

**Appendix 2:**  
**Ecological Impact Assessment (EclA) May 2021**

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Hallam Land Management Ltd.

**Land off Carr Road, Deepcar**

**ECOLOGICAL IMPACT ASSESMENT (EcIA)**

May 2021

**THIS REPORT INCLUDES INFORMATION REGARDING THE LOCATION OF BADGER SETTS AND SHOULD THEREFORE BE TREATED AS CONFIDENTIAL AND ONLY MADE AVAILABLE TO BONA FIDE ORGANISATIONS AND INDIVIDUALS**

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Rev	Issue Status	Prepared / Date	Review / Date	Approved / Date
-	Draft	KG / 16.04.21	KG / 06.05.21	KG / 19.05.21
	Final	KG / 23.05.21		KG / 23.05.21



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## EXECUTIVE SUMMARY

- Hallam Land Management Ltd. (HLM) commissioned FPCR Environment and Design Ltd. (FPCR) to complete an Ecological Impact Assessment (EcIA) of a site and surrounding land located off Carr Road, Deepcar, Sheffield (the Site). The objective is to identify the habitats and species present within the site, assess the ecological value of the Site and land surrounding the site, identify any potential ecological constraints and effects of the proposals, and where appropriate, propose a package of mitigation and enhancement measures relevant to the proposals.
- The Site comprises five species-poor semi-improved grassland field compartments, managed by cattle grazing and hay cutting and separated by dry-stone walls. Other habitats present include buildings, dense/continuous and scattered scrub, hedgerow, fence lines, coniferous tree lines and broad-leaved trees. Two veteran ash trees are present to the north west of the Site on land retained in the Green Infrastructure (GI). No works are proposed in the root protection area of these Veteran trees as recommended by Natural England (NE) and an appropriate buffer from development will be maintained. Therefore, the proposals will not affect the conservation value of these trees.
- The Site is located 3.6km from the South Pennine Moors SAC and SPA and SSSI. The completed assessment concludes there are no 'likely significant effects' to the conservation value of The South Pennine Moors (Phase 1) SPA and The South Pennine Moors SAC or species listed within the designation criteria for the designated sites. The constituent SSSI designations associated with the SAC and SPA are over 2km from the Site and the site is outside the impact risk zones surrounding the SSSI's for residential development. Consequently, no material effects to the conservation status of the SSSI or species listed within the designation criteria for the SSSI's would occur.
- Fox Glen Wood Local Wildlife Site (LWS) is located immediately adjacent to the Site's northern – north western boundary. Through the implementation of the recommended working methods and mitigation, no material effects to the conservation value of the LWS are expected through the development of the site (including the construction of the drainage outfall from the SuDS detention basin). Given the mitigation proposed within the Site, the existing recreational infrastructure present within Fox Glen and other recreational facilities locally, no additional material effects are expected on the conservation value of the Fox Glen during the construction or operational period.
- No suitable breeding habitat has been identified within a 500m radius of the Site. Consequently, GCN have not been identified as a statutory constraint to development.
- The presence of a bat roost within buildings or built structures has not been identified as a statutory constraint to demolition and development of the Site. Tree T1, located immediately adjacent to the Site and identified as providing 'moderate' roosting potential would be retained and buffered from development. Common pipistrelle was the dominant species recorded using the Site. Other species recorded over the survey period included: unidentified *Myotis* species, soprano pipistrelle and Noctule but the level of recorded activity from these species was significantly lower. The scheme retains and buffers the vast majority of suitable habitat identified to be of value to bats as commuting and foraging habitat.

- Enhancements and mitigation for any loss of foraging habitats for the local bat population would be provided in the form of wetland in SUDs basin facility, hedgerows and broad-leaved tree planting, as well as the retention and enhancements of the grassland field compartment situated in the south west of the Site.
- The breeding and overwintering bird assemblages recorded using the Site have only been identified as being of local level importance and through the implementation of the recommended mitigation, no material effects to the local population are anticipated.
- No active or inactive badger setts or any other physical evidence of badgers are present within the Site or on the accessible within a 30m radius of the Site. Consequently, badgers have not been identified as a statutory constraint to development.
- Reptiles have not been recorded using the Site during the 2016 or 2020 surveys. Consequently, reptiles have not been identified as a statutory constraint to development.
- No evidence of other protected species has been recorded or their presences assessed as a statutory ecological constraint to the development proposals.
- Overall, the site is of relatively low merit or significance in ecological terms.
- The completed Biodiversity Impact Assess (BIA) using the DEFRA Metric (Version 2) confirms the development proposals provide a net gain of 6.78 biodiversity units (a net % change of 51.63%). A net gain in linear features of 2.55 hedgerow units is provided. The 'Revised Illustrative Masterplan (April 2021)' also provide a material a net gain of 7.0 habitat units (a net gain of 53.26%) and a net gain of 2.55 hedgerow units (a net gain exceeding 1000%). The net gain demonstrate by both schemes, exceeds the basis 10% threshold currently being considered in the Draft Environment Bill and is a significant benefit of the scheme.

## 1.0 INTRODUCTION

- 1.1 This Ecological Impact Assessment (EclA) has been prepared by FPCR on behalf of Hallam Land Management in relation to a site situated off Carr Road, Deepcar, Sheffield (hereafter referred to as the 'Site'). The Site is centred on the ordnance survey grid reference SK277974. This report has been produced to assess the potential effects of a development of up to 85 residential dwellings and associated infrastructure on matters relating to ecology and nature conservation.
- 1.2 The EclA has been prepared with reference to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Ecological Impact Assessment Guidelines<sup>1</sup>. In line with this guidance, the EclA describes the assessment methodology; establishes the baseline conditions currently existing at the Site and surroundings; the likely significant environmental effects on any identified important ecological features (IEFs); the mitigation measures required to prevent or reduce any impacts; the likely residual effects after these measures have been employed; and any compensation measures required to offset any residual effects. To avoid unnecessary repetition, commentary relating to planning policy guidance is not included within this assessment but is provided in the overarching Proof of Evidence (PoE).
- 1.3 The original planning application for the proposals was submitted to Sheffield City Council (SCC) in November 2017 (Planning Reference Number: 17/04673/OUT). This application comprised the development of up to 93 residential units which was subsequently reduced to up to 85 residential units in January 2020. For the purpose of the appeal a 'Revised Illustrative Masterplan (April 2021)' has been submitted for consideration. The application was supported by a Phase 1 Habitat Survey and a range of other species-specific surveys completed over 2016 – 2017 (CD1.14). To support the application, additional ecological information was submitted to SCC in October 2018 (CD1.17a-c). There are no outstanding objections to the proposals from statutory consultees including Natural England (NE), the Peak District National Park Authority (PDNPA) or the Sheffield Ecology Unit (SEU).
- 1.4 Although matters relating to Ecology & nature Conservation do not form a 'Reason for Refusal' (RfR) of the outline planning permission, this EclA has been produced to address issues raised by third parties and ensure all relevant surveys and reports are up to date. The EclA presents the results of updated ecological survey information completed during the optimal survey periods in 2018 – 2021, but also refers to survey work completed during the determination period and outlined in (CD1.14 and CD1.17a-c). The updated surveys completed over the period 2018 – 2021 include:
- Seasonal Bat Activity Surveys (2018),
  - Badger Surveys (August 2020 / April 2021),
  - Phase 1 Habitat Assessment (5th August 2020),
  - Reptile Surveys (August – September 2020),
  - Invertebrate Scoping Survey (August 2020),
  - Main Site: Winter Bird Surveys (December 2020 – February 2021),
  - Fox Glen: Extended Bird Survey (December 2020 – May 2021),

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<sup>1</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

- Main Site: Passage and Breeding Bird Survey (March – May 2021), and
  - Spring Bat Activity Surveys (May 2021).
- 1.5 Details of the qualification and experience of the ecologist completing the surveys is provided in a separate confidential document which should only be provided to appropriate consultees, if requested.

### **Site Location and Context**

- 1.6 The Site is approximately 6.4ha in size, located to the west of Carr Road within the area of Deepcar, to the northwest of Sheffield. Hollin Busk Lane and Carr Road border the site to the south and east, respectively. The northern boundary is bordered by Fox Glen Wood Local Wildlife Site (LWS) and grassland fields. The wider countryside is agricultural with numerous woodland blocks and the Peak District National Park situated to the west of the site.
- 1.7 The habitats within the Site are dominated by five managed species-poor semi-improved field compartments, divided by dry-stone walls. Management of these field compartments includes frequent cattle grazing and hay cutting. The current long-term management has been maintained for 10 years. Other habitats present within the site include buildings, dense/continuous and scattered scrub, hedgerow, fence lines, coniferous trees and broad-leaved trees. No material changes in the habitats present in the Site have been recorded over the extended survey period.

## 2.0 METHODOLOGY

### Legislative Framework

2.1 In addition to the National, Regional and Local policies (covered in the overarching Ecological PoE), the following legislation afford protection to wildlife and have been used to inform this assessment.

- The Conservation of Habitats & Species Regulations 2017 (*as amended*) (hereafter referred to as the Habitat Regulations)<sup>2</sup> ;
- Wildlife and Countryside Act 1981 (*as amended*) (WCA)<sup>3</sup> ;
- Natural Environment and Rural Communities Act 2006 (NERC)<sup>4</sup> .
- The Protection of Badgers Act 1992<sup>5</sup> .
- The Hedgerow Regulations Act 1997<sup>6</sup> .

### Scope of Assessment

#### Assessment Approach

2.2 This EclA has been prepared with reference to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Ecological Impact Assessment (EclA) Guidelines, published in 2018. Baseline information and potential impacts have been quantified as far as practical to inform the assessment, supported by professional judgement and experience as appropriate. Where uncertainties exist, a precautionary approach has been adopted and a 'worse case' scenario assumed for the purposes of assessing impacts and recommending mitigation.

2.3 The significance of ecological impacts in relation to a proposals can be considered in relation to the importance of affected ecological features and the predicted magnitude of impact upon them.

2.4 The main sources of information for this assessment were:

- Biological records (obtained from the relevant Local Biological Records centre and local interest groups);
- Online sources of Ecological Data;
- Review of legislation;
- Field surveys.

#### Zone of Influence

2.5 The CIEEM guidelines require the identification of a 'Zone of Influence' (ZoI) within which the ecological features that may be affected by the proposed scheme can be identified. This will identify the potential impact of the development not just to the Site but beyond the boundaries of proposed scheme.

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<sup>2</sup> HMSO. The Conservation of Habitats and Species Regulations 2017 (as amended) – No.1012.

<sup>3</sup> HMSO. The Wildlife and Countryside Act 1981 (as amended).

<sup>4</sup> HMSO. (2006), Natural Environment and Rural Communities Act.

<sup>5</sup> HMSO. The Protection of Badgers Act 1992 (as amended).

<sup>6</sup> HMSO. The Hedgerow Regulations Act 1997

- 2.6 The Zol is determined by the source / type of impact, a potential pathway for that impact and the location and sensitivity of the IEF beyond the boundary. For the majority of impacts identified as part of the proposed scheme, the Zol is generally considered as the Site and immediately surrounding areas.
- 2.7 However, the Zol can also vary considerably depending upon the species potentially affected by the proposed scheme. For example, some species may be confined to a specific location whilst others, such as bats and birds are more mobile and can occupy much larger home ranges. The presence of dispersal barriers can also affect the Zol such as roads or rivers which may either reduce the potential of animals crossing it or could cause a potential means of killing on injury. As such, this could isolate areas of potentially suitable habitat within the proposed scheme due to fragmentation. In each case this is considered in association with the nature and scale of the proposed scheme and informed by best practice guidance and professional judgement.
- 2.8 Specific study areas were identified for the desk study and field surveys to inform the valuation of ecological features and the selection of ‘key’ ecological features material to the assessment.

### **Desk Study**

- 2.9 A consultation exercise has been completed with statutory and non-statutory nature conservation organisations for baseline ecological information. The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 10km around the application area for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site);
  - 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest) and species records (e.g. legally protected or notable species); and
  - 1km around the application area for non-statutory sites of County or Local Importance (e.g. Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) and Local Nature Reserves (LNR).
- 2.10 Organisations consulted included:
- Natural England via the Multi Agency Geographic Information for the Countryside (MAGIC) website ([www.magic.gov.uk](http://www.magic.gov.uk));
  - Sheffield Biological Records Centre (SBRC) (records from 2016 and updated in March 2021); and
  - Sheffield Bird Study Group.
- 2.11 Further consideration of potential Zols in relation to statutory designated sites of International and National importance was made using Natural England’s SSSI Impact Risk Zone Tool<sup>7</sup> which outlines the likely zone of influence from impacts for a range of development types.
- 2.12 Records over 20-year-old were not taken forward for further assessment in this report.
- 2.13 Further inspection, using colour 1:25,000 OS base maps ([www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk)) and aerial photographs from Google Earth ([www.maps.google.co.uk](http://www.maps.google.co.uk)), was also undertaken in order to

<sup>7</sup> <https://magic.defra.gov.uk/MagicMap.aspx>



provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

## Field Survey

### Extended Phase 1 Survey Habitats

- 2.14 The survey technique adopted for the habitat assessment followed the extended Phase 1 habitat survey technique as recommended by Natural England<sup>8</sup>. This comprised a walkover of the site, mapping and broadly describing the principal habitat types and identifying the dominant plant species present within each habitat type and any invasive weeds (where present). Whilst the plant species lists obtained should not be regarded as exhaustive, sufficient information was obtained to determine broad habitat types. This survey was completed on the 5<sup>th</sup> August 2020 by a Level 3 FISC<sup>9</sup> surveyor. This survey updates and builds upon previous phase 1 habitat surveys completed in May 2016, June 2016 and January 2020 (CD1.14 & CD1.18).
- 2.15 Throughout the walkover survey, consideration was additionally given to the actual or potential presence of protected species, such as (although not limited to) those protected under the Wildlife and Countryside Act 1981 (*as amended*), the Protection of Badgers Act 1992<sup>10</sup> and the Habitat Regulations.

### Hedgerows

- 2.16 Hedgerows were surveyed using the Hedgerow Evaluation and Grading System (HEGS)<sup>11</sup>. The aim of the assessment is to allow the rapid recording and ecological appraisal of any given site in the UK, and to allow the grading of the individual hedges present, to identify those which are likely to be of greatest significance for wildlife. This method of assessment includes noting down: canopy species composition, associated ground flora and climbers; structure of the hedgerow including height, width and gaps, and associated features including number and species of mature tree and the presence of banks, ditches and grass verges.
- 2.17 Using the HEGS methodology each hedgerow can then be given a grade. These grades are used to assign a nature conservation value to each hedgerow as follows:
- Grade -1, 1, 1+ High to Very High Value
  - Grade -2, 2, 2+ Moderately High to High Value
  - Grade -3, 3, 3+ Moderate Value
  - Grade -4, 4, 4+ Low Value
- 2.18 Hedgerows graded -2 or above are suggested as being a nature conservation priority.
- 2.19 The hedgerows were also assessed for their potential ecological value under the Hedgerow Regulations 1997 (Statutory Instrument No: 1160)<sup>12</sup> to determine whether they qualified as 'Important Hedgerows' under the Regulations. This was achieved using a methodology in

<sup>8</sup> JNCC 2010. *Handbook for Phase 1 habitat survey - a technique for environmental audit*, ISBN 0 86139 636 7

<sup>10</sup> *The Protection of Badgers Act 1992 (as amended)*. [Online]. London: HMSO Available from: <http://www.legislation.gov.uk/ukpga/1992/51/contents>

<sup>11</sup> Clements, D.K. & Tofts, R.J. 1992. *Hedgerow Evaluation and Grading System (HEGS): A methodology for the ecological survey, evaluation and grading of hedgerows*.

<sup>12</sup> *The Hedgerow Regulations 1997 – Statutory Instrument 1997 No. 1160*. [Online]. London: HMSO. Available at: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made>.

accordance with both the Regulations and DEFRA guidance. An assessment of archaeological importance as defined under the Hedgerow Regulations 1997 was beyond the scope of this assessment.

- 2.20 All hedgerows were also assessed as to whether they qualified as Habitats of Principal Importance (Priority Habitats) under Section 41 of the NERC Act 2006, i.e. whether they consisted of 80% or more native species.

### **Fauna**

- 2.21 During the walkover surveys, observations, identification and signs of any species protected under the relevant legislation was undertaken. Where necessary, additional species-specific surveys and / or assessment were completed for birds, bats, badger *Meles meles*, amphibians, reptiles, white clawed crayfish *Austropotamobius pallipes*, water vole *Arvicola amphibius* and otter *Lutra lutra*.
- 2.22 During all surveys, additional species records were also made on an ad-hoc basis to inform an assessment of the presence of other species of nature conservation importance.

### **Badger**

- 2.23 All hedgerows and other suitable habitats within the Site boundary and accessible land within 30m were searched for evidence of badger activity. Additional evidence of badger activity in Fox Glen LWS within 30m of the Site was updated in April 2021. Methodology employed followed that outlined by Harris, Creswell and Jefferies (1989)<sup>13</sup>.
- 2.24 Evidence of badger occupation and activity sought included:
- Setts: including earth mounds, evidence of bedding and runways between setts;
  - Latrines: often located close to setts, at territory boundaries or adjacent to favoured feeding areas;
  - Prints and paths or trackways; and
  - Hairs caught on rough wood or fencing.
- 2.25 Other evidence: including snuffle holes, feeding and playing areas and scratching posts.

### **Birds**

- 2.26 Breeding bird surveys were completed in 2016 (April – June) and 2017 (April) (CD.1.14 & CD1.17b) and further in 2021 (April – May) (Annex B). Winter bird surveys were completed in 2016 - 2017 (CD1.14 & CD1.17b) and further in 2020 -2021 (Annex C). In addition, further breeding and passage bird surveys were completed at the site in March / April 2017 (CD1.17b) and March – April 2021(Annex B) applying the survey methodology agreed with the Sheffield Ecology Unit (SEU).
- 2.27 Over the period of December 2020 – May 2021 extended bird surveys applying standard method but recording seasonal activity have also been completed beyond the site, in Fox Glen (LWS) (Annex D).

<sup>13</sup> Surveying for badgers. Harris, S., Cresswell, P. & Jefferies, D. Occasional Publication of the Mammal Society No. 9. Mammal Society, Bristol. 1989.

- 2.28 The accompanying and recently updated Breeding / Passage Bird Survey Report and Winter Bird Survey Report provide the survey methodologies (Annexes B and C). The results of the Fox Glen surveys are provided in Annex D.

## Bats

### *Building Assessment*

- 2.29 The exterior of the agricultural buildings were visually assessed in May 2016 and August 2020 for potential access points and evidence of bat activity. Features considered to comprise potential access points included small gaps under barge/soffit/fascia boards, raised or missing ridge tiles and gaps at gable ends, which have potential as access points, were sought. Evidence that bats actively used potential access points includes staining within gaps and bat droppings or urine staining under gaps, a note being made wherever these were present. Where access to potential access points was possible a full inspection using an endoscope was completed to identify current or previous evidence of use such as the physical presence of bats or bat droppings. Indicators that potential access points had not recently been used included the presence of cobwebs and general detritus within the access.
- 2.30 The interior of the buildings, including roof voids where present and accessible, were also visually assessed for evidence of bat activity and/or for the potential to be used by bats. Evidence of a roost was determined as the presence of a dead or live bat(s), concentrated piles or scattered droppings, food remains such as insect wing fragments as well as scratch marks and/or staining. This follows standard survey guidance provided by the Bat Conservation Trust<sup>14</sup>.

### *Ground Level Tree Assessment*

- 2.31 The trees on the Site were assessed from ground level during the Phase 1 Habitat Survey for their potential to support roosting bats and to enable recommendations with respect to the proposed works. During the survey Potential Roosting Features (PRFs) for bats such as the following were sought (based on p16, British Standard, *Surveying for Bats in Trees and Woodland*)<sup>15</sup>:
- Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar;
  - Man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems or damage caused by arboricultural management);
  - Woodpecker holes;
  - Cracks/splits in stems or branches (horizontal and vertical);
  - Partially detached, loose or platy bark;
  - Cankers (caused by localised bark death) in which cavities have developed;
  - Other hollows or cavities, including butt rots;
  - Compression of forks with included bark, forming potential cavities;
  - Crossing stems or branches with suitable roosting space between;

<sup>14</sup> Bat Conservation Trust 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust, London.

<sup>15</sup> British Standard 2015. BS8596:2015 Surveying for bats in trees and woodland – Guide, October 2015.

- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk);
  - Bat or bird boxes; and
  - Other suitable places of rest or shelter not listed above.
- 2.32 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features, may reduce enhance or reduce the potential value.
- 2.33 Based on the above, trees were classified into general BRP groups based on the presence of such features. Table 1 broadly classifies the potential categories as accurately as possible as well as discussing the relevance of the features. This table is based upon Table 4.1 and Chapter 6 in Bat Surveys for Professional Ecologists: Good Practice Guidelines<sup>16</sup>.
- 2.34 Although the British Standard Document (British Standard, Surveying for bats in trees and woodland – Guide, October 2015) groups trees with moderate and high potential, these have been separated below (as per Table 4.1 in The Bat Conversation Trust Guidelines) to allow more specific survey criteria to be applied.

**Table 1: Bat survey protocol for trees**

Classification of Tree	Description of Category & Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work / Actions
High Potential	A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter protection, conditions (height above ground level, light levels, etc.) and surrounding habitat. Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	Aerial assessment by roped access bat workers (if appropriate) <b>and / or</b> nocturnal survey during appropriate period (May to August). Following additional assessment, a tree may be upgraded or downgraded based on findings. If roost sites are confirmed and the tree or roost is to be affected by proposals a licence from Natural England will be required. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.
Moderate Potential	A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc.) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status). Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.	A combination of aerial assessment by roped access bat workers and / or nocturnal survey during appropriate period (May to August). Following additional assessment, a tree may be upgraded or downgraded based on findings. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate. If a roost site/s is confirmed a licence from Natural England will be required.
Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited	No further survey required but a precautionary working method statement may be appropriate.

<sup>16</sup> Bat Conservation Trust 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust, London.

Classification of Tree	Description of Category & Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work / Actions
	to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.

\* The Habitat Regulations affords protection to “breeding sites” and “resting places” of bats. The EU Commission’s Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC, February 2007 states that these are places “where there is a reasonably high probability that the species concerned will return”.

#### Activity Transect Surveys – Foraging / Commuting Habitat

- 2.35 To supplement seasonal activity survey data obtained in 2016, additional walked activity transect surveys were completed on 22<sup>nd</sup> May 2018, 26<sup>th</sup> June 2018, 26<sup>th</sup> September 2018 and May 2021. The primary objectives were to identify foraging areas, commuting routes and species utilisation of the Site. The transect route covered the Site and a small area of surrounding land. It was determined prior to survey and point count stops were incorporated to provide further information regarding bat activity levels. Each point count was a minimum of five minutes long, during which time all bat activity was recorded. The transect commenced at sunset and lasted a minimum of 2 hours. The transect additionally included surrounding land as part of a wider survey area.
- 2.36 The transect was walked at a steady pace and when a bat passed by the species, time and behaviour was recorded on a plan. This information helps to form a general view of the bat activity present and highlights what habitats types are associated with bat activity. A Wildlife Acoustics Inc. Echo Meter Touch® bat detector was used in conjunction with an Echo Meter Touch® app and Apple Inc. iPad®.
- 2.37 The transects were undertaken when conditions were suitable (i.e. when the ambient air temperature exceeded 10°C and there was little wind and no rain) as shown in Table 2.

**Table 2: Bat Activity Transect Survey Conditions**

Survey Date	Sunset / Sunrise	Transect Start / Finish	Temperature °C	Rain	Wind (0-5)	Cloud %
22.05.18	21:10	21:10 / 23:10	13	0	2	0
26.06.18	21:38	21:38 / 23:38	20	0	0	20
26.09.18	18:55	18:55 / 20:55	18	0	1	10
10.05.21	20.52	20.52 / 23.05	12	0	1	5-10

- 2.38 Post-survey, bat calls were analysed using Kaleidoscope® (Wildlife Acoustics) software package, by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. From this, the level of bat activity across the Site and surrounding study area in relation to the abundance of individual species foraging and commuting along habitats was assessed.

#### Automated Surveys – Foraging and Commuting Bats

- 2.39 Two static passive recording broadband detector were deployed within the Site in May, June and September 2018 and May 2021, to supplement the manual transect survey in accordance with

industry guidance<sup>17</sup>. These surveys are intended to build upon previous automated surveys undertaken in May, June and September 2016.

- 2.40 Passive monitoring was undertaken using an automated logging system (Wildlife Acoustics Inc. Song Meter® SM2BAT+ bat detector, herein referred to as a SM2BAT+ detector) with the output saved to an internal storage device. Two SM2BAT+ detectors were placed at locations around the site for five survey nights period to access the overall level of activity.
- 2.41 The detector was programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise over an extended period of time (five consecutive nights) of suitable and/or typical weather conditions.
- 2.42 The recorded data was analysed using the Kaleidoscope® and BatSound® Pro software packages. The automated static detector survey timings and weather conditions are provided Table 3.

**Table 3: Automated Bat Static Survey Conditions (Figure 6)**

Date	Unit Location	Timing and Weather conditions
23/05/18 – 28/05/18	Unit 8 – on the north eastern boundary of the site.  Unit 13 – on the northern boundary of the site, adjacent to the Fox Glen LWS.	Sunset 21:14 to 21:19 Sunrise 04:51 to 04:47 Temperatures 20 to 9°C Average wind speed 14 to 22km/h Rainfall on 0 nights
26/06/18 – 01/07/18	Unit 12 – on the north eastern boundary of the site.  Unit 16 – adjacent to a dry-stone wall central within the site.	Sunset 21:39 to 21:38 Sunrise 04:39 to 04:42 Temperatures 26 to 10°C Average wind speed 6 to 18km/h Rainfall on 0 nights
27/09/18 – 02/10/18	Unit 7 – adjacent to the southern boundary of the site.  Unit 15 – adjacent to a dry-stone wall central within the site.	Sunset 18:50 to 18:40 Sunrise 07:04 to 07:11 Temperatures 20 to 3°C Average wind speed 11 to 18km/h Rainfall on 0 nights
09/05/21 – 14/05/21	Unit 4 – adjacent to a dry-stone wall central within the site  Unit 15 – adjacent to the proposed site access	Sunset 20:52 to 20:59 Sunrise 05:12 to 05:05 Temperatures 9 to 5°C Average wind speed 4 to 8km/h Light Rainfall on 2 nights

### Great Crested Newts (GCN)

- 2.43 Standard guidance for the completion of surveys to confirm the presence of GCN in waterbodies within or adjacent to proposed operations is provided in the Great Crested Newt Mitigation Guideline Natural England<sup>18</sup>. This guidance recommends consideration for the presence or absence of GCN is given when suitable aquatic habitats are present within 500m of works which could affect a population. Where clear barriers to dispersal exist the standard 500m 'Zone of

<sup>17</sup> Collins, J. (ed.) 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn)*. The Bat Conservation Trust, London.

<sup>18</sup> English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough

Influence' (Zol) can be reduced. Barriers to dispersal can include features such as roads, railway lines and extensive urban area.

- 2.44 As part of the Phase 1 habitat surveys any accessible standing waterbodies within 500m of the Site were searched for via OS 1:25,000, OS 1:10,000 scale maps and satellite imagery.
- 2.45 Terrestrial habitats present within the Site were assessed during the extended Phase 1 Habitat Survey for their potential to provide suitable areas of rest or shelter for great crested newt (GCN) and waterbodies adjacent to the Site associated with Clough Dike were assessed for their suitability to support GCN.

### Reptiles

- 2.46 Habitats present within the Site were considered for their potential suitability to support reptile populations, including the presence of features which provide opportunities for reptiles to bask, forage and/or hibernate, and areas of varied vegetation structure in sheltered locations with sunny aspects and connectivity to other suitable reptile habitats. This assessment was based on the methodology detailed in the Herpetofauna Workers Manual<sup>19</sup> and the Froglife Advice Sheet<sup>20</sup>.
- 2.47 A reptile presence / likely absence survey was completed within areas of suitable habitat in August and September 2020. These surveys update the previous reptile presence / likely absence surveys undertaken in 2016. The survey was undertaken based on the methodology detailed in published guidance<sup>18, 21</sup>. Methods involved a search for basking reptiles on or under naturally occurring and strategically positioned artificial refugia, comprising approximately 0.5m<sup>2</sup> pieces of bitumen roofing felt. These were placed in locations that offered the most suitable habitat for common reptiles.
- 2.48 After a two week 'bed-down' period they were checked on seven subsequent occasions during suitable weather conditions when the ambient air temperature was between 9°C and 18°C and avoiding periods of heavy rain, Table 4 below. All of the surveys were undertaken during optimal survey periods by suitably experienced ecologists. The indicative location of artificial refugia is shown in Figure 7.

**Table 4: Date and Weather Conditions during Reptile Survey**

Survey	Date	Time	Weather
1	29/08/2020	09:50	Cloud % 80-90, Beaufort – 2/3, 11°C
2	05/09/2020	10:25	Cloud % 70-80, Beaufort – 2/4, 12°C
3	09/09/2020	09:20	Cloud % 0-10, Beaufort – 3/4, rain earlier in day, 17°C
4	12/09/2020	10:10	Cloud % 10-20, Beaufort – 3/4, 16°C
5	15/09/2020	09:55	Cloud% 30-40, Beaufort – 1/2, bright, 14°C
6	18/09/2020	09:45	Cloud% 80-90, Beaufort – 1/2, bright, 11°C
7	21/09/2020	09:25	Cloud% 0-10, Beaufort – 0, bright, sunny, 13°C

<sup>19</sup> Gent, T. and Gibson, S. 1998. *Herpetofauna Workers' Manual*. JNCC, Peterborough.

<sup>20</sup> Froglife, 1999. *Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

<sup>21</sup> Gent, T. and Gibson, S. 1998. *Herpetofauna Workers' Manual*. JNCC, Peterborough.

### Population Assessment

- 2.49 Reptile populations were assessed in accordance with the population level criteria as stated in the Key Reptile Site Register<sup>22</sup>. This system classifies populations of individual reptile species into three population categories assessing the importance of the population (Table 5). These categories are based on the total number of adult animals observed within the Site during individual survey occasions.

**Table 5. Key Reptile Site Survey Assessment Categories (HGBI, 1998)**

Species	Low Population (No. of Individuals)	Good Population (No. of Individuals)	Exceptional Population (No. of Individuals)
Adder	<5	5 – 10	>10
Common lizard	<5	5 – 20	>20
Grass snake	<5	5 – 10	>10
Slow worm	<5	5 – 20	>20

### **White Clawed Crayfish, Otter and Watervole**

- 2.50 The additional surveys to confirm the presence or absence of these species along the Clough Dyke (beyond the site) was completed in April 2018 and updated in April 2021. The full methodologies, results and conclusions of these survey are present at Appendix D.

### **Survey Limitations**

- 2.51 Given the extended survey period over which the survey works has been completed, no limitations to the survey information have been identified.

### **Assessment Methodology**

- 2.52 The impact assessment for ecology has been carried out using guidance from CIEEM (2018). The impact assessment process involves:
- Identifying and characterising impacts;
  - Incorporating measures to avoid and mitigate (reduce) these impacts;
  - Assessing the significance of any residual effects after mitigation; and
  - Identifying appropriate compensation & enhancement measures to offset significant residual effects, where significant residual effects remain following the implementation of mitigation and/or compensation such affects need to be considered in the overall planning balance.
- 2.53 The starting point for the assessment of impacts is to determine the importance of ecological features and which should be subject to detailed assessment. Ecological features can be important for a variety of reasons, for examples, the quality of designated sites or habitats, habitat / species rarity, or their rate of decline (CIEEM, 2018).

<sup>22</sup> Herpetofauna Groups of Britain and Ireland 1998. Evaluating local mitigation/translocation programmes: maintaining best practice and lawful standards.



Determining Importance

- 2.54 CIEEM have identified various characteristics that can be used to identify ecological features or features likely to be important in terms of biodiversity. These include:
- Animal or plant species that are rare or uncommon, either internationally, nationally or more locally;
  - Ecosystems and their component parts, which provide the habitats required by the above species, populations and / or assemblages;
  - Endemic species or locally distinct sub-populations of a species;
  - Habitat diversity, connectivity and or / synergistic associations (e.g. networks of hedgerows and areas of species-rich pasture that may provide important feeding habitat for rare species);
  - Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
  - Plant communities (and their associated animals) that are considered to be typical valued natural / semi-natural vegetation types – these will include examples of natural species-poor communities;
  - Species on the edge on their range, particularly where their distribution is changing as a result of global trends and climate change;
  - Species-rich assemblages of plants and animals; and
  - Typical faunal assemblages that are characteristic of homogenous habitats.
- 2.55 Once an ecological feature has been identified as being important, guidelines promote the use of characterising this feature within the relevant geographic frame of reference. This allows the scale of significance of effects to be presented in a meaningful way and provides a focus of maintaining a feature at an appropriate scale. The known or potential value of an ecological feature within this assessment will be considered within the following geographical context:
- International;
  - National;
  - Regional;
  - County (South Yorkshire); &
  - Local (Sheffield City).
- 2.56 If an ecological feature is not considered to be important, the proposed scheme is not anticipated to have an effect that would be of relevance to the decision maker and these features are not considered further within the assessment. Exceptions to this would be if the species, population or habitat in question was identified as having a high social or economic value or if they are afforded legal protection (e.g. badgers). While the assessment does include protected species that receive statutory protection and are of material consideration at the local level, the presence of such a species does not necessarily infer value in relation to the proposed scheme but only to the level of protection it receives.

- 2.57 As such the value of the proposed scheme for protected species is considered by the specific ecological feature, taking into account the level of activity, the level of protection it receives and the overall value of habitat to that species within the Site.
- 2.58 Features with a value of Local or above are considered to represent an ‘Important Ecological Feature’ (IEF). Those features not meeting the criteria for IEF’s are classified as having either lower than local level (immediate zone of influence) or negligible ecological importance.
- 2.59 Evaluation of habitats which did not reach this scale of significance are otherwise recognised as being of negligible significance or as providing habitat diversity at a site level but not considered to appreciably enrich the habitat resource at a local level.

#### Determining Impacts and Effects

- 2.60 The CIEEM guidelines, define an impact as an influence on an ecological feature. The effect is the outcome of the influence on the ecological feature. As part of the EclA it is important to assess whether or not an impact is defined as an effect (negative or positive) on the integrity of a defined site or ecosystem and / or the conservation status of a habitat or species within a given geographical area (CIEEM, 2018).
- 2.61 Impacts should be identified and understood to be able to determine their likely effect (consequence) of that impact in relation to the ecological feature.
- 2.62 As part of the process of determining whether there is likely to be an effect on the status of an ecological feature, the following questions are considered:
- Will any site / ecosystem process be removed or changed?
  - What will be the effect on the nature, extent, structure and function of component habitats?
  - What will be the effect on the average population size and viability of the component species?
- 2.63 A description of parameters that are considered when assessing the degree and type of change are detailed in Table 6 below.

**Table 6: Parameters used to Describe Effects**

<b>Parameter for describing impacts on ecological structure and function</b>	<b>Definition of the parameter</b>
Positive or Negative	Whether the impact has a positive or negative effect
Extent	The area of which the effect occurs
Magnitude	The size or amount of an effect
Duration	The time for which the effect is predicted to last prior to recovery or replacement of the resource or feature
Reversibility	Whether the effect is permanent (i.e. irreversible) or temporary (i.e. reversible)
Timing and Frequency	How often the effect occurs (e.g. repeated noise from piling work) and when it occurs (e.g. vegetation clearance undertaken outside of the bird breeding season).

- 2.64 With reference to the duration of an ecological impact, Table 7 defines the timeframes used within this assessment.

**Table 7: Definition of Timeframes**

Term	Definition within this assessment
Short term	1-5 years
Medium term	6-15 years
Long term	16-60 years

- 2.65 In addition to considering the effect on the ecological feature, an assessment of significance of the residual effect (for the type / nature of change), is provided in Table 8, below.

**Table 8: Classification of the Significance of the Effects**

Impact Classification	Explanation
Significant Negative Effect	Likely to create a significant negative effect, including loss, or long-term or irreversible damage on the status of the ecological feature.
Not Significant Negative Effect	Likely to create a negative effect without causing long-term or irreversible damage to the status of ecological feature.
Neutral	Effects are either absent or such that no overall net change to the ecological feature.
Not Significant Positive Effect	Likely to create a beneficial effect on an ecological feature, or providing a new lower value ecological feature without improving its conservation status.
Significant Positive Effect	The activity is likely to create a significant beneficial effect, including long-term enhancement and favourable conditions for an existing ecological feature.

- 2.66 Once an effect is considered to be significant, then the scale of effect is assessed on a geographical scale (i.e. that listed in 2.53) however, the effect may not be significant at a district scale, but significant at a more local scale. It is important to note that effects on features will need to be considered at more than one geographical scale.

#### Mitigation, Compensation and Enhancement

- 2.67 For the EclA, impacts on ecological features are generally assessed without mitigation in place. Although in some situations it is impossible to separate the mitigation as this is embedded into the scheme, in these situations it will be acknowledged and just the residual effects considered.
- 2.68 In line with current CIEEM guidelines, a sequential process, known as the ‘mitigation hierarchy’ should be adopted on negative ecological impacts and effects. This involves:
- Avoid negative ecological effects;
  - Reduce negative effects that cannot be avoided (mitigate); and
  - Compensate for any remaining significant ecological effects.

### 3.0 BASELINE CONDITIONS AND EVALUTION

#### Desk Study (Figure 1a)

##### Statutory Designations

- 3.1 The Site does not fall within the designation boundary of any site of international, national or regional importance for nature conservation.
- 3.2 The South Pennine Moors Special Area of Conservation (SAC) / South Pennine Moors Special Area of Conservation (Phase 1) SPA is located approximately 3.6km west of the Site (Figure 1a). Annex I habitats that are the primary reason for the selection of this site as a SAC include: European dry heaths; blanket bogs and old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site include: Northern Atlantic wet heaths with *Erica tetralix*, and transition mires and quaking bogs.
- 3.3 The South Pennine Moors SPA qualifies under Article 4.1 of the EC Directive on the Conservation of Wild Birds (79/409) by supporting internationally important breeding populations of merlin *Falco columbarius*, golden plover *Pluvialis apricaria* and short-eared owl *Asio flammeus*. The site supports a rich upland breeding bird assemblage which, as well as the qualifying species listed above, includes the following non-qualifying species of interest over the breeding season: Peregrine *Falco peregrinus*, Lapwing *Vanellus vanellus*, Dunlin *Calidris alpina schinzii*, Snipe *Gallinago gallinago*, Curlew *Numenius arquata*, Redshank *Tringa totanus*, Common Sandpiper *Actitis hypoleucos*, Whinchat *Saxicola rubetra*, Wheatear *Oenanthe oenanthe*, Ring Ouzel *Turdus torquatus* and Twite *Carduelis flavirostris*.
- 3.4 These statutory designated sites are of importance at an **International** level.
- 3.5 The South Pennine Moor SAC / South Pennine Moor (Phase 1) SPA comprises four separate Sites of Special Scientific Interest (SSSI). These are:
- Dark Peak (SSSI)– 3.6km West (same distance as SPA);
  - Goyt Valley (SSSI) – 32.9km South East of Site;
  - Leek Moors (SSSI)– 35.1km South of Site; and
  - Eastern Peak District moors (SSSI) – 7.7km South.
- 3.6 The Site is outside the Impact Risk Zone<sup>23</sup> for residential development for all of these SSSI's. However, given the designation these sites are of importance at a **National** level.
- 3.7 A single site of national importance is present within 2km of the Site. Wharnccliffe Crags SSSI is situated approximately 1.6km east and comprises geological features of special interest. Habitats present include broad-leaved woodland and dry heathland.
- 3.8 Consultation of the MAGIC database shows that the site is located on the outer limits of the SSSI IRZ for Wharnccliffe Crags SSSI. Residential development is not listed as a development type that NE would consider as a potential impact risk on this SSSI given its distance from the Site.

<sup>23</sup> The Impact Risk Zones (IRZs) are a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

- 3.9 Town End Common Local Nature Reserve and Local Wildlife Site (LNR/LWS) lies approximately 0.7km southeast of the Site and comprises heath and acid grassland with scrub. Although LNRs are a statutory designation, the designation is made by Local Authorities (LA's) for sites which are locally important for wildlife, geology, education and enjoyment. Given these requirements, this site is of importance at a **County** level.

#### Non-Statutory Designations (Figure 1b)

- 3.10 There are several LWS's and a single LNR within 1km of the Site (as listed in Table 9), the closest of which is Fox Glen Wood LWS immediately adjacent to the northern boundary.

**Table 9: Non-Statutory Designated Sites within 1km of the Site**

Site name/ref	Designation	Approximate location from the site	Description (Non-Statutory Site Citation Information provided by Sheffield Biological Records Centre (SBRC))
Fox Glen Wood	LWS	0m north	<ul style="list-style-type: none"> <li>Running water (UK &amp; LBAP Priority habitat)</li> <li>Upland Oak woodland (UKBAP Priority habitat)</li> <li>Bluebell (LBAP Priority species and protected under Wildlife and Countryside Act)</li> <li>Song Thrush (UKBAP Priority species)</li> <li>Treecreeper (LBAP Priority species)</li> <li>Other Ancient Woodland Indicator (AWI) species scattered through the site.</li> </ul>
Cockshot Hill	LWS	120m southwest	<ul style="list-style-type: none"> <li>Unimproved acid pasture; some enriched areas and also wet rushy pasture</li> </ul>
Town End Common	LWS/LNR	260m southeast	<ul style="list-style-type: none"> <li>Scattered western gorse (a UKBAP species)</li> <li>Localised pockets of Sphagnum with common cotton grass (a Grade B LRDB species).</li> <li>3 Nationally Notable beetles and a Regionally Notable Sphagnum bug</li> <li>Breeding palmate newt (a Grade B LRDB species)</li> </ul>
East Whitwell	LWS	600m west	<ul style="list-style-type: none"> <li>Acid grassland / gorse / heath mosaic</li> <li>Important for invertebrates, especially grasshoppers and butterflies.</li> </ul>
Lower Little Don, Stocksbridge	LWS	700m east	<ul style="list-style-type: none"> <li>LBAP habitats: Unimproved grassland, lowland heath, rivers/running water.</li> <li>UK BAP habitats: lowland heathland</li> </ul>
Bank at Bolsterstone	LWS	700m south	<ul style="list-style-type: none"> <li>Unimproved grassland (Local BAP habitat).</li> </ul>
Old Haywoods	LWS	750m northeast	<ul style="list-style-type: none"> <li>Unimproved grassland (LBAP and UK BAP)</li> <li>Variety of LBAP habitats and habitat features present such as semi natural woodland, scrub and pond.</li> </ul>
Knoll Top, Stockbridge	LWS	750m north	<ul style="list-style-type: none"> <li>Presence of UKBAP and LBAP priority habitats in lowland mixed deciduous woodland and running water.</li> </ul>
Stone Moor	LWS	800m west	<ul style="list-style-type: none"> <li>Unimproved grassland (LBAP priority habitat) with wet areas dominated by soft rush (UKBAP priority habitat).</li> <li>Breeding site for Curlew and possibly Lapwing</li> </ul>
Parsonage Wood Farm	LWS	830m east	<ul style="list-style-type: none"> <li>Woodland generally dominated by sycamore; protected species present.</li> <li>Likely to support good invertebrate fauna</li> </ul>

Site name/ref	Designation	Approximate location from the site	Description (Non-Statutory Site Citation Information provided by Sheffield Biological Records Centre (SBRC))
Sunny Bank (Ewden)	LWS	850m southeast	<ul style="list-style-type: none"> <li>Western gorse (a UKBAP Priority species), scattered young oak and birch. Bilberry and heather are established on some of lane verges. Woodland in western part of site is oak-dominated.</li> </ul>
Yew Trees Wood	LWS	890m south	<ul style="list-style-type: none"> <li>Protected species are common in the area.</li> <li>Invertebrate and fungi are also likely to be of interest.</li> <li>Western gorse scrub (UKBAP) is developing in the unimproved field</li> </ul>
Fields at Ewden	LWS	920m south	<ul style="list-style-type: none"> <li>Both UKBAP &amp; LBAP habitats and species are present including: unimproved grassland, hedgerow and purple moor grass and rush pasture.</li> </ul>

3.11 The above mentioned LWS's are of importance at a **County** level.

### Species Records

3.12 Several records have been returned from SBRC for protected and noted species records from the search area. A summary of the records considered to be of relevance and from the preceding 20 years is provided below. The recorded locations of species included are shown in Figure 1b. There were no existing records provided from within the Site boundary.

#### Amphibians and Reptiles

- Records for common frog *Rana temporaria*, over 1km from the Site.
- Records for palmate newt *Triturus helveticus*, approximately 1.3km east, within Wharnccliffe Heath LNR.
- Records for common lizard *Lacerta vivipara* approximately 1.3km east within Wharnccliffe Heath LNR, 2km east within Wharnccliffe Craggs SSSI and 1.1km southeast at Town End Common LNR.
- Records for grass snake *Natrix natrix*, all located over 1km from the Site.

#### Bats

3.13 None of the bat records reported are directly from the Site. A brief summary of the records is provided in Table 10.

**Table 10: Summary of Bat Records from the Desk Study Area**

Species	Number of records	Distance from Site
Brown long-eared bat <i>Plecotus auritus</i>	3	Roosts recorded at 1.3km east and 2km north
Common pipistrelle <i>Pipistrellus pipistrellus</i>	4	Sighting only
Natterer's bat <i>Myotis nattereri</i>	1	Roosts recorded at 1.3km east

Species	Number of records	Distance from Site
Leisler's bat <i>Nyctalus leisleri</i>	1	Sighting only
Noctule <i>Nyctalus noctula</i>	1	Sighting only
Unidentified bat species	3	Roosts recorded 1.8km northeast
Pipistrelle species <i>Pipistrellus Sp.</i>	4	Sighting only
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	3	Sighting only

### Birds

- 3.14 The Sheffield Biological Records Centre (SBRC) and the Sheffield Bird Study Group (SBSG) provided numerous bird records within the search area. Most of these were provided at only a 2 or 4 figure grid reference so locations could not be accurately identified. Of those records provided, the only records that may be relevant to the Site in terms of the habitats present included house sparrow *Passer domesticus*, linnet *Carduelis cannabina* dunnock *Prunella modularis* and starling *Sturnus vulgaris*.
- 3.15 Additional records from the Sheffield Bird Studies Group (SBSG) were obtained and the results of this consultation exercise are fully assessed in the breeding and passage bird report presented at Annex B.
- 3.16 To avoid repetition, the following provides a summary of the results of the consultation information from the Sheffield Bird Study Group relating to SPA / SAC and SSSI species.
- 3.17 The records over the breeding season confirm no designated species listed on the criterion for the SPA were recorded within the 1km grid square where the Site is situated. Two non-qualifying species of interest listed on the citation lapwing *Vanellus vanellus* and curlew *Numenius arquata* were reported within the 1km grid square in which the Site is located. Over the main breeding period (which is April – June) the records show lapwing and curlew are also present in small numbers locally where open farmland habitat is present demonstrating the widespread nature of this species. These records also show that over the breeding period significantly higher numbers of lapwing use habitats in other grid squares which are not affected by the proposals. These grid squares include: SK2697 (87 lapwing), SK2696 (12 lapwing, with breeding confirmed in the same grid square), SK2698 (13 lapwing where breeding has been confirmed), SK2796 (70 lapwing), SK2896 (26 lapwing where breeding has been confirmed) and SK2795 (13 lapwing) (Annex B: Figure 1).
- 3.18 Two SSSI species meadow pipit *Anthus pratensis* and grey wagtail *Motacilla cinerea* were recorded in the km square where the Site is located. These species and other species listed on the SSSI designation were also recorded in grid squares surrounding the Site.
- 3.19 Winter and passage records provided by the SBSG confirm records for lapwing, a species listed as a species of interest on the SPA criterion, and records of red grouse *Lagopus lagopus* a species listed on the red grouse a species listed on the SSSI designation in the 1km grid square in which the Site is located.

Invertebrates

- 3.20 Consultation information provided by SRC noted wall brown butterfly *Lasiommata megera* have been identified within the Site.
- 3.21 Records for several species of butterfly and moth have been returned from the SBRC. The majority were concentrated around Wharnccliffe Heath LNR and Bank at Bolsterstone LWS. Species included: gatekeeper *Pyronia tithonus*, dingy skipper *Erynnis tages*, large white *Pieris brassicae*, painted lady *Vanessa cardui*, peacock *Aglais io*, red admiral *Vanessa atalanta*, ringlet *Aphantopus hyperantus*, small heath *Coenonympha pamphilus*, wall *Lasiommata megera*, white letter hairstreak *Satyrrium w-album*, early tooth-striped *Trichopteryx carpinata* and white ermine *Spilosoma lubricipeda*.

Other Mammals

- 3.22 Several records for badger have been returned with but only one record is located within 1km of the Site approximately 0.7km southwest. Two of the records are for setts and these are approximately 2km north and southeast.
- 3.23 Two records for hedgehog *Erinaceus europaeus* located approximately 1.8km northeast were returned.
- 3.24 Two records for pygmy shrew *Sorex minutus* situated approximately 1.3km east within Wharnccliffe Heath LNR were returned.
- 3.25 Four records for red deer *Cervus elaphus* approximately 1.3km east within Wharnccliffe Heath LNR and 1.9km southeast were returned.

**Field Survey – Habitats****Overview**

- 3.26 The habitats described below correspond to those mapped on Figure 2: Phase 1 Habitat Plan. Plant species lists for each habitat are provided in Annex A.
- 3.27 The Site comprises five species-poor semi-improved grassland field compartments divided by dry-stone walls. Other habitats present either within or bounding the site include buildings, dense/continuous and scattered scrub, hedgerow, fence lines, coniferous trees and broad-leaved trees.

**Poor Semi-improved Grassland**

- 3.28 Species-poor semi-improved grassland forms the dominant habitat within the Site.
- 3.29 The western field compartment and the field compartment associated with TN1-TN3 is cattle grazed, exhibiting a fine and short sward height and structure of c.3-7cm. TN1 is a small area of bare ground which had been poached by cattle footfall. The margins of the bare ground are dominated by colonising knotgrass *Polygonum aviculare*. TN2 is an area of poached organic matter build up, including discarded hay and cattle detritus surrounding a cattle feeder. TN3 is an area dominated by ruderal colonising vegetation over organic substrate, including frequent knotgrass and frequent hedge mustard *Sisymbrium officinale*.



- 3.30 The remaining three species-poor semi-improved field compartments are managed for intensive and regular hay cutting, comprising a recently cut sward height of c.5-10cm and uncut field margins of c.30-50cm.
- 3.31 Species composition of the remaining species-poor semi-improved field compartments is largely homogenous. Perennial rye-grass *Lolium perenne* and Yorkshire-fog *Holcus lanatus* are recorded as frequently occurring in abundance, creeping bent *Agrostis stolonifera* occasionally occurring and cock's-foot *Dactylis glomerata* and false oat-grass *Arrhenatherum elatius* are locally dominant, in particular at field margins. Herbaceous diversity and abundance is limited, with most species identified recorded as rarely occurring in abundance. A small number of herbaceous species, located in small areas of the site, are either locally dominant or occasionally within the grassland sward. These species included common sorrel *Rumex acetosa*, meadow buttercup *Ranunculus acris*, ribwort plantain *Plantago lanceolata* and white clover *Trifolium repens*.
- 3.32 The grassland within the Site is not species rich and does not meet the criteria to be selected a Habitat of Principle Importance under S41 of the NERC Act. All grasslands are covered under the Sheffield Biodiversity Action Plan but given the species poor nature of the grassland and the prolonged period of consistent agricultural management, the habitat does not represent an optimal example of grassland habitats. Therefore, the importance of this habitat is only considered to be at a **local** level.

#### **Dense/Continuous and Scattered Scrub**

- 3.33 Bramble *Rubus fruticosus* agg. dominated the dense/continuous scrub with frequently occurring creeping thistle *Cirsium arvense* associated with unmanaged field margins located in a single field compartment.
- 3.34 An area of immature wild cherry *Prunus avium* scrub is located within the northern corner of the Site. Small amounts of scattered scrub is also present along field boundaries. These areas are very limited in extent and comprise semi-mature hawthorn *Crataegus monogyna* standards.
- 3.35 Neither of these scrub habitats meet the criteria to be selected priority habitats as listed under S41 of the NERC Act and scrub is not covered under as a local BAP action plan. Therefore, this habitat is assessed as being of no more than **site** level importance.

#### **Hedgerows**

- 3.36 Present along the Site's northern boundary is a single overgrown, gappy, species poor hedgerow (H1). Hedgerow H1 qualifies as a habitat of principle importance as described in S41 of the NERC Act 2006 because it comprises at least 80% native species. The hedgerow is considered suitable for assessment against the Hedgerow Regulations criteria and the HEGS assessment. A summary of the extent and ecological value of the hedgerow is provided in Table 11.
- 3.37 Given the limited extent of this hedgerow and the lack of connectivity to other ecological features this hedgerow is assessed as being of no more than **site level importance**.

Table 11: Summary of the Extent of the Hedgerows and their Ecological Value

Ref.	Canopy Sp.	Height / Width (m)	Length (m)	Sp. per Av. 30m	Associated Features	HEGS Grade	Import. HR*
H1	<i>Cm, Fe</i>	>4 / 0-1	50	2	>1 standard/50m	-3 (Moderate Value)	No

Cm – Hawthorn, Fe - Ash

### Broad-Leaved and Coniferous Trees

- 3.38 A small number of broad-leaved trees are located within the Site. The vast majority of specimens are associated with field margins or boundaries and are predominantly immature in age. Species included ash *Fraxinus excelsior* and English oak *Quercus robur*. These trees provide some structural variability and species diversity within the Site but such tree cover is widespread locally. From an arboricultural perspective the trees and tree group of note are those on the edge of Fox Glen and the two veteran trees located to the north west of the site (Annex: E). Consequently, the importance of these trees is of no more than at a **Site** level.
- 3.39 A domestic line of coniferous trees are present along the northern boundary of the Site. This receptor is of negligible importance to nature conservation.
- 3.40 Two veteran ash trees are present to the north west of the Site, situated immediately south of the Fox Glen LWS. These veteran trees are considered to be important at a **County** level.

### Wall and Fence Lines

- 3.41 Dry-stone walls predominantly bound the Site and divided field compartments. Wooden post and wire fence lines are present bounding and dividing field compartments. These receptors are of negligible importance to nature conservation.

### Fox Glen Survey (LWS)

- 3.42 The results of this assessment concluded that the ground flora in the working area is not particularly diverse, nor of any significance to the overall designation. The ground flora is formed by a small number of common / widespread species and bluebell *Hyacinthoides non-scripta* are only recorded as being occasional or rare in this section of the woodland (Annex F & CD1.17c). Despite the limited ecological interest provided in the survey area, this habitat is situated within the overall LWS designation, and the importance is considered to be at a **County** level.

### Field Survey – Fauna

#### Amphibians

- 3.43 No standing waterbodies are present within a 500m radius of the site. Clough Dike passes through Fox Glen Wood directly to the north of the Site and at two points widens, however at these points the water is still flowing and no areas of standing water are present. These conditions are unsuitable to support breeding GCN.

#### Badger

- 3.44 No inactive or active badger setts or any other physical evidence of badger are present within the Site or within a 30m radius of it on accessible land surrounding.

## Birds

### Main Site: Breeding Bird Survey April – May 2021 (Annex B)

- 3.45 The breeding bird surveys identified similar level of use to those identified in 2016. Overall 26 species within the Site and only nine of these species were identified as being on the Bird of Conservation Concern amber or red list<sup>24</sup>. This number of species of breeding birds and notable species using a site on the urban edge is not significant. No designated species or species of interest listed on the designation criteria for the SPA were identified over this survey period.
- 3.46 Two species listed on the SSSI designation; grey wagtail and meadow pipit have been recorded. However, only one grey wagtail has been seen flying over the site and an individual / two meadow pipits have been seen on two of the occasions.
- 3.47 From these results, it is concluded that the Site does not support a significant population of species listed on either the SPA or the SSSI designations. Furthermore, no significant numbers of any of the species recorded. Therefore, the assemblage of breeding birds using the Site was identified as being of no more than **local** level importance.

### Main Site: Spring / Breeding Passage March – April 2021 (Annex B)

- 3.48 The 2021 survey results show no significant change when compared to the surveys which were undertaken in 2016. The 2021 surveys recorded significantly less species than in 2017. No SPA species were recorded within the Site. Meadow pipit is the only SSSI species observed utilising habitats within the Site in 2016, 2017 and 2021. The number of meadow pipit using the Site have been consistently low and whilst recorded as ‘possible breeders’ meadow pipit have not been recorded exhibiting any behaviours to indicate breeding.

### Main Site: Winter Bird Surveys (Annex C)

- 3.49 The 2020 / 2021 survey results are similar to those recorded over the 2016 / 2017 survey period.
- 3.50 Over the 2020 / 2021 survey period 30 species have been identified 12 of which are considered to be ‘notable’ species. During the 2016 / 2017 surveys 31 bird species were recorded during the surveys, of which 11 are considered ‘notable’. Over these surveys no bird species listed on the SAC / SPA designation were identified.
- 3.51 Meadow pipit is the only SSSI species identified within the Site. During the first survey occasion in 2016, a flock of 40 were identified. Over the remaining surveys during the 2016 / 2017 surveys only individual meadow pipits were recorded. Only one individual meadow pipit was recorded during the 2020 / 2021 survey period.
- 3.52 As no significant numbers of any of the species recorded, the assemblage of winter birds the Site was identified as being of no more than **local** level importance.

### Fox Glen: Extended Surveys (Annex D)

- 3.53 Over the winter survey 20 bird species have been recorded in Fox Glen and only three of these Redwing *Turdus iliacus*, Mistle thrush *Turdus viscivorus* and Dunnock *Prunella modularis* are considered ‘notable’. Through the extended breeding season 26 bird species have been recorded and five Starling *Sturnus vulgaris*, Song thrush *Turdus philomelos*, Mistle thrush *Turdus*

*viscivorus*, Dunnock *Prunella modularis* and House sparrow *Passer domesticus* are considered 'notable'. Willow tit has not been recorded over these surveys.

- 3.54 The assemblage recorded in Fox Glen are fairly common to abundant in Yorkshire and nationally. This includes the probable breeders song thrush and dunnock, the possible breeders mistle thrush and starling and the non-breeders house sparrow and redwing. From this assessment the assemblage of birds using Fox Glen has only been assessed as local level importance. Bats

### **Bats: Roost Site Assessment**

#### Building Assessment

- 3.55 A small number of conjoined out-buildings are present in the centre of the Site (Building B1: Figure 2). All were identified as having negligible potential to support roosting bats.
- 3.56 The buildings comprise single storey single skinned buildings used to house tools and livestock. All have flat roofs with no roof void. No roosting opportunities were identified, and no internal or external evidence of bats was observed in association with any of the buildings.

#### Tree Roost Assessment

- 3.57 A single mature tree present adjacent to the northern site boundary (T1) was identified to provide a 'moderate' potential to support roosting bats. T1 is the veteran ash tree with a hollow main stem and evident dead wood in the crown. If this tree is used as a roost site, it is unlikely to be of more than **Local** level importance. I note that this tree would be buffered from the proposals,

### **Bats: Activity Surveys**

#### Foraging / Commuting Habitat

- 3.58 The interior of the species-poor semi-improved grassland provides negligible commuting and foraging suitability for bats. Habitats present within or bounding the Site which could offer suitable commuting and foraging resources for bats includes any grassy field margins, dense/continuous and scattered scrub, hedgerow, dry-stone wall and broad-leaved trees.

#### *May 2018 Transect (Figure 3)*

- 3.59 A total of 15 bat contacts were observed during the May transect survey. Species identified included common pipistrelle *Pipistrellus pipistrellus* and noctule *Nyctalus noctula*. The first bat contact recorded was a common pipistrelle foraging at 21:42 along a dry-stone wall and semi-mature hawthorn. No particular 'hot spot' of activity was identified within the Site, with bat contacts spread throughout, predominantly located within the centre. The majority of contacts were observed foraging along dry-stone walls. Three bat contacts (13, 14 and 15 (Figure 3)) were identified continuously foraging along features associated along the northern boundary.

#### *June 2018 Transect (Figure 4)*

- 3.60 A total of 12 bat contacts were observed during the June transect survey of a single species; common pipistrelle. The first bat contact recorded was located passing along the southern boundary along a dry-stone wall. The majority of bat activity was recorded along habitat associated with the northern boundary, which included an adjacent woodland, where continuous

foraging activity was recorded. A single common pipistrelle was also recorded continuously foraging along a coniferous tree line and within neighbouring gardens along the northern boundary and a single common pipistrelle was recorded continuously foraging along the eastern boundary in the dry-stone wall, scattered scrub and immature broad-leaved tree habitat.

*September 2018 Transect (Figure 5)*

- 3.61 A total of 24 bat contacts were observed during the September transect. Three bat species were identified; common pipistrelle, noctule and unidentified *Myotis* species. The first bat contact recorded was a common pipistrelle located passing a coniferous tree line in the north. The majority of bat activity was associated along the dry-stone wall separating the western field compartment with the central field compartment. At this location common pipistrelle and *Myotis* species were observed commuting and foraging. Other activity recorded was spread throughout the Site.

*May 2020 Transect (Figure 6)*

- 3.62 Over this survey the level of activity recorded was low comprising approximately 14 contacts. The only species recorded using the site was common pipistrelle. The majority of the activity was associated with habitats to the north of the site adjacent to Fox Glen and associated with the dry stone wall situated on the eastern extent of the retained grassland.

Static Bat Detector Surveys

- 3.63 The following is a summary of the static detector data with detailed results shown in the tables below (as indicated) and locations on Figure 7.

Static Location Units 8 and 13: 23rd – 28th May 2018 (Figure 7 and Annex G)

- 3.64 Unit 8 was positioned adjacent to the north eastern boundary. The dominant species is common pipistrelle comprising over 97% of the total registrations. Other species recorded include: Noctule, soprano pipistrelle *P. pygmaeus* and unidentified pipistrelle species. No Annex II species were recorded.
- 3.65 Unit 13 was positioned on the northern boundary adjacent to the Fox Glen Common pipistrelle is the dominant species recorded comprising over 89% of the total registrations. Registration rates from other species were significantly lower with unidentified pipistrelle species forming approximately 7% of the registrations and Noctule comprising approximately 2%. The other species identified include: Soprano pipistrelle, brown long eared *Plecotus auritus*, *Nyctalus* species, unidentified *Myotis* species and *Nyctalus / Eptesicus* species. Registration rates for these species did not exceed 1%.

Static Location Units 12 and 16: 26<sup>th</sup> June – 01<sup>st</sup> July 2018 (Figure 7 and Annex G)

- 3.66 Unit 12 was positioned adjacent to the north eastern boundary. Common pipistrelle is the dominant species comprising 98% of the registrations. The other species recorded are: unidentified *Myotis* species, Noctule, unidentified pipistrelle species and soprano pipistrelle. The recorded level of activity from these species was below 1% of the total registrations.
- 3.67 Unit 15 positioned adjacent to a dry stone wall centrally within the site. Common pipistrelle is the dominant species comprising over 81% of the total registrations. Approximately 9% of the

registrations are from Noctule, 6% are unidentified *Myotis* species and 1% soprano pipistrelle. Registrations rates for unidentified pipistrelle and *Nyctalus* species were below 1%.

Static Location Units 7 and 15: 27 September – 02<sup>nd</sup> October 2018 (Figure 7 and Annex G)

- 3.68 Unit 7 was located adjacent to the southern boundary. Common pipistrelle is the dominant species comprising 83% of the total registrations. Recording rate for pipistrelle species is approximately 11% and the recording rate for Noctule is approximately 3%. Other species including soprano pipistrelle and unidentified *Myotis* species were recorded at less than 1%.
- 3.69 Unit 15 located adjacent to a dry stone wall centrally within the Site and common pipistrelle was again the dominant species recorded at 96% of the total registrations. The recording rate for unidentified *Myotis* species formed approximately 2% and the registration rate for unidentified pipistrelle species is approximately 1%. The registrations rate for soprano pipistrelle and Noctule are less than 1%.

Static Location Units 4 and 6: 09 May 2021 – 14 May 2021

- 3.70 Unit 4 was situated adjacent to a dry-stone wall positioned centrally within the Site. The dominant species recorded was common pipistrelle which comprised 98% of the total registrations. Occasional registrations from soprano pipistrelle and noctule were recorded but the recording rates for these species were less than 1% of the total registrations. The only other species recorded include unidentified *Nyctalus* species, pipistrelle species and *Myotis* species. Again, the level of recorded use form less than 1% of the total registrations.
- 3.71 Unit 6 was situated adjacent to the proposed site access. Common pipistrelle is the dominant species recorded on this detector comprising 91% of the total registrations. Other species recorded included unidentified pipistrelle which comprised 7% of the total registrations. Only individual registrations from Noctule and *Myotis* species have been identified on this static detector.

Assessment of Importance

- 3.72 The level of activity recorded within the Site is typical for a Site situated on the urban edge and indicates that the site forms part of the local bat population foraging resource as will other grassland field compartment surrounding this Site. The level of use is not exceptional or indicative that the Site provides a significant resource for any of the species recorded as such the Site is assessed as being of no more than Local level importance.

**Reptiles**

Habitat Suitability

- 3.73 Intensively grazed and managed species-poor semi-improved grassland with a short sward is the dominant habitat present. This habitat is unsuitable to support reptiles. The bases of dry-stone walls with a longer unmanaged grassland field margin and margins of scattered scrub provide some limited structural diversity that could potentially provide places of shelter and foraging opportunities for reptile species.

Presence / Absence Surveys

- 3.74 No reptiles have been found during the completed presence/absence surveys completed in 2016 (CD1.14) or 2020. If habitats within the Site provide a resource for reptiles locally, the presence of the species would have been recorded during one of these survey periods. Given these results, the Site has been assessed as being of **negligible** importance to reptiles.

**Brown Hare**

- 3.75 Since completion of the previous consultation exercise in 2016, the number of records of brown hare *Lepus europaeus* within 2 km of the site have increased to 63 (59 of these records were provided during in 2017 – 2018) (Figure 9).
- 3.76 Only one record from 2017 is from within the Site. A further two records from 2017 and one of the records from 2018 are on land outside the Site boundary to the north west. The majority of the remaining records are from the open countryside to the south, south west and west.
- 3.77 The dominant grassland habitat within the Site is heavily grazed by horses and as such provided limited habitat for brown hare. The southern field is cut for hay and therefore provides an extremely limited resource for brown hare following the hay cut. Over the extensive survey period, none of the surveyors reported the presence of brown hare as incidental records, despite being on Site just after dawn and just after dusk.
- 3.78 Given the limited recorded evidence of brown hare within the Site, the importance of the habitat to the local brown hare population is of no more than at a **site** level.

**White Clawed Crayfish, Otter and Watervole**

- 3.79 The Clough Dike is an isolated stretch of watercourse which issues to the south of Fox Glen and outfalls into a significant underground culvert immediately north of Fox Glen. Over the 2017 (CD1.17b) and the 2020 surveys, no evidence of these species was identified and the habitats are suboptimal for these species (Annex H). Consequently, habitats in Fox Glen are of **negligible** importance for these species.

**Invertebrates (Annex I)**

- 3.80 The short-grazed grassland and intensive management of the habitats within the Site reduces the suitability of the habitats to be used by invertebrates.
- 3.81 The invertebrate scoping assessment completed in August 2020 recorded 160 invertebrate species but none of the species recorded were Species of Principle Importance as listed in S41 of the NERC Act 2006.
- 3.82 One 'Key Species' (i.e., species with rare, scarce, threatened or near threatened conservation status) was recorded. The invertebrate report confirms the bug *Lygus pratensis* was categorised as Rare (RDB3) in 1992 but has since become common and widespread (Annex I). Hence, the preliminary survey found no accurately-rated Key Species (0.0% of the total species list of 160).
- 3.83 The Pantheon analysis yielded Species Quality Index (SQI) values ranging from very low to low and the Site was assessed as being of little importance for invertebrate conservation.
- 3.84 From this assessment the habitats with the site have been assessed has been of no more than **Site level importance** for invertebrates.

### Summary of Ecological Features

- 3.85 A summary of the ecological features that have been determined as requiring detailed assessment is provided in Table 12.

**Table 12: Summary of Important Ecological Features and their Relative Geographical Importance**

Ecological Feature	Geographical / Ecological Frame of Reference
The South Pennine Moors Special Area of Conservation (SAC) / South Pennine Moors Special Area of Conservation (Phase 1) SPA	International
Dark Peak (SSSI) / Goyt Valley (SSSI) / Leek Moors (SSSI) / Eastern Peak District moors (SSSI)	National
Wharnccliffe Crags SSSI	National
Town End Common Local Nature Reserve and Local Wildlife Site (LNR/LWS)	County
Fox Glen LWS	Local
Poor semi-improved grassland	Local
Dense / Continuous and scattered scrub	Site
Hedgerows	Site
Scattered broadleaved trees	Site
Domestic coniferous trees	Negligible
Veteran trees	County
Walls / Fences	Site
Amphibians	Negligible
Badger	Negligible
Birds (Breeding / Passage)	Local
Birds (Winter)	Local
Bats (Foraging)	Local
Bats (Roosting)	Local
Reptiles	Negligible
Brown hare	Site
White clawed crayfish / watervole and otter	Negligible
Invertebrates	Site

## 4.0 ECOLOGICAL DESIGN

- 4.1 The proposed development has been designed to minimise the potential effects on the various ecological receptors outlined above.
- 4.2 The proposals retain the main ecological receptors and where potential effects have been identified, the proposals have been altered and/or appropriate mitigation proposed. The proposals provide appropriate buffers between the built form and the LWS. In addition, the proposals also provide grassland enhancements in the retained field compartment situated within



the south west of the Site, located to south of Fox Glen. The implementation of these measures avoids prejudicing connectivity between Fox Glen LWS and the wider countryside south of the Site.

- 4.3 To minimise the potential ecological effects of the proposals, and common to the original and revised Illustrative Masterplans, the retained ecological receptors would include:
- The Veteran trees situated to the south of Fox Glen (LWS);
  - 2.44ha of grassland enhancements across the Site including the significant area which is retained and enhanced in the south west of the Site;
  - The existing hedgerow and the majority of the dry-stone walls; and
  - The mature boundary trees.
- 4.4 Mitigation and enhancements to minimise potential effects and provide betterment are shown on the submitted Green Infrastructure Indicative Principles Plan (Drawing Reference: 7301-L-02 D). These would include:
- enhancements through re-seeding and long-term management of the retained grassland in the south west of the Site
  - creation of new area of native planting adjacent to Fox Glen
  - the creation of native species scrub planting
  - the creation of species rich grassland
  - the creation of wetland features in the balancing facility within the Site
  - the creation of new native species rich hedgerows
  - the implementation of scattered native species trees throughout the GI
  - the use of a sensitive lighting scheme to avoid potential effects to the local bat population
  - the implementation of bat and bird boxes throughout the proposed development; and
  - the creation of a new open channel from the balancing facility to Clough Dike.
- 4.5 The proposed GI will provide new areas of terrestrial habitats which will benefit a wide range of protected species including bats, birds and reptiles. All the habitats retained or created within the Site will be subject to long term management in accordance with the requirements of a Biodiversity Management Plan.
- 4.6 The design features outlined above would also apply to the 'Revised Illustrative Masterplan (April 2021)' and the Green Infrastructure Indicative Principles Plan has been updated accordingly (Drawing Reference: 7301-L-02 E). From an ecological perspective the only significant change is the additional of an additional attenuation facility.
- 4.7 Unlike the main balancing facility, situated to the north of the Site, which is designed to retain a degree of standing water and a wetland area, the additional balancing facility is designed to be a wet and dry facility only retaining water for short periods of high rainfall. The resultant conditions in the additional balancing facility will allow the development of different grassland communities providing different microclimates that will support a range of different species, Therefore, the revised proposals will provide further betterments from an ecological perspective.

## 5.0 IMPACT ASSESSMENT OF IMPORTANT ECOLOGICAL FEATURES

### Statutory Designations

#### Potential Construction Phase Impacts

##### The South Pennine Moors Special Area of Conservation (SAC) / South Pennine Moors Special Area of Conservation (Phase 1) SPA and Associated SSSI

- 5.1 The Site is geographically isolated from this internationally important site due to the network of fields in the intervening 3.6km, along with both Hollins Busk Lane and Stone Moor Road. Therefore, there will not be any direct impacts from the proposed development upon the nature conservation value of the SAC/SPA site, such as land take or damage from construction works. From this assessment (and as per the Council's HRA (CD2.25) and NE's consultation responses) these internationally designated sites would **Not be subject to any Significant Effects**.

##### Other Statutory Designated Sites

- 5.2 Wharnccliffe Crags SSSI/LNR is situated approximately 1.6km east of the Site and is designated for its geological features. Habitats present in the designated site include broad-leaved woodland and dry heathland. The proposals will not result in any direct land take and given the distance of the proposals from the SSSI/LNR, indirect effects during the construction phase are not expected. Given the intervening distance and isolation, this nationally designated site would **Not be subject to any Significant Effect**.
- 5.3 Townend Common LNR/LWS lies approximately 0.7km southeast of the Site. The LNR is buffered from the proposed development by Carr Road and Royd Lane, residential housing and Stocksbridge Golf Club. As such, there will not be any direct impacts upon the LNR and this County designated site would **Not be subject to any Significant Effect**.

#### Potential Operational Phase Impacts

##### The South Pennine Moors Special Area of Conservation (SAC) / South Pennine Moors Special Area of Conservation (Phase 1) SPA and Associated SSSI

- 5.4 The Site Improvement Plan for South Pennine Moors references a variety of potential threats and pressures including inappropriate grazing, hydrological change and arson to which the proposals will have no influence.
- 5.5 There is potential for a minor influence on the recreational pressure arising from the increase in population associated with the proposed development, who may visit the SAC / SPA. The proposals would provide areas of public open space designed to provide areas for informal recreational use for the new residents. In combination with other areas of natural green spaces which are in close proximity to the Site, it is expected that the recreational requirements of the new residents on a day-to-day basis will be met, thus reducing any potential pressure on the SAC / SPA. This is confirmed in the Habitat Regulations Assessment (HRA) completed by SCC (CD2.25).
- 5.6 Within the SAC / SPA, the Pennine Way and it's associated trails are popular with an actively managed visitor area with well used tracks and routes. Therefore, the proportion of additional

visitor pressure potentially arising from the proposed development is likely to be insignificant/negligible in the context of the scale of the existing visitor numbers.

- 5.7 From this assessment, it has been concluded that there will be no 'likely significant effects' from increased recreational pressure on the conservation objectives of the SAC / SPA. Natural England agreed this position over the determination that these designated sites would **Not be subject to any Significant Effect**.
- 5.8 The traffic and transport assessment provided confirms the AADT from the Site including in-combination with other proposals will be less than 1000AADT. Therefore, the potential effects of increased NOx deposition on the SAC / SPA have also been assessed as neutral. This is an agreed position with NE. The HRA completed by SCC confirms that likely significant effects from the project alone and in-combination with other plans or project have been discounted (CD2.25) and the SPA/SAC would **not be subject to any significant effects**.
- 5.9 The South Pennine Moors (Phase 1) SPA is designated for breeding bird assemblage. None of the surveys or the records returned during the Desk Study have identified any of the species listed in the designation criterion within the Site or in the grid square surrounding the Site. Two non-qualifying species but species of interest listed on the SPA designation; lapwing / curlew were identified in small numbers. Records of these species were also present in the 1 km grid square and other grid squares surrounding the Site, but this data demonstrates the Site does not provide a significant resource for such species outside the SPA.
- 5.10 Natural England's consultation response to the original appeal proposal which is similar in size and scale to the current scheme, agreed within the conclusion of the Local Planning Authorities (LPA's) Habitat Regulation Assessment (HRA) screening that the proposals would not result in a 'likely significant effects' to the conservation objectives of the designated site. Therefore, species listed on the designation criterion for the designated sites would **not be subject to any significant effects**.
- 5.11 From the completed survey work, species listed on the Dark Peak SSSI identified as using the SSSI include lapwing, meadow pipit and grey wagtail. None of these species were identified using the Site in significant numbers and all were also present on land surround the Site. Furthermore, the IRZ for the Dark Peak SSSI which crosses the Site does not highlight residential development as a proposal for which Natural England need to be consulted. Given these results and the distance from the SSSI, species listed on the SSSI designation would **not be subject to any significant effects**.

#### Other Statutory Designated Sites

- 5.12 The Site falls within the IRZ of Wharnccliffe Craggs SSSI/LNR however residential development is not listed as a development type that Natural England consider as representing a potential risk to the SSSI.
- 5.13 During the operational period, given the local resource identified in the SCC HRA (CD2.25), no significant indirect impacts upon the SSSI are expected from increased recreational pressure. Consequently, the designated site would **not be subject to any significant effects** from increased recreational pressure.
- 5.14 Any indirect impacts from increased recreational pressure on Townend Common LNR / LWS are likely to be insignificant given that part of the LNR, designated as a LWS, currently forms part of

the Stocksbridge Golf Club and the LNR has a number of well-defined tracks throughout. In addition, within 10 minutes of the Site, in the completed HRA SCC have identified adequate recreational resource which will absorb the daily recreational requirement of the proposals. Given this assessment, it has been concluded that this designated site would **not be subject to any significant effects**.

### **Non-Statutory Designated Sites**

#### Potential Construction Phase Impacts

- 5.15 Several LWS's are located within 1km of the Site. All sites excluding Fox Glen Wood are separated from the proposed development by a series of roads/fields/housing from the residential areas of Deepcar and Stocksbridge. Given this, it is considered that there will be no direct impacts upon these LWSs caused by the proposed development.
- 5.16 Fox Glen Wood LWS is located immediately adjacent to the Site's northern boundary. Without the application of appropriate restrictions, there is potential for indirect impacts on the veteran trees to the south of Fox Glen and the woodland through accidental physical damage to both above and below ground parts. In addition, without the implementation of appropriate controls during the construction period, pollution events could result in negative effects on the habitat of Fox Glen and Clough Dike. A full assessment of the potential effects to the Clough Dike and other downstream receptors is provided in the Water Framework Directive Assessment (Annex J & CD1.17c) and a draft Construction & Environmental Management Plan (CEMP) has been produced to demonstrate how potential effects would be avoided during the construction period.
- 5.17 The construction phase also has the potential to increase the amount of airborne dust, particularly in periods of dry weather. In the absence of mitigation, dust deposition could result in damage to vegetation and potentially affect associated fauna. Where impacts are severe, some species may disperse from affected areas in the short-term.
- 5.18 The outfall from the balancing facility to the Clough Dike has been designed to avoid tree loss and avoid sensitive areas of woodland ground flora. Uncontrolled construction of this outfall could result in below ground damage to tree roots and damage to existing flora through pollution events and excessive ground disturbance.

#### Potential Operation Phase Impacts

- 5.19 Development of the Site is likely to increase recreational use within Fox Glen. Increased use of the woodland could result in disturbance of the existing flora / fauna and the creation of additional desire lines. Over the operational period, residents in the new houses may have cats with would also result in increased predation of existing fauna within Fox Glen.
- 5.20 Without the implementation of appropriate stand-off distances between the proposed development and the LWS, development of the Site may also result in increased isolation of Fox Glen from the wider countryside to south.
- 5.21 The next nearest LWS is Cockshot Hill, approximately 120m southwest, comprising unimproved acid pasture. This site appears to be privately owned farmland with no public access. The proposed development will therefore have no indirect impact upon the conservation value of this LWS.

- 5.22 Of the other 11 LWS's within 1km of the Site, 10 have some degree of public access with at least one public footpath running through them. The context for this is that all of these sites are over 250m from the Site and many are set within the urban areas of Deepcar and Stocksbridge. Furthermore, there is an abundance of public footpaths and bridleways in this area, which offer extensive options for residents of Deepcar and surrounding areas to access nature / rural environs including the Trans Pennine Trail. Therefore, the additional potential increased recreational pressure on any individual LWS from the proposed development is unlikely to be significant given the availability of options that would disperse any potential recreational pressure.

#### Mitigation

- 5.23 The main development will not encroach into the root protection areas of the Veteran ash trees situated immediately south of the Fox Glen. The 'Revised Illustrative Masterplan (April 2021)' and revised the design of the balancing facility partially within two small areas of the outer limit of the RPA's of tree on the edge of Fox Glen. However, this is only very minor and given the limited impact, the potential effects to individual trees in the woodland can be avoided through the implementation of appropriate arboricultural techniques including the application of hand dig techniques and fencing during the construction period.
- 5.24 The completed LWS assessment concludes the excavation of the drainage channel through Fox Glen to the Clough Dyke will lead to some minor permanent affects along the route of the channel and some temporary disturbance within the working area (Annex F & CD1.17c). The survey work demonstrates that the ground flora is not particularly species-diverse with the majority formed by a small number of common and widespread species. Mitigation including replanting bluebell bulbs and the creation of habitats on the woodland edge suitable for song thrush / willow tit as well as the implementation of appropriate arboricultural techniques, will minimise any potential effects. Given this mitigation, it is anticipated that the ground flora will recover relatively quickly from the temporary disturbance with no long-lasting detrimental effect to the conservation status of Fox Glen.
- 5.25 To ensure that any potential effects during the construction period are minimised, including the potential for pollution events, environmental controls during the construction period will be agreed with SCC through the submission of a Construction & Environment Management Plan (CEMP). A draft copy of a CEMP has been prepared for this appeal and is present at Appendix H of Mr Harvey PoE.
- 5.26 A well maintained and well defined circular public footpath is present in Fox Glen footpath and recreational use is listed as one of the functions in the LWS citation. Consequently, Fox Glen already provides a significant recreational resource for the local population. Given the existing network of footpaths and the steep nature of the Site, increased disturbance of ground flora through the creation of new desire lines is unlikely.
- 5.27 As the proposals only comprise up to 85 residential dwellings and due to the location of other local recreational resources, it is unlikely a residential development of this scale would materially increase the use of the woodland or result in significant negative effects to the conservation status of the woodland. Any increase in visitors will be insignificant relative to the existing recreational use. Therefore, the proposals will not affect the nature conservation status of Fox Glen Wood LWS.

- 5.28 To avoid the creation of informal desire lines from the Site, additional woodland / hedgerow planting will be provided adjacent to Fox Glen and all new residents will be provided with homeowner information leaflets which will provide information on the ecological importance of Fox Glen and on sensitive use of the site such as removal of dog waste and keeping dogs on leads.
- 5.29 The proposed development is designed to avoid encroaching into the root protection areas of the woodland and additional planting is proposed within the root protection areas. This planting provides a protected corridor adjacent to Fox Glen. In addition to the protected corridor a significant area of open grassland is retained and will be enhanced to the south of Fox Glen. The removal of the existing agricultural practises from the grassland and the provision of enhancements will improve the overall connectivity from Fox Glen to the open countryside south of the Site.
- 5.30 Given the nature of the existing urban environment present to the east and south east of the Site, these elevations are already separated from habitats in the wider countryside. Consequently, no additional mitigation is required in these locations.
- 5.31 There is no evidence that predation by cats' results in significant effects to local bird populations, the implementation of the new planting adjacent to the woodland will deter some domestic animals from entering Fox Glen. Given the assemblage of bird species is not a primary designation feature, the proposals are not expected to result in significant effects to the conservation value of the woodland.
- 5.32 The proposals have been designed to front a number of the new residential dwellings onto Fox Glen. This positioning minimises the risk of increased dumping of garden waste and provides some ambient surveillance of the woodland thus reducing the risk of increased antisocial behaviour.
- 5.33 To further minimise potential disturbance of in Fox Glen, a sensitive lighting scheme will also be implemented. This will ensure that lux levels below 1lux will be maintained within the woodland over the operational period.

#### Residual Effects

- 5.34 The successful implementation and monitoring of the mitigation measures outline above and adherence to the requirements of the CEMP throughout the construction phase will ensure the residual effects due to accidental damage and dust deposition will be **Neutral**.
- 5.35 With mitigation outlined above and the provision of the proposed homeowner information leaflet residual effects to the conservation status of Fox Glen will be **Negligible**.

#### **Habitats**

- 5.36 The following ecological receptors have been assessed as being of negligible or site level importance: dense / continuous and scattered scrub, hedgerows, scattered broadleaved trees, domestic coniferous trees and walls / fences. Whilst the proposals provide some inherent mitigation for potential effects to these receptors, they are not considered within the detailed assessment below.

## Grassland

### Potential Construction Phase Impacts

- 5.37 The Jan 2020 proposals and the proposals shown on the 'Revised Illustrative Masterplan (April 2021)' will result in the loss of 3.87ha of poor semi-improved grassland. This grassland does not meet the criteria to be classified as a S41 Habitat of Principle Importance. Given the limited diversity the grassland provides, and the long term intensive agricultural management applied loss of is not likely to result **long term minor negative effects** to a habitat of **local level importance**.

### Potential Operational Phase Impacts

- 5.38 Public access to the retained grassland resource will be restricted during the operational phase. Subsequently no potential operational phase impacts have been identified.

### Mitigation

- 5.39 The field compartment in the south west of the Site, and the creation of additional area of species rich grassland through the proposals will provide approximately 2.44ha of open grassland throughout the site.
- 5.40 In addition to the grassland enhancements, the proposals will also provide further diversity through the provision of wetland habitats in the balancing facility and the creation of other areas of species rich grassland in the public open space.
- 5.41 Through the creation of these measures a significant net gain to biodiversity 6.78 biodiversity units has been recorded with the revised proposals submitted in Jan 2020. This net gain is increased to 7.0 biodiversity units with the 'Revised Illustrative Masterplan (April 2021)'.

### Residual Effects

- 5.42 The implementation of such enhancements and the long-term management outlined above will result in **long term minor positive effects** to a local level receptor.
- 5.43 An assessment of the proposals using the DEFRA Metric 2.0 Calculation Tool has demonstrated that the proposals will result in a net gain of 6.78 biodiversity units which equates to 51.63% (Appendix H). The assessment also demonstrates a net gain of linear habitats comprising 2.55 hedgerow units equates to over 1000%. This confirms the proposals will result in long term minor positive effects to biodiversity. The net gain provided by the 'Revised Illustrative Masterplan (April 2021)' confirmed through assessment using the DEFRA Metric (Version 2) would be slightly greater with a net gain of 7.00 habitat units (a net gain of 53.26%) and a net gain of 2.55 hedgerow units (a net gain exceeding 1000%).

## Veteran Trees

### Potential Construction Phase Impacts

- 5.44 Two veteran trees are present to the north west of the Site. Whilst within the red line, both trees are outside the proposed footprint of the development. In the absence of mitigation, accidental physical damage to both above and below ground parts of the trees could occur.

Potential Operational Phase Impacts

- 5.45 Over the operational period, informal recreation could result in the physical damage to the trees or underground root systems.

Mitigation

- 5.46 The implementation of appropriate fencing and signage on the root protection areas around these trees will avoid any potential effects during the construction period. These measures are outlined in the Arboricultural Impact Assessment (Annex E) and will be outlined in the draft CEMP.
- 5.47 The veteran trees are positioned on a steep embankment, consequently regular disturbance of this area is unlikely. However, to minimise any potential effects to the trees, appropriate fencing will be provided and information for new homeowners on the sensitivity of these trees will also be provided. In addition to these measures, these trees will be covered by the overall EMP and where required, appropriate long term arboricultural management will be employed to increase the longevity of the trees.

Residual Effects

- 5.48 Following the implementation of the mitigation, the long-term construction and operational effects are assessed as **Negligible**.

**Fauna**

- 5.49 From the completed assessment, faunal receptors identified with either site level or negligible importance include: amphibians, badgers, reptile, brown hare, invertebrates, white clawed crayfish and water vole. Therefore, further detailed assessment of these receptors is not provided. However, the proposals will provide mitigation for these species in the retained / enhanced land to the south west of the Site and throughout the GI, therefore material effects to these receptors are not expected.

**Birds**

- 5.50 An assessment of the potential effects of the proposals on species listed on the SPA or SSSI designation is provided at Paragraph 5.9 above. The following assessment focuses on the general assemblage of breeding / passage and overwintering species using the Site.

Potential Effects

- 5.51 During the construction phase there is a potential impact arising from vegetation clearance through the damage or destruction of active nests.
- 5.52 Without mitigation and based on the survey results, the loss of the habitats from the Site is most likely to affect the notable species recorded using the Site during the surveys: starling, fieldfare, redwing, mistle thrush, song thrush, dunnoek, bullfinch, lapwing, linnet, meadow pipit and grey wagtail.
- 5.53 Uncontrolled construction activities could result in disturbance of woodland edge species associated with Fox Glen.



- 5.54 However, the conversion of the Site from open pasture fields to an urban environment would have the biggest impact on those species requiring open farmland habitats.

#### Mitigation / Compensation Measures

- 5.55 Vegetation clearance should take place between October and February inclusive, so that breeding birds would not be affected. If this is not possible, the area will be checked prior to removal by an experienced ecologist. If active nests are found, areas will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance.
- 5.56 In terms of Fox Glen additional stand off will be provided during the construction phase to minimise any potential disturbance. These measures will be detailed in the draft CEMP.
- 5.57 The habitat enhancements including re-seeding, the provision of a wader scrape and long-term management of the retained southern western grassland will provide the majority of the mitigation and compensation required for the assemblages identified using the Site. The removal of the planting along the western boundary of the retained land now also provides proportionate mitigation for the two pairs of lapwings recorded in the 2016 survey period.
- 5.58 Mitigation proposed through the development includes the creation of additional area of species rich grassland throughout the GI, the creation of hedgerows and creation of wetland habitat within the balancing facility. Additional enhancements will be provided through the installation of bird boxes on retained mature trees and new residential properties.
- 5.59 The implementation of the woodland edge planting adjacent to Fox Glen would also serve to provide suitable habitat for the local bird population and with the selection of appropriate species will provide further benefits for birds listed of the Fox Glen citation.

#### Significance of Residual Effects

- 5.60 In terms of the overall mitigation package, the submitted breeding / passage report confirms that of the 12 species identified as being of conservation concern (i.e. BoCC Red List Species and /or NERC Act Species), the proposals would be:
- Locally beneficial for eight species (Starling, Fieldfare, Redwing, Mistle Thrush, Song Thrush, Dunnock and Bullfinch); and
  - Negligible for one species (Lapwing); and
  - Negligible for three species (Curlew, Linnet and Grey Wagtail).
- 5.61 For overwintering species, the winter bird report confirms that of the seven species identified as being of conservation concern (i.e. BoCC Red List Species and /or NERC Act Species), the proposals would be:
- Minor positive for three species (Song thrush, Dunnock and House Sparrow);
  - Minor negative for two species (Starling and Redwing); and
  - Negligible for two species (Mistle Thrush and Linnet).
- 5.62 These proposals would maintain suitable habitat for the small number of meadow pipit identified over the survey period and the effect of the development to this species would be negligible.

- 5.63 The provision of the mitigation outlined for the bird assemblage provides a proportional package which will provide adequate mitigation for the species recorded. This effect is considered **Not Significant Negative** at a **Local** scale.

## **Bats**

### Bats: Roost Sites

#### Potential Effects

- 5.64 Buildings on the Site were identified as providing ‘negligible’ bat roosting potential and therefore their demolition has not been identified as a statutory constraint to the development. Further survey work or mitigation relating to the loss of buildings is not considered necessary.
- 5.65 Tree T1, located immediately adjacent to the Site boundary, is to be retained and buffered in the proposed scheme. Therefore, roost sites; if present; will not be lost to the proposals.

#### Mitigation / Compensation Measures

- 5.66 No additional mitigation is required for bat roosts but the proposals will provide a range of additional bat boxes on the new residential dwellings.

#### Significance of Residual Effects

- 5.67 Given the proposals do not affect a bat roost and the development will provide some additional roost sites, **minor positive effects** on a local level receptor are expected.

### Bats: Commuting and Foraging

#### Potential Effects

- 5.68 Surveys in 2018 and 2021 have confirmed that common pipistrelle, soprano pipistrelle, noctule and brown long eared utilise the Site. Brown long eared was the only additional species recorded using the site in 2018. This species was also only recorded using the northern boundary adjacent to Fox Glen LWS.
- 5.69 Using the static detectors an additional three species including a *Pipistrellus* species, a *Nyctalus* species, and a *Myotis* species were recorded. The dominant species identified on both the transect and static detectors was common pipistrelle which is a common and widespread species which is not listed as a priority species on S41 of the NERC Act.
- 5.70 On the static detectors, the highest levels of activity were recorded on the northern boundary in spring, the north eastern boundary in summer and centrally within the Site in autumn. Common pipistrelle was the dominant species over all of these static detector surveys and the pattern of recorded activity indicated foraging activity. The level of recorded activity does indicate the Site and habitat on the site boundaries does provide a foraging resource for the local common pipistrelle population.
- 5.71 The majority of the suitable habitat utilised by bats for commuting and foraging, except for the loss of dense/continuous scrub. Habitat shown as retained on the Parameters Plans includes the majority of the dry-stone walls, most broad-leaved trees and the hedgerows. In addition to the

retention of the majority of suitable habitat, the dry-stone walls on the Site and the adjacent offsite woodland along the northern boundary will be buffered from development.

- 5.72 Over the construction and operational periods, the use of a non-sensitive lighting system may result in material effects to the commuting and foraging behaviour of the bat using the site and boundary habitats.

#### Mitigation / Compensation Measures

- 5.73 The development retains the main commuting routes and foraging areas identified during the survey. To facilitate Site access and the construction of infrastructure roads, small lengths of dry-stone wall in the eastern and central areas of the Site will be removed. This will create breaks in the commuting routes predominantly used by common pipistrelle. Common pipistrelle has adapted to use habitats in the urban environment and is not sensitive to small gaps in commuting routes. Therefore, material effects to the local population are not expected.
- 5.74 The habitat enhancements within and adjacent to the western field, the hedgerow planting, the species rich grassland created throughout the GI, the wetland habitat created within the balancing facility and the implementation of new woodland edge planting will all serve to provide improved foraging / connectivity for the local bat population. These enhancements will be further secured through the provision of a dark corridor to the west of the Site, adjacent Fox Glen and on land within / surrounding the balancing facility.
- 5.75 Through the implementation of these features, the proposals will maintain the current level of use and provide enhancements for the local bat population.
- 5.76 To further minimise the potential effects of the proposals, an appropriate sensitive lighting scheme will be implemented to retain dark corridors along retained and created habitat, especially around the boundaries of the development. Where artificial lighting cannot be avoided the lighting scheme will be designed with reference to the Bat Conservation Trust and Institute of Lighting Professionals guidance<sup>25</sup>. Lighting considerations which are recommended to be implemented during construction and incorporated into the development, through the application of relevant planning conditions) in order to ensure minimal light spill from the site include:
- During the construction period, no artificial lighting should be used at night in the vicinity of the field perimeter habitats and the woodland adjacent to the northern site boundary;
  - The lighting scheme should ensure lighting is directed to where it is needed, avoiding light spillage, particularly along the woodland habitats, hedgerows / scrub lines, wildflower grassland and waterbodies;
  - The lighting scheme should incorporate LED luminaires as these have a sharp cut-off, lower intensity, good colour rendition and dimming capability. All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used;
  - Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats; and

<sup>25</sup> Bat Conservation Trust & Institute of Lighting Professionals (ILP) 2018. *Guidance Note 8: Bats and artificial lighting in the UK*. Bats and the Built Environment Series.  
 Bat Conservation Trust. 2011. *Statement on the Impact and Design of Artificial Light on Bats*.  
 Institute of Lighting Professionals. 2011. *Guidance notes for the reduction of Obtrusive Light*.

- Security lighting on properties backing on to sensitive habitats such as hedgerows, trees or waterbodies will be low wattage (<70W)<sup>26</sup> motion censored lights on short (1min) timers. These should be provided on any properties (along the site boundaries) at construction to dissuade future homeowners from installing unsuitable lighting which could adversely impact bats.

#### Significance of Residual Effects

- 5.77 The removal of sections of dry-stone walls and loss of the grassland within the Site will result in the loss of suitable bat foraging and commuting habitat for the common and widespread bat species recorded locally. The magnitude of these effects is reduced by the retention of other foraging and commuting habitat, along the western boundary, which links into the wider landscape and the significant enhancements which will be provide in the south western field compartment.
- 5.78 Prior to the maturation of the proposed GI, it is considered that the loss of habitat, will result in a **Not Significant Negative Effect** at a **Local scale** on the common and widespread bat species likely utilising the Site. Once the Landscape strategy has matured, a **Not Significant Beneficial Effect** at a **Local Scale** would result through a betterment of foraging/commuting over the existing baseline.

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<sup>26</sup> Stone, E.L. 2013. *Bats and lighting: Overview of current evidence and mitigation.*

## 6.0 SUMMARY & CONCLUSIONS

- 6.1 The completed survey work has not identified significant use by species listed on the citation for the South Pennine Moors Phase 1 Special Protection Area (SPA) or the South Pennine Moors (SAC). The ecological assessments submitted to SCC confirm no 'likely significant effects' on the conservation objectives of these designated sites. Sheffield City Council have completed a HRA assessment of the proposals both alone and in-combination with other plans or projects (CD2.25). This also concludes 'likely significant effects' from the proposals can be screened out, which is an agreed position with NE.
- 6.2 The completed assessment presented above, and associated assessment presented in the Arboricultural Impact Assessment, conclude through the application of appropriate mitigation and working methods material effects to the conservation value of the Fox Glen LWS can be avoided. During the operational period no further significant effects to the conservation value of the LWS are expected due to the proposed mitigation within the site, the existing recreational infrastructure in the Fox Glen and other local recreational resources.
- 6.3 Habitats within the Site are predominately of low ecological value. The two Veteran trees situated in the north west of the Site are the most sensitive ecological receptors identified in the Site. These trees would be retained and protected during the construction and operational period.
- 6.4 The revised proposals submitted in Jan 2020 provide a significant net gain of 6.78 habitat units (a net gain of 51.63%) and a net gain of 2.55 hedgerow units (a net gain exceeding 1000%). The net gain provided by the 'Revised Illustrative Masterplan (April 2021)' confirmed through assessment using the DEFRA Metric (Version 2) would be slightly increased with a net gain of 7.00 habitat units (a net gain of 53.26%) and a net gain of 2.55 hedgerow units (a net gain exceeding 1000%). These are significant net gain that development of the site can bring forward.
- 6.5 The presence of badger, bat roost sites, great crested newts, reptiles, white clawed crayfish, water vole and otter have not been identified as statutory ecological constraints to the development. The habitats present within the site are not suitable to support significant populations of invertebrates or other mammals including brown hare and the mitigation provided is adequate to avoid any effects to such groups or species.
- 6.6 The breeding / over wintering bird assemblage and bat activity recorded using the site is only of local level importance and the mitigation provided throughout the site and on the retained area pasture to the south west of the site provides adequate mitigation for the recorded use.
- 6.7 The majority of the foraging / commuting habitats identified during the surveys are retained and buffered. The minor effects to foraging and commuting area are mitigated through the provision of the proposed mitigation. Overall the provision of this mitigation will increase the overall diversity of habitats for the local bat population and the proposal are likely to provide benefits for the population.
- 6.8 In conclusion, through the application of appropriate working methods and the agreed mitigation no material negative effects to ecology and nature conservation are expected from the proposals and significant net gain to biodiversity would occur (as demonstrated through assessment using the DEFRA Metric). Consequently, it has been concluded that the proposals are in accordance with the requirements of all relevant local and national planning policies.

**Appendix 2:  
Figures**





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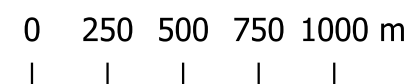
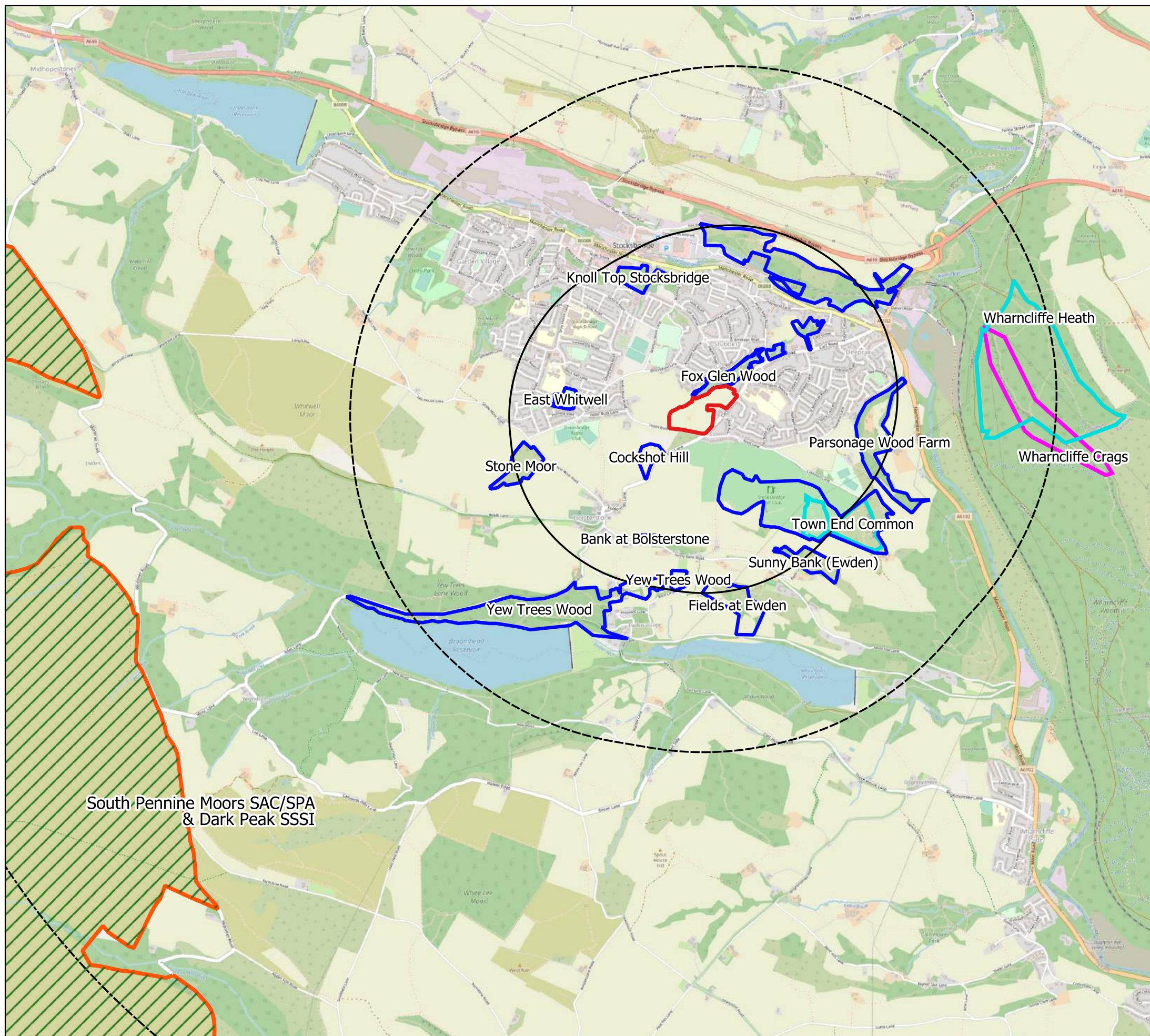
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**Key**

-  Site Boundary - UPDATED 080121
-  1km buffer
-  2km buffer
-  5km buffer

**Designated sites**

-  Fox Glen Wood
-  Local Wildlife Sites (LWS)
-  Local Nature Reserves (LNR)
-  Site of Special Scientific Interest (SSSI)
-  Special Area of Conservation (SAC)
-  Special Protected Area (SPA)



client  
Hallam Land Management

project  
Land off Carr Road, Deepcar

**fpcr** STATUTORY DESIGNATED SITES PLAN

scale at A3  
1:25000

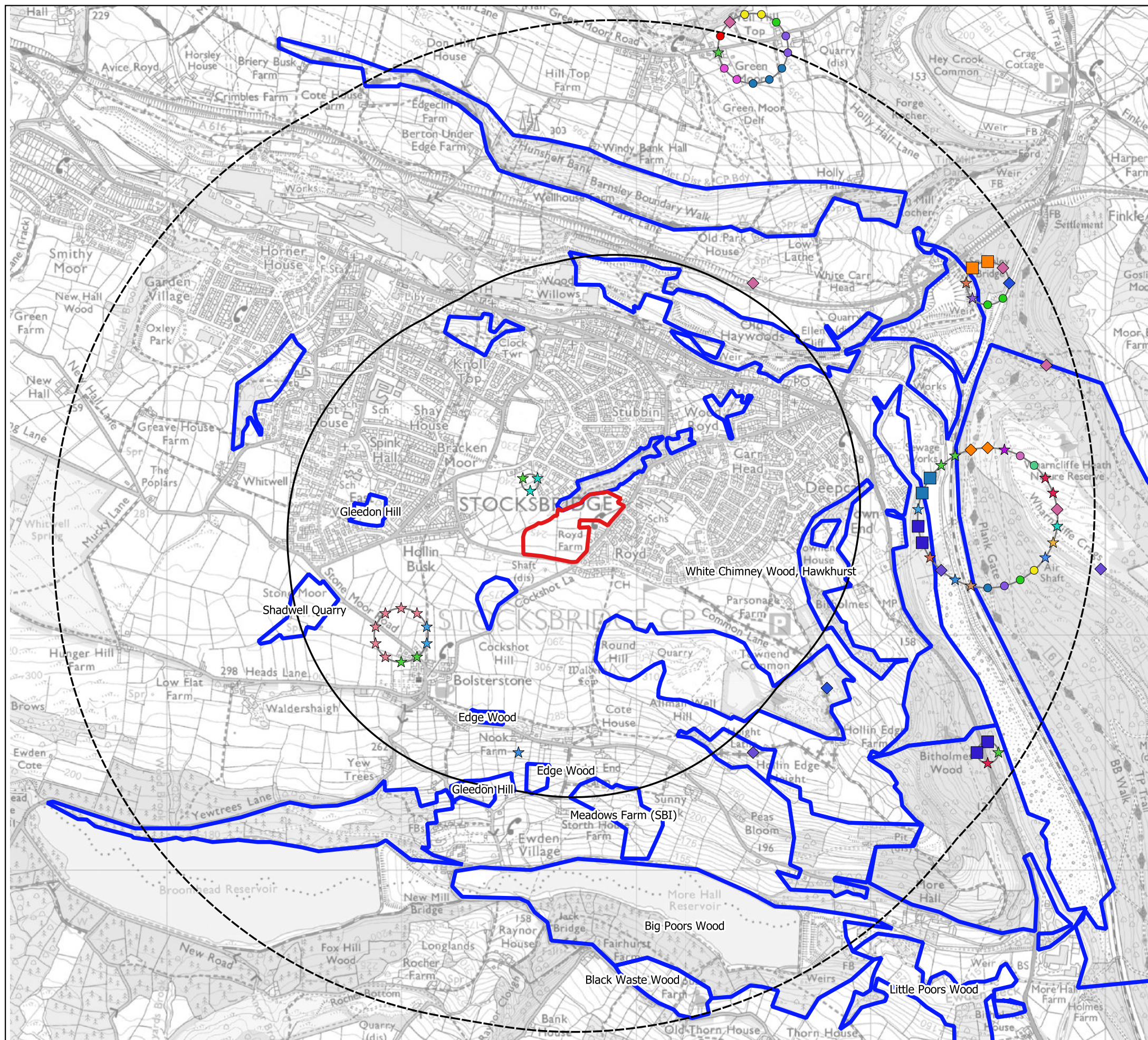
drawn  
FMH/KDG

issue  
24/5/2021

drawing / figure number  
**Figure 1a**

**7301 - E - 01a**





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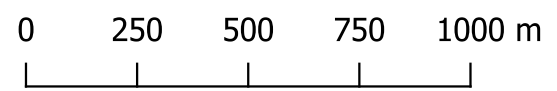
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**Key**

- Site Boundary
- 1km buffer
- 2km buffer
- Designated sites
- Local Wildlife Sites (LWS)

**Species**

- 45 Khz Pipistrelle
- 55 Khz Pipistrelle
- Bats
- Brown Long-Eared Bat
- ◆ Common Frog
- ★ Dingy Skipper
- ★ Early Tooth-Striped
- ★ Gatekeeper
- ◆ Grass Snake
- Hedgehog
- ★ Large White
- Leisler's Bat
- Natterer's Bat
- Noctule
- ★ Painted Lady
- ◆ Palmate Newt
- ★ Peacock
- Pipistrelle
- Pygmy Shrew
- ★ Red Admiral
- Red Deer
- ★ Ringlet
- ★ Small Heath
- ◆ Viviparous Lizard
- ★ Wall
- ★ Wall Brown
- ★ White Ermine
- ★ White Letter Hairstreak



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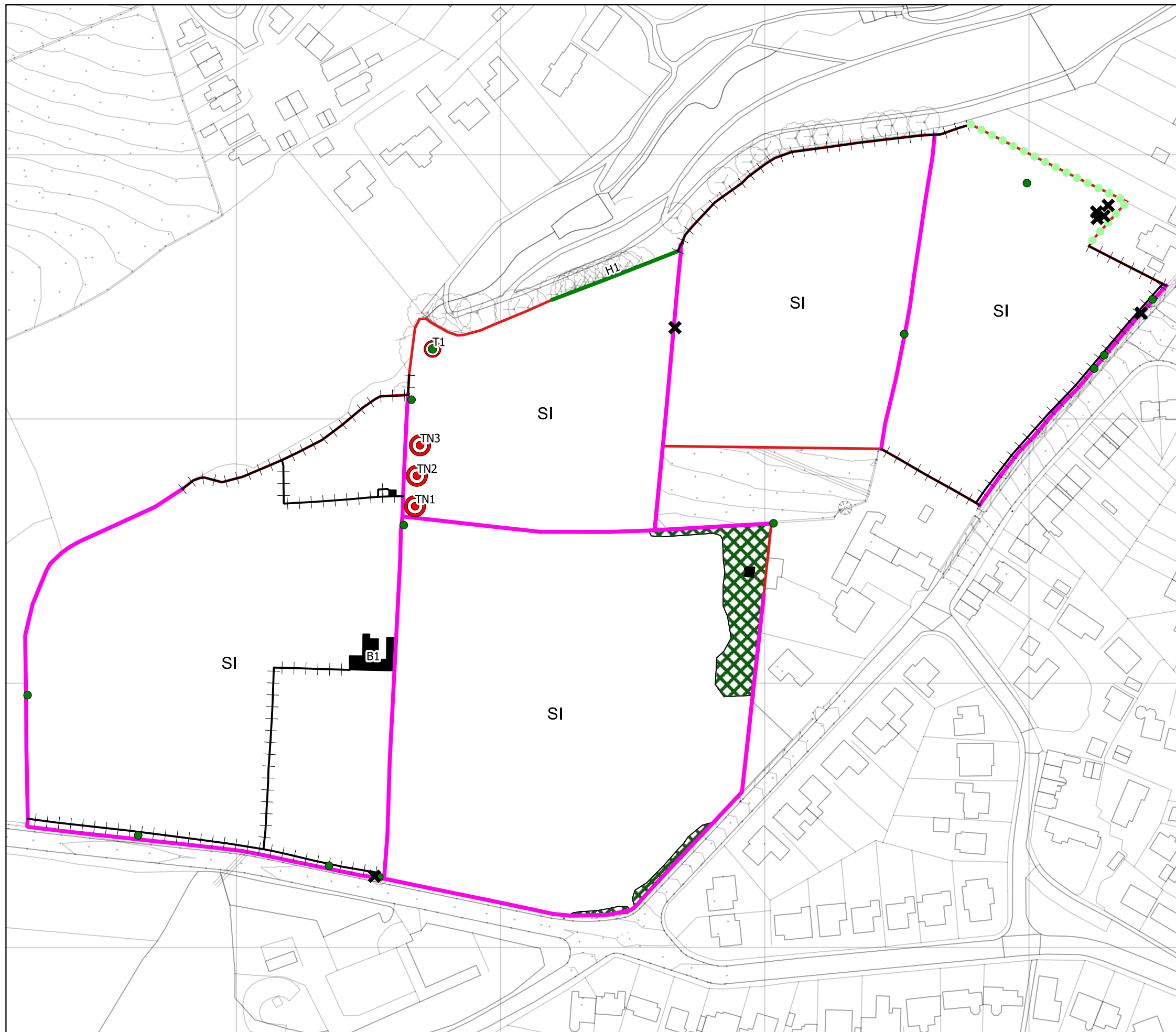


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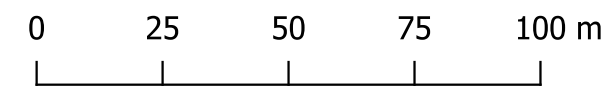
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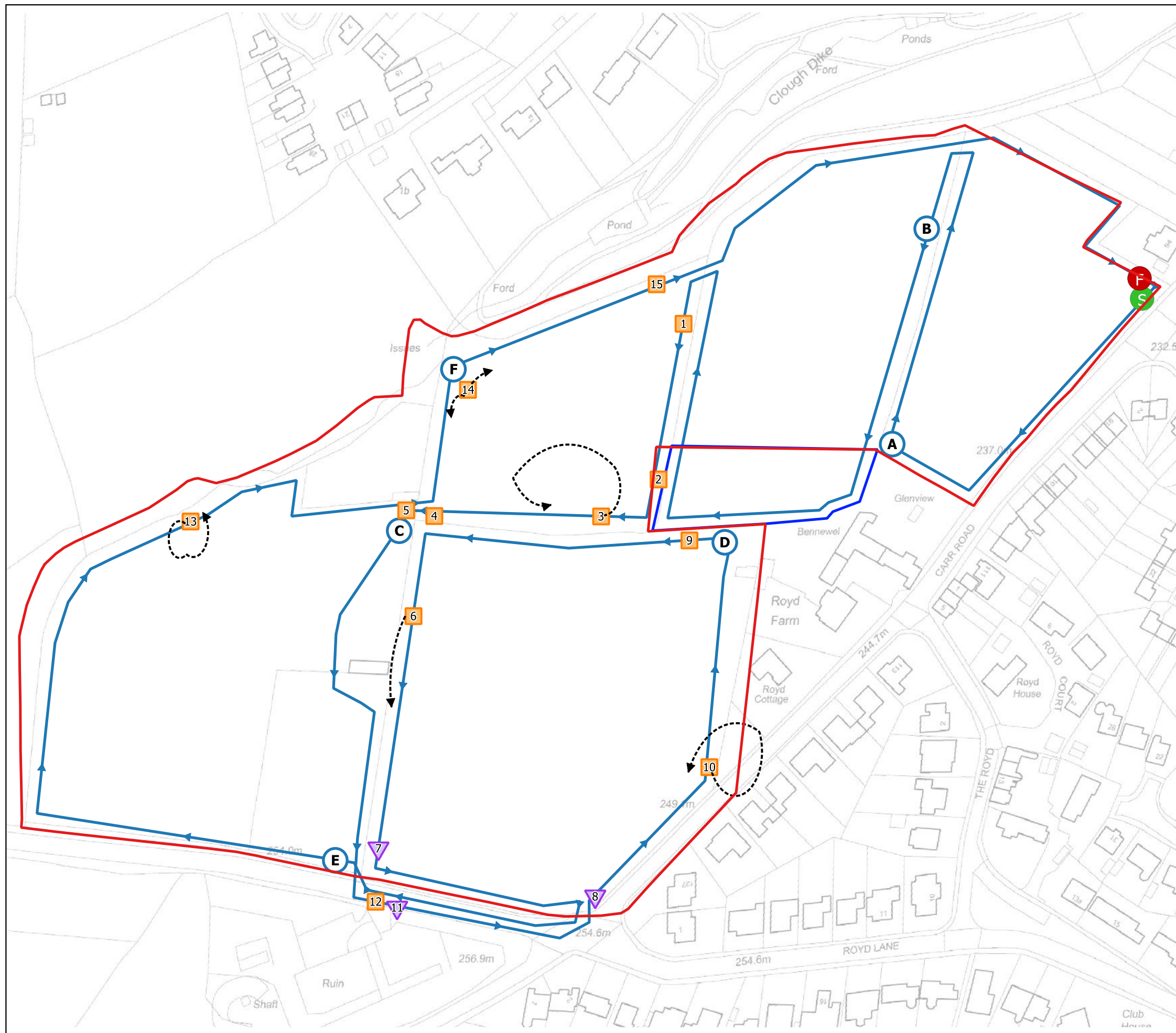
- Site Boundary
- Buildings
- Scrub - dense/continuous
- SI Poor semi-improved grassland
- Wall
- Intact hedge - species-poor
- Fence
- Coniferous trees
- ✕ Scrub - scattered
- Tree with bat potential
- Target note
- Broadleaved tree



client  
**Hallam Land Management**  
project  
**Land off Carr Road,  
Deepcar**  
drawing title  
**PHASE 1 HABITAT PLAN**

scale @ A3  
1:1500  
drawing / figure number  
**Figure 2**  
drawn  
MPG/KDG  
issue  
20/1/2021  
rev  
**7301-E-02**





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**Key:**

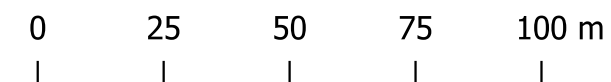
- Site Boundary
- Additional Survey Area
- S Start point
- F Finish point
- Transect Route
- A Point Counts
- - - - -> Bat flight paths
- 1 Common Pipistrelle
- ▽ Noctule

REF	TIME	SPECIES NAME	BEHAVIOUR	PASSES
PC A	21:20 - 21:25	No Bats		-
PC B	21:37 - 21:42	No Bats		-
1	21:42:27	Common Pipistrelle	F	2
2	21:46:03	Common Pipistrelle	F	1
3	21:48:11	Common Pipistrelle	F	7
4	21:51:03	Common Pipistrelle	F	6
PC C	21:53 - 21:58	Ref. 5		-
5	21:54:19	Common Pipistrelle	F	3
6	22:00:38	Common Pipistrelle	F	1
7	22:04:21	Noctule	F	2
8	22:07:58	Noctule	C	1
PC D	21:16 - 21:21	Ref. 9		-
9	22:17:34	Common Pipistrelle	F	6
10	22:24:26	Common Pipistrelle	F	2
11	22:29:17	Noctule	C	1
12	22:29:21	Common Pipistrelle	P	1
PC E	22:31 - 22:36	No Bats		-
13	22:41:11	Common Pipistrelle	F	Cont. - 22:43
PC F	22:45 - 22:50	Ref. 14		-
14	22:45:06	Common Pipistrelle	F	Cont. - 22:52
15	22:54:30	Common Pipistrelle	F	Cont. - 23:01

REF: Reference, PC: Point Count, F: Foraging, C: Commute, P: Pass

client  
**Hallam Land Management**  
project  
**Land off Carr Road,  
Deepcar**  
drawing title  
**BAT TRANSECT PLAN (22.05.18)**

scale @ A3  
1:1500  
drawing / figure number  
**Figure 3**  
drawn  
JR/AJR  
issue  
20/1/2021  
rev  
**7301-E-03**





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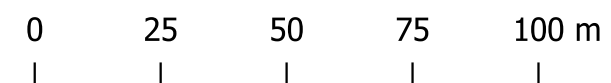
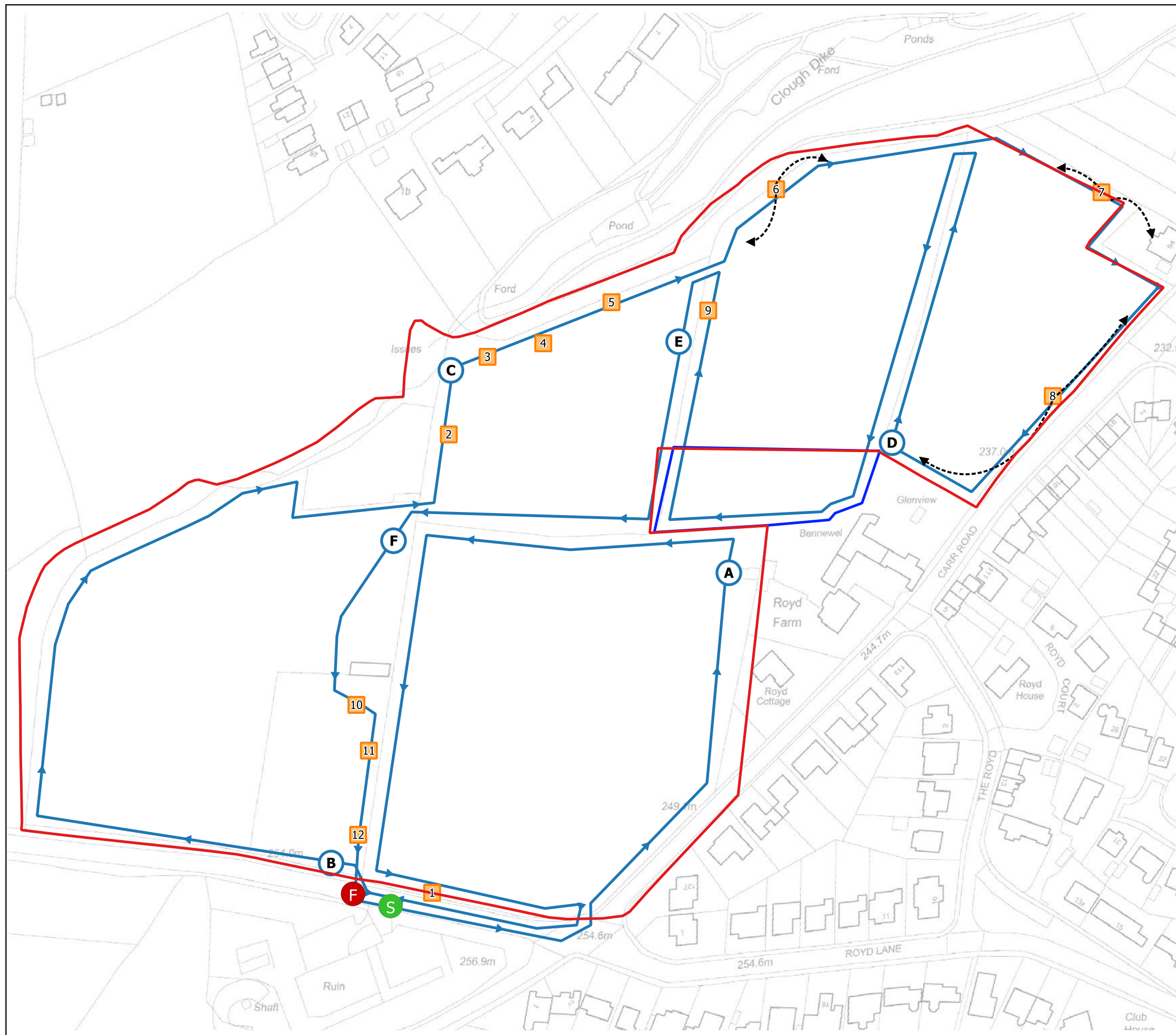
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**Key:**

- Site Boundary
- Additional Survey Area
- S Start point
- F Finish point
- Transect Route
- O Point Counts
- Bat flight paths
- 1 Common Pipistrelle

REF	TIME	SPECIES NAME	BEHAVIOUR	PASSES
PC A	21:49 - 21:54	No Bats		
PC B	22:02 - 22:07	Ref. 1		
1	22:07:12	Common Pipistrelle	P	1
2	22:20:15	Common Pipistrelle	F	Multi
PC C	22:21 - 22:26	Ref. 3, 4		
3	22:21:01	Common Pipistrelle	F	Cont. - 22:26
4	22:26:19	Common Pipistrelle	F	Cont. - 22:28
5	22:29:29	Common Pipistrelle	F	4
6	22:32:51	Common Pipistrelle	F	5
7	22:36:44	Common Pipistrelle	F	Cont. - 22:47
PC D	22:47 - 22:52	Ref. 8		
8	22:47:00	Common Pipistrelle	F	Cont. - 22:52
PC E	23:10 - 23:15	Ref. 9		
9	23:10:54	Common Pipistrelle	P	1
PC F	23:25 - 23:30	No Bats		
10	23:31:49	Common Pipistrelle	P	1
11	23:34:02	Common Pipistrelle	P	1
12	23:36:31	Common Pipistrelle	P	1

REF: Reference, PC: Point Count, F: Foraging, C: Commute, P: Pass, Multi: Multiple. Cont.: continuous until time.



client  
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 project  
**Land off Carr Road,  
 Deepcar**

drawing title  
**BAT TRANSECT PLAN (26.06.18)**

scale @ A3  
1:1500

drawn  
JR/AJR

issue  
20/1/2021

Figure 4

7301-E-04

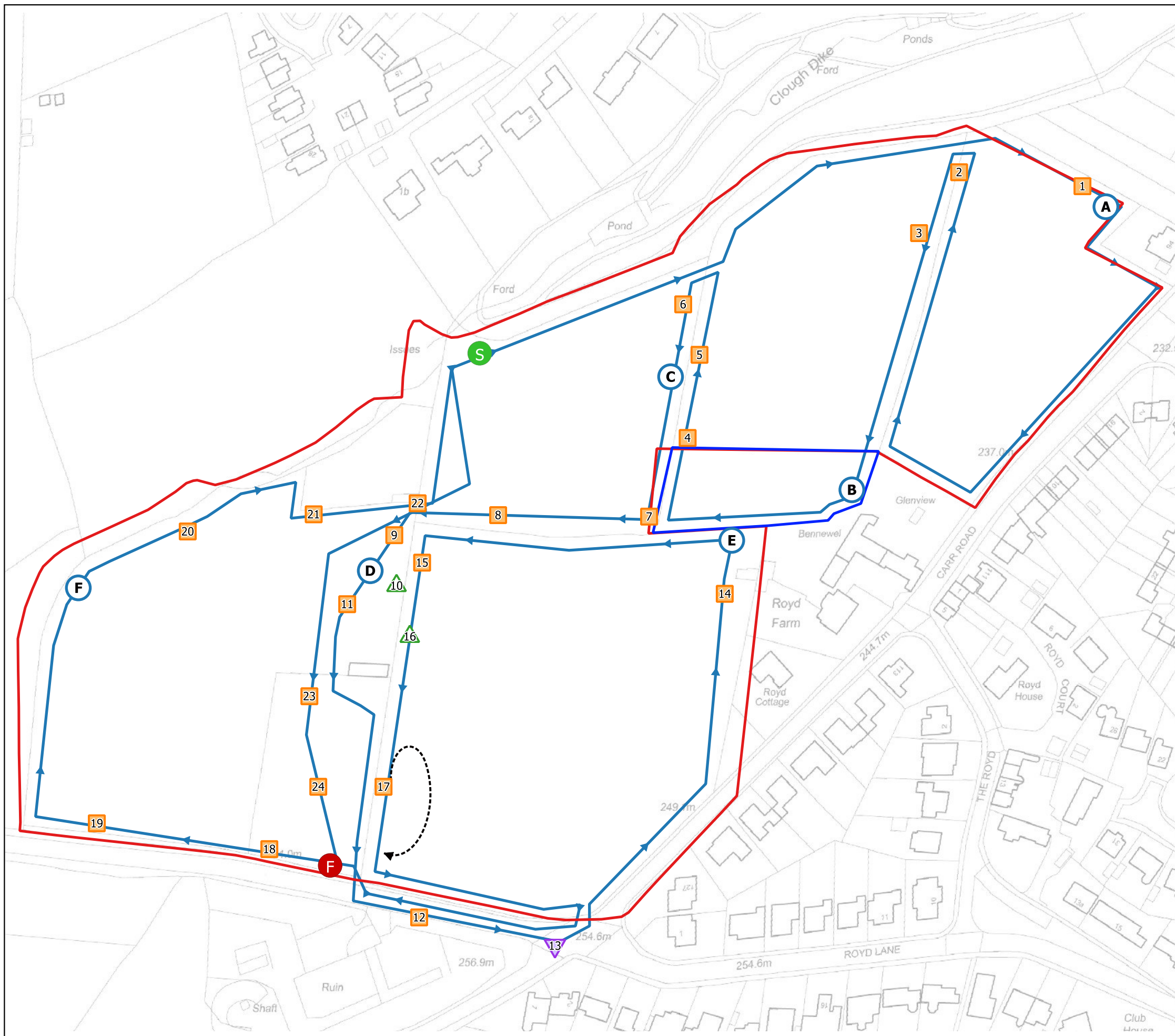


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**Key:**

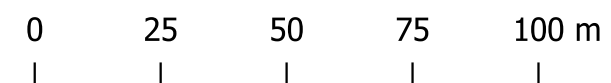
- Site Boundary
- Additional Survey Area
- Start point
- Finish point
- Transect route
- Point Counts
- Bat flight paths
- Common Pipistrelle
- Myotis Species
- Noctule



REF	TIME	SPECIES NAME	BEHAVIOUR	PASSES
1	19:10	Common Pipistrelle	P	1
PC A	19:12 - 19:15	-	-	-
2	19:19	Common Pipistrelle	P	1
PC B	19:22 - 19:27	-	-	-
3	19:29	Common Pipistrelle	P	1
4	19:31	Common Pipistrelle	P	1
5	19:32	Common Pipistrelle	P	1
6	19:35	Common Pipistrelle	P	1
PC C	19:36 - 19:41	Ref. 7	-	-
7	19:39:06	Common Pipistrelle	F	8
8	19:43:16	Common Pipistrelle	F	5
PC D	19:46 - 19:51	Ref. 9, 10, 11	-	-
9	19:46:30	Common Pipistrelle	P	2
10	19:48:19	Myotis	P	3
11	19:49:02	Common Pipistrelle	F	Cont. - 19:53
12	19:56:10	Common Pipistrelle	P	1
13	19:57:18	Noctule	C	2
14	20:03:58	Common Pipistrelle	P	2
15	20:09:29	Common Pipistrelle	P	1
16	20:09:50	Myotis	C	3
17	20:12:38	Common Pipistrelle	F	Cont. - 20:23
18	20:16:54	Common Pipistrelle x 2	F	6
19	20:23:18	Common Pipistrelle x 2	P	1
PC E	20:26 - 20:31	-	-	-
20	20:33:10	Common Pipistrelle	P & S	1
21	20:35:31	Common Pipistrelle	F & S	Cont. - 20:39
22	20:42:17	Common Pipistrelle	P	3
23	20:47:45	Common Pipistrelle	F & S	Cont. - 20:53
24	20:48:49	Common Pipistrelle x 2	P	3
PC F	20:01 - 20:06	Ref. 14	-	-

REF: Reference, PC: Point Count, F: Foraging, C: Commute, P: Pass, Multi: Multiple. Cont.: continuous until time.

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 Land off Carr Road,  
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 drawing title  
**BAT TRANSECT PLAN (26.09.18)**  
 scale @ A3  
 1:1500  
 drawing / figure number  
**Figure 5**  
 issue  
 20/1/2021  
 rev  
**7301-E-05**



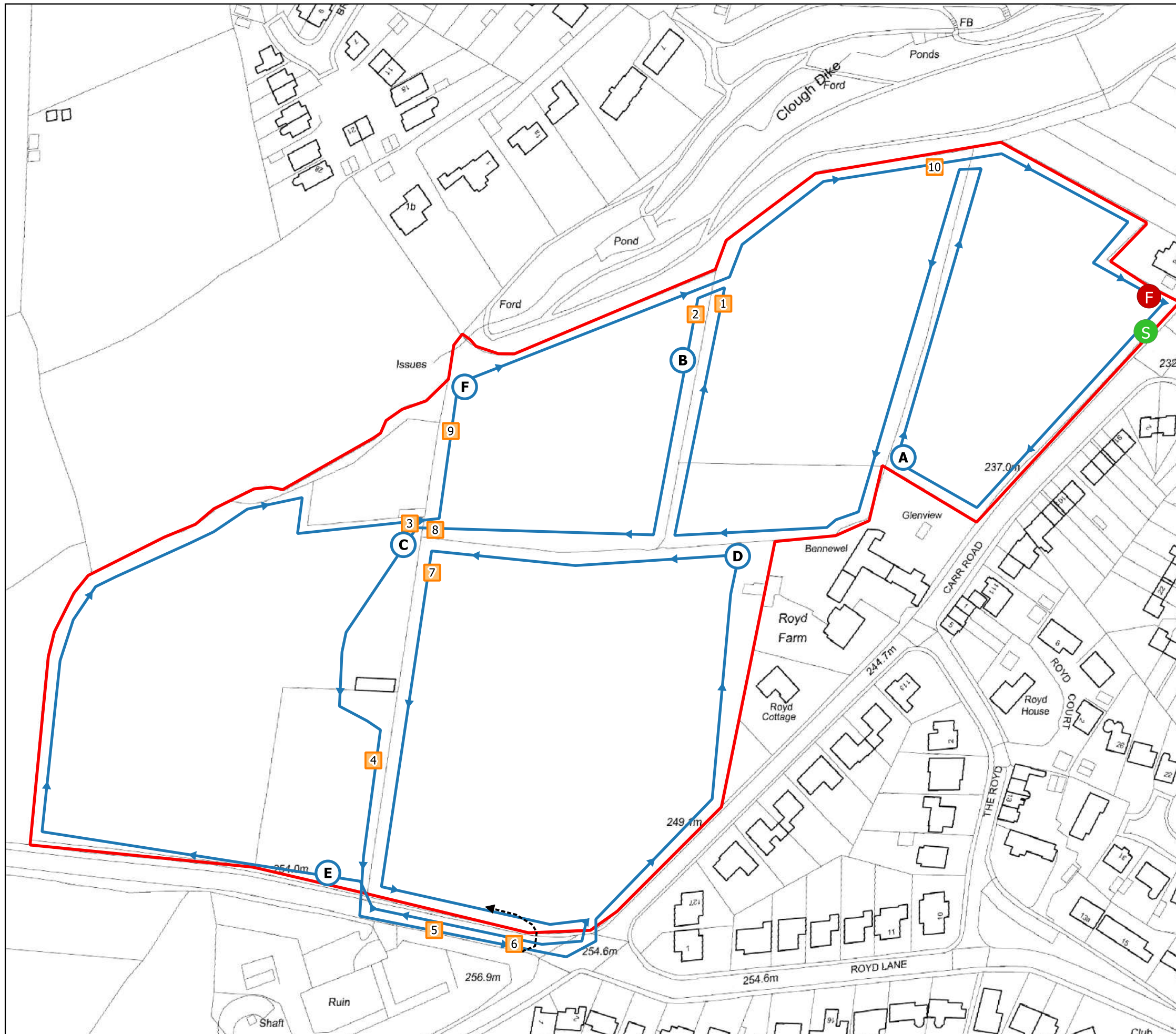


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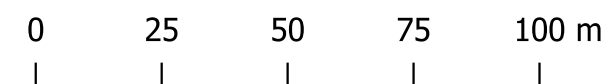
**Key:**

- Site Boundary
- Transect Route
- S Start point
- F Finish point
- A Point Count Locations
- Flight Path
- Common Pipistrelle



**Bat Species (contacts)**

REF	TIME	BAT SPECIES	PASSES	BEHAVIOUR
PC A	20:56 - 21:01	No Bats		
PC B	21:14 - 21:19	REF 1,2		
1	21:17:31	Common Pipistrelle	1	Commuting
2	21:18:03	Common Pipistrelle	1	Commuting
PC C	21:24 - 21:29	REF 3		
3	21:24:31	Common Pipistrelle	1	Commuting
4	21:33:41	Common Pipistrelle	1	Commuting
5	21:40:03	Common Pipistrelle	1	Commuting
6	21:44:14	Common Pipistrelle	Continuous	Foraging
PC D	21:57 - 22:02	No Bats		
PC E	22:28 - 22:33	No Bats		
7	22:34:23	Common Pipistrelle	3	Commuting
8	22:48:11	Common Pipistrelle	2	Commuting
PC F	22:49 - 22:54	REF 9		
9	22:49:50	Common Pipistrelle	3	Commuting
10	23:02:38	Common Pipistrelle	1	Commuting



client  
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 project  
**Land off Carr Road,  
 Deepcar**  
 drawing title  
**BAT TRANSECT PLAN**



scale @ A3  
1:1500  
drawing / figure number  
**Figure 6**  
 drawn  
FMH/JR  
issue  
20/5/2021

**7301-E-06**

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**Key:**

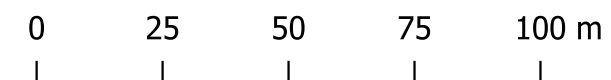
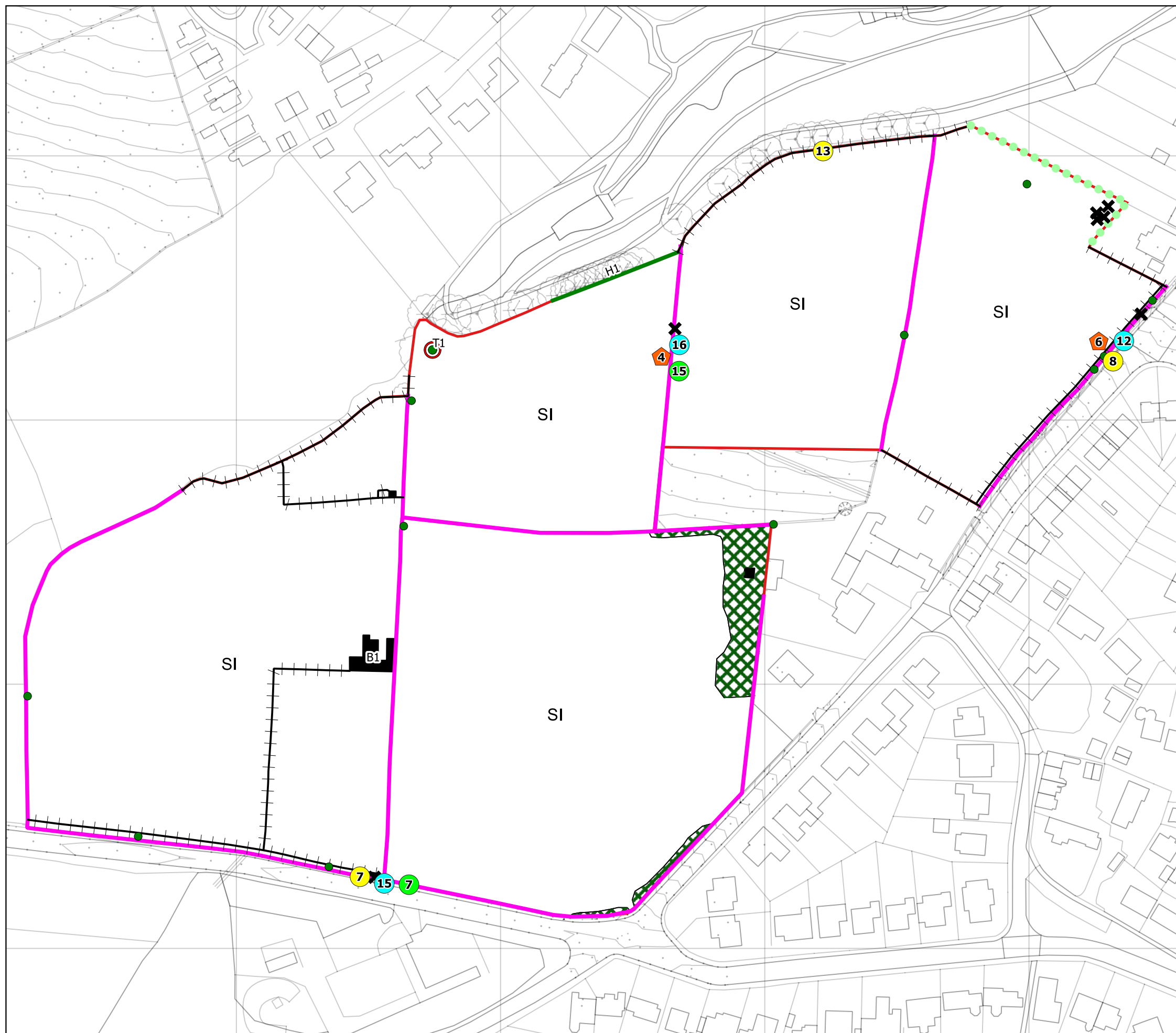
Site Boundary

**Static Detector Locations 2018**

- June
- May
- September

**Static Detector Locations 2021**

- May



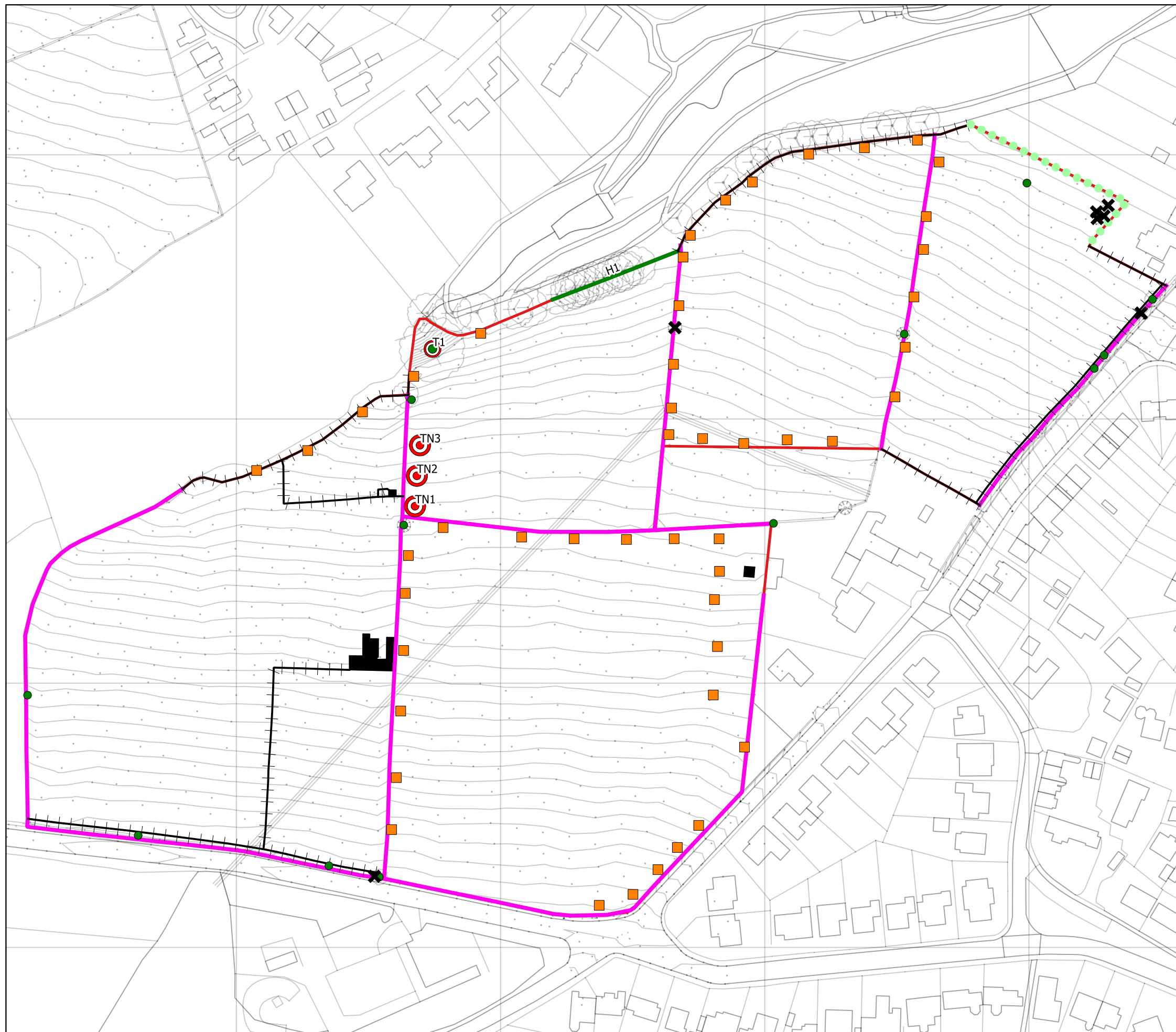


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**Key:**

- Site Boundary
- Artificial Reptile Refugia Locations



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**Land off Carr Road,  
Deepcar**

drawing title  
**ARTIFICIAL REPTILE REFUGIA LOCATION  
PLAN**

scale @ A3  
1:1500

drawn  
FMH/KDG

issue  
24/5/2021

drawing / figure number  
**Figure 8**




rev  
**7301-E-08**



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**Key**

-  Site Boundary
-  1km buffer
-  2km buffer

**Location of Brown Hare Records**

-  1986
-  1997
-  2013
-  2015
-  2017
-  2018
-  2019
-  2020



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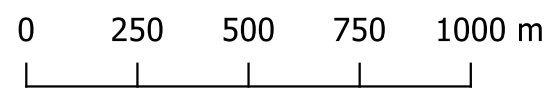


CONSULTATION RESULTS,  
BROWN HARE LOCATIONS

scale at A3  
1:17000  
drawing / figure number  
**Figure 9**  
drawn  
FMH/MPG  
issue  
24/5/2021



**7301 - E - 09**



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**Appendix 2:  
Drawings**

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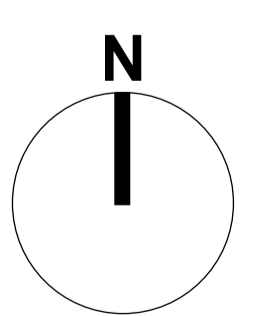
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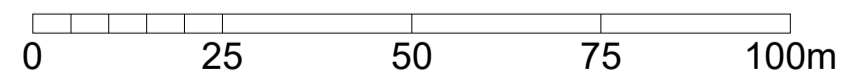
Aerial imagery © 2017 Infoterra Ltd and Bluesky, Getmapping plc, Bluesky, Map data © 2017 Google



-  Existing Residential Development
-  Proposed Residential Parcels
-  Site Access off Carr Road
-  Existing Vegetation
-  Accessible Green Space
-  Proposed Native Woodland Planting
-  Proposed Broadleaved Trees
-  Proposed Species Rich Hedgerow
-  Proposed Native Hedgerow (Formal access for management to be agreed)
-  Species Rich Grassland
-  Graded Woodland Edge Planting to Fox Glen
-  Balancing Facility rich grassland with species tolerant of wet / dry conditions
-  Rough Grassland Field Margin to Western Field (natural regeneration)
-  SuDS - Detention Basin (Refer to indicative engineering details. Appropriate planting and mixes for ecology benefits)
-  Play Area
-  Recreational Routes - To Include Potential Links Into Fox Glen
-  Gritstone Boundary Walls
-  Indicative Location for Wader Scrape
-  Indicative Area for Grazing (Agreement as per management plan)
-  Approximate Boundary to Low Lux Level Area



Scale: 1:1000 @A1



J:\7300\7301\LANDS\Plans\7301-L-02D GI PRINCIPLES PLAN.indd

Hallam Land Management Ltd  
Land off Carr Road  
Deepcar

## GREEN INFRASTRUCTURE INDICATIVE PRINCIPLES PLAN

1:1000 @A1  
January 2021 CC / KG  
**7301-L-02 rev D**

**fpcr**

masterplanning  
environmental assessment  
landscape design  
urban design  
ecology  
architecture  
arboriculture

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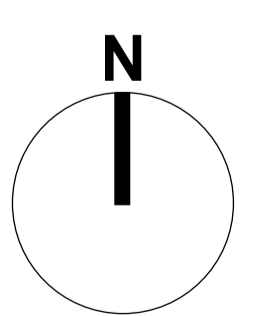
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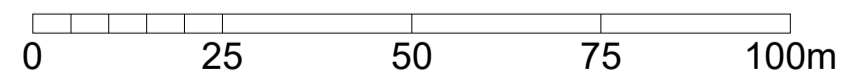
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-  Existing Residential Development
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Scale: 1:1000 @A1



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Hallam Land Management Ltd  
Land off Carr Road  
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## GREEN INFRASTRUCTURE INDICATIVE PRINCIPLES PLAN

1:1000 @A1  
May 2021 CC / KG  
**7301-L-02 rev E**

**fpcr**

masterplanning  
 environmental assessment  
 landscape design  
 urban design  
 ecology  
 architecture  
 arboriculture

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