

**New England Resource Recovery Centre  
Near Lee Mill, Devon**

**Technical Appendix 12-5 – Dormouse Survey Results**



**January 2010  
SLR Ref: 402-0036-00350**



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## **1.0 INTRODUCTION**

### **1.1 Background and Aims**

Viridor commissioned SLR Consulting Ltd (SLR) to undertake a dormouse survey to support the planning application for the creation of a Resource Recovery Centre at New England Quarry near Lee Mill in Devon.

### **1.2 Legislative Context**

The hazel dormouse is fully protected under both the Wildlife and Countryside Act, 1981 (as amended) and the Conservation (Natural Habitats &c) Regulations 1994 (as amended), making it an offence to:

1. Intentionally or deliberately kill, injure or capture a dormouse;
2. Damage, destroy or obstruct access to a place used by dormice for shelter or protection; and
3. Intentionally, deliberately or recklessly disturb dormice.

As for other European Protected Species (EPS), a licence is required from Natural England where an activity is likely to result in damage or destruction of dormouse habitat or disturbance of dormice themselves. Such licences would normally cover the removal of areas of scrub or other woody suitable vegetation in which the dormouse nests.

Given that the development scheme is likely to result in the loss of areas of potentially suitable habitat, it was considered prudent to determine presence / absence of dormouse; this information would then be used to inform the planning process, identify any potential legal constraints to development and assess the need or otherwise for an EPS licence.

### **1.3 Survey Aims and Objectives**

The proposal for the development of the site includes the development of the quarry void as a Resource Recovery Centre; with a new access road connecting the site to the A38, which is located approximately 1km north of the former quarry site. The development proposals affect potential dormouse habitats, including areas of thick scrub and secondary woodland on the periphery of the quarry void which will be lost to the construction of the Resource Recovery Centre, and an area of ancient woodland to the east of the River Yealm which the proposed new access road will pass through.

A survey for dormouse was designed to:

- Confirm the presence or absence of dormouse within suitable habitat blocks which will be affected by the development proposals; and
- Assess the likely population size and distribution of dormouse within the application site and surrounding areas which would be affected by the development proposals.

## **2.0 METHODOLOGY**

A combination of techniques was used during the survey, all following the approaches set out in the Dormouse Conservation Handbook<sup>1</sup>.

### **2.1 Habitat Assessment**

An initial site appraisal was undertaken to identify areas of suitable habitat for further study and assess the overall habitat resource available to dormice within the site. This was carried out by an initial walkover survey, searching in particular for:

- Continuous hedgerows;
- Woodland with a good understory;
- Dense patches of scrub, particularly where linked to other suitable habitat;
- Trees with hollows; and
- Patches of hazel, bramble and honeysuckle.

This assessment was also extended over a wider surrounding area to assess the suitability of the local area to support dormouse and establish where offsite populations may be present and ecologically linked to the site itself. This assessment was based initially on aerial photography, and site visits where accessible.

### **2.2 Desk Study**

Devon Biological Records Centre (DBRC) was contacted and a search requested of their databases for all records of dormouse within a 2km radius of the site.

Existing dormouse survey information for New England Quarry site was also reviewed<sup>2</sup>.

A supporting statement<sup>3</sup> for the planning application for Langage Energy Centre was also obtained from the South Hams District Council website and reviewed for information on dormouse in the local area.

### **2.3 Tube Survey**

Given that previous survey work in 2007 had established the presence of dormouse in the former New England Quarry site, the 2008-09 survey focussed on establishing presence / absence in the woodland block to the east of the River Yealm; as this area would be affected by the proposed access route. A total of 70 dormouse tubes were deployed within areas of suitable habitat within Challonsleigh Plantation, Strashleigh Hams, Swainstone Hams and adjoining areas of hedgerow on 8<sup>th</sup> May 2008. Survey effort was focussed on the most suitable areas of dormouse habitat with the woodland block and those areas likely to be directly affected by the proposed access road; the approximate positions of the tubes are

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<sup>1</sup> P.Bright, P. Morris & T. Mitchell-Jones. (2006) *The Dormouse Conservation Handbook* (2<sup>nd</sup> Edition). Natural England, Peterborough

<sup>2</sup> Field Notes from 2006/7 dormouse surveys by Michael Hughes Associates

<sup>3</sup> Alstom Power Limited (2006) *Langage Energy Centre: Supplementary Environmental Statement*. Alstrm, Knutsford.

indicated on Plan 1. Monthly checks commenced in July 2008 and continued to June 2009 (with the exception of the December – March period).

Research<sup>4</sup> has shown that the relative probability of finding a dormouse or new nest in a tube varies across the year and each month can be assigned a probability index. (see Table 1 below).

**Table 1 - Monthly Index of Probability**

Month	Index of Probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

A score is assigned to each survey visit carried out during the active season (April – November inclusive) based on these probability indices, and these can then be added to provide an overall score for the survey. The number of points scored is also dependant on the number of tubes deployed, with 50 generally comprising a standard survey, while using more tubes scores more points per survey visit. For example if 50 tubes are deployed and checked each month for a whole season, this would score 25 points; however if 100 points were deployed, a score of 50 points would be awarded. Chanin and Woods (2003) recommended that a robust presence / absence survey should score a minimum of 20 points, and this approach has been accepted by Natural England.

A total of seven checks were carried out during survey period (July 2008 – June 2009), providing a total of 25 points, as shown in Table 2; the survey effort therefore complies with that recommended by Chanin and Woods, and Natural England’s published guidelines.

**Table 2 – Showing Survey Dates and Points Awarded**

Date	Points
4 <sup>th</sup> July, 2008	2
8 <sup>th</sup> August, 2008	5
24 <sup>th</sup> September, 2008	7
10 <sup>th</sup> October, 2008	2
12 <sup>th</sup> November, 2008	2
17 <sup>th</sup> April, 2009	1
13 <sup>th</sup> May, 2009	4
23 <sup>rd</sup> June, 2009	2
<b>Total Points</b>	<b>25</b>

<sup>4</sup> 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.

## **2.4 Nut Searches**

Hazel nuts are opened by dormice in a distinctive way which can be readily distinguished from nuts opened by other small mammals and birds. The presence of these distinctive nuts can therefore be useful to confirm the presence / absence of dormouse in areas with fruiting hazel. Indeed, guidance suggests if dormice are present, there is an 80% probability that that undertaking a search of three 10 x 10m areas of heavily fruiting hazel for 20 minutes each will confirm their presence. If five grids yield no dormouse nuts it can be concluded to about 90% certainty that dormouse are not present on the site, though this cannot be used alone to determine absence.

Five areas were systematically searched for dormouse nuts on 10<sup>th</sup> October 2008 using the method described above; five 10 x 10m quadrats were searched within areas of fruiting hazel in the woodland block where the proposed access road is proposed.

## **2.5 Limitations**

Lack of evidence of any one protected species in particular does not necessarily preclude their being present on site at a later date. Particularly in relation to use of habitats by dormouse, use of an individual structure or area of land can significantly vary not only on a seasonal basis but also from year to year.

The survey focussed upon suitable habitat blocks for dormouse at least part of which lie within the application site. Please note that the route of the proposed access route changed in 2009 (it formerly included Swainstone Hams), however it is considered that the habitat blocks through which the proposed route will pass has been suitably sampled to achieve the survey aims set out above.

The above limitations are considered to be minor, and it is unlikely that additional survey of the site would materially alter the conclusions of this assessment, based on the layout of the development as currently proposed.

## **3.0 RESULTS**

### **3.1 Desk Study**

DBRC did not return any records of dormouse for the site itself or the surrounding area, but in correspondence with the record centre they have informed SLR that there is very poor coverage of biological data for area surrounding the application site. The NBN database returned 15 records for the tetrad occupied by the site, the closest of which is approximately 5.45 km south east, confirming the presence of a local population.

Dormouse has also been confirmed at the site of the Langage Energy Centre, approximately 3.5km north east of the site; however this site is located north of the A38 which is likely to act as a significant barrier to dispersal for this species, and it is therefore not considered to be ecologically linked to the application site (in respect of dormouse).

A previous survey within the former New England Quarry was undertaken by Michael Hughes Associates in 2006/7<sup>5</sup>. Although the exact location of all tubes checked during this survey could not be confirmed, habitats sampled are understood to have comprised woodland and scrub habitats around the margins of the quarry void. 80 dormouse tubes were erected throughout suitable habitats within New England Quarry in 2006 and surveyed over eight months until spring 2007. A single dormouse nest was recorded in a tube in New England Plantation on the southern edge of the quarry void in March 2007 (see Drawing 1). This area of woodland was re-inspected in 2009 and continues to support suitable habitats for dormouse.

### **3.2 Tube Survey**

No dormice or nests were recorded during the 2008 / 09 tube survey.

A nest was observed within Swainstone Hams during the nut search; this is described in Section 3.3 below.

### **3.3 Nut Searches**

No nuts resembling those opened by dormouse were recorded during the systematic searches. Fruiting hazel was found to be relatively scarce, which may have impeded survey efficiency, however all opened nuts found during the survey were confirmed to have been opened by birds, squirrels or voles.

A nest was discovered in a hollow tree in the eastern edge of Swainstone Hams, approximately 100m from the south-east corner of the application site boundary, but within contiguous habitat. The delicately-woven nest was observed through a narrow split in the tree, approximately 1m off the ground. Mammal access to this nest appeared to be through a hole in the base of the tree. Dormouse nests are typically neatly woven structures, comprising woven honeysuckle bark wrapped in leaves, and are markedly different from other small rodents that make scruffier nests of whatever materials are available. While it was not possible to remove this nest from the tree for detailed inspection, it is considered to have been made and used by dormouse given its general size, shape and tightly woven nature.

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<sup>5</sup> Field notes from Michael Hughes Associates survey (2006)

### **3.4 Habitat Assessment**

#### **3.4.1 *New England Quarry***

Within the main site, habitats of value for dormouse include areas of dense scrub and secondary woodland around the margins of the worked areas of the quarry (including the area where a nest was recorded in 2007) and areas of hazel understorey in Southwood Woods / Mackrells Park to the north. Areas of wet woodland within Southwood Woods (east of the worked areas) lack understorey and are unlikely to support nesting by this species, but could still be used for foraging and / or dispersing. The remainder of habitats in New England Quarry are comprised of open ground, grassland and standing water, and do not offer any potential habitat for dormouse. Areas of woodland, scrub and hedgerow habitat which are contiguous with New England Plantation (confirmed dormouse habitat) are also considered to be utilised by dormice given the size (up to 1.2ha) and polynucleate nature of its home range, and its tendency to maintain several territories in close proximity to each other within a population.

#### **3.4.2 *Challonsleigh Plantation, Strashleigh Hams and Swainstone Hams***

To the east of the River Yealm, the proposed access road includes relatively mature but open areas of Challonsleigh Plantation which provide broadly suitable habitat for foraging and dispersing dormouse, however the structure is generally rather open and lacks suitable understorey to support nests with the exception of localised areas.

Outside of the application boundary, contiguous areas of woodland including Strashleigh Hams and Swainstone Hams to the south and east provide more structurally diverse habitats suitable for nesting, while mature trees with hollows provide further nesting opportunities (including the tree found to support a nest during the nut search, see Section 3.3 above). Dormice nesting on the eastern edge of this woodland block are likely to utilise the entire block as foraging habitat, including the area of the proposed road.



**Plate 1 – Showing an Example of Suitable Dormouse Habitat Present on Site to the East of the River Yealm**

### **3.4.3 Wider Landscape**

The River Yealm may act as a partial barrier to dispersal between woodland habitats to the east (Challonsleigh Plantation and Swainstone Hams) and west (New England Quarry), however the canopy is continuous in several places, providing aerial linkages across the channel. While regularly used home ranges may not cross this feature, it is unlikely to act as a significant barrier to dispersal of individuals from each area.

The surrounding landscape is relatively well wooded, with the application site sitting within an extensive connected block of mature semi-natural and plantation woodland which follows the Yealm Valley to the north and south. Boundaries of surrounding agricultural fields are typically broad, mature hedgerows and hedgebanks in a typical Devon style. These woodlands and hedgerows provide extensive habitat and linear connections suitable for use by dormouse. To the north of the application site there is an active inert landfill and an abandoned quarry tip which represent very low quality habitat for dormouse.

### **3.4.4 Overall Habitat Assessment**

A nest was confirmed on the main site (former New England Quarry) in 2007, while contiguous areas of marginal scrub, the hedgerow network and the wooded Yealm valley provide further relatively contiguous areas of suitable habitat for the dormouse population. Habitats to the east of the River Yealm have been shown to support nesting dormice in 2008, although much of the wider woodland block (including the proposed route of the access road) is relatively sub-optimal habitat for nesting dormouse, and likely to be used for foraging and dispersal only. Plan 1 shows areas of suitable nesting habitat (High potential) and those suitable for foraging and dispersal only (Medium potential).

## 4.0 DISCUSSION AND EVALUATION

### 4.1 Population Evaluation

A dormouse nest has been confirmed in a woodland block in the south of the application site, while further nests could be present in areas of scrub in marginal areas of the former quarry site, although any such nests would only be present at low densities. A nest was also confirmed in the woodland block to the east of the Yealm which the access road will pass through; while suitable nesting habitats within this block would not be affected, the route will include areas of habitat likely to be used for foraging / dispersal by animals nesting within the wider woodland block, given the size and polynucleate nature of this species' home range, its tendency to occupy several home ranges in close proximity of each other, and its cryptic nature.

Animals using the application site are likely to be part of a wider local population within connected woodland and hedgerow habitats, and on the basis of the very low number of records returned during the survey it is considered that dormouse only occurs at a low density within these suitable habitats. The site is therefore considered to support a small population of dormouse at the current time.

It is likely that dormouse moves throughout the locally available suitable habitats, although it is possible that the river and minor roads act as semi-permeable barriers to movements within this population. Generally, it is considered that the dormouse habitats at a landscape scale are relatively well-connected.

### 4.2 Legal Implications

It is possible that any works within woodland and scrub areas or works that affect the hedgerow network could have an impact on the local dormouse population. Dormouse is protected under Schedule 5 of The Wildlife and Countryside Act 1981 (as amended) and listed as a European Protected Species (EPS) on the Conservation (Habitats &c.) Regulations 1994. It is likely that any development affecting these habitats would have to consider the presence of dormouse and, if adverse effects cannot be avoided, a mitigation scheme, approved under licence by Natural England, would be required before development could go ahead.

Licences permit otherwise unlawful activities, and can only be granted for certain purposes. Natural England issues European Protected Species (EPS) licences for the purposes of "*preserving public health or 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*" [R. 44(2)(e)].

In every case, a licence cannot be granted unless:

*"There is no satisfactory alternative"* [R. 44(2)(e)].

*"The action authorised will not be detrimental to the maintenance of the population concerned at a favourable conservation status in their natural range"* [R. 44(3)(b)].

### 4.3 Evaluation

On the basis of the current surveys of the dormouse population at the application site the following evaluation is provided:

- Dormouse populations in the UK have decreased recently<sup>6</sup>.
- Dormouse populations in Devon are a stronghold for the UK and the population is considered stable<sup>7</sup>.
- Woodland and other suitable habitats within and around the application site are considered to support a low population of dormouse, with small numbers occurring at a relatively low density.
- The application site does not represent a significant or important area of habitat locally; i.e. it includes less than 10% of the surrounding suitable and connected habitats for the local dormouse population. This being the case, sufficient habitat would remain to maintain the local dormouse population in the long term even if all habitats within the application site were permanently lost.
- The proposal would result in temporary loss or disturbance of only a proportion of the habitats within the application site and significant additional areas of woodland would also be created.
- The proposed development is not considered to have a significant impact upon the local dormouse population. At the scale of a viable breeding population and the maintenance of the natural range of the species, no significant effects are predicted.
- It is likely that mitigation measures would be required to minimise the risks to individual dormice and that this mitigation would be delivered through an EPS licence.

The favourable conservation status of dormouse at the local, regional and national level is considered to be unaffected by the development proposals.

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<sup>6</sup> The Mammal Society (2004) Population Estimates for British Mammals

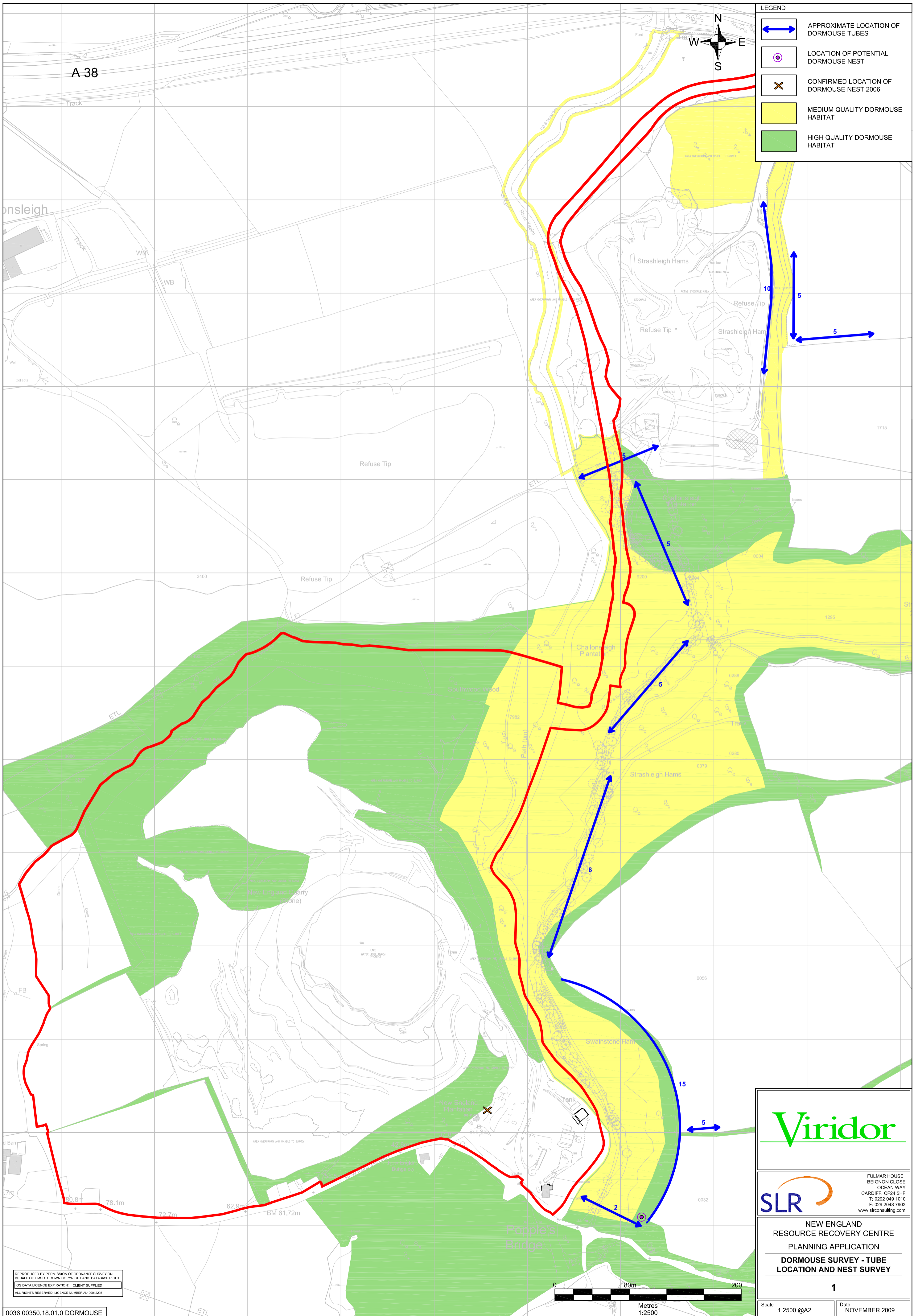
<sup>7</sup> <http://www.devon.gov.uk/dbap-mammals-dormouse.pdf> (prepared 1998)

## **5.0 CLOSURE**

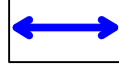




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**LEGEND**

-  APPROXIMATE LOCATION OF DORMOUSE TUBES
-  LOCATION OF POTENTIAL DORMOUSE NEST
-  CONFIRMED LOCATION OF DORMOUSE NEST 2006
-  MEDIUM QUALITY DORMOUSE HABITAT
-  HIGH QUALITY DORMOUSE HABITAT

**Viridor**

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**SLR**

FULMAR HOUSE  
BEIGMON CLOSE  
OCEAN WAY  
CARDIFF, CF24 5HF  
T: 0292 048 1010  
F: 029 2048 7903  
www.slrconsulting.com

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NEW ENGLAND  
RESOURCE RECOVERY CENTRE  
PLANNING APPLICATION

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**DORMOUSE SURVEY - TUBE  
LOCATION AND NEST SURVEY**

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Scale 1:2500 @A2      Date NOVEMBER 2009

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0036.00350.18.01.0 DORMOUSE