PROPOSED HOUSING DEVELOPMENT
SPRING LANE, RADFORD SEMELE

ECOLOGICAL SURVEY REPORT
(EXTENDED PHASE 1 SURVEY AND
PROTECTED SPECIES ASSESSMENT)

EcoLine

25 Ainsbury Road,
Beechwood Gardens
Coventry
CV5 6BA

Tel: 024 7671 2197
email: ecoline@supanet.com

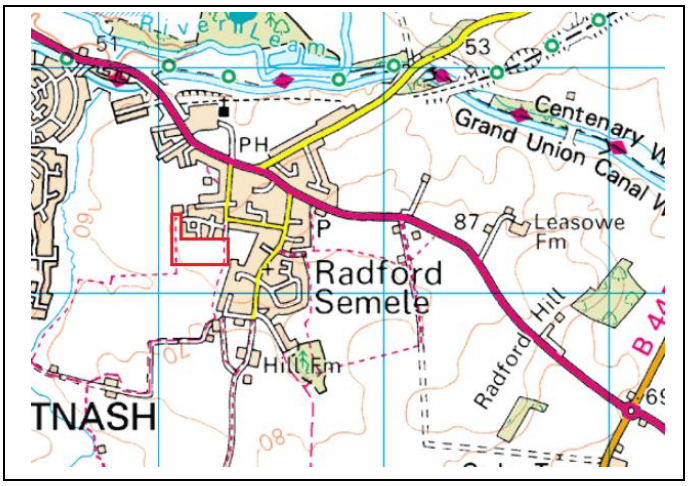
March 2014

CONTENTS

1. INTRODUCTION

Location

1.1 The site represents an area of arable land on the western edge of Radford Semele. The approach to the site from Leamington Spa is head east along Radford Road (A425), entering Radford Semele just after passing the bridge over the Grand Union Canal. A number of cul-de-sacs occur on the right before coming to a minor crossroad. Here take the right hand turn onto School Lane and follow the road straight down onto Spring Lane. The site lies to the south and west at the terminus of this road.



1.2 The areas in red on the adjacent map give the locations of the site.

Grid Reference: SP341642

Brief site description

1.3 The site lies south of a 1970s estate development, and is currently comprised of an arable field with associated boundary hedgerows. The eastern boundary represents a narrow lane, which incorporates a Public Right of Way, which also forms part of the western boundary to a playing field. The extent of the proposed development ends at a point where the land gradient starts sloping down to the south.

1.4 The surrounding area is a split between the urban land of Radford Semele to the north and east and the agricultural land, which is all arable, to the south and west. The area contains very little woodland, although there is a circular pine plantation adjacent to an abandoned low brick structure (now also wooded) just south of the site. Hedgerows are generally well defined and include locally frequent boundary trees of mainly ash and oak but also containing field maple. There are no recorded ponds in the area a minor watercourse that flows west into Whitnash Brook (and then north into the River Leam).

Scope of survey

1.5 It is proposed that the land be used as an expansion to the existing housing stock in the area. In order to progress with the planning permission an ecological assessment that maps and describes the habitats upon the site, determines the presence or absence of protected species (especially reptiles and amphibians) and recommends whether further ecological surveys are required to fully assess any other species of potential interest. Report also aims to provide a reasonably comprehensive mitigation strategy to offset any perceived impacts on wildlife.

Legislation

Badgers
1.16 Badgers are protected under the *Badger Protection Act 1992*. This piece of legislation not only protects badgers from persecution it also protects the places they use for shelter (setts) from disturbance and damage and makes it an offence to obstruct badgers from sources of food and water.

Breeding birds
1.17 All birds, their nests and eggs are protected under the *Wildlife and Countryside Act 1981* from intentional harm and killing, regardless of how common the species is. In addition some birds are afforded much higher protection, especially with respect to disturbance of breeding sites, and in some cases, this protects their nesting site throughout the year. Birds listed on *Schedule 1* of the Act, such as kingfisher, barn owl and many of the raptor species are provided with this additional protection.

Bats
1.18 In England, Scotland and Wales all bat species are fully protected under the Wildlife and Countryside Act 1981 (WCA) (as amended), through inclusion in Schedule 5. In England and Wales, this Act has been amended by the Countryside and Rights of Way Act 2000 (CRoW), which adds an extra offence, makes species offences arrestable, increases the time limits for some prosecutions and increases penalties.

1.19 The following account represents a simplified summary of the legislation. Taken together, the Act, Order and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (or take) bats;
- deliberately disturb bats (whether in a roost or not);
- recklessly disturb roosting bats or obstruct access to their roosts;
- damage or destroy bat roosts;
- possess or transport a bat or any part of a bat;
- sell (or offer for sale) or exchange bats, or parts of bats.

1.20 The word ‘roost’ is not used in the legislation, but is used here for simplicity. The actual wording in the legislation is ‘any structure or place which any wild animal uses for shelter or protection’ (WCA) or ‘breeding site or resting place’ (Habitats Regulations). Bats tend to re-use the same roost after periods of vacancy, and therefore the legal opinion is that the roost is protected whether or not the bats are present at the time.

1.21 All species of bat are protected under section 9(4) of the *Wildlife and Countryside Act, 1981 (as amended)* and all survey work likely to result in disturbance to bats or a place used for shelter needs to be conducted under licence from Natural England. Moreover, all bat species are protected with respect to development under international legislation as enacted in the *Conservation of Habitats and Species Regulations 2010*. This means that any development that might impact upon a bat roost requires special licensing before any development can take place.

Great crested newt

1.22 Great crested newts are fully protected under the *Wildlife and Countryside Act 1981* (WCA) (as amended), through inclusion in Schedule 5. In England and Wales, this Act has been amended by the *Countryside and Rights of Way Act 2000* (CRoW), which adds an extra offence, makes species offences arrestable, increases the time limits for some prosecutions and increases penalties.

1.23 The following account represents a simplified summary of the legislation. Taken together, the Act, Order and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (or take) animals;
- deliberately disturb animals;
- recklessly disturb animals or obstruct access to places of shelter;
- damage or destroy places of shelter;
- possess or transport animals or any part of animals;
- sell (or offer for sale) or exchange animals, or parts of animals.

1.24 Great crested newts are protected under section 9(4) of the *Wildlife and Countryside Act, 1981 (as amended)* and all survey work likely to result in disturbance to this species or a place used for shelter needs to be conducted under licence from Natural England. Moreover, this species is protected with respect to development under international legislation as enacted in the *Conservation of Habitats and Species Regulations 2010*. This means that any development that might impact upon great crested newts requires special licensing before any development can take place.

Common reptiles

1.25 All common reptile species, such as slowworm, common lizard, adder and grass snake, are protected under Schedule 5 of the *Wildlife and Countryside Act 1981* and amendments. This act protects the species against intentional killing and injury. It is also protected under Appendix III of the *Berne Convention* (Convention on the Conservation of European Wildlife and Natural Habitats).

1.26 English Nature (2004) state that “where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring” and as such is in breach of the law.

2. METHODOLOGY

2.1 A data search, via the Warwickshire Biological Records Centre was made of the site and this information was supported by an inspection of maps and aerial photographs of the site. A check was also made of the National Biodiversity Network to check for trends further out from the site.

2.2 An initial daytime walkover survey was conducted on the 10th January 2013 and made up part of the extended Phase 1 survey. Habitats were mapped and photographed and any evidence of protected species was noted.

2.3 A check for badger activity was also made and a list of bird activity within the site was prepared.

2.4 Ian Tanner of EcoLine (bat class licence WML-CLS01484 level 3 and level 4 and great crested newt class licence WML-CL09) undertook all the survey work.

2.5 A photographic record was made of the site some of which are included within the report.

2.6 The site was mapped and the information gathered transferred on to a GIS.

3. SURVEY RESULTS

Data search

3.1 The data search of protected and notable species indicated that a good number of common pipistrelle bats have been recorded from Radford Semele, and from the local area, along with a relatively large maternity roost containing soprano pipistrelle bats, which was recorded a few hundred metres to the north of the site. Daubenton's bat are known to occur on the River Leam and species such as noctule bat and brown long-eared bat have been recorded within the surrounding area. A single record for European hedgehog was made in 1966 although it is assumed that this species could still be present within the vicinity. A couple of records for great crested newt occur from the south of the village and recent otter records occur along the River Leam and Grand Union Canal to the north of the site. Badgers have been recorded up to 1 kilometre from the site but no records exist within 500metres of the site.

3.2 No Sites of Special Scientific Interest (SSSI) occur within 1km of the site. Sites of county importance for wildlife do occur within 1km and includes Whitnash Brook (which is in part a Local Nature Reserve), the closes boundary lies within 400metres from the site. The northern limits of the search area is mainly Local Wildlife Sites (or potential ones) and includes the dismantled railway line, the Grand Union Canal, the River Leam, an expanse of wet grassland and marsh that lies between the two, and includes Welches Meadow, which is also a Local Nature Reserve and to the north of the River, the Leam Valley Nature Reserve.

Daytime walkover survey

3.3 The habitat survey confirmed that the site is arable with wheat traditionally being grown. Species such as shepherds' purse, scentless mayweed, cut-leaved crane's bill and charlock occur as arable weeds within and around the margins of the site.

3.4 The field is bounded by a hedgerow to the west, which contains a number of mature trees, such as oak, ash and field maple, but has occasional gaps along its length. The species composition of the hedgerow is in three distinct parts. The northern section is rather open and comprised of straggly elm and elder, the central section is largely field maple and the southern extent of the hedgerow is almost entirely blackthorn. Along the hedgerow length bramble and ivy also occur and the ground flora contains cow parsley, cleavers, nettle, charlock, red deadnettle and broad-leaf dock.

3.5 The northern boundary of the site is comprised of the rear gardens of the adjacent estate and the management of the land includes a 2 to 3metre grassland margin where the land remains uncultivated. Here the vegetation is largely dominated by false oat-grass with some couch, cocks foot, cow parsley, white dead nettle, creeping buttercup, dove's foot crane's bill, cleavers, charlock, nettle and occasional expanses of bramble. The naturalisation of some ornamental plants has taken place in the area and some planting of cypress hedging (within the western corner of the estate) also occurs.

3.6 The eastern boundary is defined by a collapsed iron railing, which also defines the edge of an access track. The railing is largely subsumed by bramble with occasional stands of hawthorn along its length. Where the fence terminates and the

verge broadens out the vegetation is dominated by false oat-grass along with an array of ruderal species. An immature maple tree occurs within this area.

3.7 To the south of the site is a circular pine plantation set within a manmade basin. To the east of this area are the remains of former water treatment structures (only the raised bases and low retaining brick walls remain. This area is also now wooded with a mixture of broad-leaf trees of ash and sycamore. The understorey is mainly snowberry and this is largely confined to the pine plantation. The ground flora includes locally abundant ivy, especially in association with broad-leaved trees, cow parsley, nettle, bramble, nipplewort, hedge woundwort and wood avens. The woodland is bounded by a loose hedgerow of hawthorn.

Bat assessment

3.8 Since the area affected by the proposed development is almost wholly arable, the impact upon bats is likely to be minimal. However, bats are likely to occur in association with the hedgerow and mature trees that form a boundary to the site along its western edge. Bats might be found in this area foraging along the hedgerow, using the hedgerow as a corridor to access the small woodland area to the south of the site and the minor wooded watercourse network beyond, or roosting in the mature trees, some of which appear to contain rot holes and fissures that could be exploited by roosting bats.

3.9 Moreover, roosts may also occur within the buildings that currently have a commanding southern aspect within the site and therefore would need to be considered as part of the development. Currently, no surveys for bats have been carried out and it is not considered necessary for a pre-determinative survey to be undertaken at this stage. However, provision for bats can be included in the design of the scheme.

Great crested newt assessment

3.10 Records show that great crested newts occur within the southern margins of Radford Semele. However, the minimum distance to the nearest record is approximately 257metres. The nearest pond from which great crested newt might have come from is 435metres away and the distance from the pond avoiding roads and built up areas is 500m. It is therefore suggested that given the nature of the habitat within the site and the distance from the nearest pond, no further assessment work for this species is required.

Reptile assessment

3.11 Reptiles generally require very specific habitats and conditions in order to maintain healthy populations. Even grass snakes, which are far more mobile than other reptile species generally need extensive areas (including long linear habitats) of relatively undisturbed habitat in which to feed and breed. Given the nature of the site and the limited areas of undisturbed habitat, it is highly unlikely that reptiles would occur in the area.

Bird assessment

3.12 A limited number of birds mainly associated with farmland habitats were recorded from the site some of which would have nested within the area or close to it. This includes wood pigeon, magpie, blue tit, great tit, wren, goldfinch, and blackbird. Some potential nesting was recorded within the dense hedgerows.

Badger survey

3.13 Badgers are known to occur some distance from the site. However, no evidence of badger setts, dung pits, paths or badger tracks could be found that might suggest that this species occurs within the area.

Other species

3.14 There is a potential for European hedgehog to occur within the area, possibly associated with the gardens that adjoin the site. However, the habitat within the site, apart from the hedgerow margins, and the small area of woodland beyond the boundary of the site, would not support this species. No evidence of European hedgehog could be detected.

3.15 Species such as fox have been recorded from footprints alone.

Photographic record of the site

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Habitat map


Rank grassland and tall ruderal
③
HAMILTON ROAD
SLADE MEADOW
CHAPMAN CLOSE
SPRING LANE
Rank grassland and tall ruderal
Bramble scrub
②
Rank grassland and tall ruderal
Maple
Ash
Rank grassland and tall ruderal
Bramble scrub
Oak
①
Arable
⑤
④
Field maple
Bramble scrub
Oak
Rank grassland and tall ruderal
Oak
⑥
Coniferous plantation
Broad-leaf plantation

Target Notes

1. Arable field on the south-western edge of Radford Semele. Appears to have been seeded with wheat and contains a small array of arable weeds. These weed species include charlock, scentless mayweed, shepherds purse and cut-leaved crane's bill.

2. Northern boundary of the arable field, which is adjacent to a c1970s housing estate, and includes a 2 to 3metre buffer which has been left unploughed along the edge of the rear gardens. The area is mainly dominated by false oat-grass and contains cock's foot, couch, dove's foot crane's bill, creeping buttercup, cleavers, white deadnettle and stinging nettle. The area also includes some bramble banks with associated sapling ash, some cotoneaster and a few garden escapees. Within the western end of the estate and around the internal corner of the arable field the post and wire and panel fencing has been replaced by a dense cypress hedgerow.

3. A narrow strip of land, possibly containing pipe work from the treatment works south of the site, extends along edge of the existing housing estate. The land is also managed for arable production and the margin along the estate is generally dominated by false oat-grass. The end of the land meets an access track but is separated by a post and rail fence. Here the vegetation is more ruderal in character and whilst including false oat-grass and cock's foot also contains abundant stinging nettle, cow parsley and cleavers. The far side of the track is bounded by a linear section of elder scrub with bramble.

4. The western hedgerow boundary is maintained at a height of approximately 1.8metres and contains a number of mature and large semi-mature trees. Species composition varies distinctly along its length, which is also dispersed with a somewhat gappy character. The character of the hedgerow, and the presence of elm and straggly elder in the northern part of the hedgerow as far down as a mature oak, suggests the boundary once contained a high percentage of elm and that this was lost as a result of Dutch elm disease. The section from the mature oak to a field maple standard is dominated by blackthorn and the section beyond the field maple standard to the next mature oak contains a high percentage of field maple. Beyond here hawthorn also occurs. The hedgerow and associated ground flora includes ivy and bramble with false oat-grass, cock's foot, stinging nettle, cleavers, hogweed, garlic mustard, wood avens and cow parsley.

5. The eastern boundary of the site is defined by Spring Lane, a narrow access track, separating the proposed development area from an area of amenity grassland and recreational ground. The edge of the track has been delineated by old iron railings, which are in a state of near collapse. Along the boundary is intermittent stands of hawthorn but the verge, which widens out in places is mainly false oat-grass, brambles, cleavers and stinging nettle.

6. Large circular depression that appears to have been part of a former water treatment plant and has been planted up with pine and contains an understorey of snowberry and fringed with a loose array of hawthorn that comprises a thin hedgerow. The adjacent area appears to include the bases of former buildings associated with the works and these are now enclosed with an array of sycamore and ash. The ground flora includes ivy, nettle, wood avens, cow parsley, nipplewort, bramble and hedge woundwort.

4. CONCLUSIONS AND RECOMMENDATIONS

Habitat assessment

4.1 The habitat assessment of the area indicates that this is a very poor area for wildlife. Whist the area includes some features of rank grassland and occasional mature trees, habitat quality, diversity and extent of these features is insufficient to support anything but the more widespread species. Hedgerows are annually trimmed and generally high and dense with good potential for nesting birds but are likely to be relatively young across much of the site.

4.2 This is an area of arable land bounded on one side by an existing housing estate with arable land to the south, a mature hedgerow to the west and an access track (that passes along the edge of playing fields) to the east. Habitat connectivity is moderately poor although the network of a robust although gappy hedgerow with trees provides a continuity of marginal woodland habitat around the site and the presence of a minor watercourse beyond the arable field boundary at the south of the site provide enhanced habitat linkages to Whitnash Brook, which then flows north into the River Leam.

4.3 The proposed development will have minimal direct impact upon any habitat apart from the arable land. The western margins, up to the hedge line remains as a buffer and will be used for access by farm machinery and pedestrian access to the adjacent Public Right of Way. The southern margin of the site also includes a buffer as well as visual bund. None specific open space also is proposed along the access road through the proposed housing estate.

4.4 Habitat enhancement within the site as part of the development of the land is therefore recommended to be confined to the more southern areas of the site, the western margins and that habitat linkages be included along the access road. The nature of the proposed habitat enhancements are to include improvements to the existing hedgerow, additional native planting along the western boundary of trees and scrub species and the creation of semi-improved grassland habitat along the southern, western margins of the site and along the access road that runs through the proposed estate.

Species assessment

4.5 The site contains low levels of species interest within the site. However, there is an unusually high density of bat records within the existing urban environment and includes a relatively large maternity roost. Bird activity is considered to be quite low and the species assemblage of birds is typical of this sort of arable landscape.

4.6 No specific species surveys are required to assess the status of the site but some bat activity surveys would be useful in determining any sensitive areas within the site and to assess the appropriate location of bat boxes within the development area and along the western field margins.

4.7 It may also be worth making further assessments of bird activity within the area to determine the type of bird boxes that could be included within the new estate. Provision for twenty boxes, evenly split between bat and bird boxes, will be included within the development. A variety of bird box features and a mix of tree mounted bat boxes and one integrated into the fabric of the buildings should be included.

5. SPECIFIC ECOLOGICAL ENHANCEMENT MEASURES

Background

5.1 The proposed development area occurs within an arable field, although some loss of rank grassland and tall ruderal vegetation is likely to occur along the northern boundary of the site and along the eastern edge, adjacent to Spring Lane.

5.2 As part of the proposed development there is provision for habitat enhancement within and around the south and western perimeter of the site. Such enhancements are primarily semi-improved grassland and plantation woodland.

5.3 The preparation of ground for the establishment of a species rich flora should include some form of topsoil strip to reduce nutrient levels available. This will help limit the spread of more vigorous plant species and will also allow for a great diversity of plants to develop. In many cases the germination of wildflowers can be slower than more fertile soil but the longevity of the sward richness benefits from such preparation.

5.4 Native tree and shrub planting along the existing hedgerow will ultimately provide an enhancement to an existing landscape feature. Whilst the hedgerow already includes a number of mature and semi-mature trees the hedgerow lacks much species diversity. Therefore, the internal planting of the hedgerow will not only help to reduce the gappy nature of the existing feature it will also increase species diversity.

5.5 Adjacent woodland planting will however in time blur the boundaries of the hedgerow and in time this will become part of the plantation, forming a boundary of this habitat to the west. Restrictions (due to disease and planting adjacent to a new development) means that a number of exotic species will be included along with native plants.

Habitat calculation

5.6 The area of habitat to be lost is arable and a mixture of improved grassland and tall ruderal vegetation, although a small area of bramble and hawthorn scrub will also be removed. Tree loss is to be minimal and largely confined to the proposed road access, which will require the removal of a young ornamental maple. The total area of habitat that will be lost is 3.2hectares and over 3hectares of that is arable land.

5.7 The loss of arable land, improved grassland and tall ruderal vegetation has a habitat distinctiveness score of 2 and as these three habitats are particularly species poor has a condition value of 1. The small area of hawthorn is below an area that can be calculated on this system. The Habitat Biodiversity Score is therefore given as 6.48 for a total area of 3.24hectares.

5.8 The area of land available for grassland habitat creation is 0.32hectares and this will be converted from arable land to moderate quality semi-improved grassland over a period of 15years. Limitations of species richness is likely to be the result of shading from adjacent trees and ultimately the encroachment of woody and climbing species reduce the area of grassland as the new woodland becomes established. The calculated extent for the proposed plantation woodland is 0.49hectares and this will be established to a relatively poor condition (as result of relying on non-native species) over 32+year period. Calculations for the establishment of garden space and amenity grassland over 5years is included within the development area. This provides Habitat Mitigation Score of 3.18 and a Habitat Biodiversity Impact Score of -3.30, which indicates a biodiversity loss of over 50%.

5.9 Further enhancements may be achieved by ensuring that the new woodland plantation is made up of native trees and to encourage the natural regeneration of woody species already present within the site. It may also be appropriate to increase the extent and quality of proposed grassland habitat and to establish this habitat in preference to what would be fragmented woodland features that would take a much longer period to become established.

5.10 Such details could be worked out in consultation with the County and District Councils once outline planning has been granted. Through the careful design of the biodiversity enhancement measures within the design of the proposed development it should be possible to ensure no significant biodiversity loss within the site.

5.11 The habitat improvements to the existing hedgerow, which although not defunct remains rather gappy, open and with very restricted species diversity associated with it. The enhancements would therefore raise the quality of the hedgerow from a moderate condition hedgerow with trees to a species rich hedgerow with trees with a good quality. The overall enhancement of this hedgerow, which is 215 metres in length, provides a Linear Biodiversity Impact Score of positive 860.

Proposed development plan

Table 1 Habitat calculations

Warwickshire Coventry and Solihull - Biodiversity Impact Assessment Calculator

v. 17.4: 22/08/2013
Please fill in both tables

KEY	
	No action required
	Enter value
	Drop-down menu
	Calculation
	Automatic lookup
	Result

Local Planning Authority:	Warwick District
Site name:	Spring Lane, Radford Semele
Planning application reference number:	
User:	Ian Tanner
Date:	25/03/2014

Please do not edit the formulae or structure
To condense the form for display hide vacant rows, do not delete them
If additional rows are required, or to provide feedback on the calculator please contact WCC Ecological Services

		Existing habitats on site Please enter all habitats within the site boundary		**Habitat distinctiveness**		**Habitat condition**		**Habitat Biodiversity Value**						
								Habitats to be retained with no change within development		**Habitats to be retained and restored within development**		**Habitats to be lost within development**		
T. Note	code	Phase 1 habitat description	*Habitat area (ha)*	*Distinctiveness*	*Score*	*Condition*	*Score*	*Area (ha)*	*Existing value*	*Area (ha)*	*Existing value*	*Area (ha)*	*Existing value*	*Comment*
		Direct Impacts and retained habitats			A		B	C	A x B x C = D	E	A x B x E = F	G	A x B x G = H	
	B4	Grassland: Improved grassland	0.12	Low	2	Poor	1					0.12	**0.24**	
	C31	Other: Tall ruderal	0.08	Low	2	Poor	1					0.08	**0.16**	
	J11	Other: Arable	3.04	Low	2	Poor	1					3.04	**6.08**	
		Total	3.24				Total	0.00	0.00	0.00	0.00	3.24	6.48	J
													∑D + ∑F + ∑H	
											Site habitat biodiversity value		6.48	
		Indirect Impacts						Value of loss from indirect impacts						
Before/after impact		Including off site habitats	K					K x A x B = Li, Lii	Li - Lii					
Before														
After														
Before														
After														
Before														
After														
Before														
After														
Before														
After														
		Total	0.00					M	0.00				HIS = J + M	
											Habitat Impact Score (HIS)		6.48	

		Proposed habitats on site (Onsite mitigation)		**Target habitats distinctiveness**		**Target habitat condition**			**Time till target condition**		**Difficulty of creation / restoration**		***Habitat biodiversity value***	
T. Note	code	Phase 1 habitat description	*Area (ha)*	*Distinctiveness*	*Score*	*Condition*	*Score*		*Time (years)*	*Score*	*Difficulty*	*Score*		*Comment*
		Habitat Creation	N		O		P			Q		R	(N x O x P) / Q / R	
	n/a	Built Environment: Buildings/hardstanding	1.27	none	0	Poor	1		5 years	1.2	Low	1	**0.00**	
	n/a	Built Environment: Gardens (lawn and planting)	0.82	Low	2	Poor	1		10 years	1.4	Low	1	**1.17**	
	J12	Grassland: Amenity grassland	0.34	Low	2	Poor	1		5 years	1.2	Low	1	**0.57**	
	A112	Woodland: Broad-leaved plantation	0.49	Medium	4	Poor	1		32+ years	3	Medium	1.5	**0.44**	
	B22	Grassland: Semi-improved neutral grassland	0.32	Medium	4	Moderate	2		15 years	1.7	Medium	1.5	**1.00**	
		Total	3.24											
		Habitat Restoration						Existing value S (= F)					((N x O x P) - S) / Q / R	
		Total	0.00								Trading down correction value		0.00	
											Habitat Mitigation Score (HMS)		3.18	
													HBIS = HMS - HIS	Loss
											Habitat Biodiversity Impact Score		-3.30	
											Percentage of biodiversity impact loss		50.96	

6. HABITAT CREATION AND RESTORATION

6.1 The habitat retention resulting from the residential development of an area of arable land provides an indication of what would provide approximately a 50% retention of habitat and therefore about a 50% biodiversity loss. In this instance the provision for a significant area of woodland plantation, with an array of native and non-native tree specimens with adjacent semi-improved grassland creation and amenity grassland lining the access road through the development site, which also contains areas of garden space (built environments do not represent a habitat replacement).

6.2 The existing native hedgerow with trees along the western margin of the site is generally in a moderate condition with a length of 215metres. If over a period of 20years the condition of the hedgerow could be improved to that of 'good' then this would represent a 33.3% increase of its biodiversity value.

6.3 The areas where habitat creation takes place will have the topsoil stripped from it to reduce the nutrient levels of an area that was formerly part of pastureland. The creation of the meadowland will be achieved by sowing the stripped area with a mixture of native plant seeds gathered from the wild. Seed gathered in this fashion will be sown as soon as the area becomes available and will be supplemented with seed gathered throughout the summer and autumn period and additional species may be included the following year. The only grass species included will be fine leaved ones such as *Festuca* Spp, *Agrostis* Spp, *Anthoxanthum odoratum* and *Cynosarus cristatus*. The number of species included in the gathering is exhaustive but will include species such as:

- Cowslip
- Common vetch
- Oxeye daisy
- Lesser knapweed
- Perforate St John's wort
- Salad burnet
- Betony
- Ladies bedstraw
- Pignut
- Bird's foot trefoil
- Common agrimony
- Common centaury
- Red clover
- Meadow vetchling
- Meadow buttercup
- Cat's ear
- Autumn hawkbit

6.4 The diversity of grassland species present within the area will be built up over the late spring to late autumn during the first year and then additional species will be added as part of general monitoring visits. Plants arising naturally will be recorded and only controlled if they pose a threat to the creation of the grassland. The level of shade cast by the adjacent developing woodland is likely to limit the diversity of grassland species that could be established within the area and may also represent a threat of encroachment.

6.5 In order to make the grassland condition ‘moderate’ over a fifteen year period additional planting of plants as established plugs is likely to be required.

6.6 Management of the meadow area will be largely as a result of two mowing periods each year. One cut in the early or late winter and another in late autumn with the removal of hay arisings during the late autumn. Specific management can be tailored to specific species where necessary and the mowing periods are indicative of the sort of management required for this sort of grassland in the absence of grazing.

6.7 The final array of species that are likely to persist or flourish cannot be determined as the nature of the sites substrate will not be known until the seeding work commences. However, it is presumed that shade tolerant species associated with woodland edges and hedgerows will ultimately favour the site.

6.8 The planting of a woodland and associated ground flora will in part be subject to a degree of natural regeneration and will rely on only three authorised tree species that, namely birch, cherry and field maple. Other species, including an array of non-native species are likely to be included in the planting. Some understorey species such as hazel will also be included. Ground flora species can only be added once the woodland has developed a canopy and will include:

- Bluebell
- Red campion
- Greater stitchwort
- Primrose
- Wood anemone
- Honeysuckle
- Male fern
- Wild strawberry

6.9 New hedgerows within the site will be designed to provide a habitat in its own right as well as producing a habitat corridor for an array of species. The size of the hedgerow should aim to mirror the size of that being lost and therefore a height of between 2m and 3metres is anticipated. The species that make up the hedgerow will also be in keeping with the local area and be of local provenance, although species such as crab apple, honeysuckle, and holly are intended as an enhancement in providing additional nectar and fruit sources to the area. Full species composition is:

- Hawthorn
- Hazel
- Dog rose
- Crab apple
- Holly
- Honeysuckle

7. REFERENCES

Schober, W and Grimmberger, E. (1993) *Bats of Britain and Europe*. Hamlyn.

Mitchell-Jones, A. (1992) *Focus on Bats.* English Nature.

Wardhaugh, A. A. (1987) *Bats of the British Isles.* Shire Natural History.

Joint Nature Conservation Committee, (1999) *Bat Workers' Manual,* Joint Nature Conservation Committee.

Stebbings, R. E. (1986) *Bats*. Mammal Society.

Arnold, E.N. and Burton, J.A. (1978) A Field Guide to the Reptiles and Amphibians of Britain and Europe. Collins.

Frazer, J.F.D. (1983) Reptiles and Amphibians in Britain. Collins.

Griffiths, R.A. (1987) How to Begin the Study of Amphibian. Collins.

Joint Nature Conservation Committee, (1998) *Herpetofauna Workers' Manual,* Joint Nature Conservation Committee.

English Nature, (2001) Great crested newt mitigation guidelines, English Nature.

8. APPENDIX

Data search from Warwickshire Biological Records Centre

1. NATIONALLY IMPORTANT SITES

A Site of Special Scientific Interest (SSSI) is a nationally important site, none of which fall within your area of search. For definitive information on SSSIs please contact Natural England.

2. NON-STATUTORY SITES

County Important sites are known as 'Local Wildlife Sites' (previously Sites of Importance for Nature Conservation). There are also a number of sites of nature conservation importance, termed "Ecosites", which are found within your area of search. I enclose information about the designation and grading of Ecosites in the table below. The county is currently reviewing its site system and will be identifying further Local Wildlife Sites (LWS) over the next few years. Currently we have identified those sites which are potential Local Wildlife Sites (pLWS) and these are also indicated below with the Ecosite details; many sites are as yet ungraded against the LWS system.

Please contact us if you would like a copy of the detailed citation for an LWS within your search area.

Some Ecosites are also Local Geological Sites (LGS) or statutory Local Nature Reserves (LNRs). Details of these designations are also given in the table below with the Ecosite details.

The table below gives brief details of all known Ecosites within your area of search; please see the enclosed map for locations. Sites of regional and local biodiversity interest are considered to play a fundamental role in meeting overall national biodiversity targets, and therefore appropriate weight must be attached to designated Ecosites in all planning applications (in accordance with local plan policies and the general principles of the National Planning Policy Framework (NPPF)).

N.B. All watercourses are considered to be of ecological importance; however, accurate assessment of the relative importance of the various stretches is not yet generally possible.

Structure and Local Plan policies provide protection for these sites or, in circumstances where development is allowed, require mitigation measures to off-set any damage. In order to achieve this it is essential that adequate survey details for sites which may be affected by development are gathered at a very early stage. For sites of high biodiversity value this requires Phase 2 survey work and species specific surveys including invertebrates, mammals, birds and so on. Guidance is available from the Institute of Environmental Assessment (IEA) in "Guidelines for Baseline Ecological Assessment".

Please note that the brief descriptions below include species recorded within the whole Ecosite, and therefore potentially an area outside of your specific area of search. In particular descriptions of linear Ecosites such as water courses and railway lines may include species which were not necessarily recorded within your area of search.

2.1 Ecosites

Ecosite	Description
Ecosite 16/36 River Leam	Identified as a potential Local Wildlife Site (pLWS). Designated as part of the Leam Valley statutory Local Nature Reserve (LNR). This linear feature is of high nature conservation value and is important to a number of rare, notable and protected species in the county. The river is also designated as a LNR through the Newbold Common area of Leamington Spa. The designated site includes the river, its immediate floodplain corridor and adjacent wet meadows. These wet meadows are important not only in terms of their floral species assemblages but also for birds. The river includes many natural features, such as earth cliffs, exposed tree roots and over hanging trees, although as the river passes through Leamington there are weirs and reinforced banks. There is a wide range of aquatic, emergent and marginal vegetation, such as arrowhead *Sagittaria sagittifolia*, branched bur-reed *Sparganium erectum*, bulrush *Typha latifolia* and common reed *Phragmites australis*. Notable species recorded along the river include water vole *Arvicola amphibious,* otter *Lutra lutra and* white clawed crayfish *Austropotamobius pallipes*. Within the floodplain are a number of ponds with records of great crested newt *Triturus cristatus*.
Ecosite 18/36 Disused Railway Line Leamington – Rugby	Part of this site is designated as Rugby-Leamington Disused Railway Local Wildlife Site (LWS). This linear feature includes woodland, scrub, tall herb, grassland, wetland and short turf communities typical of disused railway lines. Communities include important calcicolous assemblages and part of the line is listed in English Nature's Grassland Inventory for Warwickshire. This particular section includes ladies bedstraw *Galium verum*, cowslip *Primula veris*, black knapweed *Centaurea nigra*, common centaury *Centaurium erythraea* and agrimony *Agrimonia eupatoria*. Numerous badger setts have been recorded along the length of the line.
Ecosite 23/36 Whitnash Brook LWS	The Northern part of the site is designated as Whitnash Brook Local Wildlife Site (LWS). The southern part of the site is still a potential Local Wildlife Site (pLWS). A stream running near a housing estate in Whitnash but the amenity corridor remains and is adjacent to a Local Nature Reserve. Protection of the stream corridor is part of the planning condition for more housing. Varied habitats exist, with mature trees, scrub and grassland areas. Grassland areas include species such as lady's smock *Cardamine pratensis*, pignut *Conopodium majus*, cowslip *Primula veris*, hard rush *Juncus inflexus* and soft rush *Juncus effusus*. The stream itself retains a good water quality and a range of aquatic plants. Sedge *Carex sp.* beds and wetland features are also present on the site of an old mill and pond at Whitnash.

2.1 Ecosites

Ecosite	Description
Ecosite 48/36 Leam Valley	Identified as Welches Meadow potential Local Wildlife Site (pLWS). Designated as Leam Valley Local Nature Reserve (LNR). This site includes the river and its immediate floodplain corridor, which includes wet meadows. These wet meadows are important for their floral species assemblages as well as for breeding and overwintering birds. The river includes many natural features including earth cliffs, exposed tree roots and overhanging trees. There is a wide range of aquatic, emergent and marginal vegetation such as arrowhead *Sagittaria sagittifolia*, branched bur-reed *Sparganium erectum*, reedmace *Typha latifolia* and Norfolk reed *Phragmites australis*. Kingfisher has been recorded along the river.
Ecosite 61/36 Radford Semele, St Nicholas churchyard	Nature conservation status ungraded. Parish Value Some of site is County Value because of lichens. Churchyard with several first county records for lichens. Grassland flora of some interest but is cut regularly. Requires further survey.
Ecosite 83/36 Woodland adjacent to Grand Union Canal	Identified as a potential Local Wildlife Site (pLWS). Three areas of semi-natural broadleaved woodland on the sides of the Canal, consisting of predominantly alder *Alnus glutinosa* with frequent ash *Fraxinus excelsior* and occasional willow *Salix spp* and sycamore *Acer pseudoplatanus*. There is an understorey of hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, blackthorn *Prunus spinosa*, ground ivy *Glechoma hederacea* and bramble *Rubus fruticosus agg*. The ground flora consists of species such as wood avens *Geum urbanum*, male fern *Dryopteris filix-mas*, bittersweet *Solanum dulcamara*, nipplewort *Lapsana communis* and enchanter's nightshade *Circaea lutetiana*.

2.2 LGS

There are no Local Geological Sites (LGS) within your area of search (formerly known as Regionally Important Geological/Geomorphological Sites (RIGS).

3. PROTECTED SPECIES INFORMATION

Please note that the following are simply details of records held at the Warwickshire Biological Records Centre. Lack of records may well indicate that no survey work has yet been undertaken, and does not indicate that species are necessarily absent. Protected species may be using the site and surrounding area and appropriate survey work may be required to establish their presence and to inform mitigation measures to ensure that they are not impacted by any proposed works.

3.1 Bats

We hold several records of bats within your area of search. Please see the enclosed map illustrating the locations.

The following list gives the Latin codes used for each species:

Bba	*Barbastella barbastellus*	Barbastelle
Es	*Eptesicus serotinus*	Serotine
Md	*Myotis daubentonii*	Daubenton's Bat
Mb	*Myotis brandtii*	Brandt's Bat
Mm	*Myotis mystacinus*	Whiskered Bat
Mn	*Myotis nattereri*	Natterer's Bat
Msp	*Myotis* species	Indeterminate Myotis
Nl	*Nyctalus leisleri*	Leisler's Bat
Nno	*Nyctalus noctula*	Noctule
Nsp	*Nyctalus* species	
Pa	*Plecotus auritus*	Brown-Long Eared-Bat
Plsp	*Plecotus* species	
Pn	*Pipistrellus nathusii*	Nathusius' Pipistrelle
Pp	*Pipistrellus pipistrellus*	Common Pipistrelle
Ppy	*Pipistrellus pygmaeus*	Soprano Pipistrelle
Psp	*Pipistrellus* species	Indeterminate Pipistrelle
Rh	*Rhinolophus hipposideros*	Lesser-Horseshoe Bat
Indet		Indeterminate Species

Species	Location	Grid Ref	Date	Comment	Source
Indeterminate	Southam Road, Radford Semele, Leamington Spa, CV31 1TZ	SP351642	19/07/2011	min 1 Count of Individual c.10 scattered (ble) droppings in N end of roof void. appeared to have been deposited within last 5 years or so although no actual bats were seen.	WBRC
Common Pipistrelle	The Valley, Radford Semele, Leamington Spa, CV31 1UZ	SP345638	10/05/2011	min 2 Count of Individual Several commuting passes by 1 and 2 pips then sporadic foraging in rear garden over c.40 mins.	WBRC

3.1 Bats

Indeterminate	Semele Close, Radford Semele, CV31 1UF	SP34516433	12/07/2009	25* Count of Individual Village. *Counted out by neighbour, (prob) c. Pips had vacated on n.e. roost visit.	WBG
Indeterminate	No.61, School Lane, Radford Semele	SP3432064357	02/08/2008	c100 Count of Individual Large village. Maternity roost. Insufficient flight space to read on detector, prob Sop. Pip	WBRC
Indeterminate	R Semele	SP347647	14/01/2007	House. Roost possibly in Roof Apex. Roost, poss Ble x one	WBRC
Pipistrelle species	Radford Semele	SP345646	17/07/2006	9 Count of Individual Species is Pipistrellus pipistrellus/ pygmaeus. House. Roost, found dead. 9 dead recovered	WBRC
Indeterminate	Offchurch Lane Leamington Spa	SP3452364621	08/10/1997	min 1 Count of Individual Loft Visited Helpline records.	WBRC
Indeterminate	Semele Close Leamington Spa	SP3442164382	06/08/1997	1 Count of Individual House. Advised Helpline records.	WBRC
Indeterminate	Hatherall Rd Leamington Spa CV311VE	SP3442764286	14/07/1997	min 1 Count of Individual Loft. Advised and sent info Helpline records.	WBRC
Pipistrelle species	Radford Semele	SP340640	25/06/1996	Species is Pipistrellus pipistrellus/ pygmaeus.	WBRC
Indeterminate	School Lane, Radford Semele	SP343645	1994	BATS94 CRD page 6	WBRC
Indeterminate	Offchurch Lane, Radford Semele	SP34496457	1992	BATSAK CRD page 26.	WBRC
Indeterminate	Lewis Road Radford Semele	SP345644	1989	BATSAK CRD page 4	WBRC

3.2 Amphibians & Reptiles

We hold several records of amphibian and reptile species within your area of search. Please see the enclosed map illustrating the locations.

The following list gives the Latin codes used for each species:

Tc	*Triturus cristatus*	Great Crested Newt
Tv	*Triturus vulgaris* (AKA *Lissotriton vulgaris*)	Smooth Newt
Th	*Triturus helveticus* (AKA *Lissotriton helveticus*)	Palmate Newt
Rt	*Rana temporaria*	Common Frog
Bb	*Bufo bufo*	Common Toad
Nn	*Natrix natrix*	Grass Snake
Lv	*Lacerta vivipara*	Common Lizard
Af	*Anguis fragilis*	Slow worm
Vb	*Vipera berus*	Adder

Species	Location	Grid Ref	Date	Comment	Source
Grass Snake	Grand Union Canal, Radford Semele	SP34536490	Aug-09	1 Swimming in the canal.	WBRC
Great Crested Newt	Radford Semele	SP34546379	06/06/2008	1 Squashed on road - dead.	WBRC
Common Toad	Near Tinkers Close, Radford Semele	SP3475963670	24/07/2004	c. 180m south east of Tinkers Close	WBRC
Great Crested Newt	Leamington	SP343639	Feb-99	1 Caught by dog.	WBRC

3.3 Otters

We hold two records of otter within your area of search. Please see the enclosed map illustrating the locations.

Watercourse	Grid Ref	Date	Comment	Source
Grand Union Canal	SP33966492	16/03/2008	1 recent, 1 old spraint. road bridge over canal	WWT
Leam	SP340651	31/01/2007	1 old spraint	WWT

For information **all major watercourses in Warwickshire should be considered as otter positive** irrespectively of whether there are any records within your area of search.

3.4 Badgers

(PLEASE KEEP BADGER INFORMATION CONFIDENTIAL)

Due to an agreement with the local Badger Group we can only provide badger records within a 1km site radius.

We hold several records of badger setts within your area of search.

WARWICKSHIRE BIOLOGICAL RECORDS CENTRE

Ecological Data Search: Radford Semele SP 341 642 Sites and Species 1km search

- Bat
- Amphibian / Reptile
- Barn Owl
- White Clawed Crayfish
- Watervole
- Badger
- Otter
- Dormouse
- Hedgehog
- Brown Hare
- Rare Plant
- Butterfly
- Harvest Mouse
- Black Poplar
- Veteran Tree

- SAC
- SSSI
- LNR
- Deferred LWS
- Destroyed LWS
- LWS
- Potential LWS
- Rejected LWS
- LGS
- Ecosite
- County Boundary
- Solihull Boundary

Warwickshire Biological Records Centre
Warwickshire Historic and Natural Environment
PO Box 43, Warwick
CV34 4SX
Tel: (01926) 418060