

60654

TACP



*FIVE MILE LANE IMPROVEMENTS
DORMOUSE SURVEY REPORT*

PARSONS BRINCKERHOFF

OCTOBER 2015

Parsons Brinckerhoff

October 2015

**TACP
10 PARK GROVE
CARDIFF
CF10 3BN**

Project Number: **60654**

Revision: **Rev 2**

Revision No.	Date of Revision	Written by	Date	Approved by	Date
0	01/06/2014	JH	01/06/2014	TR	01/06/2014
1	12/10/2015	JB	12/10/2015	TR	12/10/2015
2	20/10/2015	JH	20/10/2015	TR	20/10/2015

CONTENTS

	Page
List of Abbreviations	iii
Executive Summary	v
1 Introduction	1
2 Dormouse Ecology and Legislation	1
2.1 Dormouse Ecology	1
2.2 Dormouse Legislation	2
3 Methods	2
3.1 Desk Study	2
3.2 Field Survey	2
4 Results	3
4.1 Desk Study	3
4.2 Field Study	3
5 Assessment and Conclusions	4
5.1 Presence/absence surveys	4
5.2 Habitat assessment	4
5.3 Likely distribution of dormice on the proposed Scheme	4
6 References	5
7 Figures	5
Figure 1: Habitat Suitability Assessment	5
Figure 2: Nest Tube Survey Locations	5
8 Appendices	5
Appendix A: Dormouse Habitat Suitability Results	5

LIST OF ABBREVIATIONS

NRW	Natural Resources Wales
SEWBRcC	South East Wales Biological Records Centre
SSSI	Site of Special Scientific Interest
VoG	Vale of Glamorgan

EXECUTIVE SUMMARY

<p>This report presents the findings of Dormouse surveys undertaken as part of the Baseline Conditions surveys for the proposed Five Mile Land Improvements (the Scheme).</p>	

There are no historical records for Dormouse within 2km of the proposed route alignment, but as Dormouse is a cryptic and hard to find species this may not necessarily mean that they are absent from the area.

During a Scoping Survey for the Scheme, all hedgerows, treelines and woodland/scrub blocks were assessed for their suitability as dormouse habitat. Six locations with high potential for dormouse were then chosen for the deployment of nest tubes, which were left in place for five months and checked for signs of dormouse in July and September. Additionally, searches were carried out for characteristically-chewed hazelnuts at one of the survey locations.

No signs of dormouse were found at any of the survey locations, from either the nest-tube or nut search methods of survey. However, the presence of dormouse cannot be ruled out, as this it is very difficult to obtain evidence of dormouse presence, especially if they are present at low densities. The survey results indicate that dormouse, if present within the study area at all, are present at low densities. As a precautionary measure, habitats assessed as having the most potential to support dormice should be considered in the assessment of potential impacts and the design of mitigation measures for the Scheme.

1 INTRODUCTION

- 1.1.1 This report presents the findings of a study of hazel dormouse (*Muscardinus avellanarius*) activity undertaken as part of the Five Mile Lane Improvements, undertaken by TACP, on behalf of Parsons Brinkerhoff. The Scheme is located in the Vale of Glamorgan (VoG). The aims of the study were to assess the level of dormouse activity within the study area and to assess the likely effects of the Scheme on this protected mammal species. The level of dormouse activity within the study area was assessed by means of a desktop study, a site walkover, and a nest tube survey conducted between May and October 2014.

2 DORMOUSE ECOLOGY AND LEGISLATION

2.1 Dormouse Ecology

- 2.1.1 The hazel dormouse is a nocturnal rodent that lives mainly in deciduous woodland and scrub, feeding on fruits, flowers, seeds and invertebrates. Unlike other small mammals present in the UK, dormice hibernate during the winter months (usually October – April), due to the seasonality of their main dietary components. Hibernation takes place in closed nests woven from leaves, which they build just under the surface of the ground, within deep leaf litter, under log piles or at the base of tree stumps. Dormice are almost entirely arboreal during the summer months, living in the shrub and scrub layer of forests and hedgerows, rarely crossing open ground, perhaps due to the threat of predation. Therefore, dormice are highly vulnerable to habitat fragmentation.
- 2.1.2 In autumn, berries and nuts provide an abundant food source for dormice, and in the early summer dormice move from one species of tree to another, feeding on flowers as they bloom. In the mid- to late-summer, there is a period of potential food shortage, after flowering is over but before berries and nuts have ripened. Therefore, a high level of diversity in tree and shrub species is required in order to maintain a population of dormouse through the summer months. Certain species of tree and shrub are particularly important food sources, notably hazel (as the name suggests), which provides nuts, which are the main dietary component used by dormouse to fatten up prior to hibernation, and insects, which may be important dietary components in mid-summer.
- 2.1.3 Dormice breed during summer and autumn, building nests and typically producing litters of four or five young. During breeding, they may weave their own nests in shrubs and bushes, but prefer to use other, more robust structures such as hollow tree branches, old bird nests or squirrel dreys. They will also use artificial nest tubes or nest boxes as alternative sites for creating summer nests.
- 2.1.4 Dormice live at low densities for a small mammal; the National Dormouse Monitoring Programme indicates an average of between 1.75 and 2.5 adults per hectare. The best habitat for dormice are ancient semi-natural woodland, especially where there is a high degree of structural diversity. However, dormice also occur in other habitats, including conifer plantations, roadside plantations and scrub, particularly where these habitats are connected to more typical habitat areas for the species. Hedgerows, especially those with high species richness, can also support dormouse throughout the year. Hedgerows are also important dispersal routes, and if they are unshaded can be a vital food source for dormice.

2.2 Dormouse Legislation

2.2.1 The hazel dormouse is a European Protected Species listed under Annex IV of the Habitats Directive (Council Directive 92/43/EEC), which is transposed into UK law by the Conservation of Habitats and Species Regulations 2010 (as amended). The hazel dormouse also receives limited protection under the Wildlife and Countryside Act 1981 (as amended) and is a Species of Principal Importance for nature conservation under Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006. It is also a VoG Local BAP priority species.

3 METHODS

3.1 Desk Study

3.1.1 The South East Wales Biodiversity Records Centre (SEWBReC) was contacted and protected species records were obtained to identify any existing information on dormouse within the study area. There has also been consultation with the VoG County Ecologist and Natural Resources Wales (NRW) on 30th April 2014 and the 12th May, respectively.

3.2 Field Survey

Scoping Study – Identification of Suitable Habitats

3.2.1 A scoping study was undertaken on 20th March and 22nd April 2014. These surveys comprised a walkover of the scheme footprint and review of habitat conditions within 250 m of the proposed alignment. Additionally, an extended Phase 1 habitat survey was carried out on the 9th and 10th of June. During these surveys, notes were made of any habitats suitable for dormouse within the study area. Signs of dormouse activity, such as chewed nuts or nests, were also noted.

3.2.2 During the scoping survey, all hedgerows, woodlands and patches of scrub affected by the Scheme were assessed for their potential to support dormice. These surveys were undertaken during the Scoping Study field visit and during the Extended Phase 1 Habitat Survey. Categories were assigned to habitats, based on several factors, including diversity of food plant species, connectivity to other habitats, structure and management, as described below:

- A – optimal habitat for dormice, with a high diversity of food plants, sympathetic management, good structural complexity for creation of nest sites and links to other suitable habitats;
- B – suitable habitat for dormice, but with a lower diversity, poorer structure, less sympathetic (but not entirely adverse) management, or more isolated;
- C – sub-optimal habitat for dormice, lacking one or more of the optimal characteristics described above;
- D – suitable only for dispersal by dormice, due to low diversity or unsympathetic management, these features may be used by dormice dispersing from adjacent habitats but are unlikely to support resident dormice;
- E – unsuitable for dormice, comprising fences or ditches rather than hedgerow field boundaries.

- 3.2.3 The approximate extent of potential dormouse habitat affected by the proposed Scheme was also recorded. A total of 61 features were surveyed for their suitability to support dormouse (see Figure 1).

Nest Tube Study

- 3.2.4 As several areas within or near the Scheme footprint were identified as good dormouse habitat, it was considered necessary to carry out targeted dormouse surveys using nest tubes. A total of 268 nest tubes were installed at 6 different locations. Generally, 50 tubes were used at each location, but where there was insufficient space, less were used. Figure 2 shows the nest tube survey locations and indicates how many tubes were used at each location.

- 3.2.5 Nest tubes were deployed at the beginning of May 2014, and checked on the 17th/18th July and again on the 29th/30th September. Nest tubes were collected during the September check. The survey was conducted following guidelines provided in Bright *et al* (2006) and Chanin & Woods (2003). Using the 'points' system outlined in Bright *et al* (2006), and further clarified in Natural England (2011), each of the survey sites, except the hedgerow by Northcliffe Cottage (survey location 4), would achieve 20 points (the minimum required for reliable presence/absence surveys in normal circumstances). The hedgerow by Northcliffe Cottage would score 6.5 points. The survey aimed to confirm presence of dormice by identifying dormouse nests.

Nut Searches

- 3.2.6 During the July 2014 nest tube check, a nut search was carried out at one of the survey sites, Betty Lucas Wood (Survey Area 1), which was considered the most likely to contain dormice, due to the suitability of habitat. This search comprised five 20 minute searches of 10m by 10m areas below heavily fruiting hazels.

4 RESULTS

4.1 Desk Study

- 4.1.1 There were no records for dormouse in the data received from SEWBRc, though this does not mean they are absent from the area; dormouse are a cryptic species and thus detection is difficult, unless specific surveys are being undertaken. Hence, a specific dormouse survey was conducted.

4.2 Field Study

Habitat Suitability Assessment

- 4.2.1 A total of 61 hedgerows and woodlands along the route of the Scheme were assessed for their potential to support dormice (see Figure 1).

- 4.2.2 Roughly half of these features were considered to be suitable for dormice, and six features were considered optimal:

- 6 features were considered optimal for dormice (Category A or A/B);
- 28 features were considered suitable for dormice (Category B);
- 24 features were considered sub-optimal for dormice (Category C);
- 3 features were considered suitable only as dispersal corridors (Category D);

- No features were considered unsuitable for dormice (Category E).

4.2.3 A table showing details of the scoring of features for dormouse suitability is included as Appendix A.

Nest Tube Survey

4.2.4 Nest tube surveys did not record any evidence of dormice (neither presence of dormouse individuals nor nesting material) at any of the survey location. Several woodmouse nests, some occupied by woodmouse, were recorded in the woodlands to the south of Blacklands Farm.

Nut Searches

4.2.5 No evidence of dormouse was recorded during nut searches carried out at Betty Lucas Wood. Characteristically-chewed hazelnuts confirmed the presence of wood mouse at both locations.

5 ASSESSMENT AND CONCLUSIONS

5.1 Presence/absence surveys

5.1.1 No evidence of dormouse was found during the surveys conducted for the Scheme. However, the absence of dormouse may not be assumed in this case, as dormouse are a cryptic species and hard to detect, especially so if present in low densities. However, the results of surveys do indicate that, if dormouse are present, they are present in low densities.

5.2 Habitat assessment

5.2.1 Of the 61 hedgerows and woodlands which were assessed for habitat suitability within the Scheme boundary, roughly half were considered to be suitable for dormouse, with six features considered optimal habitat.

5.2.2 The results of the habitat assessment can be used in order to infer where on the proposed Scheme dormice are likely to be present. Although there is no conclusive data on how far dormice may disperse through sub-optimal habitats, it is considered unlikely that they would travel more than 500m (Bright *et al*, 2006) through sub-optimal habitat to reach other areas. Consequently, suitable or sub-optimal habitats within 500m (as a linear distance along hedgerows) of identified dormouse populations are considered likely to support dormice.

5.3 Likely distribution of dormice on the proposed Scheme

5.3.1 The results of presence/absence surveys indicate that dormouse, if present at all, occur at very low densities within the Scheme boundary. As a precautionary measure, habitats assessed as having the most potential to support dormice should be considered in the assessment of potential impacts and the design of mitigation measures for the Scheme.

5.3.2 Figure 1 displays the suitability of all woodland/hedgerow/scrub features within the Study Area for dormouse. If dormouse are present within the Scheme boundary, they are most likely to occur in the woodland blocks located at either end of the Scheme, which have been classified as Optimal/Suitable for dormouse. A network of hedgerows and treelines provides linkage between these woodlands, and many of the

hedgerows (28 in total) were considered suitable for dormouse (Category B). Therefore, it may be possible to encounter dormouse throughout the route corridor.

6 REFERENCES

Bright, P. Morris, P. & Mitchell-Jones, A. (2006). *The Dormouse Conservation Handbook*. 2nd Edition, English Nature.

Chanin, P. & Woods, M. (2003) *Surveying dormice using nest tubes: Results and experiences from the South West Dormouse Project*. English Nature Research Report 524.

Natural England (2011) *Dormouse surveys for mitigation licensing – best practice and common misconceptions*. Interim Natural England Advice Note.

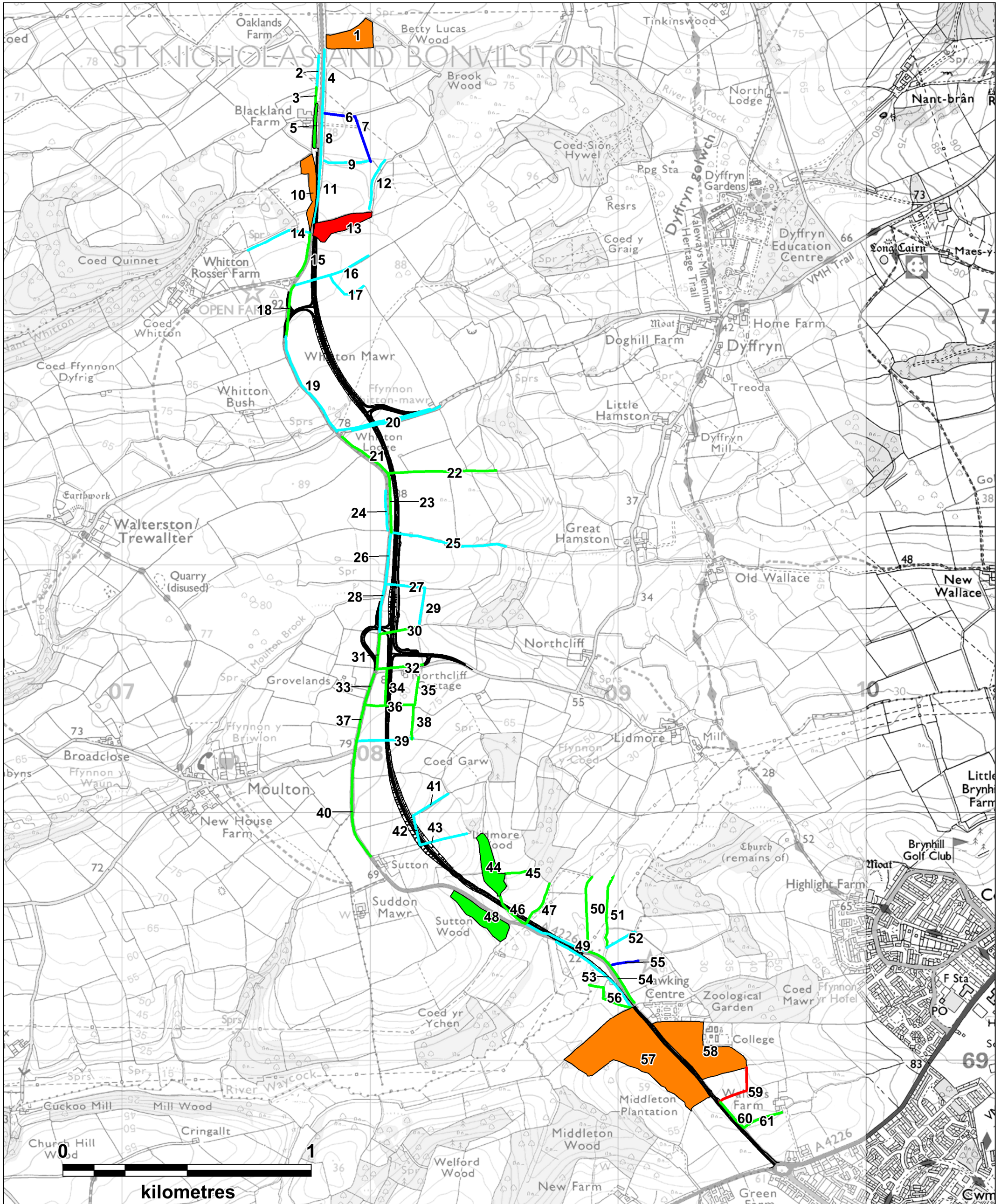
7 FIGURES

Figure 1: Habitat Suitability Assessment

Figure 2: Nest Tube Survey Locations

8 APPENDICES

Appendix A: Dormouse Habitat Suitability Results



Legend

- Dormouse Habitat Suitability**
- A (Optimal)
 - A/B (Optimal/Suitable)
 - B (Suitable)
 - C (Sub-optimal)
 - D (Dispersal corridors only)
 - Scheme Layout

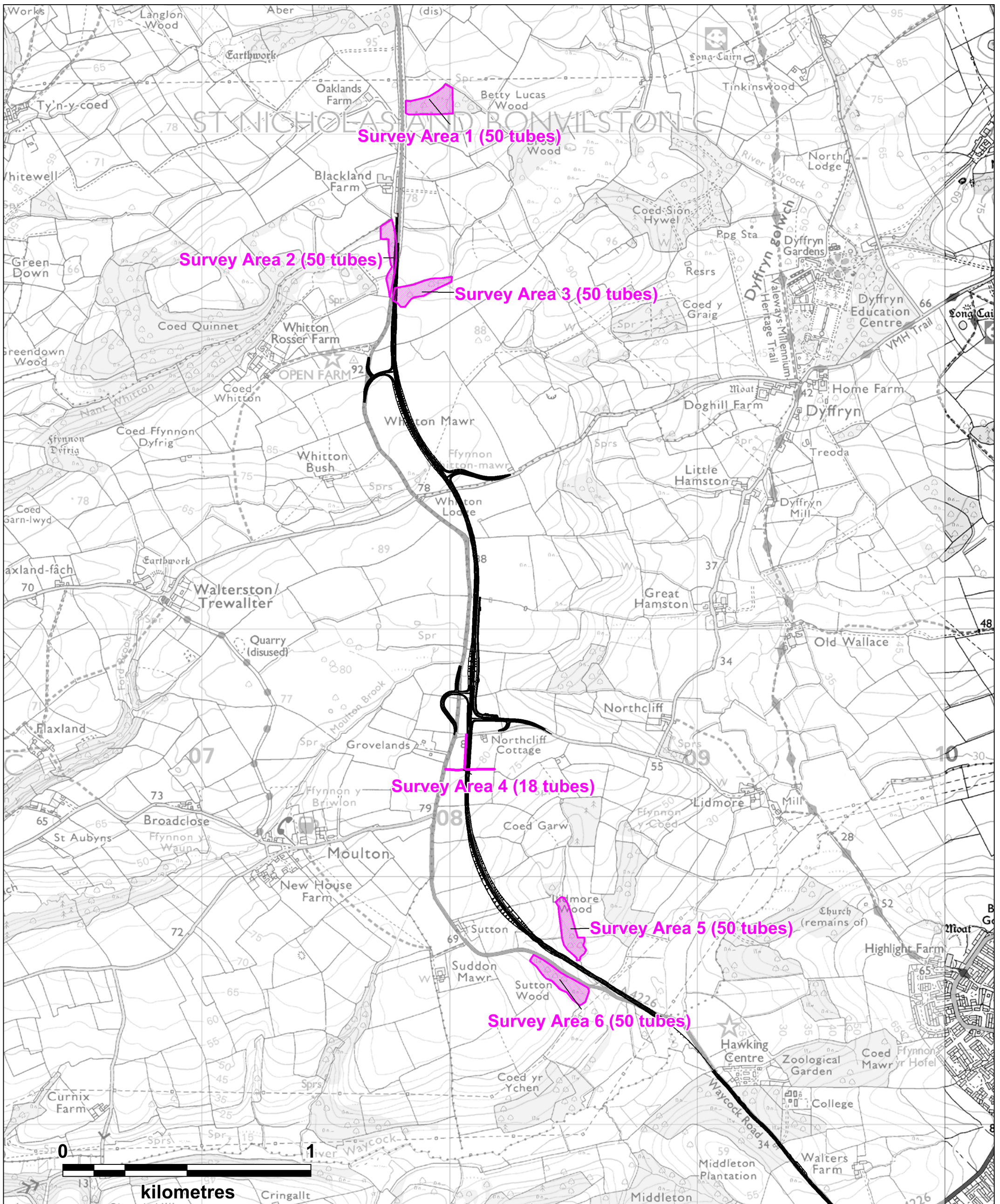
- Environmental Consultants
- Landscape Architects
- Urban Designers
- Planners
- Landscape Managers
- Ecologists

• 10 Park Grove Cardiff CF10 3BN 029 2022 8966

Welsh Government
5 Mile Lane
Dormouse Report Figure 1: Habitat Suitability Assessment

• Drawn JH • Checked TR • Scale NTS • Date October 2015 • Dwg No Fig 60654/3.1

TACP



Legend

Nest Tube Survey Areas

- Hedgerow
- Woodland Block
- Scheme Layout

- Environmental Consultants
- Landscape Architects
- Urban Designers
- Planners
- Landscape Managers
- Ecologists

• 10 Park Grove Cardiff CF10 3BN 029 2022 8966

TACP

Welsh Government
5 Mile Lane
Dormouse Report Figure 2: Nest Tube Survey Locations

• Drawn JH • Checked TR • Scale NTS • Date October 2015 • Dwg No Fig 60654/3.2

Appendix A: Dormouse Habitat Suitability Results

Table 1: Dormouse habitat suitability assessment for all hedgerows/woodlands within or close to the Scheme alignment, colour-coded by suitability; red – A (Optimal), orange – A/B (Optimal/Suitable), green – B (Suitable), turquoise – C (Sub-optimal), blue – D (Dispersal corridors only)

No.	Feature Type	Category	Description
1	Broadleaved woodland block	A/B	Woodland comprising Hazel, Ash and Willow
2	Hedgerow	C	Sub-optimal, flailed annually
3	Treeline/hedgerow	B	
4	hedgerow	C	Flailed annually
5	Patch of scrub	B	Dense patch of bramble
6	Hedgerow	D	Species-poor hedgerow
7	Hedgerow	D	Species-poor hedgerow
8	Hedgerow	C	Flailed annually
9	Hedgerow	C	
10	Strip of woodland/scrub.	A/B	Oak, hazel, ash, hawthorn, blackthorn woodland/scrub. Extremely tangled with dense bramble scrub in understorey. Within 2 m of the carriageway.
11	Hedgerow	C	Hawthorn hedgerow, sub-optimal. Flailed annually.
12	Hedge and trees	C	Hedge and trees species-poor
13	Hedgerow/treeline Woodland corridor/block	A	Dense woodland with Japanese knotweed infestation.
14	Hedgerow	C	Species-poor hedgerow
15	Hedgerow	B	Species-rich hedgerow
16	Hedgerow	C	
17	Hedgerow	C	Species-poor hedgerow
18	Hedgerow	B	Species-rich hedgerow
19	Hedgerow	C	Species-poor hedgerow
20	Hedgerow	C	Sub-optimal hedgerow. Flailed annually.

No.	Feature Type	Category	Description
21	Hedgerow	B	Intact hedge, approx. 2m high, 1.5m wide. Woody species: hawthorn, ash, holly, elder and hazel.
22	Hedgerow	B	Intact hedge bisecting arable land; very dense; approx. 1.8 m high, 1.5 m wide; species-rich.
23	Hedgerow	B	Intact hedge, approx. 2m high, 1.5m wide. Woody species: hawthorn, ash, holly, elder and hazel.
24	Hedge	C	Species-rich hedgerow
25	Hedgerow	C	Species-poor hedgerow
26	Hedgerow	C	
27	Hedgerow	C	
28	Hedgerow	C	Intensively flailed, 4m wide??
29	Hedgerow	C	Species-poor hedgerow
30	Hedgerow	B	Intact hedge; uniform height 2m; approx. 1.5-2m wide.
31	Hedgerow	B	Intact hedge; uniform height 2m; approx. 1.5-2m wide.
32	Hedgerow	B	Intact hedge; uniform height 2m; approx. 1.5-2m wide.
33	Hedgerow	B	Intact hedge; uniform height 2m; approx. 1.5-2m wide.
34	Hedgerow	B	Sub-optimal hedgerow
35	Hedgerow with trees	B	Hedge and trees species-rich
36	Hedgerow with trees	B	Intact hedge with trees; approx. 8-10 m high; 3 m wide. The canopy species: oak, field maple and ash.
37	Hedgerow	B	Intact hedge; uniform height 2m; approx. 1.5-2m wide.
38	Hedgerow	B	Species-rich hedgerow
39	Hedgerow with trees	C	Hedgerow with trees
40	Hedgerow	B	Sub-optimal hedgerow.

No.	Feature Type	Category	Description
41	Hedgerow	C	
42	Hedgerow	C	
43	Hedgerow	C	Species-poor hedgerow
44	Woodland block	B	Lidmore Wood: mixed woodland; semi-natural. Canopy dominated by pedunculate oak, with some ash and field maple. Planted with conifers including <i>Thuja plicata</i> and <i>Pinus sylvestris</i> .
45	Hedgerow	B	Species-poor hedgerow
46	Hedgerow	B	Intact hedgerow with trees. Good structural and species diversity, and linked to woodland block. Species include blackthorn, holly, hazel, hawthorn, field maple, elder, dog rose and grey willow.
47	Hedgerow	B	Species-rich hedgerow
48	Woodland	B	Sutton Wood: semi-natural broadleaved woodland.
49	Hedgerow	C	Intact, species-rich hedgerow. Dominated by field maple, hazel and ash. Also frequent blackthorn and spindle. Low structural diversity, however; appears to be regularly flailed.
50	Scrub; scattered	B	Extended area of scattered scrub with blackthorn, ash, goat willow, field maple and hawthorn.
51	Hedge and trees	B	Hedge and trees species-rich
52	Hedgerow	C	Species-poor hedgerow
53	Hedgerow	C	Sub-optimal hedgerow (species-poor)
54	Treeline	B	
55	Defunct hedge	D	Defunct hedge
56	Treeline	B	Treeline with oak and ash connected to woodland
57	Woodland	A/B	Woodland block SSSI
58	Woodland	A/B	Woodland block SSSI
59	Hedge and trees	A	L-shaped Hedge and trees, species rich

No.	Feature Type	Category	Description
60	Hedge	B	Species-poor hedge
61	Hedge	B	Species-poor hedge