



Bovis Homes Ltd

Uplands Mill, Biddulph

MANAGEMENT PLAN

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FPCR Environment and Design Ltd

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1.0 INTRODUCTION

- 1.1. This management plan has been prepared by FPCR Environment and Design Ltd on behalf of Bovis Homes Ltd to provide detail on the future management of all retained and created habitats associated with the proposed development on land at Uplands Mill, Biddulph, Staffordshire. The plan will consider the requirements to maximise the nature conservation value of the area in regard to fauna and flora.
- 1.2. The site was located to the north-east of Biddulph town centre, close to the A527 carriageway. The area for development was bounded on all aspects by residential dwellings and associated gardens. Beyond this to the north and east was open countryside.
- 1.3. A Phase 1 habitat survey was undertaken by Just Ecology Environmental Consultancy in March 2009. The site consisted of a mill building surrounded by compartments of marshy, unimproved and improved grassland, dense scrub, mixed plantation and broad-leaved woodland and a stream which enters the site from the northern boundary.
- 1.4. Just Ecology identified a number of important ecological features on site including the presence of a common pipistrelle *Pipistrellus pipistrellus* bat roost above the boiler room of the mill, species-rich hedgerows situated on the north and eastern boundaries, and a badger sett, unimproved neutral grassland, stream, flush, scrub and ruderal vegetation habitats in the north-western sector of the site. This north-western area was also observed to support a range of birds including several notable species (please see section 2.11 for more detail).
- 1.5. Proposals for the site include the construction of residential dwellings with new access roads and associated infrastructure. Habitats will include tree and hedgerows, wildflower grassland, broad-leaved woodland, scrub, planting beds and a flush area with wet grassland.
- 1.6. This plan provides a broad outline for the management of the above mentioned habitats post construction. Prescriptions may be refined once management and monitoring is underway.

2.0 BACKGROUND

Site of Nature Conservation Interest

- 2.1. There were no statutorily designated sites of nature conservation interest within 1km of the site boundary. However, one non-statutorily site was identified within 900m to the south of the site; the Nursery local wildlife site designated for its woodland surrounded by semi-improved acid grassland pasture.

Site Description

Flora

Scrub

- 2.2. Areas of dense and scattered scrub bordered the car park in the north-western sector of the site and along the western boundary. Species present included frequent bramble *Rubus fruticosus*, beech *Fagus sylvatica*, and some poplar *Populus* sp. with oak *Quercus* sp., ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and grey willow *Salix cinerea* in wetter areas.

Unimproved grassland

- 2.3. A small area of tussocky, unimproved neutral grassland was found on higher ground in the north-western sector of the site. This grassland was recorded to be relatively species-poor, being dominated by tufted hair-grass *Deschampsia cespitosa*. A second compartment was also noted within the south-western section of the site which appeared to have a more varied species composition including crested dog's-tail *Cynosurus cristatus*, purple moor-grass *Molinia caerulea*, cock's-foot *Dactylis glomerata*, couch *Elymus repens*, timothy *Phleum pratense* and some ribwort plantain *Plantago lanceolata*, willowherb *Epilobium* sp., broad-leaved dock *Rumex obtusifolius*, and a few silver birch *Betula pendula* saplings.

Marshy Grassland

- 2.4. Also situated in the north-western corner of the site was an area of marshy grassland, dominated by soft rush *Juncus effuses*, hard rush *J. inflexus* and *Sphagnum* mosses, with tufted hair-grass also frequent, and occasional willowherbs *Epilobium* sp. and young saplings of grey willow and ash.
- 2.5. A flush passes through this area. Vegetation was recorded to be relatively species-poor indicating acidic conditions. Plants observed here by Just Ecology included *Sphagnum* mosses, soft and hard rush, willowherb *Epilobium* sp., brooklime *Veronica beccabunga* and cuckooflower *Cardamine pratensis*. Additional species were observed downstream including frequent buttercups *Ranunculus* sp. on wet mud including celery-leaved buttercup *R. scleratus*, lesser spearwort *R. flammula*, and lesser celandine *R. ficaria* around the flush edges and under trees.

Hedgerows

- 2.6. A species-rich hedgerow was present within the southern sector of the site, with standard trees recorded at frequent intervals. Woody species included hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, holly *Ilex aquifolium*, bramble, poplar and ash. Ground flora was dominated by bramble and ivy *Hedera helix*. Other hedgerows situated around the site boundary were species-poor hawthorn hedges.

Broad-leaved and Plantation woodland

- 2.7. Two areas of broad-leaved tree planting were evident on site including silver birch, rowan *Sorbus aucuparia*, pedunculate oak *Quercus robur* and hornbeam *Carpinus betulus*. Ground flora was limited and included ground-ivy, tufted vetch *Vicia cracca*, common nettle *Urtica dioica* and hogweed *Heracleum* sp.
- 2.8. An avenue of mixed plantation woodland was found within the western sector of the site. Species included sycamore, silver birch and conifers.

Fauna

Bats

- 2.9. A relatively large common pipistrelle bat roost was observed located behind the bargeboards on the eastern elevation of the boiler room at the north-east corner of Uplands Mill. Further smaller roosts were also observed on the eastern elevation of the southern mill building.

Badger

- 2.10. A badger sett was found within an overgrown bank within the north-western sector of the site. Six sett entrances were observed, two of which were deemed to be active by Just Ecology on the Phase 1 survey date, as evidenced by worn entrances, fresh spoil and badger footprints.

Birds

- 2.11. Birds seen or heard by Just Ecology during the Phase 1 survey were blackbird *Turdus merula*, blue tit *Parus caerulea*, great tit *P. major*, robin *Erithacus rubecula*, magpie *Pica pica*, carrion crow *Corvus corone*, chaffinch *Fringilla coelebs*, grey wagtail *Motacilla cinerea*, dunnock *Prunella modularis*, lesser redpoll *Carduelis cabaret* (in a winter flock), siskin *Carduelis spinus* (some flocking with redpolls), wren *Troglodytes troglodytes*, greenfinch *Carduelis chloris*, starling *Sturnus vulgaris*, goldfinch *Carduelis carduelis*, bullfinch *Pyrrhula pyrrhula*, house sparrow *Passer domesticus* and woodpigeon *Columba palumbus*.
- 2.12. Most of these birds were concentrated in the overgrown scrub, trees, flushes and wet and marshy grasslands in the northwest corner of the site. Far fewer birds were seen in other areas.

3.0 GENERAL CONSIDERATIONS

Legislation

- 3.1. All relevant EU and UK nature conservation law will be adhered to in relation to the protection of ecological features and ecological enhancement. This will primarily include the protection afforded to nesting birds under the Wildlife and Countryside Act 1981 (as amended) and also with reference to the protection of bats and their roosts under the Conservation of Habitats and Species Regulations 2010. Regard has also been given to the Staffordshire Biodiversity Action Plan (LBAP) and the UK Biodiversity Action Plan.

Management

- 3.2. New habitats on site will be managed primarily for nature conservation purposes. Basic management practices are recommended for inclusion within any future Landscape Management and Maintenance Plan for the site to ensure that biodiversity is maintained in the long term. The following section will detail the practices to help maintain and enhance the biodiversity of the site.
- 3.3. All habitat creation should be in line with the Staffordshire Wildlife Trust Guidelines for Habitat Creation Schemes. A summary of habitats to be created can be found in Table 1.0 below.

Table 1. Summary of the habitats to be retained and created

Habitats to be retained/enhanced	Habitats to be created
Broad-leaved Woodland	Wildflower grassland
Scrub	Amenity grassland
Wet Flush	Hedgerow and tree planting
Hedgerow and Mature trees	Native and ornamental shrub planting
Wet grassland	

Factors Influencing Management

Human Influence

- 3.4. Most of the site will be largely open to public access due to the location of the Leap Area and access points. It is anticipated that this footpath may be used by local residents and dog walkers.

Ecological Influences

Bats

- 3.5. Recent surveys have indicated that a bat roost is present within one of the mill buildings. Bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 and is a local and national Biodiversity Action Plan priority species. The development proposals will provide habitat mitigation and enhancement for this species through a Natural England European Protected Species Licence. All management will need to take the presence of this protected species into account to ensure that no offence is inadvertently committed.

Badgers

- 3.6. An active badger sett is located within the site boundary which is to be retained. Badgers are protected under the Protection of Badgers Act 1992. It is considered that due to the retention and enhancement of the boundary habitats and green corridors across the site, the development is expected to have minimal impact upon the local population. In addition, hedgerows are abundant within the surrounding area and provide corridors of movement around area beyond this. It would be expected that adaptation to alternative routes would be quick and disruption minimal. In order to ensure no offence is committed the site will be regularly monitored for evidence of use by badgers.

Natural Trends

- 3.7. If the current site was left unmanaged, the diverse habitat in the north west of the site would be gradually invaded by scrub and eventually succeed to woodland. Ongoing management is

4.0 OBJECTIVES

- 4.1. The over-arching conservation objective for the site is based on the requirements to enhance the nature conservation value of the retained and newly created habitats whilst contributing to the aims of the Staffordshire Biodiversity Action Plan (LBAP).

Objective 1

- 4.2. Maintain and enhance the existing nature conservation value of the retained features and their associated fauna including hedgerows and trees.

Objective 2

- 4.3. Create new habitats to compensate for the loss of and effects on existing habitats, this will enhance the biodiversity of the local area and maximise value through appropriate management, ensuring significant areas of open space and green links are maintained and created of value to wildlife.

Objective 3

- 4.4. To balance the use of the site with the wildlife interests within and adjacent to the site, ensuring that its end use is not detrimental to the objective outlined above.
- 4.5. To achieve the above, the following relevant prescriptions will be undertaken during the period of the plan:
- Retention of the boundary habitats including scrub, woodland and grassland sections to maintain and ensure wildlife connections around the site.
 - Plant areas of wildflower grassland to encourage invertebrates.
 - Retention of the wet flush and additional marginal planting provided to encourage amphibians, small mammals and birds.
 - Provision of bat boxes within the woodland areas of the site and the inclusion of 20 bat bricks within the new development.
 - Removal of all garden waste and rubbish from the north-western sector of the site to allow natural habitats to develop.
 - Retention of all dead and mature trees to provide further roosting and nesting opportunity for bats and birds.
 - Monitoring of key habitats and species.
 - Create and maintain micro habitats throughout the site, to include dead wood piles and compost heaps to provide shelter and hibernation opportunity.
- 4.6. In addition to the above, the plan will also ensure surfaces are kept free from weeds and mildew and that damaged materials are reinstated and replaced. Maintenance regimes will ensure a safe and clean environment through regular evaluation.

5.0 HABITAT CREATION

- 5.1. A soft landscaping plan has been produced by Bovis Homes Ltd (reference Bidd-03-100S1, Bidd-03-100S2, Bidd-03-100S3 11.10.10) detailing the areas of planting. Planting will include wildflower grassland, shrubs and perennials, amenity grassland, hedgerows and trees.

Wildflower/wet grassland/flush

- 5.2. Areas of wildflower grassland will be created along the woodland edges and surrounding many of the retained habitats such as the flush. If suitably managed, these areas will provide corridors of movement and shelter for a range of fauna and a valuable food source for the local invertebrate population. A species rich seed mix (MG5) reflecting species present in the area such as green hay should be used, sourced from local similar grassland sites. Where this is not possible, a suitable mix of local provenance should be sourced from a reputable wildflower supplier, using either an appropriate off-the-shelf mix or a specifically designed mix for this site. Establishment should follow the methods outlined below.
- 5.3. Preparation of the areas to be sown should include the eradication of any weeds such as docks and thistles. Removal can be carried out by spraying the area with herbicide (preferably Glyphosate based), up to 6 weeks before the seeds are to be sown. Before seeding, the area should be raked to break up the soil. The seeds should be broadcast widely and then the area should be rolled. Ideally the seed should be sown between September and November or during spring if weather conditions are suitable. The first cut should be undertaken once the grass has reached a height of 100mm, then mow 2-3 times in the first year. Pernicious weeds will be spot-treated with herbicide as necessary. Once grassland has established selected areas should be subjected to different cutting regimes on a rotational basis (please see Section 6.0 for more detail).

Shrub planting

- 5.4. Native and ornamental shrubs will be planted along the house and road frontages. The planting will help to create a mosaic of habitats around the site and provide movement resources for the local faunal species. Planting will be largely native and incorporate fruit and nut bearing species such as guelder rose *Viburnum opulus* and blackthorn *Prunus spinosa*. Shrubs should be planted at 300m centres and should be adequately protected from rabbits. Dead and dying plants will be replaced in the first five years. All planting should be left to develop untouched for the first five year-period.

Trees and Hedgerow

- 5.5. Boundary vegetation and mature trees are to be retained and additional tree planting will be included throughout the site along house and road frontages. Trees should be planted between November and March during their dormant period and protected from rabbits with spiral tree guards. Species which are required to be supported by stalks should be checked annually to ensure no damage has occurred.

Amenity grassland

- 5.6. Seeded areas of amenity grassland are proposed within the Leap Area and along the boundaries of the site, providing a buffer to the retained habitats. Establishment should follow the methods outlined in paragraph 5.3. The grassland immediately at the woodland edge within the western and southern boundaries should be managed less intensively and eventually graded from grassland to woodland and a scalloped edge maintained by cutting and removal of individual shrubs where necessary.
- 5.7. Lay turf as per supplier's specifications.

6.0 OUTLINE PRESCRIPTIONS

Habitat	Prescription
<p><u>Woodland and woodland edge</u></p>	<ol style="list-style-type: none"> 1. Management should ensure that tree and scrub planting does not encroach onto main grassland areas by annual removal of saplings if required, stumps should be spot treated with a target herbicide to prevent re-growth. 2. Woodland areas may need thinning after the second five-year management period. This should be undertaken to improve the structure and provide potential for a diverse ground flora to develop. Where trees are removed or works are undertaken, wood may be used to create habitat piles around the area to provide refugia/hibernacula for amphibians and reptiles.
<p><u>Flush</u></p>	<ol style="list-style-type: none"> 1. Strim once a year in September with arisings left for 48 hours before removal to a designated composting area. 2. Spot treat invasive weeds using a glyphosate based herbicide. Care must be taken to ensure only the target plants are affected.
<p><u>Hedgerows</u></p>	<ol style="list-style-type: none"> 1. Hedgerow planting will be undertaken between November and March. Hedgerows are to be planted in staggered double rows, with root pits preferred to aid establishment. 2. Young plants are to be protected by tree guards to aid establishment. 3. All dead and dying specimens to be replaced on a like for like basis for the first five years. 4. Only one half of the hedgerow should be cut each year, to maintain a continuous supply of fruits and flowers for foraging wildlife. <p>NB: All bird species are legally protected whilst nesting, hedgerow management should be conducted outside the bird breeding season (March – September).</p>

Habitat	Prescription
<p><u>Wildflower and wet grassland</u></p>	<ol style="list-style-type: none"> 1. Sow selected and preferred areas with seed mix during spring or autumn. 2. Undertake the first cut when grassland reaches 100mm, then mow 2-3 times in the first year. 3. Once established, mow once or twice annually during early spring and/or late summer to maintain and promote floristic diversity. Leave longer unmown grass around hedgerows tree bases and at the pond margins to minimise risk and damage to roots and provide micro habitats. Mowing regime to be agreed with the supervising manager on site. 4. Remove arisings approximately 48 hours after mowing to encourage seed drop, allow invertebrates to move back into sward and to prevent nutrient enrichment to the soil. 5. Arisings should be placed in a designated area within the site to provide breeding and hibernacula habitat for fauna that could potentially use the site. 6. Avoid the use of grassland fertilisers (these encourage the rapid growth of a small number of highly competitive species). 7. Spot treat invasive weeds using a glyphosate based herbicide. Care must be taken to ensure only the target plants are affected.

Habitat	Prescription
<p><u>Trees</u></p>	<ol style="list-style-type: none"> 1. Species to be planted in accordance with landscape schedules between November and March. Root pits should be included to aid establishment. 2. Young plants are to be protected by tree guards to aid establishment. 3. All dead and dying specimens to be replaced on a like for like basis for the first five years. 4. Existing and retained trees are to be monitored annually and after major storms by an experienced arborist / tree surgeon to identify any remedial works required. 5. If tree works are required, bat surveys on mature trees should be undertaken to check for the potential presence of roosts prior to works. Works may be required to follow a strict method statement dependant on results. Works should be carried out in accordance with BS 3998 1989 Recommendations for tree work. 6. Dead wood should be retained in situ adjacent to trees or in open space nearby as a habitat pile.
<p><u>Shrub and scrub planting</u></p>	<ol style="list-style-type: none"> 1. Planting will be undertaken between November and March. 2. In areas where shrub planting is required to establish quickly for screening purposes, weed growth should be treated using a glyphosate based herbicide. Within the rest of the site the new tree and shrub planting will be left to develop naturally. No herbicide will be used unless considered absolutely necessary by the supervising ecologist. 3. All dead and dying specimens to be replaced on a like for like basis for the first five years. 4. Planting areas should be cut annually; no more than one third of the resource should be cut to ensure a continuous supply of flowers and fruits. 5. Management should ensure that shrub planting does not encroach onto main grassland areas by annual removal of saplings if required, stumps should be spot treated with a target herbicide to prevent re-growth.

Habitat	Prescription
<u>Bat Boxes</u>	<ol style="list-style-type: none"> 1. Bat box installation should be agreed and follow the recommendations set out in the Natural England European Protected Species Licence. 2. Bat boxes should be monitored annually for damage, should boxes be damaged, an experienced ecologist or licensed bat worker should be contacted, as all bats and their roosts are protected by statute.
<u>Amenity grassland (Turf)</u>	<ol style="list-style-type: none"> 1. Mow grass as required to desired height circa 50 mm. Leave longer un-mown grass around tree bases. Mowing regime to be agreed with the supervising manager on site. 2. Spot treat invasive weeds using a glyphosate based herbicide. Care must be taken to ensure only the target plants are affected.
<u>Amenity grassland (Seed)</u>	<ol style="list-style-type: none"> 1. Sow selected and preferred areas with seed mix during spring or autumn. 2. Undertake the first cut when grassland reaches 100 mm, then mow 2-3 times in the first year. 3. Once established, mow as required leaving longer un-mown grass at the woodland and scrub edges, hedgerows tree bases to minimise risk and damage to roots and provide micro habitats. Mowing regime to be agreed with the supervising manager on site. 4. Remove arisings approximately 48 hours after mowing to encourage seed drop, allow invertebrates to move back into sward and to prevent nutrient enrichment to the soil. 5. Arisings should be placed in a designated area within the site to provide breeding and hibernacula habitat for fauna that could potentially use the site. 6. Avoid the use of grassland fertilisers (these encourage the rapid growth of a small number of highly competitive species). Spot treat invasive weeds using a glyphosate based herbicide. Care must be taken to ensure only the target plants are affected.

Habitat	Prescription
<u>Other Fauna</u>	<ol style="list-style-type: none"> 1. Maintain dead wood piles in appropriate wooded areas or at marginal grassland to provide basking, shelter and hibernation opportunities for fauna and interest for saproxylic plants. 2. Maintain composting piles as sheltering and breeding habitat for local fauna in suitable locations. 3. Where health and safety allows maintain standing dead wood as a further habitat niche for fauna, including birds.
<u>Other</u>	<ol style="list-style-type: none"> 1. Litter should be removed from the site as part of the general management and maintenance visits.

7.0 MONITORING

- 7.1. In order to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, all habitats should be monitored every two years to check establishment. Results of this monitoring should be used to inform annual changes to the management plan, and at the end of the five-year rolling work programme. The prescriptions provided here are for overall guidance and should not be set in stone. Prescriptions should be altered if required. The management plan should run for a period of twenty years, the five year work programme will be reviewed at the end of the five year period and new five year programme set.

8.0 FIVE YEAR WORK PROGRAMME

Description of works	Active Month												Active Year					
	J	F	M	A	M	J	J	A	S	O	N	D	1	2	3	4	5	5+
<u>Woodland, trees, hedgerow, shrub</u>																		
1. Tree, hedgerow, shrub planting.																		
2. Inspect tree, shrub and hedgerow planting annually and replace dead specimens during winter.																		
3. Cut one half of each hedgerow per year.														1 st 1/2	2 nd 1/2	1 st 1/2	2 nd 1/2	etc
4. Native shrub and planting areas should be cut annually, no more than 1/3 of the resource should be cut to maintain a continuous supply of flowers and fruits.	When appropriate for species																	
5. Trees to be inspected for signs of disease and damage by arborist or tree surgeon.																		
6. Ensure scrub does not encroach into grassland.																		

Description of works	Active Month												Active Year					
	J	F	M	A	M	J	J	A	S	O	N	D	1	2	3	4	5	5+
7. Thin woodland planting																		
<u>Wildflower, wet and seeded amenity grassland</u>																		
1. Sow seed mix																		
2. Mow grassland once it reaches 100mm.																		
3. Once established, mow wildflower and wet grassland once or twice annually.																		
4. Once established mow amenity grassland as required leaving longer grass at woodlands edge.	As required																	
4. Remove arisings within 48 hours to a designated compost area.	As required																	
5. Spot treat invasive weeds using a glyphosate based herbicide.	As required																	
<u>Flush</u>																		

Description of works	Active Month												Active Year						
	J	F	M	A	M	J	J	A	S	O	N	D	1	2	3	4	5	5+	
1. Strim once a year in September with arisings left for 48 hours before removal to a designated composting area.																			
2. Spot treat invasive weeds using a glyphosate based herbicide.	As required																		
<u>Amenity grassland</u>																			
1. Lay turf as per supplier's specifications.																			
2. Once established, mow grassland to desired height circa 50mm.																			
3. Spot treat invasive weeds using a glyphosate based herbicide.	As required																		
4. Remove arisings within 48 hours to a designated compost area.	As required																		
<u>General</u>																			
1. Monitor management plan every other year and use results to inform future management.																			

Description of works	Active Month												Active Year						
	J	F	M	A	M	J	J	A	S	O	N	D	1	2	3	4	5	5+	
2. Bat box installation should follow the specifications in the Natural England EPS Licence.	As required																		
3. Any bat boxes erected should be monitored for damage. Should boxes be damaged, an experienced ecologist or licensed bat worker should be contacted regarding advice and potential replacement as all bats and their roosts are protected by statute.																			
4. Litter picking as required																			