

Appendix 7.1

Land south of Chadwich Lane, Bellbroughton, Worcestershire

Ecological and protected species survey



View of part of site, looking south, January 2016

For Salop Sand and Gravel Ltd.



Camlad Ecology Ltd.
Shrewsbury

October 2017

Land South of Chadwich Lane, Belbroughton, Worcestershire

CONTENTS

Brief Summary

1.0 Introduction and Summary

- 1.1 Origins and objectives
- 1.2 Site Description
- 1.3 Proposed works
- 1.4 Summary of impacts and recommendations

Plan of the site and locality

2.0 Methodology

- 2.1 Desk study
- 2.2 Habitat survey
- 2.3 Species survey

3.0 Findings and assessment

- 3.1 Protected and valued habitats
- 3.2 General habitat around the site
- 3.3 Protected species
- 3.4 Invasive species

4.0 Conclusions and recommendations

- 4.1 Conclusions
- 4.2 General precautions
- 4.3 Protected and listed species
- 4.4 Habitat mitigation and enhancement

Bibliography

Annex 1 Additional photographs

Annex 2 Notes on wildlife protection laws and policies
SSSI impact zones tables

BRIEF SUMMARY

Camlad Ecology Ltd. has been commissioned by WYG on behalf of Salop Sand and Gravel Ltd. to carry out an ecological survey of fields and adjacent habitats just south of Chadwich Lane and assess any potential impact on wildlife from a proposed development. Impacts may arise from proposed mineral extraction and the construction and use of an access road. The site was visited in May 2012, January 2016, and August 2017. The survey was by E J Lomas MSc, an ecologist with over 20 years experience.

The land at Chadwich Lane that would be affected by quarrying for sand is largely under improved grassland as a grazing meadow, in one large enclosure with broad leaved woodland planted in a belt around its outer boundaries, to roads and other property. The inner boundaries, to other fields, have hedgerows. The total area potentially affected by the development would be about 8ha, but the quarried area is likely to be limited to about 4ha. There are no ponds or ditches in or immediately adjacent to the site. Small woodlands and mature hedges are frequent in the local landscape, much of which has been restored after previous mineral extraction.

Surveys have found no evidence of bat roosts in the few large trees close to the access route, but this is not completely certain. These trees should remain undisturbed by the development, but some further survey will be needed if there is any major work affecting them. All trees around the margins of the site should be protected in accordance with BS5387/2012 if they are retained.

There are limited signs of badger activity around the site. Given the scale of the proposed development and the extent of suitable local habitat, this development would be unlikely to have any impact on badgers. A normal precautionary approach during design, site preparation and construction will be needed for both badgers and bats.

There is one pond about 200m south of the boundary of the proposed development; this could possibly be suitable for great crested newts, but it appears to be seasonal and is likely to dry in most summers. A pond close to the access road is highly seasonal; it was virtually dry in January 2016. There are no local records for great crested newts and very few other ponds in the area. Great crested newts are very unlikely to be harmed by the proposed development.

The creation of road access to the proposed development would require the removal of about 10 to 15m of hedgerow; the hedgerows are not very diverse and would not meet the ecological criteria for classification as an Important Hedgerow under the Hedgerow Regulations. This would be mitigated by the planting of a diverse native hedgerow around the field side of the development and the access route, a nett gain of about 150m.

The usual ecological issues and constraints apply to this site; a good level of precautionary site management will be needed to avoid impacts to breeding birds, hedgehogs, mature trees and groundwater. A watching brief should be maintained for protected species.

Land South of Chadwich Lane, Belbroughton, Worcestershire

Ecological and protected species survey

1.0 Introduction

1.1 Origins

Camlad Ecology Ltd. has been commissioned to carry out an ecological survey by WYG Environment Transport Planning Ltd on behalf of Salop Sand & Gravel Ltd. The site lies to the south of Chadwich Lane, near Madeley Heath in the parish of Belbroughton. The objective of the survey is to assess any potential impact on protected habitats and species from a proposed quarrying operation and the construction or upgrading of an access route to Money Lane. The site was visited on 27th January 2016, 3rd and 8th August 2017. A walkover survey was also carried out in May 2012, for a previous development proposal that did not proceed; no report was submitted. All of these surveys were carried out by E J Lomas MSc, an ecologist with over 25 years experience, including many bat and amphibian surveys.

The surveys were undertaken to establish whether bats, badgers, great crested newts, breeding birds, other protected species and some locally valued species could be present within the site and in the area around the site. The survey sought to determine whether protected or valued species were present or, in the absence of direct evidence, whether habitats on site were likely to support any populations of protected or valued species. Potential impacts on any local sites that have statutory protection for nature conservation or any other designated value for nature conservation have been assessed, and the intended work to the site has been considered in relation to the Worcestershire Biodiversity Action Plan. Information has been obtained from the Worcestershire Biological Records Centre (WBRC), the MAGIC website, the NBN gateway website and the Worcestershire County Council website.

The results of the study and survey are given and assessed in this report. Recommendations for a precautionary approach are given in conclusion.

Wildlife conservation in relation to planning policy is effectively covered by the National Planning Policy Framework document: *Conserving and enhancing the natural environment* (DCLG 2012, HMSO, UK), with recent amendments and case law changes to the Habitat Regulations (now the Conservation of Habitats and Species Regulations 2010). The impact of this is to require survey for protected species where there is any likelihood of their presence, before work affecting any habitat that might shelter them is begun. Local authorities normally include wildlife protection policies in their Local Plans and planning guidance documents; the County Council has published the Woircestershire Green Infrastructure Strategy document, which includes a section on mineral extraction sites. The NERC Act 2006 requires planning authorities to seek conservation gains from development projects, in addition to the mitigation of impacts. Details about wildlife protection laws and policy, together with notes on the principal protected species found in the West Midlands region, are given in an attached document (Annex 2).

1.2 Site description

'The site' here refers to the field including the proposed quarry, which will not take up all of the enclosure, and the woodland and hedges immediately adjacent to the field. 'The access route' includes all of the proposed access route from the site to Money Lane, together with the wider corridor around it.

The post code for the locality is DY9 9XE and the site is centred on grid reference SO 954 768, site centre approx. 395490, 276810. The proposed mineral extraction site is part of an improved pasture field bounded to the north by Chadwich Lane and to the west by Harbours Hill, both minor roads. A belt of broad-leaved woodland about 22m wide separates the field from these roads and an adjacent dwelling, Oak Villa. This was planted around 2004. To the east and south the site is bounded by further fields of improved grassland, enclosed by hedges and belts of young trees. Many of these fields have been subject to sand quarrying and then infilled with waste and restored.

The proposed access route will run from the site to the B4551, Money Lane, a wide secondary road suited to lorry traffic. This route is about 920m in length and its corridor averages about 15m wide. Much of this route is already established and surfaced.

The total area affected by the development would be about 8ha, with the quarried area probably being under 4ha. There would be some impacts on the adjacent area of field from machinery movement, fixed plant and similar. The access route and its corridor occupy about 1.1ha, but most of the land around the roadway is unlikely to be affected. There are no buildings on the site. There are semi-mature trees in the hedgerow along Chadwich Lane, five mature oak trees close to the access route, and an avenue of small oak trees along the last section of the access route.



The proposed quarry site, from the north east corner, August 2017

The wider landscape around the site is of rounded hills, mostly under permanent pasture, with small woodlands and a fairly continuous hedgerow network. The only exceptions to the generally pastoral

countryside are the small diffuse settlements of Madeley Heath and Bell Heath, about 320m north of the site, and very large sand and gravel quarries about 300m to the south west of the site.

There are two small ponds close to the site, one adjacent to the access route (P1 on the habitat plan) and one about 200m to the south in pasture field (P3). Both are seasonal, P1 is generally without standing water. Two other ponds (marked P2) are shown on some recent maps but these are not evident on the ground. They were not present in 2012 and are likely to have been lost during earlier quarrying and restoration, or to have been temporary.



Part of the access route, August 2017

Local soils are sandy/ silty loams where undisturbed, generally free draining and slightly acidic. The underlying rock strata are Triassic sandstones, shown as over 300m deep in a nearby section. There is very limited surface drainage around the site. Most agricultural drainage is likely to be direct to groundwater, but any surface and near surface drainage will be via Bell Brook and Fenn Brook westwards towards the River Stour at Kidderminster, over 10km to the west. The whole of the local area is in ground water and surface water Nitrate Vulnerable Zones, indicating free drainage to groundwater and surface run-off to watercourses.

Historic Ordnance Survey maps at 1:2,500 and 1:10,560 scale show the land south of Chadwich Lane as almost unchanged from 1883 to 1962, with the single field of the site and parts of other present-day fields starting as four rectangular enclosures of 4 to 6ha. The internal divisions vary slightly during the following 100 years. Most fields around the site are shown as large rectilinear enclosures on all maps without ponds or other water supplies from 1883 onwards, which indicates arable cultivation. A good quality 1945 aerial photograph shows the site and almost all of the surrounding landscape in arable cultivation.

A 1955 map shows two sandpits just north of Chadwich Lane and one pit south east of the site. By 1971 the field just east of the site and a field some 320m to the east are also shown as sandpits, while the others are shown as disused or as 'refuse tips'. All of these have now been infilled and restored to

pasture or woodland. The sequence of Google Earth images from 1999 onwards shows the progress of closure and infilling for the last set of quarries. These images also show cultivation of the site itself.

1.3 Proposed Works

Our understanding is that Salop Sand and Gravel Ltd. are seeking planning consent for mineral extraction and the upgrading of the access route.

1.4 Summary of findings and assessment

The site and the adjacent hedgerows, trees and fields have no designation for wildlife conservation. With one exception there are no sites of national importance, such as SSSI sites, within 1km. The exception is an Earth Sciences SSSI, the Madeley Heath Pit SSSI, which lies adjacent to the access route but is described as destroyed. This issue is dealt with in a separate report on its geological status (Lewis, 2016).

The nearest site with statutory protection for wildlife conservation is Romsley Hill SSSI, a neutral grassland meadow site about 1.7km NE of the site. Pepper Wood, ancient woodland and part of the fragmented Feckenham Forest SSSI, begins about 1.8km SW. Grassland SSSI sites and other woodland sections of Feckenham Forest lie between 2 and 5km from the site. The site falls within SSSI impact risk zones that would normally require consultation between the planning authority and Natural England over quarrying and landfill proposals. Factors of landform, hydrology and intervening habitat make it unlikely that the proposed development would have any impact on these protected sites (see section 3.1 below).

Three sites with some local designation for wildlife conservation are within 1.5km of the site, forming a large block to the north with the nearest point about 970m from the proposed development. These are Sling Pool and Marsh, Farley Cottage pastures and Great Farley and Dale Woods. Ecological impacts on these sites are highly unlikely.

There are small blocks of broadleaved woodland within 1km of the site, with the nearest being a block of broadleaved woodland about 130m north of the site; these are UK priority habitats. Most of the woodland in the locality is listed as young woodland. It is highly unlikely that the proposed development would have any impact on these habitats.

The hedgerows around the site are fairly continuous and well managed, but on the basis of their structure and plant diversity they do not meet the ecological criteria for 'important hedgerows' under the Hedgerows Regulations. Habitats within and immediately around the site are of commonplace plant communities with no notable wildlife conservation value. The site is set in a managed agricultural landscape, large areas of which have been restored following mineral extraction during the second half of the 20th Century.

The only protected, listed or otherwise valued species likely to be present in or close to the site are bats, badgers, nesting birds (protected while breeding) and possibly hedgehogs (now a UK priority species).

The ponds P1, adjacent to the access route, and P3, about 200m south of the site, are seasonal and unlikely to have great crested newt populations. Ponds at P2 are no longer present. No other ponds within 500m appear suitable as breeding ponds and there are no local records for this species. They are unlikely to be present in the locality.

The early mature trees around the site are very unlikely to provide roosting habitat for bats. The larger oak and ash trees close to the access route might have some hidden voids providing potential roost sites, but these are unlikely to be affected. Although these trees might not be directly affected by the proposed development, they could require work or removal for safety and arboricultural reasons. Suitable precautions are recommended.

There are some signs of badger activity along the northern margin of the site, but no burrows were found within 50m of the site. The pattern of paths and dung pits indicate that the site is at the edge of a clan territory. Given the open nature of the proposed development and the extensive pasture and woodland in the locality, there should be no impact on badgers.

Harm to hedgehogs, birds and many other species can be avoided by careful site clearance at an appropriate time of year, followed by careful site management.

The WBRC records as supplied and the NBN website show no local records for reptiles: there are three records within 5km on the NBN site. The nearest record is for adder, about 2.5km northwest of the site. The agricultural history of the surrounding landscape means that reptiles are unlikely to be present. A basic level of precaution over these species should be adequate.

This assessment is based on our survey and current conditions, using standard assessment criteria where appropriate.

Summary of Recommendations

Design, project planning and site management: potential impacts on protected species must be avoided, local biodiversity should be protected as far as possible, while habitat enhancement such as tree and hedgerow planting should be carefully designed to maximise biodiversity gain. A summary of specific recommendations and precautions follows.

- 1 Site induction for all construction workers should include instruction on wildlife laws and conservation. All workers should be made aware of protected species issues and the need for care over pollution. The developer should maintain overall responsibility for adherence to these conditions.
- 2 Clearance of any vegetation and debris should take place during autumn or early spring before any construction work on site, with a short break to allow wildlife to move away from the working area. All trenches and excavations should be provided with simple escape ramps for wildlife.
- 3 If any bats, great crested newts, or other fully protected species are discovered, works should cease immediately and Natural England or suitable ecological consultants should be contacted for advice.

- 4 Detailed design and project planning should avoid direct impacts on the mature trees around the site, and must avoid any direct lighting of the trees and hedgerows. If this is not possible, then a full survey for bats must be undertaken.
- 5 Great Crested Newts – maintain a watch for great crested newts and report immediately if found
- 6 Grounded bats - all site workers should be made aware of the action to be taken in order to avoid both harm to bats and a disease risk from handling bats.
- 7 Badgers - maintain a watch for signs of activity and ensure that any signs of digging within the site are immediately reported.
- 8 Hedgehogs - potential hibernation sites should be removed from the working area before late October or left until spring. Appropriate action is needed if a hedgehog is found on site
- 9 Nesting Birds – avoid potential nest sites or clear them out of season. Take care to avoid birds building nests in stacks of construction materials and waste.
- 10 Amphibians and Reptiles - site workers should be made aware that any deliberate or reckless harm to reptiles is illegal. Careful site clearance can minimize the potential risk to these species.
- 11 Mature trees – trees should be protected in accordance with BS 5389/2012, and where remedial work is needed this should be carried out by tree surgeons with training in bat protection.
- 12 Invasive species such as Japanese knotweed – none have been found on site, but routine checks should be carried out, at least twice annually.
- 13 Ground water - Pollution control procedures and spillage action plans and materials should be in place. Pollution protection guidelines must be followed.

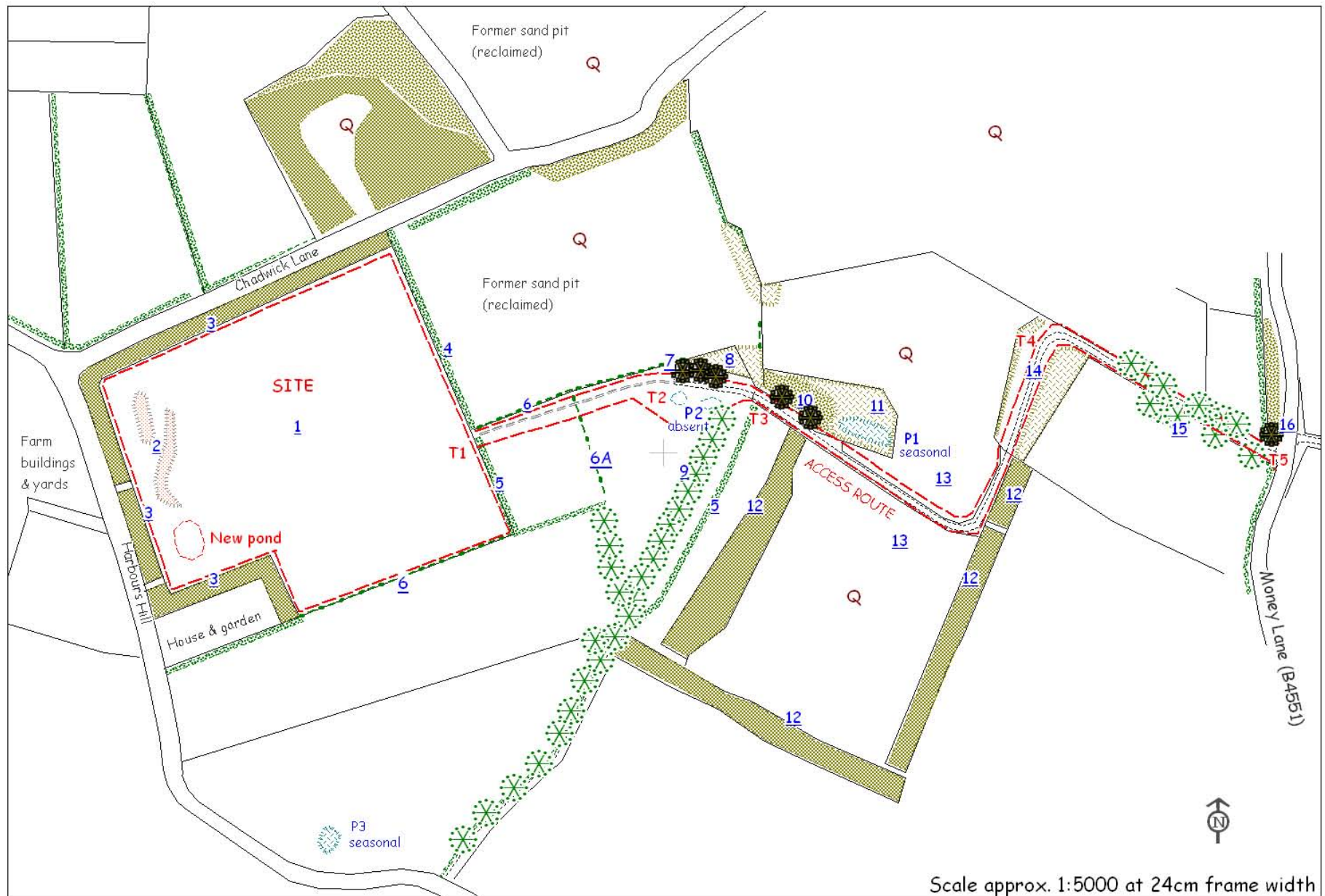
Habitat management and enhancement

The proposed works should have very little impact on habitat for wildlife. If any mature trees are lost they should be replaced by planting young specimens of native species appropriate to the locality. Any tree and shrub planting for biodiversity should be with locally appropriate native species, of British origin, rather than simply 'British provenance', and preferably with stock of local origin.

Up to 15m of mixed hedgerow would be lost, but about 150m of the boundaries around the site and access route could be planted with a native hedgerow.

As there should be very little biodiversity impact from this scheme, a gain in habitat value can be easily achieved. A new ephemeral pond, or attenuation basin, is proposed, which would add wetland habitat or standing water to the site, depending on its construction. There is scope for further tree and shrub planting. The loss of improved grassland should be temporary; many quarry sites around this locality have been restored to grassland. Restoration to more diverse habitat might be possible, in accordance with the Worcestershire Green Infrastructure Strategy and the Mineral Products Association Biodiversity Strategy.

Any pond created as part of habitat creation should be kept free of fish and invasive plants; workers should be made aware of the importance of this. A suitably experienced ecologist should be consulted over any pond or wetland planting scheme.



Chadwich Lane proposed quarrying site

- | | | | | | | | |
|-----------|---------------------|------------------|-----------------|-----------|----------------------|--|---------------------|
| ----- | Site boundary | <u>1, 2, ...</u> | Habitat feature | P1 | Pond or former pond | | Avenue tree |
| New pond | Restoration feature | | Mature woodland | | Recent tree planting | | Hedgerow |
| T1 | Haul route feature | | Scrub | | Mature tree | | Gappy/remnant hedge |
| Q | Former Quarry | | | | | | |

2.0 Methodology

2.1 Desk study

The desk study has considered historic and modern map evidence, geological maps, aerial photographs from 1999 onwards on the Google Earth website, data from the MAGIC website and ecological records shown on the NBN Gateway website and in the WBRC data search. Records for a 1.5km radius around the site centre were supplied by Worcestershire Biological Record Centre in October 2017. The proposed development has been considered in relation to the Worcestershire Green Infrastructure Biodiversity Strategy document. Information has been obtained from the Worcestershire BAP website and Bromsgrove District Council's website.

Ordnance survey maps of the area, including historic large scale maps from 1883 onwards, have been used to assess the wider landscape and environment. Google Earth images from 1999 onwards have also been examined. British Geological Survey maps and the Soilscape data on MAGIC mapping have also been studied.

2.2 Habitat survey

Habitats were observed in the course of a walkover surveys on 27th January 2016, 3rd and 8th August 2017. A walkover survey was also carried out in May 2012, for a previous project. The survey methodology was based on the JNCC Phase 1 methodology (JNCC 2001). The site, the margins of fields around the access route, and the woodland areas around the site were inspected. Hedgerows on both sides of the adjacent roads were inspected. Other fields and gardens around the site were observed from their margins. There was some observation of habitats beyond this in all directions.

2.3 Species survey

Badger survey followed Mammal Society guidelines, with particular attention to the boundaries of the site, where evidence of foraging animals entering the site would be apparent. Surveying for badgers in winter is ideal, due to the lack of cover. The surveys in January 2016 covered all of the fields, hedgerows and woodland around the site and found no definite evidence. Survey in summer 2017 did find limited evidence of foraging activity.

The mature trees around the sites were checked externally for bat roost evidence in accordance with Bat Conservation Trust recommendations, but no climbing survey was carried out as these trees should be retained. No activity survey has been carried out.

Nesting birds: bird species and nests were recorded during other survey work. Habitat suitability was noted.

Other species: the presence or likely absence of other species has generally been inferred from the presence or absence of suitable habitat. Species using hedgerows and trees may be present around the site and in neighbouring gardens.

3.0 Findings and assessment

3.1 Protected, listed and other valued habitats

The MAGIC website does not show any sites with statutory protection for wildlife conservation within 1km of the site; the nearest appears to be Waseley Hills Local Nature Reserve (LNR), just over 1km east of the site and beyond the M5 motorway. The site and the adjacent hedgerows, trees and fields have no designation for wildlife conservation.

With one exception there are no sites of national importance, such as Sites of Special Scientific Interest (SSSI sites), within 1.5km. The exception is an Earth Sciences SSSI, the Madeley Heath Pit SSSI, which lies adjacent to the access route but is described as destroyed. This issue is dealt with in a separate report, by Dr Simon Lewis (Lewis, S G, 2016). There is another Earth Sciences SSSI, Sling Gravel Pits, just over 1.5km NW of the site.

The nearest site with statutory protection for wildlife conservation is Romsley Hill SSSI, a neutral grassland meadow site about 1.7km NE of the development site. Romsley Manor Farm SSSI, a similar site, is 1.9km NE. Pepper Wood, ancient woodland and part of the fragmented Feckenham Forest SSSI, begins about 1.8km SW. Further large woodland sections of Feckenham Forest form part of Chaddesley Woods; these lie further to the SW and include Chaddesley Woods National Nature Reserve, 4.3km from the site. Hurst Farm Pastures, a grassland SSSI, lie 2.3km W of the site. Two other grassland SSSI sites are a little under 5km from the site.

Parts of the proposed development are less than 2km from three of these SSSI sites. Impact risk zones are defined for a range of distances from SSSI boundaries. The impact zone for an Earth Sciences SSSI normally only extends to 50m from the boundary of the SSSI, but nature conservation sites have a set of concentric zones, extending up to 5km from the SSSI boundary.

Between 1 and 2km of a nature conservation SSSI the planning authority has to consult Natural England over certain large scale developments, such as transport infrastructure (new rail and road routes, new air transport facilities), landfill, quarrying, energy use involving local combustion generating over 20MW, and warehousing or industrial development covering more than 1,000m². Residential and small scale commercial development does not require the same level of consultation at this range. Impact risks for development between 2 and 3km from the SSSI are seen as lower and the constraints are similar but less rigorous; for example combustion generation is considered to present a potential risk at over 50MW. Detail on this issue is given in Annex 2 and in the Natural England website.

Impacts on these SSSI sites are considered to be unlikely. The proposed development is on land between 175 and 185m AOD, while all of the SSSI sites within 3km of the proposed development are on

ground between 150m and 175m AOD with nearby stream valleys and lower land between them and the development (Hurst Farm and Pepper Wood), or on land over 200m AOD (the Romsley sites). These factors make hydrological linkage between the SSSI and the proposed development highly unlikely. There is no evident direct habitat linkage between the SSSI sites and the proposed development.

Three sites with some local designation for wildlife conservation are with 1.5km of the site, forming a large block to the north with the nearest point about 970m from the proposed development. These are Sling Pool and Marsh (a County Wildlife Site) as the nearest, then Farley Cottage Pastures (Worcestershire Grasslands Inventory) and then Great Farley and Dale Woods (a County Wildlife Site). A stream valley and a ridge of higher ground lie between the proposed development and these county sites. Ecological impacts on these sites are highly unlikely.

There are small blocks of broadleaved woodland within 1km of the site, with the nearest being a block of broadleaved woodland about 130m north of the site; these are UK priority habitats. Most of the woodland in the locality is listed as young woodland. It is highly unlikely that the proposed development would have any impact on these habitats.

The nearest main river is the River Stour, flowing north to south, about 10km west of the site. The nearest surface watercourse is Bell Brook / Fenn Brook, running through Madeley Heath about 300m north of the site and flowing west to the Stour. The site is over permeable strata and there are no adjacent ditches, but the bund arrangement at the bottom (western) end of the field has some drainage structures in place, so possible pollution via final discharge to watercourses should be considered.

The River Stour and its tributaries are protected from pollution under the Water Resources Act 1991 and the Salmon and Freshwater Fisheries Act 1975. All of the land around the site, for several kilometres, is in surface water and ground water Nitrate Vulnerability Zones, which places restrictions on agriculture. There are likely to be land drains and road drains in or close to the site. Local soils are free draining over sandstone strata that are part of a public water supply aquifer. Any pollution spill could quickly become unmanageable, so a high level of precaution over pollution will be needed.

Potential impacts on ground water quality are beyond the scope of an ecological survey and assessment.

There are several other local sites that have a designation or listing for their wildlife conservation value; those recorded as Priority Habitats include several small areas of deciduous broadleaved woodland within 1km of the site, but no other priority habitat such as Ancient Semi-Natural Woodland, grassland, wetland or heathland is apparent within 1km of the site.

The proposed development is very unlikely to have any impact on these habitats, because of their distance from the site and the intervening habitat, which is mostly improved grassland or arable farmland. A high level of precaution will be needed over pollution and spillage.

3.2 Habitats in and around the site

The layout of habitat around the site is shown on the plan following section 1.4 of this report: 'Land at Chadwich Lane, Location and Habitats' at approximately 1:5,000 scale.

The site: this is under improved grassland (habitat feature 1) and enclosed by a woodland strip and hedges (3, 4, 5 & 6)

The access route: This runs past habitat features 5 to 15. From point T1 to T2 as shown on the habitat plan it has not yet been surfaced and crosses improved grassland, alongside a gappy hedge. From T2 on to T3 the surface has been partly made up with scalplings and rubble. From T3 to T4 it has been fully made up with a deep layer of scalplings, see picture in 1.2 above. From T4 to T5 it is long-established, with a tarmac surface.

Habitat on site

Numbering as on the plan, thus: 1

- 1 Grass sward: this is the main area that would be affected by the proposed development. The total area of the field is about 7.6ha, all currently grazed by cattle. The field slopes gradually to the west, with steeper ground in the south east corner. The quarrying is likely to impact directly on the northern half of the field, which consists of about 3ha of improved grassland, recently reseeded and dominated by ryegrass. The southern half of the field is older improved grassland, with rough meadow-grass present.
- 2 A system of bunds formed from clayey subsoil has recently been constructed here. There are some drainage installations within this. The discharge from these is not known to us, but may be to groundwater. The bunds and a temporary pond are shown on a Google Earth image from 2016.
- 3 Woodland planting has grown on to form a closed canopy over a belt of land around the outer margins of the site. This forms a shelter belt about 690m long and averaging about 22m wide, covering an area of about 1.1ha, planted in 2003 or 2004. When observed in 2012 it was noted as being well grown but with poor species structure, with an inappropriate assemblage of native species, sometimes in over-large single species blocks. There appears to have been some management work since then, thinning out the woodland and leaving a better mix of trees. Ash, birch, oak, Scots pine, wild cherry and grey poplar are present along the Chadwich Lane and Oak Villa margins, with a higher proportion of poplar left on the wetter ground along the western margin. There is no related woodland ground flora, only nettles and cleavers, or meadow grasses.
- 4 This is a planted native hedge, probably 15 to 20 years old, mostly of hawthorn with some blackthorn, holly and hazel. It has not been trimmed effectively and has grown tall. It would

benefit from topping at about 2.5m, then allowed to bush out and eventually trimmed to a truncated A form.

- This appears to be a restored older hedge, mostly hawthorn with some blackthorn, dense, continuous and trimmed to a rounded form. A few meters of this might be removed around T1 (see plan).



View from the SW corner of the site, August 2017

Field 1, bunds 2, woodland belt 3 in the foreground, with hedgerows 4 & 5 in the distance

- These are three sections of discontinuous and gappy hawthorn hedges. The section on the southern edge of the site has two small oak trees in the hedgeline. The section marked 6A is open and grown tall, but some of the remaining shrubs are very old and they are on a hedge bank. Upgrading the accessroute should not affect these hedges.
- This is a group of three mature oak trees with various flaws; one was in poor condition in 2012. Some maintenance work since then has rejuvenated them. They have some potential bat roost habitat in various flaws, but are set back from the access route on a raised bank; upgrading the route should not have any significant impact on them.
- A small copse of hazel and hawthorn shrubs, even aged and probably planted 20 to 25 years ago. They have no ground flora, due to heavy shade. They begin about 15m from the access route and are above it. Upgrading the route should not have any significant impact on them.
- A row of mature ash trees runs from the access route, with the stem of the nearest tree about 12m from the road. Upgrading the route should not have any significant impact on them, but tree surgery work should be carried out with due care, avoiding any potential impact on bats.

These trees are about 80 to 90 years old, appearing as a line of fairly small trees on the 1945 aerial photograph. Two of them show coppice growth form; it is possible that these trees are older but have had single stems selected. The line continues as hedgerow with trees down to Harbours Hill, so they provide a valuable linear feature. Mature ash trees may develop deep hollows as they age, providing important bat roost habitat.



Start of section T2 to T3 of the access route, gappy hedge 6 on the right, mature oaks and hazel coppice 7 & 8 central, first tree of row 9 on left

- 10 This is a small remnant of old woodland, with two mature oak trees and one mature ash tree fairly close to the roadway on a steep bank. The access route appears to be fully made up at this point, with no evident impact on the trees, which are behind a fence. As with other mature trees, any tree surgery should be carried out with due care over potential bat roost habitat.
- 11 This is an area of dense bramble scrub, with some areas of tall herb growth and shrub growth around the seasonal pond P1. Most of the hollow shown as P1 is filled with bramble, so will be no more than moist. Small areas of bramble scrub like this have value as part of habitat mosaics. It is separated from the roadway by improved grassland, so should not be affected by impacts from the access route.
- 12 This is a belt of young trees, probably planted 2004-5, enclosing a field of improved grassland. The species composition is similar to the tree belt around the site but there are sections with a high proportion of evergreen conifers. Some older hedgerow trees have been incorporated into this woodland. The access route runs close to this woodland in two places, but the roadway is already fully made up and significant impacts are unlikely.
- 13 The fields adjacent to the roadway are all improved grassland, mostly restored after quarrying.

- 14 This area has rubble and other inert waste stockpiled on it, but the steep banks around the piles are covered in bramble scrub, with some elder, goat willow and hawthorn. As with area 11, this habitat has some value as part of the local mosaic of habitats. The roadway is already fully made up through this area and significant impacts are unlikely.



Roadway, 15, with scrub covered bank, 14, middle left, January 2016

- 15 The final section of roadway is surfaced with tarmac. This section runs between verges of rank grass, mostly false oat-grass, with a row of fairly young oak trees on each side. The rows are irregularly spaced, with 5 trees on the south side and 7 on the north side; some are in groups so they may be the remnant of a partly failed planting. The maximum stem diameter at 1.3m is about 450mm, and they are up to about 10m high.

The trees appear to have received some maintenance attention since 2012, but could benefit from further crown lifting to avoid damage from lorry traffic, and possibly from slow release fertiliser pellets inserted around the dripline. The rows could be made up with smaller native trees such as field maple, birch, crab apple and wild cherry.

- 16 There is a single large oak in the hedgerow just north of the gateway. If the opening splay is increased in width this tree would need assessment and protection.

Other than the loss of improved grassland and a short length of hedge around a gateway, the proposed development could be managed to avoid impacts on the habitats described above. Areas of woodland and scrub correspond to Worcestershire BAP habitats. Hedges close to the site do not correspond to the Worcester BAP habitat 'Ancient and species rich hedgerows', and there are no veteran trees.

Adjacent habitat

Almost all the habitat adjacent to the site and access route is improved grassland enclosed by recently planted hedgerows and tree belts, or by older hedges that need restoration.

Ponds

Early and mid 20th century maps show no ponds at all within 500m of the site. Ponds were very uncommon in the wider landscape. Modern maps show two ponds within 500m of the site; site survey has confirmed this.

P1, the pond described above in habitat feature 10, is adjacent to the access route. It does not appear on maps up to 1983 and was probably created when the sand quarry just to the north was filled and restored to pasture. It is normally dry; a very small area of standing water was present in January 2016.

P2 is not actually present. Two small ponds are shown in this location on 1:25,000 maps produced in the 1990's, but there is no evidence of ponds or wetland in the location.

P3 is a small field pond near the top of the Harbours Hill road, about 200m south of the site and over 250m from any area likely to be impacted by the work. This pond was shallow in January 2016 and dry in August 2017. It is not shown on maps up to 1983 and has a very small catchment with no visible water source other than surface run-off. It is likely to dry early each summer; it appears to be dry in many Google Earth images.



Pond P1, August 2017



Pond P3 August 2017

Wider landscape

The wider landscape around the site is mostly under medium sized arable and improved grassland fields, with a reduced hedgerow network. However, there are a number of landscape and habitat features within 5km of the site that affect the habitat value of the locality. The M5 motorway runs north-south, 970m east of the site and just 190m from the Money Lane end of the access route. This is a significant barrier to the dispersal of mammal, reptile and amphibian species. North and east of the site there are several areas of high ground, including Romsley Hills, Waseley Hills and Lickey Hills. These contribute large areas of high quality habitat, including LNR, SSSI and County Wildlife Sites.

West of the site the landscape is largely agricultural, dominated by arable cultivation. To the south there is a group of very large sandpits, some worked out and being restored with extensive habitat creation. Beyond this there is an area of agricultural landscape with smaller fields and more livestock rearing than to the west, with the large ancient woodland sites that form part of Feckenham Forest SSSI.

3.3 Protected, listed and priority species

Details about species protection and formal titles of Acts and Regulations are given in a separate document (see Annex 2).

The majority of the protected, listed and priority species that are found in the West Midlands region are unlikely to be present in or around the development site. There are no nearby watercourses, large ponds or lakes and no nearby old woodlands or wetland and heath habitats. The notable species that are strongly associated with these habitats are very unlikely to be present in or close to the site.

Records from WBRC for a 1.5km radius around the site centre included 69 separate records for 48 different species that are protected or of conservation concern in a broader sense. The records include 3 bird species, only one of which (barn owl) is fully protected under Schedule 1, Wildlife and Countryside Act 1981 (as amended) (the WCA), while the other two are listed as being of conservation concern. There are 34 plant records for 25 species, including native bluebell (partly protected, WCA, against sale) and two species that are listed as Nationally Scarce, the others being locally notable. Many of the mammal records are for bats and badgers, both fully protected, while others are listed as UK Priority Species.

Badgers

Badgers are protected from harm and disturbance under the Badgers Act; work close to a badger sett may require licensing. There is some evidence of badger foraging activity in the land around the site. The nearest badger record is from a location over 300m away from the excavation site but close to the access route, for a sighting rather than a known sett, the next nearest is from over 600m away and all other records are from over 1km distant. None of these records are for setts. A thorough search of the landscape around the site in January 2016 found no burrows.

Evidence of badger activity found in August 2017 was as a single dung pit in the woodland belt on the Chadwich Lane side of the site and two push-throughs under the fence into the field. There were signs of badgers crossing Chadwich Lane into the woodland. There was no marked path into the field itself. At the summit of the access route, by habitat feature 7, there was a strongly marked path that faded quickly as it ran into the field, indicating foraging in an older area of grassland. All of these signs indicate foraging in the margins of a territory, with a sett somewhere north to north west of the site. The proposed development is unlikely to have any impact on badgers, but suitable precautions must be observed during construction, in order to avoid harm to badgers that may forage around the site.

Bats

There are 14 bat records for the 1.5km radius study area: these records include noctule, common and soprano pipistrelles, long-eared bats and non specific records for Myotis bats, but none of them are from the immediate vicinity of the site. The nearest records are from about 590m west of the site, around a farmyard; these appear to be from a development related survey. Bats are fully protected under the WCA and the Habitats Regulations.

The only likely roost habitat on site would be in the five older trees on the margins of the site, which have some flaws and possible hollows. Inspection from the ground in summer found no sign of large hollows or staining that could indicate roosting activity, but like all survey methods for tree roosting bats, this is uncertain. If any of these trees have to be removed or major trees surgery work has to be carried out there should be further survey, either by a climbing survey or a ground level survey. If the issue is still uncertain there should be three activity surveys at suitable intervals. Any tree surgery work should be carried out by workers trained in bat protection measures.

Other mammal species

Hedgehogs have a species action plan under the UK BAP; there is evidence that numbers are declining nationally. The habitat in and around the site could support hedgehogs and there are records from the village. To avoid harm to hedgehogs any potential hibernation sites should be removed from the working area before late autumn, or left until spring. Care must be taken over stacked materials during construction work.

There are also records for polecat in the study area and brown hare in the wider NBN records. Both are UK Priority (BAP) species, but neither of these is likely to be affected by development on a small closely grazed field.

Breeding birds

Birds have general protection from disturbance and harm while breeding, under the WCA, while some species have full protection. Among the fully protected bird species listed in the WBRC records are barn owl, which are fully protected; the proposed development is unlikely to have any impact on these as the area affected is improved grassland and does not have suitable nesting habitat.

The hedgerows, trees and gardens around and close to the site are likely to be used by a number of species. Ground nesting birds such as skylarks and lapwings, which select sites that are open and not overlooked, would be unlikely to nest in the area of the proposed excavation, as it is close to trees. Protection of the hedges, shrubs and trees around the site, with careful timing of any work affecting them, should completely avoid any potential impact on birds using these habitats.

Birds will nest in any available habitat that meets the particular needs of their species, including hedgerows, piles of brash, stacks of construction material and inactive construction plant, which can present a serious constraint on development. This is normally avoided by site clearance during autumn or early spring and good site management practices. Clearance in winter should be avoided if possible, because of the risks to dormant or hibernating wildlife.

Reptiles

The WBRC records as supplied for 1.5 km radius and the NBN website for a 2km buffer show no local records for reptiles: there are three records within 5km listed on the NBN site. The nearest record is for adder, about 2.5km northwest of the site on the Clent Hills. Reptiles are unlikely to be present in the site, due to the long history of intensive agricultural use, but survey for reptiles is difficult and it is possible for populations to remain undetected. A precautionary approach should be maintained during development.

Amphibians

Great crested newts are fully protected under the WCA and the Habitats Regulations. There are no historic records for great crested newts near to the site, or for a wide area around the site. There is one record within a 5km buffer around the site, from a location over 4km to the north. Historic maps do not show any ponds within 1km of the site up to 1983; the ponds shown on more recent maps all appear to have been created fairly recently.

Great crested newts are highly unlikely to be present, but a watching brief should be maintained.

Common toads, frogs and smooth newts may be present in small numbers around the site, if found, these should be moved away from the site into sheltered habitat such as hedgerows.

Invertebrates

One notable insect species is included in the WBRC records, a leaf beetle *Crassida prasina*, at a location over 1km east of the site. There are no specialised habitats close to the site, such as groups of veteran trees, that are known to support rare invertebrates.

Plant species

A relatively small number of plant species are protected under the WCA. Native bluebell is protected from sale and associated activities; these have been recorded from Sling Pool woodlands about 800m from the site (see Annex 2 for details of its protection). No other protected plants are in the local records for 1.5km around the site centre, but there are two species described as Nationally Scarce. These are Scots pine (native type) and stinking hellebore, found on base rich soils in ancient woodland (both at Waseley Hills, over 1km west of the site). There is some controversy about the recording of Scots pine, but some old estate plantations in the wider locality (e.g. at Enville) do have very old Scots pine trees that appear to be from Caledonian Forest stock.

The majority of notable local plant records appear to come from systematic recording, probably from local or UK flora recording projects at tetrad or monad level. Many plants are recorded from listed habitats such as local wildlife sites, but others that would only be apparent to skilled botanists have been recorded from locations that are not normally visited. These include Sherard's downy-rose from a roadside hedge about 1km south of the site, and small cudweed (*Filago minima*) from a former sandpit just north of the site in 1999. This plant is typical of dry disturbed soils.

No protected or rare plant species were found on site. The plant communities within the site are commonplace, mostly improved grassland.

Mature Trees

There are five large mature oak trees and one mature ash close to the access route (habitat features 7 & 10 above) and 11 younger oak trees beside the made up road in the final section of the access route (habitat feature 14). A line of mature ash trees runs southwards from close to the route (habitat

feature 9). These trees are unlikely to suffer damage to their root zones but may require some tree surgery work.

Care should be taken not to damage the trees in and around the site, but some maintenance will be necessary. If any construction works come within 10m of them they should be assessed under BS5387/2012, Trees in Relation to Construction Work. Root protection zones must be fenced off and protected. Any tree surgery work must be undertaken by tree surgeons trained in bat conservation measures.

3.4 Invasive species

No invasive species such as Japanese knotweed were found in or near the site. Given the traditional agricultural management of the site and the lack of recent large scale soil disturbance, invasive plants (Schedule 9 species, proscribed under the WCA, see Annex 2) are unlikely to have become established. However, tipping of waste, as around habitat feature 14 and possibly feature 11, has the potential to introduce species such as Japanese knotweed. Routine checks for their presence should be maintained and if any appear advice should be sought from a suitably experienced ecologist or landscape manager.

4.0 Conclusions and recommendations

4.1 Conclusions

Development of this site is highly unlikely to have any impact on habitat that is protected for wildlife conservation or designated or listed for its biodiversity value. Care will be needed over pollution control, to avoid impacts on groundwater resources and watercourses.

The site and access route lie within the defined impact zones around a number of SSSI sites, including three that are between 1 and 2km of the proposed development. There is a requirement for the planning authority to consult Natural England in this case, but factors of landform, hydrology and intervening habitat make significant impacts unlikely.

Existing habitat around the site and access road, such as the tree belts and the hedges, does have good local value for wildlife and must be protected when there is no planned and managed impact on it. Losses should be made good.

The hedgerow that would be removed for access to the site is of relatively low diversity and would not qualify as an Important Hedgerow for biological reasons, under the Hedgerow Regulations. The lost hedge should be replaced by new planting around the perimeter of the site or the access road. The area of improved grassland that would be affected is of very low diversity. There are six large mature trees close to the access route, and a number of mature trees along the roadside; these should be protected and any work to them should be carried out by appropriately qualified tree surgeons.

It is highly unlikely that great crested newts are present in the site, but a watching brief should be maintained. There is no sign of bats roosting in the mature trees on site, which in any case should

remain undisturbed. Nesting birds are likely to be present in the hedges and trees. Hedgehogs may be present in hedges and neighbouring gardens. There is some badger activity in the wider area around the site, but there are no setts or signs of significant activity close to the site.

Although there is no evidence of bats roosting in the older mature trees around the site this is not certain. These trees might not be directly affected by the development, but there should be further survey if there is to be any major work to them. Any work to these trees should be carried out by tree surgeons trained in bat protection procedures.

Risks to breeding birds, hedgehogs, badgers and other species can be avoided by care over timing of work and careful site management.

4.2 Recommendations and precautions

All staff and workers on site, including sub-contractors, must be made aware of species and habitat protection issues at site induction talks. **Work must stop immediately and Natural England or a previously appointed ecologist must be contacted if any fully protected species are found onsite.** Natural England or suitable ecological consultants should be contacted for advice (**Natural England tel: 0300 060 3900**). Camlad Ecology Ltd. can provide display materials and talks on these issues, if needed. Rapid contact with Natural England or an ecologist is important for the protection of both the species and everyone connected with the project; delay over this can open the risk of prosecution.

Detailed design and project planning should avoid any major impacts on the mature trees around the site, and must avoid any direct lighting of the trees and hedgerows. If this is not possible, then a survey for bats should be undertaken, by a climbing inspection or by a number of activity surveys around the trees. Both types of survey should be carried out by appropriately qualified and experienced bat workers. Activity (or emergence) surveys for bats in tree roosts should be carried out in summer and should take place at intervals of one to three weeks apart, as some bat species move between different tree roosts.

Impacts on bats from lighting will only be an issue during work after sunset. Advice on avoid the potential impacts of lighting on bats can be found on the BCT website, and their recommendations should be followed when planning permanent or temporary lighting around the site.

Care and suitable precautions are needed to avoid harm to other species. Clearance of any vegetation and debris should take place during autumn or early spring before any construction work on site, with a short break to allow wildlife to move away from the working area. All trenches and excavations should be provided with simple escape ramps for wildlife, and all pipe runs should be kept blocked while not being worked on.

We recommend maintaining grazing until less than one month before work starts, and then either starting topsoil stripping in late winter / early spring, or careful spraying off of the sward with a general

herbicide, glyphosate or amicide based. This is to encourage animals to leave the site and to avoid animals moving into the site.

Trees and hedgerows should be protected in accordance with BS5387/2012. Work to trees and hedges should be carried out by appropriately trained staff who are fully aware of wildlife protection issues.

The hedgerow that would be removed for access should be replaced by native hedgerow planting around the perimeter of the site and the access road.

The site is likely to drain directly to groundwater, or possibly into existing land drains. Drainage routes should be determined before work begins. Pollution control procedures and spillage action plans and materials should be in place and known to all workers. All relevant Environment Agency pollution protection guidelines must be followed, particularly PPG1.

4.3 Specific Precautions

Grounded bats - all site workers should be made aware of the action to be taken in order to avoid both harm to bats and a disease risk from handling bats. There is a very rare but extremely dangerous disease carried by a few bats in the UK. Grounded bats should be covered with a cardboard box and left to be collected by a licensed bat worker.

Badgers - maintain a watch for signs of increased activity and ensure that any signs are immediately reported to an appropriate ecologist. Where soil is mounded on site it should be kept free of vegetation and at least the outer 600mm of soil should not be compacted.

Hedgehogs - potential hibernation sites should be removed from the working area before late October or left until spring. Appropriate action is needed if a hedgehog is found on site during the late autumn to spring period; the animal should be covered over with a cardboard box and an appropriate ecologist or animal care worker should be contacted.

Nesting Birds – avoid potential nest sites or clear them out of season, between mid September and the beginning of March. Take care to avoid birds building nests in stacks of construction materials and waste. If these precautions cannot be followed in particular instances, the area affected should be checked by an appropriate ecologist or ornithologist before work begins.

Amphibians and Reptiles - site workers should be made aware that any deliberate or reckless harm to reptiles is illegal. Careful site clearance, as for nesting birds, can minimize the potential risk to these species. Any species that is not fully protected can be moved off site and into suitable safe habitat a short distance away, but snakes should only be handled by suitably experienced workers.

Mature trees – trees should be protected in accordance with BS 5389/2012, and where remedial work is needed this should be carried out by tree surgeons with training in bat protection.

Surface water - Pollution control procedures and spillage action plans and materials should be in place. Pollution protection guidelines must be followed.

4.4 Habitat management and enhancement

The proposed works should have very little impact on habitat for wildlife. If any mature tree is lost it should be replaced by planting several young specimens of native species appropriate to the locality. Any proposed tree planting should provide some habitat gain. Any tree and shrub planting for biodiversity should be with locally appropriate native species, of British origin, rather than simply 'British provenance', and preferably with stock of local origin.

About 15m of hedgerow would be lost, but there is scope for about 150m of the site and access route margins to be planted with native hedgerow. This should include a range of locally appropriate shrubs, and could incorporate other habitat features such as planting on a low hedge bank and seeding with a diverse hedgerow herb community. The use of commercial 'quickthorn' rather than locally native hawthorn plants must be avoided.

As there should be very little biodiversity impact from this scheme, a gain in habitat value can be easily achieved. A new ephemeral pond, or attenuation basin, is proposed, which would add wetland habitat or standing water to the site, depending on its construction. There is scope for further tree and shrub planting. The loss of improved grassland should be temporary; many quarry sites around this locality have been restored to grassland.

Restoration to more diverse habitat might be possible, in accordance with the Worcestershire Green Infrastructure Strategy and the Mineral Products Association Biodiversity Strategy. This would be an economic decision; there may still be a need for disposal of inert waste in landfill. Restoration as grazing land over inert waste with some additional habitat creation would be a habitat gain on this site.

Other habitat gains could come from introducing appropriate woodland flora to the recently planted areas, restoring old gappy hedgerows, and placing bird and bat boxes on trees in the edges of wooded areas.

Any pond created as part of a sustainable drainage scheme should be kept free of fish and invasive plants; workers must be made aware of the importance of this. A suitably experienced ecologist should be consulted over any pond planting scheme, as several common native water plants would be unsuitable in this size of pond, and some others are poisonous to humans.

REFERENCES and BIBLIOGRAPHY

Bat Conservation Trust 2012, *Bat Surveys, Good Practice Guidelines*

Bat Conservation Trust: the BCT website, with information sheets on UK bat species, and on lighting around buildings

Department for Communities and Local Government 2012, National Planning Policy Framework: *Conserving and enhancing the natural environment* HMSO, UK. 2012.

Department for Communities and Local Government 2005 *Planning Policy Statement 9: Biodiversity and Geological Conservation*. HMSO, UK. 2005.

Department for Communities and Local Government 2005 *Circular 06/2005 Biodiversity and Geological Conservation – Statutory obligations and their impact within the planning system* HMSO, UK. 2005.

HMSO 1981 *The Wildlife and Countryside Act 1981 (as amended 1985 and by quinquennial review and by the CROW Act)*. London.

HMSO 2010 *The Conservation of Habitats & Species Regulations 2010*. London.

JNCC 2003 *Handbook for Phase 1 habitat survey: A technique for environmental audit*.

JNCC 2003 Gent T and Gibson S eds. *Herpetofauna Workers Manual*

Lewis S G 2016 *Madeley Heath Pit SSSI: An Assessment of the potential impact of the proposed Haul Road on the Pleistocene deposits of Special Scientific Interest*

Mineral Products Association www.mineralproducts.org the MPA Biodiversity Strategy

Multi-Agency Geographic Information for the Countryside (website) www.magic.gov.uk

Natural England: the Natural England website www.naturalengland.org.uk

This gives access to summaries of wildlife legislation, licensing forms and procedures, etc. and the current mitigation manuals for protected species, including the *Great crested newt mitigation manual*

Worcestershire County Council website www.worcestershire.gov.uk the Worcestershire BAP & the Worcestershire Green Infrastructure Strategy & the Minerals Plan

NBN Gateway (National Biodiversity Network) www.searchnbn.net.

For the national database of records for protected and BAP species

Ordnance Survey current and historic mapping at 1:2,500 and smaller

Rose, Frances 2006 *The Wild Flower Key, as revised*, O'Reilly C., Frederick Warne, London

Rodwell J S (Edit) 1998 *British Plant Communities Volume 1: Woodlands, Volume 3: Grasslands and Montane communities*, Cambridge University Press, UK (these volumes give the National Vegetation Classification descriptions)

Sinker C. A. et al 1985 & 1991 *Ecological Flora of the Shropshire region*, Shropshire Wildlife Trust, Shrewsbury, UK

Stace, Clive 1997 *New Flora of the British Isles 2nd edn*. Cambridge University Press, UK

ANNEX 1

Additional photographs



Woodland belt around the site, January 2016



Mature oaks, feature 7, August 2017



Row of trees, feature 9, May 2012



Older woodland, feature 10, January 2016



Large oak adjacent to the Money Lane end of the roadway

ANNEX 2

Notes on wildlife Legislation, planning issues and protected species

Impact zones around SSSI and similar sites

SPECIES PROTECTION IN RELATION TO DEVELOPMENT

Survey for protected species can be lengthy, and may require site visits at particular times of the year. Survey may not be fully effective unless commissioned well before submission of a planning application. Large or complex sites, and sites likely to include the most important bat roosts, ideally need a survey period of 12 months or more.

Notes below refer to sites in England, while the species notes reflect the current situation in the English West Midlands region and the Welsh Border Counties.

These notes are not formal legal advice, which should be sought from members of the legal profession with specialist knowledge of wildlife law.

LEGAL CONSTRAINTS

There are three principal sources of legal protection for wildlife in the UK. These are:

The Wildlife and Countryside Act 1981 (the WCA) with its amendments under statutory review every 5 years and by later Acts, particularly the Environmental Protection Act 1990 and the Countryside and Rights of Way Act 2000 (the CROW Act).

The WCA as amended gives protection to plant and animal species listed under its schedules 1, 5 & 8, and to designated sites, typically Sites of Special Scientific Interest (SSSI). Section 9 of the WCA lists offences including killing or injuring, uprooting, capturing, possession, disturbance, destruction of places of shelter, sale and associated activities. A species that is protected from all of the offences that might apply to it is described as 'fully protected', but if only some of the possible offences are applied then it is 'partially protected'. The level of protection given to a fully protected species is here described in relation to water voles (see below, in species notes). Schedule 9 (not Section 9) lists some invasive non-native plants such as Japanese knotweed; it may be an offence to cause these species to spread. Further details are given at the end of the species notes following this section.

The CROW Act makes most WCA offences into arrestable criminal offences, and includes offences committed 'recklessly' as well as deliberately. The concept of recklessness can relate to the level of responsibility due from an individual or organisation. It might be considered reckless if a developer, architect or other professional failed to seek specialist ecological advice.

Developers, development professionals, contractors and site workers all need to be aware that individual responsibility under the WCA always applies, and is not removed by any decision by a planning authority, nor by any advice from an ecological consultant, nor by any EPS mitigation licence.

The Conservation of Habitats and Species Regulations 2010, (the Habitats Regulations 2010) which consolidate the Conservation (Natural Habitats &c.) Regulations 1994 and its amendments in 2007, 2008 and 2009.

The Habitat Regulations are similar in some aspects to the WCA, but put into UK law the European Habitats Directive. The Regulations include annexes that list species for protection, including but not limited to all bats, otters, dormice and great crested newts. These are known as European Protected Species (EPS). The main overall impact of the Regulations on development has been to require developers to commission ecological and protected species survey well in advance of planning decisions, and to establish a rigorous licensing process. Licenses may be granted to permit developments that would otherwise breach the Habitat Regulations.

The Habitat Regulations do provide the means of prosecuting individuals and organisations that commit offences against scheduled species and habitats, but their main effect is to place a duty on national and local government to ensure the survival of populations of these species and their habitats, through policy, legislation and the planning process. A recent judicial review has provided a judgement that planning authorities are expected to ensure that a development meets the requirements of the Habitats Regulations before granting planning consent. This applies whenever the likely presence of an EPS is a material consideration. (Wooley vs Cheshire East Borough Council and Millennium Estates Ltd, June 2009, see Natural England Statement)

The 2010 Regulations take up the 2007 and 2009 amendments which modified the definition of an 'offence' to make the Regulations consistent with the equivalent offence in the WCA 1981, and broadened the scope for proceeding without a licence. The 2010 Regulations do not allow the defence that harm was caused 'as an incidental result of a lawful operation and could not reasonably have been avoided', but do allow for legal low level disturbance provided that it does not '*Deliberately disturb animals of an EPS in such a way as to be likely to significantly affect 1) the ability of*

a population of that species to survive, breed or rear or nurture their young, or 2) the local distribution of the species.' The Regulations include protection for habitats that are important for hibernation and migration. They establish a requirement for ministerial approved guidance to clarify the scope of offences and to help developers consider whether their operations are likely to breach regulations & require licensing. Most importantly, the current DEFRA guidance (relating to the 2009 amendments) states that *'current changes retain the requirement that for the offence to be committed, the result of disturbance must affect important life cycle processes and so low level or inconsequential disturbance that does not have these impacts is not captured by the offence in these Regulations,'* and that *'in most cases it is not expected that an action which disturbed a single animal or a small number of animals would have sufficient impact to be caught by the offence'* unless that EPS were to become *'particularly rare'*. Updates to this guidance are likely to appear after 2010, in response to the new regulations.

The Protection of Badgers Act 1992 (The Badgers Act): The Badgers Act is intended to prevent deliberate cruelty and other actions that cause suffering to badgers, rather than to meet a conservation purpose. Badgers are common and widespread, with no apparent threat to the UK population as a whole. Potential causes of harm, disturbance or suffering are from construction work in the vicinity of their holes and loss of foraging area within the territory of a social group.

PLANNING POLICY

The Local Plan for a planning authority area is based on local needs and conditions, in relation to government policy expressed in Planning Policy Statements such as the National Planning Policy Framework document *Conserving and enhancing the natural environment*, Department for Communities and Local Government (DCLG) 2012. In response to local values, the national policy documents, and other expressions of concern for nature conservation, local plans contain policies to protect biodiversity and habitat features of local and national importance. Local Plans are being replaced by Local Development Framework document sets, which comprise a Core Strategy, Site Allocations or Area Plans, and Supplementary Planning Documents. There is usually a separate SPD for Nature Conservation, stating policies and the level of mitigation expected.

The DCLG has also provided a circular advising on statutory obligations to conserve biodiversity and geological features within the planning system, DCLG Circular 06/2005. Paragraph 99 of this states that 'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted ...'.

The Natural Environment and Rural Communities Act 2006 places a duty to conserve biodiversity on all public authorities. Local planning authorities will respond to this through the implementation of policies and procedures. PPS9 includes a requirement for local authorities to seek benefits to local biodiversity as a planning gain from any planning consents.

National and local organisations, including local government, have developed national and local Biodiversity Action Plans (BAP). These include action plans to conserve named species, which may or may not receive statutory protection. In the UK BAP these are now referred to as Priority Species. Paragraph 84 of the DCLG Circular makes it clear that, in addition to legal provisions, UK and local Biodiversity Action Plan habitats and species are a material consideration in planning decisions and therefore require the same scrutiny.

As a consequence of the *Wooley vs Cheshire East* decision, planning authorities now seek a higher level of survey information and mitigation detail, approaching that required for an EPS licence application, before planning consent is granted. This means that it is even more important to start the ecological survey process at the very beginning of a project, which will allow the likely costs of full survey and mitigation to be determined, and can allow enough time to gather complete survey data in the appropriate season.

Planning authorities may now expect to be provided with evidence that ecological survey work has made significant progress before they will validate a planning application. This may take the form of a scoping report or an initial survey report.

LICENSING

Licences from Natural England are needed where a development will have a direct adverse impact on EPS and some other species, or where there is potential for significant impact on a local population. Licences in effect permit some otherwise illegal actions under strict conditions. The licensing process is lengthy and demanding in the case of European Protected Species, and is not part of planning consent. Natural England grants EPS licences for development projects in England, and will not consider an application until outline consent has been given. The licence itself will not normally be granted until full planning permission has been given. Licensing authorities expect that licence applications

should be based on extensive survey of the local population. Some different arrangements may apply in the case of major public projects and projects that will take place in phases over several years.

SPECIES

Badgers

Badgers are protected under the Badgers Act, from activities that can cause suffering. Vibration from construction plant can cause disturbance, and possibly the collapse of holes. Past Natural England guidelines have suggested that development needs licensing if it involves work within certain distances of a sett (any permanent place of shelter, typically 1 or more holes): heavy construction plant within 30m, light plant within 20m, and hand tools within 10m. Current advice is that the potential impact should be assessed on a site specific basis by an experienced ecologist or a badger specialist. Pile driving and similar operations need site specific consideration.

Loss of foraging area may be an important factor – badger social groups (clans) probably need at least 3.5ha of permanent grassland or an equivalent woodland resource. Where there are close spaced clans a development project may result in starvation or injury from fighting. Survey should take place in winter, but may need to continue up to the start of development. Licenses are not granted for any actions taking place during the breeding season (1st December – 30th June).

Bat species

All 18 British bat species have EPS status, protected under the WCA and the Habitat Regulations. Bats use a sequence of roosts in an annual cycle, for shelter and breeding. Roost requirements differ between species and suitable roosts are used repeatedly; particular roosts may be critical for the survival of a local population. Legal protection may therefore cover roosts even when they are not occupied. Roost sites include hollows and smaller flaws in trees, roof spaces in houses and other buildings, walls with insulation cavities, wall cladding, cracks and hollows, and caves, cellars and mines. Recently built properties may be used, and most traditional concepts of bat roosts and behaviour are misleading.

Initial bat surveys to check for unknown roosts can take place at any time, but may be less effective in winter, while 'likely absence' often cannot be determined without activity survey involving several visits between May and September. A site with bat activity in the vicinity and suitable roost features, or key habitat features around it, will need careful investigation.

Otters

Otters have EPS status, protected under the WCA and the Habitat Regulations. They are solitary and territorial, typically marking several kilometres of a watercourse as a territory. Otters hunt for fish in water but often travel on land and may move away from the sides of watercourses. They may also use canals. Development issues often centre on not severing territories or dispersal routes, not causing disturbance at night and not disturbing otter holts. Survey can be at any time, but is less reliable in winter.

Dormice

Dormice have EPS status, protected under the WCA and the Habitat Regulations. They typically occupy areas of dense old woodland and networks of dense hedgerows where there is high species and structural diversity, but are not restricted to these habitats. They avoid open ground, but spread along hedges and woodland edges. Dormice presence should be considered in any scheme that involves removal of hedgerows, woodland or dense undergrowth in areas that are linked by similar habitat to old hedgerow networks and woodlands.

Survey is difficult, and effective survey may be restricted to autumn and early winter or require long-term methods.

Water Voles

Water voles received limited legal protection under the WCA in 1998, but the protection was extended in 2008, so the water vole is now fully protected under Section 9. It is an offence to intentionally kill, injure or take (capture) a water vole; possess or control a live or dead water vole, or any part of a water vole; intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place; sell, offer for sale or advertise for live or dead water voles.

There is no provision under the WCA for licensing what would otherwise be offences for the purpose of development, maintenance or land management. Such activities must be covered by the formal defence that permits otherwise

illegal actions if they are an incidental result of a lawful operation and could not reasonably be avoided. The defence requires that reasonable steps are taken to avoid unnecessary damage, and for developers, this can best be achieved by undertaking a water vole survey at the appropriate time prior to planning any work and ensuring that appropriate avoidance or mitigation measures are included in the proposals. Survey can take place throughout the year, but is less reliable in winter. Water voles need sloping earth banks on the sides of water bodies, a good mix of plant food, and refuge from high water levels. The introduced American mink is a critically significant predator, which limits the distribution of water voles.

Fully protected bird species

About 80 bird species are listed in Schedule 1 of the WCA; these are in effect fully protected species. The great majority of these are limited to a few areas of Britain, typically in mountainous, wetland or coastal habitats. There are 3 winter migrant species that can occur throughout Britain; brambling, fieldfare, and redwing. These may occasionally breed in parts of the UK including the West Midlands conurbation, but are unlikely to be an additional issue in development schemes. A further 4 species breed in lowland England and may occur on or close to development sites; kingfisher, barn owl, black redstart and little ringed plover. These all have particular requirements for their breeding sites. Little ringed plover presents a particular problem as it selects nest sites on gravel close to open water. This habitat can be created accidentally in the course of construction work.

Breeding birds

All birds are protected while breeding in the UK, under the WCA. They are protected from killing, injuring, disturbance, destruction of nests and nest sites, and from the taking of eggs. Almost any habitat will provide potential nest sites for some species, including temporary habitat created by construction work. This potentially imposes a severe constraint on development, but the constraint can be avoided by careful timing of site clearance and good site management. Sites should be cleared of cover between late August and early March. Other conservation issues mean that the best periods for site clearance are late September to the end of October, or mid February to early March.

Reptiles

Grass snake, adder, slow worm, and common lizard are widespread reptile species that are partially protected under the WCA. Their protection is against killing, injuring and sale. 'Fear of snakes' is not an acceptable reason for harming any reptiles, and provides no defence against prosecution. These species are often listed in Biodiversity Action Plans, and thus may be a planning issue requiring precautions and habitat mitigation. Survey is not effective in winter, and full survey can be time consuming.

For reptile species the conditions that apply to the 'incidental result' defence (see water vole notes) are particularly relevant; reasonable effort has to be made to avoid harming them. Because they are hard to find and seek shelter when disturbed it is usually necessary to capture and remove them before development begins.

Two fully protected reptiles, smooth snake and sand lizard, are limited to sites in the south of England and to western coastal areas.

Great crested newts

Great crested newts have EPS status, fully protected under the WCA and the Habitat Regulations.

They are amphibians that breed in water but hibernate and forage on land. Typical breeding ponds are small, fish free, with aquatic vegetation, and close to other similar ponds. Good land habitat has areas of dense vegetation and hedge banks or loose material that provide shelter. Populations are often localised, and newts may use habitat that is not particularly favourable. They generally remain within 100m of breeding ponds, but can spread further, with 500m being the generally accepted limit.

Survey can take place between mid February and mid September, but the March to June period is most important. Considerable survey effort may be needed to show that newts are probably absent from any site with or close to suitable ponds.

One survey option is environmental DNA testing (eDNA) of water samples from the pond, with sampling carried out by a gcn survey licence holder between mid April and the end of June. A 'not present' result is not as definite a proof of absence as a nil return from a full trapping and torching programme, but may be accepted by planning authorities.

Other amphibians

Natterjack toad, a European Protected Species, is rare and appears to be limited to a few known sites. The pool frog, which is an EPS as of October 2008, currently has limited populations found in a very few known sites in the UK.

Common frog, common toad, smooth newts and palmate newts all have partial protection under the WCA, from sale and associated activities only. Populations in urban areas may be vulnerable, so are included in some local Biodiversity Action Plans.

White clawed crayfish

The endangered native crayfish is partially protected, from taking and sale. Non-native species carry a disease that is fatal to the native species, so must not be introduced or returned to any water bodies, and if taken must be killed. This means that any 'capture' of a crayfish can result in an offence, and accidental introduction of non-native crayfish or their diseases must be avoided. Native populations are now restricted to some streams, large pools and isolated sections of canal. Licences are needed for most forms of survey, which is effectively limited to the April to October period.

Other fully protected species

There are many more plant and animal species that have EPS status or fully protected status, including for example some fish, rare aquatic plants, and some beetles and lichens associated with veteran trees. These species, such as the floating water plantain, violet click beetle and the pearl mussel are usually restricted to known and protected sites.

Other priority, BAP and listed species

Planning policies often include protection for UK Priority species and local BAP species, and as a planning matter this protection will relate to their habitat rather than the individual organisms. This protection may also extend to 'red data book' species, 'birds of conservation concern' (British Trust for Ornithology listing) and UK rare or notable species. Some local BAP plans also have broad categories such as 'all solitary wasps and bees', 'farmland birds' or 'all wild native orchids'. Many of these species are well known, such as skylarks, lapwings and fritillary butterflies, but others are very obscure and would not normally be considered in a pre-planning ecological survey. In general, any planning application that affects old trees, long-established woodland, wetland, hedgerows and heathland, and diverse grassland of any age on thin soils, needs to protect these habitats as far as possible.

Plant species

The sites where protected, rare or valued plants are found have mostly been recorded and would be reported in record searches, but care needs to be taken around relatively unimproved or undisturbed habitats. No plants should be uprooted or parts of plants collected without the owner's permission.

There is a minor issue concerning bluebells; the true wild native bluebell is protected against commercial harvesting, through protection against sale under the WCA. Hybrid bluebells are often found growing wild, but true native populations should be conserved and where unavoidably dug up in the course of development should not be traded in any way.

Schedule 9 plant species

These are certain invasive non-native plants that can cause serious harm to semi-natural habitats. Japanese knotweed is the classic example and has been on the schedule for many years, but the schedule has been expanded in recent years to include several water plants sold by nurseries as 'oxygenating plants', and some shrubs commonly used in landscape schemes, including four cotoneaster shrubs.

It is in effect an offence to remove any part of these plants in a live condition from a development site without special provision for handling and disposing of them; soil and rubbish or brash including their live roots and shoots are best considered as a form of toxic waste and can incur high tip charges. Destruction or eradication on site, before work begins, is the best approach. In the case of Japanese knotweed this can take several years, and in the case of water plants ponds may need to be completely drained down.

These notes are presented as the view of ecologists, based on the understanding of wildlife law and planning policy gained in the course of that work and on advice given in various official publications. These notes are not formal legal advice, which should be sought from members of the legal profession with specialist knowledge of wildlife law.

Sources of information

The most reliable information comes from the websites of government organisations, government sponsored organisations and local government:

Natural England: www.gov.uk/government/organisations/naturalengland/services-information

Natural Resources Wales: www.naturalresourceswales/protected species

The NRW site provides additional information about different licensing arrangements in Wales

Scottish Natural Heritage: www.snh.gov.uk species licensing section

Scottish law is a little different, but the SNH website provides some very clear summaries of the protected species issues

For all of the above it is easiest to simply do an online search, inputting the name of the organisation and 'protected species', although it is worthwhile to look at the wider information around species conservation.

Local government websites contain planning advice and usually have links to their nature conservation SPD and the local biodiversity action plan. The local BAP can be accessed by searching on the city or county name and 'BAP'.

www.nonnativespecies.org is a government sponsored body and provides very good information on invasive species, although it is not specifically aimed at development-related issues

Some conservation organisations are very scientific in their approach and their websites provide sound information on the various species involved:

www.arctrust.org/planning for amphibians and reptiles

www.bats.org.uk go to planning through 'search' or 'I am looking for' and to 'about bats' for species details

www.bto.org and go to 'bird facts' for species information

And, finally:

Stories about protected species in the national and local media, and in magazines aimed at particular interest groups, are very often misleading and wrong in many details. Easy target, cheap headlines, they are not going to get sued by a newt.

Impact risk zones for SSSI, SAC, SPA and Ramsar sites

Impact risk zones have been mapped at generalised radii around all biological Sites of Special Scientific Interest (SSSI sites). The zones are set at: within the SSSI, up to 50m from the SSSI boundary, 50 to 200m, 200 to 500m, 500m to 1km, 1 to 2km, 2 to 3km, 3 to 5km. For certain categories of development the planning authority is obliged to refer the application to Natural England (or the equivalent national Statutory Nature Conservation Agency (SNCA)). These categories of development are summarised in the tables on the following pages.

The tables are summaries; where there is any likelihood that a development will require consultation with the SNCA further details must be considered, with reference to the SNCA website and an early enquiry to the planning authority. Note that some terms, such as 'combustion' will have a scientific rather than an everyday meaning.

Special Areas for Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites are usually also SSSI sites. The boundaries of Ramsar sites are usually co-incident with SSSI boundaries; there may be differences between SSSI, SAC and SPA boundaries. The outermost boundaries will usually be considered.

The constraints are increasingly rigorous the closer the development is to the protected site. For example, while most infrastructure developments such as new roads have to be referred if they are within 2km of a site, only new aviation facilities have to be referred at over 2km distant. Any planning application directly affecting ground inside or within 50m of a site has to be referred.

The planning authority may choose to refer a development to the national conservation authority, even if not included within the 'obligatory' categories; this is particularly significant in the case of Ramsar sites, which are internationally important wetland sites, and SAC sites that protect aquatic species. In these cases the potential impacts on groundwater and surface water within the catchment area of the wetland or aquatic site will be considered, and potential increases in recreational activity will also be considered.

The developer may be required to submit a Habitat Risk Assessment (HRA) or to provide detailed information about the development. An HRA will need all potential risks to the wildlife conservation of the site to be rigorously assessed, possibly requiring input from ecologists, hydrologists and hydro-geologists.

In Cheshire, Herefordshire, Shropshire and Staffordshire some of the following issues may have an effect on planning requirements:

Developments close to the Welsh border may have to be referred to Natural Resources Wales as well as Natural England, where proposed developments in Cheshire, Herefordshire or Shropshire fall within the impacts zones of SSSI and similar sites in Wales.

The Midlands Meres and Mosses Ramsar site is diffuse, including many SSSI sites scattered over a wide area. HRA requirements are therefore complex. This has been considered in the SAMDev process in Shropshire and the requirement for HRA has been screened out for some allocated development sites (see Shropshire SAMDev document CD 6). Cheshire and Staffordshire also include parts of this Ramsar site and may have similar arrangements.

ZONE / CATEGORY	50m to 200km	200m to 500km	0.5km to 1km
All Planning Applications	<i>Only applies within 50m</i>		
Infrastructure	Pipelines, cables & pylons, new road, rail & water routes, all new aviation facilities	Pipelines, cables & pylons, new road, rail & water routes, all new aviation facilities	Pipelines, cables & pylons, new road, rail & water routes, all new aviation facilities
Wind & Solar Power	<i>Only applies within 50m</i>		
Mineral, Oil & Gas extraction	Quarrying: new, review (ROMP), extension, variation to conditions. Oil & gas exploration and extraction	Quarrying: new, review (ROMP), extension, variation to conditions. Oil & gas exploration and extraction	Quarrying: new, review (ROMP), extension, variation to conditions. Oil & gas exploration and extraction
Rural non-residential	Any large non-residential development outside existing settlements with over 1,000 sq.m. new floor space or any with over 0.2ha footprint		
Residential	Any residential development with a nett gain in number of units	Residential developments of 100 or more units	Residential developments of 100 or more units
Rural Residential	Any residential development with a nett gain in number of units outside existing settlements	Residential developments of 50 or more units outside existing settlements	Residential developments of 50 or more units outside existing settlements
Air Pollution	Any development that could cause air pollution or dust in its construction or operation, including industrial or agricultural process	Any development that could cause air pollution or dust in its construction or operation, including industrial or agricultural process	Any industrial or agricultural process causing air pollution, e.g. slurry pits over 200cu.m., pig & poultry units
Combustion	All general combustion processes, including incineration of waste, pyrolysis, gasification, sewage treatment	All general combustion processes, including incineration of waste, pyrolysis, gasification, sewage treatment	General combustion processes with over 20MW energy exchange, including incineration of waste, pyrolysis, gasification
Waste	Any mechanical or biological waste treatment. Any landfill. Any recycling facilities for household or other waste.	Any mechanical or biological waste treatment. Any landfill. Any recycling facilities for household or other waste.	Landfill: hazardous, non-hazardous & inert
Composting	Any composting or fermentation proposal	Any composting or fermentation proposal	Any composting / fermentation of waste over 500 tonne annual throughput
Discharges	Any discharge of water or liquid waste to ground water or surface water, excluding discharge to mains sewer systems		
Water Supply	Any large infrastructure such as warehousing / industry over 1,000 sq.m. new floor space (could apply to hotels) or any requiring own water supply	Any large infrastructure such as warehousing / industry over 1,000 sq.m. new floor space (could apply to hotels) or any requiring own water supply	Any large infrastructure such as warehousing / industry over 1,000 sq.m. new floor space (could apply to hotels) or any requiring own water supply

ZONE / Category	1km to 2km	2km to 3km	3km to 5km
All Planning Applications			
Infrastructure	Pipelines, cables & pylons, new road, rail & water routes, all new aviation facilities	All new aviation facilities: airports, helipads etc.	All new aviation facilities: airports, helipads etc.
Wind & Solar Power			
Mineral, Oil & Gas extraction	Quarrying: new, review (ROMP), extension. Oil & gas exploration and extraction	Quarrying: new, review (ROMP), extension. Oil & gas exploration and extraction	
Rural non-residential			
Residential			
Rural Residential			
Air Pollution	Any industrial or agricultural process causing air pollution, e.g. slurry pits over 200cu.m., pig & poultry units, industrial processes	Any industrial or agricultural process causing air pollution, e.g. slurry pits over 750cu.m., pig & poultry units, industrial processes	Any industrial or agricultural process causing air pollution, e.g. slurry pits over 750cu.m., pig & poultry units, industrial processes
Combustion	General combustion processes with over 20MW energy exchange, including incineration of waste & other, pyrolysis, gasification	General combustion processes with over 50MW energy exchange, including incineration of waste & other, pyrolysis, gasification	General combustion processes with over 50MW energy exchange, including incineration of waste & other, pyrolysis, gasification
Waste	Landfill: hazardous, non-hazardous & inert		
Composting	Any composting / fermentation of waste over 7,500 tonne annual throughput		
Discharges			
Water Supply	Any large infrastructure such as warehousing / industry with over 1,000 sq.m. new floor space (could apply to hotels)		

Land South of Chadwich Lane, Belbroughton, Worcestershire

Supplementary Notes on Protected Species, May 2019

An ecological report was submitted following surveys in 2016 and 2017 (Camlad Ecology, Oct 2017). That report concluded that there was no likely adverse impact on protected species, given a normal level of care during development and operation.

The site has been re-visited by the original surveyor, E J Lomas, on 30th April 2019, to check on the current state of the habitat in and around the proposed development. No significant changes have been found.

The County Ecologist has raised questions about potential bat roosts in a mature oak tree adjacent to the access road junction with Money Lane, and the potential presence of dormice, in relation to the October 2017 report. These questions may also relate to earlier reports.

The Oak Tree

Concerning the oak tree, the County Ecologist has asked: 'Why was a 'potential roost feature' value assigned to the large Oak tree at the proposed entrance to Money Lane?'

The basis for this query is not clear to me, as the tree in question was mentioned only once in the October 2017 report, as habitat feature¹⁶, section 3.1, page 15:

16 There is a single large oak in the hedgerow just north of the gateway. If the opening splay is increased in width this tree would need assessment and protection.

This tree was not identified as a potential bat roost that might be affected by the development as it is unlikely to be affected by the development. It is outside the development boundary and in different ownership to the development site; it is probably within highway land. Any increase in the width of the roadway should be to the south rather than the north, and the width of the roadway already increases as it approaches the gateway. The crown of the tree does not project significantly over the existing roadway. No night time working or illumination is proposed. There is ample distance to increase the visibility splay beyond the gateway. For these reasons this tree was not discussed in detail in the 2017 report.

Some further detail may clarify the issues. The tree is a large mature pedunculate oak that has suffered some damage to its upper crown, clearly not vehicle damage as it affects branches that are well above vehicle height. It has a stem diameter (dbh) of about 980mm and a height of about 13m, with a crown spread of about 14m. The base of the stem is about 3.5m from the existing roadway and 11m from Money Lane, at the back of a very wide verge. This was noted during earlier survey work and confirmed in April 2019. There is a useful image of the tree in the 2017 report, in Annex 1, page 27.

The tarmac surfaced roadway has been in place for at least 20 years, as revealed by Google Earth images from 1999 onwards. The roadway itself, probably stone surfaced, was present in 1945. The tree will therefore be adapted to the presence and use of the road. Its crown spread does not project over the roadway; it appears to have been trimmed away from 2006 onwards and the upper crown damage is visible on images from 2012 onwards.

As a consequence of the upper crown damage, the tree does have potential bat roost habitat, but under the current proposals there should not be any impact on this tree. The October 2017 report emphasises the importance of careful working around all mature trees:

Mature trees – trees should be protected in accordance with BS 5389/2012, and where remedial work is needed this should be carried out by tree surgeons with training in bat protection. Section 4.3, page 23

Some pictures of the tree follow:



The tree in relation to the gateway



The tree in relation to Money Lane

Hazel Dormice

The Worcestershire County Ecologist has also asked:

'Why was hazel dormouse excluded from the list is species considered in your assessment/report?'

It would perhaps have been helpful to reference the fully protected hazel dormouse in the text, but the report did state that given the absence of standing water, watercourses and ancient woodland in or around the site, the notable species associated with these habitats are very unlikely to be present. In our view this would have included dormice; much of the habitat survey and its description in the text indicated that the landscape around the site is unsuitable for this species.

There are small areas of habitat that would have some value for dormice, if they were well connected and more extensive:

- A small copse of hazel and hawthorn (habitat feature 8 in the 2017 report), planted less than 30 years ago
- Two areas of bramble and willow scrub (features 11 & 14)
- A small area of old trees (feature 10) with understorey
- Belts and hedges of new mixed broadleaf planting (feature 3, 4 & 12) all under 20 years old; these are unlikely to provide foraging resources until mature

However, the report also notes that many of the older hedgerows are grown out and gappy (feature 6 and the habitat plan) and that the landscape including the site was in intensive arable cultivation in 1945, as shown on an aerial photograph (in Google Earth). This continues until about 1950, from which date onwards the area around the site is progressively disrupted by quarrying and infill operations, as shown on large scale OS maps, as noted. For these reasons the small pieces of suitable habitat will have been isolated for many years.

We remain strongly of the view that this is not the type of landscape that will support a population of dormice, due to isolation, disruption and a lack of extensive and connected habitat.

There were no dormouse records in the data supplied by WBRC in 2017, for a 1.5km radius around the site centre. Since this is a limited area, the NBN records for a wider area were also studied. This part of the desk study was referred to in the report. In north Worcestershire east of the River Stour and within 10km of the site there are just 4 records for dormice, from 3 locations. All these records are over 30 years old; the nearest to the site is about 3.5km to the west. There are no NBN records for dormice in the large areas of ancient woodland within 10km that make up part of Feckenham Forest SSSI (Pepper Wood and Chaddesley Woods), beginning 1.8km south of the site, nor are there any references to dormice in the readily available published information and SSSI citations for these woodlands. Both are managed by conservation organisations, the Woodland Trust and Worcestershire Wildlife Trust.

All of these factors indicate that dormice are unlikely to be present. Apart from a short length of mature hedgerow, no other tree and scrub habitat would be affected by the proposed development.

Recent survey findings

The walk-over survey on 30th April 2019 found no significant changes. The proposed site for the sand quarry is still under short-grazed pasture, while hedges and shelter belts around the site and haul route appear unchanged. Ponds P1 and P3 were both dry at the time; P2 appears on some older maps and plans but has never been evident during the surveys. Scrub in habitat feature 11 had become denser. Woodland belts in feature 12 had undergone thinning and crown lifting/undertrimming.

A small increase in badger activity was evident as more defined pathways and there were some shallow trial burrows in the older woodland, habitat feature 10. A watch should be maintained on badger activity, but it is considered unlikely that there would be a risk of harm or disturbance from the proposed development.