A1 Birtley to Coal House

Scheme Number: TR010031

6.3 Environmental Statement – Appendix 8.12 Red Squirrel Report

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 6

August 2019

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009

A1 Birtley to Coal House

Development Consent Order 20[xx]

Environmental Statement - Appendix

Regulation Reference:	APFP Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010031
Application Document Reference	TR010031/APP/6.3
Author:	A1 Birtley to Coal House Project Team, Highways England

Version	Date	Status of Version
Rev 0	14 August 2019	Application Issue

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EXECUTIVE SUMMARY

WSP UK Ltd was commissioned by Highways England to undertake a red squirrel *Sciurus vulgaris* walkover survey in conjunction with the proposed A1 Birtley to Coal House Scheme. The Scheme includes widening and upgrading the existing road to provide a three lane carriageway and replacement of Allerdene Bridge.

The walkover survey was carried out within the Scheme Footprint and accessible land within 30m of the Scheme Footprint (hereafter referred to as the 'Study Area').

The red squirrel survey was undertaken between 5th and 7th March 2018. The woodland along the Scheme was surveyed (where accessible) for habitats suitable for red squirrel. The size, maturity, species composition and connectivity were recorded. In addition, hairs, feeding remains, sightings and dreys observed were also recorded and annotated on maps.

Six woodland blocks provide habitat suitable for red squirrels (Woodlands 3, 4, 6, 7, 8, and 9), a single woodland block with limited habitat suitability (Woodland 5) and two woodland blocks with sub-optimal suitability (Woodland 1 and 2) were recorded within the Study Area. The woodland blocks comprised mixed species plantation, broadleaved plantation, broadleaved semi-natural, mixed species semi-natural and coniferous plantation. Although not the focus of the survey, no visual sightings or incidental records of feeding signs were recorded during the walkover survey. Three possible drey structures were recorded in Woodland 4 (located within the woodland at central grid reference NZ 25649 58299).

No further survey work is recommended for Woodlands 1, 2 and 9.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 WSP UK Ltd was instructed by Highways England to conduct a red squirrel *Sciurus vulgaris* walkover survey in conjunction with the proposed A1 Birtley to Coal House Scheme, hereafter referred to as "the Scheme".

1.1.2 The Scheme is 6.5km in length and will include the replacement of Allerdene Bridge to the immediate south of the existing structure which will tie in to the existing junction 67 Coal House roundabout. Most of the work will take place within the highway boundary; however, some additional land will be required alongside the A1 at certain points to enable us to create the additional lanes. It will provide additional capacity by widening from three to four lanes between junction 65 and 67 on the southbound carriageway and three lanes with an additional lane to help manage traffic joining and leaving the A1 between junctions on the northbound carriageway. The Scheme will also look to install electronic signage to provide driver information along the road.

1.1.3 The walkover survey was carried out within the Scheme Footprint (**Figure 1**) and accessible land within 30m of the Scheme Footprint (hereafter referred to as the 'Study Area'). It should be noted that the Scheme Footprint has altered since the site assessment was undertaken. However, it is considered that the changes to the Scheme Footprint, do not alter the assessment within this report.

1.2 ECOLOGICAL BACKGROUND

1.2.1 WSP (then WSP | Parsons Brinckerhoff) undertook a Preliminary Ecological Appraisal (PEA) during 2015 (WSP|PB, 2016), with an updated walkover survey undertaken in March 2018, which identified the presence of broadleaved and mixed species woodlands within the Scheme Footprint, offering potential red squirrel habitat and connectivity to woodlands in the wider area.

1.2.2 A desk study assessment carried out as part of the PEA (WSP, 2018) returned three records of red squirrel, the closest being 300m north of Smithy Lane Overbridge.

1.3 BRIEF AND OBJECTIVES

1.3.1 Highways England commissioned WSP UK Ltd to complete a red squirrel walkover survey of land within the Scheme and accessible land within 30m of the Scheme Footprint (hereafter referred to as the 'Study Area'). The brief was to:

- Identify suitable habitat for red squirrels within the Study Area; and
- Record any incidental signs or sightings.

1.3.2 The results of this survey, and subsequent recommendations, are included within this report.

2 METHODS

2.1 DESK STUDY

2.1.1 A data search was undertaken as part of the PEA in order to identify records of red squirrel in proximity to the Scheme (WSP|PB, 2016) within the past 10 years (records received in 2015). For red squirrel the search radius for records was 1km from the Scheme Footprint. Data was sourced from:

- Environmental Records and Information Centre North East (ERIC NE)

2.1.2 The desk study was updated in March 2018 with an updated data search requested from ERIC NE. The search radius for red squirrels was extended to 2km from the Scheme Footprint.

2.2 FIELD SURVEY

2.2.1 A field survey of the Scheme Footprint was completed in March 2018. The red squirrel survey was carried out with regards to survey and monitoring practice notes (Gurnell, J. et al, 2009).

2.2.2 The Study Area was searched for habitats suitable for supporting red squirrels with regards to methods outlined by Gurnell, J. et al (2009). Surveyors assessed the habitats within the Study Area, taking note of size, maturity, species composition and connectivity to wider woodland habitat.

2.2.3 In addition to these features, surveyors also recorded incidental sightings and evidence of red squirrel presence, including:

- Hairs
- Feeding remains
- Sightings
- Dreys

2.2.4 Colour alone cannot be used to separate red and grey squirrel hairs, and the hairs have similar patterns. Red squirrel hairs, in comparison to those of grey squirrels *Sciurus carolinensis,* are concave in shape, almost sickle shape when a cross-section is observed. It is recommended that along with colour assessment that the hairs are rolled between finger and thumb and the red squirrel hairs will not roll smoothly, unlike those of grey squirrels.

2.2.5 Red squirrels feed on nuts, acorns, berries and the cones of conifer trees. Evidence of red squirrels feeding on acorns and hazelnuts include rough and jagged edges where they have bitten into the nut or acorn. Pine cones are stripped of their seeds, often leaving the top parts untouched.

2.2.6 Dreys are usually rounded structures around 30cm in diameter, built close to tree trunks and supported by one or more sturdy branches. They are made of twigs, often with conifer

needles, cones or dead leaves still attached whereas corvid nests do not commonly have leaves attached to twigs.

2.2.7 Areas of suitable habitat were noted during the survey and marked up on a map following survey completion (see **Figure 2**). The areas of suitable red squirrel habitat were then cross referenced with survey and monitoring practice notes (Gurnell, J. et al 2009) in order to determine survey suitability. Incidental sightings were noted and recorded on a Scheme map in the field.

2.3 DATES OF SURVEY AND PERSONNEL

2.3.1 The red squirrel walkover survey was carried out between 5th and 7th March 2018. The survey was carried out with the combined effort of three surveyors, all of which are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and are sufficiently experienced to carry out red squirrel surveys.

2.4 LEGISLATION

2.4.1 Red squirrels are protected in the UK under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence, among others, to:

- intentionally kill, injure, take, sell or possess a red squirrel
- intentionally or recklessly damage or destroy any structure or place a red squirrel uses for shelter or protection
- disturb a red squirrel whilst it occupies such a place.

2.4.2 In addition, the red squirrel is listed as a Priority Species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 with a Species Action Plan (SAP) aimed at maintaining the species across a range of reserves and stronghold sites. The Durham Biodiversity Action Plan (BAP) lists red squirrels and has a specific action plan. Aims of the Durham BAP are to:

1. "*Maintain the current population and range of red squirrels within the DBAP area*
2. *Safeguard important sites for red squirrels*
3. *Raise awareness of conservation issues concerning the red squirrel*
4. *When necessary, control the grey squirrel population*".

2.5 NOTES AND LIMITATIONS

2.5.1 Heavy snowfall prior to Monday 5th March obscured ground flora and impeded the surveyor's ability to assess the ground for feeding remains. The majority of the snow had melted by Tuesday 6th March. The snow coverage did not impact the results of the assessment as the primary aim was to identify habitats suitable to support red squirrel.

2.5.2 Access restrictions existed for a number of areas due to H&S restrictions (See **Figure 4**). These land parcels have not been walked in their entirety. Instead surveyors surveyed from the closest vantage point where these locations allowed sufficient assessment of the habitats so that the need for further survey could be adequately determined. The habitats

within these plots are either sub-optimal red squirrel habitat (isolated grassland/scattered scrub) or are isolated (woodland on slip road splitter islands and roundabouts) All target areas of woodland were surveyed. Therefore lack of land access has not impacted the conclusions made in this report.

2.5.3 There were areas within the Study Area where vegetation was too dense for the surveyors to enter (see **Figure 4**). In these situations, the perimeter of the habitat was walked in order to identify, where possible, any evidence of red squirrel presence. It is considered unlikely that these areas support potential for red squirrel as they were small and isolated.

3 RESULTS

3.1 DESK STUDY

PRELIMINARY ECOLOGICAL APPRAISAL - 2015

3.1.1 Three records of red squirrel were identified within 1km of the Scheme Footprint within 10 years of the desk study (2005-2015).

3.1.2 Two records dated back to 2007. A record located at National Grid reference NZ 258 588 is approximately 300m north of the Scheme at Smithy Lane Bridge. A record located at National Grid reference NZ 289 558 is approximately 700m south east from the Scheme, to the south of Junction 65. The accuracy of this record is questioned as it is in the middle of a large residential area which consists of small dwellings with small gardens. However, there is a thin strip of woodland to the west of the record and south-east of the Scheme; so the record should not be completely discounted.

3.1.3 A single record dating back to 2005 was recorded at National Grid reference NZ 247 582 and is approximately 300m south of the Scheme at Junction 67.

2018 UPDATE

3.1.4 Only a single additional record of red squirrel was returned in the 2018 update, dating back to 2009. The record is approximately 1.4km north of Junction 65 (National Grid reference NZ 289 581).

3.2 FIELD SURVEY

HABITAT SUITABILITY

3.2.1 Nine pockets of suitable habitat were identified during the walkover survey (see **Figure 2**). The following habitat types were recorded:

- Mixed species plantation woodland
- Broadleaved plantation woodland
- Broadleaved semi-natural woodland
- Mixed species semi-natural woodland
- Coniferous plantation woodland

Woodland 1

3.2.2 Woodland 1 is semi-mature, semi-natural broadleaved woodland and is approximately 0.7ha in size. Species predominantly comprise ash *Fraxinus excelsior*, oak species *Quercus sp.*, alder *Alnus glutinosa* and sycamore *Acer pseudoplatanus*.

3.2.3 Woodland 1 is not directly connected to any other woodland. There is a small, isolated pocket of woodland (0.4ha) on the other side of Banesley Road to the west of Woodland 1. There is further woodland 220m up Banesley Lane (which becomes Coach Road) which totals 1.5ha in size. There are limited connecting features consisting of residential properties and small ornamental gardens.

3.2.4 The nearest record returned was from the original desk study and it is 300m south of Woodland 1 (2005), within a large area of grassland. Connectivity to the record is considered poor.

Woodland 2

3.2.5 Woodland 2 is semi-mature, semi-natural broadleaved woodland, is approximately 0.7ha in size and comprises the same species as Woodland 1 (ash, oak sp., alder, and sycamore). Both these woodlands are located on artery roads associated with junction 67 and nearby residential and Lamesely Retail Park. Combined they comprise 1.4ha of woodland.

3.2.6 Woodland 2 is, like Woodland 1, small and isolated. There is a small degree of connectivity to Woodland 3, should red squirrel cross the East Coast Mainline (ECML) following travel along the thinnest part of the woodland adjacent to the A1 entrance slip. Connectivity is therefore limited.

3.2.7 The nearest record returned was from the original desk study and is 450m north east of Woodland 2 (2007), across the ECML and through areas of exposed grassland and patchy woodland associated with a housing estate. Connectivity to the record is considered limited.

Woodland 3

3.2.8 Woodland 3 is semi-mature, mixed-species plantation and is approximately 3.1ha in size. Species predominantly comprise Scot's pine *Pinus sylvestris*, oak sp., beech *Fagus sylvatica*, fir sp. *Abies sp*. hazel *Corylus avellana* and horse chestnut *Aesculus hippocastanum*.

3.2.9 Woodland 3 is partially connected to two small areas of woodland in the wider landscape, through areas of grassland. These woodlands are isolated and situated within a housing estate. The two woodlands measure 0.9ha and 0.8ha in size, respectively. There is partial connectivity to Woodland 2 across the ECML and also to Woodland 5 across Smithy Lane.

3.2.10 The nearest record was returned by the old desk study and is 320m north in one of the woodlands in the housing estate it is partially connected to. Woodland 3 is considered to be partially connected to the woodland where the record was identified in 2007.

Woodland 4

3.2.11 The core of Woodland 4 is semi-mature, semi-natural broadleaved, whilst the perimeter bordering the A1 is less established but still semi-mature, mixed-species plantation. Woodland 4 is approximately 2.3ha in size. Semi-natural species include alder, oak sp., willow Salix sp., horse chestnut, hazel and field maple *Acer campestre*.

3.2.12 Plantation species include ash, birch *Betula* sp., oak sp., hawthorn *Crataegus monogyna,* scots pine and cherry *Prunus avium*.

3.2.13 Woodland 4 is a distinct woodland situated between the A1, ECML, and Smithy Lane. There is little suitable wider habitat around Woodland 4. However there is partial connectivity to Woodland 6, should red squirrel cross Smithy Lane Overbridge. The nearest

record was returned by the old desk study and is 450m north of the woodland (2007), across the A1. It is therefore considered that there is very limited connectivity to the habitats where the record was identified.

3.2.14 Three potential dreys were recorded within Woodland 4 and these are reported in the Field Signs section below and discussed further in Section 4 – Evaluation.

Woodland 5

3.2.15 Woodland 5 is semi-mature, broadleaved plantation and is approximately 2.2ha in size. Species predominantly comprise ash, birch, oak species, hawthorn and cherry.

3.2.16 Woodland 5 is part of a wider area of established woodland (approximately 8ha) which also consists of areas of grassland (approximately 4ha) much of which is used for communal and recreational purposes (playing fields and sports pitches) and also houses the popular Angel of the North. Eventually the grassland meets the busy A167 and any connectivity to wider landscapes ceases.

3.2.17 The nearest record was returned by the original desk study and is 620m north of the western end of Woodland 5 (2007). There is limited connectivity to the woodland habitat where the record was identified. Located between Woodland 5 and the record are Smith Lane, Woodland 3 and grassland habitats, so connectivity is considered limited.

Woodland 6

3.2.18 Woodland 6 is a combination of broadleaved semi-natural and broadleaved plantation woodland. The combined size is approximately 1.2ha. The semi-natural woodland area is more established and approximately 0.2ha in size, located at approximate central grid reference NZ 26152 57803. The plantation woodland comprises the rest of the area and is approximately 1ha in size and although still semi-mature, is less established compared to the semi-natural woodland area.

3.2.19 Semi-natural broadleaved woodland species comprise hazel, oak sp., horse chestnut and alder. Broadleaved plantation woodland species comprise ash, birch, oak sp., hawthorn and cherry.

3.2.20 Woodland 6 forms part of the larger and more established Longacre Wood. In addition Woodland 6 is connected to further areas of grassland to the east and there is partial connectivity to the Longacre Dene ancient woodland – a strip of woodland going north to south from the Scheme. Connectivity to Longacre Dene comes in the form of a hedgerow and a large expanse of semi-improved grassland.

3.2.21 The nearest record to Woodland 6 was returned by the original desk study and is approximately 1.1km west of the western end of Woodland 6, within a large area of grassland. There is no connectivity to this record.

Woodland 7

3.2.22 Woodland 7 is semi-mature, coniferous plantation and is approximately 0.5ha in size. Species predominantly comprise Scots pine, fir *Abies sp*. and/ or spruce species *Picea sp*.

3.2.23 There is little connectivity to wider habitats surrounding Woodland 7. The surrounding habitat is arable and grazed pasture. Additionally the nearest record was returned as part of the update desk study and is 1.7km north east from Woodland 7 (2009). There is no connectivity to this record.

Woodland 8

3.2.24 Woodland 8 is semi-mature, mixed-species plantation and is approximately 2.2ha in size. Species predominantly comprise willow species, alder, hazel, Scots pine, horse chestnut and oak species.

3.2.25 Woodland 8 is not connected to any wider habitats, it is isolated on an island between the busy A1 and A1231 slip road. The nearest record was returned as part of the original desk study and is within a large residential area, approximately 1km south east of the Woodland. The accuracy of this record is questioned as it is in the middle of a large residential area. However, there is a large thin strip of woodland to the west of the record and to the south-east of the Scheme.

Woodland 9

3.2.26 Woodland 9 is semi-mature, broadleaved plantation and is approximately 0.5ha in size. Species predominantly comprise oak, willow species, poplar *Populus nigra*, sycamore *Acer pseudoplatanus*, horse chestnut and cherry.

3.2.27 Woodland 9 is adjacent to the A1, A1231 and a busy car garage. There is no connectivity to any wider suitable habitat. The nearest record is the same as that for Woodland 8, 1km south east of the woodland (2007) and there is also no connectivity to this record, as with Woodland 8.

FIELD SIGNS

3.2.28 All accessible habitats suitable for red squirrel were walked during the survey and no incidental sightings were recorded. No feeding signs or red squirrel hairs were observed or recorded, nor were there any sightings of red squirrels during the survey.

3.2.29 Three potential dreys were identified during the walkover survey (see **Figure 3** and **Appendix A**), all located within Woodland 4. Whilst it is rare to determine between red and grey squirrel dreys, the structure of the potential dreys recorded meant it was also hard to establish whether they were dreys or large corvid *Corvidae* nests. Unlike squirrel dreys, corvid nests may be open without a canopy on top, giving them a flatter appearance from ground level than a more rounded drey.

Potential Drey 1

3.2.30 Potential drey 1 was situated within the semi-natural part of Woodland 4, approximately 10m from the ground, adjacent to a recently constructed access track for the Ground Investigation works. The potential drey was large, approximately 40cm across and appeared to have a 'roof' like structure and a tunnel like entrance. In addition there appeared to be leaf material embedded in the structure. In addition to these features the potential drey was situated away from the main trunk of the tree (species undetermined at time of survey) it was located in.

Potential Drey 2

3.2.31 Potential drey 2 was situated approximately 15m from the ground within the broadleaved semi-natural part of Woodland 4, south-west of potential drey 1. The structure was approximately 30cm across and appeared to have no canopy like structure to it. The potential drey was situated in a triple leader feature of the tree, a common drey location for squirrels.

Potential Drey 3

3.2.32 Potential drey 3 is situated further south of the other potential dreys, still within the broadleaved semi-natural woodland area. The structure is situated approximately 12m from the ground on a branch fork close to the main trunk. No tunnel entrance was observed but there did appear to be leaf material within the structure, which measured approximately 30cm in circumference, although determining size was difficult due to vegetative obstructions.

3.2.33 The three potential drey structures are discussed further in **Section 4** of this report.

4 EVALUATION

4.1 WOODLAND EVALUATION

WOODLAND 1

4.1.1 Woodland 1 is small and isolated with a species composition offering sub-optimal habitat suitability for red squirrels. There is limited connectivity to wider areas of woodland. The nearest historical record of red squirrel was recorded over 10 years ago (2005) and there is no suitable and connecting habitat between the record and Woodland 1(large expanses of grazed pasture).

4.1.2 The works proposed for the Scheme at Woodland 1 are for a potential attenuation facility and would therefore lead to the loss of some if not all of the woodland there (Drawing HE55142-WSP-LRP-BCH-BR-ZL-00023-P02 and Drawing HE551462-WSP-HGN-ZZ-DR-CH-01001 P06).

4.1.3 No further survey is considered necessary for Woodland 1 as due to its small size, elongated shape and constant disturbance from road traffic it likely lacks the carrying capacity required to support red squirrels.

WOODLAND 2

4.1.4 Woodland 2 is another small and isolated parcel with a species composition offering sub-optimal habitat suitability for red squirrels. There is limited connectivity with Woodland 3 to the north east, across the ECML but this is not considered likely due to the size, shape and structure of Woodland 2. The nearest record of red squirrel was recorded over 10 years ago (2007) and there is limited connecting habitat between the record and Woodland 2 (other side of ECML and through Woodland 3 and across expanses of grassland to woodland in residential area).

4.1.5 Partial loss of Woodland 2 is likely to result following works to Allerdene Culvert and other Proposed Works (Drawing HE55142-WSP-LRP-BCH-BR-ZL-00023-P02, HE55142-WSP-LRP-BCH-BR-ZL-00024-P02 and Drawing HE551462-WSP-HGN-ZZ-DR-CH-01001 P06).

4.1.6 No further survey is considered necessary for Woodland 2 as due to its small size, elongated shape and exposure to heavy disturbance from nearby traffic it likely lacks the carrying capacity required to support red squirrels.

WOODLAND 3

4.1.7 Woodland 3 is larger than Woodlands 1 and 2 and is more compact in shape. The species composition offers habitat suitability for red squirrels, with scattered presence of scots pine, hazel and more predominant oak species. The presence of food plant species combined with connectivity to wider habitats where red squirrel was recorded over 10 years ago (dated 2007) classifies this woodland as suitable for red squirrel.

4.1.8 The Scheme has not set aside this area for any significant permanent works. Other than a balancing pond situated on the carriageway of the current A1 alignment which will likely partially extend into the roadside section of the woodland and potentially lead to a small loss (Drawing HE551462-WSP-HGN-ZZ-DR-CH-01001 P06). Drawing HE55142-WSP-LRP-BCH-BR-ZL-00024-P02 indicates that the Scheme could require areas of Woodland 3 for site compounds and access during the construction works.

4.1.9 At the time of writing the impacts to Woodland 3 are not fully know due to currently available Scheme information. It is therefore recommended that pre-commencement checks be carried out following design freeze and receipt of construction phase activities in the area. Recommendations will be made following the pre-commencement checks.

WOODLAND 4

4.1.10 Woodland 4 is a relatively isolated triangle of woodland boarded on each side by either the A1, ECML or Smithy Lane. The species composition comprises a swathe of mixed species woodland (Scots pine) and broadleaved woodland (hazel and oak species), both woodland habitats offer habitat suitable for red squirrel with the presence of relatively scattered food source species. There is partial connectivity to Woodland 6, to the south of Woodland 4 over Smithy lane. However there are limited habitats in the wider area. The nearest record of red squirrel is over 10 years old and is situated 900m west 2007 and there is no connectivity between the record and Woodland 4 (ECML, roads and large expanses of exposed grassland).

4.1.11 The Scheme will involve the loss of approximately 50% of Woodland 4 to facilitate the replacement of Allerdene Bridge and the re-alignment of the carriageway (Drawing HE551462-WSP-HGN-ZZ-DR-CH-01001 P06 and Drawing HE55142-WSP-LRP-BCH-BR-ZL-00024-P02). It is therefore recommended that pre-commencement checks be carried out following design freeze and receipt of construction phase activities in Woodland 4. Recommendations will be made following the pre-commencement checks.

WOODLAND 5

4.1.12 Woodland 5 is a long linear swathe of woodland with a species composition offering limited habitat suitability for red squirrels. The long and thin shape of Woodland 5 provides limited habitat suitability for red squirrel, constricted to narrow commuting habitat. The nearest record of red squirrel is over 10 years old and is situated 620m north of the western area of Woodland 5 (2007). There is limited connectivity between the record and the western end of Woodland 5 (across Smithy Lane, through Woodland 3 and across grassland to a small pocket of woodland within a housing estate).

4.1.13 The Scheme indicates areas of land take beyond the pre-existing Highway boundary, likely encroaching into the woodland in places (Drawing HE55142-WSP-LRP-BCH-BR-ZL-00025-P02, Drawing HE551462-WSP-HGN-ZZ-DR-CH-01001 P06 and Drawing HE551462-WSP-HGN-ZZ-DR-CH-01002 P06). It is therefore recommended that pre-commencement checks

be carried out following design freeze and receipt of construction phase activities in Woodland 5. Recommendations will be made following the pre-commencement checks.

WOODLAND 6

4.1.14 Woodland 6 is similar to Woodland 5 as it's a thin swathe located along the southern edge of the current A1 alignment and along the footpath adjacent to Longacre woodland. Species composition offers suitable habitat for red squirrel (hazel and oak species), however its shape and structure provides limited narrow commuting habitat. The nearest record of red squirrel is over 10 years old (2007) and is situated north of the woodland. There is no connectivity between the record and Woodland 6 (across Smithy Lane, through Woodland 3, across the 4 lane A1, through Woodland 3 and across grassland to an isolated pocket of woodland in a housing estate).

4.1.15 It is anticipated that only the western most section of Woodland 6 will be lost as result of land take (Drawing HE55142-WSP-LRP-BCH-BR-ZL-00024-P02, Drawing HE55142-WSP-LRP-BCH-BR-ZL-00025-P02 and Drawing HE551462-WSP-HGN-ZZ-DR-CH-01001 P06 and Drawing HE551462-WSP-HGN-ZZ-DR-CH-01002 P06). The location of habitat loss is where Woodland 6 is thinnest and most juvenile therefore habitat suitability here is of least suitability for red squirrel. Despite this it is still recommended that pre-commencement checks be carried out following design freeze and receipt of construction phase activities in Woodland 6.

WOODLAND 7

4.1.16 Woodland 7 forms part of a small, dense coniferous woodland plantation comprising predominantly Scot's pine but also spruce species. The species composition provides suitable habitat for red squirrel. The nearest record of red squirrel is approximately 1.7km north-east from the woodland (dated 2009). There is no suitable connecting habitat with the surrounding habitats featuring predominantly exposed arable and grazed pasture with numerous roads obstructing movement.

4.1.17 It is anticipated that a small strip of Woodland 7 may be lost as a result of land take and groundworks associated with the southbound carriageway of the A1 (Drawing HE551462-WSP-HGN-ZZ-DR-CH-01003 P06, Drawing HE55142-WSP-LRP-BCH-BR-ZL-00027-P02). At this stage the full extent of vegetation removal is unknown. It is therefore recommended that pre-commencement checks be carried out following design freeze and receipt of construction phase activities in Woodland 7.

WOODLAND 8

4.1.18 Woodland 8 is mixed species woodland situated within junction 64 of the A1. Species composition offers suitable habitat for red squirrels (hazel, Scot's pine, and oak species). The nearest record of red squirrel is over 10 years old (2007) and is situated within a densely populated housing estate 1km south east of Woodland 8. There is no connectivity to either wider habitats or to the record of red squirrel as the 4 lane carriageway A1, A194 interchange, industrial and residential estates obstruct movement.

4.1.19 At this stage the Proposed Works indicate a loss of a thin strip from the southern perimeter of Woodland 8 (Drawing HE551462-WSP-HGN-ZZ-DR-CH-01003 P06 and Drawing HE55142-WSP-LRP-BCH-BR-ZL-00028-P02).

4.1.20 It is therefore recommended that pre-commencement checks be carried out following design freeze and receipt of construction phase activities in Woodland 8.

WOODLAND 9

4.1.21 Woodland 9 is a small thin strip of broadleaved woodland with a species composition offering low habitat suitability for red squirrel (oak species). Adjacent to the woodland is a busy car garage the A1 and the A1231. The nearest record of red squirrel is over 10 years old (2007) and is situated within a densely populated housing estate approximately 900m south east (dated 2007).

4.1.22 There are no works anticipated within Woodland 9 and therefore no loss of habitat (Drawing HE551462-WSP-HGN-ZZ-DR-CH-01003 P06 and Drawing HE55142-WSP-LRP-BCH-BR-ZL-00028-P02).

4.1.23 No further survey regarding red squirrels is required for Woodland 9 and due to its small size, elongated shape and exposure to heavy disturbance from nearby traffic it likely lacks the carrying capacity required to support red squirrels.

4.2 DREYS EVALUATION

POTENTIAL DREY 1

4.2.1 Red squirrel dreys are typically 30cm across and this structure appeared larger from the ground assessment, at 40cm across. In addition to the size of the structure its roof like structure is somewhat indicative of corvid nests. However the leaf material recorded within the structure is indicative of red squirrel dreys, although it could not be determined whether this was deliberate or leaves from the previous autumn.

4.2.2 Based on the observations made during the walkover survey potential drey 1 is not considered to be a red squirrel drey and it is most likely a disused corvid nest from a previous nesting season.

POTENTIAL DREY 2

4.2.3 The size of potential drey 2 is within the typical size of red squirrel dreys and combined with its positioning within a triple leader feature next to the main trunk it exhibits some features typical of red squirrel dreys. However, there is no soft nesting material (leaves or most) or a canopy like structure and it is therefore considered that like potential drey 1, this is likely a disused corvid nest.

POTENTIAL DREY 3

4.2.4 The shape and size of potential drey 3, along with the presence of leaf material indicates that it could be a squirrel drey. The size of potential drey 3, canopy like structure and presence of leaf material within the structure are indicative of red squirrel dreys. In addition

to that its positioning on a branch fork, immediately adjacent to the trunk is also suggestive of red squirrel dreys. No tunnel like entrance was observed and part of the structure was obscured by vegetation. Despite evidence to suggest that potential drey 3 is a red squirrel drey, it is considered likely that it could also be a disused corvid nest.

4.2.5 Red squirrels are both solitary and territorial animals. During breeding season (March – May and July-September) individuals can be aggressive when protecting their 2-5ha territories. Whilst it is not unusual for red squirrels to share dreys and resting locations during the winter it is unlikely that multiple dreys will be found in close proximity to each other. Corvid species such as rook *Corvus frugilegus*, on the other hand frequently nest together in roosts and based on the shape, size, structure and proximity of the structures it is considered that these are rook nests (disused at the time of survey).

4.2.6 When the date of construction commencing is known and the final Scheme design has been frozen it is recommended that the area containing the corvid nests (Woodland 4) is reassessed prior to construction to confirm that the nests are empty and that no red squirrels have taken up residency.

5 CONCLUSIONS

5.1.1 The results and analyses of the walkover survey indicated that Woodlands 1,2 and 9 do not require further survey. This is based on their elongated shape and small size being insufficient to support red squirrels. In addition, the high levels of vehicular disturbance these three woodlands are exposed to further support the conclusion that that they do not have the carrying capacity sufficient to support red squirrels.

5.1.2 The pre-commencement checks should consider land take, site compounds, lay-down areas, access tracks and haul routes required by the Scheme. This information, once received should be used to determine the likely impacts to the six woodlands identified as requiring further pre-commencement checks.

5.1.3 Should, at any time prior to the works commencing, a red squirrel be identified or considered potentially present within the Scheme Footprint then works should cease and a suitably experienced ecologist contacted for advice prior to works re-commencing.

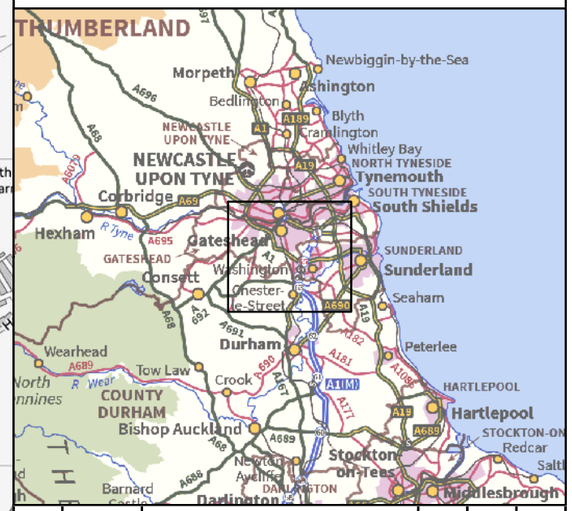
REFERENCES

- Durham Biodiversity Action Plan (accessed March 2018) http://neenp.org.uk/natural-environment/durham-priority-species/red-squirrel-action-plan/
- Her Majesty's Stationary Office (1981) Wildlife and Countryside Act, as amended
- Her Majesty's Stationary Office (2006) Natural Environment and Rural Communities Act.
- Gurnell, J., Lurz, P., McDonald, R. and Pepper, H (2009) Practical techniques for surveying and monitoring squirrels. Forestry Commission. Surrey
- Wildlife and countryside act
- WSP (2018) A1 Birtley to Coal House Extended Phase 1 Habitat Survey. Leeds

N

Key

Scheme Footprint



Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number

TR010031

Client

highways england

Project Title

A1 Birtley to Coal House Scheme

Drawing Title

Figure 1 Site Location Plan

Scale	Drawn	Checked	Approved	Authorised
1:20,000	GH	JR	KS	NJA
Original Size: A3	Date: Dec 2018	Date: Dec 2018	Date: Dec 2018	Date: Dec 2018

Drawing Number
HE PIN
HE551462

Originator: WSP

Volume: 6.3

Revision: P03

B2CH
Section | Type | ID | Direction | Type | Role | Number

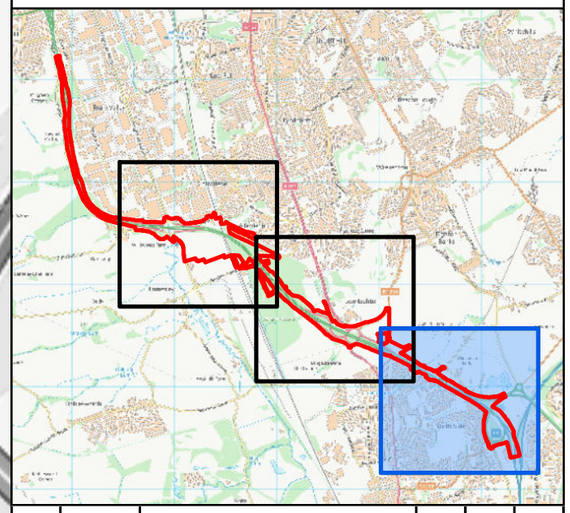
PW Stage Code

0 250 500 750 1,000 m

N

Key

- Scheme Footprint
- Woodland Areas



Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number: TR010031

Client: highways england

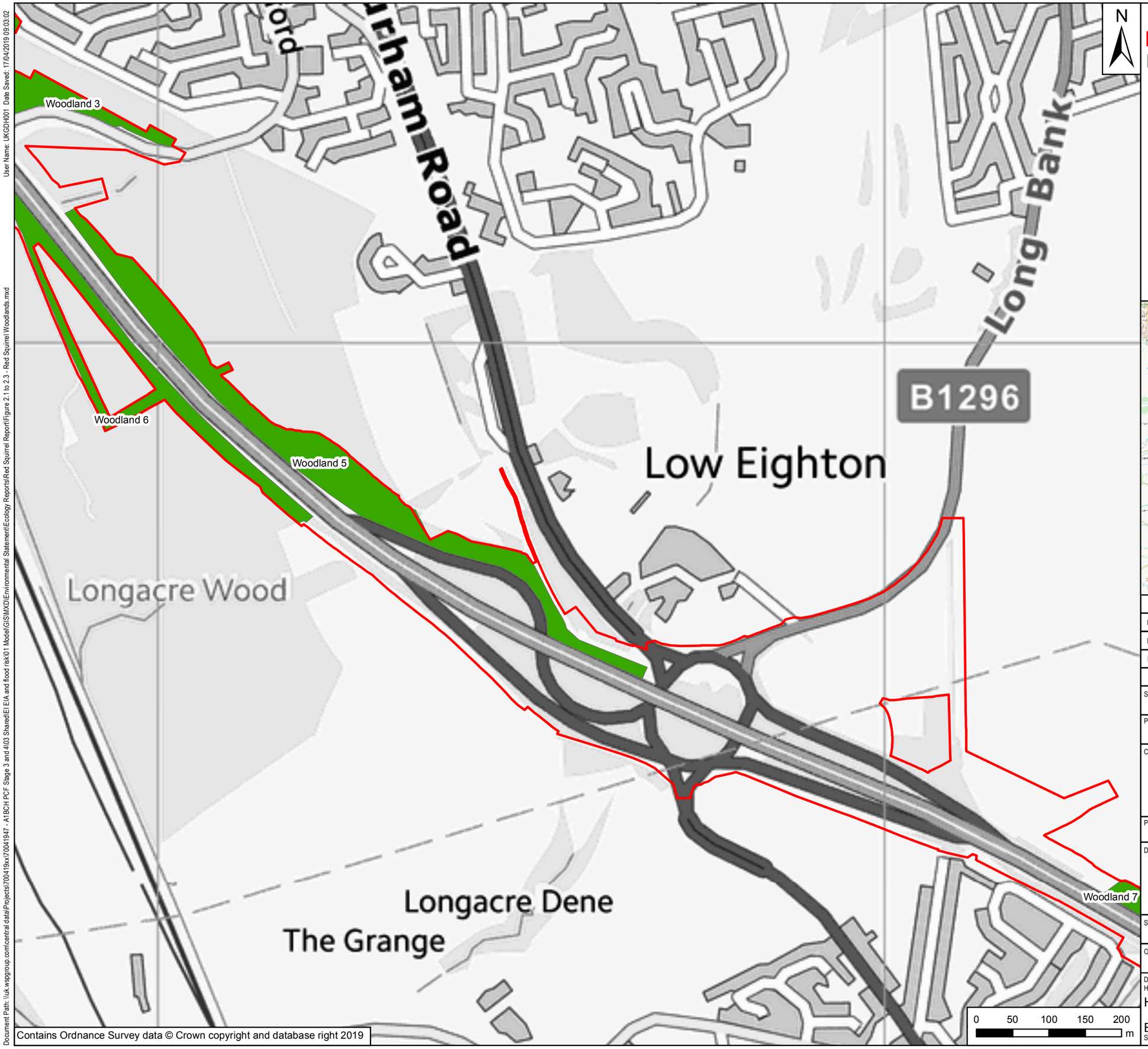
Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 2.1 Red Squirrel Woodlands

Scale	Drawn	Checked	Approved	Authorised
1:5,000	GH	JR	KS	NJA
Original Size	**Date**	**Date**	**Date**	**Date**
A3	Dec 2018	Dec 2018	Dec 2018	Dec 2018

Drawing Number HE PIN: HE551462 | Originator: WSP | Volume: 6.3 | Revision: P03

B2CH | Section | Type | ID | Direction | Type | Role | Number | PW Stage Code



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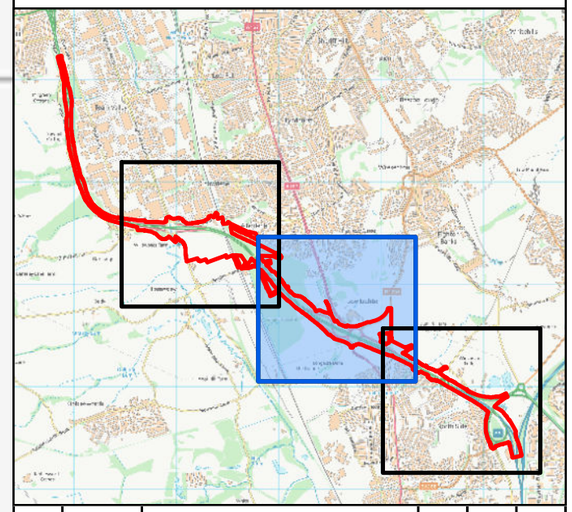
Key

- Scheme Footprint
- Woodland Areas



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P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number: TR010031

Client: highways england

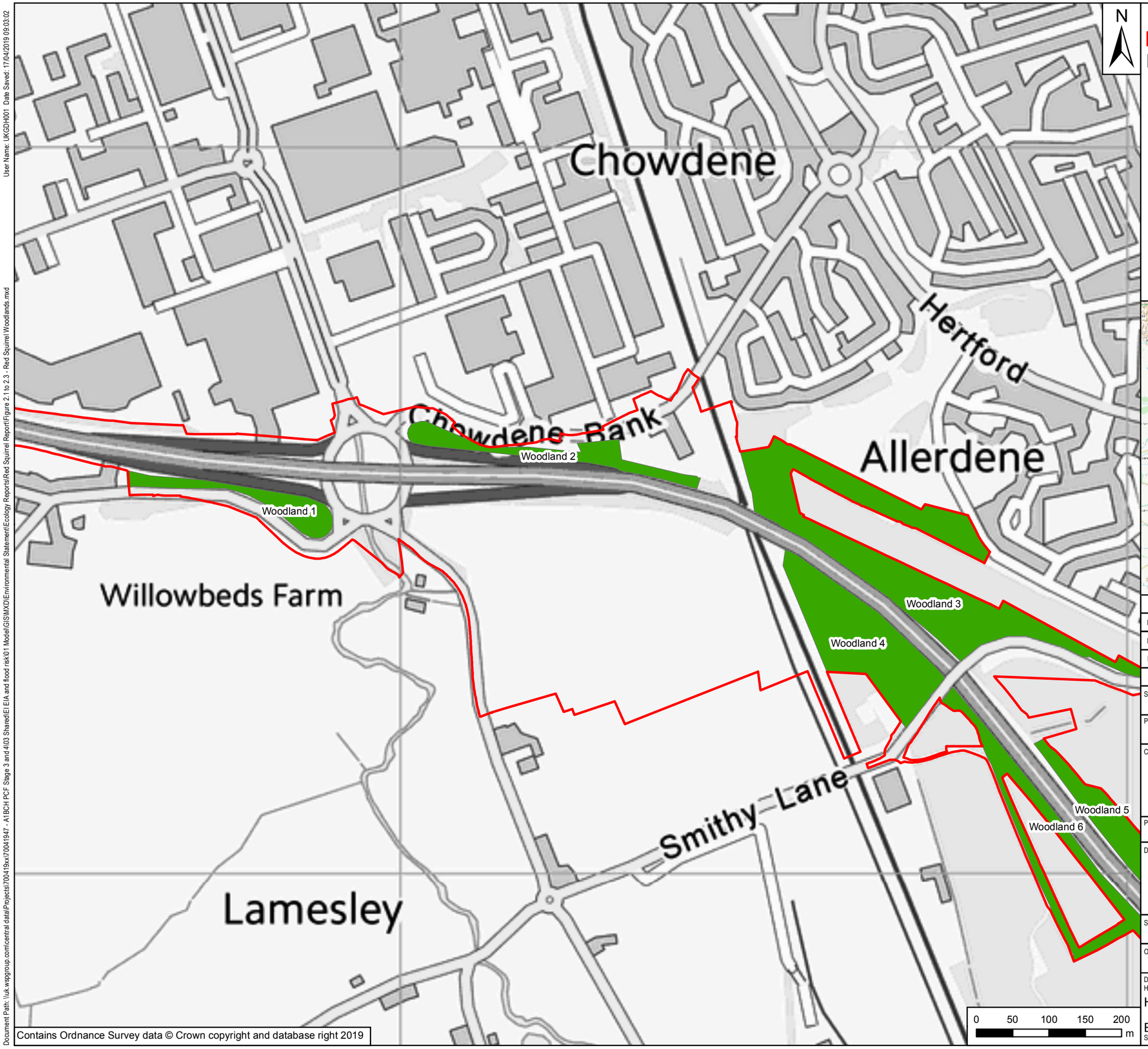
Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 2.2 Red Squirrel Woodlands

Scale	Drawn	Checked	Approved	Authorised
1:5,000	GH	JR	KS	NJA
Original Size	**Date**	**Date**	**Date**	**Date**
A3	Dec 2018	Dec 2018	Dec 2018	Dec 2018

Drawing Number HE PIN: HE551462 | Originator: WSP | Volume: 6.3 | Revision: P03

B2CH | Section | Type | ID | Direction | Type | Role | Number | PW Stage Code



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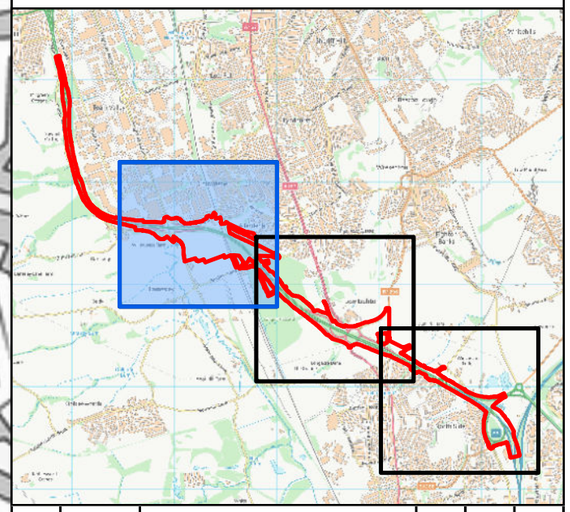
Key

- Scheme Footprint
- Woodland Areas



Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number
TR010031

Client
highways england

Project Title
A1 Birtley to Coal House Scheme

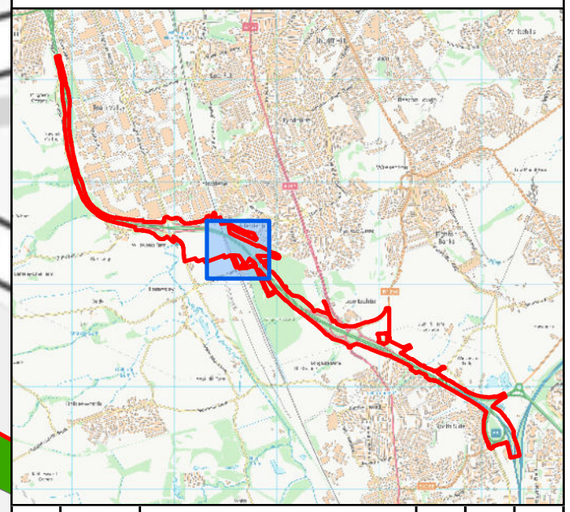
Drawing Title
Figure 2.3 Red Squirrel Woodlands

Scale	Drawn	Checked	Approved	Authorised
1:5,000	GH	JR	KS	NJA
Original Size	**Date**	**Date**	**Date**	**Date**
A3	Dec 2018	Dec 2018	Dec 2018	Dec 2018

Drawing Number
HE PIN: HE551462
Originator: WSP
Volume: 6.3
Revision: P03
PW Stage Code
B2CH
Section | Type | ID | Direction | Type | Role | Number

Key

- Scheme Footprint
- Woodland Areas
- Potential Dreys



Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability

Status

PINS Reference Number: TR010031

Client: highways england

Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 3 Potential Dreys

Scale	Drawn	Checked	Approved	Authorised
1:2,000	GH	JR	KS	NJA
Original Size	**Date**	**Date**	**Date**	**Date**
A3	Dec 2018	Dec 2018	Dec 2018	Dec 2018

Drawing Number HE PIN: HE551462 | Originator: WSP | Volume: 6.3 | Revision: P03

B2CH | Section | Type | ID | Direction | Type | Role | Number | PW Stage Code

N

Key

- Scheme Footprint
- No Access - Safety Reasons

Rev	Date	Description	By	Chk'd	App'd
P03	Apr 2019	Third Issue	GH	JR	KS
P02	Mar 2019	Second Issue	GH	JR	KS
P01	Dec 2018	First Issue	GH	JR	NJA

Suitability: Suitable for Information

Status: S2

PINS Reference Number: TR010031

Client: highways england

Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 4 Access Restrictions

Scale	Drawn	Checked	Approved	Authorised
1:15,000	GH	JR	KS	NJA
Original Size	**Date**	**Date**	**Date**	**Date**
A3	Dec 2018	Dec 2018	Dec 2018	Dec 2018

Drawing Number HE PIN: HE551462 | Originator: WSP | Volume: 6.3 | Revision: P03

B2CH | Section | Type | ID | Direction | Type | Role | Number | PW Stage Code

0 250 500 750 1,000 m

Appendix A

POTENTIAL DREY PLATES

Plate 1 – Potential drey 1 with leaves embedded, situated south of the newly built Ground Investigation access track, approximately 10m from the ground. Potential drey 2 is in the background.

Plate 2 – Potential drey 2 is situated approximately 15m from the ground in the tree fork close to the main trunk.

Plate 3 – Potential drey 3, situated in woodland 4 and approximately 12m off the ground. Large nest with leaf material included.

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