare round, ephemeral/short perennial, amenity and improved grassland, tall ruderal vegetation, scrub and scattered trees are likely to be of some value as foraging, cover and breeding sites for a range of generalist

[11] JNCC Guidelines for selection of biological SSSIs (see http://jncc.defra.gov.uk/page-2303#download).

Table 4: IEEM Evaluation

Criteria	Remarks
site	species and are therefore of value in maintaining the ecology of the area. However they are common and widespread habitats, not subject to BAPs, that do not generally support rare species or diverse assemblages of species and are therefore of value in the immediate vicinity of the site.
Features of Secondary and Supporting Value	• The network of ditches (and habitats that buffer them) play an important hydrological role in maintaining water levels to the wider network of wetland habitats present in Lancing Strategic Gap. • The site is located on the urban edge of Lancing and provides a wildlife corridor for mobile species moving across the urban-rural fringe both through the Lancing Strategic Gap and north towards the South Downs National Park.
Social Value	• The site is privately owned, but provides aesthetic value to residents whose properties border the site along the north and west boundary, by affording them views across Lancing Strategic Gap.
Economic Value	• The east section of the site forms part of a larger golf course which will provide revenue through its amenity use and facilities. The small fields in the north-west section of the site are grazed (by horses). Due to the small size of the mixed woodland, opportunities available for income generation would be very limited. All remaining habitats (and species) do not currently provide a resource that could be exploited for their economic value.

LOCAL PLANNING POLICY

4.4 On the basis of the completed surveys it is considered that the statutory South East Plan (2009) and Adur District Local Plan (1996) contain the following nature conservation and green infrastructure policies relevant to the site. A summary of these policies is detailed in Table 5 over page. The full text of the relevant policies is contained in Appendix 4 and this should be referred to. It should be noted however that policies in the 1996 Local Plan will be superseded by policies in the emerging Local Plan once it is adopted.

Table 5: Regional and local planning polices relevant to the site.

Policy	Relevance to the site
South East Plan (2009)	
CC1: Sustainable Development Conserve and enhance the natural environment and prepare for the impacts of climate change.	• Development proposals should seek to protect and increase the biodiversity value of the site through appropriate mitigation, compensation and enhancement, and provide climate change adaptation (see policies below for further detail). • Habitats of highest ecological value are associated with the north-west section of the site, the network of ditches and scrub/tree-lines along Mash Barn Lane. Under the principles of sustainable development it is recommended that, where possible, development is avoided in these areas.
CC2: Climate Change Mitigate and adapt to the effects of climate change by guiding development to locations which offer protection from flooding impacts, incorporating SuDS, increasing flood storage capacity and promoting opportunities for sustainable flood management and the migration of habitats and species.	• Boundary features along Mash Barn Lane and those associated with the ditch network provide local wildlife corridors. Where possible proposals should buffer and enhance these linear habitats to facilitate the movement of mobile species across the urban-rural fringe. Field margins also provide this function, but to a lesser degree. • Sustainable Drainage Systems (SuDS) should be an integral part of the scheme and designed in collaboration with ecologists to maximise their value to wildlife. • The ditch network and associated habitats provide an important hydrological role to off-site wetland features present in Lancing Strategic Gap. Development should avoid any changes to the hydrology of these features and SuDS schemes should be carefully designed to avoid potential changes to the water quantity and quality entering ditches. • The installation of green roofs as part of the SuDS for the site will provide climate change adaptation through the amelioration of storm water and urban heat island effects, amongst others.

CC4: Sustainable Design And Construction Proposals must adopt and incorporate sustainable construction standards and techniques including considering how a development can contribute to biodiversity gain.	• Under NPPF (2012) and the NERC Act (2006) there is a requirement to build biodiversity into design proposals, including hard landscaped areas and the fabric of buildings. The following measures should be considered: green roofs, green walls, artificial bat and bird boxes, vegetated swales, attenuation ponds etc. • Details on the protection of any retained ecological features and mitigation required during the construction phase should form part of the wider Construction Environmental Management Plan (CEMP) for the site.
CC6: Sustainable Communities And Character Of The Environment Proposals should be environmentally sensitive and respect and enhance the character and distinctiveness of settlements and landscapes.	• Landscape proposals should include species typical of the local landscape and/or Natural Area and published plant species lists should be consulted.
CC8: Green Infrastructure Proposals should seek to provide and contribute to networks of multi-functional green space to deliver environmental and social benefits including conserving and enhancing biodiversity, landscape, recreation and water management.	• Any proposals should buffer and enhance the linear habitats present along boundaries, particularly those associated with Mash Barn Lane and the ditch network. Planting should be positioned so as to enhance existing green corridors and provide connections between on-site woodland, scrub/tree-lines and new on-site habitats including both terrestrial and aquatic types. • Consideration should be given to designing the north-west section of the site to provide access to nature and informal recreation. Any scheme will need to balance the requirements of recreation with biodiversity.
NRM1: Sustainable Water Resources and Groundwater Quality To set out circumstances where sustainable drainage solutions should be incorporated.	• SuDS should be an integral part of the scheme and designed in collaboration with ecologists to maximise their value to wildlife. Interventions such as green roofs, green walls, rain gardens, vegetated swales, permeable paving, and attenuation ponds etc. should be considered at the masterplanning stage. • See comments under Policy CC2 above.
NRM4: Sustainable Flood Risk Management Requirement incorporation and management of Sustainable Drainage Systems (SuDS) and other water retention and flood storage measures to minimise direct surface run-off.	• See Policy CC2 and NRM1 above.

NRM5: Conservation and Improvement Of Biodiversity. Local planning authorities and other bodies shall avoid damage to nationally important SSSIs, a net loss of biodiversity, and actively pursue opportunities to achieve a net gain across the region. Access to areas of wildlife importance will be supported. GI is required to be identified, developed and implemented with new development.	• A range of protected, rare/notable and BAP species have potential to be present on-site, including plants, reptiles, bats, badgers, great crested newts, water vole, invertebrates and breeding birds. Potential impacts to these species should be avoided through appropriate mitigation, compensation and enhancement which may include further surveys (see Section 5). • There is an opportunity to conserve and potentially increase local biodiversity through habitat creation (see Section 5).
Policy C4: Landscape and Countryside Management Outside National Parks and AONBs, proposals should respect, protect and enhance the diversity and local distinctiveness of the District's landscape. Appropriate mitigation should be implemented where damage to the landscape cannot be avoided.	• See Policy CC6 above.
C5: Managing The Rural-Urban Fringe Positive management should be considered as part of any urban extension development proposal. Consideration should be given to landscape, biodiversity enhancement, woodland management, recreation provision and access routes.	• The existing GI links across the site should be retained and integrated into development proposals through masterplanning. There is opportunity to improve the historic route of Mash Barn Lane, providing connections to the Downs at Lancing Ring via the lane to Hoe Court Farm. There are also opportunities for circular walks to the south and east, potentially looping around the proposed golf course so that there is access to the centre of the Lancing Strategic Gap
C6: Countryside Access And Rights Of Way Management Access to the countryside should be encouraged through maintaining, enhancing and promoting the PROW system, identify opportunities for routes within and between settlements, creating multi-functional routes for multiple users and promoting appropriate access and management measures for Natura 2000/Ramsar sites.	• See Policy C5 above.
Adur District Local Plan (1996)	
AB25-27: Trees and Landscaping Trees should be retained where possible and sufficient space shall be left around them to avoid threatening their survival. Tree planting should be appropriate to the scale of the development. Any landscaping should form an integral part of the proposal and be appropriate to the coastal environment of Adur District, including the planting of predominantly native trees.	• The planting of native trees and shrubs should be central to any landscape scheme. Native and non-native plants of known wildlife value should be considered for other landscaped areas. • Any retained trees should be protected following *BS 5837 Trees in Relation to Design, Demolition and Construction – Recommendations* (2012).

Evaluation Summary

4.5 Habitats of highest ecological value are strongly associated with the 2km network of on-site ditches. Overall, on the basis of the above criteria (IEEM, 2006) they are considered to be of up to district value as they play an important role in terms of both ecology and hydrology. Habitats in the north-west section of the site and along Mash Barn Lane are also considered to be of up to district value as they perform a buffering role to the upper catchment of this ditch network and have potential to support a range of protected, rare/notable and BAP species.

4.6 Three UK BAP habitats are present on-site i.e. hedgerow, reedbed and standing water. Due to their limited extent and/or current composition/condition they are not outstanding examples of their type and are considered to be of local importance only. The nationally and county scarce plant present in standing water BAP habitat, is known to occur at other sites within Lancing Strategic Gap and is considered to be of at least local importance.

4.7 Over 75% of the site is comprised of bare ground, ephemeral short/perennial vegetation, improved grassland and tall-ruderal vegetation which are common and widespread habitats within the locality. They are concentrated in the large field in the south-west corner of the site and the east section where a new golf course is being developed. They are considered to be of ecological value within the immediate vicinity of the site.

4.8 On-site habitats have potential to support species protected under UK and European legislation, including breeding birds, bats, reptiles, badger, great crested newt, invertebrates and water vole. The legal and policy implications associated with these species are detailed in Section 5.

4.9 Field boundaries and riparian habitats provide potential wildlife corridor for a range of species such as bats, birds, invertebrates, badgers, grass snake and small mammals that may commute both within the site and across the urban-rural fringe into Lancing Strategic Gap and north towards the South Downs National Park.

5 Conclusions and Recommendations

CONCLUSIONS

5.1 The site is not subject to any statutory nature conservation designations. The nearest statutory (and non-statutory) designated nature conservation site is Lancing Ring LNR and SNCI, located 0.21km to the north-west.

5.2 Areas of highest ecological value at the site are strongly associated with the network of on-site ditches and habitats both in the north-west section of the site and along Mash Barn Lane. These habitats have potential to support a range of protected, rare/notable and BAP species, and ditches/streams play an important hydrological role in maintaining the wider network of off-site water bodies in Lancing Strategic Gap. As such, they are considered to be of up to district value.

5.3 It is strongly recommended that, where possible, construction works that may result in the loss of, or other impacts on the north-west section of the site, scrub/tree-lines along Mash Barn Lane and the network of ditches (and associated riparian habitats) is avoided. These habitats should be retained and protected, except where loss is unavoidable, and only after an appropriate programme of mitigation, compensation and enhancement has been put in place.

5.4 Over 75% of the site comprises bare ground, ephemeral short/perennial vegetation, improved grassland and tall-ruderal vegetation. These habitats are concentrated in the large field in the south-west corner of the site and the east section where a new golf course is being developed. They are common and widespread in the locality and are considered to be of ecological value within the immediate vicinity of the site. However, they do have potential to support a limited range of protected species groups *viz.* breeding birds and widespread reptiles (see below).

5.5 On-site habitats have potential to support species protected under UK and European legislation, including breeding birds, roosting and foraging bats, widespread species of reptile, badgers, water vole, invertebrates and great crested newts.

5.6 The site may also provide an important secondary and supporting role to the network of ecological receptors surrounding it, primarily by providing wildlife corridors for a range of species such as bats, birds, invertebrates, badgers, grass snake and small mammals. These species may commute both within the site and across the urban-rural fringe into Lancing Strategic Gap and north towards the South Downs National Park.

5.7 The following UK BAP habitats/species are present or have potential to be present within the site:

- Hedgerows (present);
- Reedbed (present);
- Standing water (present);
- Plants such as true fox-sedge;
- Reptiles, including slow-worm, common lizard and grass snake;
- Birds such as house sparrow (present), skylark (present), lapwing (present), reed bunting and linnet;
- Invertebrates such as stag beetle;
- Amphibians such as common toad and great crested newt; and,
- Mammals such as badgers, water vole, bats, brown hare and hedgehog.

5.8 BAP habitats/species are not necessarily rare but under NPPF (2012) and the Natural Environment and Rural Communities (NERC) Act 2006 are all of principal importance for the conservation of biodiversity and are of material consideration in the planning process. None of the BAP habitats or populations of BAP species currently known to be present on-site are considered as notable or exceptional examples of their type.

RECOMMENDED FURTHER SURVEYS

Overview

5.9 As discussed above it is strongly recommended that development of the north-west section of the site, scrub/tree-lines along Mash Barn Lane and the network of ditches (and associated riparian habitats) is avoided.

5.10 The surveys recommended below assume the loss or degradation of suitable habitat. There is potential to avoid and/or limit impacts through habitat retention and protection (see below). The final approach to surveys will have to be based on consideration of detailed proposals for the redevelopment of the site, though in all cases published best practice should be followed with regard to survey methodology etc.

5.11 To provide a sufficient baseline of data and mitigate against any potential impact on declining, BAP and protected species/habitats at the site, further survey for breeding birds, widespread species of reptile, roosting and foraging bats, badger, aquatic plants, terrestrial and aquatic invertebrates, water vole and great crested newts is recommended.

Breeding Birds

5.12 The site contains a variety of on-site habitats considered suitable for breeding bird species, such as derelict buildings, woodland, hedgerows, scattered trees, dense scrub, reedbed, unmanaged grass fields. The PEA and data search confirms 36 species as using the site including six BoCC Red List and six BoCC Amber List species (seven of which are UK BAP species). A breeding bird survey, therefore, is recommended to determine the species and numbers of breeding birds at the site and to ensure that any potential future works have minimal impact on less-common species and to inform mitigation and future management plans at the site. The spring survey should comprise a minimum of four visits spaced out during the peak breeding season March to August.

Wintering Birds

5.13 The Sub-area supports an extensive area of improved grassland that may be of foraging and roosting value to flocks of wintering birds for which, in part, the Adur Estuary SSSI (located 1.3km to the east of the site) is designated. Mixed woodland and boundary habitats such as hedgerows and lines of scattered trees and scrub may also provide supporting habitat for other winter bird species such as starlings and thrush *Turdus* species.

5.14 Surveys should be carried out to assess the value of the site to wintering birds following standard methodology including transects and vantage point watches and comprise several visits spread over the winter, from November through to March.

Reptiles

5.15 The site provides the habitat mosaic and vegetation structure suitable for a number of widespread reptile species, including grass snakes. Suitable habitat in the east and south-west section of the site is restricted to field and ditch boundaries which provide areas for foraging and basking, cover against predation as well as potential hibernation spots. More extensive areas of suitable habitat are present in the north-west section of the site.

5.16 A minimum of a seven survey visits, following current guidelines (Froglife, 1999; English Nature, 2004), should be carried out to establish the presence/absence and distribution of reptiles. The grassland/scrub mosaic and edge habitats should be targeted]. The optimum time is generally late spring, from April to mid June and in the early autumn during September. Where possible, survey effort should be spread across the recording season i.e. March-October.

Bats

5.17 On-site habitats are of value to foraging, commuting and roosting bats when judged against current assessment criteria provided by the Bat Conservation Trust (Hundt, 2012). Habitats of highest value are associated with the north-west section of the site, Mash Barn Lane, the ditch network and on-site buildings.

5.18 Following current guidelines (Hundt, 2012) further bat surveys are recommended to assess the presence or potential presence of any bat roosts, as well as the function the site might provide for foraging and commuting. This should include building inspections, tree inspections, and emergence and activity surveys as appropriate. Emergence and activity surveys must be carried out during the peak season which is between May and August.

Badger

5.19 A badger sett was found in mixed woodland in the north-west section of the site during the PEA and the landscape on-site and across connected areas of Lancing Strategic Gap provides suitable areas for sett building and extensive areas for foraging.

5.20 In order to assess the use of the site by badger a survey should be carried out in all areas of suitable on-site sett-building and foraging habitat to look for signs and evidence of this species. Survey effort should also include suitable off-site and accessible areas of the site boundary.

5.21 In line with current methodology holes in the ground attributed to badger should be classified as well used, partially used or disused and setts should be classified as main, annexe, subsidiary and outlier (Cresswell *et al*, 1990; Wilson *et al*, 1997). Surveys to identify setts should be carried out in the winter while surveys to establish the level of foraging and the likely impact of loss of foraging habitat and mitigation required should be conducted in the summer.

Great Crested Newt

5.22 The site provides breeding and terrestrial habitat in the form of standing water, ditches (and reedbed), hedgerows, mixed woodland, tree and scrub boundaries. Two ponds that potentially provide suitable breeding habitat for great crested newt are present within a 500m radius, which is the guideline distance (English Nature, 2001) that great crested newt may commute between breeding ponds. It is recommended that a Habitat Suitability Index (HSI) survey, following Oldham et al (2000), is carried out on all ponds (and other suitable wetland habitats) within a 500m radius of site boundaries

which do not have significant barriers to dispersal between them and New Monk's Farm.

5.23 Utilising the results from the HSI, presence/absence surveys of ponds within 500m of the site may need to be carried out. Four presence/absence surveys should be carried out following best practice guidelines (English Nature, 2001) and must be carried out between mid-March and mid-June with at least two between mid-April and mid-May

5.24 The requirement for further survey will depend on the quality of the ponds as breeding habitat and the number and distance of suitable breeding ponds from the site. They are likely to be required to determine population size (if presence is confirmed), and the degree to which great crested newt are a constraint to any proposed development in terms of planning construction works and whether works will require a EPSM licence.

Invertebrates (aquatic and terrestrial)

5.25 The site comprises a range of terrestrial and aquatic habitats that provide a variety of foraging and nesting opportunities for both widespread and rare/notable insect species. Resources include abundant fallen deadwood in the mixed woodland, standing deadwood on English elms, grassland/tall ruderal/scrub mosaics, nectar rich plants and bare ground/mixed substrates of value to xeric species. Areas of standing and running water are also present.

5.26 It is recommended that both terrestrial and aquatic invertebrate surveys are carried out, using a variety of sampling techniques in order to provide baseline information for key habitats such as those present along field boundaries and ditches.

5.27 Surveys for terrestrial invertebrates should broadly follow the protocols and guidance as outlined in *Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation* (Drake *et al,* 2007) with respect to survey methods and the species groups to be included, with multiple visits required to ensure an adequate seasonal coverage.

5.28 Aquatic invertebrate surveys should focus on macro-invertebrate diversity using sampling methods devised to make a general assessment regarding the quality of ditches, such as outlined in *A Manual for the Survey and Evaluation of the Aquatic Plant and Invertebrate Assemblages of Grazing Marsh Ditch Systems* (Buglife, 2011).

Aquatic plants

5.29 Due to restricted access it was not possible to accurately assess the aquatic flora of the ditch network. Rare/notable and UK BAP aquatic plant species have been

previously recorded at the site and it is recommended that a survey of the ditch network for these species is carried out. Survey effort should include both open water and bankside vegetation. As aquatic species can reappear in quantity after dredging, ditches with recent management should be included. Buglife's (2011) methodology (see above) will be an effective approach as it requires a survey of aquatic plant species to be carried out simultaneously with aquatic invertebrate surveys.

Water vole

5.30 The network of on-site ditches is connected to a more extensive off-site wetland system to the south-east where historic records for water vole are present. Suitable habitat for water vole, however, is restricted to sections with a suitable bank profile, vegetation cover, food plants and areas of deeper, open water. As no specific survey for water voles and their signs was undertaken as part of the PEA, and access to banks was very restricted, it is recommended that a further survey for evidence of water vole is carried out.

5.31 Surveys of ditches and adjacent areas of reedbed are recommended and should include a search of all suitable off-site habitat, located approximately 50m downstream. This would involve an ecologist walking the banks and possibly using a small boat/canoe to search for signs of water voles such as footprints, burrows, latrines, feeding stations or other field signs. The surveys would ideally be undertaken from Mid March-September and follow best practice guidelines (Strachan and Moorhouse, 2011).

MITIGATION

Water Courses

5.32 All works near to ditches should adhere to best practice guidance to avoid adverse effects upon water quality, such as *Pollution Prevention Guidance 5: Works and maintenance in or near water* (Environment Agency, 2007). Any development proposals should also ensure that ditches are buffered by planting (without increasing shading) to provide adjacent habitat and reduce risk of runoff from hard surfaces.

Habitat retention and protection

5.33 Retention of habitat along ditches, Mash Barn Lane and in the north-west section of the site has already been recommended on the basis of their potential value to protected, rare and BAP species and their hydrology. It is also important to maintain lines of scattered trees and scrub around field margins and site boundaries as they provide important green corridors. In accordance with *Policy CC8: Green Infrastructure* and *Policy C5: Managing the Urban-Rural Fringe* of The South East Plan

(2009) a key part of masterplanning will be to ensure that these links are retained and protected as part of development proposals.

5.34 All construction works taking place in the vicinity of retained woodland, lines of scattered trees/scrub, individual mature trees and hedgerows should conform to *British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction* to maintain the integrity of these habitats.

Vegetation clearance and breeding birds

5.35 The site contains a variety of habitats considered suitable for breeding birds and a breeding bird survey is recommended. Any clearance of derelict buildings and vegetation suitable for breeding birds, such as woodland, scattered trees, scrub, hedgerows etc. should be implemented outside of the bird nesting season i.e. between September and February. In addition, it is recommended that compensation is provided for any breeding bird habitat lost as an integral part of any landscaping plan for the site.

Invasive plant species

5.36 Japanese knotweed was observed on the bank of a ditch along the northern boundary of the site. This is an invasive plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), under which it is an offence to plant or otherwise cause these species to grow in the wild. It is possible that it could spread during development and, therefore, it is recommended that it be removed and correctly disposed of, following best practice guidelines (Environment Agency, 2010; Netregs, 2012).

Bats and lighting

5.37 While different species of bat react differently to night time lighting, research has found that bats are sensitive to artificial lighting. Excessive lighting can delay bats from emerging, thus shortening the time available for foraging, as well as causing bats to move away from suitable foraging grounds or roost sites, to alternative dark areas (Jones, 2000).

5.38 Currently the site (with exception to domestic properties) remains dark at night. In order to retain as many dark areas as possible, light spillage and glare associated with any development should be minimised. This can be achieved by following accepted best practice (Institute of Ecology and Environmental Management, 2006: Institute of Lighting Engineers, 2007):

- The level of artificial lighting including flood lighting should be kept to a minimum;

- Where this does not conflict with health and safety and/or security requirements, the site should be kept dark during peak bat activity periods (0 to 1.5 hours after sunset and 1.5 hours before sunrise;
- Lighting that is required for security or safety reasons should use a lamp of no greater than 2000 lumes (150 Watts) and should comprise sensor activated lamps;
- Low pressure sodium lights are a preferred option to high pressure sodium or mercury lamps;
- Lighting should be directed to where it is needed with minimal light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a downward angle as possible and/or a shield or hood that directs the light below the horizontal plane; and
- Artificial lighting should not directly illuminate any potential bat roosting features or habitats of value to commuting/foraging bats. Similarly, any newly planted linear features should not be directly lit.

COMPENSATION AND ENHANCEMENT

Management plan

5.39 A site wide landscape and ecological management plan should be drawn up to cover the long-term maintenance of retained and newly created on-site habitats. This should form part of the contractual agreement for the future management of the site, including wetland systems.

Sustainable Drainage Systems (SuDS)

5.40 Where proposed development comprises large areas of buildings and hardstanding the use of SuDS schemes, including green roofs (see below) are recommended.

5.41 A linked system comprising green roofs, rain water harvesting, ponds, vegetated swales, below ground drainage and porous surfacing utilising materials such as grasscrete[12] should be considered as part of the masterplanning for the site. Such systems will increase biodiversity and reduce surface water run-off at the site. The creation of ponds (see below) and/or swales would also contribute to the UK Standing Water/Ponds BAP and provide a habitat for a range of wetland wildlife. Once

[12] Grasscrete comprises a range of cellular grassed pavement systems made from concrete or plastic and back-filled with recycled materials from the construction process and/or top-soil. The surface can be left to colonise naturally or can be planted with grass and low growing herbs.

established such features would provide a habitat for a range of wetland wildlife and could be used as an educational resource, for example, by local schools.

5.42 The design of any SuDS system must take full account of any potential impacts on the ditch network such as the potential for a reduction in volume or pollution of surface and ground water reaching the wetland habitats present to the south-east of the site.

Green roofs

5.43 Any proposals for green roofs should include a specification of proven ecological value for foraging birds and invertebrates as pioneered by the Green Roof Consultancy[13]. Such roofs are typified by substrates of varying type and depth, include dead wood habitat and open areas of vegetation, require low levels of maintenance and are attractive to people as well as wildlife. They also provide opportunities for natural colonisation by plants and invertebrates. Such roofs are preferable to standard stonecrop *Sedum spp*. dominated roofs that deliver little in the way of biodiversity value as they are typically less species-rich and have a shallower substrate depth[14].

Ponds

5.44 Subject to the findings of further surveys and/or hydrological investigations, the creation of new ponds could improve conditions for amphibians potentially breeding in the locality and strengthen links between any breeding populations associated with nearby ponds. Ponds would also provide an important resource for invertebrates, reptiles such as grass snake and foraging bats. Information on locating, designing, constructing and managing ponds should follow the advice provided by the Pond Creation Toolkit on the Pond Conservation website[15].

Hedgerows

5.45 Native hedgerows provide an important habitat for a wide range of species and contribute to green infrastructure. Therefore, it is recommended that native hedgerows be planted as linear features around the site and are used to link other ecological features, such as retained hedgerows, woodland, lines of scattered trees/scrub.

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[13] Green Roof Consultancy website http://greenroofconsultancy.com

[14] Please note that the UK's *Green Roof Code of Best Practice* (GRO, 2011) advocates a minimum depth of 80mm for extensive green roofs.

[15] Pond Conservation website http://www.pondconservation.org.uk/millionponds/pondcreationtoolkit

5.46 Trimming of hedgerows should be carried out on a 2-3 year rotation to give a variety of heights and side growth and to ensure plenty of flowers, berries and fruit. To achieve this, sections of hedge could be cut in different years or opposite sides cut in alternate years.

5.47 Trimming should ideally be carried out in the late winter (although not in severe frost), to avoid the bird nesting season and ensure that the autumn berry crop remains available for as long as possible. Wherever feasible a 0.5 to 2m wide strip of grassland and/or tall-herb should be allowed to develop along either side of the hedge and be managed by cutting 1-2 times per year or preferably biennially.

5.48 Tree regeneration should also be encouraged to provide young hedgerow trees that will fulfil an ecological and landscape role in the future.

Landscape Planting

5.49 The use of native and non-native planting in landscape schemes is recommended to both compensate for any loss of habitat and to provide enhancements for wildlife. Where possible the following guidelines should be followed:

- Replacement planting to compensate for the loss of any woodland, tree, scrub and hedgerow habitat should use only native species;
- Native tree and shrub species should be typical of the local landscape and/or Natural Area and published plant species lists should be consulted;
- It is best practice to use British native stock for tree, shrub and hedgerow planting and woodland schemes should follow guidance given in Forestry Commission Practice Note 8a (Herbert, Samuel & Patterson, 1999). A list of reputable suppliers is available from the Flora Locale website[16].
- The use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) as part of landscape planting, for example cotoneaster species and rhododendron, should be avoided;
- Non-Schedule 9 plant species that are potentially invasive or aggressive should also be avoided in areas adjacent to semi-natural habitats e.g. the planting of cherry laurel, shallon and snowberry in areas adjacent to woodland;
- Planting should be positioned so as to enhance existing green corridors, especially those identified on the Ecological Constraints and Opportunities Map.

[16] Flora Locale website http://www.floralocale.org

- New tree planting should not shade mature trees that have been retained and where this is a risk, adequate space should be provided or only smaller shrub species planted;
- Any non-native planting schemes should comprise a high percentage of species of known wildlife value; and
- Double flowering forms of both native and non-native species, such as '*Flore Pleno*', should be avoided.

Birds

5.50 Recommendations to both compensate for the loss of trees and shrubs of potential value to birds and to enhance sites for this species group include the use of artificial bird boxes. Boxes should include a combination of models suitable for colonial, semi-colonial and territorial species. Where possible the following guidelines should be followed:

- With exception to orientating the box due south, the direction that it faces makes little difference provided that it is sheltered from prevailing wind, rain and strong sunlight. The sector from north through east to south-east is possibly the most favourable.
- Boxes should not be positioned on the wet side of a tree trunk where the rain water flows down heavily. It is usually possible to see where the rain water runs down the trunk from the growth of green algae.
- Small boxes should be angled forwards to give additional shelter to the entrance. Larger open boxes should be mounted tilted slightly upwards so that the nest rests naturally in the rearmost part of the box.
- For many common songbird species the height of the box is not important and may range from 1m upwards.
- It is preferable to site nest boxes in locations that are accessible for maintenance, away from bird feeders, a discrete distance away from other nest boxes (unless targeting a colonial species) and so that they provide some protection from predators and vandalism.
- Standard hole and open fronted boxes can be attached at varying heights using either standard hanging devises or bespoke attachments to suitable structures.

5.51 In addition, any on-site buildings could include specially designed features within their structure, for example to attract house sparrows (a UK BAP species), swift and house martins. House sparrow boxes are usually erected on buildings in locations such as under eaves. Swift and house martin boxes are located in similar open locations on building facades, but require an uninterrupted drop of at least 3-5m below them.

Bats

5.52 Consideration could be given to the installation of bat boxes in suitable locations in mature trees and also to include integrated bat 'boxes' or 'bricks' in any new buildings. These will provide warm and favourable conditions for crevice roosting species such as pipistrelles (soprano pipistrelle is a UK BAP species). Ideally they should be south or south-west facing with a clear flight entry path and away from artificial lighting (see *Bats and lighting* above). Information from any further bat surveys, regarding bat flight-lines to commuting and foraging habitat should be used to inform the positioning of these new roosts.

5.53 Building designs should consider using hanging tiles or weather boarding made from natural timber since these will provide suitable crevices for bats. Soffits or fascia boards should be made from natural timber in preference to PVC, and where possible, traditional bitumen and hessian roofing felt should be used in preference to breathable membranes such as Tyvec™. Any timbers including soffits should be treated with substances that are non-toxic to bats such as those that comprise a copper, zinc or boron compound in emulsion or aqueous solution. A list of approved treatments can be obtained from Natural England.

5.54 Any new building with a pitched or hipped roof could also include a dedicated open loft space with bat access points located at the gable ends and along the soffits. Ideally suitable bat access slots (20 x 100 slots) should be located along the ridge at approximately three metre intervals at the gable ends and along the soffits.

5.55 Where possible, any roof voids created for bats should ideally have restricted access to avoid future disturbances and to ensure an unobstructed flight space by limiting the use of the loft to only low level storage. This can be achieved by restricting the loft hatch size (i.e. 500 x 500mm).

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Appendix 1: Habitat Map

The Ecology Consultancy

Job title
Adur District Council
ECL Job no. 120618

Client
Sheils Flynn

Drawing title
HABITAT SURVEY MAP

Site (Sectors)
New Monks Farm (1 of 2)

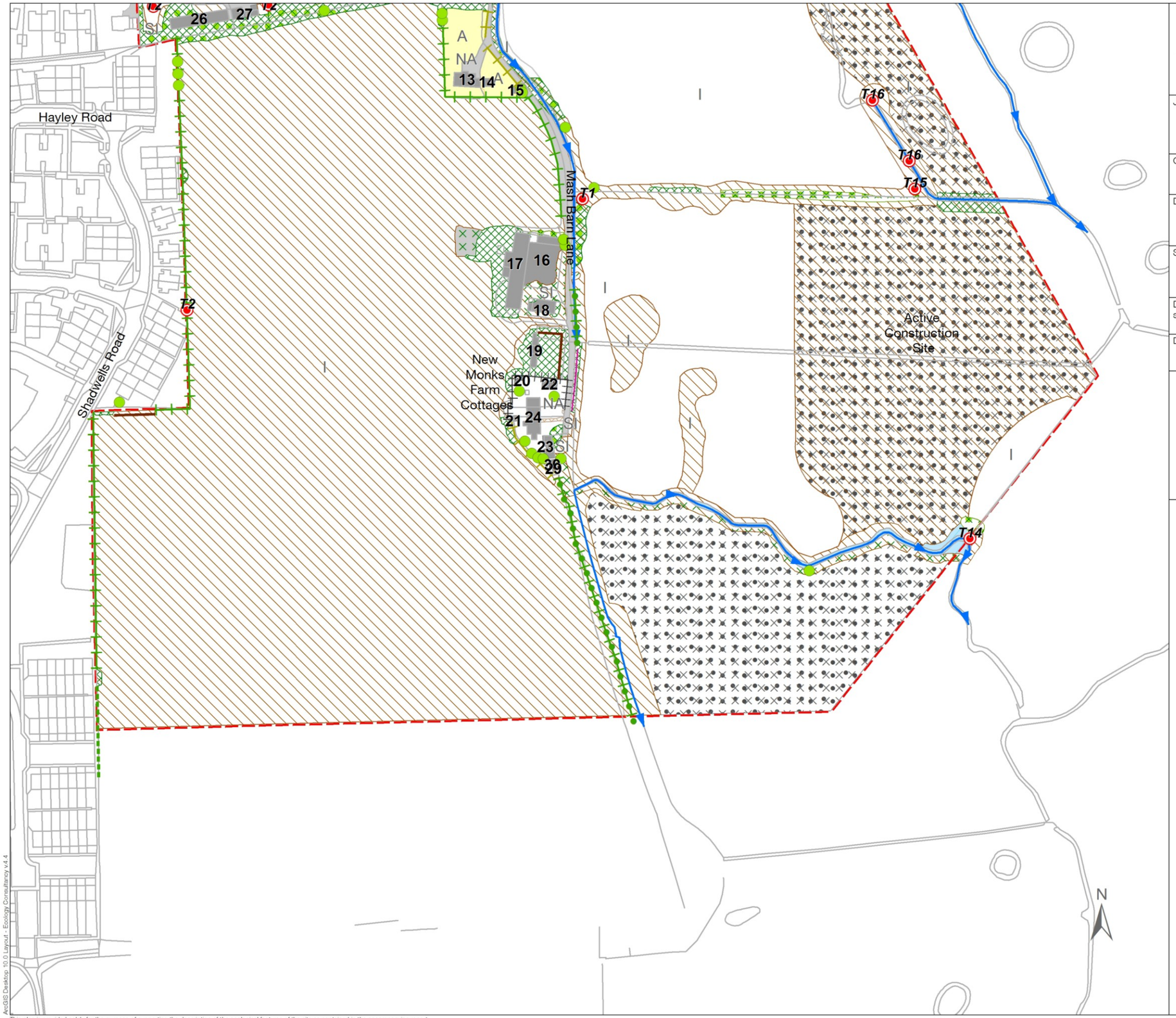
Date of survey	Surveyor	Scale (at A3)
July 2012	BK	1:2,000

Drawn/Checked/Approved	Date
CAJ/GS/CC/BK	28/08/2012

KEY

- Site boundary
- Buildings (no.)
- Hardstanding
- Broad-leaved semi-natural woodland
- Plantation woodland (native)
- Mixed woodland
- Tall ruderal vegetation
- Continuous scrub
- Scattered scrub
- Scattered trees
- Amenity grassland (A)
- Poor semi-improved grassland (SI)
- Arable (A)
- Improved grassland (I)
- Introduced shrubbery
- Short perennial/ ephemeral
- Bare ground
- Marginal vegetation
- Swamp
- Standing water-Pond
- Vegetable plot
- Spoil (S)
- Roughland
- SSSI boundary
- SNCI boundary
- Private Garden (not accessed) (NA)
- Native species-poor hedge and trees
- Non-native species-poor hedge
- Native species-poor hedge
- Running water
- Stone wall
- Fence
- Tree (indicative)
- Target note

ArcGIS Desktop 10.0 Layout - Ecology Consultancy v.4.4



The Ecology Consultancy

Job title
Adur District Council
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Client
Sheils Flynn

Drawing title
HABITAT SURVEY MAP

Site (Sectors)
New Monks Farm (2 of 2)

Date of survey	Surveyor	Scale (at A3)
July 2012	BK	1:2,000

Drawn/Checked/Approved	Date
CAJ/GS/CC/BK	28/08/2012

KEY

- Site boundary
- no. Buildings
- Hardstanding
- Broad-leaved semi-natural woodland
- Plantation woodland (native)
- Mixed woodland
- Tall ruderal vegetation
- Continuous scrub
- Scattered scrub
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- A Arable
- I Improved grassland
- Introduced shrubbery
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- Bare ground
- Marginal vegetation
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- Vegetable plot
- S Spoil
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- Native species-poor hedge
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- Stone wall
- Fence
- Tree (indicative)
- Target note

ArcGIS Desktop 10.0 Layout - Ecology Consultancy v.4.4

Appendix 2: Photographs

Photograph 1

View north-west across large field of improved grassland and tall ruderal vegetation, located in the south-west section of the site.

Photograph 2

View west along the line of a former ditch now dominated by tall ruderal vegetation. Raised mounds of amenity grassland extend to the north and south.

Photograph 3

View east across small fields of semi-improved grassland in the north-west section of the site. Mixed woodland present along the northern boundary.

Photograph 4

Ditch running alongside back gardens of houses off Old Shoreham Road (A27). Good stand of marginal vegetation in ditch (see Target Note 3) with tall ruderal vegetation on bank dominated by nettle.

Photograph 5

Badger sett in mixed woodland, but with no evidence of recent use (see Target Note 7).

Photograph 6

Wide ditch crossing the north-east section of the site to connect with a network of off-site water bodies. Marginal vegetation had been recently cleared and piled along bank (see Target Note 12).

Photograph 7

Area of standing water present in low ground within amenity grassland. Presence of annual beard grass indicates potential brackish conditions (see Target Notre 17).

Photograph 8

Recently disturbed ground in south-east section of the site dominated by bare ground and ephemeral/short perennial vegetation.

Photograph 9

Mosaic of habitat types and waste materials present on the small island of land located behind housing off Old Shoreham Road (A27).

Appendix 3: Plant Species List

Plant Species List for New Monks Farm, Lancing, West Sussex compiled from the Preliminary Ecological Appraisal carried out on 27th July 2012.

Scientific nomenclature follows Stace (2010) for vascular plant species. Vascular plant common names follow the Botanical Society of the British Isles 2003 list, published on its web site, www.bsbi.org.uk. Please note that this plant species list was generated as part of a PEA, does not constitute a full botanical survey and should be read in conjunction with the associated PEA report.

Abundance was estimated using the DAFOR scale as follows:

D = dominant, A = abundant, F = frequent, O = occasional, R = rare, L = locally

c=clumped, e=edge only, g=garden origin, p=planted, y = young, s=seedling or sucker, t=tree, h=hedge, w=water, d=dry,

Scientific Name	Common Name	Abundance	Qualifier
Acer campestre	Field maple	R	h, t
Acer pseudoplatanus	Sycamore	O	t
Achillea millefolium	Yarrow	O	
Aegopodium podagraria	Ground-elder	R/LF	
Agrimonia eupatoria	Agrimony	R/LF	c
Agrostis capillaris	Common bent	A	
Agrostis stolonifera	Creeping bent	A	
Alcea rosea	Hollyhock	R	g, e
Alliaria petiolata	Garlic mustard	R	
Alopecurus geniculatus	Marsh foxtail	R/LA	w
Anagallis arvensis	Scarlet pimpernel	F	
Anisantha sterilis	Barren brome	O	
Anthriscus sylvestris	Cow parsley	O	
Apium graveolens	Wild celery	R	w
Apium nodiflorum	Fool's water-cress	R/LF	w
Arctium minus	Lesser burdock	F/LA	
Arrhenatherum elatius	False oat-grass	D	
Artemisia vulgaris	Mugwort	O/LF	
Arum maculatum	Lords-and-Ladies	R/LF	
Avena fatua	Wild-oat	R	
Betula pendula	Silver birch	R	y
Brachypodium sylvaticum	False brome	O	
Brassica napus	Rape	O	
Bromus hordeaceus	Soft-brome	O	
Bryonia dioica	White bryony	R	

Buddleja davidii	Buddleia	F	
Callitriche stagnalis	Common water-starwort	R	w
Calystegia sepium	Hedge bindweed	A	e, h
Calystegia silvatica	Large bindweed	LA	e, h
Capsella bursa-pastoris	Shepherd's-purse	R	
Carex pendula	Pendulous sedge	R	w
Carpinus betulus	Hornbeam	R/LF	p, h
Cerastium fontanum	Common mouse-ear	R	
Chenopodium album	Fat-hen	O/LF	
Cirsium arvense	Creeping thistle	A/LD	
Cirsium vulgare	Spear thistle	A/LD	
Conium maculatum	Hemlock	O	
Convolvulus arvensis	Field bindweed	A	
Conyza canadensis	Canadian fleabane	R	
Cornus kousa	Chinese dogwood	R/LF	p, y, s
Corylus avellana	Hazel	A	
Crataegus monogyna	Hawthorn	A	t, h, e
Crepis capillaris	Smooth hawk's-beard	F	
Cupressus macrocarpa	Monterey cypress	O/LA	p, t, h
Cynosurus cristatus	Crested dog's-tail	O	
Dactylis glomerata	Cock's-foot	A	
Dipsacus fullonum	Wild teasel	F	
Dryopteris felix-mas	male fern	R	w, e, h
Elytrigia repens	Common couch	F/LA	
Epilobium ciliatum	American willowherb	D	
Epilobium hirsutum	Great willowherb	F	w
Epilobium parviflorum	Hoary willowherb	R	
Epilobium tetragonum	Square-stalked willowherb	O	
Equisetum arvense	Field horsetail	O/LA	
Equisetum telmateia	Great horsetail	R	
Eupatorium cannabinum	Hemp-agrimony	O	w
Euphorbia peplus	Petty spurge	O	
Fagus sylvatica	Beech	R	t
Fallopia japonica	Japanese knotweed	R/LF	s, c
Foeniculum vulgare	Fennel	O	
Fraxinus excelsior	Ash	F	t, h
Galium aparine	Cleavers	O	
Geranium dissectum	Cut-leaved crane's-bill	O	
Geranium molle	Dove's-foot crane's-bill	R	
Geranium robertianum	Herb-Robert	R	
Geum urbanum	Wood avens	R	

Glechoma hederacea	Ground-ivy	R/LF	
Glyceria declinata	Small sweet-grass	R	w
Glyceria fluitans	Floating sweet-grass	R/LF	c, w
Gnaphalium uliginosum	Marsh cudweed	R	w
Hedera helix	Ivy	A	h, e
Heracleum sphondylium	Hogweed	F	
Hirschfeldia incana	Hoary mustard	R	
Holcus lanatus	Yorkshire-fog	D	
Hordeum murinum	Wall barley	R	
Hordeum secalinum	Meadow barley	O/LF	
Hypericum perforatum	Perforate St John's-wort	O/LF	
Hypochaeris radicata	Cat's-ear	O/LF	
Ilex aquifolium	Holly	R	
Iris foetidissima	Stinking iris	R	
Iris sp.	Iris	R	g
Juncus articulatus	Jointed rush	O/LF	w
Juncus inflexus	Hard rush	O/LF	w
Kickxia elatine	Sharp-leaved fluellen	R	
Kickxia spuria	Round-leaved fluellen	R	
Lactuca serriola	Prickly lettuce	O	
Lamium album	White dead-nettle	R	
Lamium purpureum	Red dead-nettle	R	
Lapsana communis	Nipplewort	R	
Lathyrus pratensis	Meadow vetchling	R	
Laurus nobilis	Bay	R/LF	p. t
Lemna minor	Common duckweed	R	w
Leontodon autumnalis	Autumn hawkbit	O/LF	
Leucanthemum vulgare	Oxeye daisy	R	
Leucanthemum x superbum	Shasta daisy	R	g
Leycesteria formosa	Himalayan honeysuckle	R	
Ligustrum ovalifolium	Garden privet	R/LF	p, h
Linaria purpurea	Purple toadflax	O/LF	
Lolium perenne	Perennial rye-grass	A	
Lonicera nitida	Wilson's honeysuckle	R/LF	g, c
Lotus corniculatus	Bird’s-foot trefoil	LF/R	
Lycopus europaeus	Gypsywort	R/LF	w
Malus domestica	Apple	R/LF	t, p
Medicago lupulina	Black medick	F	
Melilotus alba	White melilot	R/LF	
Melilotus officinalis	Ribbed melilot	O/LF	c
Mentha aquatica	Water mint	R/LF	w

Myosotis scorpioides	Water forget-me-not	O/LF	w
Nasturtium officinale	Water-cress	O/LA	w, e
Odontites vernus	Red bartsia	O/LF	
Oenanthe crocata	Hemlock water-dropwort	R/LF	w
Papaver rhoeas	Common poppy	R	
Papaver somniferum	Opium poppy	R	
Persicaria maculosa	Redshank	R/LF	
Phalaris arundinacea	Reed canary-grass	R/LF	w
Phleum pratense	Timothy	R	
Phragmites australis	Common reed	F/LD	w
Helminthotheca echioides	Bristly ox-tongue	A	
Picris hieracioides	Hawkweed ox-tongue	D	
Pinus sylvestris	Scots pine	R	t, p
Plantago lanceolata	Ribwort plantain	F/LD	
Plantago major	Greater plantain	O/LF	
Poa annua	Annual meadow-grass	F	
Poa trivialis	Rough meadow-grass	O	
Polygonum aviculare	Knotgrass	O	
Polypogon monspeliensis	Annual beard grass	O	w
Polypogon viridis	Water bent	F/LA	w
Populus nigra 'italica'	Lombardy poplar	R	p, t
Potentilla anserina	Silverweed	R/LF	c, e, w
Potentilla reptans	Creeping cinquefoil	R	
Prunella vulgaris	Selfheal	O/LF	
Prunus cerasifera var. *pissardii*	Cherry plum	R	t, p
Prunus laurocerasus	Cherry laurel	O/LA	h
Prunus spinosa	Blackthorn	O/LA	h
Pulicaria dysenterica	Common fleabane	A	w
Ranunculus acris	Meadow buttercup	R	
Ranunculus repens	Creeping buttercup	O	
Reseda luteola	Weld	O	
Rhus typhina	Stag's-horn sumach	R	g, e
Ribes nigrum	Black currant	R	
Rosa canina	Dog-rose	R	m
Rumex crispus	Curled dock	R	
Rumex obtusifolius	Broad-leaved dock	A	
Rumex sanguineus	Wood dock	R	
Salix caprea	Goat willow	R	m, e
Salix cinerea	Grey willow	O	m, e
Salix fragilis	Crack-willow	O/LA	w
Salix x sepulcralis	Weeping willow	O	p, t

Sambucus nigra	Elder	A	e, h
Senecio jacobaea	Common ragwort	D	
Senecio vulgaris	Groundsel	O	
Sisymbrium officinale	Hedge mustard	O/LF	
Smyrnium olusatrum	Alexanders	R/LF	e
Solanum dulcamara	Bittersweet	O	w
Solanum nigrum	Black nightshade	R	
Sonchus asper	Prickly sow-thistle	F	
Sonchus oleraceus	Smooth sow-thistle	O	
Sparganium erectum	Branched bur-reed	R	w
Stachys palustris	Marsh woundwort	R/LF	w, e
Stachys sylvatica	Hedge woundwort	R	
Stellaria media	Common chickweed	O/LF	
Taraxacum agg.	Dandelion	F	
Tragopogon pratensis	Goat's-beard	R	
Trifolium dubium	Lesser trefoil	O	
Trifolium pratense	Red clover	F/LA	
Trifolium repens	White clover	A	
Tripleurospermum inodorum	Scentless mayweed	A/LD	
Typha angustifolia	Lesser reedmace	O	w
Ulex europaeus	Gorse	R	
Ulmus procera	English elm	F/LA	h, t
Urtica dioica	Common nettle	D	
Verbascum thapsus	Great mullein	R	
Veronica persica	Common field-speedwell	LF	
Vicia cracca	Tufted vetch	O	
Vicia sativa	Common vetch	O	
Vicia tetrasperma	Smooth tare	O/LF	
Viola hirta	Hairy violet	R	
Vulpia bromoides	Squirrel-tail fescue	F	

Appendix 4: Legislation and Policy

Important Notice: This section contains details of legislation and planning policy applicable in Britain only (i.e. not including the Isle of Man, Northern Ireland, the Republic of Ireland or the Channel Islands) and is provided for general guidance only. While every effort has been made to ensure accuracy, this section should not be relied upon as a definitive statement of the law.

A NATIONAL LEGISLATION AFFORDED TO SPECIES

The objective of the EC Habitats Directive[17] is to conserve the various species of plant and animal which are considered rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) is a key piece of national legislation which implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and implements the species protection obligations of Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Since the passing of the Wildlife & Countryside Act 1981, various amendments have been made, details of which can be found on www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

Other legislative Acts affording protection to wildlife and their habitats include:

- Deer Act 1991
- Countryside and Rights of Way (CRoW) Act 2000
- Natural Environment & Rural Communities (NERC) Act 2006
- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

Species and species groups that are protected or otherwise regulated under the aforementioned domestic and European legislation, and that are most likely to be affected by development activities, include herpetofauna (amphibians and reptiles), badger, bats, birds, dormouse, invasive plant species, otter, plants, red squirrel, water vole and white clawed crayfish.

Explanatory notes relating to species protected under The Conservation of Habitats and Species Regulations 2010 (as amended) (which includes smooth snake, sand lizard, great crested newt and natterjack toad), all bat species, otter, dormouse and some plant species) are given below. **These should be read in conjunction with the relevant species sections that follow.**

- In the Directive, the term 'deliberate' is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.

[17] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

- The Conservation of Habitats and Species Regulations 2010 (as amended) does not define the act of 'migration' and therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.
- In order to obtain a European Protected Species Mitigation (EPSM) licence, the application must demonstrate that it meets all of the following three 'tests': i) the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment; ii) that there is no satisfactory alternative and iii) that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

Herpetofauna (Amphibians and Reptiles)

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita* and great crested newt *Triturus cristatus* receive full protection under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. The pool frog *Pelophylax lessonae* is also afforded full protection under the same legislation. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of species listed on Schedule 2
- Deliberate disturbance of any Schedule 2 species as:

  a) to impair their ability:

  (i) to survive, breed, or reproduce, or to rear or nurture young;

  (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate

  b) to affect significantly the local distribution or abundance of the species
- Deliberate taking or destroying of the eggs of a Schedule 2 species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

With the exception of the pool frog, these species are also currently listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species such as the adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* are listed in respect to Section 9(1) & (5). For these species, it is prohibited to:

- Intentionally (or recklessly in Scotland) kill or injure these species
- Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

Common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and palmate newt *L. helveticus* are listed in respect to Section 9(5) only which affords them

protection against sale, offering or exposing for sale, possession or transport for the purpose of sale.

How is the legislation pertaining to herpetofauna liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect the breeding sites or resting places of those amphibian and reptile species protected under The Conservation Habitats and Species Regulations 2010. A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the Wildlife and Countryside Act 1981 (as amended).

Badger

Badgers *Meles meles* receive protection under The Protection of Badgers Act 1992 which consolidates the previous Badger Acts of 1973 and 1991. The Act makes it an offence to:

- Wilfully kill, injure, take, or attempt to kill, injure or take a badger
- Cruelly ill-treat a badger, including use of tongs and digging
- Possess or control a dead badger or any part thereof
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett18 or any part thereof
- Intentionally or recklessly disturb19 a badger when it is occupying a badger sett
- Intentionally or recklessly cause a dog to enter a badger sett
- Sell or offers for sale, possesses or has under his control, a live badger

How is the legislation pertaining to badgers liable to affect development works?

A Development Licence[20] will be required from the relevant countryside agency (e.g. Natural England) for any development works liable to affect an active badger sett, or to disturb

[18] A badger sett is defined in the legislation as *"any structure or place which displays signs indicating current use by a badger"*. This includes seasonally used setts. Natural England (2009) have issued guidance on what is likely to constitute current use of a badger sett: www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

[19] For guidance on what constitutes disturbance and other licensing queries, see Natural England (2007) Badgers & Development: A Guide to Best Practice and Licensing. www.naturalengland.org.uk/Images/badgers-dev-guidance_tcm6-4057.pdf, Natural England (2009) Interpretation of 'Disturbance' in relation to badgers occupying a sett www.naturalengland.org.uk/Images/WMLG16_tcm6-11814.pdf, Scottish Natural Heritage (2002) Badgers & Development. www.snh.org.uk/publications/online/wildlife/badgersanddevelopment/default.asp and Countryside Council for Wales (undated) Badgers: A Guide for Developers. www.ccw.gov.uk.

[20] Natural England will only consider issuing a licence where detailed planning permission (if applicable to operation) has already been granted

badgers whilst in the sett. Depending on the nature of the works and the specifics of the sett and its environs, badgers could be disturbed by work near the sett even if there is no direct interference or damage to the sett itself. The countryside agencies have issued guidelines on what constitutes a licensable activity. N.B. there is no provision in law for the capture of badgers for development purposes and therefore it is not possible to obtain a licence to translocate badgers from one area to another.

Bats

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- Deliberate disturbance of bat species as:

  a) to impair their ability:

(i) to survive, breed, or reproduce, or to rear or nurture young;

(ii) to hibernate or migrate[3]

  b) to affect significantly the local distribution or abundance of the species

- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also currently protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

How is the legislation pertaining to bats liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost[21].

[21] Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected? Mammal News, No. **150**. The Mammal Society, Southampton.

Birds

With certain exceptions, all birds, their nests and eggs are protected under Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). Among other things, this makes it an offence to:

- Intentionally (or recklessly in Scotland) kill, injure or take any wild bird
- Intentionally (or recklessly in Scotland) take, damage or destroy (or, in Scotland, otherwise interfere with) the nest of any wild bird while it is in use or being built
- Intentionally take or destroy an egg of any wild bird
- Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.
- In Scotland only, intentionally or recklessly obstruct or prevent any wild bird from using its nest

Certain species of bird, for example the barn owl, black redstart, hobby, bittern and kingfisher receive additional special protection under Schedule 1 of the Act and Annex 1 of the European Community Directive on the Conservation of Wild Birds (2009/147/EC). This affords them protection against:

- Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- Intentional or reckless disturbance of dependent young of such a bird
- In Scotland only, intentional or reckless disturbance whilst lekking
- In Scotland only, intentional or reckless harassment

How is the legislation pertaining to birds liable to affect development works?

To avoid contravention of the Wildlife and Countryside Act 1981 (as amended), works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction in particular is to undertake work outside the main bird nesting season which typically runs from March to August[22]. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Those species of bird listed on Schedule 1 are additionally protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest.

[22] It should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species and geographical location of the site) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

How is the legislation pertaining to dormice liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect dormouse breeding or resting places (N.B. this is usually taken to mean dormouse 'habitat') or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Wild Mammals (Protection) Act 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to:

- Mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Plants

With certain exceptions, all wild plants are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence for an 'unauthorised' person to intentionally (or recklessly in Scotland) uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant, for example some species of orchid, are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This prohibits *any* person:

- Intentionally (or recklessly in Scotland) picking, uprooting or destruction of any wild Schedule 8 species (or seed or spore attached to any such wild plant in Scotland only)
- Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof
- In addition to the UK legislation outlined above, several plant species are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2010. These are species of European importance. Regulation 45 makes it an offence to:
- Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
- Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

How is the legislation pertaining to protected plants liable to affect development works?

A European Protected Species (EPS) Licence issued by the relevant countryside agency (e.g. Natural England) will be required for works liable to affect species of plant listed under The Conservation of Habitat and Species Regulations 2010. The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Invasive Plant Species

Certain species of plant, including Japanese knotweed *Fallopia japonica,* giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera* are listed on Part II of Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) in respect to Section 14(2). Such species are generally non-natives whose establishment or spread in the wild may be detrimental to native wildlife. Inclusion on Part II of Schedule 9 therefore makes it an offence to plant or otherwise cause these species to grow in the wild.

How is the legislation pertaining to invasive plants liable to affect development works?

Although it is not an offence to have these plants on your land *per se*, it is an offence to *cause* these species to grow in the wild. Therefore, if they are present on site and development activities (for example movement of spoil, disposal of cut waste or vehicular movements) have the potential to cause the further spread of these species to new areas, it will be necessary to ensure appropriate measures are in place to prevent this happening prior to the commencement of works.

Plants: Injurious Weeds

Under the Weeds Act 1959 any land owner or occupier may be required prevent the spread of certain 'injurious weeds' such as spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, and common ragwort *Senecio jacobaea*. It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines and is not legally binding.

B NATIONAL AND EUROPEAN LEGISLATION AFFORDED TO HABITATS

Statutory Designations: National

Nationally important areas of special scientific interest, by reason of their flora, fauna, or geological or physiographical features, are notified by the countryside agencies as statutory Sites of Special Scientific Interest (SSSIs) under the National Parks and Access to the Countryside Act 1949 and latterly the Wildlife & Countryside Act 1981 (as amended). As well as underpinning other national designations (such as National Nature Reserves which are declared by the countryside agencies under the same legislation), the system also provides statutory protection for terrestrial and coastal sites which are important within a European context (Natura 2000 network) and globally (such as Wetlands of International Importance). See subsequent sections for details of these designations. Improved provisions for the protection and management of SSSIs have been introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

The Wildlife & Countryside Act 1981 (as amended) also provides for the making of Limestone Pavement Orders, which prohibit the disturbance and removal of limestone from such designated areas, and the designation of Marine Nature Reserves, for which byelaws must be made to protect them.

Statutory Designations: International

Special Protection Areas (SPAs), together with Special Areas of Conservation (SACs) form the Natura 2000 network. The Government is obliged to identify and classify SPAs under the

EC Birds Directive (Council Directive 2009/147/EC (formerly 79/409/EEC)) on the Conservation of Wild Birds). SPAs are areas of the most important habitat for rare (listed on Annex I of the Directive) and migratory birds within the European Union. Protection afforded SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles (nm) is given by The Conservation of Habitats & Species Regulations 2010. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a mechanism for the designation and protection of SPAs in UK offshore waters (from 12-200 nm).

The Government is obliged to identify and designate SACs under the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora). These are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive within the European Union. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are protected under The Conservation of Habitats & Species Regulations 2010. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended) provide a mechanism for the designation and protection of SACs in UK offshore waters (from 12-200 nm).

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and wise use, in particular recognizing wetlands as ecosystems that are globally important for biodiversity conservation. Wetlands can include areas of marsh, fen, peatland or water and may be natural or artificial, permanent or temporary. Wetlands may also incorporate riparian and coastal zones adjacent to the wetlands. Ramsar sites are underpinned through prior notification as Sites of Special Scientific Interest (SSSIs) and as such receive statutory protection under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CRoW) Act 2000. Policy statements have been issued by the Government in England and Wales highlighting the special status of Ramsar sites. This effectively extends the level of protection to that afforded to sites which have been designated under the EC Birds and Habitats Directives as part of the Natura 2000 network (e.g. SACs & SPAs).

Statutory Designations: Local

Under the National Parks and Access to the Countryside Act 1949 Local Nature Reserves (LNRs) may be declared by local authorities after consultation with the relevant countryside agency. LNRs are declared for sites holding special wildlife or geological interest at a local level and are managed for nature conservation, and provide opportunities for research and education and enjoyment of nature.

Non-Statutory Designations

Areas considered to be of local conservation interest may be designated by local authorities as a Wildlife Site, under a variety of names such as County Wildlife Sites (CWS), Listed Wildlife Sites (LWS), Local Nature Conservation Sites (LNCS), Sites of Biological Importance (SBIs), Sites of Importance for Nature Conservation (SINCs), or Sites of Nature Conservation Importance (SNCIs). The criteria for designation may vary between counties.

Together with the statutory designations, these are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined. The level of protection afforded to these sites through local planning policies and development frameworks may vary between counties.

Regionally Important Geological and Geomorphological Sites (RIGS) are the most important places for geology and geomorphology outside land holding statutory designations such as SSSIs. Locally-developed criteria are used to select these sites, according to their value for education, scientific study, historical significance or aesthetic qualities. As with local Wildlife Sites, RIGS are a material consideration when planning applications are being determined.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are intended to protect 'important' countryside hedgerows from destruction or damage. A hedgerow is considered important if (a) has existed for 30 years or more; and (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. Hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys are covered by these regulations. Hedgerows *'within or marking the boundary of the curtilage of a dwelling-house'* are not.

C NATIONAL PLANNING POLICY

National Planning Policy Framework 2012

The National Planning Policy Framework replaces PPS9 (from April 2012) and emphasises the need for sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and priority species. An emphasis is also made for the need for ecological networks via preservation, restoration and re-creation. The protection and recovery of priority species – presumably those listed as UK Biodiversity Action Plan priority species – is also listed as a requirement of planning policy. In determining planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from adverse harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and The Biodiversity Duty

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 40 of the Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'. Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

D REGIONAL AND LOCAL PLANNING POLICY

The South East Plan (also known as the Regional Spatial Strategy for the South East) sets out the overall vision for the South East Region up to 2026 (Communities and Local Government, 2009). It outlines challenges facing the region, such as housing, economy, transport and environmental protection. More specifically it provides direction for Local Development Frameworks (LDFs) and includes the following Core Regional Policies that are relevant to the site.

Policy NRM5: Conservation and Improvement of Biodiversity

"Local planning authorities and other bodies shall avoid a net loss of biodiversity, and actively pursue opportunities to achieve a net gain across the region.

(i) They shall ensure appropriate access to areas of wildlife importance, identifying areas of opportunity for biodiversity improvement and setting targets reflecting those in the table headed 'Regional Biodiversity Targets - Summary for 2010 and 2026' below. Opportunities for biodiversity improvement, including connection of sites, large-scale habitat restoration, enhancement and re-creation in the areas of strategic opportunity for biodiversity improvement (Diagram NRM3) should be pursued

(ii) They shall influence and applying agri-environment schemes, forestry, flood defence, restoration of mineral extraction sites and other land management practices to:

- deliver biodiversity targets
- increase the wildlife value of land
- reduce diffuse pollution
- protect soil resources.

(iii) They shall promote policies that integrate the need to accommodate the changes taking place in agriculture with the potential implications of resultant development in the countryside.

(iv) They shall require green infrastructure to be identified, developed and implemented in conjunction with new development".

Policy C4: Landscape and Countryside management

"Outside nationally designated landscapes, positive and high quality management of the region's open countryside will be encouraged and supported by local authorities and other organisations, agencies, land managers, the private sector and local communities, through a combination of planning policies, grant aid and other measures.

In particular, planning authorities and other agencies in their plans and programmes should recognise, and aim to protect and enhance, the diversity and local distinctiveness of the region's landscape, informed by landscape character assessment.

Positive land management is particularly needed around the edge of London and in other areas subject to most growth and change. In such areas long-term goals for landscape conservation and renewal and habitat improvement should be set, and full advantage taken of agri-environmental funding and other management tools.

Local authorities should develop criteria-based policies to ensure that all development respects and enhances local landscape character, securing appropriate mitigation where damage to local landscape character cannot be avoided."

Policy CC1: Sustainable Development

"The principal objective of the Plan is to achieve and to maintain sustainable development in the region. Sustainable development priorities for the South East are identified as:

(i) achieving sustainable levels of resource use

(ii) ensuring the physical and natural environment of the South East is conserved and enhanced

(iii) reducing greenhouse gas emissions associated with the region

(iv) ensuring that the South East is prepared for the inevitable impacts of climate change
(v) achieving safe, secure and socially inclusive communities across the region, and ensuring that the most deprived people also have an equal opportunity to benefit from and contribute to a better quality of life.

Policy CC4: Sustainable Design and Construction

"The design and construction of all new development, and the redevelopment and refurbishment of existing building stock will be expected to adopt and incorporate sustainable construction standards and techniques. This will include:
consideration of how all aspects of development form can contribute to securing high standards of sustainable development including aspects such as energy, water efficiency and biodiversity gain",,,,,

Policy CC6: Sustainable Communities and Character of the Environment

"Actions and decisions associated with the development and use of land will actively promote the creation of sustainable and distinctive communities. This will be achieved by developing and implementing a local shared vision which:
(i) respects, and where appropriate enhances, the character and distinctiveness of settlements and landscapes throughout the region.
(ii) uses innovative design processes to create a high quality built environment which promotes a sense of place. This will include consideration of accessibility, social inclusion, the need for environmentally sensitive development and crime reduction"

The Adur District Local Plan (1996) was adopted in 1996, but is to be replaced by suite of documents as part of the Local Development Framework, which will eventually replace the Local Plan. Nature conservation policies An1-An5 in Chapter 6 of the Local Plan have not been saved. The following policies relating to trees and landscaping have been saved:

Policy AB25

Planning permission for development which would adversely affect existing trees will only be granted where:-
(a) the trees are in poor health;
(b) the trees are of poor appearance and of little public amenity value.

Sufficient space shall be left around trees to be retained to avoid threatening their survival. Applications for development (including outline applications) shall include where appropriate an accurate site survey showing the precise location and canopy spread of all existing trees.

Policy AB26

Planning permission for new development which could appropriately accommodate tree planting will normally only be granted where such provision is made on a significant scale as an integral part of the overall design of the development. Conditions will be imposed accordingly and consideration will be given to making Tree Preservation Orders for the future protection of the trees to be planted. Proposals incorporating insufficient tree planting relative to the scale of development proposed (or not providing adequate space for the growth of the trees) will be refused unless there are exceptional reasons.

Policy AB27

Planning permission for new development which could appropriately accommodate landscaping will only be granted subject to a scheme forming an integral part of the proposal and the scheme being appropriate to the coastal environment of Adur District, including the planting of predominantly native trees.

E BIODIVERSITY ACTION PLANs (BAPs)

The UK BAP was published in 1994 to comply with obligations under the Convention on Biological Diversity (The Biodiversity Treaty, 1992). It describes the UK's biological resources and commits to developing detailed plans to conserve these recourses. The UK BAP comprises Habitat Action Plans (HAPs) and Species Action Plans (SAPs). In addition, local authorities promote habitat and species conservation at a regional level through development of Local BAPs (LBAPs).

UK Priority BAP species and habitats, that are potentially relevant to the site include:

- Birds such as house sparrow, dunnock, linnet, starling, skylark, lapwing, reed bunting and song thrush;
- Reptiles such as slow worm, common lizard and grass snake;
- Amphibians such as great crested newt and common toad;
- Small mammals such as hedgehog, water vole, dormouse and brown hare;
- Invertebrates such as grizzled skipper and stag beetle;
- Bats such as soprano pipistrelle, noctule and brown long eared bat;
- Plants such as true fox sedge; and,
- Habitats such as hedgerow, reed beds, standing water.

The most up to date targets and actions, including latest progress reports, for UK HAPs and SAPs can be viewed on the DEFRA website[23].

In addition to the UK BAP, BAPs are also produced at the regional/county level. **The Sussex BAP** is managed by the Sussex Biodiversity Partnership. The aims and objectives of the Sussex BAP (2010) are to reflect UK targets for habitats and species of conservation concern and translate them at a local level and to integrate the needs of species and habitats within landscape-scale delivery. Currently, no county specific targets have been set, but the old Sussex BAP has been archived and can be viewed on the Sussex Biodiversity Partnership website[24].

The distribution of BAP habitats present across the South-East has been used to identify Biodiversity Opportunity Areas (The South East Biodiversity Forum, 2009). BOAs represent a targeted landscape-scale approach to biodiversity conservation in the county and form the basis for an ecological network and opportunity for restoration and creation of BAP habitats. Where possible, BAP targets should be linked to BOAs, increasing effectiveness of work and making reporting easier. There are 75 BOAs across Sussex and 6 within Adur District.

[23] DEFRA website http://ukbars.defra.gov.uk/plans/national.asp?S=&L=1&O=&SAP=&HAP=&submitted=1&flipLang=&txtLogout

[24] Sussex Biodiversity Partnership http://www.biodiversitysussex.org/

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