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Preliminary Ecological Appraisal – **A419** **Stonehouse**

CCOGL4304819

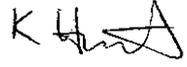
PEA1 Revision 0 April 2017



Document Control Sheet

Project Name:	A419 Stonehouse
Project Number:	CCOGL4304819
Report Title:	Preliminary Ecological Appraisal
Report Number:	PEA1

Issue	Prepared	Reviewed	Approved
Status/Amendment			

Rev 0	Name: Stuart Graham Signature:  Date: 18/04/2017	Name: Signature: Date:	Name: Signature: Date:
Rev 1	Name: Kate Hunt Signature:  Date: 25/04/2017	Name: Andrew Warwick Signature:  Date: 28/04/2017	Name: Signature:  Date: 04/05/2017
	Name: Signature: Date:	Name: Signature: Date:	Name: Signature: Date:

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1 Introduction

1.1 Background

Amey Consulting has been commissioned by Gloucestershire County Council (GCC) to carry out a Preliminary Ecological Appraisal to identify potential ecological constraints associated with the four road improvement schemes in Stonehouse, Gloucestershire.

The proposed Schemes are located at;

1. Horse Trough Roundabout, Stonehouse GL10 2JZ, UK OS - 380979,204786
2. A419 / Downton Road Junction, Stonehouse GL10 2BE, UK OS – 380506, 204888
3. Oldends Lane / A419 Junction, Stonehouse GL10 3UT, UK OS – 379391, 205421
4. Chipmans Platt roundabout, Stonehouse GL10 3SQ, UK OS - 378446, 206304

Horse Trough Roundabout, Downton Road and Oldends Lane were surveyed by an Amey ecologist in October 2016 and an ecological appraisal completed. The fourth site (Chipmans Platt) was surveyed by an Amey ecologist in April 2017. This report details the appraisal of all the sites.

The Scheme footprint includes all habitats within a 50 metre buffer, either side of the Scheme footprint. The works will be delivered by an undetermined method.

1.2 Objectives

This Preliminary Ecological Appraisal of the Scheme is intended to record relevant habitats, including any that are formally designated for nature conservation, and to highlight the potential for legally-protected or otherwise notable species. This appraisal also makes recommendations for further detailed surveys that might be required to confirm the presence of such species. This is in order to ensure that further ecological survey and advice is appropriately targeted and reflects the demands of wildlife legislation and Government nature conservation policy (refer to Appendix A for details).

Where this preliminary survey indicates that there may be impacts to such ecologically-sensitive features, a brief, containing outline indication of likely mitigation requirements, is also provided, where appropriate. However detailed mitigation can only be confirmed once the recommended further surveys are completed (if required).

1.3 Limitations

An Extended Phase 1 habitat survey does not aim to produce a full botanical or faunal species list or represent a full or detailed protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the Site in order to:

- Broadly identify the nature conservation value of a site and preliminarily assess the significance of any potential impacts on habitat/species recorded; and/or,
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation of a site.

Habitats and features of interest outside the Scheme footprint were observed from within the Scheme footprint boundary or from areas with public access, using binoculars where necessary. Therefore, adjacent land was not subject to a full habitat survey, although broad habitat types were recorded.

The survey was undertaken in October and therefore outside of the optimum period for botanical surveys (approximately April to September) although it is considered that sufficient information was obtained during the survey for the purpose of informing this Preliminary Ecological Appraisal.

2 Methodology

2.1 Desk Study

The desk study identified statutory designated sites of nature conservation interest through a review of the Multi Agency Geographic Information for the Countryside (MAGIC) and Natural England (NE) websites. Biological data from Gloucestershire Centre for Environmental Records (GCER) gathered in relation to the stretch of road improvement schemes and adjacent habitats to be affected by the scheme hereafter referred to as the 'Scheme footprint(s)' was reviewed.

The following data search parameters were used (all data searches centred on the approximate centre point of the application sites), providing an appropriate search area in relation to the development site: given the close proximity of the sites:

- All statutory designated sites within a 2km radius;
- Non-statutorily designated sites within a 2km radius;
- Records for all protected, notable or NERC Act priority species within a 2km radius.

Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area.

2.2 Field Survey

The site (Horse Trough, Downton Road & Oldends Lane) was visited by a suitably qualified and experienced ecologist (Stuart Graham BSc (Hons). MSc. CEcol. CEnv. MCIEEM. FLS. on 13th October 2016 and Kate Hunt BSc (Joint Hons). MSc. MIEEM on 24th April 2017 (Chipmans Platt). Habitats within and immediately adjacent to the proposed scheme footprint(s) were noted and the potential for protected or otherwise notable species was assessed. Where any incidental sightings or indirect evidence of species presence was seen, this was recorded, but no detailed survey for any species was undertaken. The field survey was undertaken in accordance with the handbook for Phase 1 habitat survey (JNCC 2010).

Phase 1 Habitat Survey

The survey was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Technical Guidance Series *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2013), following the UK industry standard Joint Nature Conservation Committee (JNCC) *Phase 1 Habitat Methodology* (JNCC,2010) and with reference to the IEEM *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006).

This habitat survey was extended through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of conservation significance.

This survey does not constitute a full protected species survey but provides sufficient information to enable an experienced ecologist to either:

- Confirm the conservation significance of the proposed development Scheme and assess the potential for impacts on habitats/species likely to represent a material consideration in planning terms; or
- Determine the scope and extent of additional ecological surveys that may be required before such confirmation can be made.

Bat Assessment

The Extended Phase 1 habitat survey also incorporated a preliminary, ground based bat roost assessment of trees within and along the Scheme footprint; assessing trees in accordance with the Bat Conservation Trust's (BCT) *Bat surveys good practice guidelines* (Collins, 2016). The preliminary roost assessment looked to identify features suitable for roosting bats such as cavities, cracks, splits in branches and area of dense or extensive ivy noted. Trees were categorised as follows.

- **Negligible:** trees with no roost potential
- **Low:** trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or a tree that supports some features which may have limited potential to support bats;
- **Medium:** trees with definite bat roost potential, supporting fewer features than High trees or with potential for use by single bats;
- **High** trees with multiple, highly suitable features capable of supporting larger roosts.

Badger Scoping Assessment

An assessment was made of the development footprint’s suitability to support badgers *Meles meles*. The survey for badger signs involved searching the habitats on site for evidence of use by badgers. In practice, this was focussed on habitats such as woodlands, scrub, ditches and embankments and hedgerows; the areas on site that would most likely be used by badgers to construct setts.

The survey included searches for all accepted badger field signs (Bang and Dahlstrom, 2006); with field signs recorded based on classifications described in Neal and Cheeseman and within Harris *et al* 1994. It involved searching for setts, dung pits, latrines, pathways, footprints, hairs on fences and signs of foraging. Any setts and other evidence of badger activity recorded were marked onto a map of the survey area.

Any setts located were assessed and classified as main, annex, subsidiary or outlier setts according to their current status, using nationally recognised sett classification and hole-usage criteria (Harris et al., 1989; Cresswell *et al.*, 1990 and Andrews, 2013); and set out Tables 2.2 and 2.2 below.

Any setts located were also graded as active, partially-active or disused to indicate their current levels of usage.

Table 2.1: Badger sett criteria

Sett Category	Criteria
Main Sett	Usually appearing well-used, well established and having a large number of holes with big spoil heaps, often with piles of old bedding outside. Main setts tend to have well-worn paths between the sett and foraging areas, and between sett holes. They are generally considered to be breeding setts (i.e. where cubs are most likely to be born) and are more often than not in use all year round. A social group of badgers will only have one main sett within their territory.

Sett Category	Criteria
Annex	Annexe setts are always close to a main sett and are usually connected by one or more obvious well-worn paths. They consist of several holes but are not necessarily in use the whole time, even if the main sett is very active. Should a second litter of cubs be born within the social group, they are likely to be raised within an annexe sett.
Subsidiary	Often these have very few holes, are usually at least 50m from a main sett and do not have an obvious path connecting them with another sett. Subsidiary setts are not continuously active.
Outlying	Usually comprising one or two holes with very little spoil outside (thus indicating that the tunnel system underground is not extensive), outlying setts have no obvious path connecting them with another sett and are used only sporadically.

Table 2.2: Badger sett usage criteria

Level of Usage	Criteria
Active	Entrance holes well used, clear of debris/vegetation, except bedding material. The holes may or may not have been excavated recently. Fresh spoil outside. Signs of wear consistent with use (presence of smooth, compacted soil/prints/hairs).
Inactive	Entrance holes not in regular use; they have some accumulated debris/vegetation and no field signs indicating recent use by badgers. Sett use is often seasonal and a sett recorded as inactive could be regular use after a minimum amount of clearance.
Disused	Entrance holes show no signs of recent use and are often partly or wholly blocked. Entrances may require considerable digging to re-open. Setts may become disused through collapse, flooding, interference or other reasons.

3 Results and Interpretations

In this section the results of the desk study and field study are brought together and the implications of both are considered. Figures in Appendix 1 illustrate the site location, site overview and the Improvement proposal. The results of the extended Phase 1 habitat survey are displayed in Appendix 2. Numbers on the map and in the text below can be cross referenced with the Designated Sites

Statutory

The Scheme(s) footprint does not lie within or immediately adjacent to the boundaries of any statutory designated site for nature conservation. Furthermore, no statutory designated sites for nature conservation were located within a 2km radius of the site.

Although the application site is not located within or adjacent to any statutory designated site(s) for nature conservation, a search of MAGIC indicates that it does fall within the SSSI Impact Risk Zone of two SSSIs (used by Local Planning Authorities to assess planning applications for likely impacts on the SSSI). As a result of the proposed Scheme falling outside of detailed categories, the Local Planning Authority need not consult Natural England on likely risks from the Scheme.

Non-statutory

Information on non-statutory designated sites within approximately 2km, as obtained from GCER, is detailed in **Table 3.1**. Descriptions provided are in accordance with reasons for selection where available. The Scheme lies adjacent to one non-statutory designated site, the River Frome Mainstream & Tributaries KWS, but the nature of the works will not impact the river.

Table 3.1: List of Non-Statutory Designations within 2km

Site Name	Distance (m)	Status	Habitat
River Frome	Next to highway	Key Wildlife Site	Mammal interest
Stonehouse Newt Pond	Next to highway	Key Wildlife Site	Amphibian interest
River Frome Mainstream & Tributaries	41	Key Wildlife Site	Structural diversity with significant botanical and animal interest

Site Name	Distance (m)	Status	Habitat
River Frome	99	Key Wildlife Site	Mammal interest
Bond's Mill Bank	160	Key Wildlife Site	Plant interest
Chipman's Platt - A38 (A419)	Next to highway	Conservation Road Verge	N/A
Verney Meadows	558	Key Wildlife Site	Semi-natural grassland
Doverow Hill Wood	651	Unconfirmed Sites (Potential KWS quality only)	Secondary woodland
Oldends Farm Fields	797	Unconfirmed Sites (Potential KWS quality only)	Unimproved grassland and green lanes.
Five Acre Grove (Leonard Stanley)	1163	Key Wildlife Site	Ancient semi-natural broad-leaved woodland site larger than 2 ha
Church Street, Leonard Stanley	1654	Unconfirmed Sites (Potential KWS quality only)	Toads
Eastington Meadows	1685	Unconfirmed Sites (Potential KWS quality only)	Unimproved Neutral and marshy meadows
Wickster's Brook and Ditch (part)	1697	Key Wildlife Site	Mammal interest
Mole Grove	1938	Key Wildlife Site	Ancient semi-natural broad-leaved woodland site larger than 2 ha

3.1 Habitats

Details and locations of the habitats identified within the Scheme at the time of survey extend are provided below;

Hard standing

The majority of the Scheme area comprises hard-standing; areas of Tarmacadam road and pavement.

Mature trees, Tree belt and Scrub

There are a number of mature tree, immature tree belts and areas of scrub habitat found adjacent to the Horse Trough Roundabout, the A419 / Downton Road Junction and Chipman's Platt roundabout. These areas contain a number of mature trees, some of which are ivy covered, closely packed, immature planted trees and dense areas of scrub. Tall bushes and remnant hedge lines are present beneath the mature trees with an understory of tall ruderal and nettles *Urtica dioica* at Horse Trough roundabout and Downton Road. The tree belts are typically densely planted with little or no understory. Dense areas of scrub predominantly comprise bramble *Rubus fruticosus* and hawthorn *Crataegus monogyna*. The boundaries to the south, east and west of Chipman's Platt roundabout are bordered by closely packed trees with a dense understory of bramble and hawthorn scrub in places. To the centre of Chipman's Platt roundabout is a copse of planted elm trees *Ulmus sp.*

Ornamental planting

Sections of ornamental planting, comprising a number of garden cultivar species are present along the and with the Horse Trough Roundabout. There are predominantly found along the southern extent of the individual Scheme. Although not of a floristic value, these do provide a suitable habitat for urban nesting birds. Nesting bird surveys would be required if clearance of this scrub is to be undertaken, within the nesting bird season; to facilitate clearance works.

Amenity grassland

Small strips of highly managed amenity grassland are present throughout the individual schemes. Predominantly comprising common species of these habitats; daisy *Bellis perennis*, white clover *Trifolium repens* and dandelion *Taraxacum fontanum agg.* they are considered to be of little ecological value. Clearance works can commence in these areas with no restrictions.

Unimproved neutral grassland

The roadside verges and the roundabout at Chipman's Platt roundabout have been designated by Gloucestershire County Council as Conservation Road Verges (2014) due to their botanical interest. Species observed at the time of the survey included white clover, red clover, lady's smock, creeping buttercup, daisy, star sedge, meadow vetchling, bird's foot trefoil, ribwort plantain, hoary plantain, groundsel, ragwort, cinquefoil, silverweed, yarrow, common vetch, cocksfoot, false oat grass, *Poa* sp., common bent and creeping bent. The wider northern A419 verge approaching the roundabout was found to support a greater number of species at the time of the survey.

Semi-improved neutral grassland

The roadside verges to the south of the roundabout along the A419 and Spring Hill are more shaded and narrower and containing a greater proportion of ruderal species including hogweed, common nettle, cow parsley and a higher proportion of cocksfoot to the A419 verges to the north of the roundabout. The four refuge islands around the roundabout support a similar composition of species.

Boundary features

A mature hedge line of blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna* is present along the northern edge of the Oldends Lane / A419 Junction along with small sections of the A419 / Downton Road Junction. The hedgerows themselves are not classified as important under the Hedgerow Regulations 1997. A number old bird nests were observed within these sections of hedgerow during survey. An intact, managed species poor hedgerow is present along Grove Lane.

3.2 Protected Species and Species of Conservation Importance

This section presents the protected species records provided by GCER along with any evidence of the species, or potential for it to be present gathered during the field survey. Where relevant it also evaluates the potential for the Scheme Site to support Section 41 species identified within the desk study area. The legislation and policy relevant to each species or species group is listed in Appendix 1.

Bats

The dataset provided by GCER identified 47 records for European protected bat species within approximately 2km of the Scheme area. Species included in these records were unidentified *Myotis* species, Lesser Horse-shoe bat *Rhinolophus hipposideros*, Greater Horse-shoe bat *Rhinolophus ferrumequinum*, Serotine bat *Eptesicus serotinus*, Daubenton's bat *Myotis daubentonii*, Brown long-eared bat *Plecotus auritus*, Natter's bat *Myotis nattereri*, noctule bat *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, and soprano pipistrelle *Pipistrellus pygmaeus*.

No records of other bat species were returned by GCER, however, the possible presence of other species in suitable habitat in the wider area cannot be ruled out.

The main land use within the Scheme area is a combination of hard standing and intensively managed amenity grassland and hedgerows / trees, offering limited opportunities for foraging bats. However, aquatic habitats offered by the adjacent canal network and other optimal habitat outside the immediate development area do provide foraging and commuting facility for bats in an otherwise less than optimal habitat for bats.

The trees located adjacent to the Scheme were assessed and considered to provide no features suitable for roosting bats.

Amphibians

GCER returned 52 records for amphibians within 2km of the Scheme area. Species included: common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus* and great crested newt (GCN)

Triturus cristatus. Several ponds were located within 500m of the proposed Scheme improvements and several ditches / sections of canal were located adjacent to the Scheme area.

The habitats present within the Scheme area is a combination of hard standing and intensively managed amenity grassland and hedgerows / trees, offering sub-optimal as terrestrial habitat for amphibians.

No ponds were identified within close proximity to the scheme area, which were not severed by a major road. A canal is located to the south-west of the Horse Trough Roundabout and the Stroudwater Navigation is directly adjacent to a section of works off Spring Hill at Chipman's Platt which may provide some aquatic habitat for commuting common amphibian species such as common frog *Rana temporaria* and common toad *Bufo bufo*. A small tributary of the River Frome is located approximately 50m east of Chipman's Platt roundabout within an area of woodland. Sections of the watercourse close to the stone bridge on the access road to the care centre were very slowly flowing at the time of survey and may support breeding GCNs. The watercourse is not anticipated to be affected by the works.

Dormouse

GCER provided no confirmed records for hazel dormouse *Muscardinus avellanarius* within 2km of the Scheme area and the habitats within and adjacent to the Scheme area are considered to offer very limited potential for the species. Hedgerows within and adjacent to the Scheme area offer low potential for dormice, lacking favoured food plant species such as hazel *Corylus avellana* and honeysuckle *Lonicera sp.*. On this basis, the species is not considered further in this assessment.

Otter and Water Vole

GCER returned 21 records for otters *Lutra lutra* and water vole *Arvicola amphibius* between 1998-2015 within 2km of the Scheme area. The Stroudwater Canal is located close to Chipman's Platt roundabout and spanned by sections of the Scheme area. The Canal and its riparian banks were considered to provide suitable habitat for commuting, foraging and resting otters and water voles.

Although not directly impacted by the scheme, works are planned adjacent to the canal at Chipman's Platt. Works at the other locations are being undertaken some distance from the canal, sections around the Horse Trough Roundabout and A419 / Downton Road junction may have potential to impact on these species if found to be present within these areas.

Reptiles

GCER returned 30 records of reptiles within 2km of the Scheme area. Species included in these records were grass snake *Natrix natrix*, viviparous lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. The habitats present within the Scheme area is a combination of hard standing and intensively managed amenity grassland and hedgerows / trees, offering sub-optimal as terrestrial habitat for reptiles.

Areas of riparian habitat and tall ruderal / grasses and brambles found adjacent to the Horse Trough Roundabout and A419 / Downton Road junction may provide some suitable habitats for common reptiles such as grass snakes and viviparous lizard, providing foraging and commuting opportunities as well as places of shelter and basking locations. These will be predominantly undisturbed by the current Scheme area.

Badger

GCER returned 19 records of badger *Meles meles* within 2km of the Scheme area, the majority of which pertain to dead individuals found on roads.

A single entrance, disused badger sett was located within the verge at the Oldends Lane / A419 Junction (NGR SO 79389 05446). With no signs of recent use, with the hole partially covered and full of leaves, it is anticipated the sett has been abandoned for some time. Furthermore a single badger dung pit was located within the 'soft estate' during survey at Horse Trough Roundabout (NGR SO 80676 04829).

The dense scrub habitat to the eastern margin of Chipman's Platt roundabout was too dense to allow a thorough check for evidence of badgers and setts. No obvious pathways leading into the scrub were noted.

Invasive species

GCER returned no records for 'Invasive Non-Native Species'

A single stand of Japanese knotweed *Fallopia japonica* was identified at the Horse Trough Roundabout (NGR SO 80743 04814). Estimated to be 11m (l) and 5+m (w), the true extent of the stand or impact on the proposed works could not be established at the time of survey, due to the dense ivy and hedge-bindweed coverage. With the Stroudwater Canal located to the south of this Scheme area, there is potential for further species in the form of Himalayan balsam *Impatiens glandulifera* to be present in the area.

Birds

The data set provided by GCER identified 479 records of 84 bird species typical of the urban and aquatic habitats found out-width of the Scheme area and within the region.

All of the species are protected under Schedule 1 of the *Wildlife and Countryside Act* (WCA) 1981 (as amended) and / or are species of principal importance for the purpose of conserving biodiversity covered under Section 41 of the *Natural Environment and Rural Communities* (NERC) Act 2006, or red and amber listed species in 'Birds of Conservation Concern' (BoCC) (Eaton et al., 2009). **Table 3.2** summaries the species recorded within approximately 2km of the Scheme area.

The majority of the species recorded are however anticipated to be recorded as a result of winter migrations and / or present within wetland and open areas of countryside to the south-east of the Scheme.

The combination of riparian and undisturbed habitats along and adjacent to the Scheme area together with hedgerows, scrub and tree belts are likely to support a suite of breeding birds typical of urban and aquatic habitats in the region, potentially including some species of conservation value. Two mute swans *Cygnus olor* were noted nesting on the Stroudwater Navigation close to the proposed works in Spring Hill off Chipman's Platt roundabout during the survey in April 2017.

Boundary habitats including tree belts, scrub and hedgerows are likely to support a range of passerines including common species such as willow warbler *Phylloscopus trochilus*, dunnock *Prunella modularis*, common swift *Apus apus*, and blackbird *Turdus merula*,

Table 1.2: Selection of Rare and Important Bird Species from GCER Records Search

Taxon Name	Common Name
<i>Acanthis cabaret</i>	Lesser Redpoll
<i>Accipiter gentilis</i>	Goshawk
<i>Actitis hypoleucos</i>	Common Sandpiper
<i>Alauda arvensis</i>	Skylark
<i>Alcedo atthis</i>	Common Kingfisher
<i>Anas crecca</i>	Eurasian Teal
<i>Anas platyrhynchos</i>	Mallard
<i>Anser albifrons subsp. albifrons</i>	Anser albifrons subsp. albifrons
<i>Anthus pratensis</i>	Meadow Pipit
<i>Anthus trivialis</i>	Tree Pipit
<i>Apus apus</i>	Swift
<i>Asio flammeus</i>	Short-eared Owl
<i>Athene noctua</i>	Little Owl
Taxon Name	Common Name
<i>Bombycilla garrulus</i>	Waxwing
<i>Carduelis cabaret</i>	Lesser Redpoll
<i>Carduelis carduelis</i>	European Goldfinch
<i>Carduelis chloris</i>	Greenfinch
<i>Carduelis spinus</i>	Eurasian Siskin
<i>Certhia familiaris</i>	Treecreeper
<i>Cettia cetti</i>	Cetti's Warbler
<i>Chroicocephalus ridibundus</i>	Black-headed Gull
<i>Ciconia ciconia</i>	White Stork
<i>Cinclus cinclus</i>	White-throated Dipper
<i>Columba oenas</i>	Stock Pigeon
<i>Cuculus canorus</i>	Common Cuckoo
<i>Cyanistes caeruleus</i>	Blue Tit
<i>Cygnus olor</i>	Mute Swan
<i>Delichon urbicum</i>	House Martin
<i>Dendrocopos major</i>	Great Spotted Woodpecker

<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker
<i>Egretta garzetta</i>	Little Egret
<i>Emberiza schoeniclus</i>	Reed Bunting
<i>Erithacus rubecula</i>	Robin
<i>Falco columbarius</i>	Merlin
<i>Falco peregrinus</i>	Peregrine Falcon
<i>Falco subbuteo</i>	Hobby
<i>Falco tinnunculus</i>	Common Kestrel
<i>Fringilla montifringilla</i>	Brambling
<i>Gallinago gallinago</i>	Common Snipe
<i>Hirundo rustica</i>	Barn Swallow
<i>Larus argentatus</i>	Herring Gull
<i>Larus argentatus</i>	Herring Gull
<i>Larus canus</i>	Common Gull
<i>Larus fuscus</i>	Lesser Black-backed Gull
Taxon Name	Common Name
<i>Larus melanocephalus</i>	Mediterranean Gull
<i>Larus ridibundus</i>	Black-headed Gull
<i>Linaria cannabina</i>	Linnet
<i>Locustella naevia</i>	Grasshopper Warbler
<i>Loxia curvirostra</i>	Common Crossbill
<i>Luscinia megarhynchos</i>	Common Nightingale
<i>Milvus milvus</i>	Red Kite
<i>Motacilla alba subsp. yarrellii</i>	Pied Wagtail
<i>Motacilla cinerea</i>	Grey Wagtail
<i>Muscicapa striata</i>	Spotted Flycatcher
<i>Oenanthe oenanthe</i>	Wheatear
<i>Parus major</i>	Great Tit
<i>Passer domesticus</i>	House Sparrow
<i>Passer montanus</i>	Eurasian Tree Sparrow
<i>Periparus ater</i>	Coal Tit
<i>Phoenicurus ochruros</i>	Black Redstart

<i>Phoenicurus phoenicurus</i>	Redstart
<i>Phylloscopus trochilus</i>	Willow Warbler
<i>Picus viridis</i>	Green Woodpecker
<i>Prunella modularis</i>	Dunnock
<i>Pyrrhula pyrrhula</i>	Common Bullfinch
<i>Regulus regulus</i>	Goldcrest
<i>Riparia riparia</i>	Sand Martin
<i>Saxicola rubetra</i>	Whinchat
<i>Saxicola rubicola</i>	Stonechat
<i>Saxicola torquata</i>	Stonechat
<i>Scolopax rusticola</i>	Eurasian Woodcock
<i>Sitta europaea</i>	Nuthatch
<i>Spinus spinus</i>	Siskin
<i>Strix aluco</i>	Tawny Owl
<i>Sturnus vulgaris</i>	Common Starling
Taxon Name	Common Name
<i>Tadorna tadorna</i>	Common Shelduck
<i>Tringa ochropus</i>	Green Sandpiper
<i>Troglodytes troglodytes</i>	Winter Wren
<i>Turdus iliacus</i>	Redwing
<i>Turdus philomelos</i>	Song Thrush
<i>Turdus pilaris</i>	Fieldfare
<i>Turdus viscivorus</i>	Mistle Thrush
<i>Tyto alba</i>	Barn Owl
<i>Vanellus vanellus</i>	Northern Lapwing

4 Recommendations

For the purposes of this report it has been assumed at this stage that direct impacts will potentially occur across the Scheme area, and that indirect impacts will need to be considered beyond this, with the 'zone of influence' varying dependent on the receptor (habitat, protected species, designated site) concerned. The recommendations presented below are based on preliminary assumptions of the potential impacts and the corresponding requirement to confirm presence/absence, and where present the distribution and abundance of protected and otherwise notable species or habitats that may occur within the Scheme area and zone of influence surrounding it.

4.1 Statutory Designated Sites

The Scheme(s) footprint does not lie within or immediately adjacent to the boundaries of any statutory designated site for nature conservation. Furthermore, no statutory designated sites for nature conservation were located within a 2km radius of the site.

With Statutory Designated Sites present in the wider environment, fed by waterbodies present adjacent to the Scheme area, it is recommended that appropriate pollution prevention control measures are implemented to safeguard these sensitive receptors in the wider environment.

4.2 Non-Statutory Sites

With the exception of Chipman's Platt roundabout the Scheme area is not anticipated to encroach on any Local Sites designated for their wildlife interest. It should be noted however, that Scheme area does lie immediately adjacent to two Key Wildlife Sites; the River Frome and Stonehouse Newt Pond.

It is unlikely that any direct impacts will occur to the sites at Horse Trough Roundabout, Downton Road and Oldends Lane, as there is considered to be sufficient separation from both these sites, that key species will not be affected by the proposed Scheme. It is recommended that appropriate pollution prevention measures are implemented during the course of the works to protect the adjacent sites however.

At Chipman's Platt roundabout the proposed carriageway widening will involve a degree of land take and loss of the roadside verges which are designated as Conservation Roadside verges. The verges to the southern boundary of the roundabout / A419 are narrower and bordered by an existing pavement approximately 1- 2m in width. The loss of the existing roadside verge in this location is likely to be a lesser extent to accommodate the 2.5m shared footway and cycleway. The extent of land take to the northern approach for carriageway widening where the verge appears to be more diverse, is currently unknown. The refuge islands are to be subjected to 2.5m wide crossing points which will also result in a loss of grassland habitat although these areas are not part of the non-statutory designation. The roundabout itself is understood to be unaffected by the works.

It is recommended that the Gloucestershire County Ecologist and local Wildlife Trust are consulted regarding the proposed works at Chipman's Platt and a management plan developed.

4.3 Protected Species and Species of Conservation Importance

Bats

The land within the footprint of the Scheme comprises hard standing and predominantly managed hedgerows and mature trees, considered to be sub-optimal habitat for foraging or commuting bats. Furthermore, none of the mature trees present within or adjacent to the scheme were considered to provide features suitable for roosting bats. However, habitats adjacent to the Scheme were considered to provide suitable commuting and foraging potential. These habitats, will be largely unaffected by the proposed development. To reduce any impact of the Scheme, linear features such as hedgerows and tree lines should be retained wherever possible within the proposed scheme. Unavoidable loss of scrub or trees within the Scheme area should be compensated, as part of the scheme design, with replacement planting using native species of local provenance. Where possible, replacement planting should provide linear connectivity with retained habitat features. Lighting during development, if undertaken at night, should seek to avoid light-spill beyond the immediate works area, particularly into areas of habitat along the Canal. Most nocturnal mammals react to increasing moonlight by reducing their use of open areas, restricting foraging activity and movements, reducing total duration of activity, or concentrating foraging and longer movements during the darkest periods of the night (Rich and Longcore, 2006).

The addition of artificial lighting along the works area could have impacts of foraging and commuting routes for bats.

Any modification to the lighting scheme currently in place should take into account recommendation detailed within the Bat Conservation Trust: BATS AND LIGHTING IN THE UK, Bats and the Built Environment Series.

Amphibians

A number of common amphibian species have been recorded as being present within the wider environment of the individual Schemes including great crested newts *Triturus cristatus*. Located within the Stonehouse Newt Pond Key Wildlife Site it is unlikely that any direct impacts will occur to this site as there is considered to be sufficient separation from both this site, that key species will not be effected by the proposed Scheme.

It is recommended that appropriate pollution prevention measures are implemented during the course of the works to protect the adjacent sites and that Reasonable Avoidance Measures (RAMs) should be adopted to protect amphibians, if present, particularly during works adjacent to areas of suitable habitat.

Otter and Water Vole

No evidence of otter or water voles were found within or adjacent to the Scheme area during survey, although the Stroudwater Canal is known to be use by both species.

It is recommended that a targeted otter and water vole survey is undertaken prior to the commencement of the works to establish presence / likely absence of these species. Furthermore as a precautionary measure, any light spill from construction and new lighting measures as part of the Scheme should avoid the Canal and its banks as far as is reasonably practical.

Reptiles

Although the Scheme area generally offers poor quality habitats for reptiles, areas immediately adjacent do provide more suitable habitat; it is therefore recommended that Reasonable Avoidance Measures (RAMs) should be adopted to protect individual reptiles, if present, particularly during works adjacent to areas of suitable habitat.

Badger

Signs of historical badger use of the site were noted during the survey. Field signs include an abandoned sett and dung pit, all within close proximity to the proposed Scheme, were observed.

It is recommended that an update badger survey of the area is undertaken 1 – 2 months prior to the commencement of works to establish any recent activity at the identified sett and within the Scheme area.

If badgers are found to be utilising the sett or have constructed a new sett in the intervening time between the original survey and commencement on site, a Natural England derogation licence may be required prior to the commencement of works.

Birds

The hedgerows, mature trees and tree belts and aquatic habitats within and surrounding the Scheme area are likely to support a suite of species, including potentially some species of conservation concern.

During the works phase of the Scheme, there is potential for breeding birds to be displaced either directly or indirectly, via disturbance impacts. Boundary habitat comprising hedgerows, mature trees and tree belts will largely remain intact and therefore loss of nesting habitat in the area will be negligible. It is possible that Site presence alone could indirectly displace some species however, works are generally anticipated to be of short duration and relatively low impact in areas; with these areas subject to existing levels of disturbance from road traffic, hence effects are likely to be localised and temporary. The two mute swans nesting on the Stroudwater Navigation off Chipman's Platt roundabout could potentially be disturbed by the use of machinery and the proposed widening on Spring Hill. It is recommended that the works are undertaken outside of the bird nesting period to avoid disturbance.

All birds receive some level of protection during the breeding season. In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Birds Directive and the *Wildlife and Countryside Act* 1981 (as amended), it is recommended

that any initial ground works and any associated vegetation removal take place outside of the bird breeding season (typically March to August inclusive) thereby avoiding any potential impacts on breeding birds.

If vegetation works are necessary during the breeding season, a nest-search of all suitable habitats should be undertaken by a suitably qualified and experienced ecologist prior to works commencing. Only once the ecologist is satisfied that an offence under Part 1 of the *Wildlife and Countryside Act 1981* (as amended) will not occur, would works be permitted to proceed.

Other (Invasive Plant Species)

Japanese knotweed has been identified within / immediately adjacent to the Scheme area. With aquatic habitats present adjacent to the Scheme area, it is anticipated that further invasive species in the form of Himalayan balsam may also be present.

To ensure no spread of these species or any further invasive species which may be present in the area and a breach of Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), that the Scheme area is subject to re-survey immediately prior to the commencement of works and that a 'Invasive Species Eradication Method Statement' is formulated and implemented prior to the commencement of works.

5 Summary Recommendations

The following recommendations have been made based on the results of this preliminary study. These should be implemented with full consideration of wildlife legislation described in Appendix A and seasonal restrictions shown in Appendix B.

Statutory and Non-statutory sites – further ecological assessment and consultation with third parties will be required regarding the works at Chipman’s Platt roundabout. The non-statutory designated Conservation Roadside Verges will be impacted by the scheme and further input and detailed botanical survey is likely to be required to assess if the scheme is likely to result in a significant impact on the designated site.

The scheme is located within close proximity to two Key Wildlife Sites; the River Frome and Stonehouse Newt Pond. As at present the scheme does not impact these sites directly, it is merely recommended that the Site owner / Warden is notified of the proposed works and appropriate pollution prevention measures are implemented during works to safeguard these sites.

If the scheme area or nature of works is to change, it is recommended that a consultant ecologist is notified before works are undertaken. If any works enter either of these non-designated sites, a further assessment may have to be undertaken to determine whether the scheme is likely to have a significant impact upon the site(s) or not.

Notable habitats - Work in accordance with BS5873:2012 Trees in relation to design, demolition and construction to ensure that mature trees, hedgerows and tree belts in close proximity is not harmed.

Hedgerows and scrub - If any hedgerow removal is required as part of the works than an ecological consultant should be notified prior to any action. It is recommended that where a hedgerow is scheduled for removal, that this is done outside of the bird breeding season. Where vegetation clearance during March-August (inclusive) cannot be avoided, works should be carried out under the supervision of a suitably experienced ecologist, who will carry out checks for breeding birds and their nests in advance of removal works commencing. Only once the ecologist is satisfied that no legal offence could occur, would works be permitted to proceed.

Bats – It is recommended that the work should be undertaken during the day to negate the use of artificial lighting. If the work needs to be undertaken at night, mitigation measures to minimise impacts on bats will need to be utilised such as directional lighting and louvers.

To reduce any impact of the Scheme, linear features such as hedgerows and tree lines should be retained wherever possible within the proposed scheme. Unavoidable loss of scrub or trees within the Scheme area should be compensated, as part of the scheme design, with replacement planting using native species of local provenance.

Any modification to the lighting scheme currently in place should take into account recommendation detailed within the Bat Conservation Trust: BATS AND LIGHTING IN THE UK, Bats and the Built Environment Series.

Otter and Water Vole- A targeted otter and water vole survey should be undertaken prior to the commencement of works. The survey should be undertaken following best practice guidelines for each species.

It is recommended that construction work is undertaken during the day. If this is not possible it is recommended that measures are undertaken to minimise light spill and construction noise near the Stroudwater Canal to minimise the potential of disturbing commuting and foraging otters.

Appropriate pollution prevention measures should be implemented during works within proximity to sensitive aquatic receptors.

Amphibians - Owing to the number of records of GCN in the 2km search provided by GCER and the presence of a site designated for the species in the wider environment it is recommended that a set of amphibian Reasonable Avoidance Measures (RAMs) are implemented during the course of the works to ensure that no individual amphibians are adversely affected by works (if present within the area).

Reptiles - As the risk of reptiles being present is low due to areas of most suitable habitat not being directly impacted by excavations and the arable fields lacking suitable refugia reptile surveys are not considered to be necessary. However, it is considered prudent for Reasonable Avoidance Measures to be adopted during the course of works.

Badger – With an abandoned badger setts having been identified within close proximity to the Scheme, it is recommended that an update badger survey is undertaken 1 – 2 months prior to the commencement of works to establish any recent activity at the identified sett and within the Scheme area.

If badgers are found to be utilising the sett or have constructed a new sett in the intervening time between the original survey and commencement on site,, a Natural England derogation licence may be required prior to the commencement of works.

Nesting birds - Habitat clearance should take place in the months September-February, outside of the main bird breeding season. Where vegetation clearance during March-August (inclusive) cannot be avoided, works should be carried out under the supervision of a suitably experienced ecologist, who will carry out checks for breeding birds and their nests in advance of removal works commencing. Only once the ecologist is satisfied that no legal offence could occur, would works be permitted to proceed.

Invasive Plant Species - To ensure no spread of these species or any further invasive species which may be present in the area and a breach of Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), that the Scheme area is subject to re-survey immediately prior to the commencement of works and that a 'Invasive Species Eradication Method Statement is formulated and implemented prior to the commencement of works.

6 References

- All UK (and individual UK countries) legislation can be viewed at:
<http://www.legislation.gov.uk/browse>
- Bat Conservation Trust (2014) Interim Guidance: Artificial lighting and wildlife – Recommendations to help minimise the impact of artificial lighting.
- Bat Conservation Trust (2007) Bats and lighting in the UK- bats and the built environment series **www.bats.org.uk**
- Chartered Institute for Ecology and Environmental Management (2013) Guidelines for Preliminary Ecological Appraisal. CIEEM Winchester, Hampshire.
- Joint Nature Conservation Committee (2010) Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. Revised reprint 2010. JNCC, Peterborough.
- Google Maps. 2014. [online] Available from:
<https://www.google.co.uk/maps>
- Magic Map Application. 2014. [online] Available from:
<http://magic.defra.gov.uk/MagicMap.aspx>
- Natural England, 2007 Badgers and Development: A guide to best practise and licensing (interim guidance document, version 09/07). Natural England Wildlife Licensing Unit, Bristol, England.

Appendix 1 Wildlife Legislation and Policy

The Wildlife & Countryside Act 1981 (as amended)

Provides for designation and protection of Sites of Special Scientific Interest (SSSI), which are areas that represent the most valuable habitats in the UK for nature conservation.

The Act creates the following offences:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2). Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.
- To intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and interference with places used for shelter or protection, or intentionally disturbing animals occupying such places.
- Certain methods of killing, injuring, or taking wild animals listed in Schedule 6.
- To pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.
- The release of certain non-native animals and planting of plants listed in Schedule 9.

It also provides a mechanism making any of the above offences legal through the granting of **licences** by the appropriate authorities.

Conservation of Habitats and Species Regulations 2010 (as amended)

The principal means by which the European Habitats Directive is transposed in England and Wales.

Provide for the **designation** and protection of a network of 'European Sites' (also termed Natura 2000), including Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

Regulation 41 creates the following **offences** relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;

- deliberately disturb animals of any such species in such a way as to be likely to:
 - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
 - significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

The Regulations also make it an offence (subject to exceptions) to deliberately pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5.

However, the actions listed above can be made lawful through the granting of **licences** (European Protected Species Licence) by the appropriate authorities (Natural England in England). Licences may be granted for a number of purposes, but only after the appropriate authority has determined that the following regulations are satisfied:

- the works under the licence are being carried out for the purposes of 'preserving public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment'.
- there is 'no satisfactory alternative'
- the action 'will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in their natural range'.

To apply for a licence, the following information is required:

- The species concerned.
- The relative size of the population at the site (note this may require a survey to be carried out at a particular time of the year).
- The impact(s) (if any) that the development is likely to have upon the populations.
- What measures will be conducted to mitigate for the impact(s).

Natural Environment & Rural Communities (NERC) Act 2006

Section 40 of NERC carries an extension of the earlier CRoW Act biodiversity **duty to public bodies and statutory undertakers** to ensure due regard to the conservation of biodiversity. Section 41 requires the Secretary of State, as respects England, to publish a list of species and habitats which are of 'principal importance for the purpose of conserving biodiversity'. These lists generally reflect the species and habitats previously listed under the UK Biodiversity Action Plan.

The Protection of Badgers Act 1992

This makes it an offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so and to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it.

Under Section 10 (1)(d) of the Protection of Badgers Act 1992, a licence may be granted by Natural England to interfere with a badger sett for the purpose of development, as defined by Section 55(1) of the Town & Country Planning Act 1990.

The Wild Mammals (Protection) Act 1996

The Wild Mammals (Protection) Act 1996 makes it an offence for any person 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.

The Animal Welfare Act 2006

This imposes a duty of care on anyone responsible for an animal to take reasonable steps to ensure that the animal's needs are met. This means that a person has to look after the animal's welfare and ensure that it does not suffer. The Act says that an animal's welfare needs include:

- a suitable environment;
- a suitable diet;
- the ability to exhibit normal behaviour patterns;
- any need it has to be housed with, or apart from, other animals; and
- protection from pain, suffering, injury and disease.

With regards to development, this may have implications when capture and translocations of animals are proposed.

The Hedgerows Regulations 1997

The Hedgerows Regulations 1997 were introduced to protect important hedgerows from destruction. However the legislation does not apply to any hedgerow that is within or marking the boundary of the curtilage of a dwelling house.

For the Regulations to be applicable, the hedgerow must be at least 20 metres in length or, if less than 20 metres, it must meet another hedgerow at each end. A hedgerow is deemed to be important if it is more than thirty years old and meets at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

If a hedgerow which qualifies under the Regulations is to be removed, the landowner must contact the Local Planning Authority (LPA) in writing by submitting a hedgerow removal notice. The LPA then has a period of 42 days to decide whether or not the hedgerow meets the importance criteria of the regulations.

National Planning Policy Framework

This framework replaces Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS 9) (ODPM 2005b) and sets out the view of central Government on how planners should balance nature conservation with development. One of the key principles of the NPPF is:

The NPPF states that development plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas, including biodiversity. It also states that the aim of planning decisions should be to prevent harm to biodiversity conservation interests and to 'promote the preservation, restoration and re-creation of priority habitats, ecological networks and the recovery of priority species'.

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles; 'if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused'; and, 'planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss'.

This means that full ecological surveys should be carried out and suitable mitigation measures proposed prior to any planning application being submitted.

Biodiversity 2020: A strategy for England's wildlife and ecosystem services

This biodiversity strategy for England builds on the Natural Environment White Paper and the earlier UK Biodiversity Action Plan. It provides a comprehensive picture of how Government is implementing our international and EU commitments and sets out the strategic direction for biodiversity policy up to 2020. Its mission is to:

"halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people."

In relation to planning and development its priority is to:

"take a strategic approach to planning for nature within and across local areas. This approach will guide development to the best locations, encourage greener design and enable development to enhance natural networks. We will retain the protection and improvement of the natural environment as core objectives of the plan."

Appendix 2 Phase 1 Habitat Maps

Appendix 3 Project Maps

Appendix 4 Survey Calendar

Ecology Survey Timing - Indicative Calendar

Species	Months											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Great Crested Newt	Hibernation		Pond surveys	Pond surveys		Pond surveys	Habitat Suitability Assessment only				Hibernation	
Reptiles	Hibernation		Limited activity	Artificial refuge surveys			Reduced basking time		Artificial refuge surveys	Limited activity	Hibernation	
Dormouse	Hibernation			Nest tube/box survey.								
Badger	Limited sett/bait surveys	Bait marking & sett surveys			Sett surveys				Sett surveys			Limited sett/bait surveys
Bats	Hibernation roost survey			Summer roost & activity surveys								Hibernation roost survey
	Roost potential and close inspections of roosts possible all year. Trees are best inspected (for potential) in winter.											
Nesting Birds	No to low nesting activity		Nesting activity						No to low nesting activity			
Water voles	Reduced activity		Field-sign surveys								Reduced activity	
Otter	Field-sign surveys		Field-sign surveys		Field-sign surveys							
White-clawed crayfish				trapping restricted								
Botanical				Reduced flowering	Main flowering season			Reduced flowering				

Key to timing:

Optimal survey period

Sub-optimal survey period

Surveys unreliable

NOTE: Timing shown is indicative and may vary depending on weather and region. Some surveys may require licences.