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BROCKHILL WEST ECOLOGICAL APPRAISAL SEPTEMBER 2010 (FPCR)

Miller Homes/ Persimmon Homes/ Southern & Regional Developments Ltd

Brockhill West

ECOLOGICAL APPRAISAL

September 2010

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CONTENTS:

- 1.0 Introduction
- 2.0 Survey Methodology
- 3.0 Results
- 4.0 Discussion and Recommendations

FIGURES:

- 1 Site Location
- 2 Phase 1 Habitat Plan
- 3 Pond Location Plan
- 4 Consultation Plan

APPENDICES

- 1 Botanical Species List
- 2 Hedgerow Table
- 3 Consultation Result Table

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1.0 INTRODUCTION

- 1.1 Miller Homes, Persimmon Homes and Southern & Regional Developments Ltd commissioned FPCR to identify potential ecological constraints to a proposed development known as Brockhill West. The following report provides the results of an extended Phase1 Habitat Survey for a proposed urban extension with the boundary of the survey area. The proposed urban extension is situated to the north west of Redditch.
- 1.2 Habitats within the site were dominated by improved grazing pasture and arable land. Small areas of semi-improved grassland were also identified within the site. Hedgerows form the field boundaries to the majority of the agricultural land located within the site. Adjacent the south western boundary of the site is the A448 and Hewell Lane; the B4096 Brockhill Drive is adjacent to the south eastern site boundary. Northwest of the site is open countryside and Brockhill Wood is located to the north east of the site.
- 1.3 The extended Phase 1 Habitat Survey was completed in September 2010. The results of this survey have been used to inform the design of the proposed urban extension to minimise potential impacts to the local biodiversity. The following report provides details of the potential ecological constraints, opportunities for biodiversity enhancements and further survey work which will be necessary in preparation for a planning application.

2.0 SURVEY METHODOLOGY

Flora

2.1 The site was surveyed in September 2010 using the standard Phase 1 habitat assessment methodology, as recommended by Natural England (Nature Conservancy Council, 1993). This involved a systematic walk over of the site to classify the habitat types present and mapping onto an OS base map. Target notes were used to record features or habitats of particular interest, as well as any sightings, evidence, or potential for protected or notable species.

Fauna

Badger

2.2

During the survey evidence of badger activity was sought within and on accessible land falling within 30m of the site. Such evidence included:

- Setts (including main, annexe, subsidiary and outlier),
- Latrines,
- Prints and track ways,
- Hairs caught on rough wood and fencing,
- Snuffle holes, scratching posts and general feeding activity (not necessarily conclusive of badger activity when seen in isolation),
- Corpse evidence.

Bats (Chiroptera)

2.3

Over the survey an initial assessment was undertaken for suitable features in mature hedgerow trees that could potentially be used as bat roost sites. Features identified as potential roost sites included: woodpeckers or rot holes, splits in the limbs or the main trunk, lifted bark or the presence of dense ivy.

Reptiles

2.4

An assessment of the suitability of the habitats within the site to support common reptile species was also undertaken. Suitable habitats were considered to comprise: mosaic areas comprising areas of dense and open vegetation, potential area of hibernation and habitat connectivity to suitable habitats surrounding the Project area.

Great crested newts

2.5 The suitability of aquatic habitats within the Project area to support great crested newts was assessed with reference to the great crested newt habitat suitability index. Terrestrial habitats across the Project area were also assessed for the suitability to support great crested newts.

Consultations

2.6

Statutory organisations and local non-statutory groups/organisations were contacted for existing records. These included: the Natural England (NE) mapping website <u>www.magic.gov.uk</u> which was searched for information regarding the location of statutory and non-statutory nature conservation sites, the Worcestershire Biological Records Centre and the Worcestershire Badger Group.

3.0 RESULTS

3.1

Land use within the site was predominantly improved grassland with some species poor semi-improved grassland and some arable field compartments. Field boundaries generally were post and wire fences or hedgerows of moderate nature conservation which were relatively poorly connected. Ditches and streams were recorded in conjunction with several field boundary hedgerows. The most notable features were the numerous mature trees scattered throughout the site. Oxstalls Farm house and associated buildings are present within the site. Close to the farmhouse, a small broadleaved woodland / orchard with ponds was recorded.

Flora (Figure 2) Improved grassland

3.2

The majority of the land use was cattle and sheep grazed improved pasture. These fields were dominated by perennial rye grass *Lolium perenne* with occasional herbaceous species including broad leaved dock *Rumex obtusifolius*, creeping buttercup *Ranunculus repens* and white clover *Trifolium repens*. Some compartments were more recently seeded, while others were more established grassland.

Species poor Semi-improved Grassland

3.3

Two field compartments were classified as species poor semi-improved grassland. These areas were to the north and south of the Oxstalls Farm complex. Grass species recorded included timothy *Phleum pratense*, false oat grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata*, red fescue *Festuca rubra* and creeping bent *Agrostis capillaries* with no dominant species. Herbaceous species recorded occasionally throughout the sward included creeping buttercup, red clover *Trifolium pratense*, common sorrel *Rumex acetosa*, yarrow *Achillea millefolium*, field horsetail *Equisetum arvense* and common cat's-ear *Hypochaeris radicata*. In the unmanaged area of semi-poor semi-improved grassland to the south of Oxstalls Farm occasional dyer's greenweed *Genista tinctoria* was also present within the sward.

Arable

3.4

One large field compartment in the west of the site was under arable land use with the crops harvested at the time of survey. Crops were cultivated to within 2m of the boundary hedgerows and field margins were negligible.

Hedgerows

3.5

3.9

All hedgerows comprised at least 80% native species and as such are all UK BAP Priority Habitats. Generally poorly connected and gappy, but associated with features of ecological value including mature trees, ditches and streams, hedges were in general of moderate nature conservation value under HEGS criteria. No hedgerows qualified as "Important" under Hedgerow Regulations 1997 criteria but all were recognised as providing habitat corridors through the site. Species recorded included abundant hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* with occasional elder *Sambucus nigra*, dog rose *Rosa canina*, hazel *Corylus* avallana and holly *Ilex aquifolium*.

Trees

3.6 A large number of mature trees were recorded throughout the site, generally within hedgerows providing good habitat diversity within habitat corridors across the site and enhancing the ecological value of the site. Oak *Quercus robur* and ash *Fraxinus excelsior* were predominantly recorded, forming large prominent trees of varying condition. Some trees were noted to present attributes such as dead wood, cavities, epicormic growth and rot holes were identified, but from the initial assessment none of the trees were considered to be of Veteran status.

3.7 An avenue of young trees was recorded along the track leading to Oxstalls Farm. These were all in good condition and included wild cherry *Prunus avium*, ash, rowan *Sorbus aucuparia*, sycamore *Acer pseudoplatanus* and alder *Alnus glutinosa*.

Broad-leaved Woodland / Orchard

To the west of Oxstalls Farm buildings a small area of broad leaved woodland with orchard was recorded. The canopy comprised ash and sycamore trees with several Lombardy poplars *Populus nigra "Italic"* of the southern edge. The understory was relatively dense comprising hawthorn, blackthorn, dog rose and fruit trees including plum *Prunus domestica* and cherry. Grassy pathways lead through the woodland / orchard, which had a large moss component with Yorkshire fog *Holcus lanata*, creeping bent, creeping buttercup and selfheal *Prunella vulgaris* also recorded.

Ditches / Streams

3.10 A stream (the Batchley Brook) flowed from west to east across the northern part of the site (Target note Tn1). At the time of survey the water levels were relatively

low and flow was reduced to a slow trickle. The water course itself was poached with shallow, soft banks and muddy-pebble substrate. Mature trees and a section of hedgerow were recorded flanking this section of water course but it was not overly shaded and creeping buttercup, amphibious bistort *Polygonum amphibium* and fools water cress *Apium nodiflorum* was recorded within the channel. Further downstream where a second channel (dry at the time of survey) joined the stream (target note Tn2), the water was slightly deeper (20-40cm) with moderate flow. At this point of the water course, the emergent vegetation was more established with the addition of brooklime *Veronica beccabunga* and hard rush *Juncus inflexus* with alder trees lining the banks. A short section of wet ditch was also recorded within the site boundary at target note Tn3. Ruderal species including creeping thistle *Cirsium arvense* and common nettle *Urtica dioica* were recorded in more shaded sections of this ditch with fool's water cress present in more open sections.

3.11 A wet flush was recorded at target note T4. No standing water was recorded at the time of survey but the ground was waterlogged with dominant floating sweet grass *Glyceria fluitans* and brooklime and occasional hard rush and water crowfoot recorded.

Ponds

- 3.12 Three ponds are located within the site boundary, within the grounds of the residential property at Oxstalls farmhouse (Figure 2).
- 3.13 Pond P1 measures approximately 18m x 15m and is roughly 70% shaded by the surrounding trees and scrub of the adjacent broadleaved woodland with orchard. The water body was estimated at up to 1.5m deep with some seasonal variation in water level considered likely but no evidence of annual drying out was recorded. Emergent vegetation was recorded throughout approximately half of the pond, comprising floating sweet grass, amphibious bistort, branched bur-reed *Sparganium erectum*. Common duckweed *Lemna minor* was covered approximately 30% of the surface of the pond.
- 3.14 Pond P2 was an old pit with steep, near vertical banks and was fenced off for safety reasons. Dense bramble *Rubus fruticosus agg.* cover was recorded in the surrounding area with over-hanging semi-mature trees in the surrounding broadleaved woodland.

3.15 Pond P3 was a small ornamental pond, measuring approximately 2-3m in diameter in the courtyard. Several variegated grasses and other ornamental plant species were emergent from the pond.

Buildings

3.16

Four buildings were recorded within the Oxstalls Farm complex. The farmhouse itself (Building B1) was a well maintained, two storey, brick built residential property with pitched slate tiled roof. The roof was in good condition and was set within the context of a yard with woodland and garden directly to the west. On the opposite side of the yard there was an L shaped series of single storey, brick built stables (Building B2) which had pitches with concrete fibre roofs. The stables were largely now used as storage but were in good condition and relatively well maintained. A further two agricultural buildings were recorded; building B3 was a breeze block based structure with concrete fibre sheet upper wall and roof. The building was open on the western aspect and skylights were present. Building B4 was a large corrugated metal sheet structure constructed around a steel frame.

<u>Fauna</u>

Bats

3.17

Buildings B1 and B2 were considered to provide a low – moderate potential to support suitable conditions for roosting bats. Building B1, though well maintained had small gaps at the interface between the brickwork and soffits, which provided a limited number of potential access point into the building. Building B2 exhibited potentially suitable features for roosting bats where gaps were present between roofing sheets.

3.18 A number of trees were identified with features suitable for usage as a bat roost (Figure 1). Such suitable features included cracks, rot holes, branch socket cavities and loose bark. The majority of the suitable trees were identified in hedgerow canopies along suitable flight-lines and foraging routes.

Badgers

3.19 Two badger setts were recorded within the site or within 30m of the site boundary, both of which were located in the western part of the site. Sett S1 (Figure 2) represents a large 8 hole main sett within the western hedge-bank along the lane. Most of the entrance holes to the sett were in the bank with spoil heaps spilling out on to the track. Clear and regularly used paths linked entrance holes and led up on to the adjacent arable field. Badger hair and prints were recorded surrounding the sett associated with paths, spoil heaps and squeezes under vegetation.

- 3.20 Sett S2 was recorded in the sandstone embankment, at the edge of the Paper Mill Cottages. This sett could not be fully assessed at the time of survey due to health and safety as shooting was occurring in the arable field. However, in 2008, between six and eight active badger holes had been recorded with well used paths and fresh latrines were found around this area.
- 3.21 No further evidence of badgers or other setts were recorded at the time of survey,
- 3.22 A multi-pit, regularly used latrine was recorded within a hedgerow to the south east of the setts. A badger track extending from S1 to the latrine was also identified during the survey. This indicates that this land forms part of the key foraging area for this clan.

<u>Amphibians</u>

- 3.23 The ponds recorded within the site provided potentially suitable habitat for amphibians including great crested newts. At the time of survey pond P1 was considered to provide suitable breeding habitats for crested newts with the aquatic / marginal vegetation and the shallow earthy banks.
- 3.24 Ponds P2 / P3 within the curtilage of the Oxstall Farm were considered to provide sub-optimal breeding sites for great crested newts.
- 3.25 Four other ponds are situated on land to the east of the proposed development area (Ponds P4 P7) (Figure 3). All of these ponds are surrounded by existing residential development, but suitable connectivity is present comprising species poor semi-improved grassland is present between three of the ponds and the proposed development area. The remaining pond is also situated in an area of residential development, but no connectivity is present between this pond and the proposed development area.
- 3.26 Previous survey work completed in 2008 identified ponds P4, P5 and P7 as providing suitable aquatic to support breeding population, but pond P6 was identified as providing poor conditions in which great crested newts could breed.
- 3.27 One further pond P8 is situated outside the red line to the north west of the site. In 2008 this pond was identified as providing below average breeding conditions for great crested newts.

Avifauna

3.28 Hedgerows, trees and scrub provide potentially suitable habitat for nesting birds.

Water Vole

3.29 No evidence of water voles was observed at the time of survey,

<u>Otter</u>

3.30 No evidence of otters was observed at the time of survey.

Reptiles

3.31 The short grazed improved grassland and arable land that dominates the site were determined to be sub-optimal to support common reptile species. The hedgerows crossing the site and the Batchley Brook corridor do provide suitable habitats for grass snakes if present in the wider environment.

Consultation (Appendix 2)

- 3.32 Two Sites of Special Scientific Interest have been identified within 2.5km of the overall Project area (Figure 4). Hewell Park Lake is situated on the western boundary of the Project area and Dagnell End Meadow is located approximately 2.5Km to the east of the Project area.
- 3.33 Hewell Park Lake is a large lake surrounded by ornamental woodland. The marginal vegetation comprises extensive areas of common reed, sweet flag and yellow loose strife. The SSSI is known to support the largest colonies of reed warbler in Worcestershire and is noted for both amphibians and reptile interest.
- 3.34 Dagnell End Meadow is one of the last surviving areas of ancient pasture in the Valley of the River Arrow and has been designated for the botanical interest (identified on Figure 3 as Area 8).
- 3.35 Four Special Wildlife Sites are situated within 1Km of the Project area. These comprise: the Worcester and Birmingham Canal, Foxlydiate and Pitcheroak Woods, Brockhill Wood and Butler's Hill Wood (Figure 3).
- 3.36 The Worcester and Birmingham Canal is situated approximately 200m to the north east of the Project area. This site is noted for a dense area of marginal vegetation that supports reed warblers and as a corridor habitat. The Foxlydiate and Pitcheroak Woods are located adjacent the southern boundary of the Project area and are listed on the Ancient Woodland Inventory. Brockhill Wood is situated in

the centre of the overall Project area and is an area of replanted ancient woodland, listed on the Ancient Woodland Inventory.

- 3.37 Records of protected species within 1km of the Project area include: great crested newts, badgers and four species of bats (daubentons, pipistrelle, brown long eared and noctule).
- 3.38 One record of great crested newt is from a water body located in the centre of a existing residential development. The remaining records are located on land to the north west of the Project area. Records of badger setts have been reported adjacent to the eastern, southern and western site boundaries.

4.0 DISCUSSION AND RECOMMENDATIONS

Flora

4.1

The majority of the habitats within the site comprise improved grassland and intensively managed arable land. These habitats are considered to be of low conservation value. The proposed development show that large areas of the existing improved grassland and arable land will be lost during construction of the site. However, significant Green infra-structure (GI) corridors are shown throughout the proposed development area with two extensive areas of Public Open Space (POS) to the north west and north of the site. These could be enhanced through re-seeding with wildflower seed mixes to mitigate for losses and provide significant gains of priority habitats listed on both the local and national BAP. The provision of such enhancement and appropriate management would provide a significant opportunity for biodiversity enhancement within the local area.

- 4.2 The semi-improved grassland in the survey area was determined to be of moderate conservation value. Although this small area of grassland will be lost during development of the site, provision of alternative species rich grassland managed in a manner which is sympathetic for nature conservation will minimise potential impacts and provide enhancements for the local area.
- 4.3 Hedgerows within the site whilst poorly connected and gappy were also determined to be of moderate conservation value and all met the criteria for classification as a priority BAP habitat. The current development proposals have minimised loss of the assemblage of hedgerow through inclusion in GI corridors and as such potential impacts to the receptor will be low. With the inclusion in GI corridors there is potential for positive impacts to retained lengths of hedgerow through the provision of additional hedgerow planting to establish connectivity and provide full hedgerow canopies throughout the site. The implementation of sensitive management through a management plan will also provide positive benefit for this receptor and is likely to result in further positive effects. Where lengths of hedgerow are removed compensation through native species planting should be provided in the area areas of GI to the north west and north of the site.
- 4.4 The woodland blocks and plantation woodlands were determined to be of high conservation value and these areas should be retained and buffered from the development proposals. Providing the overall proposals can incorporate such buffering, impacts to the woodland from the development can be minimised.

Furthermore, with the use of GI throughout the Project area, the biodiversity of these habitats could be enhanced by improving connectivity.

4.5 The stream / water course (the Batchley Brook corridor) to the north of the proposed development is of high conservation value. This corridor is proposed to be retained in a significant area of GI, therefore potential impacts to this receptor are likely to be minimal. The current development proposals show the creation of balancing facilities along this corridor which can be enhanced for nature conservation through the provision of shallow marginal shelves and the implementation of native species aquatic and marginal vegetation. The implementation of such features would provide priority habitats listed in the local / national BAP and would therefore be in accordance with local / national planning policy.

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- 4.6 The only ponds situated in the proposed development area are retained in the overall development design and corridor habitats have been retained. To ensure the longevity of the habitat it is recommended that the ponds are included within the management plan. With the creation of other ponds along the Batchley Brook corridor the development could provide further enhancements for local biodiversity.
- 4.7 The mature trees within the site are of high conversation value. There will be some inevitable loss of a number of the mature trees which have been identified, but the current development proposals indicated retention of the majority of mature trees within the scheme and the creation of significant areas of woodland planting to the north west of the proposed development area. Therefore, potential impacts on this receptor should be minimal.
- 4.8 Dagnell End Meadow SSSI is over 2.5Km from the overall project area. Therefore, it is not expected that the Project will impact on the conservation status of this site. Hewell Park SSSI is adjacent to the north western boundary of the site and negative impacts on the conservation status of this site could occur through development. However, such impacts will be minimised through the provision of significant buffer zones in this area. The Hewell Park lake is upstream of the proposed development area. It is envisaged that minimal impact to the nature conservation value of the site will occur as a natural buffer is present between the proposed development area and this site. Potential impacts could be further minimised through the implementation of additional strategic landscaping along this edge of the proposed development.

- 4.9 Brockhill Wood is listed on the Ancient Woodland Inventory. This woodland is situated adjacent the proposed development area and development of the site could result in a negative impacts on this site's conservation status of. To minimise potential impacts a buffer created on the periphery and a management plan should be drawn up to reduce recreation pressure and ensure the value of this site is retained. Landscape proposals should incorporate informal recreational routes in the GI to the north and north west of the site to minimise potential impacts from increased recreational pressure on the woodland.
- 4.10 Foxlydiate & Pitcheroak Wood and Butler's Hill Wood are also listed on the Ancient Woodland Inventory. Bulter's Hill Wood is located a significant distance from the proposed development area and potential negative impacts to this receptor from the proposed development are unlikely. Foxlydiate & Pitcheroak Wood is situated to the south east of the proposed development area and there is the potential for negative effect through increased recreational usage. However, as this woodland area is isolated from the site by a significant infrastructure road, and significant enhancements for informal recreation can be provided within the site, potential impacts on this receptor are likely to be minimal.
- 4.11 No significant impacts from the development in the proposed areas are expected to Butler's Hill Wood or the Worcestershire and Birmingham Canal as these site are outside and removed from the Project area.

Fauna

4.12

At the time of survey, two badger setts were identified to the north west of the proposed development area and the location of these setts are a statutory constraint to the proposed development. These setts have been retained in areas of GI in the overall development design and corridor links through the development and to the north of the development have been retained. The retention and enhancement of such features will prevent isolation of the clan and minimise potential impacts of the proposed development. The creation of woodland blocks in this area of the development will also provide other areas of cover for the creation of new sett areas.

4.13 Development of the project will impact on the foraging areas for this clan but the creation of significant areas of GI to the northwest of the site will reduce potential impacts to the clan. In this area of the GI, significant woodland areas area are

proposed which will also provide suitable foraging habitats for the clan. To further minimise potential impacts of the proposed development, consideration at the detailed design stage should be given to enhancing badger foraging in the north western GI area through the implementation of a community orchard.

- 4.14 Two of the ponds identified in the proposed development area were identified as providing suitable aquatic habitat in which great crested newts could breed. To the east of the site further ponds suitable to support breeding great crested newts were also confirmed. Consultation results show population of great crested newts to the north west and south east of the site. Therefore, a small population of great crested newts could be present in the water bodies located in and immediately surrounding the site. Terrestrial habitats across the proposed development area were largely sub-optimal comprising heavily grazed improved pasture and optimal habitats were largely limited to the hedgerow corridors within the site.
- 4.15 If great crested newts were present on land within or surrounding the proposed development area, mitigation comprising the provision of terrestrial and aquatic habitats should be provided in the significant area of GI shown to the north and northwest of the proposed development area. The creation and management of these habitats would provide compensation for habitats lost. Furthermore, as habitats within the site are not currently managed using methods which will increase the conservation value of this species the sympathetic management of the habitats created is likely to provide a significant long term benefit for any population.
- 4.16 Habitats in the site were identified as sub-optimal to support common species of reptiles but the presence of a small population of grass snakes cannot be discounted. Consultation results indicate that grass snakes are present in and surrounding the site. If present with appropriate landscaping and management of the GI to the north and north west of the site the population can be maintained at a favourable conservation status.
- 4.17 No water voles or otters have been confirmed in the Project area. Therefore, at this stage the presence of water vole and otter is not considered to be a constraint to development.
- 4.18 From the completed surveys it is considered that providing development was undertaken in a sympathetic manner and appropriate landscaping used to achieve

biodiversity targets, development of the Project area should have minimal impact on the overall conservation value of the local area.

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Survey Recommendations

- 4.18 If the site was taken forward further survey work is recommended to allow a thorough assessment of potential impact and refine the mitigation proposals.
- 4.19 The site should be re-assessed using standard extended Phase 1 habitat assessment methodology (Nature Conservancy Council, 1993) as recommended by Natural England. Target notes should be used to record features or habitats of particular ecological interest as well as any sightings or evidence of protected or notable species. Where habitats or features were of particular interest more detailed notes and species lists will be taken. If necessary Phase 2 botanical surveys should be undertaken.
- 4.21 All trees in the Project area should be assessed in accordance with the Veteran Trees Initiative, Specialist Survey Method (English Nature).
- 4.22 An additional badger survey should be completed over the proposed development area and on land within 30m of the proposed development area. If possible, the survey should also be completed in Brockhill Wood to map location of badger setts and allow assessment of potential constraints to development in this woodland. The standard methodology Cresswell *et al.* (2002) should be used for this assessment. To allow a thorough assessment of potential impacts of the development on badger foraging, a standard bait marking survey should be undertaken to establish territorial boundaries and key foraging areas.
- 4.23 Summer and winter bird survey, using the survey methodology based on that of territory mapping (Bibby et al 1992) as used for the British Trust for Ornithology (BTO) Breeding Bird Survey (BBS), should be employed across the Project area. Standard BTO species codes and symbols for bird activities should be used to identify birds and denote activity, sex and age where appropriate.
- 4.24 All trees potentially affected by the proposed development will be visually assessed to identify those supporting features with potential as bat roost sites. Such features include:
 - Holes within trunks and main laterals including rot-holes and woodpecker holes;

- · Raised, flaking and cracked bark;
- Dense ivy cover.
- 4.25 Where necessary appropriate nocturnal survey techniques should be used to establish the presence of a bat roost in mature trees.
- 4.26 All buildings affected by the proposed development should be assessed and appropriate survey techniques used to confirm the presence / absence of a bat roost. This assessment will also consider buildings that could potentially be isolated by the Project.
- 4.27 An assessment of the foraging routes and areas in the Project area should also be undertaken following standard Bat Conservation Trust Guidance.
- 4.28 To confirm the presence / absence of newt species, in particular great crested newts, all water bodies should be surveyed on four occasions within the recommended survey season, mid-March to mid-June as required by current survey guidelines (The Great Crested Newts Mitigation Guidelines, English Nature (August 2001)). On each of the survey occasions, three survey methods will be employed to assess the presence / absence of great crested newts.
- 4.29 Where habitats are suitable to support reptiles, seven surveys during appropriate conditions, checking refuges, should be completed.

 $\sum_{i=1}^{n} \frac{|i-1| |i| |i|}{|i||^2}$

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Figures



File: J:/4452/Corel/Fig 1 Bile Location.Cdr.

Figure 1

SITE LOCATION

Southern & Regional Developments, Miller Homes & Persimmon Homes



fpcr Derby, DE74 2RH, Tel: 01509 672772 Fax: 01509 674565, mail@fpcr.co.uk File: J:\4400\4452\Ecology\Constrains plan-Cdr.

1	Improved Grassland					
Α	Arable Field					
SI	Semi-improved Grassland					
	Broad leaved Woodland with Orchard					
	Pond					
	Building					
	Hard standing					
	Fencing					
2	Watercourse / Dry Water course					
	Hedgerow / Gappyhedgerow / Scrub					
	Tree / Tree with Bat roosting Potential					
! .	Badger Sett / Badger Path / Badger Latrine					
Miller H Persim Southe	lomes (Strategy Land) & mon Homes (South Midlands) & rn & Regional Developments					
Brockhill West - Sustainable Urban Extension						
Phase 1 Habitats Plan						
Figure	2					
Notto Scale @ A3. September 2010						





Site Location



Pond Location with Reference



Southern & Regional Developments, Miller Homes & Persimmon Homes

Brockhill West -Sustainable Urban Expansion

Pond Location Plan

Figure 3

Not to Scale @ A3 September 2010

fpcr FPCR Environment and Design Ltd Lockington Hall, Lockington, Derby, DE74 2RH, Tel: 01509 672772 Fax: 01509 674565, mail@lpcr.co.uk

File: J /4452/Pond Location Plan.





Linnet



Yellowhammer



Reed Bunting



Green Plover



Water Vole



Otter



Badger



Daubenton's Bat



Noctule Bat



Pipistrelle Bat



Brown Long Eared Bat



Grass Snake



Great Crested Newt



Site of Special Scientific Interest with reference



Special Wildlife Site with reference



Ancient Natural Woodland with reference

Southern & Regional Developments, Miller Homes & Persimmon Homes

Brockhill West -Sustainable Urban Extension

Consultation Results

Figure 4

Notio Scale @ A3. September 2010

Appendix 1

Botanical Species Lists

Appendix 1 – Botanical Species List

Improved Grassland

Scientific Name Agrostis stolonifera Cirsium arvense Dactylis glomerata Festuca rubra agg. Lolium perenne Ranunculus repens Taraxacum officinale agg. Trifolium repens Urtica dioica

Semi-improved Grassland

Scientific Name Achillea millefolium Agrostis stolonifera Arrhenatherum elatius Cirsium arvense Cynosurus cristatus Dactylis glomerata Deschampsia caespitosa Epilobium montanum Equisetum arvense Festuca rubra agg. Genista tinctoria Holcus lanata Hypochaeris radicata Lolium perenne Phleum pratense sens.lat. Plantago lanceolata Ranunculus repens Rubus fruticosus agg. Rumex acetosa Senecio jacobaea Stellaria graminea Stellaria media Taraxacum officinale agg. Trifolium pratense Trifolium repens Urtica dioica Veronica serpyllifolia

Hedgerows and Trees

Scientific Name Acer campestre Acer pseudoplatanus Alnus glutinosa Corylus avellana Crataegus monogyna Fraxinus excelsior Ilex aquifolium Prunus spinosa

Common Name

Creeping bent Creeping thistle Cock's-foot Red fescue Perennial rye grass Creeping buttercup Dandelion White clover Common nettle

Common Name Yarrow Creeping bent False oat-grass **Creeping thistle** Crested dog's-tail Cock's-foot Tufted hair grass Broad-leaved willowherb Field horsetail Red fescue Dyer's greenweed Yorkshire fog Common cat's-ear Perennial rye grass Timothy Ribwort plantain Creeping buttercup Bramble Common sorrel Common ragwort Lesser stitchwort Common chickweed Dandelion Red clover White clover Common nettle Thyme-leaved speedwell

Common Name

Field Maple Sycamore Alder Hazel Hawthorn Ash Holly Blackthorn Quercus robur Rosa canina agg. Sambucus nigra Tilia cordata Pedunculate Oak Dog Rose Elder Small-leaved Lime

Broadleaved Woodland with Orchard

Scientific Name Acer pseudoplatanus Agrostis stolonifera Crataegus monogyna Fraxinus excelsior Holcus lanatus Populus nigra "italic" Prunella vulgaris Prunus avium Prunus domestica Prunus spinosa Ranunculus repens Rosa canina agg.

Ponds, Ditches, Wet Places

Scientific Name Apium nodiflorum Glyceria fluitans Juncus inflexus Lemna minor Persicaria amphibia Ranunculus aquatilis Ranunculus repens Sparganium erectum Veronica beccabunga

Common Name Sycamore Creeping Bent Hawthorn Ash Yorkshire-fog Lombardy poplar Selfheal Wild Cherry Plum Blackthorn Creeping Buttercup Dog Rose

Common Name

Fool's Water-cress Floating Sweet-grass Hard Rush Common Duckweed Amphibious Bistort Common Water-crowfoot Creeping Buttercup Branched Bur-reed Brooklime

Appendix 2

Hedgerow Tables

Appendix 2 – Hedgerow Tables

Hedge No.	No. of Species	Average No species/ 100m	Canopy Species	Height	Width	Notes	HEGS Grade
H1	3	3	Hawthorn Crataegus monogyna, elder Sambucus nigra, sycamore Acer pseudoplatanus.	2-4m	1-2m	No gaps.	-2
H2	3	2.5	Hawthorn Crataegus monogyna, dog rose Rosa canina, blackthorn Prunus spinosa.	2-4m	2-3m	No gaps, 4 connection, dry ditch.	-2
H3	4	3	Hawthorn <i>Crataegus monogyna</i> , elder Sambucus nigra, oak <i>Quercus robur</i> , ash <i>Fraxinus excelsior</i> .	2-4m	2-3m	No gaps, 3 connections, hedge bank, >1 tree/50m.	-2
H4	3	3	Hawthorn Crataegus monogyna, oak Quercus robur, 2-3m <1m 3 connections. field maple Acer campestre.		3 connections.	3	
H5	6	3.5	Hawthorn Crataegus monogyna, elder Sambucus nigra, dog rose Rosa canina, hazel Corylus avellana, oak Quercus robur, ash Fraxinus excelsior.	1-2m	1-2m	<10% gaps, dry ditch, 5 connections.	2
H6*	8	5.5	Hawthorn Crataegus monogyna, elder Sambucus nigra, blackthorn Prunus spinosa, sycamore Acer pseudoplatanus, hazel Corylus avellana, holly llex auifolium, oak Quercus robur, ash Fraxinus excelsior.	1-2m	1-2m	<10% gaps, hedge bank.	-2
H7	4	3	Hawthorn Crataegus monogyna, elder Sambucus nigra, hazel Corylus avellana, ash Fraxinus excelsior.	2-4m	1-2m	4 connections.	3+
H8	6	4	Hawthorn Crataegus monogyna, elder Sambucus nigra, blackthorn Prunus spinosa, holly Ilex auifolium, oak Quercus robur, ash Fraxinus excelsior.	2-4m	1-2m	No gaps, 4 connections, >1 tree/50m.	2+
H9	6	5	Hawthorn Crataegus monogyna, elder Sambucus nigra, blackthorn Prunus spinosa, dog rose Rosa canina, oak Quercus robur, ash Fraxinus excelsior.	2-4m	1-2m	<10% gaps, 5 connections.	-2
H10	4	4	Hawthorn Crataegus monogyna, dog rose Rosa canina, hazel Corylus avellana, oak Quercus robur.	sa 2-4m 1-2m 4 connections, >1		4 connections, >1 tree/50m.	3+
H11	4	3.5	Hawthorn Crataegus monogyna, elder Sambucus nigra, holly Ilex auifolium, oak Quercus robur.	2-4m	1-2m	No gaps, >1 tree/50m.	3+
H12	7	5	Hawthorn Crataegus monogyna, elder Sambucus nigra, blackthorn Prunus spinosa, hazel Corylus avellana, holly Ilex auifolium, oak Quercus robur, ash Fraxinus excelsior.	1-2m	1-2m	No gaps, dry ditch.	-2

H13	Not available for survey.											
H14	Net available for autory											
	Not available for survey.											
H15	Not available for survey.											
H16*	5	4	Hawthorn Crataegus monogyna, blackthorn Prunus spinosa, lime Tilia cordata, holly Ilex auifolium, ash Fraxinus excelsior.	3m+	No gaps, hedge bank.	2						
H17	4	4	Hawthorn <i>Crataegus monogyna</i> , elder <i>Sambucus</i> <i>nigra</i> , blackthorn <i>Prunus spinosa,</i> dog rose <i>Rosa</i> <i>canina</i> .	2-4m	2-3m	No gaps, 4 connections.	-2					
H18	4	4	Hawthorn Crataegus monogyna, ash Fraxinus excelsior, blackthorn Prunus spinosa, dog rose Rosa canina.	2-4m	2-3m	<10% gaps, 3 connection, hedge bank.	3+					
H19	1	1	Hawthorn Crataegus monogyna.	4m+	2-3m	Hedge bank.	-3					
H20	1	1	Hawthorn Crataegus monogyna.	4m+	23m	>1 tree/50m.	3					
H21	6	3	Hawthorn Crataegus monogyna, elder Sambucus nigra, blackthorn Prunus spinosa, dog rose Rosa canina, oak Quercus robur, ash Fraxinus excelsior.	2-4m	1-2m	Hedge bank, 4 connections.	-2					
H22	4	2.5	Hawthorn <i>Crataegus monogyna</i> , elder <i>Sambucus</i> <i>nigra</i> , blackthorn <i>Prunus spinosa,</i> dog rose <i>Rosa</i> <i>canina.</i>	1-2m	1-2m	10% gaps, 4 connections, hedge bank, dry ditch.	-3					
H23	1	1	Hawthorn Crataegus monogyna	2-4m	1-2m	4 connections, dry ditch.	3+					
H24	5	3	Hawthorn Crataegus monogyna, elder Sambucus nigra, alder Alnus glutinosa.	2-4m	1-2m	>1 tree/50m, dry ditch.	3					
H25	2	2	Hawthorn Crataegus monogyna, alder Alnus glutinosa.	2-4m	1-2m	<10% gaps, dry ditch.	3+					
H26	2	2	Hawthorn Crataegus monogyna, alder Alnus glutinosa.	2-4m	1-2m	Dry ditch.	-3					

H* Meets Hedgerow Regulations 1997 criteria as "important" for nature conservation value.

Appendix 3

Consultation Results

Appendix 3 - Statutory and Non-statutory Wildlife Sites

Site Number	Our Ref	Site Name	Designation	Description
SO96/19	1	Worcester and Birmingham Canal	Special Wildlife Site (SWS)	 Canal enters the county in the extreme NE corner and ends at the River Severn at Worcester Very little aquatic vegetation due to high levels of boat traffic, except on the backwaters Marginal vegetation is well developed in places – supports rich flora with extensive beds of common reed where reed warblers breed Rich fish population, several pairs of swans Hedgerows present – used as corridors
SP06/09	2	Hewell Park Lake	SWS SSSI	 Shallow, artificial lake surrounded by ornamental woodland lying in the grounds of Hewell Grange, Youth Custody Centre Lake margin supports extensive areas of common reed, sweet flag and yellow loosestrite and a fringe of alder Supports one of the largest colonies of reed warbler in Worcestershire Has interest for amphibians and reptiles Worcester Wildlife Trust manage part of the site as nature reserve
SP06/11	3	Foxlydiate and Pitcheroak Woods	SWS Ancient Natural Woodland (ANW)	 Contains both sessile and pedunculate oak. Rich variety of other trees – birch, small leaved lime, large leaved lime, hazel, ash, field maple, yew and sweet chestnut. Ground flora – heather, tormentil, marsh thistle, devils-bit scabious, betony Woods shown on NCC's Inventory for Ancient Woodland
SP06/12	4	Brockhill Wood	SWS ANW	 Replanted ancient woodland with species suitable for brush handles such as birch and grey alder Native component – oak mainly with ash, hazel, hawthorn and holly Ground flora – bluebell, wood anemone, meadow sweet and wood sorrel Woods shown on NCC's Inventory for Ancient woodland

Appendix 3 - Statutory and Non-statutory Wildlife Sites (Continued...)

Site Number	Our Ref	Site Name	Designation	Description
SP06/14	5	Butler's Hill Wood	SWS ANW	 Replanted ancient woodland with species suitable for brush handles. Remnants of the former semi natural woodland - oak, hazel, ash, field maple, aspen Ground flora – male fern, foxglove, wood sage, bluebell. Woods shown on NCC's Inventory for Ancient woodland
SP06/18	6	River Arrow	SWS	 Rising at the Bittell Reservoirs the River Arrow flows south to join the River Avon in Warwickshire Mostly lined with trees and shrubs – use as corridor Poor aquatic vegetation Fast flowing riffle sections support reasonable aquatic flora Kingfishers breed in several places.
SP06/26	7	Abbey and Forge Mill Pond	SWS	 Several pools feeding into the Dagnell Brook around the site of Bordesley Abbey Fringes of the pools and stream are wooded in places with alder, willow, ash, birch, oak and hawthorn. Supports range of aquatic vegetation - brook lime, reed canary grass, bulrush, fool's water cress, water forget-me-not, rushes, common club-rush and water plantain Valuable habitat for breeding birds

Appendix 3 - Statutory and Non-statutory Wildlife Sites (Continued...)

Site Number	Our Ref	Site Name	Designation	Description
N/A	8	Dagnell End Meadow	SSSI, Nature reserve	 Ancient permanent pasture lying in the valley of the River Arrow. One of the last surviving areas of such pasture in this part of Worcestershire. Dominated by grasses - meadow foxtail, crested dog's-tail, sweet vernal-grass and quaking grass. In the wetter parts - marsh foxtail, tufted hair-grass become more abundant. In the drier parts - typical meadow herbs such as meadow pea, tufted vetch and lesser knapweed occur. The wetter areas include marsh marigold meadow sweet and ragged robin. Less common species, some of which are present in large numbers, occur throughout the meadow - spotted orchid, southern marsh orchid, marsh valerian, ladies mantle and tubular water dropwort. The meadow is bounded by water courses connected with the River Arrow. Margins rich in riparian plants such as yellow flag, water forget- me-not and bur-reed. Alder and white willow occur along their banks.

Appendix 3 - Protected and BAP species records held by WBRC as at 05/03/08 for area north of Redditch

Scientific Name	Common Name	Grid Reference	Location Name	Date	Status	Comments
Arvicola terrestris	Water Vole	SP010705		01/01/2000	WCA5 (S9(4a, 4b)), Worcs BAP	
Arvicola terrestris	Water Vole	SP017707		01/01/2000	WCA5 (S9(4a, 4b)), Worcs BAP	
Carduelis cannabina	Linnet	SP010690	Hewell Park Lake	1991	BC2	
Emberiza citrinella	Yellowhammer	SP010690	Hewell Park Lake	1991	BC2	
Emberiza schoeniclus	Reed Bunting	SP010690	Hewell Park Lake	1991	BC2	
Emberiza schoeniclus	Reed Bunting	SP047688	Bordesley Meadows	09/06/2006	BC2	
Lutra lutra	Otter	SP042692	Bordesley Meadows	20/01/2003	BC2 ECH2, 4 CITES1 WCA5, 6 Worcs BAP	
Meles meles	Badger	SP022682	Wixon Brook, Astwood	Oct 1994	BC3 PBA WCA6	Signs
Meles meles	Badger	SP011709	Sunny Bank Farm	10/12/2001	BC3 PBA WCA6	
Meles meles	Badger	SP013677	Tack Farm	12/01/2002	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP005684	Hewell Grange	22/01/2002	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP010690	Hewell Park Lake	17/06/2002	BC3 PBA WCA6	
Meles meles	Badger	SP009690	Hewell Park Lake,	17/06/2002	BC3 PBA WCA6	Small latrine with fresh
Meles meles	Badger	SP047680	Alvechurch Highway	29/02/2003	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP045695	Dagnell End	11/08/2003	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP006684	Redditch	12/10/2003	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP010698	Brockhill Lane	21/09/2004	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP000690	Bromsgrove Highway (SP0068)	15/01/2005	BC3 PBA WCA6	
Meles meles	Badger	SP022689	Hewell, Brockhill Lane	28/06/2005	BC3 PBA WCA6	1 juvenile
Meles meles	Badger	SP000698	Hewell, Brockhill Lane	04/07/2005	BC3 PBA WCA6	Dead on road
Meles meles	Badger	SP000698	Brockhill Lane	04/07/2005	BC3 PBA WCA6	
Meles meles	Badger	SP002687	Bromsgrove Highway	16/01/2006	BC3 PBA WCA6	Dead on road

Appendix 3 - Protected and BAP species records held by WBRC as at 05/03/08 for area north of Redditch (Continued...)

Scientific Name	Common	Grid	Location Name	Date	Status	Comments
	Name	Reference				
Myotis daubentoni	Daubentons's Bat	SP0168	Hewell Grange	15/08/2006	BC2 BoC2 ECH4 WCA6	Aural bat detector
Natrix natrix	Grass Snake	SP020686	Brockhill Wood	21/07/1991	BC3 WCA5(S9(1) killing/injuring only, S9(5))	
Natrix natrix	Grass Snake	SP010690	Hewell Park Lake	17/06/2002	BC3 WCA5(S9(1) killing/injuring only, S9(5))	reported
Nycatalus noctula	Noctule	SP0168	Hewell Grange	15/08/2006	BC2 BoC2 ECH4 WCA5,6	Aural bat detector
Nycatalus noctula	Noctule	SP0169	Hewell Grange	15/08/2006	BC2 BoC2 ECH4 WCA5,6	Aural bat detector
Nycatalus noctula	Noctule	SP0068	Hewell Grange	15/08/2006	BC2 BoC2 ECH4 WCA5,6	Aural bat detector
Pipistrellus pipistrellus	Pipistrelle	SP011709	Sunny Bank Farm	06/11/2001	BC3 BoC2 ECH4 WCA5,6, Worcs BAP	
Pipistrellus pipistrellus	Pipistrelle	SP0168	Hewell Grange	15/08/2006	BC3 BoC2 ECH4 WCA5,6, Worcs BAP	Aural bat detector
Pipistrellus pipistrellus	Pipistrelle	SP0169	Hewell Grange	15/08/2006	BC3 BoC2 ECH4 WCA5, 6, Worcs BAP	Aural bat detector
Plecotus auritus	Brown Long- Eared Bat	SP016693	Brockhill Lane, Nr Redditch	11/07/2004	BC2 BoC2 ECH4 WCA5,6	Long term roost, previous visit from Worcs Bat Group 14 yrs ago
Pipistrellus pipistrellus	Pipistrelle	SP0068	Hewell Grange	15/08/2006	BC3 BoC2 ECH4 WCA5,6, Worcs BAP	Aural bat detector
Plecotus auritus	Brown Long- Eared Bat	SP016693	Brockhill Lane, Nr Redditch	11/07/2004	BC2 BoC2 ECH4 WCA5,6	Long term roost, previous visit from Worcs Bat Group 14 yrs ago
Plecotus auritus	Brown Long- Eared Bat	SP019692	Ivy Cottage, Brockhill Lane Redditch	21/07/2004	BC2 BoC2 ECH4 WCA5,6	Fresh droppings and butterfly/moth wings
Triturus cristatus	Great Crested Newt	SP020699	Great Shortwood Farm	22/05/2000	BC2 ECH2,4 WCA5, Worcs BAP	1 Adult 7 egg/ovum
Triturus cristatus	Great Crested Newt	SP028684	Brockhill	21/02/2001	BC2 ECH2,4 WCA5, Worcs BAP	

Appendix 3 - Protected and BAP species records held by WBRC as at 05/03/08 for area north of Redditch (Continued.....)

9

Scientific Name	Common	Grid	Location Name	Date	Status	Comments
	Name	Reference				
Triturus cristatus	Great Crested	SP020699	Shortwood Cottage	23/04/2001	BC2 ECH2,4 WCA5, Worcs	47 egg/ovum
	Newt				BAP	
Triturus cristatus	Great Crested	SP020703	Shortwood Rough	23/04/2001	BC2 ECH2,4 WCA5, Worcs	12 egg/ovum
	Newt		Grounds		BAP	
Triturus cristatus	Great Crested	SP020701	Shortwood Rough	23/04/2001	BC2 ECH2,4 WCA5, Worcs	510 egg/ovum
	Newt		Grounds		BAP	
Triturus cristatus	Great Crested	SP021699	Shortwood Farm	2003	BC2 ECH2,4, WCA5, Worcs	
	Newt				BAP	
Triturus cristatus	Great Crested	SP010690	Hewell Park Lake	1991	Worcs BAP	
	Newt					