



Oxfordshire
Highways

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Oxfordshire Highways

Cogges Link Road Hedgerow Survey

B0834600/Doc/CLR/20 April 2008

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Oxfordshire Highways
Cogges Link Road
Hedgerow Survey

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Executive Summary

- A hedgerow survey was undertaken to determine the importance of hedgerows present in the Cogges Link Road (CLR) study area, in relation to the UKBAP and the Hedgerow Regulations 1997.
- The hedgerows in the area were generally found to be well established and species rich, with hawthorn and blackthorn dominant species.
- Since the revision of the UKBAP list in 2007, all of the hedgerows now qualify as UKBAP habitats.
- Six hedgerows are classed as 'important' under the Hedgerow Regulations (1997).
- In total, 140 metres of hedgerow will be lost through the construction of the Cogges Link Road. Forty metres of this is considered as important under the Hedgerow Regulations.
- Hedgerows should be planted along the length of the CLR in mitigation. A management regime should be put in place to ensure that they remain favourable habitat for birds and dormice.
- Although there will be a short term impact, there is the potential for long term ecological benefit. This would occur if a greater length of hedgerow is planted than is lost, and if appropriate management occurs.

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1. Introduction

1.1 Background

- 1.1.1 Oxfordshire Highways is proposing to build the Cogges Link Road (CLR). The road would traverse a number of habitat types including scrub, rough grassland, hedgerows, arable farmland and rivers/streams.
- 1.1.2 A hedgerow survey of the CLR site was commissioned in 2003 to determine the importance of hedgerows present in relation to the Hedgerows Regulations 1997. This updates an initial survey that was undertaken in 2002 (included for completeness in Appendix 1).

1.2 Ecological Background

- 1.2.1 Hedgerows are important habitats in their own right. They are a primary habitat for at least 47 species of conservation concern in the UK, including 13 globally threatened or rapidly declining ones. This is more than most other key habitats (Oxfordshire BAP 2003). They are particularly important for butterflies and moths, farmland birds, bats and dormice. They may also act as wildlife corridors for many species such as reptiles and amphibians, allowing dispersal and movement between other habitats.
- 1.2.2 The Hedgerow Regulations 1997 (SI 1997/1160) (MAFF 1997) are to protect 'important' hedgerows in the countryside by controlling their removal through a system of notification. It is a system controlled by the Local Planning Authority.
- 1.2.3 A review of the Habitats and Species lists has been carried out and was published in June 2007 (Report on the Species and Habitats Review, Biodiversity Information and Reporting Group). Species and habitats were selected through the application of criteria based on international importance, rapid decline and high risk. As a result of the review all hedgerows are classed as priority habitat in the UK Biodiversity Action Plan. As such, it is a Habitat of Principal Importance for the Conservation of Biodiversity in England under Section 74 of the Countryside and Rights of Way Act 2000. This places a duty on all government departments to have regard for the conservation of hedgerows and on the Secretary of State to further, or promote others to further, the conservation of these habitats.
- 1.2.4 The Oxfordshire Biodiversity Action Plan identifies habitats which are priority for nature conservation in the county. Ancient and/or species-rich hedgerows are considered to be a priority habitat.

- 1.2.5 The hedgerows regulations are currently under review and the following assessment is made both under the existing regulations and under the proposed changes to the regulations.

1.3 Survey Objectives and Limitations

- 1.3.1 The objectives of the survey were to assess whether the hedgerows would:

- Qualify as species rich hedgerows under the UK BAP. The review of the UKBAP (Biodiversity Information and Reporting Group 2007) has now resulted in all hedgerows being classed as priority habitat.
- Qualify as 'important' under the Hedgerows Regulations 1997 as they currently stand.
- Qualify as 'important' under proposed changes to the Hedgerows Regulations 1997 (DEFRA 2003).
- To assess the impacts of the CLR on hedgerows.
- To propose suitable mitigation and compensation measures for any hedgerows to be lost.
- The survey was undertaken in October which is too late in the year to record any ground flora, however, it was still in time to record the woody species present. The survey was only to record the ecological features of the hedgerows and not the archaeological features.

1.4 Updates since 2003

- 1.4.1 The 2003 survey remains valid, as the species composition will not have significantly altered over the four year period to 2007. Although the survey was carried out at a time when woodland species would not be readily apparent, analysis of data in Table 3 indicates that none of the hedgerows not currently classified as important, would move into the important category through the possession of woodland flora at their base.
- 1.4.2 The presence of UKBAP or protected species has also been covered as part of other ecological surveys carried out in 2005 and 2006, as their presence is another criteria through which a hedgerow could be classified as important. Checks were also made to ensure that all the hedgerows surveyed in 2003 are still extant.

2 Methodology

2.1 General Methodology

2.1.1 The survey areas were defined by 100 metres around the proposed route as shown on Figure 1.

2.2 Hedgerow Survey

2.2.1 The methodology follows that set out in the Hedgerow Survey Handbook (Bickmore 2002). This methodology is designed for County-wide surveys of hedgerows, however it has been tailored to the needs of this project and all hedgerows were surveyed rather than looking at randomly selected hedgerows.

2.2.2 The hedgerows within the study area have been numbered H1-H18. The numbering followed that of the previous survey undertaken by Babbie in 2002 (Appendix I). Under the methodology adopted a hedgerow ends at a junction with another hedgerow. Thirty metre lengths were selected for surveying. For a hedge under 100m, the second 30m length was surveyed, while for hedgerows under 60m the sample section will always include the end of the hedge.

2.2.3 Survey forms were completed for each section. These note data such as adjacent land use, any banks, ditches or fences, as well as the height and width of the hedge. The number of hedgerow trees are counted for the entire hedge length, but within each section the percentage of woody species was calculated and the ground flora was counted within two quadrats at points 10 and 20m along the sampled 30m length.

2.3 Assessment under the Hedgerows Regulations

2.3.1 Hedgerow features were recorded in order to allow assessment under the Hedgerows Regulations 1997. All hedgerows that were to be directly affected by the development of the link road were surveyed.

2.3.2 For every 100m length of hedgerow a 30m sample section was surveyed. The different woody species and woodland ground flora that appear on Schedule 3 of the Hedgerows Regulations were noted.

2.3.3 Other features such as ditches, banks and connecting hedgerows were also noted. They were then compared to existing Hedgerow Regulations 1997 and the proposed changes to the Hedgerow Regulations 1997 to determine whether they would be considered 'important' or not.

2.4 Dates of Survey

2.4.1 The survey was undertaken on 9 and 14 October 2003.

3 Results

- 3.1 A total of 18 different shrub layer species were recorded, with seven different tree species. A full species list can be found in Table 1.
- 3.2 A total number of 23 woody species from Schedule 3 of the Hedgerow Regulations were recorded and identified to species level, with only one species of ground flora still present at the time of survey. A complete species list can be found in Table 2.
- 3.3 The hedgerows are generally well established and relatively species rich. 13 out of the 18 hedgerows had five or more woody species – H1, H3, H5 - H8, H11 - H16. These hedgerows form boundaries to both fields and roads.
- 3.4 The hedgerows were predominantly hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*, with additional elder *Sambucus nigra*, field maple *Acer campestre*, rose *Rosa spp* and English elm *Ulmus procera*.
- 3.5 H9 was a relatively recently planted hedgerow that forms part of the landscape planting for the A40. It was dominated by hawthorn with a small amount of blackthorn and ash, and had recently been managed.
- 3.6 H2 is a road boundary that was dominated by hawthorn, with a very small amount of brambles.
- 3.7 H4 forms a field boundary; it is dominated by hawthorn and blackthorn with a small amount of elder.
- 3.8 The ground flora varied between hedgerows: some were dominated by grasses and coarser herbaceous species such as creeping thistle H2, H3 and H13, but the most common were brambles H4, H7, H11, H12a and H17, or bare ground and leaf litter H1, H5-H9, H14 - H16.
- 3.9 Eleven of the hedgerows had at least one tree, the most common of which were ash *Fraxinus excelsior*, field maple *Acer campestre*, sycamore *Acer pseudoplatanus* and oak *Quercus robur*.
- 3.10 The bullfinch *Pyrrhula pyrrhula* is a bird species that is commonly associated with hedgerows. A flock was noted around hedgerow six.
- 3.11 H10 was identified by the previous survey in 2002. This hedgerow had been removed and was not present during the 2003 survey. All hedgerows, apart from H10, were found to still be present in 2006. This was confirmed whilst undertaking other ecological surveys in the area.

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Table 1: Species List and Percentage Composition

| Species | Common Name | Hedgerow | | | | | | | | | | | | | | | | | | | |
|------------------------------|---------------|----------|-----|----|----|----|----|----|----|-----|----|----|-----|-----|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 | |
| SHRUB LAYER | | | | | | | | | | | | | | | | | | | | | |
| <i>Fraxinus excelsior</i> | Ash | | | | | | | | | 5 | | | | | | | | 5 | | | |
| <i>Prunus spinosa</i> | Blackthorn | | | 40 | 35 | 60 | 70 | | 30 | 10 | | | 10 | | | 50 | | 40 | 40 | 70 | |
| <i>Rubus fruticosus agg.</i> | Brambles | | 5 | 5 | 30 | 30 | 10 | 70 | 30 | 10 | | 10 | 10 | | | 40 | 95 | 10 | 40 | | |
| <i>Malus sylvestris</i> | Crab apple | | | | | 20 | | | | | | 30 | 5 | 5 | | | | | | | |
| <i>Sambucus nigra</i> | Elder | | | | | 5 | | 5 | | | | 5 | 5 | 5 | | | | | | | |
| <i>Ulmus procera</i> | Elm (English) | 10 | | | | | | | 30 | | | | | 50 | 20 | | | | 30 | 30 | |
| <i>Acer campestre</i> | Field maple | | | | | 5 | | | | | | | | | 30 | 10 | | | 5 | 20 | 10 |
| <i>Viburnum opulus</i> | Guelder Rose | | | | | | | | | | | | | | | 5 | | | | | |
| <i>Crataegus monogyna</i> | Hawthorn | 90 | 100 | 60 | 35 | 20 | 30 | 25 | 5 | 100 | | 60 | 30 | 30 | 70 | 40 | 5 | 10 | 20 | 20 | |
| <i>Corylus avellana</i> | Hazel | | | | | 5 | | | | | | | 1 | | 30 | | | | | | |
| <i>Ilex aquifolium</i> | Holly | | | | | | | | | | | | | | | | | | | | |
| <i>Hedera helix</i> | Ivy | | | | | | | | | | | | 1 | 10 | | | | | | | |
| <i>Quercus sp.</i> | Oak | | | | | | | | 10 | | | | | | | 1 | | | | | |
| <i>Rosa sp.</i> | Rose (Field) | | | | | 10 | 10 | 10 | 5 | | | 15 | 1 | | | 1 | | | | | |

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| Species | Common Name | Hedgerow | | | | | | | | | | | | | | | | | | |
|------------------------------|---------------|----------|---|------|---|------|---|-----|---|---|----|-----|-------|------|----|----|----|------|------|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 |
| <i>Euonymus europaeus</i> | Spindle | | | 10 | | 5 | | | | | | | | | | | | | | |
| <i>Salix fragilis</i> | Crack willow | | | | | | | | | | | | | | | | | 5 | | |
| <i>Salix cinerea</i> | Grey willow | | | | | | | | | | | | | | | | | 30 | | |
| <i>Populus tremula</i> | Aspen | | | | | 4 SM | | | | | | | | | | | | | | |
| <i>Populus balsamifera</i> | | | | | | | | | | | | | | | | | | | | |
| <i>Ligustrum ovalifolium</i> | Garden privet | | | | | | | | | | | | | | 20 | | | | | |
| <i>Solanum dulcamara</i> | Bittersweet | | | | | | | | | | | | | | | | | | | |
| <i>Prunus sp</i> | | | | | | | | | | | | | | | | | | | | |
| conifers | | | | | | | | | | | | | | | | | | | | |
| Hedgerow gaps | | | | | | | | | | | | | | | | | | | | |
| HEDGEROW TREES | | | | | | | | | | | | | | | | | | | | |
| <i>Fraxinus excelsior</i> | Ash | | | 5 SM | | | | | | | | | | 3 SM | | | | 2 SM | | |
| <i>Ulmus procera</i> | Elm (English) | | | | | | | | | | | | 15 SM | | | | | | 1 SM | |
| <i>Quercus sp</i> | Oak | | | 1 SM | | | | 1 M | 7 | | | 1 M | | | | | | | | |

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| Species | Common Name | Hedgerow | | | | | | | | | | | | | | | | | | | |
|------------------------------|--------------|----------|-------|-------|------|------|---|------|------|---|----|----|-----|------|----|------|-------|------|------|------|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 | |
| <i>Acer pseudoplatanus</i> | Sycamore | | | | | | | | | | | | | 1 SM | | 2 SM | | | | 1 SM | |
| <i>Salix sp.</i> | Willow | | | | | | | | 1 | | | | | | | | | | | | |
| <i>Salix fragilis</i> | Crack willow | | | | | | | | | | | | | | | | | | | 1 M | |
| <i>A. campestre</i> | Field Maple | | | 7 SM | | | | | | | | | | 1 SM | | | 10 SM | 6 SM | 2 SM | 3 SM | 3 SM |
| <i>Platanus sp.</i> | Plane | | | | | | | | | | | | | | | | 1 SM | | | | |
| <i>Populus tremula</i> | | | | | | | | | | | | | | | | | | | | | |
| <i>Populus balsam</i> | | | | | | | | | | | | | | | | | | | | | |
| GROUND FLORA | | | | | | | | | | | | | | | | | | | | | |
| <i>Agrostis sp.</i> | Bent | | 70,70 | 70,80 | | | | | | | | | | | | | 0,20 | | | | |
| <i>Dactylis glomerata</i> | Cocksfoot | | 10,10 | 5,5 | | | | | | | | | | | | | | | | | |
| <i>Elytrigia repens</i> | Couch | | | | 10,0 | | | | | | | | | | | | 0,30 | | | | 0,10 |
| <i>Phleum pratense</i> | Timothy | | 20,20 | 20,20 | | | | | | | | | | | | | | | | | |
| <i>Carex Hirta</i> | Hairy sedge | | | | | 15,0 | | | | | | | | | | | | | | | |
| <i>Galium aparine</i> | Cleavers | | | | | 0,10 | | 0,20 | 50,0 | | | | | | | | 10,20 | | | | 40,40 |
| <i>Anthriscus sylvestris</i> | Cow parsley | | | | | | | | | | | | | | | | 0,5 | | | | |
| <i>Glechoma hederacea</i> | Ground ivy | | | | | | | | | | | | | | | | 40,10 | | | | |

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| Species | Common Name | Hedgerow | | | | | | | | | | | | | | | | | | |
|------------------------------|-------------------|----------|-------|------|--------|------|---|-------|---|---|----|-------|--------|-------|-------|----|----|------|-------|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 |
| <i>Fraxinus excelsior</i> | Ash seedlings | 0,1 | | | | | | | | | | | | | | | | | | |
| <i>Urtica dioica</i> | Nettle | | <4,<4 | | 20,0 | 0,10 | | 20,0 | | | | | 0,40 | 50,10 | 10,15 | | | 0,60 | 5,10 | |
| <i>Cirsium arvense</i> | Thistle (cr.) | | | | | | | | | | | | | | 40,0 | | | | | |
| <i>Epilobium hirsutum</i> | Great willow herb | | | | | | | | | | | 30,30 | | | | | | | | |
| <i>Filipendula ulmaria</i> | Meadowsweet | | | | | | | | | | | 10,0 | | | | | | | | |
| <i>Stachys sylvatica</i> | Hedge woundwort | | | | | | | | | | | 0,20 | | | | | | | | |
| <i>Heracleum sphondylium</i> | Hogweed | | | | | | | | | | | 0,10 | | | 10,0 | | | | | |
| <i>Solanum dulcamara</i> | Bittersweet | | | | | | | | | | | | | | | | | | | |
| <i>Rubus fruticosus agg</i> | Bramble | | | | 70,100 | | | 0,100 | | | | 60,30 | 10,100 | 40,0 | | | | | 0,100 | |
| <i>Calystegia sepium</i> | Hedge bindweed | | | | | | | | | | | 5,10 | | | | | | | | |
| <i>Hedera helix</i> | Ivy | | | | | | | | | | | | 60,40 | 40,95 | | | | | 5,0 | |
| <i>Prunus spinosa</i> | Blackthorn | | | 10,0 | | | | | | | | | | | | | | 4,0 | 0,5 | |
| <i>Calystegia sylvatica</i> | Large bindweed | | | | | | | | | | | | | | 0,10 | | | | | |

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Table 2: Woody species from Schedule 3 of the Hedgerows Regulations 1997

| WOODY | Common Name | Hedgerow | | | | | | | | | | | | | | | | | | |
|------------------------------|-------------------|----------|-------|---------|-------|-----|-------|----------|-----|---------------|----|---------|-------|-------|----|----|----|----|----|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 |
| <i>Malus sylvestris</i> | Apple crab | | | | | 1 | | | | | | 1,2 & 3 | 1 | 1 | | | | | | |
| <i>Fraxinus excelsior</i> | Ash | 2 | | 1 | | | | | | 1&3 | | 3 | | | | | | 1 | | |
| <i>Populus tremula</i> | Aspen | | | | | | | | | | | | | | | | | | | |
| <i>Prunus spinosa</i> | Blackthorn | | | 1,2 & 3 | 1 & 2 | 1 | 1 & 2 | 1, 2 & 3 | 1 | 1&2 | | 2 & 3 | 1 | 2 | | 1 | 1 | 1 | 1 | 1 |
| <i>Rhamnus carthartica</i> | Buckthorn | | | | | | | | | | | | 2 | | | | | | | |
| <i>Cornus sanguinea</i> | Dogwood | | | | | | | | 3 | | | 2 | 2 | | | | | | | |
| <i>Sambucus nigra</i> | Elder | | | | 2 | 1 | | 1 | | | | 1 | 1&2 | 1 & 2 | | | | | 1 | |
| <i>Viburnum opulus</i> | Guelder rose | | | | | | | | | | | | | | 1 | | | | | |
| <i>Crataegus monogyna</i> | Hawthorn | 1&2 | 1,2&3 | 1,2&3 | 1&2 | 1&2 | 1,2&3 | 3 | 1&3 | 1,2,3,4,5 & 6 | | 1,2 & 3 | 1 & 2 | 1 & 2 | 1 | 1 | 1 | 1 | 1 | 1 & 2 |
| <i>Prunus cerasifera</i> | Cherry plum | | | | | 1&2 | | | | | | | | | | | | | | |
| <i>Malus domestica</i> | Apple | 1 | | | | | | | | | | | | | | | | | | |
| <i>Corylus avellana</i> | Hazel | | | | | 1 | | | | | | | 1 | 1 & 2 | 1 | | | | | |
| <i>Ilex Aquifolium</i> | Holly | | | | | | | | | | | | | | | | | | | |
| <i>Acer campestre</i> | Maple, field | | | 1,2&3 | | 1&2 | | 1 | | | | | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| <i>Quercus robur</i> | Oak, pendunculate | | | 1 | | | | | 1&3 | | | 2 | | | | 1 | | | | |
| <i>Quercus petraea</i> | Oak, sessile | | | | | | 3 | | | | | | | | | | | | | |
| <i>Ligustrum vulgare</i> | Privet, wild | | | | | | | 3 | | | | | | | | | | | | |
| <i>Ligustrum ovalifolium</i> | privet, garden | | | | | | | | | | | | | | 1 | | | | | |
| <i>Rosa spp</i> | Rose | | | | | | 1&2 | | 1 | | | 1,2 & 3 | 1 | | | 1 | | | | |

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| WOODY | Common Name | Hedgerow | | | | | | | | | | | | | | | | | | | |
|--|-----------------|----------|---|---|---|-----|-----|-----|-----|---|----|----|-------|-------|----|----|----|----|----|----|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 | |
| <i>Euonymus europaeus</i> | Spindle | | | 1 | | 1&2 | | | | | | | | | | | | | | | |
| <i>Salix fragilis</i> | Willow, crack | | | | | | | | | | | | | | | | | | 1 | | |
| <i>Salix cinerea</i> | Willow, grey | | | | | | | | | | | | | | | | | | 1 | | |
| <i>Ulmus Procera</i> | English elm | 1 | | | | | 1&2 | 2&3 | 1&3 | 2 | | | 1 & 2 | 1 & 2 | | | | | | 1 | 2 |
| <i>Ulmus sp.</i> | | 2 | | | | | | | | | | | | | | | | | | | |
| <i>Acer pseudoplatanus</i> | Sycamore | | | | | | | | | | | | | 2 | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| GROUND FLORA (WOODLAND SPECIES) | | | | | | | | | | | | | | | | | | | | | |
| | Hedge woundwort | I | | | | | | | | | | | | | | | | | | | |

1 - Present up to 100m

2 - Present up to 100-200m

3 - Present up to 200-300m

4 - Present up to 400-500m

5- Present up to 500-600m

6- Present up to 600-700m

4 Evaluation

4.1 Basis for evaluation

4.1.1 The results will be evaluated under three sets of criteria:

- The UKBAP Habitat Action Plan for determining ancient and/or species-rich hedgerows (Appendix I).
- The current Wildlife and Landscape criteria of the Hedgerow Regulations (Appendix II).
- The proposed changes to the Hedgerows Regulations (Defra 2003). Appendix III contains information relating to the proposed changes, which amend the criteria necessary for a hedgerow to be classified as 'important'. These have yet to be implemented.

4.2 Evaluation

4.2.1 Generally the thick and high hedgerows H1, H3 H5-H8, H11, H12a, H12b and H16, which form field boundaries to the east of the River Windrush, are relatively species rich and are likely to support a good range of fauna particularly invertebrates and breeding birds, and may also be good habitat for dormice. They are well connected and form a locally valuable network of hedgerows.

4.2.2 The more managed hedgerows H9, H17 and H18 alongside the A40 are species poor and are likely to support a much less varied fauna. They have some value as connections between other areas of semi-natural habitat, but are mainly of low importance for nature conservation.

UK BAP Criteria

4.2.3 Under the criteria that were current at the time of the surveys (Appendix II), 13 hedgerows qualified as ancient and / or species-rich. These comprise H1, H2, H4-H8 and H11-H16, all containing five or more native woody species. Since survey the UKBAP list has been revised. Under the revision all hedgerows are classed as priority habitats.

Current Hedgerow Regulations

4.2.4 The results were also assessed under the current wildlife and landscape criteria of the Hedgerows Regulations (Appendix II).

4.2.5 Under the criteria, six hedgerows out of the 18 qualify as 'important' under

the Regulations, on the basis of ecological criteria alone (Table 3). These are H5, H11, H12a, H12b, H14 and H16. Of these, H5, H11, H12a, H12b and H16 qualify by containing at least seven woody species, while H14 qualified by containing five woody species and four other features.

Proposed changes to the Regulations

- 4.2.6 Although one hedgerow H12b contained sycamore, it is already considered 'important' for having over seven different woody species, therefore there is no change.
- 4.2.7 The presence of bullfinches, a UKBAP priority species seen using H6, would automatically make this an 'important' hedgerow. The birds may also be resident or breeding all year round in other hedgerows within the survey area, and they would also become 'important' hedgerows if this were the case.
- 4.2.8 In addition to the hedgerow survey, dormouse *Muscardinus avellanarius* surveys have been undertaken in 2003 and 2005 (Babtie, 2004; Jacobs Babtie, Jan & Dec 2005). The dormouse is a UKBAP priority species, and its presence in any hedgerows would make them 'important' with the changes to the Regulations. One dormouse was found in the 2003 survey, however this was in an area of embankment planting along the A40, not a hedgerow that has been surveyed here. Further surveys in 2004 and 2005 did not produce any more records. It is possible that there is a low population density of dormice in some of the hedgerows in the study area; however this has not been conclusively demonstrated by any surveys to date.

Update to the Survey

- 4.2.9 Although the survey was carried out at a time when woodland species would not be readily apparent, analysis of data in Table 3 for those hedgerows H7, H8 and H15 with the potential to be classified as "important" through fulfilling the woodland species criteria indicates that the ground cover consisted primarily of leaf litter, bramble and bare ground. It is therefore assessed that none of the hedgerows not currently classified as important, would move into the important category through fulfilling the woodland species criteria.

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Table 3: Summary of the Wildlife and Landscape criteria for determining an ‘important’ hedgerow

| Criteria | Hedgerow | | | | | | | | | | | | | | | | | | |
|---|----------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12a | 12b | 13 | 14 | 15 | 16 | 17 | 18 |
| Length of hedgerow (metres) | 170 | 240 | 250 | 130 | 120 | 220 | 360 | 290 | 550 | | 260 | 170 | 90 | | 90 | 90 | 90 | 180 | 110 |
| Bank | x | | | | | | x | | x | | | | x | | x | x | x | x | x |
| Ditch | | | | | x | x | | x | | | x | x | x | | x | | x | | |
| Number of woodland connections | | | | | | | | | | | | | 2 | | | | | | |
| Number of hedgerow connections | 1 | 2 | 3 | 3 | 4 | 3 | 4 | 2 | 3 | | 2 | 5 | 2 | | | | 3 | 2 | 1 |
| Parallel hedge within 15 m | | | | | | | | | | | | | | | x | x | | x | x |
| At least 1 standard tree for every 50-metres | | | x | | x | | | x | | | | x | x | | x | x | x | x | x |
| Number of woodland species | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of woody species | 5 | 1 | 6 | 3 | 7 | 5 | 6 | 6 | 4 | | 8 | 10 | 7 | 5 | 5 | 5 | 7 | 4 | 4 |
| | | | | | | | | | | | | | | | | | | | |
| Qualifies under the wildlife and landscape criteria of the Hedgerow Regulations 1997 | | | | | YES | | | | | | YES | YES | YES | | YES | | YES | | |
| | | | | | | | | | | | | | | | | | | | |
| Qualifies under the UK BAP Priority Habitat criteria | YES | | YES | | YES | YES | YES | YES | | | YES | YES | YES | YES | YES | YES | YES | | |

5 Impact Assessment

- 5.1 Table 4 shows the hedgerows to be affected by this route and an approximate length that will be lost. It is considered that an average gap of 20 metres will be required for the road route where it bisects the hedge at 90°. Where the road passes the end of a hedge an average gap of 10 metres will be required.

Table 4: Extent of hedgerow to be lost

| Hedgerow Number | Hedgerows to be affected | | Approximate length of hedgerow to be lost (metres) |
|-----------------|--------------------------|-------------------------------------|--|
| | UK BAP | 'Important' under the Hedgerow Regs | |
| H2 | | | 10 |
| H4 | | | 20 |
| H7 | X | | 20 |
| H8 | X | | 20 |
| H12b | X | X | 20 |
| H13 | X | | 10 |
| H14 | X | X | 20 |
| H15 | X | | 20 |

- 5.2 In total 140 metres of hedgerow will be lost through the construction of the CLR. Of this, 40 metres is considered to be important hedgerow H12b and H14 under the current regulations and 110 metres is considered as species rich hedgerow under the UK BAP criteria as they stood at the time of the surveys, H7, H8 and H12b-H15. All hedgerows are now classed as UKBAP priority habitat.

6 Mitigation and Recommendations

- 6.1 Hedgerows should be planted along the length of the CLR. The length of new hedgerow should be at least 140 metres, equivalent to the length that will be lost.
- 6.2 The species planted should be similar to hedgerows in the locality, of native and local origin (southern England), predominantly hawthorn and blackthorn, with field maple, elder, ash, rose and hazel. Tree species should include ash, pedunculate oak and field maple.
- 6.3 To benefit dormice, which have been recorded in the area, the percentage of hazel in the hedgerow should be increased and bramble should be included in the species list.
- 6.4 Some hedgerows should be managed, with a proposed rotational cutting regime of each side every two years, with the cut not being too severe. This will enable fruit to grow, which is favoured by the birds and the dormice.
- 6.5 The hazel should be coppiced every 15-20 years; this will enable the tree to produce nuts for the dormice.
- 6.6 General recommendations made as part of the Babbie 2002 report are included in Appendix I.

7 Residual Impacts

- 7.1 The proposed route will result in the loss of 140 metres of hedgerow, 110 metres of which is classified as species rich under the UK BAP (as it stood at time of the survey) and 40 metres is classified as 'important' under the Hedgerows Regulations. The proposed mitigation measures involve planting new hedgerow along the route, of a total length of 870m.
- 7.2 Although there will be a short term impact, particularly on the fauna associated with the hedgerows, there is potential for long term benefit if the hedgerows are planted and maintained as recommended in Section 6.

References

Anon (1997) The Hedgerows Regulations - Your Questions Answered.
Department of the Environment

Babtie (2002) Witney Cogges Link Phase 1 & 2 Phase 1 Habitat Survey.

Babtie (2004) Cogges Link: Dormice Nest Tube Survey

Bickmore (2002) Hedgerow Survey Handbook, a standard procedure for local surveys in the UK. Prepared on behalf of: steering group for the UK Biodiversity Action Plan for Ancient and/or Species-rich Hedgerows.

DEFRA (2003) Protection of boundary features and amendment of the Hedgerows Regulations 1997, consultation document.

Jacobs Babtie (Jan 2005) Witney Cogges Link, Oxfordshire: Dormouse Survey, Interim Report

Jacobs Babtie (Dec 2005) Witney Cogges Link, Oxfordshire: Dormouse Survey Report

MAFF (1997) The Hedgerows Regulations 1997, a guide to the law and good practice.

Oxfordshire BAP (2003) www.ukbap.org.uk

UK BAP (2003) www.ukbap.org.uk

Biodiversity Information and Reporting Group (June 2007). Report on the Species and Habitats Review.

Figure 1

Appendix I: Hedgerow Survey (Babtie, 2002)

Witney Cogges Link Phase 1&2

Hedgerow Survey

N.B. Information confined to Data and Recommendations sections only from previous report of 2002



Results:

The results of the hedgerow survey carried out for the Witney Cogges link road are summarised below in Table One. The species composition of the hedgerows was generally low with only hedgerows 3, 5 and 12 having five woody species within the thirty metre survey section. Hedgerow 2 was a pure Hawthorn *Crataegus monogyna* hedge. None of the hedgerows surveyed had any species typical of woodland, other than the trees/shrubs, present within the survey areas. Only three of the hedgerows qualified under the Hedgerow Regulations (1997) with respect to the Wildlife Criteria, namely hedgerows 3, 5 and 12.

Recommendations:

- The length of hedgerow to be cleared should be kept to the smallest length possible.
- Any tree felling/scrub clearance will take place during the early autumn (September/ October) or early spring (March/April) to avoid the most vulnerable time of year for bats. If felling works are to take place during March/April, the presence of breeding birds must be fully considered and steps taken to avoid harming them.
- If any mature trees within the corridor of the road are to be felled, they will be checked by a licensed and suitably experienced bat worker prior to felling.
- The areas of hedgerow not to be directly affected by the road scheme will be clearly marked and temporary fencing erected, if necessary, to prevent accidental damage to these by site personnel or machinery.
- In agreement with the Landowners, defunct hedges and those severed by the road scheme will be enhanced and connected to other existing hedgerows using species appropriate to the area and of local provenance where available.
- Again, in agreement with the landowners, a long-term management plan for the hedgerows will be drawn up.

Addendum 2007

Birds

Updated mitigation measures to comply with current best practice includes scheduling works outside the bird nesting season (March to August inclusive) and surveying vegetation prior to removal. Where scheduling does not allow for clearance in the recommended time period a competent ecologist should check potential breeding areas such as vegetation and buildings prior to works. If a nesting bird is present then works should be delayed until the young birds fledge.

Bats

Updated mitigation methods to comply with current best practice includes measures such as

- Having a licensed bat handler present during works to trees with features such as holes, crevices and split branches.
- Cutting ivy at the base of the tree well in advance of works to reduce leaf cover.
- Where a tree has holes, cracks or crevices that have the potential to act as a bat roost sections felling should be undertaken in sections should be lowered down carefully and inspected by an experienced ecologist for the presence of bats.
- Cracks and splits that are in danger of being closed when limbs are removed should be propped open with wedges to prevent bats becoming trapped inside or crushed.
- It is advisable that cut sections are left over night before they are removed, in order that any bats that may have escaped notice have the opportunity to leave the cut sections.
- Bat roosts that are discovered inadvertently in severed tree limbs may be strapped intact to a suitable receptor tree, such that the integrity of the roost is retained. In all cases on discovery of a bat roost, works should be ceased and advice taken from the relevant statutory nature conservation organisation (Natural England, Thames and Chiltern Team).

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Appendix Two: Hedgerow Survey Results

| Hedgerow Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|
| Continuous Length of Hedge over 20 m | x | x | x | x | x | x | | x | x | x | x | x | x |
| Bank | x | | | | | | x | | x | | | x | |
| Ditch | | | | x | x | x | | x | | x | | x | |
| Number of Woodland Connections | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 2 | 0 |
| Number of Hedgerow Connections | 1 | 2 | 3 | 2 | 3 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 0 |
| Parallel hedge within 15 metres | | | | | | | | | | | | | |
| No. Standard trees in 30 metre length | 1 | 0 | 3 | 0 | 3 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 |
| Number of Woodland Species | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Woody Species | 2 | 1 | 5 | 4 | 5 | 3 | 3 | 4 | 1 | 3 | 3 | 5 | 3 |
| <i>Acer Campestre</i> (Field Maple) | | | x | | x | | | | | | | x | x |
| <i>Cornus sanguinea</i> (Dogwood) | | | | | | | | | | | x | | |
| <i>Corylus avellana</i> (Hazel) | | | | | | | | | | | x | | x |
| <i>Crataegus monogyna</i> (Hawthorn) | x | x | x | x | x | x | x | x | x | x | | x | x |
| <i>Fraxinus excelsior</i> (Ash) | | | x | | | | | | | | | | |
| <i>Populus alba</i> (White Poplar) | | | | | x | | | | | | | | |
| <i>Prunus spinosa</i> (Blackthorn) | | | x | x | x | x | | x | | | | x | |
| <i>Quercus robur</i> (Pendunculate Oak) | | | | | | | | x | | x | | | |
| <i>Rhamnus carthartica</i> (Buckthorn) | x | | | | x | | | | | | | | |
| <i>Rosa</i> sp (Rose species) | | | | x | | x | x | | | x | | | |
| <i>Salix</i> sp (Willow species) | | | | | | | | x | | | | | |

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| Hedgerow Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|------------|---|------------|---|---|---|---|----|----|------------|----|
| <i>Sambucus nigra</i> (Elder) | | | | x | | | x | | | | x | x | |
| <i>Ulmus</i> sp (Elm species) | | | | | | | | | | | | x | |
| <i>Viburnum opulus</i> (Guelder Rose) | | | x | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Qualifies Under the Wildlife Criteria of the Hedgerow Regulations (1997) | | | Yes | | Yes | | | | | | | Yes | |

Appendix II: Criteria given in the UK BAP for determining Ancient and/or species-rich hedgerows (this has been superseded by UKBAP review 2007)

Ancient hedgerows, which tend to be those which support the greatest diversity of plants and animals, may be defined as those which were in existence before the Enclosure Acts, passed mainly between 1720 and 1840 in Britain and from the mid seventeenth century in Ireland. Species-rich hedgerows may be taken as those which contain 5 or more native woody species on average in a 30 metre length, or 4 or more in northern England, upland Wales and Scotland. Hedges which contain fewer woody species but a rich basal flora of herbaceous plants should also be included but practical criteria for identifying them have yet to be agreed. Many of the thin straight hawthorn hedges which characterise later parliamentary enclosures, as well as most hedges which consist mainly of beech, privet or yew or non-native trees, are excluded. Recently planted species-rich hedges are included.

<http://www.ukbap.org.uk/UKPlans.aspx?ID=7>

Appendix III: Schedules 1-4 of the Hedgerow Regulations

Criteria (1997) for determining 'Important' Hedgerows

Summary of the Eight Wildlife and Landscape Criteria Required to qualify under the Hedgerow Regulations

1. Marks a pre 1850 parish or township boundary
2. Incorporates an archaeological feature
3. Is part of, or associated with an archaeological site
4. Marks the boundary of, or is associated with, a pre-1600 estate or manor
5. Forms an integral part of a pre-Parliamentary enclosure field system
6. Contains categories of species of birds, animals or plants listed in the Wildlife and Countryside Act or Joint Nature Conservation Committee (JNCC) Publications
7. Includes:
 - (a) At least 7 woody species, on average, in a 30 metre length;
 - (b) At least 6 woody species, on average, in a 30 metre length and has at least three associated features;
 - (c) At least 6 woody species, on average, in a 30 metre length, including a black-poplar tree or a large-leaved lime or small-leaved lime or wild service tree;
 - (d) At least 5 woody species, on average, in a 30 metre length and has at least 4 associated features.

The number of woody species is reduced by one in northern counties. The list of 56 woody species comprised mainly shrubs and trees. It generally excludes climbers (such as clematis, honeysuckle and bramble) but includes wild roses.

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8. Runs alongside a bridleway, footpath, road used as a public path, or a byway open to all traffic and includes at least 4 woody species, on average, in a 30 metre length and has at least 2 of the associated features listed at (a) to (e) below.

The associated features are:

- (a) A bank or wall supporting the hedgerow;
- (b) Less than 10% gaps;
- (c) On average, at least one tree per 50 metres;
- (d) At least three species from a list of 57 woodland plants;
- (e) A ditch;
- (f) Four or more connections with other hedgerows, ponds or woodlands; and
- (g) A parallel hedge within 15 metres.

Modified From Anon (1997) *The Hedgerows Regulations - Your Questions Answered*. Department of the Environment

Appendix IV: Proposed changes to the Hedgerows Regulations 1997 (DEFRA 2003).

A full review of the Hedgerows Regulations took place in 2003/4. The consultation document for that review, and a summary of stakeholders' views, may be found at: <http://www.defra.gov.uk/corporate/consult/hedge/index.htm>

Proposed changes to the Hedgerows Regulations 1997 (Defra 2003)

□ The Government Proposes to take account of the local distinctiveness of hedgerows through changes to the 1997 Hedgerows Regulations, though we would invite views on the alternative of amending primary legislation to allow local authorities greater discretion in assessing the importance of hedgerows.

□ The Government proposes to amend the Environment Act 1995, when Parliamentary time permits to allow local planning authorities when determining whether a hedgerow is 'important' to have regard to records maintained by local authority controlled record centres.

□ The Government proposes to accept the Review Group's recommendations to:

- Introduce a limit of 9 metres on the length of hedgerow that may be removed, without first seeking the consent of the local planning authority, in order to make a new opening in substitution for an existing opening that gives access land; and
- Allow the widening of an existing opening, without need for the consent of the local planning authority, to a maximum of 9 metres.

□ The Government proposes to amend regulation 5(7) of the Hedgerows Regulations 1997 so that it is necessary to specify in a hedgerow retention notice at least one criterion of those listed in Schedule 1 which applies to the hedgerow.

By amending the Guide to the Law and Good Practice, we propose to advise local planning authorities that it is not necessary for a site visit to take place in cases where a decision to issue a hedgerow retention notice is taken on the basis of checks that may be carried out without one.

On the other hand, we propose to say in the Guide that decisions to allow the removal of a hedgerow should only be taken following a site visit and a check against all of the criteria in Schedule 1 to the Regulations.

□ The Government proposes to amend the Hedgerows Regulations 1997 so that certain types of hedgerow – which would be listed and defined in a new schedule to the Regulations – are classified as 'important' for reasons of their local-distinctiveness. They propose to include in the proposed schedule all 28 hedgerow types listed in Part A of Annex E to this document, or as many thereof as we are able to provide satisfactory definitions for.

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□ The Government proposes to amend the Hedgerows Regulations 1997 so that a hedgerow is classified as 'important' if it marks the boundary of a highway (i.e. any road or public right of way).

□ The Government proposes that a hedgerow should be classified as 'important' if it is recorded at the relevant date in a Sites and Monument Record, or other document held at a Record Office, as marking the boundary of part of the boundary

- A pre-1859 AD historical administrative unit (meaning parish, township, hundred, wapentake, cantref or maerdref); or

- A pre-1600 AD manorial estate, ecclesiastical estate, or the outer limits of field systems, parks, woods or common land.

□ The Government proposes that a hedgerow should be classified as 'important' if it is recorded in a document held at the relevant date at a Record Office as an integral part of a field system dating from before 1845, or in the case of an enclosure field system from before 1870.

□ The Government intends to amend the Hedgerows Regulations 1997 so that any hedgerow that includes at least five woody species listed in Schedule 3 thereto (or at least four if the hedgerow is in northern England) is classified as 'important'.

□ On the basis of the Review Group's report the Government proposes to add sycamore, Scots pine, sweet chestnut and barberry to the list of woody species in Schedule 3 to the current Regulations.

□ The Government proposes that a hedgerow should be determined to be 'important' if any UK BAP priority species are, or according to a record held at the relevant date in a local authority biological record centre, have been, within the relevant period, resident or breeding in the hedgerow. The relevant period should be 5 years and 10 years prior to the date of service of the hedgerow removal notice for animals and plants respectively.

□ The Government's view is that a hedgerow's connections with other countryside features do not provide a sufficient reason for classifying it as 'important'.

□ The Government proposes to retain the provision in the 1997 Regulations which requires a hedgerow to have existed for 30 years before it can be regarded as important.

□ The Government proposes to amend the Regulations to allow removal of a hedgerow if 56 days (rather than the current 42 days) have expired since the B0834600/Doc/PA/CLR/20

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hedgerow removal notice was received by the local planning authority and that authority had not issued a hedgerow retention notice. They also propose that the period of 56 days may be extended by agreement between the parties.

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Supplementary Consultation

A Supplementary Consultation in 2006 was confined solely to seeking views on how to deal with the potential overlap between the controls in the Hedgerows Regulations and those in the proposed Environmental Impact Assessment (EIA) (Agriculture) Regulations

<http://www.defra.gov.uk/corporate/consult/eia2005/consult.pdf>

Revision of the Hedgerows Regulations 1997

This will resolve the overlap with the new EU measures to be brought into effect in January 2007 via the new Environmental Impact Assessment (Agriculture) (England) Regulations.