# Appendix 10.1e
# Extension Area – Dormouse Survey Report

# LINHAY HILL QUARRY: EXTENSION AREA

## DORMOUSE SURVEY REPORT

*On behalf of E & JW Glendinning Ltd.*

MARCH 2016

# CONTENTS



# LIST OF FIGURES

# SUMMARY

E&JW Glendinning Ltd. is proposing an extension of their existing operation at Linhay Hill limestone quarry, near Ashburton. The site being considered for the extension lies immediately north-east of the existing quarry and is currently managed as mixed farmland associated with Alston Farm.

During the desk study, Dormouse records were found scattered across woodlands to the north of the Site on Ashburton Down and Ramshorn Down, with the closest record 1.3km from the Site at Owlacombe. The Extended Phase 1 Habitat Survey carried out in April 2014, identified suitable habitat for Dormice within the extensive hedgerow network across the site which was found to offer a good diversity of shrubs, suitable natural nesting sites and a high degree of habitat connectivity, particularly with surrounding woodlands to the north-west and north-east.

The survey objective was to establish the presence / likely absence of Dormouse within the site and immediate surrounds using a combination of survey techniques (nest tubes and nut searches), adopting a sampling strategy across all areas of potentially suitable habitat.

A total of 200 nest tubes were deployed in May 2014 in areas of suitable habitat (see Figure 1) and were checked for Dormice or evidence of occupancy (in the form of characteristically woven nests) on a bi-monthly basis until December 2014. Systematic nut searches were also carried out in November 2014 within Alston Wood immediately north of the Site to search for hazelnuts opened by Dormice.

The nest tube survey confirmed the presence of Dormice within the Site and a maximum of 11 nest tubes were found to contain Dormice or evidence of occupation during any given check, representing an occupancy rate within the tubes of 5.5%. The maximum count of individuals recorded on any one survey visit was 15 (including adults and juveniles), recorded during the check in October. Given the widespread distribution of records from across the Site, on a precautionary basis the presence of Dormice should be assumed within all hedges and areas of suitable habitat.

During the nut searches within Alston Wood, hazelnuts showing characteristics of having been opened by Dormice were found in one out of the two quadrats.

Based on the recorded presence of a permanent, viable (breeding) population of Dormice, and factoring in the known presence of this species in the surrounding area as well as population trends at both a national and county-level, overall the Site is considered to be of County value for this species.

# 1.0 INTRODUCTION

## 1.1 OVERVIEW & SURVEY OBJECTIVES

Woodfield Ecology was commissioned to carry out a presence / likely absence survey for Dormouse *Muscardinus avellanarius* survey on behalf of E&JW Glendinning Ltd. within / surrounding land to the north-east of Linhay Hill Quarry near Ashburton, Devon. The area of land is being proposed for a quarry extension to extend the operational lifespan of this working limestone quarry.

The land for the proposed extension (hereafter referred to as "the Site") is owned by E&JW Glendinning Ltd., which together with associated screening, infrastructure and mitigation, covers an area of c. 47 hectares situated within the south-eastern edge of Dartmoor National Park, in and around Alston Farm (centred on NGR SX776717).

The purpose of the survey was to establish the presence / likely absence of Dormice within the Site and immediate surrounds using a combination of survey techniques (nest tubes and nut searches) within potentially suitable habitat. The results of the survey, together with an evaluation of the importance of the Site with regards this species are detailed within the following report.

## 1.2 CONSERVATION STATUS & PROTECTION

### 1.2.1 Conservation Status

Dormice are primarily arboreal, typically inhabiting woodland, hedgerow and scrub habitat. They are naturally scarce due to low population densities and recruitment, and specialist habitat requirements (Morris, 2004). For these reasons they are particularly vulnerable to habitat loss and fragmentation resulting from agricultural change and other developments. They are now extinct in seven counties of England and their distribution has declined by more than a half during the twentieth century (Bright et al., 1996).

Devon is a major stronghold of the species. However, whilst no detailed quantification of population change has been possible (due to lack of comparable data over time), indirect evidence from the losses of hedgerow length and declines in quality of hedgerows and woodlands that have occurred in the county over the past few decades, indicate that Dormice have probably also declined in Devon (Devon BAP, May 2009).

### 1.2.2 Legislation

The Dormouse is a fully protected species under the Wildlife and Countryside Act (1981; as amended) and is also a European Protected Species (EPS) under the Conservation of Habitats and Species Regulations (2010), as amended. Taken together these pieces of legislation make it an offence to:

- *deliberately capture, injure or kill any wild animal of a European protected species;*
- *deliberately disturb animals of any such species. Disturbance of animals includes in particular any disturbance which is likely:*

  *(a) to impair their ability —*

  *(i) to survive, to breed or reproduce, or to rear or nurture their young; or*

  *(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or*

  *(b) to affect significantly the local distribution or abundance of the species to which they belong; or*
- *damage or destroy a breeding site or resting place of such an animal (including sites that are currently unoccupied).*

For development works which would contravene the above legislation a derogation licence must be applied for, which in England is issued by Natural England. In accordance with the requirements of the Habitat Regulations, a licence can only be issued where the following requirements are satisfied:

- *The proposal is necessary to 'preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'.*
- *There must be 'no satisfactory alternative'; and*
- *'The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.*

Dormice are also listed as Species of Principal Importance (SPI) for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to priority species and habitats in exercising their functions including development control and planning.

### 1.2.3 Planning Policy

The National Planning Policy Framework (NPPF) forms the basis for planning decisions with respect to conserving and enhancing the natural environment. The ODPM circular 06/2005 provides supplementary guidance, including confirmation that the presence of a legally protected species may be a material consideration in the making of planning decisions.

The NPPF sets out, amongst other points, how at an overview level the 'planning system should contribute to and enhance the national and local environment' by:

- *recognising the wider benefits of ecosystem services; and*
- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures…'*

A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF. They include the following:

- *'if significant harm resulting from a development cannot be avoided…adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *…opportunities to incorporate biodiversity in and around developments should be encouraged.'*

In addition, the Dartmoor National Park Core Strategy and Development Management and Delivery Development Plan Document (DPD) include a number of policies which include for protected species:

- *'protect, maintain or enhance the biodiversity interests, and seek opportunities to restore or recreate habitats or linkages between them;*
- *further the conservation and enhancement of nationally protected species or habitats;*
- *conserve, enhance or restore priority habitats and species;*
- *protect and where appropriate enhance other defined sites, features, habitats, species, networks or natural processes of ecological importance;*
- *ensure that effective avoidance or mitigation measures are implemented (which may include off-site compensation); and*
- *result in no net loss of biodiversity.'*

The Dormouse is also a priority species in the UK Biodiversity Action Plan (UKBAP) and receives targeted conservation efforts at a local-level through its inclusion in the Devon BAP.

## 1.3 PRE-EXISTING SURVEY INFORMATION & RECORDS

In April 2014, an Extended Phase 1 Habitat Survey was completed by Woodfield Ecology which was supported by an ecological desk study exercise. Records of legally protected species and species of conservation concern were requested from Devon Biodiversity Records Centre (DBRC) for the Site and within a 2km radius.

During the desk study, Dormouse records were found scattered across woodlands to the north of the Site on Ashburton Down and Ramshorn Down, with the closest record 1.3km from the Site at Owlacombe.

During the Extended Phase 1 Habitat Survey carried out in April 2014, suitable habitat for Dormice was identified within the extensive hedgerow network across the site. The majority of hedges were found to be regularly managed and cut annually which had resulted in wide and dense hedges which contained a good diversity of woody species including Hazel, Bramble, Ash, Blackthorn and Grey Willow, all of known value to Dormice (Bright et. al. 2006). The hedges also offered suitable natural nesting sites including potential winter nesting sites within the exposed root systems of mature shrubs and hollows within the earth banks and summer nesting sites within the hedge 'canopy', particularly at the point of re-growth from cutting in previous years.

As well as providing suitable habitat to support a permanent Dormouse population, the hedges within the Site were also considered to offer habitat connectivity and dispersal routes between off-site woodlands (mainly to the north-west and north-east, given that the A38 Devon Expressway may act as a potential barrier to Dormice due to the lack of arboreal connectivity). Alston Wood immediately to the north of the Site was found to offer suitable habitat for Dormice with its relatively open canopy and well-developed sub-canopy layer (including old Hazel copses) and scrub-fringed clearings and rides.

# 2.0 METHODOLOGY

## 2.1 NEST TUBE SURVEY

A nest tube survey was carried out between May – December 2014 (inclusive) in line with current best practice guidance (Bright et. al., 2006).

A total of 200 nest tubes were deployed in May 2014 within sampling locations chosen from across the Site in the locations shown on Figure 1. Within each sampling location, tubes were spaced approximately 20m apart and were fixed firmly using wire underneath horizontal branches of trees / shrubs, with entrances typically facing into the centre of the shrub / tree and at an angle of no greater than 45$^{o}$ (with the entrance lower to avoid ingress of rain etc.).

Dormouse nest tubes consist of a length of corrugated plastic tubing with a wooden sliding tray which also forms the end of the tube. Nest tubes can be utilised by Dormice as an alternative to tree holes and other natural nesting sites. Other species, such as Wood Mice or birds may also use the Dormouse nest tubes; however, Dormice build nests that are readily identifiable. Their nests are tightly woven, usually made from the bark stripped from honeysuckle or clematis, but occasionally nests are created from grass and other tall plants such as bracken (Chanin and Woods, 2003).

Tubes were checked for Dormice or evidence of occupation by Dormice on a bi-monthly basis by a licensed surveyor (refer to Section 2.4 below), with the first check carried out in June 2014 and the final check (and tubes collected) in December 2014.

To provide an indication of the thoroughness of a survey for Dormouse, using best practice guidance (Bright et. al., 2006), a score can be derived based on an index of probability of finding Dormice present in any one month, as shown in Table 1 below.

**Table 1: Index of Probability of finding Dormice present in nest tubes in any one month (Bright et. al, 2006)**

| Month | Index of Probability (based on 50 tubes installed within a survey area) |
|---|---|
| April | 1 |
| May | 4 |
| June | 2 |
| July | 2 |
| August | 5 |
| September | 7 |
| October | 2 |
| November | 2 |

The sum of the above indices is then calculated to give an overall score, which may be increased or decreased proportionate to the actual number of tubes deployed within the survey area (i.e. if 100 tubes are used whilst still maintaining the recommended spacing between tubes, the overall score can be doubled, according to guidelines produced by Natural England, 2011). A minimum overall score of 20 is required in order to have confidence in a negative (likely absent) result.

Given that 200 tubes were deployed within the survey area and were left in situ between May – December, the overall score (sum of the indices of probability) is 24 considering values per month only, or 96 if the number of tubes is factored in. Given that survey effort far exceeds the minimum requirements and it is considered that the results provide a reliable level of evidence.

## 2.2 NUT SEARCHES

Nut searches were carried out within woodland immediately adjacent and north of the Site (Alston Wood), in stands dominated by Hazel *Corylus avellana* during November 2014.

A systematic nut search was carried out using the standard methodology of searching 10m x 10m areas under heavily fruiting stands of Hazel for 20 minutes. All hazel nuts encountered during this time were collected, counted and opened nuts were analysed for signs of characteristic gnawing by Dormouse or other species including Grey Squirrel *Sciurus carolinensis*, Wood Mouse *Apodemus sylvaticus* and Bank Vole *Clethrionomys glareolus*. Due to the limited amount of Hazel found within Alston Wood, with very few shrubs found to have heavily-fruited that season (refer to Section 2.5 below), two quadrats were searched for nuts, as shown on Figure 1 (Q1-Q2).

## 2.3 BASELINE EVALUATION CRITERIA

The ecological valuation is based on the guidelines set out in Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2016). The known or potential value of an ecological resource or feature is determined within the following geographical context:

- International and European;
- National;
- Regional;
- County;
- Local.

## 2.4 DATES OF SURVEY & PERSONNEL

The dates for each of the survey visits are shown in Table 2 below:

**Table 2: Dormouse Survey Dates**

| Task | Date |
|---|---|
| Deployment of 200 nest tubes across hedgerows within the Site | 12th May 2014 |
| Bi-monthly nest tube inspections | 25th June 2014 |
| | 19th August 2014 |
| | 16th and 23rd October 2014 |
| Final check & collection of nest tubes | 5th December 2014 |
| Nut searches in Alston Wood | 18th November 2014 |

All surveys were undertaken by Becky Prudden MCIEEM who has over 10 years of experience of carrying out Dormouse surveys and holds a Natural England survey licence for this species: Class Survey Licence WML CL10A (Dormouse Level 1) registration no. CLS02821.

## 2.5 SURVEY LIMITATIONS

### 2.5.1 Nest Tube Survey

As previously highlighted, a sampling strategy was adopted for the nest tube survey which ensured that all parts of the Site were thoroughly represented within the survey, though did not include every last hedge. This is a common approach to surveying within large Sites; and is not considered a limitation given that this approach has been considered in the interpretation of the results as well as the valuation.

With regards the interpretation of nest tube survey results, caution is required as a lack of any evidence of Dormice within nest tubes does not necessarily indicate absence. Where habitat is optimal Dormice will often favour natural nest sites such as hollow tree branches, old bird nests etc. which can mean that the artificial nest tubes are not used. Despite this, although it is virtually impossible to prove that Dormice are absent from any area of appropriate habitat within their natural range, an adequate survey will give confidence that any significant populations will have been detected (Bright et. al., 2006).

Whilst the vast majority of tubes were checked on each survey visit, due to dense and impenetrable vegetation growth within some of the hedges as well as minor losses caused by annual / routine hedge trimming, not all tubes could be located on every survey visit. However, this only ever affected a maximum of four nest tubes on any one survey visit and replacements for any damaged tubes were made immediately (in between the bi-

monthly checks). As such a limited number of the 200 tubes present were affected at any time, this is not considered to place any constraints upon the interpretation of the results.

### 2.5.2 Nut Searches

Hazel was recorded as locally frequent throughout Alston Wood during the Extended Phase 1 Habitat Survey carried out in April 2014. However, within these scattered old copses, heavily-fruiting Hazel was found to be relatively sparse at the time of the nut survey and as such only two areas with a sufficient hazelnut mast were identified and sampled using two quadrats. Whilst this is below the number of quadrats prescribed within survey guidelines (minimum five quadrats in each contiguous woodland area, Bright et. al., 2006), this was unavoidable given the shortage of nuts identified. However, given that the presence of Dormice was confirmed using just two quadrat searches; overall this is not considered a significant limitation in this instance.

# 3.0 RESULTS

## 3.1 NEST TUBE SURVEY

During the nest tube survey, the presence of Dormice was confirmed from locations across the Site. The full results of the Dormouse nest tube survey are shown in Appendix 1 and Figure 2 shows the location of nest tubes occupied by Dormice, or where evidence of occupation was found.

Table 3 below provides a summary of the nest tube survey results. Given that the number of tubes checked on each survey varied slightly due to a small number of tubes not being located for the reasons outlined in section 2.5 above, Dormouse occupancy rates are expressed as a percentage of the overall number of tubes found on any one visit.

**Table 3: Summary of Nest Tube Survey Results**

| | June | August | October | December |
|---|---|---|---|---|
| **Total No. of tubes checked** | 196 | 200 | 199 | 199 |
| **Tube Nos. showing recent signs of Dormouse occupancy** | 131 | 131 | 6,9,15,27, 28, 34, 60, 64, 83, 175, 194 | N/A |
| **No. of Dormice found (adults & juveniles)** | 0 | 0 | 15 | 0 |
| **No. of tubes with signs of recent Dormouse occupancy (occupied & unoccupied nests)** | 1 | 1 | 11 | 0 (only old remnant / disintegrated nests found). |
| **% of tubes showing recent signs of Dormouse occupancy** | 0.5% | 0.5% | 5.5% | 0% |

The occupancy of Dormice within nest tubes increased over the survey period, with a maximum of 11 nest tubes found to contain Dormice or evidence of occupation during the check in October, representing an occupancy rate of 5.5%. The maximum count of individuals recorded on any one survey visit was 15 (11 adults and 4 juveniles), which was also recorded during the check in October.

During the nest tube survey the presence of Dormice was confirmed within the following four broad locations, as shown on Figure 2:

- Edge of Alston Wood (forming the northern site boundary) and connecting hedges;
- Linear woodland / connecting hedges along Caton Lane in the north-east of the Site) and hedges surrounding fields close to Caton;
- Linear woodland / connecting hedges forming the south-eastern Site boundary with the A38 Devon Expressway; and
- Hedges alongside Alston Lane (south-western Site boundary) and the western end of track to Alston Farm.

Incidental records of other species found using the nest tubes included frequent records of Wood Mouse. The presence of this species (including unoccupied nests) was recorded in a maximum of 44 nest tubes on any one survey, representing a maximum occupancy rate of 22% with a widespread distribution recorded across the Site. In some cases, Wood Mouse was found to have made nests in tubes previously occupied by Dormouse (e.g. Tube 131).

## 3.2 NUT SEARCHES

During the nut searches, evidence of Dormice in the form of characteristically opened nuts was found in one of the two quadrats searched. The full results of the nut searches are provided in Table 4 below and Figure 2 shows the location of quadrats where evidence of Dormice was found.

**Table 4: Summary Results of Nut Searches**

| Quadrat | Tally of Hazelnuts found within quadrat opened by: | | | | Total No. of opened nuts found | % of nuts in quadrat opened by Dormice |
|---|---|---|---|---|---|---|
| | Grey Squirrel | Wood Mouse | Bank Vole | Dormouse | | |
| **Q1** | 30 | 1 | 0 | 0 | 31 | 0 |
| **Q2** | 160 | 11 | 0 | 1 | 172 | 0.6% |

The vast majority of opened hazelnuts showed characteristics of having been opened by Grey Squirrel with Wood Mouse-gnawed hazelnuts the next most frequently encountered opened nuts. A single hazelnut showing characteristics of having been opened by Dormice was found within Q2.

# 4.0 VALUATION AND CONCLUSIONS

The combined results of the nest tube survey and nut searches have confirmed the presence of Dormice across the hedgerow network within and surrounding the Site as well as within Alston Wood immediately to the north. Desk study records of Dormouse found scattered across woodlands on Ashburton Down and Ramshorn Down, together with a high degree of habitat connectivity to the north of the Site would therefore suggest that the population found within the Site is part of a much larger metapopulation found within this part of the Dartmoor National Park.

Given the widespread distribution of records of Dormice across the Site and the high degree of hedgerow connectivity, combined with the uniform character of the hedgerow network (with regards age, species composition and management), the results suggest a high probability of the presence of Dormouse in all hedges present across the Site. For the purposes of assessing impacts and determining licensing and mitigation requirements, the presence of Dormice in all hedges and suitable habitats should therefore be assumed.

It is not possible to estimate the density of the Dormouse population present with confidence based on field survey data. Densities of dormice are naturally thought to be quite low in England, compared with other small mammals. In early summer there are typically only 3 to 5 (but sometimes up to 10) adults per ha in deciduous and coniferous habitats with an mean spring density of 1.3 adults per ha in hedgerows (or approximately 1 adult every 300m) (Bright et al 2006).

Based on the maximum count of 11 adult Dormice recorded on any one survey visit, together with the presence of juveniles which indicates that there is a successful breeding population in the area, the recorded Dormouse population appears to be stable and healthy. Using the average densities presented in Bright et. al 2006 and based on a hedgerow network with a total length of 9km, it can therefore be assumed that the Site as a whole could potentially support in the region of 30 adult Dormice (based on a mean spring density of 1 adult per 300m of hedgerow).

Whilst Devon remains a stronghold for this species, the Dormouse has undergone dramatic population declines elsewhere within the UK, and local trends suggest a similar decline may be occurring at a county-level (refer to Section 1.2.1). Overall, the Site is therefore considered to be of County importance for the Dormouse population it supports.

# REFERENCES

Bright, P.W. (1996). Status and Woodland Requirements of the Dormouse in England. No.166 – English Nature Research Reports. English Nature, Peterborough.

Bright, P., Morris, P. & Mitchell-Jones, T. (2006). The Dormouse Conservation Handbook. English Nature, Peterborough.

CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

Chanin, P and Woods, M (2003) Surveying dormice using nest tubes. Results and experiences from the South West Dormouse Project. English Nature Research Report No. 524.

Dartmoor National Park Authority (2008), Local Development Framework Core Strategy Development Plan Document 2006 -2026 Adopted Version. Dartmoor National Park Authority

Dartmoor National Park Authority (2013) Dartmoor National Park Development Management and Delivery DPD, Dartmoor National Park Authority

Department for Communities and Local Government (2012), National Planning Policy Framework. Department for Communities and Local Government, London

Devon Biodiversity Records Centre (DBRC) Data Search. Performed May 2014: Reference 'Data search results - Alston (Enq 6854)'

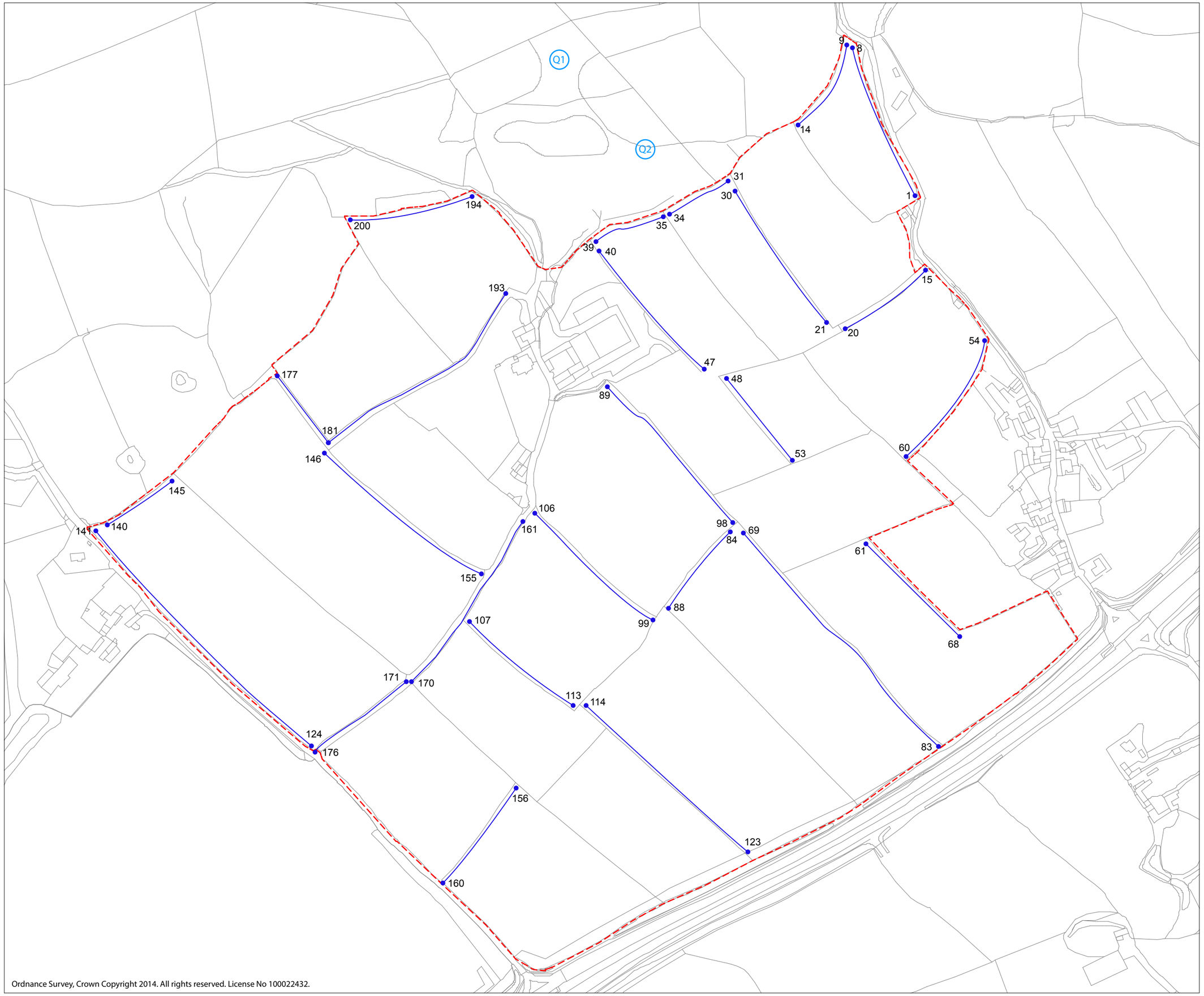
HMSO (2006) Natural Environment and Rural Communities Act

HMSO (1981) The Wildlife and Countryside Act

HMSO (2010) The Conservation of Habitats and Species Regulations

Morris, P. (2004). Dormice. Whittet Books, Stowmarket.

Natural England (2011). Interim Natural England Advice Note - Dormouse Surveys for Mitigation Licensing: Best Practice and Common Misconceptions. Natural England, Peterborough.




Survey Area

Dormouse Tube Locations (start and end tube nos. indicated)

Nut Search Quadrat Locations

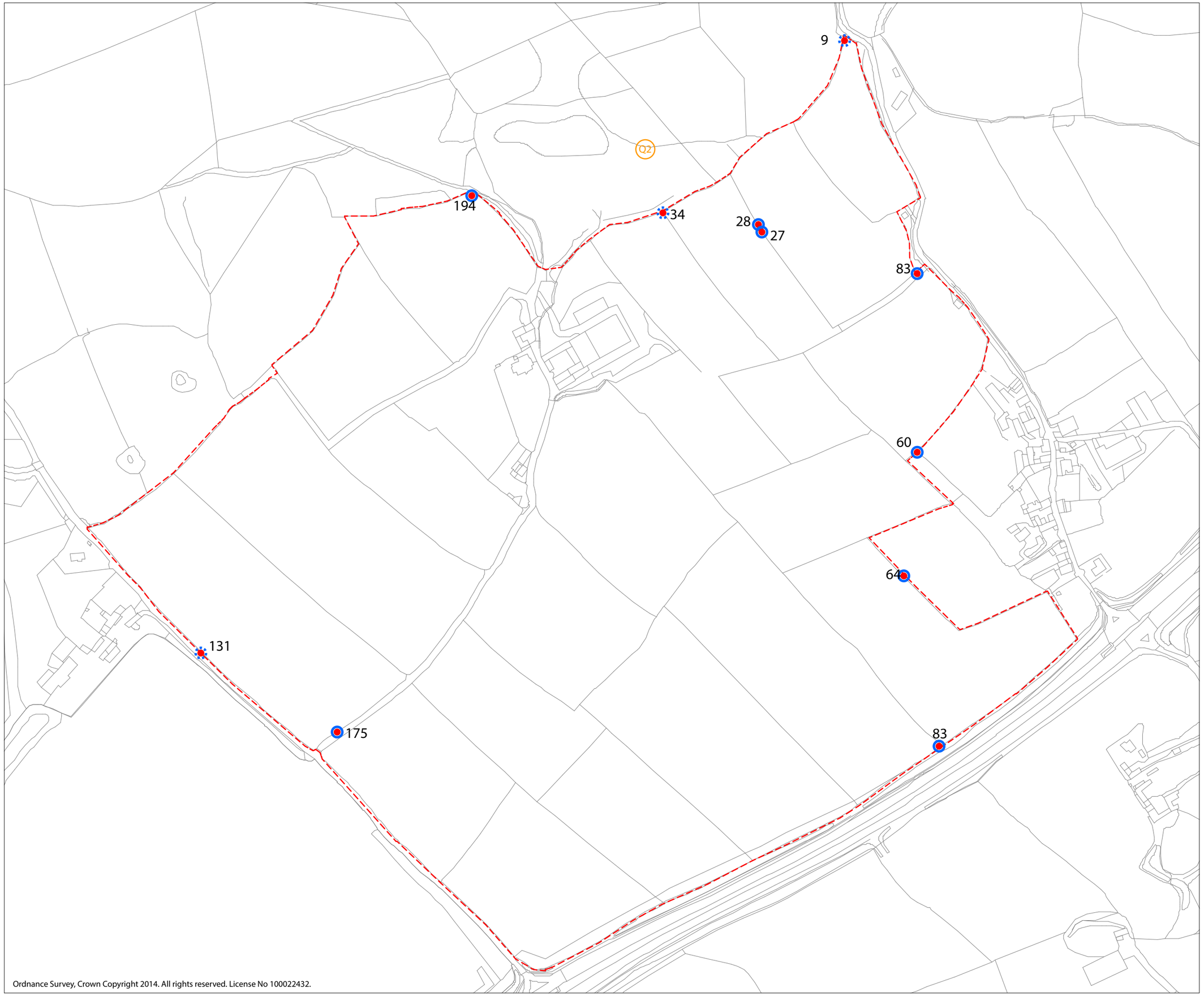
0 100

**Linhay Hill Quarry: Extension Area**

Dormouse Survey: Dormouse Tube and Nut Search Locations

Figure 1

WOODFIELD ECOLOGY




Survey Area

Occupied Dormouse Nest Found

Un-occupied Dormouse Nest Found

Q1 Nut Search Quadrat Location where evidence of Dormouse found.

0 100

**Linhay Hill Quarry: Extension Area**

Dormouse Survey: Dormouse Tube and Nut Search Results

Figure 2

WOODFIELD ECOLOGY

# APPENDIX A: NEST TUBE SURVEY DATA

| Tube No. | Hedge No. (refer to Phase 1 report) | Attached to | June Date of Check: 25/06/2014 | August Date of Check: 19/08/2014 | October Dates of Check: 16/10/2014 and 23/10/2014 | December Date of Tube Collection: 05/12/2014 |
|---|---|---|---|---|---|---|
| **1** | H17 & woodland edge | Ash | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **2** | | Hawthorn | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **3** | | Hawthorn | | | | |
| **4** | | Hazel | | | | |
| **5** | | Hawthorn | | | | |
| **6** | | Hazel | | | **Occupied Dormouse nest (1 adult male & 1 sub-adult – not sexed)** | Old remnant nest |
| **7** | | Hawthorn | | | | |
| **8** | | Hazel | | | Cache of Rose-hips | |
| **9** | H16 | Ash | | | **Unoccupied Dormouse nest – no fresh leaves in outer layers** | Old remnant nest |
| **10** | | Sycamore | | | | |
| **11** | | Blackthorn | | | | |
| **12** | | Blackthorn | | | | |
| **13** | | Blackthorn | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **14** | | Hazel | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **15** | H13 | Hazel | | | **Occupied Dormouse nest (1 adult – not sexed as disturbed from tube on approach)** | Old remnant nest |
| **16** | | Sycamore | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **17** | | Ash | | | | |
| **18** | | Sycamore | | | | |
| **19** | | Sycamore | | | Tube not found | |
| **20** | | Sycamore | | | | |
| **21** | H11 | Hawthorn | | | | |
| **22** | | Hazel | | | | |
| **23** | | Hawthorn | | Occupied Wood Mouse | Unoccupied Wood | Old remnant |

| **Tube No.** | **Hedge No. (refer to Phase 1 report)** | **Attached to** | **June Date of Check:** 25/06/2014 | **August Date of Check:** 19/08/2014 | **October Dates of Check:** 16/10/2014 and 23/10/2014 | **December Date of Tube Collection:** 05/12/2014 |
|---|---|---|---|---|---|---|
| | | | | nest (single adult) | Mouse nest | nest |
| **24** | | Hawthorn | | | | |
| **25** | | Hawthorn | | | | |
| **26** | | Ash | | | | |
| **27** | | Goat Willow | | | **Occupied Dormouse nest (1 adult male present)** | Old remnant nest |
| **28** | | Hawthorn | | | **Occupied Dormouse nest (1 adult male, 1 adult female present)** | Old remnant nest |
| **29** | | Hazel | | | | |
| **30** | | Blackthorn | | | | |
| **31** | Woodland edge | Goat Willow | | | | |
| **32** | | Hazel | | | Occupied Wood Mouse nest (3 adults present) | Old remnant nest |
| **33** | | Hazel | | | | |
| **34** | | Hazel | | | **Dormouse nest (none present)** | Old remnant nest |
| **35** | Woodland edge | Beech | | | | |
| **36** | | Hazel | | | | |
| **37** | | Hazel | | | | |
| **38** | | Hazel | | | | |
| **39** | | Hazel (over fence) | | | | |
| **40** | H7 | Hazel | | | | |
| **41** | | Hazel | | | | |
| **42** | | Hazel | | | | |
| **43** | | Hazel | | | | |
| **44** | | Hazel | | | | |
| **45** | | Hazel | | | | |
| **46** | | Ash | | | Occupied Wood Mouse nest (1 adult present) | Old remnant nest |
| **47** | | Hazel | | | | |
| **48** | H5 | Hazel | | | | |
| **49** | | Blackthorn | | | Unoccupied Wood Mouse nest | Old remnant nest |

| **Tube No.** | **Hedge No. (refer to Phase 1 report)** | **Attached to** | **June Date of Check:** 25/06/2014 | **August Date of Check:** 19/08/2014 | **October Dates of Check:** 16/10/2014 and 23/10/2014 | **December Date of Tube Collection:** 05/12/2014 |
|---|---|---|---|---|---|---|
| **50** | | Hazel | | | | |
| **51** | | Hazel | | | | |
| **52** | | Dog Rose | | | | |
| **53** | | Ash | | | | |
| **54** | H19 | Wild Plum | | | | |
| **55** | | Hawthorn | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **56** | | Dogwood | | | | |
| **57** | | Hazel | | | | |
| **58** | | Hazel | | | Occupied Wood Mouse nest (1 adult and 3 juveniles present) | Old remnant nest |
| **59** | | Hazel | | Occupied Wood Mouse nest (1 adult present) | Unoccupied remnant Wood Mouse nest | Old remnant nest |
| **60** | | Hazel | | | **Occupied Dormouse nest (1 adult male)** | Old remnant nest |
| **61** | H22 | Hawthorn | | | Unoccupied Wood Mouse nest (old nest) | Old remnant nest |
| **62** | | Holly | | | No nest but Wood Mouse feeding remains (nuts) | |
| **63** | | Blackthorn | | | | |
| **64** | | Blackthorn | | | **Occupied Dormouse nest (1 adult female & 3 juveniles present)** | Old remnant nest |
| **65** | | Dogwood | | | Unoccupied Wood Mouse nest & feeding remains | Old remnant nest |
| **66** | | Dogwood | | | | |
| **67** | | Blackthorn | | | | |
| **68** | | Hazel | | | Unoccupied (old) Wood Mouse nest | Old remnant nest |
| **69** | H23 | Hazel | | | Unoccupied Wood Mouse nest (unfinished) | Old remnant nest |
| **70** | | Hazel | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **71** | | Hawthorn | | | | |

| **Tube No.** | **Hedge No. (refer to Phase 1 report)** | **Attached to** | **June Date of Check:** 25/06/2014 | **August Date of Check:** 19/08/2014 | **October Dates of Check:** 16/10/2014 and 23/10/2014 | **December Date of Tube Collection:** 05/12/2014 |
|---|---|---|---|---|---|---|
| **72** | | Holly | | | Occupied Wood Mouse nest (3 adults present) | Old remnant nest |
| **73** | | Hawthorn | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **74** | | Elm | | | | |
| **75** | | Elm | | | | |
| **76** | | Blackthorn | | | | |
| **77** | | Ash | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **78** | | Elm | | | | |
| **79** | | Hawthorn | | | Unoccupied Wood Mouse nest (unfinished) | Old remnant nest |
| **80** | | Blackthorn | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **81** | | Hazel | | | Unoccupied Wood Mouse nest (old nest) | Old remnant nest |
| **82** | | Hazel | | | Occupied Wood Mouse nest (2 adults present) | Old remnant nest |
| **83** | | Hawthorn | | | **Occupied Dormouse nest (1 adult male present)** | Old remnant nest |
| **84** | H2 | Hazel | | | Unoccupied Wood Mouse nest (old nest) | Old remnant nest |
| **85** | | Ash | | | | |
| **86** | | Hazel | | | | |
| **87** | | Hazel | | Wood Mouse feeding remains (gnawed nuts) | Unoccupied Wood Mouse nest (none present) | Old remnant nest |
| **88** | | Hazel | | Wood Mouse feeding remains (gnawed nuts) | Wood Mouse feeding remains (gnawed nuts) | Old remnant nest |
| **89** | H3 | Ash | | | | |
| **90** | | Hazel | | | | |
| **91** | | Hazel | | | | |
| **92** | | Elm | | | | |
| **93** | | Hawthorn | | | Occupied Wood Mouse nest (1 adult | Old remnant nest |

| Tube No. | Hedge No. (refer to Phase 1 report) | Attached to | June Date of Check: 25/06/2014 | August Date of Check: 19/08/2014 | October Dates of Check: 16/10/2014 and 23/10/2014 | December Date of Tube Collection: 05/12/2014 |
|---|---|---|---|---|---|---|
| | | | | | present) | |
| **94** | | Hazel | | | | |
| **95** | | Blackthorn | | | | |
| **96** | | Holly | | | | |
| **97** | | Hawthorn | | | | |
| **98** | | Hazel | | | | |
| **99** | H1 | Blackthorn | | | | |
| **100** | | Hazel | | | | |
| **101** | | Hazel | | | | |
| **102** | | Hawthorn | | | | |
| **103** | | Elm | | | | |
| **104** | | Holly | | | | |
| **105** | | Elm | | | | |
| **106** | | Elm | | | | |
| **107** | H30 | Elm | | | Occupied Wood Mouse nest (3 adults present) | Old remnant nest |
| **108** | | Hazel | | Wood Mouse feeding remains / food cache | Unoccupied Wood Mouse nest | Old remnant nest |
| **109** | | Dogwood | | Occupied Wood Mouse nest (1 adult present) | Unoccupied Wood Mouse nest | Old remnant nest |
| **110** | | Blackthorn | | | | |
| **111** | | Elm | | | | |
| **112** | | Hazel | | | | |
| **113** | | Hawthorn | | | | |
| **114** | H25 | Hazel | | | | |
| **115** | | Hazel | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **116** | | Ash | | | | |
| **117** | | Hawthorn | | | | |
| **118** | | Hazel | | | | |
| **119** | | Hazel | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **120** | | Elm | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **121** | | Hazel | | | | |
| **122** | | Hazel | | Unoccupied Wood Mouse nest | | |
| **123** | | Hazel | | | Unoccupied Wood Mouse nest (old nest) | Old remnant nest |

| **Tube No.** | **Hedge No. (refer to Phase 1 report)** | **Attached to** | **June Date of Check:** 25/06/2014 | **August Date of Check:** 19/08/2014 | **October Dates of Check:** 16/10/2014 and 23/10/2014 | **December Date of Tube Collection:** 05/12/2014 |
|---|---|---|---|---|---|---|
| **124** | H33 | Dogwood | | | | |
| **125** | | Ash | | Occupied Wood Mouse nest (2 adults & 2 juveniles) | Unoccupied Wood Mouse nest | Old remnant nest |
| **126** | | Hawthorn | | | | |
| **127** | | Hazel | | | | |
| **128** | | Hawthorn | Tube not found | | | |
| **129** | | Hazel | | | | |
| **130** | | Hawthorn | | | | |
| **131** | | Hawthorn (dead) | **Unoccupied Dormouse nest (fresh leaves present in outer layers)** | **Unoccupied Dormouse nest (old)** | Unoccupied Wood Mouse nest (taken over old Dormouse nest – loose, fresh nest found). | Old remnant nest |
| **132** | | Hazel (low) | | | | |
| **133** | | Ash | | | | |
| **134** | | Blackthorn (low) | | | Wood Mouse feeding remains / cache | |
| **135** | | Hawthorn | | Unoccupied Wood Mouse nest (& feeding remains) | Unoccupied Wood Mouse nest | Old remnant nest |
| **136** | | Elm | | | Food cache (rose-hips) | |
| **137** | | Hazel | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **138** | | Blackthorn | | | | |
| **139** | | Blackthorn | | | | |
| **140** | | Elm | | | | |
| **141** | H34 | Elm | | | Single adult Wood Mouse present in tube (no nest) | Old remnant nest |
| **142** | | Elm | | | | |
| **143** | | Blackthorn | | | Food cache (sloes) | |
| **144** | | Oak | | | | |
| **145** | | Oak | | | | |
| **146** | H37 | Hazel | | | | |
| **147** | | Elm | | | | |
| **148** | | Hazel (low) | | | | |
| **149** | | Hazel | | | Unoccupied Wood Mouse nest | Old remnant nest |
| **150** | | Blackthorn | | | | |
| **151** | | Blackthorn | | | Old food cache (rose- | |

| **Tube No.** | **Hedge No. (refer to Phase 1 report)** | **Attached to** | **June Date of Check:** 25/06/2014 | **August Date of Check:** 19/08/2014 | **October Dates of Check:** 16/10/2014 and 23/10/2014 | **December Date of Tube Collection:** 05/12/2014 |
|---|---|---|---|---|---|---|
| | | | | | hips) | |
| **152** | | Blackthorn | | | | |
| **153** | | Elm | | | | |
| **154** | | Elder | | | | |
| **155** | | Hawthorn | | | | |
| **156** | H28 | Hazel | | | | |
| **157** | | Hazel | | Occupied Wood Mouse nest (1 adult present) | Unoccupied Wood Mouse nest – moss added to old nest. | Old remnant nest |
| **158** | | Hazel | | | | |
| **159** | | Hazel | | | | |
| **160** | | Hazel | | | | |
| **161** | H31 | Sycamore | | | | |
| **162** | | Elm | | | | |
| **163** | | Elm (dead - on ivy) | | Unoccupied Wood Mouse nest (old) | Unoccupied Wood Mouse nest | Old remnant nest |
| **164** | | Elm (dead - on ivy) | | | | |
| **165** | | Hazel | | | | |
| **166** | | Elm | Tube not found | | | |
| **167** | | Elm | | | | |
| **168** | | Ash | | | | |
| **169** | | Elm | Tube not found | | | |
| **170** | | Elm | | | | |
| **171** | H32 | Hazel | | | Unoccupied Wood Mouse nest and feeding remains | Old remnant nest |
| **172** | | Hawthorn | | | | |
| **173** | | Sycamore | | | | |
| **174** | | Ash | | | | |
| **175** | | Hazel | | | **Occupied Dormouse nest (2 adults present, only 1 sexed as male)** | Old remnant nest |
| **176** | | Hazel | | | | |
| **177** | H38 | Hawthorn | | | | |
| **178** | | Ash | | | | |
| **179** | | Hazel | | | | |
| **180** | | Hazel | | | | |
| **181** | | Hazel | | Wood Mouse feeding remains / cache | | |

| **Tube No.** | **Hedge No. (refer to Phase 1 report)** | **Attached to** | **June Date of Check:** 25/06/2014 | **August Date of Check:** 19/08/2014 | **October Dates of Check:** 16/10/2014 and 23/10/2014 | **December Date of Tube Collection:** 05/12/2014 |
|---|---|---|---|---|---|---|
| **182** | H40 | Ash | | | | |
| **183** | | Hazel | | | | |
| **184** | | Elm | | | | |
| **185** | | Hazel | | | | |
| **186** | | Hazel | Tube not found | Unoccupied Wood Mouse nest (old) | | |
| **187** | | Dog Rose | | | | |
| **188** | | Hazel | | | | |
| **189** | | Ash | | | | |
| **190** | | Hazel | | | | |
| **191** | | Hazel | | | | |
| **192** | | Hazel | | | | |
| **193** | | Hazel | | | Occupied Wood Mouse nest (1 adult) | Old remnant nest |
| **194** | H44 | Oak | | | **Occupied Dormouse nest (1 adult present – unsexed as disturbed from tube)** | Old remnant nest |
| **195** | | Willow | | | | |
| **196** | | Hawthorn | | | | |
| **197** | | Gorse | | | | |
| **198** | | Grey Willow | | | | |
| **199** | | Hazel | | | | |
| **200** | | Hazel | | | | |
| **Total No. of tubes checked** | | | **196** | **200** | **199** | **199** |
| **No. of Dormice found (adults & juveniles)** | | | **0** | **0** | **15** | **0** |
| **No. of tubes with signs of recent Dormouse occupancy (occupied & unoccupied nests)** | | | **1 (Tube No. 131)** | **1 (Tube No. 131)** | **11 (Tube Nos. 6,9,15,27, 28, 34, 60, 64, 83, 175, 194)** | **N/A** |
| **% of tubes showing signs of recent Dormouse occupancy** | | | **0.5%** | **0.5%** | **5.5%** | **0%** |

# DOCUMENT CONTROL INFORMATION

| | |
|---|---|
| **PROJECT NAME:** | Linhay Hill Quarry: Extension Area |
| **CLIENT:** | E & JW Glendinning Ltd. |
| **REPORT TITLE:** | Dormouse Survey Report |
| **ISSUE DATE:** | March 2016 |

| | | | |
|---|---|---|---|
| **PREPARED BY:** | Becky Prudden MCIEEM | **POSITION** Principal Ecologist, Woodfield Ecology | **SIGNATURE**  |
| **CHECKED BY:** | Oliver Prudden MCIEEM | **POSITION** Technical Advisor, Woodfield Ecology | **SIGNATURE**  |

**REVISIONS:**

| Rev No. | Comments | Date |
|---|---|---|
| 001 | Draft issue to internal project team | January 2015 |
| 002 | Final issue | March 2016 |
| | | |

**Disclaimer:**

*This report is issued to the client for their sole use and for the intended purpose as stated in the agreement between the client and Woodfield Ecology under which this work was completed, or else as set out within this report. The use of this report by unauthorised third parties is at their own risk and Woodfield Ecology accepts no duty of care to any such third party.*

*Woodfield Ecology has exercised due care in preparing this report. It has not, unless specifically stated, independently verified information provided by others. No other warranty, explicit or implied, is made in relation to the content of this report and Woodfield Ecology assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others.*

*Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that Woodfield Ecology performed the work.*

*Nothing in this report constitutes legal opinion. If legal opinion is required the advice of a qualified legal professional should be secured.*