

LANCASHIRE COUNTY COUNCIL

**CALLED IN PLANNING APPLICATION FOR
PROPOSED HEYSHAM TO M6 LINK ROAD**

LAND TO THE NORTH OF LANCASTER BEGINNING AT THE
END OF THE A683 HEYSHAM TO M6 LINK PHASE 1 AND
RUNNING IN AN EASTERLY DIRECTION TO CONNECT WITH
THE M6 AT JUNCTION 34 OF THE M6

Planning Inspectorate reference:
APP/Q2371/V/07/1200928 and
APP/Q2371/V/07/1200929

LPA reference:
01/05/1584

PROOF OF EVIDENCE
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ADAS SENIOR ECOLOGIST

ECOLOGY DETAILS

June 2007

1 INTRODUCTION

1.1 I am Barry Wright, a senior Wildlife Consultant with ADAS. I hold a BSc (Hons) Zoology degree from the University of Hull and have worked for ADAS dealing with ecological and pest matters for the past 25 years. Since 1987 I have worked more extensively with environmental and conservation issues including monitoring government-funded Environmentally Sensitive Area schemes. This included detailed vegetation monitoring and recording in a wide range of habitats from lowland hay meadows through to upland heaths and acidic grasslands. I also managed and assisted with monitoring the impact of these schemes on breeding waders and yellow wagtails.

1.2 As part of the consultancy commissioned by the Department of the Environment I was on the steering committee during the process of devising and testing the ecological criteria that were incorporated into the Hedgerow Regulations 1997.

1.3 More recently I had been involved in various major civil engineering schemes for National Grid (installing a new power line in the Vale of York), McAlpine's (installing a new gas pipeline in Lancashire) and I am the project ecologist working for Lancashire County Council assessing the ecological impacts of this proposed link between Heysham and the M6 Motorway to the north of Lancaster.

This included determining the presence of protected animal species and minimising the impact of scheme.

2 SCOPE OF EVIDENCE

- 2.1 The scope of my evidence is an assessment of the current ecological status of the proposed scheme. This includes a description of the ecological resource, details of the expected impact of the scheme on the receptors identified and a description of the proposed mitigation and compensation strategy.

3 SURVEY AND EVALUATION METHODS

- 3.1 The wildlife likely to be impacted upon ranged from individual species through groups of species to wildlife habitats. Each of these is referred to as a receptor using, Institute of Ecology and Environmental Management 2002, guidelines (Core Document LCC 64). This term is used in the process of survey and assessment as an over-arching description. Although more recent guidance is available, the assessments were done using the 2002 method and this was judged to be more appropriate to ensure consistency in terminology between the different specialist ecologists involved in conducting the ecological surveys.

- 3.2 An extensive suite of surveys was commissioned by Lancashire County Council in order to determine the likely impact on wildlife within, and beyond, the scheme corridor. ADAS were appointed to

do this work and provide the mitigation and compensation guidance in the form of an environmental management plan.

- 3.3 Various areas of survey were defined in this process. These were of different sizes to reflect the different requirements and characteristics and ranges of predicted receptors.
- 3.4 The largest area under consideration was denoted as the Desk Study Area. This extended to a buffer of approximately 2 kilometres around the scheme footprint. This area was considered in the context of known records and data of species that may be adversely impacted upon from an area outside of the immediate footprint.
- 3.5 For general surveying purposes for wide-ranging species an area referred to as the Field Survey Area, approximately 1 kilometre around the scheme footprint, was defined within which other, specialised, survey boundaries were defined. These included a Pond Survey Area and Hedge Survey Area. These boundaries were also used to define survey areas for other receptors. For example the bird survey was conducted within the area defined as the pond survey area.
- 3.6 For each receptor appropriate recognised standards of survey were adopted, and in some cases adapted to fulfil the needs of the environmental assessment required for this project. Individuals within ADAS were given the responsibility for implementing surveys for one or more receptors for which they were qualified to assess.

The one exception was fungi where there was no in-house expert and a suitably qualified expert in this area was subcontracted by ADAS to do this work.

- 3.7 In addition to undertaking the range of surveys originally requested by Lancashire County Council. ADAS identified a number of other receptors during the early part of the survey procedure and surveys for these newly identified receptors were also done. This included veteran trees and freshwater pearl mussel. Some of the original receptors identified had their surveys extended as a result of early results showing that this would be necessary in order to fully characterise the area in terms of its ecological resource.
- 3.8 Surveys that extended the work of the original survey request included bats, bryophytes, aquatic invertebrates, in ponds and ditches, fungi, great crested newts, molluscs, lichens and phase 2 habitat survey.
- 3.9 Surveys of new receptors identified included aquatic invertebrates in flowing fresh waters, freshwater pearl mussel, moths and veteran trees.
- 3.10 A protocol for surveying each receptor was prepared and submitted as part of the report writing procedure.
- 3.11 The overall responsibility for managing and maintaining quality standards was assigned to Barry Wright and Robert Edwards of ADAS.

4 ECOLOGICAL SITE DESCRIPTION

4.1 The majority of the proposed footprint of the road scheme traverses agriculturally improved grassland of relatively low wildlife value. Some areas of ecological value fall within the footprint while other areas of value lie immediately outside and may be impacted upon. The main habitats identified include ditches and streams, ponds, hedgerows, woodland, veteran trees and areas of damp and improved grassland.

4.2 A modified form of the standard JNCC phase 1 habitat mapping was done of the Field Survey Area to characterise the landscape in terms of the pattern, area and distribution of wildlife habitats. This formed the basis for some of the other surveys done as part of the overall project. In particular it provided information needed to extend surveys and suggest new surveys for receptors not initially identified under the scoping for this scheme.

5 IDENTIFICATION AND ASSESSMENT OF IMPACTS, MITIGATION AND COMPENSATION.

5.1 General principles

5.1.1 The results of the surveys identified a number of receptors predicted to be negatively impacted upon. The magnitude, and permanence, of these impacts were identified and are shown in Appendices B and C respectively.

- 5.1.2 Impacts were assessed in terms of their occurrence during the construction and operation phases of the proposed road. Construction impacts are short term in nature whereas operational impacts may be short to medium-term or permanent, in the absence of adequate mitigation or compensation.
- 5.1.3 Having identified impacts the next stage evaluated the significance of the impact in terms of the value of the receptor on a scale ranging from being - of local importance only - to being - of international importance and this is shown in Appendix A. Using a combination of the magnitude of impact and the ecological value of the receptor a level of significance can be derived and this is shown in Appendix D.
- 5.1.4 This evaluation process informed the mitigation and compensation strategy.
- 5.1.5 Significant negative impacts require mitigation. The nature of the mitigation follows a hierarchical preference of:
- a. avoidance -making modifications to the scheme whereby the impact is avoided.
 - b. reduction - aiming to minimise any negative impact identified by altering the scheme or working methods.
 - c. compensation - Where avoidance or reduction is impracticable or unachievable compensation measures are implemented.

5.1.6 On the assumption that the mitigation or compensation measures are implemented and prove effective, the residual impact i.e., post-mitigation can be assessed. This process is adopted for each receptor individually. Additionally, as part of an overview of the project, the cumulative impacts and overall impacts across the entire scheme were also considered. Many of the mitigation and compensation measures designed for one receptor will be beneficial to other receptors as a coincidence. This enables an overall evaluation of the scheme as a whole to be derived.

5.2 Impacts of the scheme

5.2.1 Although, in general, the proposed road scheme crosses land of relatively low ecological value there were a number of areas of significance botanically and also a number of animal receptors identified as being sensitive and requiring mitigation. Since the initial planning application in December 2005 a number of issues have been raised and addressed in order to finalise the mitigation and compensation strategy to ensure that there is no overall net loss of ecological resource resulting from the implementation of the scheme.

5.3 Valley Meadow

5.3.1 One of the critical areas of grassland identified early in the process was an area known as Valley Meadow in a shallow valley associated with Howgill brook. This Meadow was found to contain

a number of uncommon and rare wax cap fungi including 5 species on the British/ European Red Data Lists (Appendices G and H).

- a. *Hygrocybe unguinosa* (syn. *H. irrigata*) – ERDL
- b. *Hygrocybe punicea* - ERDL
- c. *Hygrocybe fornicata* - ERDL
- d. *Hygrocybe calyptriformis* - BRDL
- e. *Trichoglossum hirsutum* - ERDL

5.3.2 A map showing the latest recorded local distribution around Lancaster from the National Biodiversity Network gateway website is shown at Appendix F.

5.3.3 As the scheme could not be adjusted to avoid impacting upon this meadow the initial decision was to accept this as an inevitable loss of resource and minimise the impact by reducing the footprint as much as possible, and by adjusting the design to avoid the need to create retention ponds south of the road in this field. Subsequently it has been agreed that this area will be bought and form a wildlife habitat area and managed to favour these species.

5.3.4 Wax caps are ephemeral species and the surveys done in 2002, 2003 and 2006 have shown variable success at recording specimens of one critical species - pink wax cap. In 2002 and 2006 there was no evidence of pink wax cap. The only records are from a survey done in 2003.

- 5.3.5 A plan showing the location of this colony, along with other waxcap species, and the proposed footprint of the scheme is at Appendix E. This shows that one of the two recorded colonies of pink waxcap will be lost under the scheme (the other colony is shown south of the footprint). Five other waxcap colonies will also be lost of which only one is of a vulnerable species (*Trichoglossum hirsutum*). This colony is shown at the foot of the embankment and there may be scope to retain this patch subject to final confirmation of alignments and levels.
- 5.3.6 The mitigation proposals will be to retain as much as possible of the existing wet grassland favoured by wax cap species, to open up a culverted section of Howgill Brook and purchase 9.8Ha of land to develop as a protected site for these species.
- 5.3.7 A plan showing the 9.8 Hectare extent of the proposed purchase area was included in the 'Revised Planning Application Report (September 2006)' and is included as Appendix I.
- 5.3.8 The purchase of the land will safeguard the populations and the opening up the culverted section of Howgill Brook is expected to re-create the natural moisture conditions in favour of these species. The expectation is that, with sympathetic management, and the re-opening of a culverted section of Howgill brook, suitable conditions can be created and maintained to allow for the expansion and continued existence of these assemblages within the area to be purchased.

- 5.3.9 With adequate management mitigation in place it is predicted that the size of the existing area suitable for wax cap species and the new areas developed to encourage these species will be effective in maintaining their populations. This will be monitored and further advice sought and mitigation implemented as and if required.
- 5.3.10 The ephemeral nature of fruiting in this species means that there could be other colonies across the meadow site that were not in fruit when the surveys were done to detect this species.
- 5.3.11 The mitigation/compensation proposals are viewed as a positive impact as, left unprotected in this way, there would be no assurance that the current farming practice would continue to preserve these species.

5.4 Hedgerows

- 5.4.1 Under the proposed scheme it is estimated that 9.3km of existing hedgerow will be severed and removed to accommodate the scheme footprint. The recommended compensation for this loss is to plant hedgerows along the perimeter of the proposed scheme. This will not only replace the loss, but will increase the length of hedgerow to a total of 19.4km. This is an increase of 10.1km overall. The precise lengths to be lost and the expected gains will be recalculated when the scheme is finalised and the figures quoted here should be regarded as fair estimates.

- 5.4.2 The species used in these plantings will be of local provenance if available and will comprise a mixture of species taken from data in the hedgerow survey report to maintain the character and species composition of the local hedgerow network.
- 5.4.3 The hedgerows will eventually be managed and maintained to a standard recognised by environmental stewardship with the expectation that they will achieve a minimum height of approximately 2 metres and a spread of 1.5 to 2 metres. This approximates to the current position where the majority of hedgerows within the hedgerow survey area were recorded as being within this range of dimensions.
- 5.4.4 These hedges will be cut in accordance with environmental stewardship guidelines i.e. infrequently and outside of the bird nesting season (normally in late winter after the berries have been eaten by birds and small mammals) and will provide valuable winter berries for birds and mammals. This will be a positive benefit as many hedges are currently cut annually, in late summer, removing any berries.
- 5.4.5 In addition to the length and species composition the cubic volume of woody material and leaf area is an important consideration in determining the value of a hedgerow as an ecological resource. A large volume of even a single species of hedge shrub will provide herbage for invertebrates that will, in turn, fall prey to birds and

bats. Volume also plays an important part in the use of hedgerows by bird species for nest site selection.

- 5.4.6 The location of these new plantings will perform a number of ecological functions, in particular it will act as a linear navigation guide and provide habitat for birds and bats and is expected to deflect the species from crossing the scheme and potentially falling victim to road traffic by encouraging them to follow the scheme boundary and stay on one side of the road.
- 5.4.7 In addition to the navigation and habitat creation for birds and bats the new hedgerows will also offer opportunities for invertebrates, small mammals and potentially for amphibians that may use these areas during their terrestrial phase and for hibernation. This additional hedgerow habitat creation will be a positive and significant impact of the scheme.
- 5.4.8 In addition to the planting of new hedgerows as compensation for losses, a number of hedgerows were identified as being species rich in terms of their shrubs and woodland ground-flora's. These hedgerows are to be translocated to retain this historic value and context.
- 5.4.9 The proposal for translocating species rich hedgerows is to move sections into suitable receptor sites. In order to maximise the benefit these sections, 2 metres, will be spaced out along the receptor site lengths and inter-planted with mixed species of shrub to form an eventual cohesive hedgerow incorporating the ancient

sections along with the newly planted shrubs. The expectation is that the newly planted areas will become colonised by the ground-flora from the translocated sections of old hedgerow.

5.4.10 To minimise the need to move the sections by significant distances the proposal is to locate the enhanced receptor sites on the scheme perimeter as close to the donor sites as practicable or in the habitat creation areas. This will not only minimise the distance the sections will need to be moved but will also concentrate and expand the length of ground-flora rich hedgerows locally.

5.4.11 In addition to translocating sections of hedgerow with existing woodland ground-floras it is also proposed to introduce woodland ground-flora species such as bluebell and dog's mercury into newly established and restored hedgerows to increase their biodiversity interest. This will include areas within the habitat enhancement areas. The donor material for this planting will be derived from local sources by agreement with landowners for uprooting bulbs or rhizomes. Local seed may also be harvested, again with owner's permission.

5.5 Water courses

5.5.1 An inevitable part of the scheme is that a number of ditches and streams will be affected by diversions and culverting etc., to accommodate the footprint of the road. The current prediction is that there will be a loss of 360 metres and a gain of 969 metres amounting to a net gain of 609 metres.

5.5.2 One of the significant sections of brook to be affected is at Howgill brook where it is currently predicted that the stream will be very close to the edge of a cutting and a stream diversion is proposed. However, owing to the presence of a small block of woodland the stream diversion will need to pass north of this woodland and will make the diverted section shorter than the current course. The current expectation is that the original watercourse can be retained and the diversion is included as an additional precautionary measure should this prove impracticable. Any loss of watercourse length here will be mitigated against, in part, with the opening up of the culverted section of Howgill brook in the Valley meadow and the increases in open ditch length proposed.

5.6 Ponds

5.6.1 One of the ponds near to the A6, PN06, will be on the top edge of a cutting and although its hydrology cannot be guaranteed it is protected by a retaining wall and is predicted to be retained. PN06 is of low significance as this pond is in the middle of a pasture field isolated from other ecologically valuable habitats. It is however possible that pond PN06 may have its hydrology sufficiently disrupted to cause it to dry out either permanently or seasonally. If it were to dry out seasonally this would create an alternative habitat with a different, and, not necessarily, lower ecological value.

5.6.2 In mitigation/compensation for its possible loss or change in characteristics three additional ponds are planned in the habitat

creation areas at Shefferlands, one pond, and Croskells, two ponds. Although these are in a different location they are regarded as a positive benefit of the scheme overall.

5.7 Veteran trees

5.7.1 Although it is impossible to replace the veteran/sub-veteran trees predicted to be removed as part of the scheme, compensation is proposed in the form of new plantings associated with long-term management requiring their maintenance such that they are expected to reach maturity and form a new generation of veterans. Currently the intention for tree planting is to replant four trees for each tree lost. This should ensure that, even with natural attrition, sufficient stock is retained to reach maturity.

5.7.2 The replacement trees or individual tree plantings will use local provenance stock where available.

5.8 Bats

5.8.1 The prediction is currently that no known bat roosts will be destroyed as part of the scheme. A number of potential bat roost trees were identified, but none were confirmed as occupied in earlier surveys. Some of these were close to the scheme where disturbance may be an issue. This situation will be updated closer to the time of construction and mitigation put in place if required. This is because bats use a range of roost sites within a season as well as from one season to the next and finding evidence of

occupation in 2003 does not mean the same roost will be used again or be used in any particular year and in the future.

Compensation is expected to be in the form of summer roost boxes located some distance from the scheme where "deliberate disturbance" is unlikely to occur.

5.9 Mosses and liverworts

5.9.1 The surveys discovered three scarce moss species associated with trees. Two of these were within the scheme footprint (one on a sycamore and one on an elder) and one was in a nearby Biological Heritage Site (Long Bank Wood). The loss of the sycamore and elder trees is unavoidable. A proposed mitigation strategy would be to remove the sections of trunk colonised by the species and place them in a suitable habitat and position nearby to encourage the continued existence on the existing substrate and also to allow for the possibility that the species may expand and colonise other suitable habitats nearby.

5.10 Vascular plants

5.10.1 In general the range of vascular plant species impacted upon by the scheme are of relatively low ecological importance and are common generally. One area identified as being of significance is the area of the former compound used during the construction of the M6 motorway some 40 years ago. This area is situated immediately west of the motorway, between the motorway and the Holiday Inn. This is an area described in the phase 2 survey report

under PH2 N06. This is an area of generally low plant species diversity but has become colonised by a large population of orchids, mainly Common Spotted-orchid with some Common Twayblade and Bee Orchids. Of these only the Bee Orchid is locally regarded as sensitive under guideline Ff4(b) of the Lancashire Red Data Book species list that refers to 'Any site which supports a population of a species categorized as Sensitive in Provisional Lancashire Red Data List of Vascular Plants where such populations contribute exceptionally to the distribution pattern, or the total population size of that species in the County'.

5.10.2 Orchids tend to be emotive or "headline" species in public perception. The proposal to protect the species as part of the scheme is to translocate plants and harvest seed for use on other parts of the landscaping and ecological enhancement operations.

5.11 Habitat creation areas

5.11.1 In addition to the on-site mitigation and compensation measures already proposed, additional habitat creation areas have also been identified. A total of eight such areas have been selected, totalling 12.8 hectares. These are mainly small areas of pasture on which it is intended to plant an agreed mixture of grassland plants, trees and shrubs to form important wildlife refuges. New ponds are planned for two of these sites.

5.11.2 The habitat creation areas have the scope to be created and managed in a variety of ways and can include planting of species

rich grassland as well as scrub and woodland. Such areas may act as receptors for some of the common spotted-orchids removed from the area adjacent to the Holiday Inn and junction 34 of the M6 motorway.

6 GENERAL CONSIDERATIONS AND CONCLUSIONS

- 6.1 As much of the area along the length of the scheme is under improved grassland management the undisturbed roadside verges created on cuttings and embankments as part of the scheme offer greater wildlife opportunities compared with the managed grasslands currently. This is a positive impact of the scheme.
- 6.2 The creation of cuttings and embankments will increase the area of habitat available for colonisation by plants and animals. These areas can also form receptor sites for the Common Spotted-orchids removed under the area between the Holiday Inn and junction 34 of the M6.
- 6.3 The scope within the landscaping and ecological planting of cuttings and embankments will provide opportunities for creating a range of varied habitats along the scheme corridor. This will be a positive impact of local significance.
- 6.4 The landscape planting of shrubs and trees on verges, embankments and cuttings will further enhance the wildlife potential of the scheme corridor. The intention to incorporate non-native and exotic species closer to the urban fringe is not regarded

necessarily as negative. Many ornamental species provide pollen, nectar and berries used by animals. Also, the physical presence and structure of trees and shrubs are an important consideration in providing shelter and habitat for animals regardless of their species.

6.5 Landscaping in proximity to the urban fringe is likely to include the use of non-native evergreen species. These are of value to wildlife in providing shelter, nesting opportunities and food (including nectar and seeds/berries) for a range of birds, butterflies, moths and other invertebrates. Away from the urban fringe the target-planting scheme will aim to reproduce an equivalent of the National Vegetation Classification (Rodwell Ed. 1991) woodland type known as W8 - that is - an ash, field maple, dog's mercury type of woodland commonly found locally. The species used in these plantings will be derived from local provenance stock were available. It is currently expected that approximately 50Ha of woodland/shrub planting will be done over the whole length of the scheme.

6.6 During the construction phase soil storage is required to be retained within the scheme. This is predicted to be in the vicinity of junction 34 on the M6. As some of the areas to be landscaped and replanted would benefit from minimal amounts of topsoil a soil management strategy will be devised to ensure that appropriate

depths of topsoil are returned to different areas requiring different treatments.

- 6.7 Taking an overview of the scheme in its entirety there are acknowledged to be certain receptors that will suffer permanent negative impacts, notably the wax cap fungi on the Valley Meadow, the severing of existing hedgerow linkages and the loss of veteran trees. But the mitigation proposals are predicted to more than adequately mitigate and compensate for these inevitable losses in the long-term.
- 6.8 For the wax cap communities their existence would not have been discovered if not for the thoroughness of the ecological survey strategy and the mitigation proposal to purchase and safeguard these communities highlights the importance of ecology in the advancement of the scheme.
- 6.9 The veteran trees cannot be replaced in a reasonable time-frame, but their ageing trunks can be re-erected nearby and replacement planted as part of the overall compensation planting.
- 6.10 The overall increased length of hedgerow associated with the scheme and the woodland creation are additional area and linear habitats replacing the relatively low ecological value of the improved agricultural pastures.
- 6.11 The re-alignment of hedgerows along the scheme perimeter will interrupt some of the existing movement of animals across the

scheme but the increased length and arrangement will offer an overall improvement in the wildlife resource by creating additional feeding, nesting and navigation opportunities.

6.12 The scheme will create a new corridor of habitat of wildlife value. This is regarded as a positive benefit and net gain.

6.13 One of the conditions of the applicant is that the management of the landscaping and ecological mitigation elements will be for a period of 20 years should this scheme be granted. This is considerably longer than the more usual 5 year aftercare condition and is regarded as a positive measure to ensure that the mitigation proposals requiring time to establish and become effective are properly maintained until they perform their design functions. This is notable in the case of hedgerows that will take many years (10-20) to perform their desired function.

6.14 Overall, with the planting of hedgerows, creation of new ponds, landscape planting and the creation of un-mown grassland on embankments and cuttings there will be no net loss and an overall net positive impact on wildlife generally resulting from the scheme.