

A1 Birtley to Coal House

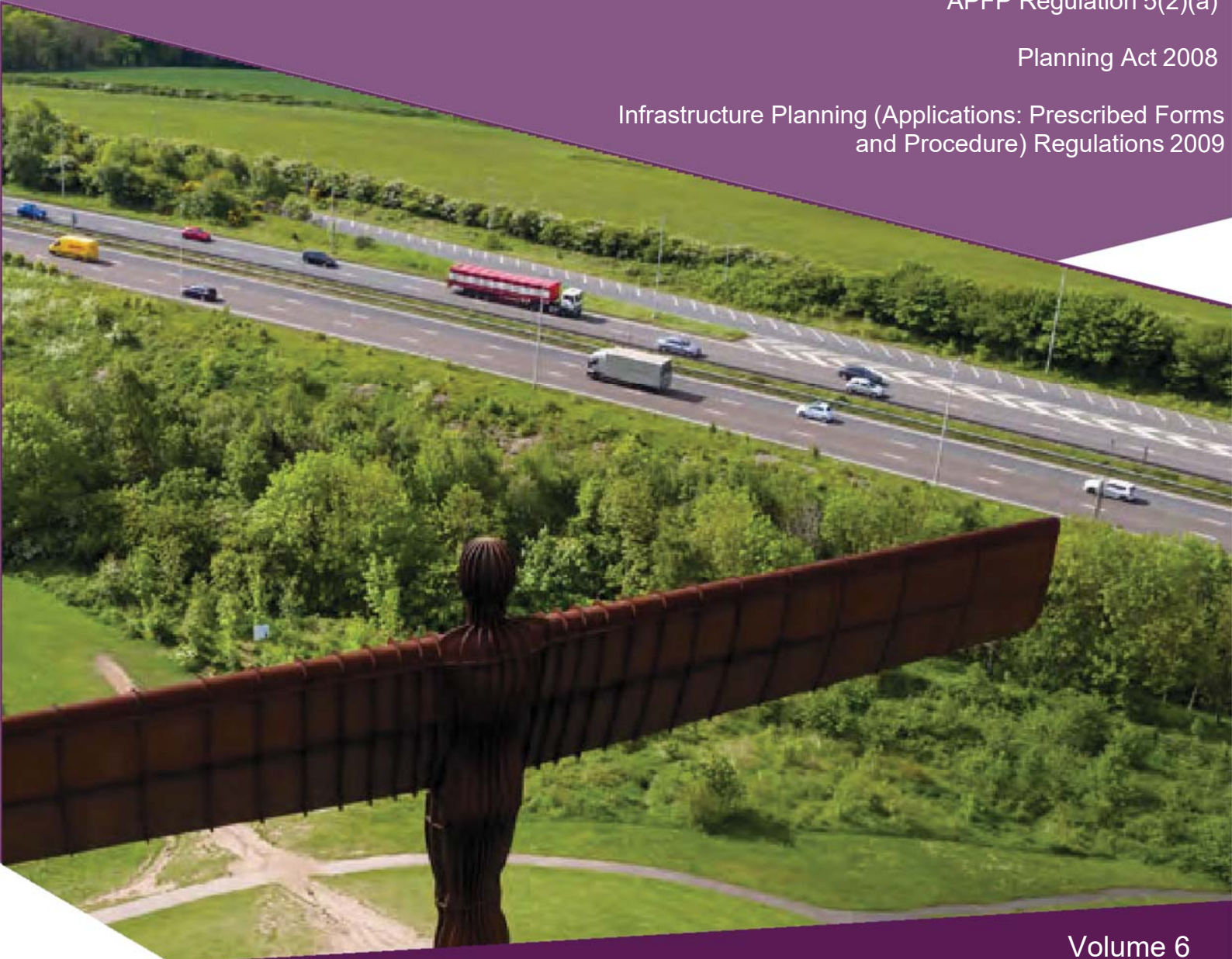
Scheme Number: TR010031

6.3 Environmental Statement – Appendix 8.14 Draft European Protected Species Licence

APFP Regulation 5(2)(a)

Planning Act 2008

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



Infrastructure Planning

Planning Act 2008

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

**A1 Birtley to Coal House
Development Consent Order 20[xx]**

**Environmental Statement -
Appendix**

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

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

Licence Application Form

Mitigation Licensing - Bats

Please Note - Applications can be completed online. For more information please visit our website.

- Please complete this application form using **dark ink** and BLOCK CAPITALS.
- Return the completed form to the address shown.
- All questions should be answered as appropriate. Questions marked with `**` are mandatory and failing to complete these may result in delays to your application.
- If there is insufficient space for completing answers on this form, please attach a separate sheet.
- Natural England will aim to determine the outcome of a completed licence application within its published service standards.
- If you experience any problems completing this application or using the online Case Work Management (CWM) system - please see our [website](#) for guidance or contact Wildlife Licensing.
- Additional guidance is provided in [Using CWM - Applicant Guidance Document](#). This can be downloaded from our website or you can ask Wildlife Licensing to send you a copy.

NATURAL
ENGLAND

Wildlife Licensing
Natural England
Horizon House
Deanery Road
Bristol
BS1 5AH
T. 020 802 61089
EPS.Mitigation@naturalengland.org.uk

For Office Use Only

CWM Ref No:

Charter Deadline

1. Applicant Details

Please enter the details of the person or company who will become the licensee.

(For guidance please see attached annex)

• If the applicant **is** already registered as a customer please complete Registered Applicant Details (a)

• If the applicant **is not** already registered as a customer please complete the New Applicant Registration (b)

(a) Registered Applicant Details

*Customer Number

*Surname

*Forename

*Postcode

(b) New Applicant Registration

Please note: If you are the agent / named ecologist registering on behalf of the applicant you will need to provide their full authorisation with this application.

*Title

(please tick as appropriate)

Mr

Mrs

Ms

Other

(Please Specify)

*Forename

Middle Name

*Surname

*Email Address

Professional Membership
(eg, CIEEM, IEMA, etc.)

House Name / No.

*Address Line 1

*Address Line 2

Address Line 3

Town *County

*Postcode Country

Either 'Telephone No.' or 'Mobile No.' must be completed.

Telephone Mobile

Fax

*Customer Type (eg, Farmer, Householder, Ecologist, etc.)

*Are you VAT registered? Yes No If Yes, VAT Number:

*Are you registered with the Rural Payments Agency? Yes No If Yes, RPS SBI number

(c) If you are registering on behalf of an organisation please complete this section.

*Position *Organisation Name

What is the size of your organisation?

- Micro (1 to 10 employees)
- Small (11 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 employees or more)

What is the legal status of your organisation?
(eg. private limited company, registered charity, voluntary organisation, Government agency, Local Authority)

Companies House Registration or Registered Charity Number:

(d) Alternative Applicant Contact Details

In the event that the applicant is unavailable to discuss the application, it would be helpful if alternative contact details could be provided. By completing this section you are confirming that this contact is authorised to act on behalf of the applicant.

Name:

Telephone number:

Email Address:

2. Named Ecologist Details

Please enter the details of the named ecologist. Please note a named ecologist is required for all development and mitigation applications (*For guidance please see attached annex*)

- If the ecologist **is** already registered as a customer please complete Registered Named Ecologist Details (a)
- If the ecologist is not already registered as a customer please complete the New Named Ecologist Registration (b)
- If there will not be an ecologist used in conjunction with this application please go to the next section

(a) Registered Named Ecologist Details

*Customer Number	*Surname	*Forename	*Postcode
<input type="text" value="TBC"/>	<input type="text" value="TBC"/>	<input type="text" value="TBC"/>	<input type="text" value="TBC"/>

(b) New Named Ecologist Details

Please note: If you are the applicant registering on behalf of the agent/named ecologist you will need to provide their full authorisation with this application.

*Email Address	<input type="text"/>				
*Title (please tick as appropriate)	Mr <input type="checkbox"/>	Mrs <input type="checkbox"/>	Ms <input type="checkbox"/>	Other <input type="checkbox"/>	(Please Specify) <input type="text"/>
*Forename	Middle Name	*Surname			
<input type="text"/>	<input type="text"/>	<input type="text"/>			
Professional Membership (eg, CIEEM, IEMA, etc)	<input type="text"/>				
House Name / No.	<input type="text"/>				
*Address Line 1	<input type="text"/>				
*Address Line 2	<input type="text"/>				
Address Line 3	<input type="text"/>				
Town	<input type="text"/>	*County	<input type="text"/>		
*Postcode	<input type="text"/>	Country	<input type="text"/>		

Either 'Telephone No.' or 'Mobile No.' must be completed.

Telephone	<input type="text"/>	Mobile	<input type="text"/>
Fax	<input type="text"/>		

*Customer Type (eg, Farmer, Householder, Ecologist, etc.)

*Are you VAT registered? Yes No If Yes, VAT Number:

*Are you registered with the Rural Payments Agency? Yes No If Yes, RPS SBI number:

(c) If you are registering on behalf of an organisation please complete this section.

*Position *Organisation Name

What is the size of your organisation?

- Micro (1 to 10 employees)
- Small (11 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 employees or more)

What is the legal status of your organisation?
(eg, private limited company, registered charity,
voluntary organisation, Government agency, Local Authority)

Companies House Registration or
Registered Charity Number:

(d) Alternative Named Ecologist Contact Details

In the event that the named ecologist is unavailable to discuss the application, it would be helpful if alternative contact details could be provided. By completing this section you are confirming that this contact is authorised to act on behalf of the named ecologist and has a detailed knowledge of the application.

Name:

Telephone Number:

Email Address:

3. Communication Preferences

Please indicate who should be contacted if we need to discuss this application:

(Please note more than one option can be selected for each question):

Applicant Named Ecologist

Please indicate to whom the outcome documentation for this application should be sent:

Applicant Named Ecologist

Applicant Preferences: Email Post Telephone

If 'Yes' for telephone, please provide a contact no.

Named Ecologist preferences: Email Post Telephone

If 'Yes' for telephone, please provide a contact no.

4. Previous Applications

(a) * To your knowledge, have there been any previous applications or licence decisions concerning this site?

Yes No

If 'No' please move to question 4(g). If 'Yes' to (a), please complete the following.

(b) * Date of most recent application:

(c) * Which species was the subject of the previous application?

(d) * What was the application or licence reference number?

(e) * What was the outcome of the previous application? (Please select one of the following)

Granted Not Granted Advice Only Deferred Not yet known

(f) To your knowledge, does this application relate to any previously licensed 'mitigation' work for any species on the site being applied for? Yes No

If 'Yes' to (f): Please provide application/ licence reference numbers, species details and outcome details.

(g) To your knowledge, is the site being applied for subject to any recent, concurrent, pending or future applications for licences for the same or other European protected species or other protected species? Yes No

If 'Yes' to (g): Please provide application/ licence reference numbers and/or species information.

For applications which are part of the Pre-Submission Screening Service:

More information on Natural England's Pre-Submission Screening Service can be found [here](#).

Is this a first draft application? Yes No Is this a subsequent draft? Yes No

Are you aware if your case has been seen or reviewed by Natural England? Yes No Not sure

If yes, who provided the advice and when?

Any further information you would like to provide:

Is this a formal application?

Yes No

Please provide any earlier reference numbers

For applications which are part of Nationally Significant Infrastructure Projects:

Is this a first draft application? Yes No

Is this a subsequent draft? Yes No

Is this a formal application? Yes No

Please provide any earlier reference numbers

5. Purpose

(a) * Brief Description of Proposal

eg. Construction of a new road, maintenance of a bridge, construction of five flats with access road and car parking area.

WSP was commissioned by Highways England to deliver the Road Widening Scheme located between Junction 65 (Birtley) and Junction 67 (Coal House) of the A1, south of Newcastle upon Tyne, Northumberland. This scheme is approximately 6.5km in length.

(b) * Please tell us why you need a licence.

eg. A day roost will be damaged, a night roost will be destroyed, a maternity roost will be modified and a day roost will be destroyed.

The widening works to both sides of the Eighton Lodge South Underbridge is assumed at this stage of design, to result in the permanent loss of a low conservation status common pipistrelle day roost for up to 3 bats.

(c) * Please confirm the purpose of the application:

- Imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment under section 55(2)(e)
- Preserving public health or public safety, under section 55(2)(e)
- Preventing the spread of disease, under section 55(2)(f)
- Preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber, fisheries or inland waters, or any other form of property under section 55(2)(g)
- A purpose not specified in Regulation 55(2) that is consistent with Article 16(1)(e) of the Habitats Directive, under section 55(4)

(d) * Please confirm the category most appropriate to your proposed work

(Please select one of the following): :

- | | |
|---|---|
| <input type="checkbox"/> Agriculture / Farming/ Fishing / Forestry/
Nature conservation | <input type="checkbox"/> Housing (non-householder) (eg, residential
development, repairs/maintenance, non-
householders) |
| <input type="checkbox"/> Archaeological investigation | <input type="checkbox"/> Industrial/Manufacturing |
| <input type="checkbox"/> Barn conversion | <input type="checkbox"/> Mineral extraction/Quarrying |
| <input type="checkbox"/> Commercial - eg, office, retail | <input checked="" type="checkbox"/> Nationally Significant Infrastructure Projects |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Places of worship |
| <input type="checkbox"/> Energy generation/Energy supply | <input type="checkbox"/> Public buildings and land (eg, schools,
universities, hospitals, care facilities, military,
prisons) |
| <input type="checkbox"/> Flood and coastal defences | <input type="checkbox"/> Tourism/leisure eg, golf courses, country
parks, holiday camps |
| <input type="checkbox"/> Health and safety | <input type="checkbox"/> Transport/Highways |
| <input type="checkbox"/> Heritage/Historical (eg, National Trust, listed
building, scheduled monument) | <input type="checkbox"/> Water management |
| <input type="checkbox"/> Householder home improvement (eg, loft
conversion, extension, garage, conservatory,
repairs) | <input type="checkbox"/> Water supply and treatment/water
environment |
| | <input type="checkbox"/> Other |

If other, please provide details here:

(e) * Is the proposed work part of a phased or a multi-plot development? Yes No

If `Yes' to (e): You must submit a species specific master plan and Habitat Management and Maintenance Plan with this application, as a separate document. Guidance on what should be included in a master plan can be found at - http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/Images/WML- G11_tcm6-9930.pdf

6. Site Details

*Is the address for the site to be licensed different to the applicant's address? Yes No

If `Yes': For the Site/Location to be licensed, please complete **all** of the following details:

If `No': Please complete Site/Location Name and OS Grid Reference boxes only.

(For linear projects, please add the start and end points separately)

Site Details

*Site / Location Name:	
House Number:	Eighton Lodge South Underpass
Address Line 1:	A1
Address Line 2:	
Address Line 3:	
Town:	Harlow Green
*County:	Gateshead
Postcode:	NE9 7UB
*OS Grid Reference: <i>(In format XX123456)</i>	A1 Birtley to Coal House. Start: NZ 28163 56457; End: NZ 23981 59285; Bridge: NZ 26803 57463

7. Conservation Considerations

(a) *Will any part of the proposed activity fall in and/or adjacent to a Designated Site? Yes No N/A

If 'Yes' to (a) please complete the table below. If 'No', please go to the next section.

Please indicate whether the activity will fall on and/or adjacent to a designated site:	Designated Site Name	Type of Designated Site <i>Eg National Nature Reserve (NNR), Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar Site, Ancient Monument, Marine Nature Reserve (MNR), Area of Outstanding Natural Beauty (AONB)</i>
On <input type="checkbox"/> Adjacent to <input type="checkbox"/>		
On <input type="checkbox"/> Adjacent to <input type="checkbox"/>		
On <input type="checkbox"/> Adjacent to <input type="checkbox"/>		
On <input type="checkbox"/> Adjacent to <input type="checkbox"/>		

Please indicate whether the activity will fall on and/or adjacent to a designated site:	Designated Site Name	Type of Designated Site <i>Eg National Nature Reserve (NNR), Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar Site, Ancient Monument, Marine Nature Reserve (MNR), Area of Outstanding Natural Beauty (AONB)</i>
On <input type="checkbox"/> Adjacent to <input type="checkbox"/>		
On <input type="checkbox"/> Adjacent to <input type="checkbox"/>		

(b) Have you consulted with Natural England for advice on the implications of the application on the designated site?

Yes No Not known

(c) Please give either the outcome of your consultations or the reason why you have not consulted us. Please provide any relevant correspondence and the name of the local Natural England adviser or reserve manager consulted.

8. Authorisation

(a) *Is the applicant the owner/occupier of the land?

Yes No N/A

If 'Yes' to (a) please go to the next section. If 'No' to (a) please answer (b).

(b) Have you received the owner occupier's permission to apply?

Yes No

Please note that it is your responsibility as the applicant to obtain the owner or occupier's permissions to act under licence on their property.

You may be asked to provide documentation which confirms that you have owner or occupier's permissions and we will contact you if this is necessary

9. Application Details

(a) Please add details for all licensable actions you wish to perform. Please complete one column per species. You may enter more than one Activity and/or Method or Field Technique per species. **All the data entered here MUST be accurately reflected in your accompanying method statement.**

- Please see annex for guidance on bat roost definitions.
- If you require additional rows, please attach extra sheets to your application, presenting the information in the same table format.

Application Subject	Bats	Bats	Bats	Bats	Bats
*Species	Pipistrellus pipistrellus				
*Activity	Capture Take <input checked="" type="checkbox"/> Disturb <input type="checkbox"/> Transport <input type="checkbox"/> Damage Breeding Site <input type="checkbox"/> Destroy Breeding Site <input type="checkbox"/> Damage Resting Place <input type="checkbox"/> Destroy Resting Place <input checked="" type="checkbox"/>	Capture Take <input type="checkbox"/> Disturb <input type="checkbox"/> Transport <input type="checkbox"/> Damage Breeding Site <input type="checkbox"/> Destroy Breeding Site <input type="checkbox"/> Damage Resting Place <input type="checkbox"/> Destroy Resting Place <input type="checkbox"/>	Capture Take <input type="checkbox"/> Disturb <input type="checkbox"/> Transport <input type="checkbox"/> Damage Breeding Site <input type="checkbox"/> Destroy Breeding Site <input type="checkbox"/> Damage Resting Place <input type="checkbox"/> Destroy Resting Place <input type="checkbox"/>	Capture Take <input type="checkbox"/> Disturb <input type="checkbox"/> Transport <input type="checkbox"/> Damage Breeding Site <input type="checkbox"/> Destroy Breeding Site <input type="checkbox"/> Damage Resting Place <input type="checkbox"/> Destroy Resting Place <input type="checkbox"/>	Capture Take <input type="checkbox"/> Disturb <input type="checkbox"/> Transport <input type="checkbox"/> Damage Breeding Site <input type="checkbox"/> Destroy Breeding Site <input type="checkbox"/> Damage Resting Place <input type="checkbox"/> Destroy Resting Place <input type="checkbox"/>
*Method or Field Technique	By hand <input checked="" type="checkbox"/> By static hand-held net <input type="checkbox"/> Temporary exclusion <input type="checkbox"/> Permanent exclusion <input checked="" type="checkbox"/> Destructive search by soft demolition <input type="checkbox"/> Mechanical demolition <input type="checkbox"/> Disturbance by illumination (intentional by torch) <input type="checkbox"/> Disturbance by noise or vibration <input type="checkbox"/> Temporary obstruction of roost access <input type="checkbox"/> Endoscopes <input type="checkbox"/>	By hand <input type="checkbox"/> By static hand-held net <input type="checkbox"/> Temporary exclusion <input type="checkbox"/> Permanent exclusion <input type="checkbox"/> Destructive search by soft demolition <input type="checkbox"/> Mechanical demolition <input type="checkbox"/> Disturbance by illumination (intentional by torch) <input type="checkbox"/> Disturbance by noise or vibration <input type="checkbox"/> Temporary obstruction of roost access <input type="checkbox"/> Endoscopes <input type="checkbox"/>	By hand <input type="checkbox"/> By static hand-held net <input type="checkbox"/> Temporary exclusion <input type="checkbox"/> Permanent exclusion <input type="checkbox"/> Destructive search by soft demolition <input type="checkbox"/> Mechanical demolition <input type="checkbox"/> Disturbance by illumination (intentional by torch) <input type="checkbox"/> Disturbance by noise or vibration <input type="checkbox"/> Temporary obstruction of roost access <input type="checkbox"/> Endoscopes <input type="checkbox"/>	By hand <input type="checkbox"/> By static hand-held net <input type="checkbox"/> Temporary exclusion <input type="checkbox"/> Permanent exclusion <input type="checkbox"/> Destructive search by soft demolition <input type="checkbox"/> Mechanical demolition <input type="checkbox"/> Disturbance by illumination (intentional by torch) <input type="checkbox"/> Disturbance by noise or vibration <input type="checkbox"/> Temporary obstruction of roost access <input type="checkbox"/> Endoscopes <input type="checkbox"/>	By hand <input type="checkbox"/> By static hand-held net <input type="checkbox"/> Temporary exclusion <input type="checkbox"/> Permanent exclusion <input type="checkbox"/> Destructive search by soft demolition <input type="checkbox"/> Mechanical demolition <input type="checkbox"/> Disturbance by illumination (intentional by torch) <input type="checkbox"/> Disturbance by noise or vibration <input type="checkbox"/> Temporary obstruction of roost access <input type="checkbox"/> Endoscopes <input type="checkbox"/>
* Maximum number of bats to be licensed at the time that works are proposed	3				
* Number of breeding sites to be impacted	0				
* Number of resting sites to be impacted	1				

Expected roost type affected	Hibernation confirmed	<input type="checkbox"/>	Hibernation confirmed	<input type="checkbox"/>	Hibernation confirmed	<input type="checkbox"/>	Hibernation confirmed	<input type="checkbox"/>	Hibernation confirmed	<input type="checkbox"/>
	Day	<input checked="" type="checkbox"/>	Day	<input type="checkbox"/>	Day	<input type="checkbox"/>	Day	<input type="checkbox"/>	Day	<input type="checkbox"/>
	Transitional/Occasional	<input type="checkbox"/>	Transitional/Occasional	<input type="checkbox"/>	Transitional/Occasional	<input type="checkbox"/>	Transitional/Occasional	<input type="checkbox"/>	Transitional/Occasional	<input type="checkbox"/>
	Feeding perch	<input type="checkbox"/>	Feeding perch	<input type="checkbox"/>	Feeding perch	<input type="checkbox"/>	Feeding perch	<input type="checkbox"/>	Feeding perch	<input type="checkbox"/>
	Night	<input type="checkbox"/>	Night	<input type="checkbox"/>	Night	<input type="checkbox"/>	Night	<input type="checkbox"/>	Night	<input type="checkbox"/>
	Satellite	<input type="checkbox"/>	Satellite	<input type="checkbox"/>	Satellite	<input type="checkbox"/>	Satellite	<input type="checkbox"/>	Satellite	<input type="checkbox"/>
	Swarming or mating	<input type="checkbox"/>	Swarming or mating	<input type="checkbox"/>	Swarming or mating	<input type="checkbox"/>	Swarming or mating	<input type="checkbox"/>	Swarming or mating	<input type="checkbox"/>
	Maternity	<input type="checkbox"/>	Maternity	<input type="checkbox"/>	Maternity	<input type="checkbox"/>	Maternity	<input type="checkbox"/>	Maternity	<input type="checkbox"/>
	Underground - mines, caves, cellars, tunnels or bridges (number & type)	<input type="checkbox"/>	Underground - mines, caves, cellars, tunnels or bridges (number & type)	<input type="checkbox"/>	Underground - mines, caves, cellars, tunnels or bridges (number & type)	<input type="checkbox"/>	Underground - mines, caves, cellars, tunnels or bridges (number & type)	<input type="checkbox"/>	Underground - mines, caves, cellars, tunnels or bridges (number & type)	<input type="checkbox"/>

Please enter the proposed start date of action below. Please note this refers to the date of the first licensable action, not necessarily when the development commences.

*Proposed Date From:	April 2020				
*Proposed Date To:	November 2021				

(b) * Have you sent your records to the Local Records Centre? Yes No

Please note: You must send survey data and habitat assessment data to your Local Records Centre (LRC). It is a condition of survey licences that records are sent to LRCs annually or to other organisations as specified on a particular survey licence (e.g. People's Trust for Endangered Species).

(c) * Have surveys been conducted within the current or most recent optimal season and undertaken in accordance with the most up to date edition of the Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists - Good Practice Guidelines* and the *Bat Mitigation Guidelines*? Yes No

If 'No', please confirm that full justification has been provided in section C5a in the Method Statement template. **Please note that inadequate or insufficient survey information is likely to cause a delay to your licence application and possibly result in a Further Information Request.** Yes, I confirm

10. Experience

Please note: For guidance in completing this section please refer to the Experience in Bat Mitigation document at http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/Images/bat-mitigation-guidance_tcm6-10534.pdf

(a) * Has the named ecologist associated with this application held or been named on a bat mitigation licence in the past three years for the same species and in relation to a project of similar scale, methodology and mitigation?

Yes No

If 'Yes' to (a):

(b) * Please provide the name of the issuing authority, the licence reference number, date of issue and the species and roost types of licences held

TBC

If 'No' to (a) please complete the following section. If "Yes" to (a) go to the next section.

(c) * Does the named ecologist currently hold a valid personal survey licence or are they registered to use a minimum of Level 2 Bat class survey licence?

Yes

No

If 'Yes' complete all of the following.

If 'No' go to (f)

(d) * What is/are the survey licence reference number(s)?

TBC

(e) * Number of years the survey licence(s) have been held (minimum of 2 years):

(f) * Please give brief details of the named ecologist's current science, education or conservation licence or any other licences issued to the ecologist in the last three years relevant to the species relating to this application:

TBC

(g) * Please give brief details of the named ecologist's experience on mitigation projects (a minimum of 3 projects) relevant to the species relating to this application, including in what capacity they acted. State the site names and reference numbers of licences and the type of mitigation involved:

(h) * Please provide details of the named ecologist's Qualifications, including any Continual Professional Development (CPD) training relevant to the species relating to this application:

Please note: If you have not held a mitigation licence in the last three years you will need to provide written references from two people who are familiar with the named ecologist's work. Please attach these references with your application. References provided in support of your licence application should:

- Vouch for the named ecologist's suitability and competence to prepare and deliver mitigation projects;
- State how long referees have known the named ecologist and in what capacity;
- Provide details of the named ecologist's mitigation experience with the relevant species or a related species; and
- Provide details of the referees' own mitigation experience and mitigation licence held (if appropriate): at least one referee must have held a mitigation licence within the last 3 years.

(i) * Are you providing references?

Yes No

If 'Yes' to (i): Please provide details of the referees. We may need to contact these referees to verify their statements.

1st Referee:

2nd Referee:

11. Consent Status

(a) * Is any consent required for your proposed project and the subject of this licence application?

- 1. Planning-related consent required (e.g. Planning permission, listed building consent, etc)
- 2. Demolition consent (under Building Act 1984) including prior notice to demolish.
- 3. Other type of consent required (e.g. Minerals consents, Highway Act consents, Secretary of State Decision Letter, Compulsory Purchase Order, Environment Agency Consent, etc.)
- 4. Permitted Development (under Town and Country Planning Act 1990) - no specific consent required.
- 5. No consent required (e.g. Public Health and safety issues)

If '3' is selected

(b) * Please provide details of these consents

This is an NSIP application and the licence will be applied for once DCO is in place.

If '5' is selected

(c) * Please explain why no consent is required

If '1', '2'
or '3' is
selected

(d) Have you obtained the necessary consent(s) to allow the proposed activity to be commenced?

Yes No

- If 'No' to (d), please complete 'Consent Not Obtained'
- If 'Yes' to (d), please complete 'Consent Obtained'

* Please confirm that you will submit copies of any consent(s) or extracts that are relevant to the proposed activity and this licence application if applicable:

Yes, I confirm

Consent not obtained

Please note: If you have not held a mitigation licence in the last three years you will need to provide written references from two people who are familiar with the named ecologist's work. Please attach these references with your application. References provided in support of your licence application should:

(e) * Please provide details of the outstanding consents to be obtained and the likely time scales for their determination/issue.

No consents are currently in place. This is a (NSIP) and this Licence informs the Development Consent Order process and the licence application will be completed at detailed design stage once planning

Pre-submission Screening Service:

We will provide advice on draft applications, prior to consents being in place and prior to a formal licence application being submitted through this chargeable service. We **strongly** advise customers to use this service rather than trying to pursue a licence under Exceptional Circumstances, particularly where there are concerns about financial implications resulting from delays in obtaining a licence once planning consents are in place. Please see our website for further advice about this.

Consent obtained

(f) * Please confirm details of all the consents that have been granted relevant to the proposed activity and this licence application.

Full Planning Permission	<input type="checkbox"/>	Outline Planning Permission	<input type="checkbox"/>
Demolition consent (under Building Act 1984) including prior notice to demolish	<input type="checkbox"/>	Conservation Area Consent	<input type="checkbox"/>
Listed Building Consent	<input type="checkbox"/>	Tree Preservation Order	<input type="checkbox"/>
Highways Act Consent	<input type="checkbox"/>	Utilities Consent	<input type="checkbox"/>
Mineral Consent	<input type="checkbox"/>	Mineral Consent with Review of Mineral Planning Permission	<input type="checkbox"/>
Mineral Consent (Review of Mineral Planning Permission submitted to Mineral Planning)	<input type="checkbox"/>	Other consent type	<input type="checkbox"/>

If Other, please provide details here:

(g) * Please provide consent reference number(s)

Please submit copies of the consents (or extracts) that are relevant to the proposed activity and this licence application, if applicable

(h) For all consents that have been granted, have all conditions or Reserved Matters relating to wildlife species and habitat issues (which are intended to be and are capable of being discharged before development begins) been discharged?

Yes No

If 'No' to (i), please answer all of the following. If 'Yes', please skip to (j).

Please note: If it is not possible or not intended for the conditions to be discharged before development commences then please complete the questions below.

(i) Please give details of those conditions that are still to be discharged and explain why they have not been discharged.

(j) Is the site subject to any commitment that affects the protected species named in this application?

Yes No

For example a Section 106 Agreement (Town and Country Planning act 1990) or other commitments made at a Public Inquiry or in an Environmental Statement.

If 'Yes' to (j) Has the commitment been met? Please also explain what has been done.

If 'Yes' to (j) What work is outstanding and when will it be completed?

(k) Is the site subject to any such commitment that affects other European Protected Species or other protected species? Eg, a Section 106 Agreement (Town and Country Planning Act 1990) or other commitments made at a Public Inquiry or in an Environmental Statement.

Yes No

If 'Yes' to (k) Has this been met?

If 'Yes' to (k) When will this be complete?

Reasoned Statement & Supporting Documents

A Reasoned Statement and supporting documents may be required in support of this application

Copies of the latest version of the Reasoned Statement template which sets out when a Reasoned Statement is required and further guidance to help are available on our website.

Please confirm that you have read and understood the Reasoned Statement template and advice note/guidance

Yes, I confirm

(I) *Does your application require a Reasoned Statement?

Yes No

If 'No' to (I) *Please confirm the exception that applies

Applications for home improvements and small scale housing developments:

- Repairs and maintenance
- Roof replacements, loft conversions and extensions
- Renovations of existing domestic dwellings and associated structures, such as garages
- Housing developments of less than 1 hectare, including:
 - existing buildings and associated structures that may need to be demolished before redevelopment takes place (whether domestic dwellings or other types of buildings)
 - barn conversions for domestic dwellings (this doesn't include conversions for commercial use, such as holiday lets)

Applications to conserve and protect listed buildings, scheduled monuments or places of worship:

- [listed buildings](#)
- [scheduled monuments](#)
- [registered places of worship](#) or a place of worship belonging to the Church of England for:
 - repairs and maintenance (including roof replacement)
 - restoration
 - essential works to:
 - prevent serious damage to buildings and structures (including contents)
 - preserve public health and safety
 - enable continued appropriate use of the building or structure

Applications to maintain, repair, improve public buildings or develop public land

Public buildings and public land includes buildings and land owned or leased by the government, their departments, agencies and arm's length bodies, such as:

- schools (state funded and academies only)
- hospitals
- prisons
- courts
- airfields

You don't need to include a reasoned statement where bats and their roosts will be affected by:

- repairs and maintenance
- restoration
- renovation

- redevelopment of an existing building(s), which may include demolition before redevelopment, as long as it remains in use as a public building
- extending or adding new buildings within the grounds of the existing developed site
- essential works to:
 - prevent serious damage to buildings (including contents)
 - preserve public health and safety
 - allow the building to be continued to be used as it was intended

Extending public buildings beyond existing boundaries, changing them to private use, or developing land for private use will need a reasoned statement with your application.

If you have selected one of the above exceptions, please provide details of how the proposed works meet the exception criteria:

(m) Does your application affect a regionally or nationally important population of a European Protected Species? Yes No

*If 'Yes' to (m) and a Reasoned Statement is **not required** ... (n) You must consult Natural England for advice before making an application. Please give either the outcome of your consultation (with details of who you consulted) or the reason why you have not consulted us*

12. Consenting Authority

Please provide the Local Planning Authority/Authorities that have granted consent for the proposed project and the subject of this licence application. Please then provide contact details for the responsible officer. If consent is granted by another body (e.g. Secretary of State, Natural England, Environment Agency, Utilities Consent, Highways Consent, etc) then please provide details for it as appropriate. If no consent is required (e.g. Public health and safety issues) then please leave the remaining fields blank.

*Consenting Authority Name:

*Title	*Forename	*Surname	*Position
			none allocated yet

Email Address:

Telephone Number

Address

Major Applications & Plans
3/18 Eagle Wing
The Planning Inspectorate

13. Method Statement and Charge Form

A Method Statement must be provided to support this application including a Charge Form, along with other supporting documents, which may include some or all of the following:

- Maps
- Figures
- Habitat management and maintenance plans
- Master plan
- Appended survey results
- A work schedule

Please note: The Method Statement and Charge Form should be prepared by a consultant ecologist or another suitably qualified person because compiling the content requires specific species and site-related knowledge.

Further Advice: Copies of the latest versions of templates for all species and further guidance to help you complete them are available on our [website](#).

14. Supplementary Information

Please provide any additional information you may have to support your application.

This application is to inform a letter of no impediment only and the application would be processed at detailed design, by the ecologists undertaking the works.

15. Data Protection

The data controller is the Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX. You can contact the Natural England Data Protection Manager at: Natural England, County Hall, Spetchley Road, Worcester, WR5 2NP; foi@naturalengland.org.uk.

Any questions about how we are using your personal data and your associated rights should be sent to the above contact. The Data Protection Officer responsible for monitoring that Natural England is meeting the requirements of the legislation is: Defra group Data Protection Officer, Department for Environment, Food and Rural Affairs, SW Quarter, 2nd floor, Seacole Block, 2 Marsham Street, London SW1P 4DF.

DefraGroupDataProtectionOfficer@defra.gsi.gov.uk

The information on the licence application form and any supporting material will be used by Natural England to undertake our licensing functions. This will include, but is not limited to assessing your application, issuing a licence

if applicable, monitoring compliance with licence conditions and collating licence returns and reports. The personal information we will process will include, but is not limited to your name and contact details, customer type and reasons for wanting a licence. Processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller. That task is to conduct the licensing functions as delegated by Defra to Natural England under Part 8 Agreement under section 78 of the Natural Environment and Rural Communities Act 2006.

The processing by us of personal data relating to wildlife-related or animal welfare offences or related security measures is carried out only under official authority. This information is used in assessing an application as it is a material fact. Natural England will for particular licence applications and at specific stages of the licencing process discuss your application with third parties. The details of this sharing are set out here <https://www.gov.uk/government/publications/wildlife-licensing-privacy-notice>.

Your personal data will be kept by us for 7 years after the expiry of your licence or longer if stated in the licence conditions.

Failure to provide this information will mean that we will be unable to assess your application for a wildlife licence. The information you provide is not connected with individual decision making (making a decision solely by automated means without any human involvement) or profiling (automated processing of personal data to evaluate certain things about an individual).

The data you provide will not be transferred outside the European Economic Area.

A list of your rights under the General Data Protection Regulation, the Data Protection Act 2018, is accessible at: <https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/>.

You have the right to lodge a complaint with the ICO (supervisory authority) at any time. Should you wish to exercise that right full details are available at: <https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/>.

Details of our Personal Information Charter can be found at: <https://www.gov.uk/government/organisations/natural-england/about/personal-information-charter>.

Important Advice:

- If your application is made under the Wildlife and Countryside Act 1981 (as amended) or the Conservation of Habitats and Species Regulations 2017 (as amended), any person who in order to obtain a licence knowingly or recklessly makes a statement or representation, or furnishes a document or information which is false in a material particular, shall be guilty of an offence and may be liable to criminal prosecution. Any person found guilty of such an offence is liable, on summary conviction, to imprisonment for a term not exceeding six months or to a fine not exceeding level 5 on the standard scale, or to both. Regarding other wildlife legislation, we will look to provisions in the Fraud Act 2006 (as amended) in respect of applicants making any false representations.
- Natural England or the Secretary of State can modify or revoke at any time any licence that is issued, but this will not be done unless there is good reason for doing so. Any licence that is issued is likely to be revoked immediately if it discovered that false information has been provided that resulted in the issue of a licence.

16. Declaration

16a. Applicant Declaration

*Have you or any person listed in the application been convicted of any wildlife-related or animal welfare offence?

Yes No

If 'Yes' to
(16a)

Please provide details of the convictions:
(including dates)

The offences we are referring to relate to persons convicted on or after 1 January 2010 of an offence under the Wildlife and Countryside Act 1981, the Conservation (Natural Habitats &c.) Regulations 1994, the Conservation of Habitats and Species Regulations 2017 (as amended), the Protection of Badgers Act 1992, the Deer Act 1991, the Hunting Act 2004, the Wild Mammals (Protection) Act 1996, the Animal Welfare Act 2006 and the Protection of Animals Act 1911 (all as amended). You do not have to declare conviction if the person concerned is: (1) a rehabilitated person for the purposes of the Rehabilitation of Offenders Act 1974 and their conviction is treated as spent; or (2) in respect of such an offence, a court has made an order discharging them absolutely.

16b. Applicant Declaration

- I have read and understood the privacy notice above.
- Where required, I undertake to obtain permission from landowners / occupiers of land to exercise any licence resulting from this application, and to allow any employee or representative of Natural England to monitor or inspect the work described in this application.
 - I have read and understood the guidance provided in the application form and on the Wildlife Licensing Internet guidance pages.
 - I have read and understood the [Terms and Conditions](#) for payment in respect of Wildlife Licence Applications and agree to pay all the relevant charges due.
 - I declare the particulars given are correct to the best of my knowledge and belief, and I apply for a licence in accordance with the information I have provided.
 - I confirm that there is no satisfactory alternative to meet the need/resolve the problem detailed in this application.
- I agree to the declaration above.

Signature of applicant:

For electronic applications, please insert an electronic signature above or tick this box to confirm with the declaration.

Name: *(In BLOCK letters)*

Date:

16c. Ecologist Declaration

- I have read and understood the privacy notice above.
- I confirm that I have visited the site(s).

- I confirm that I have visited the site(s).
- I have designed and inputted into the licence proposal.
- I confirm that there is no satisfactory alternative to meet the need/resolve the problem detailed in this application
- I am satisfied that the proposal will result in no adverse impact on the species concerned
- I declare the particulars given are correct to the best of my knowledge and belief, and the applicant may apply for a licence in accordance with information I have provided
- I have documentary evidence that I am authorised to act on behalf of the applicant that I will supply to Natural England on request.

I agree to the declaration above.

Signature of ecologist:

For electronic applications, please insert an electronic signature above or tick this box to confirm with the declaration.

Name: *(In BLOCK letters)*

Date:

17. Annex - Application Notes

Applicant

The applicant is the person submitting the application (usually the landowner or occupier) who, if the licence was granted, would become the licensee. The applicant may appoint agents to produce the application pack and act on their behalf. A person with specific skills and knowledge of the species concerned, such as a consultant ecologist, must be appointed to assist in the preparation and the delivery of the proposals that ensure the species protection requirements can be met.

Licensee

The "Licensee" named on the licence is responsible for ensuring that all activities carried out on site in relation to the licence comply with the terms and conditions of the licence. However, all persons authorised to act under the licence must comply with the licence and its conditions (see Regulation 60(1) of the 2017 Regulations (as amended)). This means that all authorised persons have a responsibility for ensuring that the licence terms and conditions, including any annex special conditions, are understood and complied with. Failure to do so could lead to prosecution.

Consultant/Named Ecologist

The "Named Ecologist" is a professional ecological consultant who has satisfied Natural England that they have the relevant skills, knowledge and experience of the species concerned and is responsible for undertaking and/or overseeing the work undertaken in respect of the licensed species. The 'Named Ecologist' has a responsibility for ensuring that the licence is complied with. They are responsible for advising the licensee on the suitability and competence of any Accredited Agents or Assistants employed on site to undertake the required duties and may include the direct supervision of Assistants where appropriate. More information about the experience required to become a named ecologist can be found at: http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/Images/bat-mitigation-guidance_tcm6-10534.pdf

Accredited Agent

An "Accredited Agent" is a suitably trained and experienced person who is able to carry out work under a licence without the personal supervision of the Named Ecologist. Any Accredited Agent must be appointed by the Licensee and be in possession of a letter signed by the Licensee confirming their appointment. Agents shall carry a copy of the said letter when acting under the licence and shall produce it to any police or Natural England officer on request.

Assistants

An "Assistant" is a person assisting a Named Ecologist or Accredited Agent. Assistants are only authorised to act under this licence whilst they are under the direct supervision of either the Named Ecologist or an Accredited Agent.

Bat Roost Definitions

Day roost: a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

Night roost: a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

Feeding roost: a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

Transitional / occasional roost: used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

Swarming site: where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites.

Mating sites: where mating takes place from later summer and can continue through winter.

Maternity roost: where female bats give birth and raise their young to independence.

Hibernation roost: where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.

Satellite roost: an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

Other - if applicable this will be specified in special condition 7.

For the purpose of this licence the following licensed methods are defined as:

Destructive search by soft demolition: the taking apart of a bat structure in a controlled and careful manner by hand, or in some instances with the assistance of hand-held tools and machinery, under direct ecological supervision. Only the Named Ecologist, Accredited Agent or a directly supervised Assistant may take any bats found.

Mechanical demolition: destruction of a structure that previously supported a bat roost using mechanical means after the structure has been declared free of bats by the Named Ecologist or Accredited Agent. Mechanical demolition usually is preceded by a soft demolition exercise or completion of an exclusion process.

Bats – Method Statement template to support a licence application

The Method Statement will be used to determine the impact of the proposal on the favourable conservation status (FCS) of the species concerned (Regulation 55(9)(b)).

You are strongly advised to refer to the Bat Mitigation Guidelines.

Please use recent photographs to support your application.

Wildlife Licensing
Natural England
Horizon House
Deanery Road
Bristol
BS1 5AH.
T. 020802 61089

Important advice:

The format below must be used. Please enter text below each heading keeping information as concise as possible.

All maps/figures that will become part of any annexed licence granted must be submitted as separate documents (with the site name and date included on the map/figure. See section I for list – all others may be included within the Method Statement document (e.g. survey maps/figures) if preferred).

A separate work schedule must also be submitted on form WML-A13a-E5a&b to accompany the Method Statement.

A Executive summary

Provide an overview (no more than 1 side of A4) of what works are proposed and how the impacts identified will be addressed in order to ensure no detriment to the maintenance of the population at a favourable conservation status.

Assessments to inform a Road Widening Scheme located between Junction 65 (Birtley) and Junction 67 (Coal House) of the A1, Gateshead, Northumberland were completed. This scheme is approximately 6.5km in length. This is a Nationally Significant Infrastructure Project (NSIP) and this licence informs the Development Consent Order only. The final draft of the licence application will be completed at detailed design stage once the Development Consent Order is granted, by the ecologist assessing the detailed design.

During a dusk emergence survey a single common pipistrelle bat *Pipistrellus pipistrellus* was recorded emerging from the underside of Eighton Lodge South Underbridge.

In the absence of mitigation, widening works to both sides of the Eighton Lodge South Underbridge (assumed at this stage of design), will result in the permanent loss of a low conservation status common pipistrelle day roost for up to three bats. This would only constitute a long term minor negative impact on a Site level for the local bat population.

Suitable mitigation measures will be utilised to ensure Eighton Lodge South Underbridge is unsuitable for roosting bats prior to works between mid-March and mid-November (inclusive), in suitable weather conditions when bats are active. This exclusion timeframe avoids the core hibernation period when bats are most likely to be inactive and most at risk. These mitigation measures may include a pre-construction dusk emergence and dawn re-entry survey supplemented by an infra-red camera, where considered necessary, capture methods (hand net only) and/or use of 'one-way', exclusion devices.

Once an absence of bats across the entire bridge has been confirmed, the features would be permanently sealed obstructing roost access to any roost within the bridge. This would allow works to be completed throughout the remainder of the construction period.

Prior to construction and start of works, the following permanent compensation features are considered necessary:

- Provision of four tree mounted (two per tree) or pole mounted 'woodcrete' bat boxes (Schwegler 1FF or similar), to provide roosting opportunities during the renovation of the bridge at Eighton Lodge South Underbridge;
- These features would be installed prior to any works commencing and remain in place for a minimum of five years and can only be removed after this time should there be no evidence of use during this period. However, it is recommended that the features are permanent to provide ecological enhancement and opportunities for roosting bats over an extended period.

Once the bridge is widened there will be inclusion of suitable bat features on the retained bridges abutments, including two mounted bat boxes (Schwegler bat access panel 1 FE with optional back plate for 1FE, or similar).

There is a landscape strategy for the Scheme which includes suitable bat foraging/commuting features throughout the Scheme Footprint. Landscape design includes creation of woodland, hedgerow and grassland habitats, which encourage connectivity along the Scheme Footprint. Additionally, water features have been enhanced and created.

The mitigation included in this licence will ensure that the Scheme has a long term minor positive impact at the local level.

B Introduction

B1 Background to activity/development:

Include a brief summary of:

- Why the activity and a licence are necessary (*e.g. bridge structure repairs are required and will affect a known maternity roost of Daubenton's bats, which will be temporarily lost whilst works are being undertaken; renovation works to an office building will result in the permanent loss of three day roosts of common pipistrelle bats; demolition of an existing hospital to be replaced with flats will result in the loss of a brown-long eared bat maternity roost*).

WSP was commissioned by Highways England to deliver the Road Widening Scheme located between Junction 65 (Birtley) and Junction 67 (Coal House) of the A1, Gateshead, Northumberland. This Scheme is approximately 6.5km in length. This is a Nationally Significant Infrastructure Project (NSIP) and this licence informs the Development Consent Order only. The final draft of the licence application will be completed at detailed design stage once Consent is in place.

The Proposed Works include the widening and upgrading of the existing road to provide a three-lane carriageway. There is a total of eight bridge structures, hereafter referred to as 'bridges', (two overbridges, four underbridges, one underpass and one footbridge), within the Scheme Footprint. Of these structures, on the underside of Eighton Lodge South Underbridge a single common pipistrelle bat *Pipistrellus pipistrellus* day roost was confirmed within.

Eighton Lodge South Underbridge will be widened as part of the road widening works, which will include an extension of the bridge on both the northern and southern carriage. Works will be undertaken over a year, including winter and these works will result in direct impacts to the existing roost.

- Include current status of planning permission (if applicable) *e.g. full planning permission with all relevant wildlife conditions discharged; permitted development; demolition with prior notification of demolition issues resolved*. If the proposal is for demolition only of a structure supporting a bat roost/s, please confirm whether there are plans to develop the site in the future and if so when.

No consents are currently in place. This is a NSIP and this licence informs the Development Consent

Order only. This licence application will inform a Statement of Common Ground and Letter of No Impediment.

The final draft of the licence application will be completed at detailed design stage once the Development Consent Order is granted.

B2 Relationship with other nearby development and cumulative impacts

B2.1 Is the current application part of a larger development project? For example, is it part of a phased or multi-plot housing development that will require more than one bat licence? Enter Yes, No or N/A in the text box below. If yes, note a separate **master plan** document will be required.

No.

Important Advice: If yes to the above, please note that sections in this Method Statement on impact assessment and mitigation measures must explicitly relate *only* to impacts from the works currently proposed.

A project-wide master plan must detail the overall impact assessment and mitigation and explain where, and why, each of the bat licences will be required. The master plan must be included as a separate document to this application: see http://www.naturalengland.org.uk/Images/WML-G11_tcm6-9930.pdf for details that are to be included in this separate document. The separate master plan is expected to take due regard of the overall project to ensure that in-combination effects are considered, and mitigation and compensation measures are both sufficient and coherent.

If the current development is part of a larger development project, summarise very briefly here how the current application relates to the larger project and how the in-combination effects are considered and mitigation/compensation is sufficient.

N/A

Important Advice: to accompany this Method Statement also include Figure B2.1 for a Master plan overview - and see section I "Map checklist" at the end of this document.

B2.2 Apart from any mention in B2.1, please inform us of any past or future development or other projects (in the last 5 years or next 5 years) in the vicinity which may have significantly impacted or are likely to significantly impact on the same population/s of bats as this application (e.g. loss of maternity or hibernation roosts). You must make reasonable efforts to establish this, including discussions with your client and the Local Planning Authority – stating below what you undertook. A brief summary of the project/s should be provided including the site name and location, dates and if known the licence reference number(s).

Please note we are not expecting details of every licence/planning permission issued within the vicinity of the site – we are only concerned with projects that have the potential to significantly impact or have impacted on same population of bats (maternity and hibernation roosts). Note: Natural England is aiming to make available licensing records from the last 5 years publically available.

The open source data search on MAGIC returned a single EPSL application for common pipistrelle ranging between September 2014 and September 2019. This EPSL is located at grid reference NZ274570, 150 m south-west of North Dene Footbridge and the Scheme Footprint. The licence details that it does not impact or damage breeding or hibernation sites but does allow the destruction of a resting place.

Important Advice: locations of other bat mitigation sites that may have significantly impacted or are likely to significantly impact on the same population/s of bats as this application must be shown on Figure B2.2.

C Survey and site assessment (also see section 5 of the Bat Mitigation Guidelines)

C1 Pre-existing information on the bat species at the survey site:

Please undertake a historical data search within a 2km search radius and provide a summary of the results of this search. For example, records from local environmental records centres, local bat groups and previous survey work undertaken at the site is all relevant. Please briefly comment on the results in relation to your project/site

- Should no historical records be found from your search please state this – and specify what searches you undertook.
- Note that you must not include records from National Biodiversity Network (NBN) without first obtaining written permission from the relevant Data Provider.

Desk study data was obtained from Environmental Records Information Centre North East (ERIC NE). Within the 2 km search area conducted by ERIC NE, 115 individual bat records were provided, including common pipistrelle (93), soprano pipistrelle (9), noctule (7) and unidentified pipistrelle species (6). These bats were recorded to be foraging and commuting north, south, east and west of the Scheme Footprint.

C2 Status of the bat species: Detail conservation status at the local, county and regional levels. Please complete the following table, justifying your assessment, and add additional lines where necessary. If the status is unknown then please enter 'unknown'.

Species	Conservation status assessment		
	Local	County	Regional
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	The desk study data shows that common pipistrelle bat is relatively widespread and common at the local level.	Considered to be widespread and common at the County Level.	Considered to be widespread and common. Native. Found across England, Wales, Scotland and Ireland. Since the 1999 baseline, the population in England and has increased significantly (based on smoothed index values) (Bat Conservation Trust, Common pipistrelle trends, to 2016)

* **Please note** that you can add more rows to the table: right click in any cell choose Insert > Insert rows below.

C3 Objectives of the survey to inform this proposal: Please complete the following table, entering 'Yes', 'No' or N/A' to indicate the objective of your survey and provide comments/explanation where necessary:

Survey objective	Yes / No / N-A	Comments
Determine presence / absence of bats	Yes	
Determine bat usage of site (e.g. maternity, hibernation, night roosts in various structures (specify)).	Yes	
Identify foraging, commuting or swarming sites (explain)	N/A	
Other (explain)	N/A	

C4 Site/habitat description: Please provide:

- Brief descriptions of the site, including total size of the development site (ha) (most often within the red line planning boundary) and areas of the site with potential value to bats (ha).

Most of the work is within Highway England's land and the highway boundary. Potential foraging and commuting habitat for bats within the Scheme Footprint includes: woodland, scattered trees, scrub, hedgerows, and poor semi-improved grassland measuring approximately 5.75 ha. However, the Study Area is exposed to disturbance effects from the adjacent A1, which reduces the habitat suitability for bats (Berthinussen and Altringham, 2012). This is considered to create an impact on both the species composition and overall activity levels.

- Brief descriptions of the structures on site, differentiating between **those surveyed** and **not surveyed**, with an explanation why. Ensure structures are referenced and consistently indicated on relevant figures and tables.

In total, eight bridges, two buildings and five trees as well as the trees within two isolated areas of woodland were subject to detailed assessment (trees that had been identified as being suitable to support roosting bats were subject to detailed assessment) and were categorised into the following levels of potential:

- Negligible (screened out) – two bridges (North Dene Footbridge and Longbank Bridleway Underbridge), one tree (T5), one building B1 (semi- detached property) and the trees located within two areas of woodland;
- Low – one tree (T3);
- Moderate – six bridges (Smithy Lane Overbridge, Allerdene Railway Underbridge, Eighton Lodge slip road Underbridge, Eighton Lodge north Underbridge, Eighton Lodge south Underbridge, North Side Overbridge), one building B2 (semi- detached property) and three trees (T1, T2 and T4); and
- High – none.

Building 2 was scoped out due to limited works within the vicinity of the building, which includes installation of acoustic barriers.

Tree T1, Tree T2 and Tree T4 were scoped out of the need for further survey due to their distance from the Scheme Footprint (both in excess of 30 m) and the levels of disturbance from the A1 road which they are already exposed to. This exposure includes light and noise pollution from the A1 (current alignment). Due to Tree T3 having low potential, no further survey effort is required according to good practice guidance (Collins, 2016).

Further emergence surveys were completed on the six bridges found to have 'Moderate' suitability to support roosting bats. Each bridge was subject to at least two separate survey visits including a single dusk emergence and a single dawn re-entry survey to determine if bat roosts are present within the structure. A further emergence survey was completed on Eighton Lodge South Underbridge. This was in accordance with current good practice guidelines (Collins, 2016).

- A description of adjacent areas/offsite habitats, specifying any relevance to bats, including descriptions of habitat/s relevant to bat commuting/foraging behaviour.

The desk study returned one Site of Nature Conservation Importance (SNCI), which is known to support bat roosts. Birtley Northside SNCI lies approximately 250 m west of the southern end of the Scheme Footprint. "Several roosts" of "*Pipistrellus pipistrellus*" were recorded within the citation.

Woodland and hedgerows adjacent to the Scheme Footprint provide connectivity to features within the

wider landscape including foraging and commuting habitat. The adjacent areas are also exposed to disturbance effects from the A1, which reduces the habitat suitability for bats (Berthinussen and Altringham, 2012). This is considered to create an impact on both the species composition and overall activity levels.

The Scheme Footprint has been classified as being of Low habitat suitability and bat activity surveys were undertaken during May, July and October 2017 (spring, summer and autumn), which included walked transect and automated detector surveys. The area covered during the activity survey included areas of suitable bat foraging and commuting habitat within approximately 30 m of the Scheme Footprint.

During the walked transect surveys common pipistrelle, soprano pipistrelle and *Myotis* species were recorded using the habitats within the Study Area for commuting and foraging. Automated detector surveys returned two species of bat, namely common pipistrelle and noctule.

- Please also include annotated (cross reference the structures) and dated photographs (showing both internal and external survey areas) as these are very useful as an assessment aid. These can be inserted below or submitted as a separate (referenced) document.

Please refer to Table 3.1 Bridge Preliminary Roost Assessment Results and accompanying photographs within Appendix A and B of Highways England A1 Birtley to Coal House Scheme Preliminary Roost Assessment.

C5 Field survey(s):

Surveys must be up to date and have been conducted within the current or most recent optimal season. Surveys must be undertaken in accordance with the most up to date edition of the Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists – Good Practice Guidelines* and the *Bat Mitigation Guidelines*.

C5a Justification for surveys that deviate from the best practice guidelines: Please provide full justification below if your surveys deviate from the aforementioned best practice guidelines, confirming how you have obtained a full appreciation of the bat species roosting at the site, and of the type and status of roosts they use on site and in the context of the immediate surrounding area. **Please note that inadequate survey information is likely to cause delays to your licence application and may result in a Further Information Request.**

N/A

C5b Please complete the following tables and add additional lines where necessary (*right click in any cell outside the grey box area. Choose Insert > Insert rows below*). Please enter 'N/A' if the table is not applicable to your survey. Please ensure the information is consistent with Figure **C5b** (showing all buildings, structures and habitats that are within the survey area and distinguishing those that were surveyed and those that were not; indicate where surveyors were located):

Visual inspection

Date of each survey visit (e.g. format 01/06/13)	Structure reference / location	Equipment used (e.g binoculars, endoscope)	Weather – (Include temps, precipitation, Beaufort wind scale etc)
9/11/2017	Bridge structures: <ul style="list-style-type: none"> • Smithy Lane Overbridge; • Allerdene Railway Underbridge; 	An endoscope was used on suitable features, where access allowed, to see within the internal structure of the bridges but the	Start temp:10°C End temp: 10°C Start/End Wind: 1/1 Start/End Rain:0/0

	<ul style="list-style-type: none"> • Eighton Lodge Slip Road Underbridge; • Eighton Lodge North; • Eighton Lodge South Underbridge; • North Dene Footbridge); • Longbank Bridleway Underbridge; and • North Side Overbridge. <p>Refer to Figure C5b (i)</p>	<p>majority of the features could not be accessed closely enough to use an endoscope due to the height of their locations on the bridge.</p> <p>Binoculars</p>	<p>Start/End Cloud cover: 3/3</p>
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Comments (to include # of surveyors used for each visit): 2 WSP Surveyors JF and GB

<p>19/7/2018</p>	<p>Two semi-detached properties, Building B1 and Building B2</p> <p>Refer to Figure C5b (ii)</p>	<p>The assessment of Building B1 and Building B2 was restricted to an external assessment only due to landowner permissions, and therefore a survey of any internal loft voids or similar was not undertaken. A suitable assessment can be made through an external survey only to determine the requirement for further survey effort. As such, it is believed that the assessment remains valid, and a precautionary approach has been adopted where there is uncertainty on the potential value of a building.</p> <p>These buildings were scoped out from further survey due to no likely impact.</p>	
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Comments: 2 WSP surveyors JF and BL			
19/7/2017	Five stand-alone trees and approx. 315 trees within two isolated areas of woodland (Woodlands 1 and 2) were inspected individually in order to identify suitable bat roost features and determine their overall potential for roosting bats. The locations of these trees and woodlands are shown in Figure C5b (iii).		
Comments: 2 WSP surveyors JF and BL			
Comments:			

Please provide surveyors names (*including Class Licence registration number if applicable*) and ensure the above table states the number of surveyors used for each survey visit undertaken.

All of the PRA surveys were undertaken by experienced WSP ecologists, one of whom has a Natural England Class 2 NE (2015-16155-CLS-CLS)

Dusk survey

Date of each survey visit (e.g. format 01/06/13)	Start and end times and time of sunset	Structure reference / location	Equipment used (include make of bat detectors and logging equipment)	Weather – (Include start and end temps, precipitation, Beaufort wind scale etc)
1/05/2018	Start: 20:26 Sunset: 20:41 End: 22:41	Eighton Lodge Slip Road Underbridge	Duet	Start temp: 10 °C End temp: 9.7 °C Start/End Wind: 2/2 Start/End Rain: 1/0 Start/ End Cloud cover: 7/7
Comments (to include # of surveyors used for each visit): 2				
15/5/2018	Start: 20:52 Sunset: 21:07 End: 23:07	Eighton Lodge North Underbridge	Duet	Start temp: 15.1 °C End temp: 14.0 °C Start/End Wind: 0/2 Start/End Rain: 0/0 Start/ End Cloud cover: 8/8
Comments (to include # of surveyors used for each visit): 2				
2/5/2018	Start: 20:28 Sunset: 20:43 End: 22:43	Eighton Lodge South Underbridge	Duet	Start temp: 8 °C End temp: 6.9 °C Start/End Wind:

				3/2 Start/End Rain:0/0 Start/ End Cloud cover: 1/1
Comments: 4 surveyors- Considered to be a valid surveys as active bats were recorded				
30/8/2018	Start:19:47 Sunset: 20:02 End: 22:02	Eighton Lodge South Underbridge	Duet	Start temp: 14 °C End temp: 11 °C Start/End Wind: 1/1 Start/End Rain:0/0 Start/ End Cloud cover: 2/1
Comments: 2. Four surveyors were initially utilised for health and safety reasons and to ensure all features / egress points could be viewed. At the time of the initial surveys it was not clear as to whether surveyors would be at risk from lone working. It was considered that surveyor numbers could be lowered to two surveyors as there was no risk to the team.				
16/5/2018	Start:20:54 Sunset:21:09 End: 23:09	Allerdene Underbridge	Duet	Start temp: 9 °C End temp: 5.3 °C Start/End Wind: 0/0 Start/End Rain:0/0 Start/ End Cloud cover: 0/0
Comments: 4 surveyors Considered a valid survey as even though the start temperatures were one degree lower than standard, high levels of bat activity were recorded				
3/5/2018	Start:20:30 Sunset:20:45 End: 22:45	North side Overbridge	Duet	Start temp: 10 °C End temp: 10 °C Start/End Wind: 3/2 Start/End Rain:0/0 Start/ End Cloud cover:6/7
Comments: 4 surveyors				
17/5/2018	Start:20:55 Sunset:21:10 End: 23:10	Smithy Lane Overbridge	Duet	Start temp: 10 0C End temp: 4 0C Start/End Wind: 1/1 Start/End Rain:0/0 Start/ End Cloud cover: 0/0
Comments: 4 surveyors				

Please provide surveyors names (*including Class Licence registration number if applicable*) and ensure the above table states the number of surveyors used for each survey visit undertaken.

All of the PRA surveys were undertaken by experienced WSP ecologists one of whom has a Natural England Class 2 NE (2015-16155-CLS-CLS).

Dawn survey

Date of each survey visit (e.g. format 01/06/13).	Start and end time and time of sunrise	Structure reference / location	Equipment used (include make of bat detectors and logging equipment)	Weather – (<i>Include start and end temps, precipitation, Beaufort wind scale etc</i>)
16/5/2018	Start: 02:58 Sunrise::04:58 End: 05:13	Eighton Lodge Slip Road Underbridge	Duet	Start temp: 5 °C End temp: 5 °C Start/End Wind: 1/1

				Start/End Rain:0/0 Start/ End Cloud cover: 2/1
Comments (to include # of surveyors used for each visit): 2 surveyors				
2/5/2018	Start:03:25 Sunrise: 05:25 End: 05:40	Eighton Lodge North Underbridge	Duet	Start temp: 8.6 °C End temp: 6.9 °C Start/End Wind: 3/2 Start/End Rain:0/0 Start/ End Cloud cover: 2/1
Comments (to include # of surveyors used for each visit): 2 surveyors				
17/5/2018	Start: 02:56 Sunrise: 04:56 End: 05:11	Eighton Lodge South Underbridge	Duet	Start temp: 5 0C End temp: 6.9 0C Start/End Wind: 3/2 Start/End Rain:0/0 Start/ End Cloud cover: 2/1
Comments (to include # of surveyors used for each visit): 2 surveyors				
3/05/2018	Start: 03:45 Sunrise: 05:23 End: 06:01	Allerdene Underbridge	Duet	Start temp: 6.4 °C End temp: 6.6 0C Start/End Wind: 0/0 Start/End Rain:0/0 Start/ End Cloud cover: 0/0
Comments (to include # of surveyors used for each visit): 2 surveyors				
18/05/2018	Start: 02:54 Sunrise: 04:54 End: 05:09	North Side Overbridge	Duet	Start temp: 10 °C End temp: 10 °C Start/End Wind: 3/2 Start/End Rain:0/0 Start/ End Cloud cover: 7/7
Comments (to include # of surveyors used for each visit):4 surveyors.				
4/05/2018	Start: 03:19 Sunrise: 05:20 End: 05:36	Smithy Lane Overbridge	Duet	Start temp: 7 0C End temp: 7 0C Start/End Wind: 4/3 Start/End Rain:0/0 Start/ End Cloud cover: 8/8
Comments: 4 surveyors				

Please provide surveyors names (including Class Licence registration number if applicable) and ensure the above table states the number of surveyors used for each survey visit undertaken.

All of the PRA surveys were undertaken by experienced WSP ecologists, one of whom has a Natural England Class 2 NE (2015-16155-CLS-CLS).

'Other' survey (please specify e.g. trapping, remote, etc)

Date of each survey visit (e.g. format 01/06/13).	Start and end times	Structure reference / location	Equipment used (include make of bat detectors and logging equipment)	Weather – (Include start and end temps, precipitation, Beaufort wind scale etc)
N/A				
Comments (to include # of surveyors used for each visit):				

Please provide surveyors names (including Class Licence registration number if applicable) and ensure the above table states the number of surveyors used for each survey visit undertaken.

N/A

Please explain any constraints on the survey/s undertaken (time of year, cold weather, refused access, safety issues preventing access etc – justify as necessary and include evidence where required). If access was refused please provide evidence (letter/email) to demonstrate this.

N/A

Also complete the following:

- If DNA analysis of droppings has been undertaken, please indicate below (Yes, No, N/A) and ensure that **Figure C5b** (if applicable – see below) details the locations where the samples were taken. Where long-eared bats are detected but cannot be identified to species level visually, DNA analysis of any droppings will be needed where grey long-eared bats may be present.

N/A

- Please confirm that a walk over survey/check has been carried out within 3 months *prior* to application submission by a suitably experienced ecologist to ensure that conditions have not changed since the most recent survey was undertaken. Provide details of any changes to conditions and habitats and/or structures on site since the surveys were undertaken.

Date of walkover survey/check	This application is to support a NSIP. As such, a survey has been programmed (refer to work schedule) and will be carried out at least 3 months prior to application submission of the final licence to support detailed design.
Details of any changes to conditions and habitats and/or structures, if there are no changes please insert 'None'	N/A until detailed design stage

C6 Survey results: Summarise your findings in the tables below and cross reference to **Figure C6** (which must also include flight lines, access points, dimensions of existing roosts etc). If you did not undertake a specific survey type please add N/A to the relevant table/s. Raw data is to be appended to the Method Statement (including sonograms, DNA analysis results etc).

Roost types to be referenced as: *Day, Night, Feeding Perch, Transitional, Satellite, Maternity, Hibernation confirmed, Foraging Area, Commuting Route, Swarming Site, Other.* See end of document for “Definitions” of these roosts.

When completing “**Notes/observations**” include reference to *direct observations, extent and age of droppings, presence of field signs, emergence or re-entry, echolocation analysis.* Also include DNA results if applicable and include nil results)

Visual inspection results

Date (e.g. format 01/06/13)	Species and numbers	Roost type (to be consistent with the above listed types)	Structure reference (consistent with relevant figures and other text)	Roost location	Access points (include # of them)	Dimensions of existing roosts or explanation of where the roost is (as appropriate)
9/11/2018	NIL	NIL	Bridge structures: Smithy Lane Overbridge; Allerdene Railway	NIL	NIL	NIL

			<p>Underbridge</p> <p>Eighton Lodge Slip Road Underbridge;</p> <p>Eighton Lodge North Underbridge;</p> <p>Eighton Lodge South Underbridge;</p> <p>North Dene Footbridge;</p> <p>Longbank Bridleway Underbridge; and</p> <p>North Side Overbridge.</p> <p>Refer to Figure C5b (i)</p>			
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Notes/observations:

19/7/2017	NIL	NIL	<p>Two semi-detached properties, Building B1 and Building B2</p> <p>Refer to Figure C5b (ii)</p>	NIL	NIL	NIL
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Notes/observations:

19/7/2017	NIL	NIL	<p>Five stand-alone trees and approx. 315 trees within two isolated areas of woodland (Woodlands 1 and 2)</p> <p>Refer to Figure C5b(iii)</p>	NIL	NIL	NIL
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Notes/observations:							
Notes/observations:							

Provide further (brief) comments/explanation if required:

Preliminary roost inspections did not find direct evidence of bat roosts within structures/buildings/trees. Further emergence surveys were completed on the structures of moderate potential (see results below). The buildings and trees were scoped out of further survey as there were no likely impacts.

Dusk survey results

Date (e.g. format 01/06/13)	Start and end times	Species and numbers	Roost type (to be consistent with the above listed types)	Structure reference (consistent with relevant figures and other text)	Roost location	Access points (include # of them)	Dimensions of existing roosts or explanation of where the roost is (as appropriate)
1/5/2018	Start: 20:26 Sunset: 20:41 End: 22:41	0	NIL	Eighton Lodge Slip Road Underbridge	N/A	N/A	N/A
Notes/observations:							
15/5/2018	Start: 20:52 Sunset: 21:07 End: 23:07	0	NIL	Eighton Lodge North Underbridge	N/A	N/A	N/A
Notes/observations:							
2/5/2018	Start: 20:28 Sunset: 20:43 End: 22:43	1 <i>Pipistrellus pipistrellus</i>	Day roost	Eighton Lodge South Underbridge	N/A	1	Roost is under the deck within an expansion joint.
Notes/observations:							
30/8/2018	Start: 19:47 Sunset: 20:02 End: 22:02	0	Day roost	Eighton Lodge South Underbridge	N/A	1	Roost is under the deck within an expansion joint.
Notes/observations:							
16/5/2018	Start: 20:54 Sunset: 21:09 End: 23:09	0	NIL	Allerdene Underbridge	N/A	N/A	N/A
Notes/observations:							
3/5/2018	Start: 20:30 Sunset: 20:45 End: 22:45	0	NIL	North side Overbridge	N/A	N/A	N/A
Notes/observations:							
17/5/2018	Start: 20:55 Sunset: 21:1	0	NIL	Smithy Lane	N/A	N/A	N/A

	0 End: 23:10			Overbridge			
17/5/2018	Start:20:55 Sunset:21:10 0 End: 23:10	0	NIL	Smithy Lane Overbridge	N/A	N/A	N/A

Provide further (brief) comments/explanation if required:

Dawn Survey results

Date (e.g. format 01/06/13)	Start and end times	Species and numbers	Roost type <i>(to be consistent with the above listed types)</i>	Structure reference <i>(consistent with relevant figures and other text)</i>	Roost location	Access points <i>(include # of them)</i>	Dimensions of existing roosts or explanation of where the roost is (as appropriate)
16/5/2018	02:58-05:13	0	NIL	Eighton Lodge Slip Road Underbridge	N/A	N/A	N/A
Notes/observations:							
2/5/2018	03:25-05:40	0	NIL	Eighton Lodge North Underbridge	N/A	N/A	N/A
Notes/observations:							
17/5/2018	02:56-05:11	0	NIL	Eighton Lodge South Underbridge	N/A	N/A	N/A
Notes/observations:							
3/5/2018	03:45-06:01	0	NIL	Allerdene Underbridge	N/A	N/A	N/A
Notes/observations:							
18/05/2018	02:54-05:09	0	NIL	North Side Overbridge	N/A	N/A	N/A
Notes/observations:							
04/05/2018	03:19-05:36	0	NIL	Smithy Lane Overbridge	N/A	N/A	N/A
Notes/observations:							

Provide further (brief) comments/explanation if required:

'Other' results – please specify.

Date (e.g. format 01/06/13)	Species and numbers	Roost type (to be consistent with the above listed types)	Structure reference (consistent with relevant figures and other text)	Roost location	Access points (include # of them)	Dimensions of existing roosts or explanation of where the roost is (as appropriate)
N/A						
Notes/observations:						

Provide further (brief) comments/explanation if required:

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C7 Interpretation/evaluation of survey results (also see the Bat Mitigation Guidelines section 5.8 and Figure 4 for conservation significance of roost type): Please complete the following table:

Structure reference (ensure consistency with other text and Figures)	Species	Count / estimate of number of individuals	Roost location	Site status assessment (e.g. maternity, feeding roost, swarming site, hibernation confirmed etc)	Conservation significance of roost
Eighton Lodge South Underbridge	<i>Pipistrellus pipistrellus</i>	1 bat counted. Estimated 3 or less to be present	Expansion joint under bridge	Day roost	Low

Provide further (brief) comments / explanation if required:

N/A

Important Advice:

Survey maps that must be included in this section of the Method Statement, or as separate documents if preferred, are listed in section 1 "Map checklist" at the end of this document.

Insert survey figures, photographs etc below here if not submitting them as separate documents

D Impact assessment in absence of mitigation or compensation for each species / roost type

(also see section 6 of the Bat Mitigation Guidelines). Where appropriate you must take into consideration cumulative impacts of your proposals on the bat species and populations identified in your survey in each section.

Guidance on quantifying roosts for the purpose of licensing: To be considered the same roost, the locations need to have the same **functional** and **qualitative** (e.g. physical) characteristics, be used by the **same species** for the **same purpose** (e.g. day roosting) and be within the **same building / structure**. If the physical characteristics are different (e.g. one roost is in external crevices in the wall and the other is in the roof void against internal timbers) then they should be considered different roosts - because they offer bats different roosting opportunities. If the physical characteristics are similar and provide the same functional characteristics, used by the same species for the same purpose (e.g. transitional roost) but with different individual roosting locations within the overall building / structure, that could be considered one transitional roost. If two species are using an area which provides the same characteristics, for the same function, it is still two roosts - as there are two species.

D1 Initial impacts: The impact/s of activities undertaken on site pre-development and during works must be considered and explained. **Consider disturbance** (such as human presence, noise, vibration, dust, lighting, access obstruction due to scaffolding and plastic sheeting etc), **temporary damage and temporary loss of roosts and injuring/killing**.

E.g. Unsupervised contractor removing roof tiles has the potential to crush 3 common pipistrelle bats using the roof tiles as day roosts. Major negative impact at a site level; Demolition of an extension to a building will take place adjacent to a maternity roost of common pipistrelle bats situated under the soffit board of the retained building. Potential for significant disturbance if demolition works are undertaken during the maternity period through vibration, noise and dust. Medium negative impact on a local level.

In the absence of mitigation, the proposed bridge widening of Eighton Lodge South Underbridge has the potential to cause permanent loss of a low conservation status day roost for up to three common *P. pipistrellus* bats, as well as potentially resulting in the killing and/or injury of individual bats.

Confirm number of roosts to be damaged: 1 low conservation roost of up to three *P. pipistrellus* bats.

D2 Long-term impacts: Consider and explain the impacts of the proposed works on the different species populations at a site, local, regional, and national level.

D2.1. Roost modification: e.g. changes to roosts/access points, new entrances (including human access e.g. for servicing/maintenance etc), change in size of roost space, changes in air flow, temperature and humidity, light etc. Please detail the access points into each roost and the type/s of roosts which will be modified.

E.g. Non-mitigated changes to the roof structure, which requires replacing, will lead to the modification of 3 access points into a common pipistrelle maternity roost which will result in bats being unable to enter or exit the roost. Moderate negative impact on a local level.

No roosts will be modified

Confirm number of roosts to be modified: N/A

D2.2. Roost loss: Loss or deterioration of roosting sites, access points, habitat, etc must be considered. Please detail the access points into each roost and types of roost/s which will be lost.

E.g. Demolition of building reference X in June will lead to the loss of a night roost in the porch used by 1 lesser horseshoe bat and the loss of a maternity brown-long eared bat roost in the loft space. This will lead to the death and/or injury of bats including dependent young and permanent destruction (loss) of both roosts. Moderate negative impact at a site level for lesser horseshoe bats and moderate negative impact at a local level for brown-long eared bats.

In the absence of mitigation, the proposed bridge widening of Eighton Lodge South Underbridge has the potential to cause the permanent loss of one low conservation status roost of up to three common *Pipistrellus pipistrellus* bats. This will be a minor negative impact at the site level for *Pipistrellus pipistrellus* bats.

Confirm number of roosts to be destroyed: 1 low conservation status day roost

D2.3. Fragmentation and isolation: Will the proposed works results in these impacts? E.g. loss of linear features such as hedges, tree lines, increased lighting, severance of flight lines by roads/rail lines, separation of breeding/hibernation sites from feeding grounds, etc.

E.g. In addition to the removal of common pipistrelle day roosts in trees along the proposed road, removal of hedgerows, shown on Figure D, and the construction of the new road will fragment a significant commuting and foraging route for a lesser horseshoe maternity roost. This may cause a reduction in the long term success of the breeding colony of lesser horseshoes by restricting existing foraging range or killing bats on the road. Potentially major negative impact at a site and local level.

In addition to the loss of a low conservation roost, the bridge widening will cause an increase in severance effects from the bridge to include: increasing the open distance between habitat available either side of the bridge, change/increase in light and noise distribution). However, *P. Pipistrellus* bats are not considered to be significantly impacted by these potential effects.

Woodland strips will be maintained surrounding the bridge location.

D3 Post-development interference impacts: e.g. extra street lighting or other external lighting, use of loft space as storage, increased noise. Please also consider other direct or indirect post development impacts which may include disturbance/ injuring/killing.

E.g. Security lighting being installed will shine on the brown-long eared bat maternity roost access points which may affect emergence patterns and lead to a reduction in foraging times. This may cause a reduction in the long term success of the breeding colony or cause the roost to be abandoned. Moderate to high negative impact at a site and local level.

The widening of the road by an additional lane on either side of the A1 is likely to increase the distribution area of disturbance effects of the road (noise, light spill) potentially affecting species composition and activity levels. However, *P. Pipistrellus* bats are not considered to be significantly impacted by these potential effects.

D4 Predicted scale of impact of this development/activity on species status (also see section 6.5 of the Bat Mitigation Guidelines and the BCT's Bat Survey Good Practice Guidelines): Please complete the following table to explain what this is likely to be at the site, local/county and regional levels for each roost type and species. Add additional lines when necessary

Roost types to be referenced as: Day, Night, Feeding Perch, Transitional, Satellite, Maternity, Hibernation confirmed, Foraging Area, Commuting Route, Swarming Site, Other.

Species and Numbers (which will be affected at the time works will be undertaken)	Roost type	Predicted scale of impact (<i>place X in relevant column</i>)			Notes (include impact on roost – damage / destruction /modification etc)
		Site	County	Regional	
Up to 3 <i>Pipistrellus pipistrellus</i> bats	Low Status Day	X			Eighton Lodge South Underbridge

****Please note** that you can add more rows to the table: right click in any cell outside the grey box area. Choose Insert > Insert rows below.

Provide further comments/explanation as required (this helps understand how the impacts will be mitigated or compensated for when assessing section E):

The low number of bats using the Eighton Lodge South Overbridge and the likelihood of other suitable day roosts in the wider area (demonstrated through desk study data), mean that the impacts will not affect *Pipistrellus pipistrellus* at more than a Site level.

Important Advice:

Please ensure that a separate 'Impact map' is provided ([Figure D](#)) which must show all structures or habitats (clearly referenced) that will be disturbed, damaged or destroyed, detailing where the roosts and access points are etc. Also see section I "Map checklist" at the end of this document.

E Mitigation and Compensation (please also see section 7 and 8 of the Bat Mitigation Guidelines)

E1 Please explain why this design was chosen over other potential solutions - set out what other designs were considered and why they were not feasible (e.g. if the proposal is to construct a new stand-alone roost, explain why it is not possible to retain the roost in the existing structure etc). The mitigation solution

being proposed in the method statement should be the one that delivers the 'need' with the least impact on the bat population.

It is assumed that permanent loss of roost will be required at this stage. Temporary loss of roost will be explored during detailed design.

E2.2 Capture and release (if applicable):

Please confirm that you agree to undertake the following procedures for the capture and exclusion of bats, where these are applicable:

- a. The use of endoscopes, artificial light from torches, destructive search by soft demolition (see Definitions), temporary obstruction of roost access, temporary or permanent exclusion methods (including installation) and use of static hand held nets must only be undertaken or directly supervised by the Named Ecologist, or an Accredited Agent.
- b. Where capture and/or handling of bats are necessary, only the Named Ecologist, Accredited Agent, or an Assistant directly supervised by the Named Ecologist may do so. Capture/handling/exclusion of bats must only be undertaken in conditions suitable for bats to be active.
- c. Where bats are discovered and taken (excluding unexpected discoveries during adverse weather conditions) they must either be relocated to an alternative roost (see Definitions) suitable for the species, or where bats are held this must be done safely and bats released on site at dusk in, or adjacent to, suitable foraging/ commuting habitat in safe areas within or directly adjacent to the pre-works habitat.
- d. Endoscopes and hand held nets are only to be used to assist with the locating and capture of bats.
- e. Temporary and permanent exclusion must be carried out using techniques specified in the most up to date edition of the *'Bat Workers Manual'*. If one-way exclusion devices are to be used, each device must remain in position for a period of at least 5 consecutive days/ nights throughout a spell of suitable weather conditions, or remain longer until these conditions prevail.
- f. Prior to destructive works, an inspection using torches and/or an endoscope must be performed internally to search for the presence of bats. If any licensed vesper bat species is found and is accessible, each will be captured by gloved hand or hand-held net, given a health check and then each placed carefully inside a draw-string, calico cloth holding bag or similar for transport. If any licensed horseshoe bat species is found, the capture methods outlined in (h) will only be used after it has been shown that overnight dispersal or exclusion are no longer practicable methods.
- g. Following inspection and exclusion operations, the removal of any feature with bat roost potential, will be only performed by hand in suitable weather conditions and under direct ecological supervision. Where applicable, materials will be removed carefully away and not rolled or sprung to avoid potential harm to bats. The undersides of materials will be checked by the Named Ecologist or Accredited Agent for bats that may be clung to them before removal.
- h. For sites where the presence of horseshoe species has been confirmed, the following exclusion method will be used: prior to work commencing, the Named Ecologist or Accredited Agent will conduct a thorough internal inspection for the presence of horseshoe bats. Only after the void is shown to be unoccupied will the destructive search commence, or all apertures into that void be closed and sealed (windows, doors, etc) by use of boarding, sealed tarpaulin or similar.

If a horseshoe bat is encountered, it will be left undisturbed during daylight. After all bats have dispersed overnight, the void will be sealed as described above. If all bats have not emerged, the Named Ecologist will either use torchlight and non-tactile human presence to disturb the bat to encourage it to emerge and disperse, during night only, or through use of a hand held net. Only after all bats have emerged from the building or void will it be sealed.

Yes, I agree / No, I don't agree

Yes

If NO, please provide justification below. Please use this text box to describe any additional information on protocols to be employed if bats are found during works. Non-standard capture and exclusion apparatus must be shown on **Figure E2**.

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Should your proposals include capture (taking) please specify numbers of each species that will be affected at the time the works are to be undertaken:

Species	Expected number of bats to be captured at the time works will be undertaken. <i>Note: this may be different to the number of bats using the roost at its optimum time as timings for works will be at a time when bats are least likely to be present.</i>
<i>Pipistrellus pipistrellus</i>	Up to 3 bats

** Please note that you can add more rows to the table: right click in any cell outside the grey box area. Choose Insert > Insert rows below.

E3 Bat roost and access point retention, modification and creation: Please detail how all impacts to each species (as identified in sections C and D) will be mitigated. If not applicable to your proposals please state 'N/A' in the relevant text boxes.

Please note that breathable roofing membranes must not be installed into a roof used by bats. If the use of roof membranes is necessary, only Bitumen type 1F felt with a hessian matrix will be permitted under licence:

N/A

E3.1 Retention of existing roost(s) – Works may include, for example, maintenance works that result in no material changes to the roost but may cause disturbance or temporary damage e.g. temporary exclusion of a roost to allow investigative and repair works to a bridge. Provide details of all works including:

- Number and description of roosts to be retained, with an explanation of how they will be retained. Confirm dimensions to be retained.

N/A

- Number of access/entrance points to be retained and how this will be achieved. If enhancements to the roosts will be provided, such as through crevice provision, please detail.

N/A

- Mitigation for any other impacts e.g. new lighting at the site.

N/A

E3.2 Modification of existing roost(s) - Works may include, for example, reduction in roof void height, change of tiles and roof lining (stating the type of membrane that will be used), alteration of access point through replacement of soffits etc. Please provide the following:

- Dimension details of modified roosts: clearly state what the original roost dimensions were and what the dimensions of the modified roost will be.

N/A

- Dimension details of modified access points: clearly state how the access points are being modified.

N/A

- Details of any other modifications to be made to roosts.

N/A

- Mitigation for any impacts of lighting on the modified roost/s if appropriate.

E3.3 New roost creation (including bat houses, cotes and bat boxes etc).

Note – creation of compensation for high impact cases (e.g. loss of a maternity roost) must be protected in the long term. Any bat boxes or roost structures that are part of a licence proposal which do not show signs of bats must be retained for a minimum of 5 years from date of completion of the development/works. Typically this will be around 5 years for low conservation status roost compensation (e.g. bat boxes) and longer for other significant roosts (e.g. bat houses, lofts etc). The exact time period will be specified in any licence issued. For high conservation status roost loss, the compensation roost/s must still be protected in the long term by another means (such as a s106 agreement), which is particularly important if the structure is likely to change ownership.

E3.3a Please complete the table below for the species and roost types listed. For all other species and roost types please provide information under **E3.3b**.

Species & Roost type for which new roost creation will be provided	New roost creation		
	Compensation Feature	Quantity	Location of Compensation Feature (as shown on Figure E3)
<p>Select 'yes' for those species impacted or 'N/A' if not applicable to this application</p>	<p>Compensation should be in line with the <i>Bat Mitigation Guidelines</i>. Where compensation is being provided, there should be at least one compensation feature, suitable for the species concerned, per roost and per species to be impacted, OR If a proposal impacts more than one bat species and / or roost type then cumulative impacts must be considered when designing the compensation; this should always be in line with the species and / or roost type which will be subject to the greatest impact and ensure that the requirements of all species impacted are met.</p>		
<p>Common pipistrelle <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A</p> <p>Day roost Night roost Feeding Transitional/Occasional</p>	<input checked="" type="checkbox"/> Bat box <input type="checkbox"/> Integrated bat box/ bat brick/ bat tube <input type="checkbox"/> Bat tile (including ridge tile) <input type="checkbox"/> Other (specify): <input type="checkbox"/> None	4	<input checked="" type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input checked="" type="checkbox"/> Other (specify): on trees/poles on site
<p>Soprano pipistrelle <input type="checkbox"/> Yes <input type="checkbox"/> N/A</p> <p>Day roost Night roost Feeding Transitional/Occasional</p>	<input type="checkbox"/> Bat box <input type="checkbox"/> Integrated bat box/ bat brick/ bat tube <input type="checkbox"/> Bat tile (including ridge tile) <input type="checkbox"/> Other (specify): <input type="checkbox"/> None		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):
<p>Whiskered <input type="checkbox"/> Yes <input type="checkbox"/> N/A</p> <p>Day roost Night roost Feeding Transitional/Occasional</p>	<input type="checkbox"/> Bat box <input type="checkbox"/> Integrated bat box/ bat brick/ bat tube <input type="checkbox"/> Bat tile (including ridge tile) <input type="checkbox"/> Other (specify): <input type="checkbox"/> None		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):
<p>Brandt's <input type="checkbox"/> Yes <input type="checkbox"/> N/A</p> <p>Day roost Night roost Feeding Transitional/Occasional</p>	<input type="checkbox"/> Bat box <input type="checkbox"/> Integrated bat box/ bat brick/ bat tube <input type="checkbox"/> Bat tile (including ridge tile) <input type="checkbox"/> Other (specify): <input type="checkbox"/> None		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):

Daubenton's <input type="checkbox"/> Yes <input type="checkbox"/> N/A <i>Day roost</i> <i>Night roost</i> <i>Feeding</i> <i>Transitional/Occasional</i>	<input type="checkbox"/> Bat box <input type="checkbox"/> Integrated bat box/ bat brick/ bat tube <input type="checkbox"/> Bat tile (including ridge tile) <input type="checkbox"/> Other (specify): <input type="checkbox"/> None		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):
Natterer's <input type="checkbox"/> Yes <input type="checkbox"/> N/A <i>Day roost</i> <i>Night roost</i> <i>Feeding</i> <i>Transitional/Occasional</i>	<input type="checkbox"/> Bat box <input type="checkbox"/> Integrated bat box/ bat brick/ bat tube <input type="checkbox"/> Bat tile (including ridge tile) <input type="checkbox"/> Other (specify): <input type="checkbox"/> None		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):
Brown long-eared <input type="checkbox"/> Yes <input type="checkbox"/> N/A <i>Day roost</i> <i>Night roost</i> <i>Feeding</i> <i>Transitional/Occasional</i>	Note: boxes for this species will only be acceptable in certain circumstances, where this is justified on an ecological basis <input type="checkbox"/> Bat box, justification <input type="checkbox"/> Other (specify): <input type="checkbox"/> None		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):
Serotine <input type="checkbox"/> Yes <input type="checkbox"/> N/A <i>Day roost</i> <i>Night roost</i> <i>Feeding</i> <i>Transitional/Occasional</i>	Note: bat boxes are not suitable for this species. Compensation should replicate, as closely as possible, the existing roost: <input type="checkbox"/> Bat tile <input type="checkbox"/> Bat brick <input type="checkbox"/> Other (specify):		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):
Lesser Horseshoe <input type="checkbox"/> Yes <input type="checkbox"/> N/A <i>Day roost</i> <i>Transitional/Occasional</i>	A proportionate number of bat features suitable for the species. The provision of one feature, suitable for the species concerned (eg void) per roost to be impacted will be considered appropriate: Specify:		<input type="checkbox"/> In same building <input type="checkbox"/> In other existing building on site <input type="checkbox"/> In new building <input type="checkbox"/> Other (specify):

E3.3b For all species and roost types not covered in the above table please provide the following:

- New roost dimension details or features (to include bat tiles/boxes as applicable).

Four tree mounted boxes (two per tree) or pole mounted 'woodcrete' bat boxes: (Schwegler 1F or similar), to provide roosting opportunities during the widening of the bridge at Eighton Lodge South Underbridge.

These features would be installed prior to any works commencing and remain in place for a minimum of five years and can only be removed after this time should there be no evidence of use during this period. However, it is recommended and assumed that these features are permanent to provide ecological enhancement and opportunities for roosting bats over an extended period.

Post construction there will be inclusion of suitable bat features within the retained bridge, including 2 mounted bat boxes (Schwegler bat access panel 1 FE with optional back plate for 1FE or similar).

It will be ensured that there is no lighting onto the bat boxes.

- Access points and size of access points.

N/A as per bat box numbers

- Location details (including an 8-figure grid reference for bat houses or bat lofts relating to the structure. 8-figure grid references are not required for positions of individual boxes, tiles etc).

Location to be determined at detailed design stage. The tree/ pole mounted boxes would be erected as close to the bridge as possible, however, this will be restricted by land ownership. Additionally, this would be determined via the areas of retained habitats, to ensure that there is sufficient coverage to increase the likelihood of use of the bat boxes.

The location of the bridge mounted bat boxes would be determined at detailed design stage to allow flexibility in design. The boxes would be placed in the least exposed location possible, at a sufficient height and as close to retained habitats and commuting routes as possible.

- Aspect. Explain how the internal conditions of the roost will be created.

Up to two Schwegler 1 FE bat boxes will be placed in varying directions on the new bridge structure.

- Details of the materials to be used e.g. timber, sarking, felt etc.

The material of both the 2F and 1FE Schwegler boxes is woodcrete. A hanger and aluminum tree friendly nail will be used.

- Justification for any variation from the original roost and/or deviations from recommendations in the Bat Mitigation Guidelines. (*Diagrams of widely available standard bat box designs are not required; just refer to bat box name and reference number, e.g. Schwegler 1FF*).

N/A

- Mitigation for any impacts of lighting if appropriate.

These boxes will be erected in areas where there is low to no light impact.

- Structures for access for monitoring / maintenance purposes (if applicable)

These boxes have been chosen as require no maintenance and will be erected at least 3 m so they can be accessed by a ladder for inspection but are out of reach of potential vandalism.

E3.4 Other habitat re-instatement or creation (e.g. retention of existing flight lines, retention or creation of appropriate vegetation around roost entrances where applicable) – please include details of:

- Habitat replacement (following works resulting in temporary impacts) or creation not covered by sections E2 to E3 such as hedgerow/woodland planting or enhancement. State the length of hedgerow planting and areas (ha) of other planting to be provided such as woodland and anticipated establishment period etc.

Habitat creation in and around the bridge will include woodland and scattered trees.

- Creation of flight lines/routes of connectivity.

The habitat creation will link to retained woodlands to the north and south of the Scheme Footprint, which have been further enhanced by the creation of woodland strips along the length of the Scheme Footprint.

- Foraging area enhancements, etc

Habitat creation within the wider extent of the Scheme Footprint includes the creation of further woodland, tree lines grassland habitats and waterbodies. Native species will be utilised within the planting plan.

- Mitigation for any impacts of lighting if appropriate.

To reduce the disturbance to fauna and flora, throughout the Scheme Footprint:

- At detailed design a suitable lighting strategy would be developed for implementation across the Scheme Footprint in accordance with industry standards and good practice guidance on lighting with regards to protected species. This would include:
 - Avoidance of artificial lighting of watercourses, particularly during the hours of darkness.
 - Avoidance of light spill using directional and or baffled lighting.
 - Positioning of lighting columns away from habitats of value to foraging and commuting bats (hedgerows, trees, woodland).
 - Reducing the height of lighting columns to reduce light spill onto adjacent habitats;
 - Avoid use of blue-white short wavelength lights and high UV content.
 - The lighting strategy would be developed based on guidance for lighting with regards to protected species.

E3.5 Wider biodiversity gains:

Please indicate if enhancements, over and above what is necessary to mitigate the impact of the activity of the licence proposal, are being provided. Please indicate if enhancements are included to satisfy the requirement of a planning permission, and if so state the relevant planning condition, or other consents in your response below. Please also state if an applicant wishes to provide more than is typically required to mitigate for the impacts. Enter N/A if this is not applicable to your application.

Note: Any licence granted will only cover mitigation and compensation required to fulfill licensing requirements, but will acknowledge additional biodiversity enhancements.

N/A

Important Advice:

Scaled maps/plans of mitigation/compensation must be provided as separate maps/figures (also **see section I "Map checklist" at the end of this document**):

- **Figure E2** if non-standard capture and exclusion apparatus is proposed please include diagrams/photographs.
- **Figure E3** to show specifications for mitigation / compensation to be provided and annotate where it will be provided. Should the scheme be large or complicated it may be necessary to submit more than one figure.

NOTE: It must be possible to compare these with the survey results plan (**Figure C6**) and 'Impacts' Figure (**D**).

E4 Post-development site safeguard: Further guidance and explanation on post-development monitoring requirements are included within our 'How to get a licence' document http://www.naturalengland.org.uk/Images/wml-g12_tcm6-4116.pdf. Also see Section 8.7 of the Bat Mitigation Guidelines.

E4.1 Habitat/site management and maintenance: Is any specific post-development habitat management and site maintenance planned? If 'No; state 'N/A'. If 'Yes' include the following:

- The period (years and months) for which habitat management and maintenance will take place. Ensure that this is consistent with the post development works detailed in section **E5b** of the **Work Schedule document, WML-A13-a-E5a&b**.

N/A

- Details of what will be undertaken in terms of site maintenance required to ensure long-term security of the affected population (e.g. maintain, repair or reinstate access points; maintain and repair heaters and

/or data loggers; maintain, repair or restore bat feature / bat loft in good condition; repair or replace inspection hatches; management and maintenance of lighting regime, or bat boxes etc).

N/A

- Details of what will be undertaken in terms of habitat management (e.g. planting cover around roost structure, hedgerow management regime, checking establishment of habitat creation; reduction of shade around roosts, woodland management to maintain species and structural diversity etc). Ensure this relates to the relevant map.

N/A

Note – for phased or multi-plot developments a separate habitat management and maintenance plan is required, which must be submitted with the master plan: see guidance on phased developments.

Important Advice:

Please include **Figure E4** as a separate figure to show which structures and habitats will be managed, maintained and monitored post development as part of your proposal – also see *section 1 "Map checklist" at the end of this document*).

E4.2 Population monitoring, roost usage etc: This should be in line with the monitoring requirements detailed in the Bat Mitigation Guidelines section 8.7 and Figure 4.

E4.2a Please complete the table below for the species and roost types listed. For all other species and roost types please provide information under E4.2b.

Species	Roost type	Post-development monitoring requirement
Common pipistrelle Soprano pipistrelle Whiskered Brandts Daubenton's Natterer's Brown long-eared	<i>Day roost</i> <i>Night roost</i> <i>Feeding</i> <i>Transitional/Occasional</i>	<input checked="" type="checkbox"/> None. There is no post-development requirement for proposals affecting bat roosts supporting up to any 3 species indicated, of the roost types listed, where they are used by low numbers of each species. <input type="checkbox"/> A single presence / absence survey at an appropriate time of year is to be undertaken. This should not take place in the first year following completion of development. Timing (year): <input type="checkbox"/> Other (specify):
Serotine	<i>Day roost</i> <i>Night roost</i> <i>Feeding</i> <i>Transitional/Occasional</i>	<input type="checkbox"/> A single presence / absence survey at an appropriate time of year is to be undertaken. This should not take place in the first year following completion of development. Timing (year): <input type="checkbox"/> Other (specify):
Lesser Horseshoe	<i>Day roost</i> <i>Transitional/Occasional</i>	<input type="checkbox"/> A single presence or absence survey at an appropriate time of year to be undertaken in year 2 post development plus a check of the condition and suitability of the roost. <input type="checkbox"/> Other (specify):

E4.2b For all species and roost types not covered in the above table please include details of:

- Timing – state the years and months post development monitoring or other will be undertaken. Ensure that is consistent with the post development works detailed in section **E5b** of the **Work Schedule document WML-A13-a-E5a&b**.

N/A

- The type of monitoring which will be undertaken – include survey methods and equipment to be used. If it is expected any bats are to be taken or disturbed during this period please state anticipated numbers per species against each licensable activity.

N/A

- Specify which compensation/mitigation measures will be subject to monitoring (as referenced on Figure E4).

N/A

Please note that it will be a requirement of the licence to undertake remedial action should monitoring identify that further management/maintenance is required of any compensation/mitigation provided, to ensure that mitigation/compensation measures are working effectively and are fit for purpose.

Important advice: Please always consider whether any *post development* monitoring effort should be staggered over alternate years in cases where use of the compensation measures may not occur in the same year of provision.

E4.3 Mechanism for ensuring safeguard of mitigation/compensation and post-development management, maintenance and monitoring works:

Please explain what mechanism is in place to ensure safeguard of mitigation/compensation provisions (e.g. Restrictive Covenant, clause to relinquish future development rights in S106 agreement, NERC Act agreement, explicit recognition of site in local planning documents, designation as County Wildlife Site or similar.) The need for this, and the type of mechanism, will vary with the scheme and impact. For substantial impact schemes (e.g. destruction of a significant maternity roost, or important hibernation site), some mechanism is always required. If you offer no specific mechanism, explain how you believe the population will be free of threats as far as can be reasonably determined (**the expectation of the granting of a licence should not be used for this purpose**).

No specific mechanism is considered necessary to safeguard the mitigation measures as part of this Scheme, as this will be secured via the DCO application.

The mitigation measures (4 x Bat boxes on trees within the soft estate and 2 bat boxes on Eighton Lodge South Underbridge) will be installed on Highways England land and will be registered within the Health and Safety File post construction for the sites operation and maintenance. This will state that these features will remain in place for a minimum of five years and can only be removed after this time should there be no evidence of use during this period. However, it is recommended that the features are permanent to provide ecological enhancement and opportunities for roosting bats over an extended period.

Explain how all post-development works (management, maintenance (including remedial action) and monitoring, as appropriate) will be ensured? Include a commitment that the monitoring, habitat management and maintenance work will be undertaken. Mechanism/s for ensuring delivery must be in place before applying for a licence (also see Section F).

N/A

E5 Timetable of works: Please complete the **work schedule document WML-A13-a-E5a&b found on the 'bat' application form web page and append to your application pack.**

Important Advice: Please note that from end of March 2014 a separate work schedule is a mandatory requirement to support a new bat licence application when using this template.

F Declarations

If the mitigation/compensation area/s is/are not owned by the applicant, you must have consent from the relevant land owner(s). You must have also secured details of how any measures to maintain the population in the long term will be achieved (e.g. a legal agreement).

F1 Declaration Statement(s) – You must include the following declarations within your Method Statement and include the appropriate answer (Yes/No/Not applicable):

F1.1 Re: section E1 - I confirm that relevant landowner consent/s has/have been granted to accept bats into roosts or access into roosts on land outside the applicant's ownership:

Yes

F2.2 Re: section E2 - I confirm that landownership consent/s has/have been granted to allow the creation of the proposed compensation on land outside the applicant's ownership

Yes

F2.3 Re: section E3 - I confirm that consent/s has/have been granted by the relevant landowner/s for monitoring, management and maintenance purposes on land outside the applicant's ownership

Yes

Comments if applicable:

N/A

Important Advice:

Unsecured consents statement:

If you have been unable to secure consents for any of the three declarations please explain why and detail any plans you have in place to obtain the consent(s) or provide details of any right(s) or agreement(s) that will enable the lawful implementation of the proposed mitigation, compensation and monitoring. Failure to provide the appropriate landowner consents means that the Method Statement is unlikely to meet the requirements for the FCS test to be met. It is therefore in your interest to ensure that the appropriate consents have been secured *before* applying for a licence.

G References: List any references cited, and include credits for source information.

H Annexes (supporting documents please append to your application pack)

H1 Pre-existing survey reports;

H2 Raw survey data.

I Check list of figures to be submitted with each Bat Method Statement

With your Method Statement and supporting documents please submit the following maps/figures – see table below. Note that some can be included within the Method Statement itself (if preferred) and others must be submitted individually (i.e. separate documents). Maps/Figures must include the title, site name as referenced on your application form, date and figure reference. If a grid reference is more applicable (e.g. a bat house is being provided please included this). Include a scale bar (appropriate to the situation e.g. 100m on site maps, 1km on location maps) and direction of North etc.

Additional maps, photographs or diagrams should be included where necessary to adequately explain the scheme.

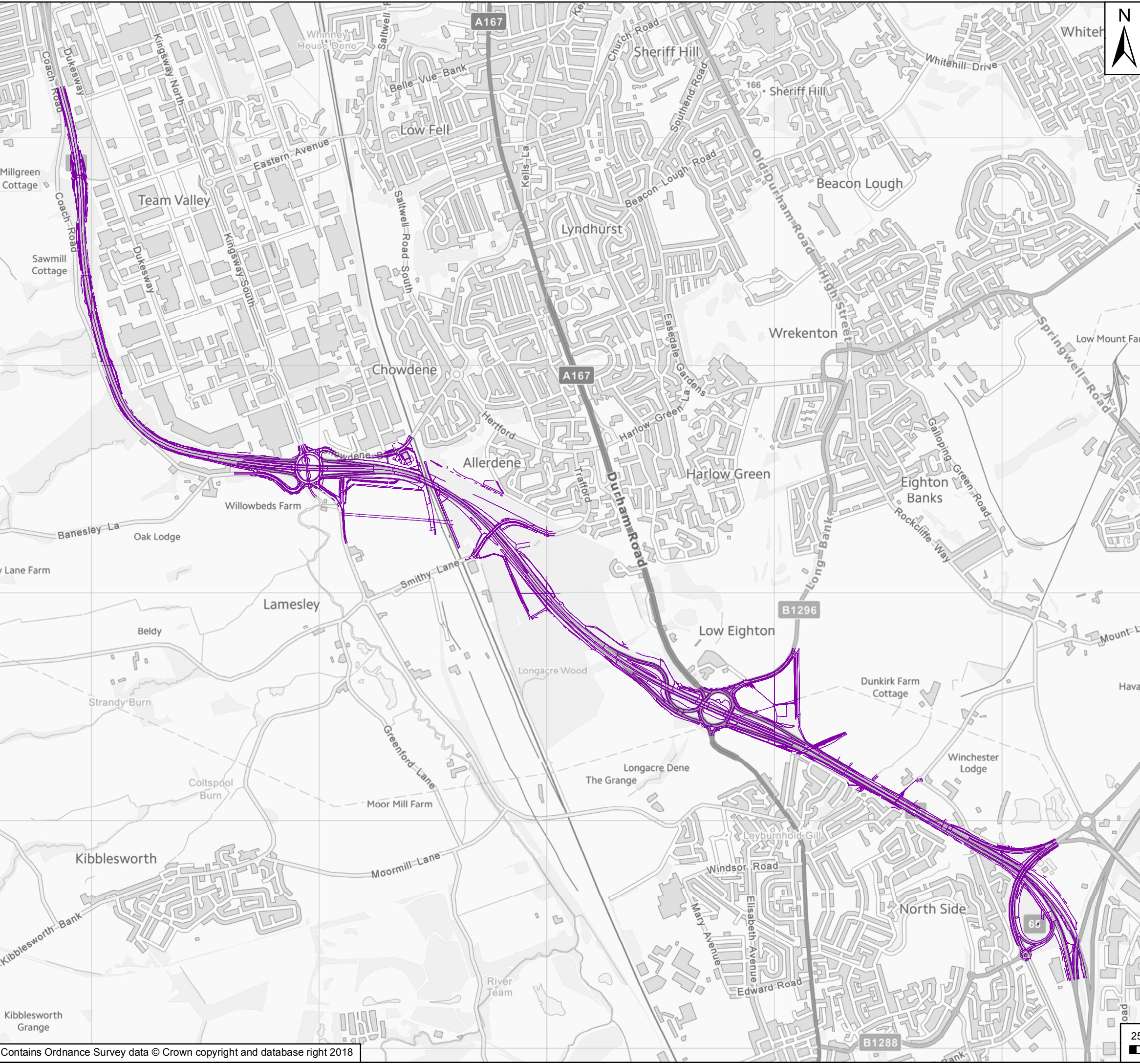
Figure reference	Mandatory as will be included in the annexed licence, if applicable	Mandatory for assessment purpose only, but will not be included in the annexed licence	What it must show (also see details above on site reference, dating and naming).
Figure B2.1	-	Yes, if the application is part of	Master plan overview- note – this is not the same as a master plan document, for which you should

		a phased or multi-plot development	follow the guidance as stated in section B2.1.
Figure B2.2	-	Yes, if applicable	Locations of other nearby bat licensed sites, or sites which will be impacted on by future development.
Figure C5a	-	Yes	Location map at an appropriate scale for the application (often 1:50,000 or 1:25,000)
Figure C5b	-	Yes	Survey area showing all buildings, structures and habitats that are within the survey area and distinguishing those that were surveyed and those that were not. Indicate where surveyors were located. Aerial photographs should be provided where possible (ensure you have permission to use copy righted maps). If automated detectors were used or transect routes, ensure that these are indicated as appropriate.
Figure C6	-	Yes	Survey results - provide clear, annotated and cross-referenced maps/plans/photographs to show the survey results (access points, location of roosts, flight lines, results of activity surveys where DNA samples were taken etc). Ensure Figure is at a suitable scale to show the results.
Figure D	Yes	-	Impacts plan – map/figure which must show all structures or habitats (clearly referenced) that will be disturbed, damaged or destroyed, detailing where the roosts and access points are.
Figure E2	Yes – but only if applicable to the application	-	Non-standard capture and exclusion apparatus. If these are proposed please include diagrams/photographs.
Figure E3	Yes	-	Specifications for mitigation / compensation (including all dimensions for bat lofts/houses/stand-alone structures and materials to be used etc and 8-figure grid reference). Mitigation / compensation (must show all habitat creation, restoration, boxes). It may be necessary to submit more than 1 figure if the proposal is large or complicated.
Figure E4	Yes – when monitoring and maintenance will be included in the licence	-	Monitoring, management and maintenance map. Please indicate the specific structures and habitat that are to be managed, maintained and monitored as part of this licence proposal. Ensure that they are correctly referenced and are consistent with other parts of the Method Statement and figures.

Definitions of roost types to be included in the application (further detail can also be found in the Bat Mitigation Guidelines and the BCT’s “Bat Surveys Good Practice Guidelines”):

- a. **Day roost:** a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
- b. **Night roost:** a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.
- c. **Feeding roost:** a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.
- d. **Transitional / occasional roost:** used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
- e. **Swarming site:** where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites

- f. **Mating sites:** sites where mating takes place from later summer and can continue through winter.
- g. **Maternity roost:** where female bats give birth and raise their young to independence.
- h. **Hibernation roost:** where bats may be found individually or together during winter. They have a constant cool temperature and high humidity. Sites where hibernating bats have been confirmed by appropriate survey effort should be classed as '**hibernation confirmed**'.
- i. **Satellite roost:** an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.
- j. **Other** – please explain what the roost type is if not one of the above (we recognise that roost types are interchangeable and not always easy to classify according to the nuances of certain species).
- k. An '**alternative roost**' shall include: a purposely installed bat box; an existing roost which will not be impacted by the works; or other new/enhanced roosting opportunities. Any alternative roost must be suitable for the species, within or close to the existing roost and free from additional disturbance or development pressure.



Key

Proposed Scheme Footprint



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--



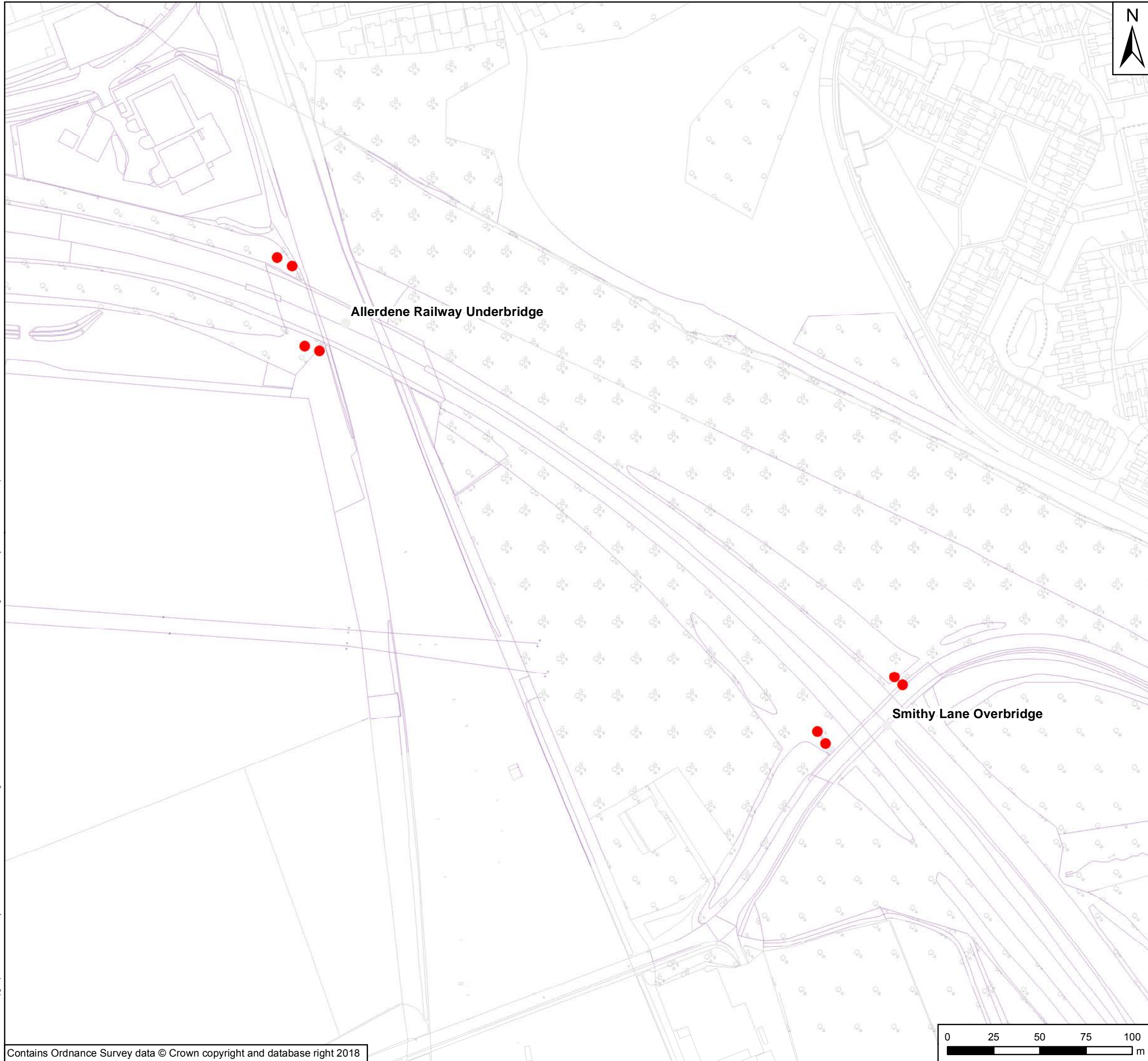
Project Title: A1 Birtley to Coal House Improvement Scheme

Drawing Title: Figure 1: Proposed Scheme

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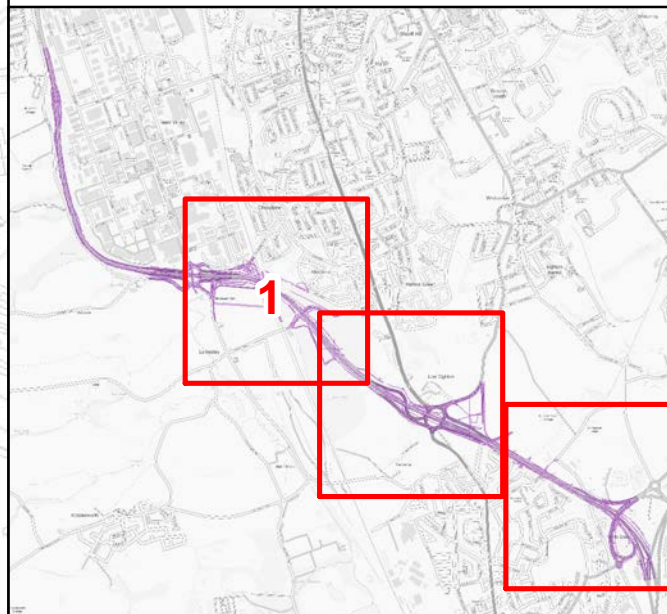
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Suitability: S1

Drawing Number: TR010031	Originator: WSP	Volume:	Project Ref. No.: 7004197
Revision: P01			



- Key**
- Roost
 - Surveyor Location
 - Scheme Footprint

Please note the surveyor locations are indicative. Where locations appear to be on an overbridge, surveyors were located beneath the overpass.



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--

Client



Project Title
A1 Birtley to Coal House Improvement Scheme

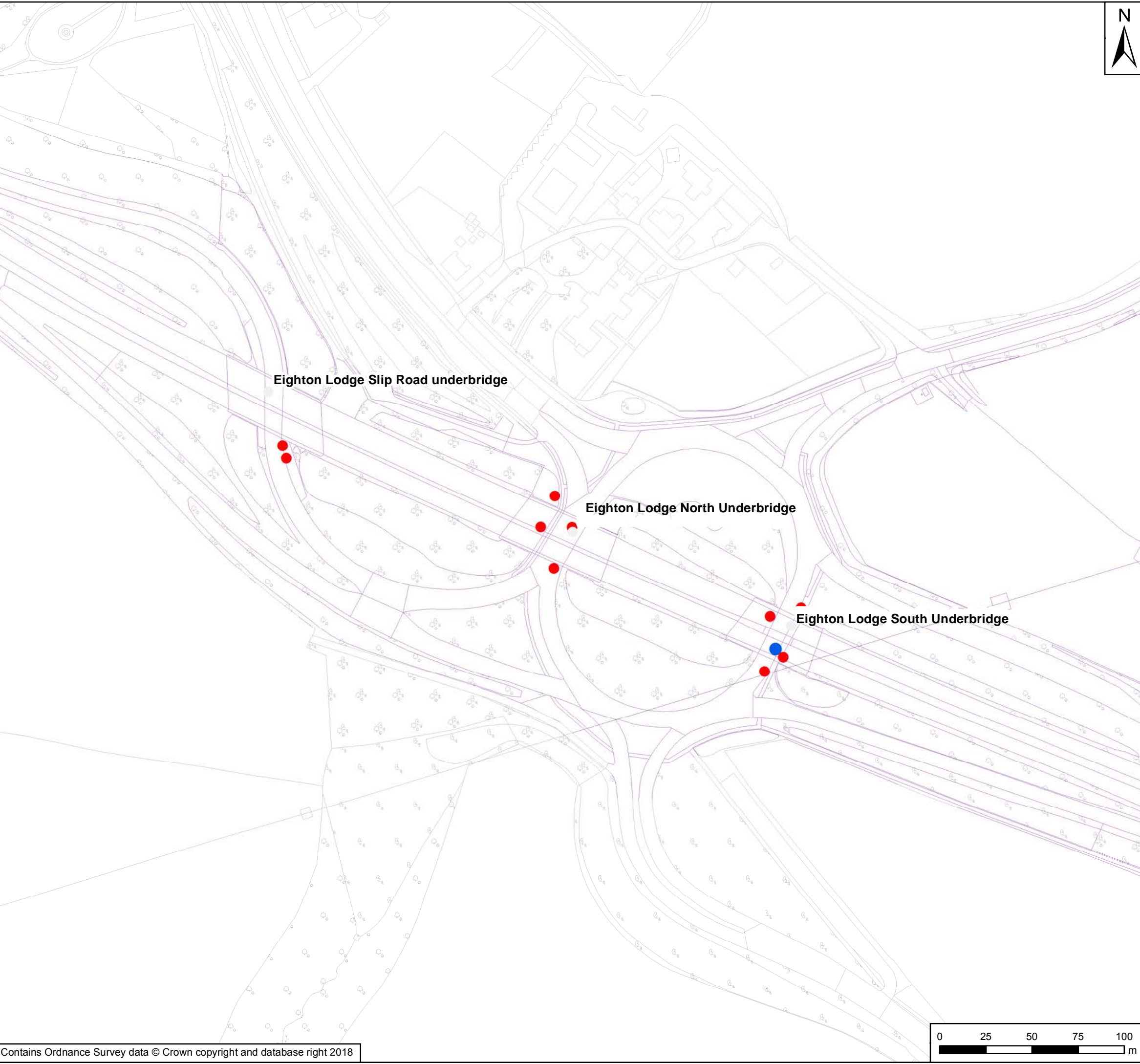
Drawing Title
Figure 2: Bat Survey Locations and Results
Page 1 of 3

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Drawing Status
For Comment

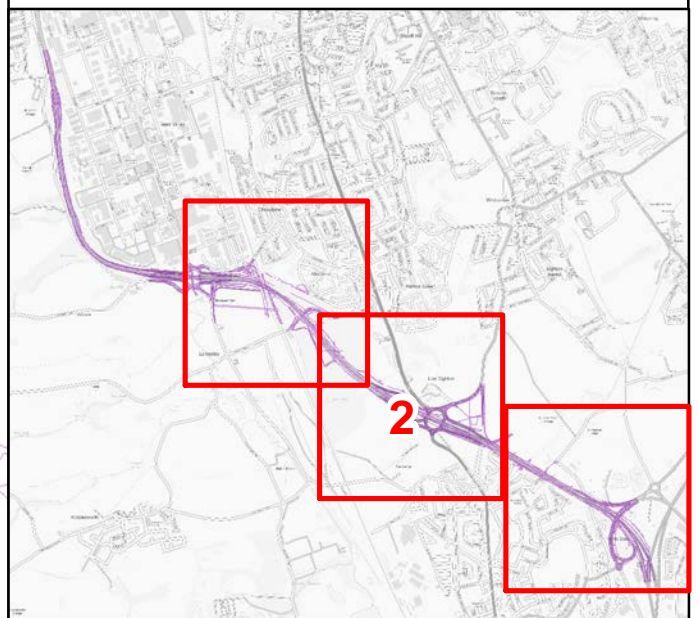
Suitability
S1

Drawing Number Project TR010031	Originator WSP	Volume	Project Ref. No. 7004197
B2CH Location	Type	Role	Number P01



- Key**
- Roost
 - Surveyor Location
 - Scheme Footprint

Please note the surveyor locations are indicative. Where locations appear to be on an overbridge, surveyors were located beneath the overpass.



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--



Project Title
A1 Birtley to Coal House Improvement Scheme

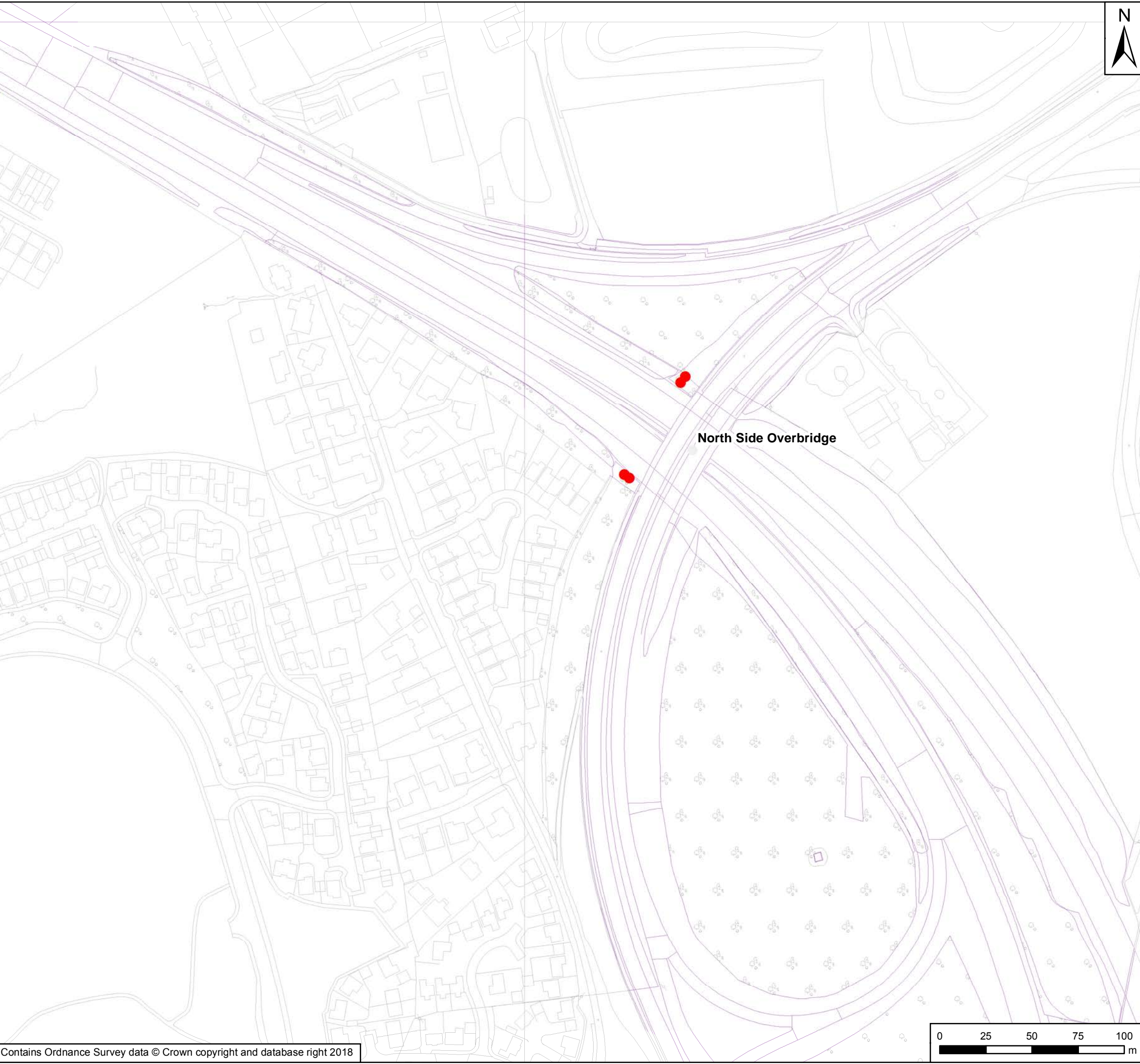
Drawing Title
Figure 2: Bat Survey Locations and Results
Page 2 of 3

Scale	Drawn	Checked	Approved	Authorised
1:2,000	KB	SP	SP	SP
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Drawing Status: For Comment
Suitability: S1

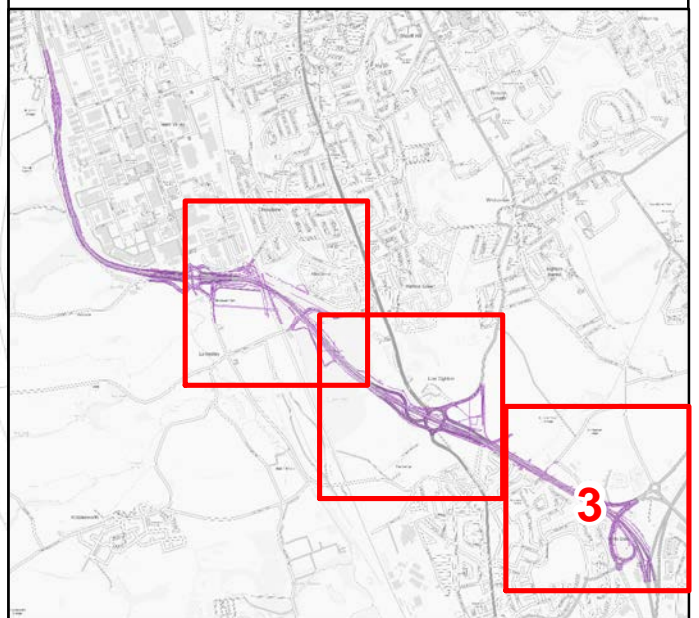
Drawing Number Project TR010031	Originator WSP	Volume	Project Ref. No. 7004197
B2CH Location	Type	Role	Number P01





- Key**
- Roost
 - Surveyor Location
 - Scheme Footprint

Please note the surveyor locations are indicative. Where locations appear to be on an overbridge, surveyors were located beneath the overpass.



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--



Project Title
A1 Birtley to Coal House Improvement Scheme

Drawing Title
Figure 2: Bat Survey Locations and Results

Page 3 of 3

Scale	Drawn	Checked	Approved	Authorised
1:2,000	KB	SP	SP	SP
Original Size	Date	Date	Date	Date
A3	09/10/18	09/10/18	09/10/18	09/10/18

Drawing Status
For Comment

Suitability
S1

Drawing Number Project TR010031	Originator WSP	Volume	Project Ref. No. 7004197
B2CH Location	Type	Role	Number P01

File name: \\uk.wspgroup.com\central_data\Projects\700419\70041947 - A1BCH.PCF Stage 3 and 4\02.WIPEC Ecology\02.Drawing\GIS\Mxd\BatRoost\Figure 6 - Tree locations and Results.mxd
 printed on: 29 March 2018 by: DeSouza



- Scheme Footprint
- Trees with Bat roost potential
 - Low potential
 - Moderate potential
 - Negligible potential
 - Scoped Out
- Woodland with Bat roost potential
 - Negligible potential



DRAWING STATUS: FOR INFORMATION ONLY

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 Tel: +44 (0) 113 395 6200
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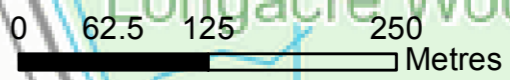
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SITE/PROJECT: A1 BIRTLEY TO COALHOUSE

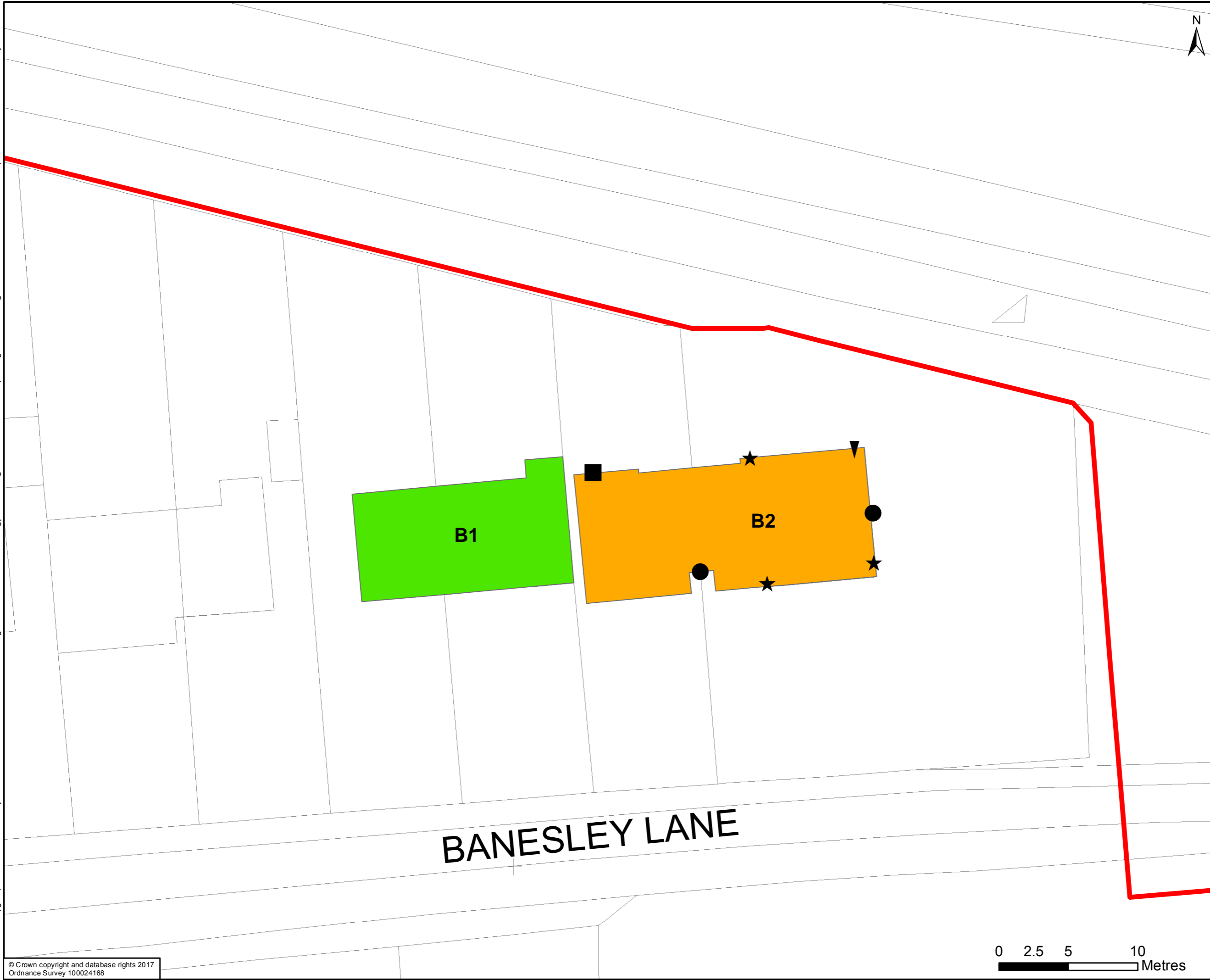
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File name: \\uk.wspgroup.com\central_data\Projects\700419xx\70041947 - A1BCH.PCF Stage 3 and 4\02.WPIEC Ecology\02.Drawing\GIS\Mxd\Bat Roost Report\Figure 5 - Building Locations and Results.mxd printed on: 29 March 2018 by: DeSouzaJ



- Scheme Footprint
- Building location in relation to scheme footprint
- Gaps under bricks
- Gap under eave
- Missing Timber
- Potential bat droppings
- Bat Roost Potential**
- Moderate Potential
- Negligible Potential



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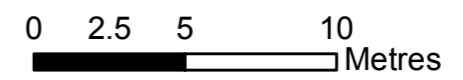
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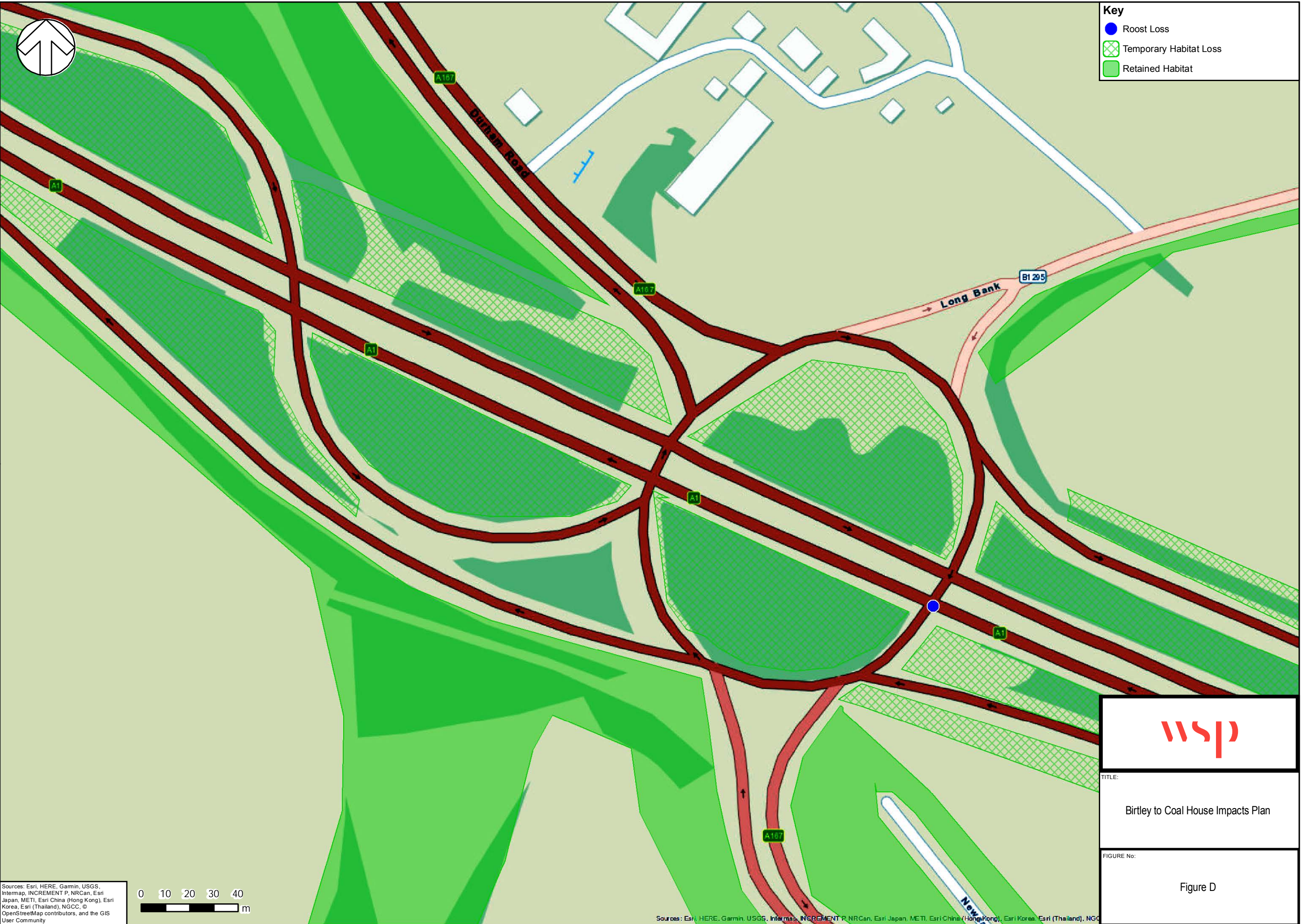
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TITLE: BUILDING LOCATIONS AND RESULTS

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DRAWING NO: FIGURE 5	REV: 0.1
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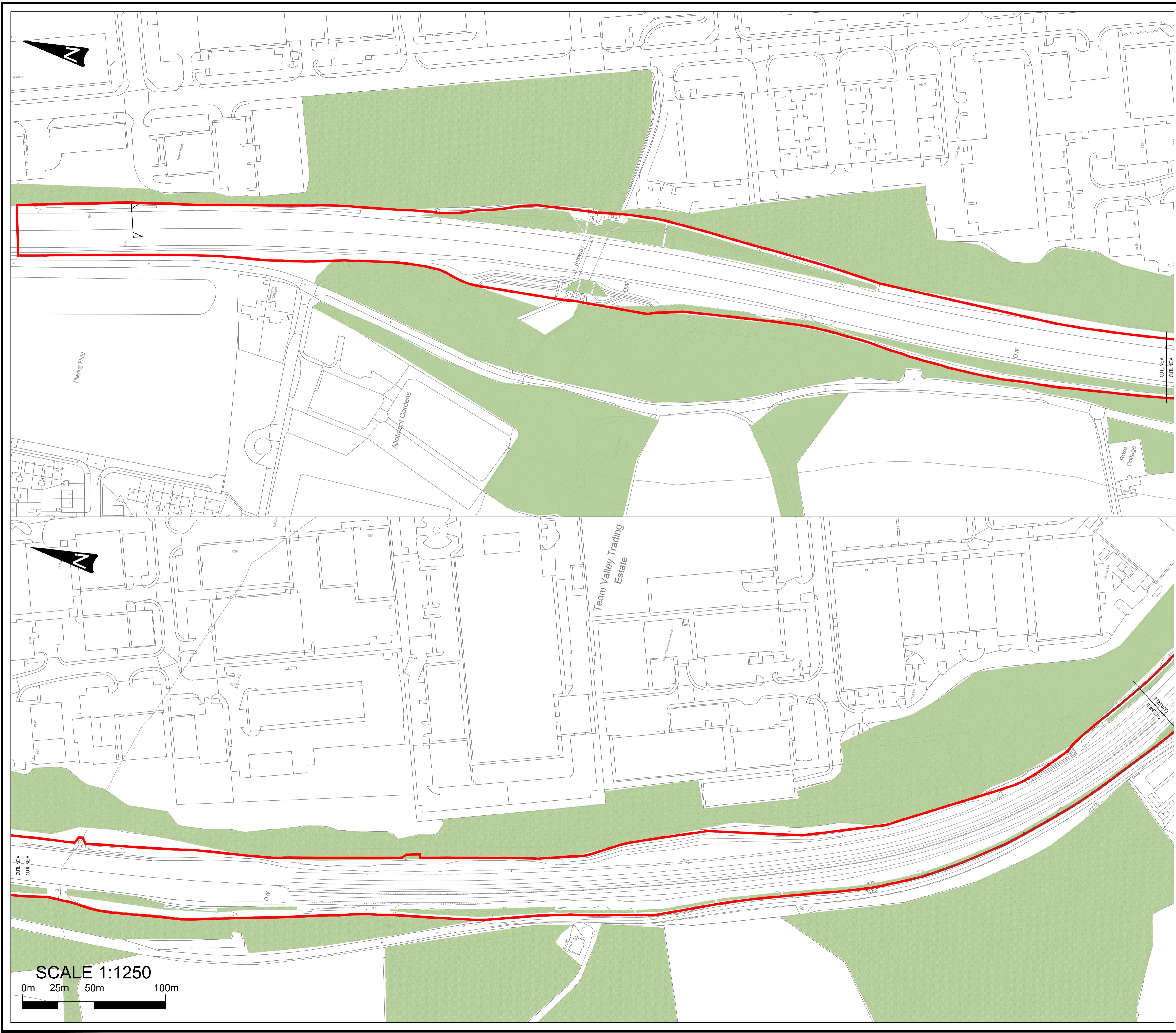
- Roost Loss
- Temporary Habitat Loss
- Retained Habitat

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



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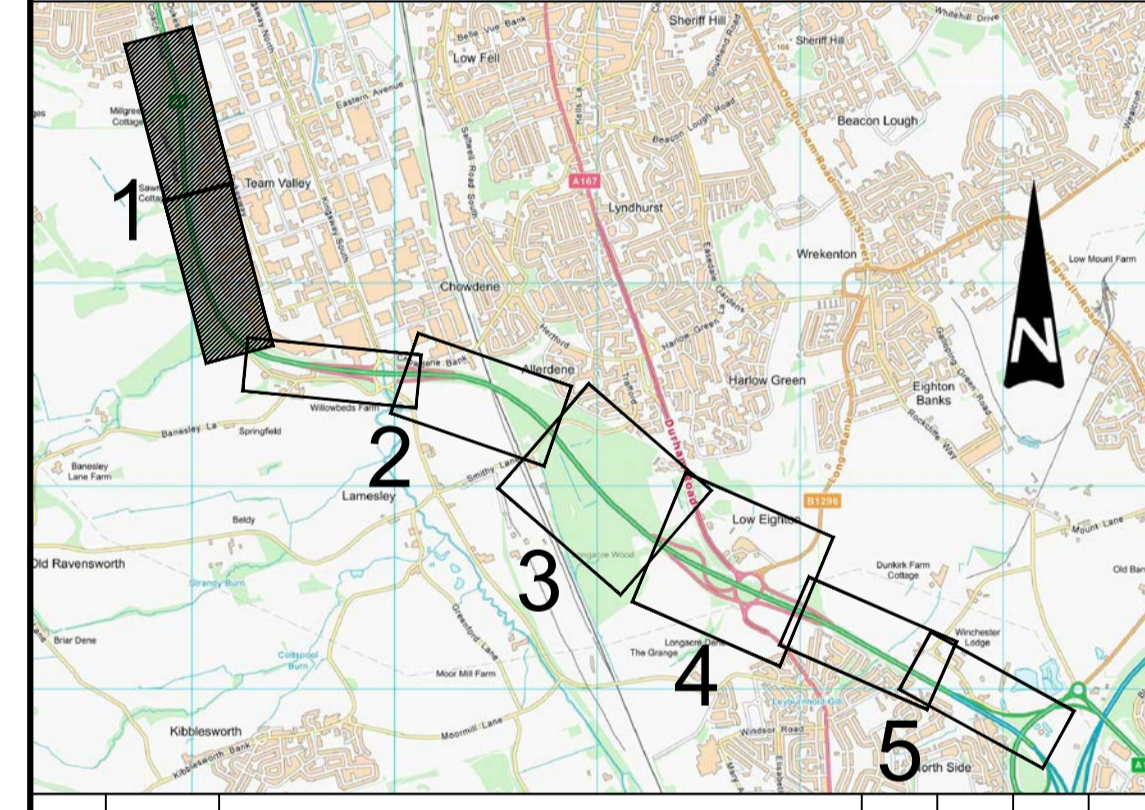
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- KEY**
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 - THE SCHEME
 - EXISTING VEGETATION REMOVED
 - EXISTING VEGETATION RETAINED
 - LE2.1 WOODLAND
 - LE2.2 WOODLAND EDGE
 - LE2.4 LINEAR BELTS OF SHRUBS AND TREES
 - LE2.7 SCATTERED TREES
 - LE4.2 NATIVE SPECIES HEDGE
 - LE4.4 NATIVE HEDGEROWS WITH TREES
 - LE1.3 SPECIES RICH GRASSLAND
 - LE 1.3 SPECIES RICH WET GRASSLAND FOR GREAT CRESTED NEWT HABITAT
 - FENCING
 - NOISE BARRIER

All slopes and verges to be LE1.1 Amenity Grass unless otherwise stated.

All areas temporarily required for construction to be reinstated as LE1.6 Open Grassland unless otherwise stated.



Rev.	Date	Description	By	Eng' Chk	Disc' Chk	App'd
P03	April 19	RLB Update	SW	AW	NJA	KS
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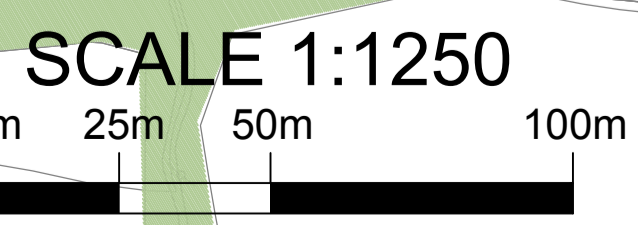


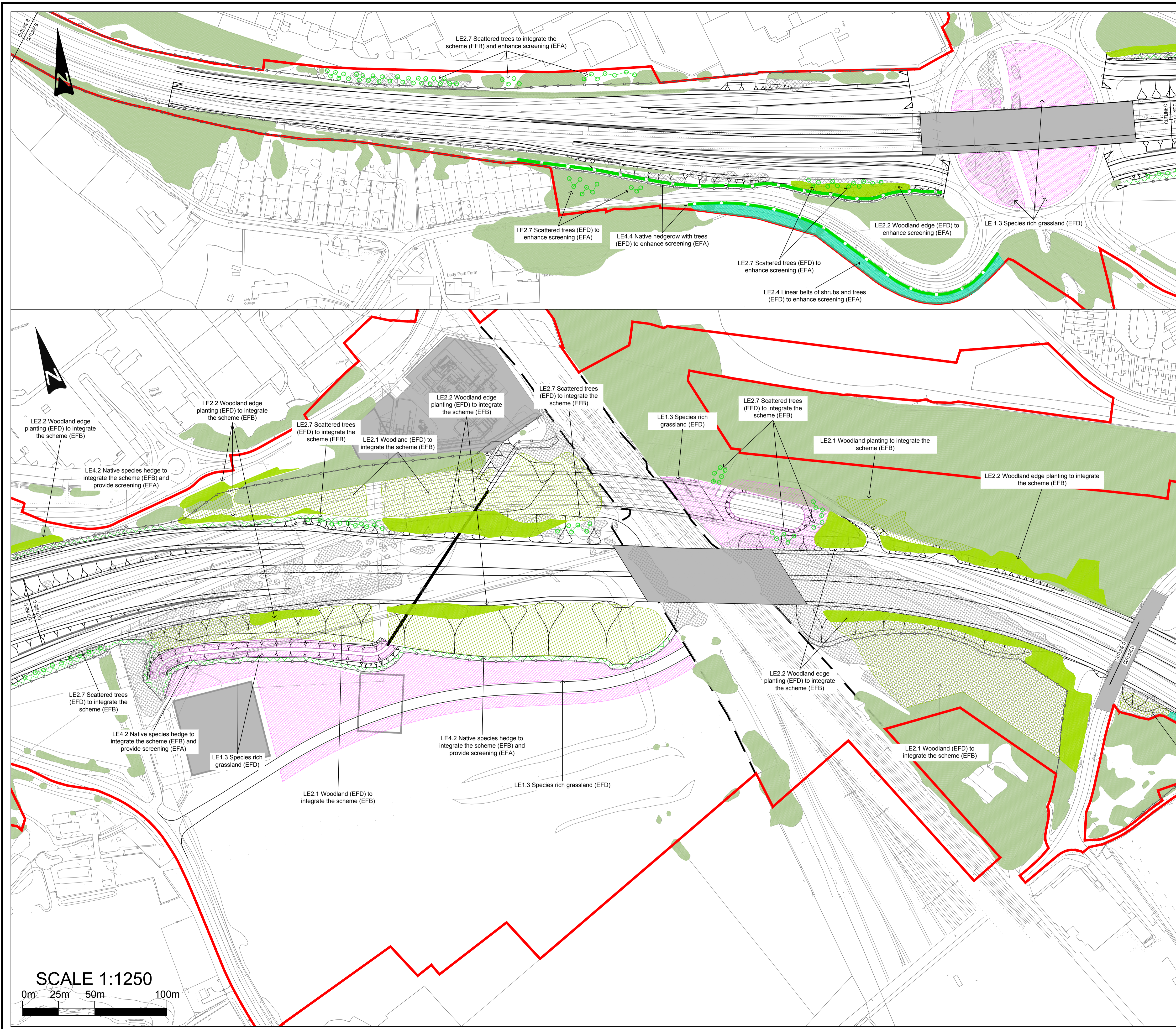
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Drawing Title: **Figure 7.6
Sheet 1 of 5
Landscape Mitigation Design**

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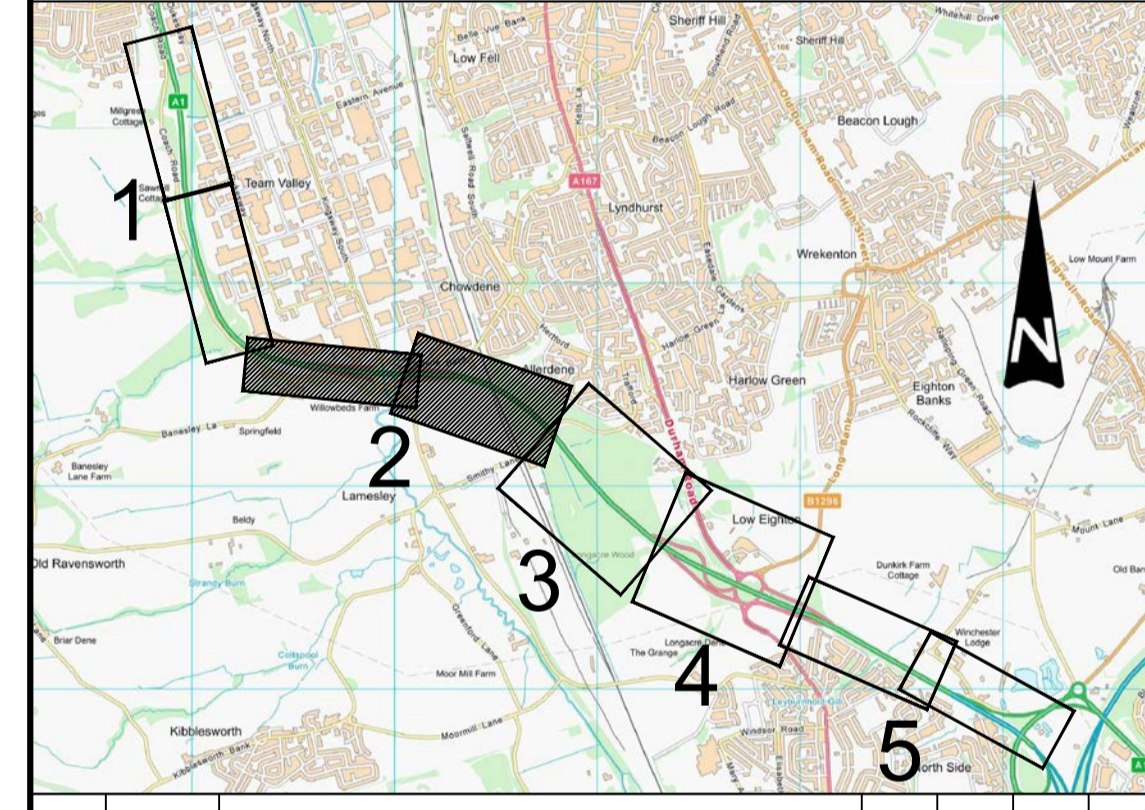


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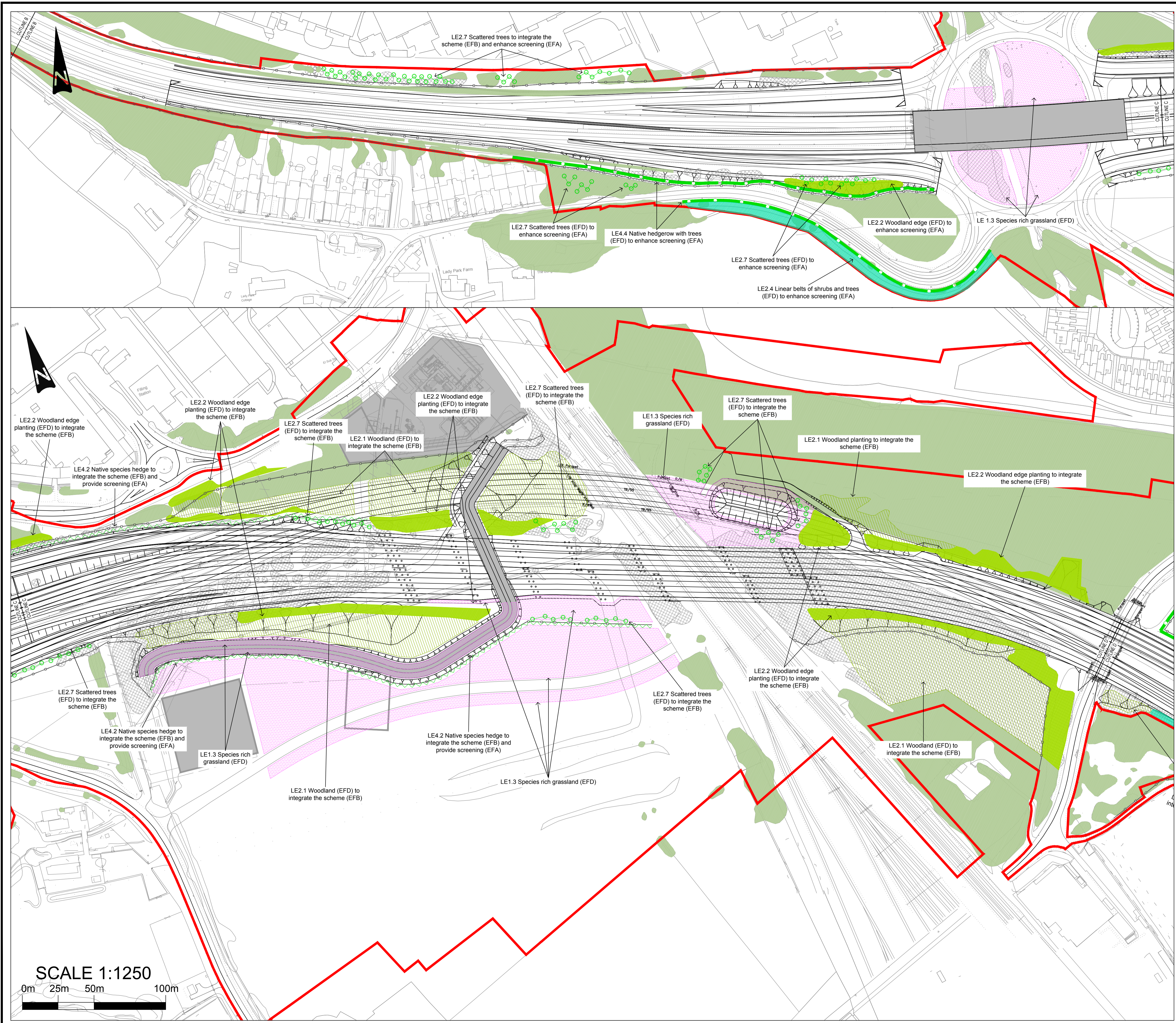
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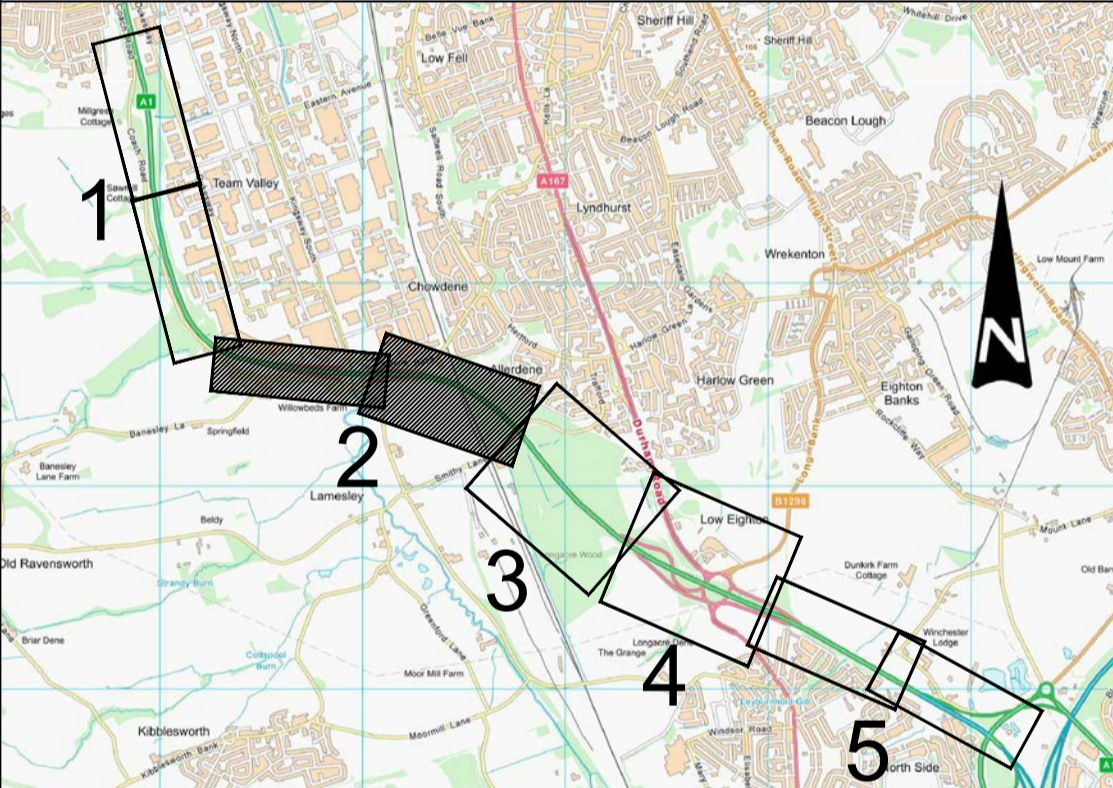
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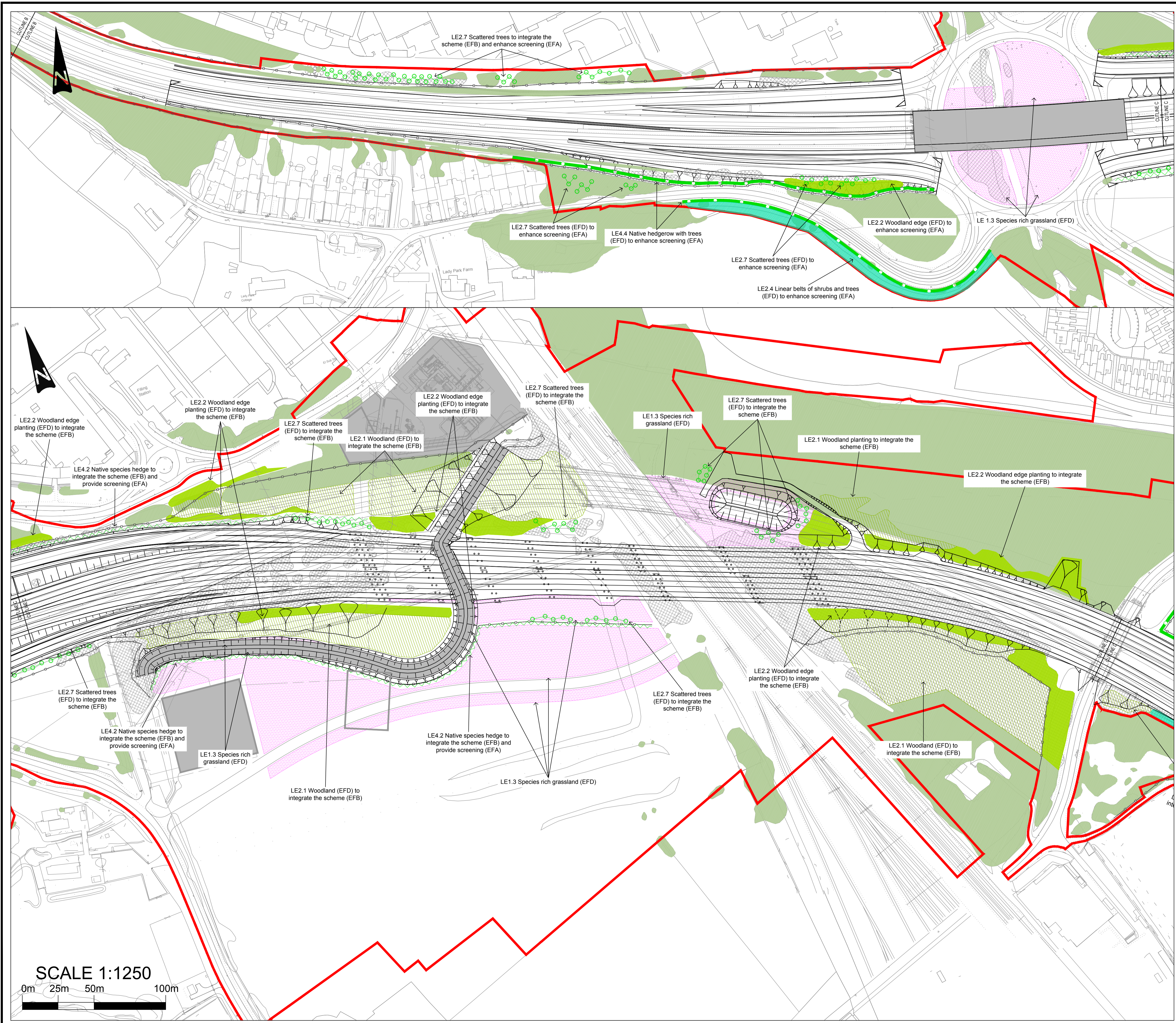
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Client: A1 Birtley to Coal House Scheme

Drawing Title: Figure 7.6
Sheet 2b of 5
Landscape Mitigation Design - Viaduct Option 6 Span

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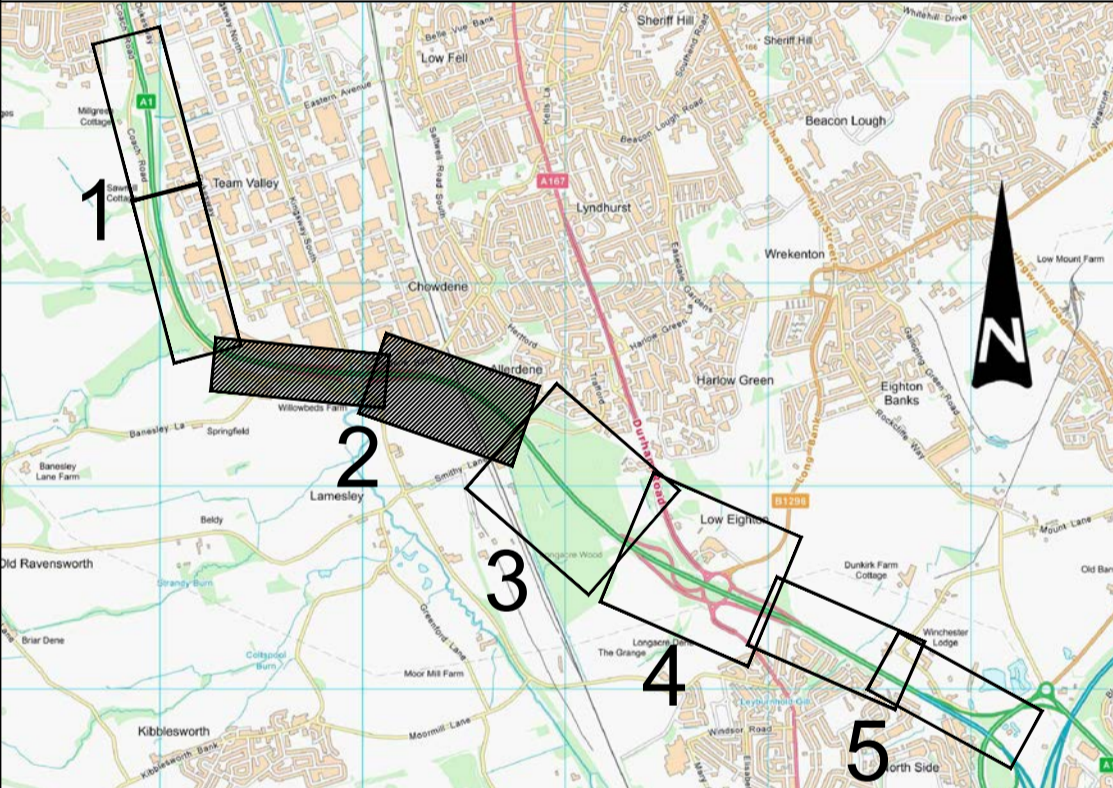


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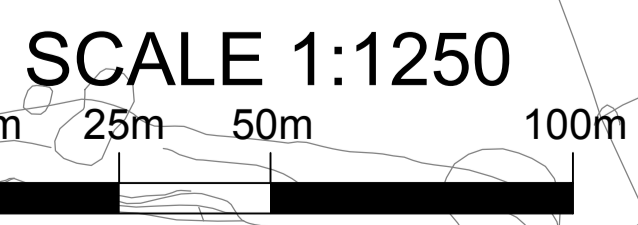


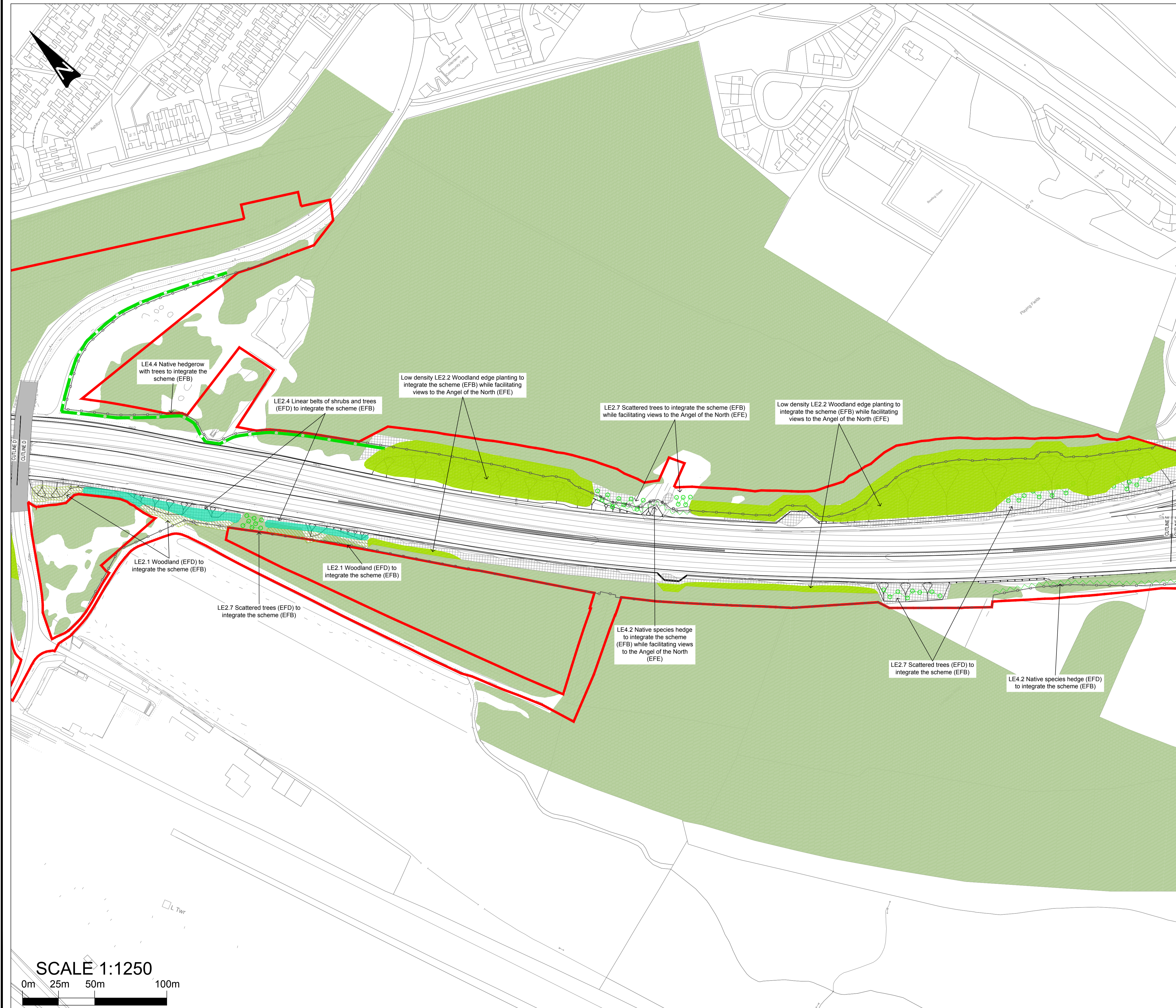
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Project Title: **A1 Birtley to Coal House Scheme**

Drawing Title: **Figure 7.6
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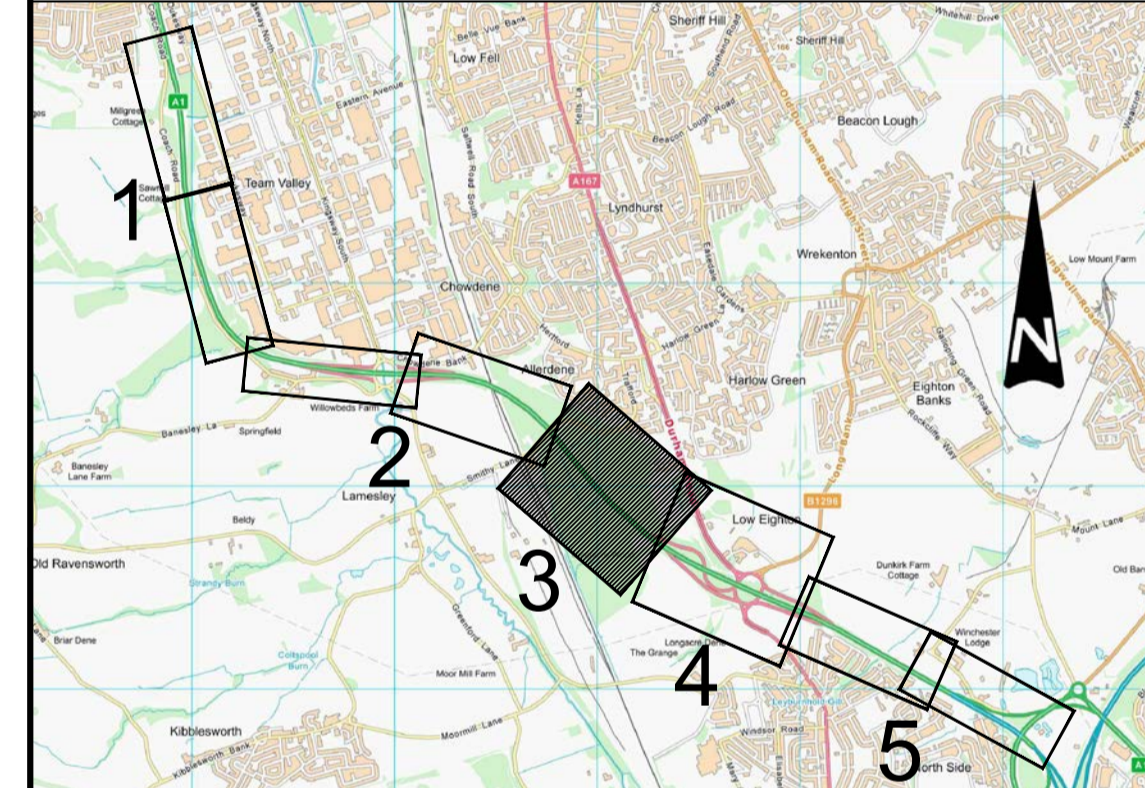




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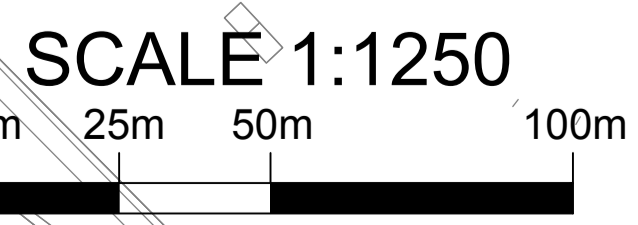
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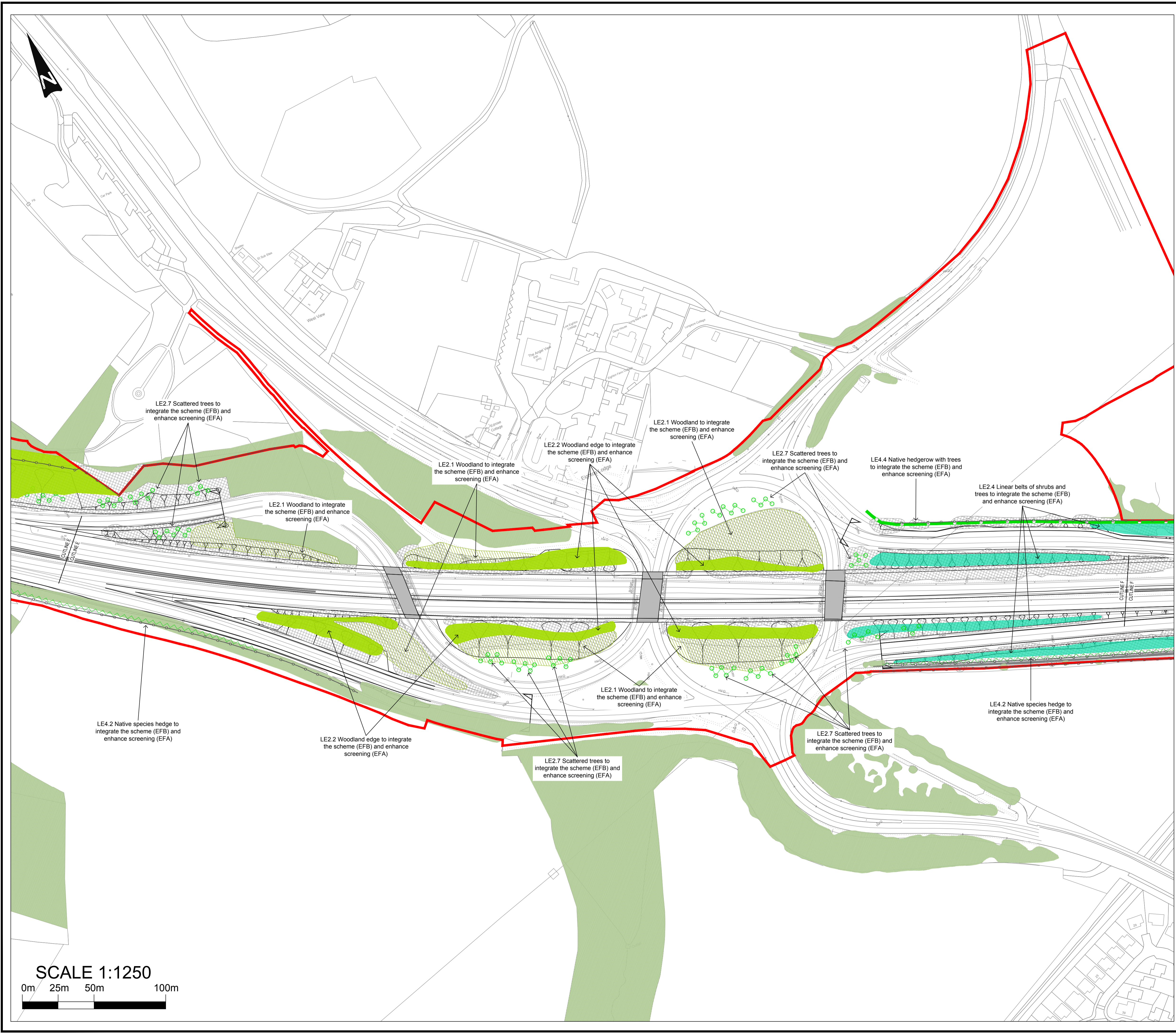


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Sheet 3 of 5
Landscape Mitigation Design - Embankment Option**

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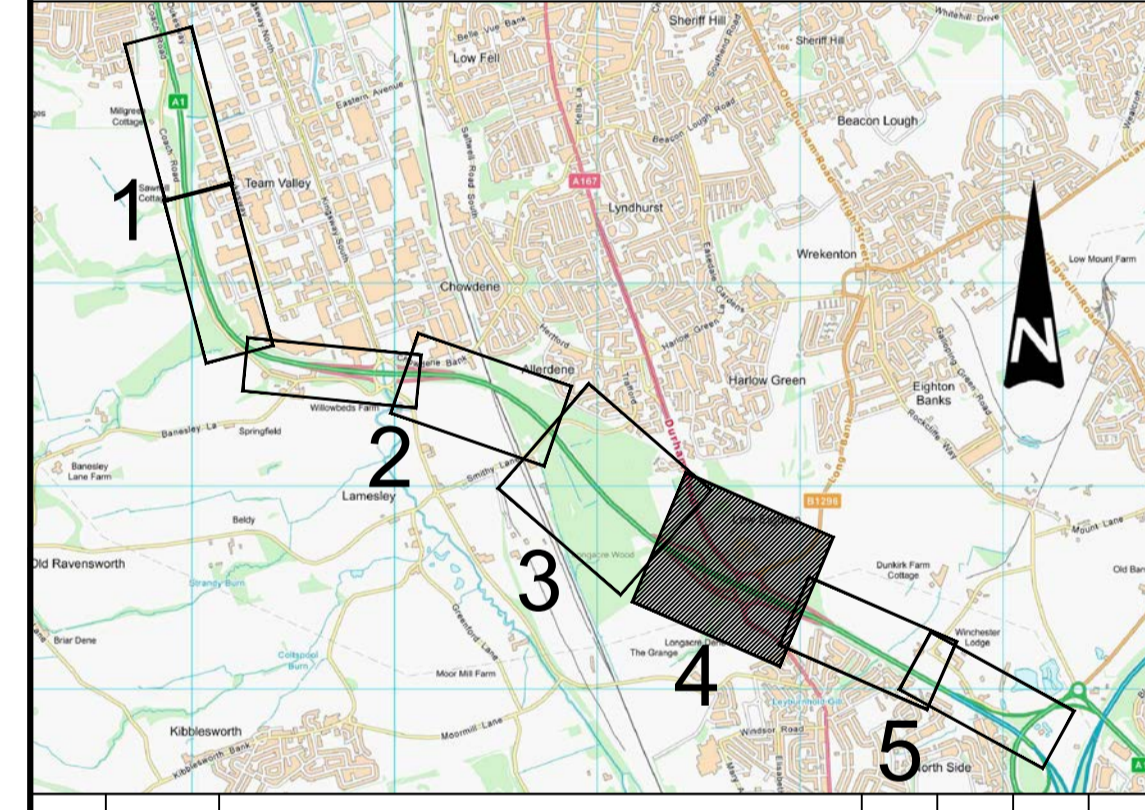


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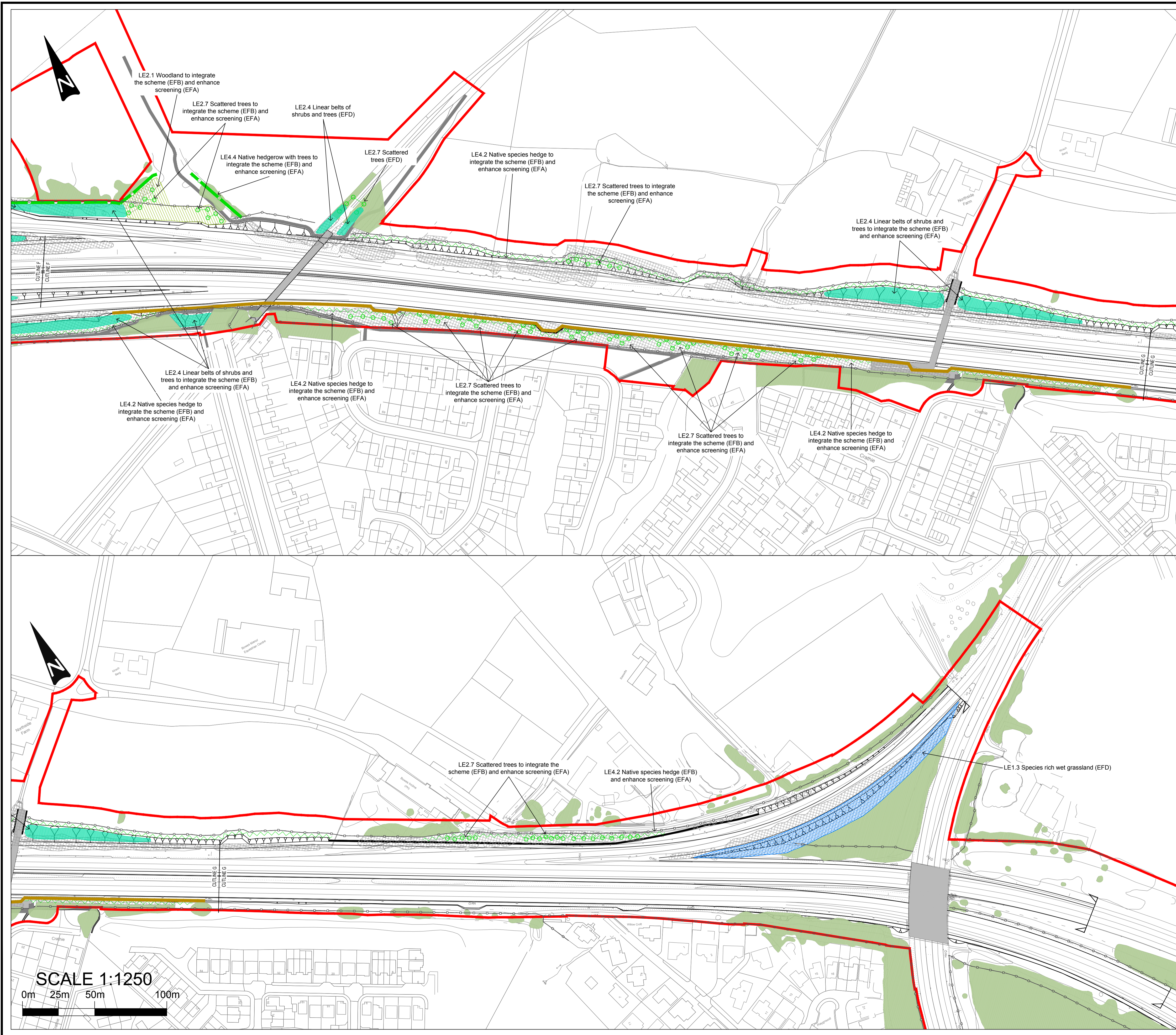


Client: **highways england**

Project Title: **A1 Birtley to Coal House Scheme**

Drawing Title: **Figure 7.6 Sheet 4 of 5 Landscape Mitigation Design - Embankment Option**

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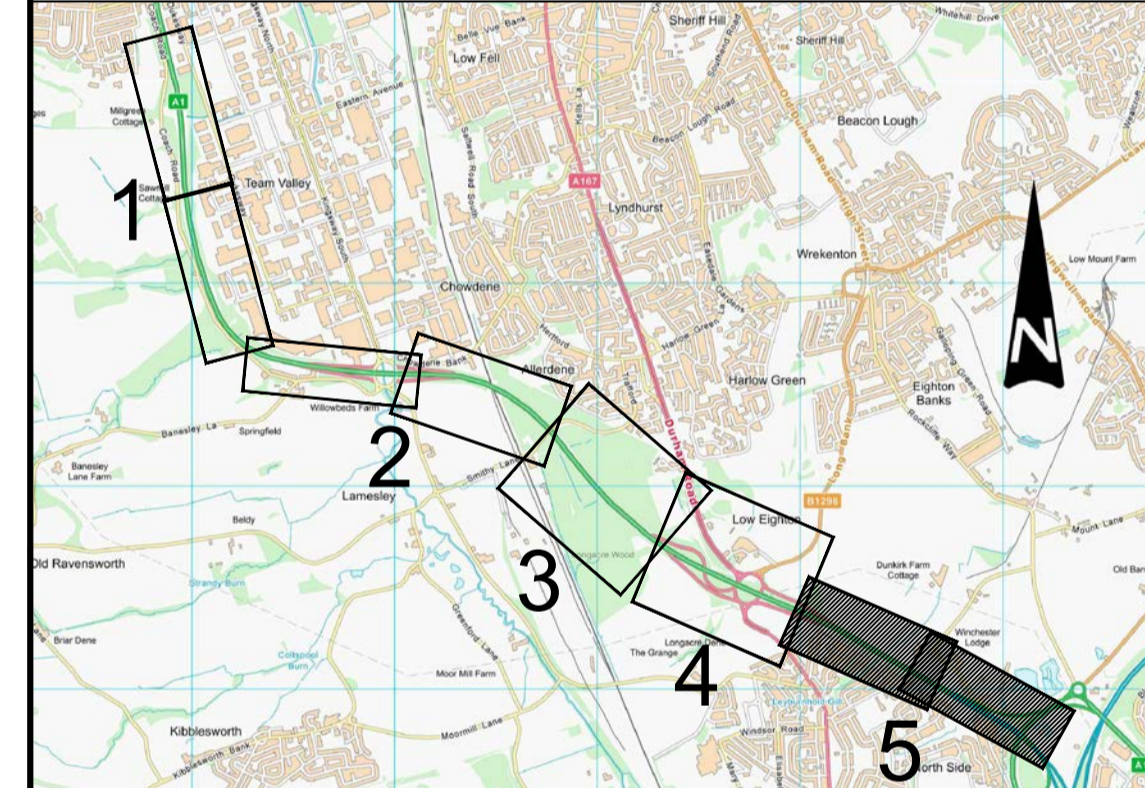


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P02	March 19	RLB Update	SW	AW	NJA	KS
P01	Dec 18	First Issue	SW	AW	NJA	KS

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Project Title: A1 Birtley to Coal House Scheme

Drawing Title: Figure 7.6 Sheet 5 of 5 Landscape Mitigation Design - Embankment Option

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Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Preliminary Roost Assessment





Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Preliminary Roost Assessment

PUBLIC

PROJECT NO. 70039571

OUR REF. NO. HE551462-WSP-EBD-ZZ-RP-LE-00006

DATE: DECEMBER 2018

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
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Date	October 2018			
Prepared by	Gill Birtles			
Signature				
Checked by	Louise Bunn			
Signature				
Authorised by	Emma Hatchett			
Signature				
Project number	70039571			
Report number	HE551462-WSP-EBD-ZZ-RP-LE-00006			
File reference	central data\Projects\700395xx\70039571 - A1BCH PCF 3&4 Oct-Nov\02 WIP\EC Ecology\03 Document\Bat Roost Potential Assessment			

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APPENDICES

APPENDIX A

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SITE ASSESSMENT NOTES

EXECUTIVE SUMMARY

WSP was commissioned by Highways England to undertake Preliminary Roost Assessment surveys of several structures, buildings and trees for bats in order to inform the proposals for the A1 Birtley to Coal House Scheme (hereafter referred to as ‘the Scheme’).

The Scheme is located between Junction 65 (Birtley) and Junction 67 (Coal House) and is approximately 6.5km in length. The Proposed Works of the Scheme include the widening and upgrading of the existing road to provide a three lane carriageway and the replacement of Allerdene Underbridge. There are a total of eight bridge structures, hereafter referred to as ‘bridges’, (two overbridges, four underbridges, one underpass and one footbridge), five trees, two semi-detached buildings and two small areas of woodland, which are located within the footprint of the Scheme and which may be impacted by the Proposed Works.

A Preliminary Roost Assessment (PRA) survey was completed for all of the bridges, buildings and trees which had been highlighted within the preliminary ecological assessments, PEA (WSP, 2016a; WSP, 2016b). Surveys were undertaken in order to determine their value for supporting roosting bats and record any signs of bat presence, as well as evaluating the habitats within the Scheme for bat activity.

In total, eight bridges, two buildings and five trees and the trees within two isolated areas of woodland were subject to assessment and were categorised into the following levels of potential:

- i Negligible (screened out) – two bridges (North Dene Footbridge and Longbank Bridleway underbridge), one tree (T5), one building B1 (semi- detached property) and the trees located within two areas of woodland;
- i Low – one tree (T3);
- i Moderate – six bridges (Smithy Lane Overbridge, Allerdene Railway Underbridge, Eighton Lodge slip road Underbridge, Eighton Lodge north Underbridge, Eighton Lodge south Underbridge, North Side Overbridge), one building B2 (semi- detached property) and three trees (T1, T2 and T4); and
- i High – no bridges, buildings or trees recorded.

The three trees (T1, T2 and T4) with ‘Moderate’ potential have been screened out of further survey due to their location and their current levels of exposure to disturbance to the A1 road, making it unlikely that they support roosting bats.

Further survey effort is recommended for the six bridges and one of the trees (Tree T4) found to have ‘Moderate’ suitability to support roosting bats. This is in order to ensure that the Scheme is conducted in accordance with legislative and planning policy. This includes UK and EU legislation protecting bats and their roosts from damage, destruction, obstruction and disturbance; and also local planning policy outlining obligations to avoid or reduce impacts to biodiversity in the context of development. The recommended survey



effort will involve undertaking two separate survey visits per bridge and tree, including a single dusk emergence and a separate single dawn re-entry. Full details regarding the level of survey effort are presented in Section 6 of this report.

Further mitigation, in the form of a sensitive lighting scheme, is recommended for all the bridges and trees, details of which are contained within this report and which should be determined by further surveying. Longbank Bridleway Underbridge may be used by commuting bats as a crossing point under the A1. Therefore, if the Scheme requires the underpass to be closed between March and September, the period of time when bats may be active and therefore displaced, further survey effort may be required to determine the importance of the underpass and inform the requirements of mitigation.

Following the completion of all the survey effort recommended, the potential impacts posed by the development, both to roosts and bat habitat, can be quantified and appropriate recommendations provided.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1. WSP was commissioned by Highways England (HE) to undertake a Preliminary Roost Assessment (PRA) for bats of several bridges, buildings and trees in order to inform the proposals for the A1 Birtley to Coal House Scheme (hereafter referred to as 'the Scheme').
- 1.1.2. The Scheme is located between Junction 65 (Birtley) at grid reference NZ28331 56480 and Junction 67 (Coal House) at grid reference NZ 24953 58559. The Scheme is approximately 6.5km in length as shown in **Figure 1**.
- 1.1.3. The Proposed Works for the Scheme include the widening and upgrading of the existing road to provide a three lane carriageway and the replacement of Allerdene Underbridge. The proposed works for Allerdene Underbridge will involve the replacement of this crossing point with a new section of carriageway.

1.2 ECOLOGICAL BACKGROUND

- 1.2.1. An extended Phase 1 habitat survey was undertaken during March and April 2015 (WSP | PB, 2016b). An update Ecological Assessment was undertaken during September 2016 (WSP | PB, 2016a). Habitats were identified within the Scheme including broadleaved and mixed woodland, scrub, scattered trees, improved grassland, bracken, ruderal vegetation, hedgerows, buildings, hard standing and standing and running water.
- 1.2.2. The presence of bridges (including underpasses), buildings and trees which may support roosting bats were also identified (WSP | PB, 2016a).
- 1.2.3. The update Ecological Assessment (WSP | PB 2016a) concluded that Longbank Bridleway Underbridge would not be affected by the Proposed Works. It was recommended that if construction activities were to take place at night, then an assessment of this bridge for its potential to support roosting bats should be undertaken in order to determine whether artificial lighting or disturbance from plant and machinery could impact roosting bats.
- 1.2.4. The desk study data recorded noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* within 2 km of the Scheme boundary. These bats were recorded to be foraging and commuting north, south, east and west of the Scheme.

1.3 BRIEF AND OBJECTIVES

- 1.3.1. Within the update Ecological Assessment (WSP | PB 2016a), it was recommended that any bridges, buildings and trees potentially affected by the Proposed Works are externally assessed for their potential to support roosting bats (WSP | PB 2016a).
- 1.3.2. Highways England commissioned WSP to complete a PRA in November 2017. The brief was to:

- i Complete an external inspection of the bridge structures, buildings and trees within and adjacent to the Scheme, to identify any potential roosting features and/or suitability for bat roosts to be present;
- i If present, to determine the species present, number of bats and status of roost, if possible; and
- i Evaluate the value of the Scheme for bats and make recommendations as to how proposals should account for bats with respect to legislation, planning and biodiversity policy. Including informing whether a European Protected Species Licence is required.

1.3.3. The results of this assessment will identify the need for further survey effort to determine the presence or likely absence of roosting bats within the Scheme.

2 METHODOLOGY

2.1 OVERVIEW

- 2.1.1. The PRA was conducted and the report prepared with reference to current good practice guidelines published by the Bat Conservation Trust (BCT) (Collins, 2016). This PRA is based on the following data sources:
- ┆ An ecological desk study;
 - ┆ Open source data search (MAGIC, www.magic.gov.uk [accessed 05/02/2018]); and
 - ┆ A site survey to assess all bridges, buildings, trees and two areas of woodland within and adjacent to the Scheme.

2.2 DESK STUDY

- 2.2.1. The desk study was undertaken in March and April 2015 to review existing ecological baseline information available in the public domain and to obtain information held by relevant third parties. For the purpose of the desk study exercise, bat records were obtained for a 1 km radius surrounding the Scheme from Durham Bat Group, Environmental Records and Information Centre North East (ERIC NE) and EnVIS data from Area 14 Managing Agent Contractor (MAC). This approach is consistent with current good practice guidance published by the CIEEM (2013). The findings of the desk study have been incorporated into Section 3 of this report.
- 2.2.2. In addition to this, and for the purposes of this report, a search for European Protected Species Licenses (EPSL) for bats that fall within 1 km of the footprint of the Scheme boundary was undertaken using MAGIC in February 2018.

2.3 PRELIMINARY ROOST ASSESSMENT

- 2.3.1. A visual inspection of the bridges, buildings and trees, using binoculars, a high-powered torch and an endoscope, was undertaken to search for gaps, crevices, holes, cracks, fissures or natural deformities that could provide potential roost features (PRF) for bats. Where suitable features were noted, their location and a brief description of their character recorded. Additionally, each feature was visually inspected for evidence indicating use by roosting bats such as droppings, urine staining, and scratch marks / characteristic staining (from fur oils), where accessible.
- 2.3.2. The bridges, buildings and trees were categorised in line with the descriptions in **Table 2-1** (Collins, 2016). Based on the features present and the location of the feature, the potential for different types of bat roost was also considered. For the purpose of this PRA, potential roost types were grouped as follows (Collins, 2016):
- ┆ Maternity (breeding roost);
 - ┆ Summer / transitional (to include transitional, satellite, night and day roosts); and
 - ┆ Hibernation.

2.3.3. All of the PRA surveys were undertaken by experienced WSP ecologists, one of whom has a Natural England Class 2 NE (2015-16155-CLS-CLS).

Table 2-1 - Roost potential categorisation (based on Good Practice Guidelines, Collins, 2016)

Category	Description
Confirmed	Bridge, building or tree with features confirmed to be used by roosting bats either by historic records (verified appropriately), or evidence recorded during survey.
High	Bridge, building or tree with highly suitable features capable of supporting larger roosts, and/or multiple roost locations. Generally, these bridges are located in proximity to highly suitable foraging/commuting habitat such that the presence of a roost is considered highly probable.
Moderate	Bridge, building or tree exhibiting features with definite bat roost potential, but with only one or two suitable features suitable for larger roosts, or multiple features with the potential to be used by individual/small numbers of bats. Surrounding area includes good quality foraging habitat for bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland such that the presence of a roost is considered probable.
Low	Bridge or building with single, or few features capable of supporting individual/small numbers of bats e.g. external roosting features such as fascia or soffit boards, in which bats are considered less likely to be present. Or, a greater number or variety of features located in sub-optimal habitat such that bats would be less likely to use it e.g. isolated from foraging or commuting habitats. A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Negligible	Bridge, building or tree with no potential opportunities for roosting bats, or very few or minor features in an isolated/unsuitable location such that the presence of a roost is considered highly improbable, e.g. isolated from suitable foraging or commuting habitats.

BRIDGES

2.3.4. Eight bridges (also known as crossing points) within the Scheme were subject to a PRA. The bridges which were surveyed are shown in Figures 2- 4 and are listed below:

- ┆ Smithy Lane Overbridge (HE Structure Key 16439);
- ┆ Allerdene Railway Underbridge (HE Structure Key 8880);
- ┆ Eighton Lodge Slip Road Underbridge (HE Structure Key 16441);
- ┆ Eighton Lodge North Underbridge (HE Structure Key 16440);

- ┆ Eighton Lodge South Underbridge (HE Structure Key 8883);
- ┆ North Dene Footbridge (HE Structure Key 8886);
- ┆ Longbank Bridleway Underbridge (HE Structure Key 26280); and
- ┆ North Side Overbridge (HE Structure Key 8887).

2.3.5. The bridge PRA survey was undertaken on the 9th November 2017.

BUILDINGS

2.3.6. Two semi-detached properties, Building B1 and Building B2, the locations of which are shown on Figure 5 were inspected from ground level.

2.3.7. The building PRA survey was undertaken on the 19th July 2017.

TREES

2.3.8. Five stand-alone trees and approx. 315 trees within two isolated areas of woodland (Woodlands 1 and 2) were inspected individually in order to identify potential bat roost features and determine their overall potential for roosting bats. The locations of these trees and woodlands are shown in **Figure 6**.

2.3.9. The tree PRA survey was undertaken on the 19th July 2017.

2.4 NOTES AND LIMITATIONS

2.4.1. The northern elevation of Eighton Lodge North Underbridge could not be viewed fully from an accessible vantage point (see **Figure 3**). Additionally, the southeast aspect of the abutment of the North Side Overbridge (**Figure 4**) could not be viewed.

2.4.2. An endoscope was used on suitable features, where access allowed, to see within the internal structure of the bridges but the majority of the features could not be accessed closely enough to use an endoscope due to the height of their locations on the bridge. Given the good condition of the areas of the bridges which could be viewed and the shallow features which exist within them, it is not expected that these limitations would impact the classification of all the bridges and so do not affect the results and recommendations detailed within this report.

2.4.3. The assessment of Building B1 and Building B2 was restricted to an external assessment only due to landowner permissions, and therefore a survey of any internal loft voids or similar was not undertaken. An in-combination assessment including internal and external surveys is likely to provide greater detail regarding a building's likelihood of supporting a bat roost. A suitable assessment can be made through an external survey only to determine the requirement for further survey effort. As such, it is believed that the assessment remains valid, and a precautionary approach has been adopted where there is uncertainty on the potential value of a building.

2.4.4. It should be noted that since the original assessments (WSP | PB 2016a), an update to the Bat Conservation Trust (BCT) good practice guidelines for surveying bats was published (Collins 2016). During this time, new DEFRA guidelines on bats and linear infrastructure



schemes has been adopted (Berthinussen & Altringham, 2015). These changes are not thought to affect the assessments made in the extended Phase 1 habitat survey (WSP | PB 2016b) or the update ecological assessment (WSP | PB 2016a) but are the guidelines followed in this report.

3 RESULTS AND EVALUATION

3.1 DESK STUDY

- 3.1.1. Desk study data was obtained from Environmental Records Information Centre North East (ERIC NE). Within the 2 km search area conducted by ERIC NE, 115 individual bat records were provided, including common pipistrelle (93), soprano pipistrelle (9), noctule (7) and unidentified pipistrelle species (6). These bats were recorded to be foraging and commuting north, south, east and west of the Scheme.
- 3.1.2. The desk study returned one Local Wildlife Site (LWS), Birtley Northside LWS. It is approximately 250 m west of the southern end of the scheme and its location shown in Figure 4. “Several roosts” of common pipistrelle bat were recorded within the citation.
- 3.1.3. The open source data search on MAGIC returned a single EPSL application for common pipistrelle ranging between September 2014 and September 2019. This EPSL is located at grid reference NZ274570, 150 m south-west of North Dene Footbridge and the Scheme and 300 m north of Birtley Northside LWS. The license details that it does not impact or damage breeding or hibernation sites but does allow the destruction of a resting place.

3.2 BRIDGE PRELIMINARY ROOST ASSESSMENT

OVERVIEW

- 3.2.1. There were eight target bridges (both bridges and underpasses) assessed within the Scheme; as shown in Figures 2- 4. All eight bridges are located between Junction 65 (Birtley) and Junction 67 (Coalhouse).
- 3.2.2. Six of the eight bridges are two-lane road bridges, namely:
 - ┆ Smithy Lane Overbridge (grid reference NZ 25759 58276) ;
 - ┆ Allerdene Railway Underbridge (grid reference NZ 25477 58486);
 - ┆ Eighton Lodge slip road Underbridge (grid reference NZ 26521 57587);
 - ┆ Eighton Lodge north Underbridge (grid reference NZ 26684 57518);
 - ┆ Eighton Lodge south Underbridge (grid reference NZ 26796 57459); and
 - ┆ North Side Overbridge (grid reference NZ 28092 56757).
- 3.2.3. North Dene (grid reference NZ 27535 57099) is a footbridge and Longbank Bridleway Underbridge (grid reference NZ 27095 57334) is an underpass. See Appendix A for photos of these bridges.

ASSESSMENT

- 3.2.4. Of the total of eight bridges, no confirmed roosts were recorded, however, the bridges were attributed to the following categories of roost potential (in accordance with Table 1):
 - ┆ Negligible (screened out) – two bridges (Longbank Bridleway and North Dene Footbridge) and;



- i Moderate – six bridges (Allerdene Railway Underbridge, Smithy Lane Overbridge, Eighton Lodge slip road Underbridge, Eighton Lodge north Underbridge, Eighton Lodge south Underbridge and North Side Overbridge).

3.2.5. Full details of the assessment are presented within **Table 3-1** below.

Table 3-1 - Bridge Preliminary Roost Assessment Results

Bridge Name	Highways England Structure Key	Grid Reference	Description of Bridge	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
Smithy Lane Overbridge	16439	NZ 25759 58276	Concrete deck overbridge. See Photo 1 in Appendix A .	<ul style="list-style-type: none"> i Gaps between the girder and the deck at the top of both piers. i Gaps between the concrete beams on the underside of the bridge deck (see Photo 2). i These features are located throughout these areas and are at a height of approx. 10 m. i There is no artificial lighting on these features and they are located directly above the A1. i The features are not in close proximity to the surrounding woodland vegetation. 	None	Moderate	Yes
Allerdene Railway Underbridge	8880	NZ 25477 58486	Metal deck overbridge. See Photo 3 in Appendix A .	<ul style="list-style-type: none"> i Approximately 1 m long cavity is located between the concrete and steel deck structures on the southern and northern aspects of the western pier and the southern 	None	Moderate	Yes

Bridge Name	Highways England Structure Key	Grid Reference	Description of Bridge	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
				<p>and northern ends of the eastern pier (see Photo 4).</p> <ul style="list-style-type: none"> i The cavities are at a height of 7 m and no artificial lighting is located on these areas. i Due to the locations of the cavities, it is assumed that they spread through the width of the bridge. i There is no immediate vegetation adjacent to the cavities but the bridge is located 5 m to areas of semi-improved grassland and scrub to the south-west and 5 m from an area of woodland to the south-east. 			
Eighton Lodge slip road Underbridge	16441	NZ 26521 57587	Concrete deck overbridge. See Photo 5 in Appendix A .	<ul style="list-style-type: none"> i Gaps between the deck and the bridge at the top of both piers. i Gaps between the concrete beams on the underside of the bridge deck. i These features are located throughout these areas and are at a height of 8 m and are directly above the Durham road. 	None	Moderate	Yes

Bridge Name	Highways England Structure Key	Grid Reference	Description of Bridge	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
				<ul style="list-style-type: none"> The bridge is situated 2 m from the surrounding woodland vegetation. 			
Eighton Lodge north Underbridge	16440	NZ 26684 57518	Concrete deck overbridge. See Photo 6 in Appendix A .	<ul style="list-style-type: none"> Gaps between the deck and the bridge at the top of both piers. Gaps between the concrete beams on the underside of the bridge deck (see Photos 7 & 8). These features are located throughout these areas and are at a height of 8 m and are directly above the Durham road with street lighting beneath. The bridge is situated 5 m from the surrounding woodland vegetation. 	None	Moderate	Yes
Eighton Lodge south Underbridge	8883	NZ 26796 57459	Concrete deck overbridge See Photo 9 in Appendix A .	<ul style="list-style-type: none"> Gaps between the deck and the bridge at the top of both piers. Gaps between the concrete beams on the underside of the bridge deck (see Photo 10). 	None	Moderate	Yes

Bridge Name	Highways England Structure Key	Grid Reference	Description of Bridge	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
				<ul style="list-style-type: none"> i These features are located throughout these areas and are at a height of 8 m. i On the north- east aspect of the bridge, gaps are located between the compression pads at 8 m in height. i Underneath the bridge, on the western wall, 7 m high, there is also a hole at 3 cm in size. These features are located directly above the Durham road with street lighting beneath. i The bridge is situated 5 m from the surrounding woodland vegetation. 			
North Dene Footbridge	8886	NZ 27535 57099	Footbridge See Photo 11 in Appendix A .	<ul style="list-style-type: none"> i No features were seen on the bridge. i The bridge consists of a steel structure with concrete and bricks (with the mortar in good condition) used as the structure for the ramp leading to the bridge. 	None	Negligible	No

Bridge Name	Highways England Structure Key	Grid Reference	Description of Bridge	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
Longbank Bridleway Underbridge	26280	NZ 27095 57334	Public right of way underpass. See Photo 12 in Appendix A.	<ul style="list-style-type: none"> i No features were seen on the bridge. i The bridal path has no artificial lighting and is surrounded by vegetation which provides shelter. There is little disturbance from traffic on the bridle path, just intermittent pedestrian traffic. 	None	Negligible	No
North Side Overbridge	8887	NZ 28092 56757	Concrete deck overbridge. See Photo 13 in Appendix A.	<ul style="list-style-type: none"> i Gaps between the deck and the bridge at the top of both piers. i Gaps between the concrete beams on the underside of the bridge deck. i These features are located throughout these areas and are at a height of 10 m and are located directly above the A1 and the bridge is located 10 m from the surrounding woodland vegetation. 	None	Moderate	Yes

- 3.2.6. As several of the bridges recorded potential for supporting roosting bats, further survey effort will be required to determine presence/ likely absence. The results of these surveys will confirm the appropriate mitigation measures required to ensure the Scheme complies with legislation and planning policy (as outlined within Section 5.2 and 5.3). Recommendations for further survey effort are presented in Section 6 of this report.

3.3 BUILDING PRELIMINARY ROOST ASSESSMENT

OVERVIEW

- 3.3.1. Two buildings (each one comprising a semi-detached dwelling) were surveyed, both on Banesley Lane, Gateshead. The locations of these buildings are shown in **Figure 5**.

ASSESSMENT

- 3.3.2. There were no confirmed roosts recorded, however, the buildings were attributed to the following categories (in accordance with **Table 2-1**):
- ┆ Negligible (screened out) – one Building, B1 recorded;
 - ┆ Low – no buildings recorded;
 - ┆ Moderate – one Building, B2 recorded; and
 - ┆ High – no buildings recorded.
- 3.3.3. Full details of the assessment are presented within **Table 3-2** below, with photos provided in **Appendix A**.
- 3.3.4. Two or three potential bat droppings were recorded high on the rear wall of Building B2. Further examination identified small gaps under the eaves and evidence of swallow/swift nests in close proximity to the potential droppings. Anecdotal evidence from the homeowner supported regular use by nesting birds. A detailed examination couldn't clarify whether the marks were bat droppings, bird droppings or defects in the render; this was due to the height of the markings on the exterior wall.
- 3.3.5. The inspection of Building B1 recorded no evidence of bat droppings.
- 3.3.6. Despite having 'moderate' potential, Building B2 can be scoped out of the need for further survey due to its distance from the Scheme (greater than 30 m) and the levels of disturbance it is already exposed to from the A1 road. This is further discussed in **Section 6** of this report.

Table 3-2 - Building preliminary roost assessment results

Building No (B#)	Grid Reference	Description of Building	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required
B1	NZ 24561 58548	Small two story, semi-detached, red-brick residential property with English bond brick work and likely cavity wall structure. Red clay tiled roof with lead flashing. Small single story garage extension with flat roof (no pitched edges). Small pitched porch and flat roof bay window. See Photos 16 & 17 in Appendix A .	<ul style="list-style-type: none"> i None recorded. i Roof tiles and flashing are in very good condition. i No gaps in soffits, eaves or on the gable end. 	No evidence recorded	Negligible	No
B2	NZ 2453 58548	Small, two story, semi-detached residential property with a garage extension. Both floors	<ul style="list-style-type: none"> i Thin gap under length of eave at rear of property including missing roof timber support bricks that 	Potential droppings on rear wall of Building B2. However, the wet material bonfire made	Moderate	No

Building No (B#)	Grid Reference	Description of Building	Description of Potential Roosting Features	Evidence of Roosting Bats Recorded	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required
		<p>of the property are rendered and the 1st floor has mock Tudor facade. The main pitched roof consists of new red clay tiles with lead flashing. The garage roof is flat but with pitched edges consisting of red clay tiles and lead flashing. The garage roof is flat and consists of red clay tiles and lead flashing.</p> <p>20th century building</p>	<p>may provide access into the loft void (see Photos 14 & 15).</p> <ul style="list-style-type: none"> i Very slight gap under the pitch at the front of the property (above front room windows). i Eastern gable end has some gaps but looks bricked up. i Small thin gap on eastern gable end between eave and wall. i Front has very small gaps. 	<p>visibility difficult and this could have been ash stuck to the wall. Occupant also commented on the poor render finish (could be confused for droppings).</p>		

3.4 TREE PRELIMINARY ROOST ASSESSMENT

OVERVIEW

- 3.4.1. In total, five trees (Tree T1 to Tree T5) and the trees within two areas of woodland (Woodland 1 and Woodland 2) were inspected individually. All the trees within the woodland were classified to have negligible potential and so are not referred to individually, but as woodland blocks, for clarity within this report.
- 3.4.2. The trees and woodland areas are shown on **Figure 6**. Three trees were considered suitable to support roosting bats with 'Moderate' suitability (details included in **Appendix B**).

ASSESSMENT

- 3.4.3. Full details of the tree assessment are presented in **Table 3-3** below.
- 3.4.4. There were no confirmed roosts recorded, however, the trees were attributed to the following categories (in accordance with **Table 2-1**):
- ┆ Negligible – one tree (Tree T5) and all trees located within the Woodlands 1 and 2;
 - ┆ Low – one tree (Tree T3) recorded;
 - ┆ Moderate – three trees recorded (Tree T1, Tree T2 and Tree T4); and
 - ┆ High – no trees recorded.
- 3.4.5. Further to this, Tree T1, Tree T2 and Tree T4 were scoped out of the need for further survey due to their distance from the Scheme (both in excess of 30 m) and the levels of disturbance from the A1 road which they are already exposed to. This exposure includes light and noise pollution from the A1 (current alignment). Due to Tree T3 having low potential, no further survey effort is required according to good practice guidance (Collins, 2016).
- 3.4.6. Tree T4 requires further survey effort of an endoscope survey by a bat licensed ecologist of the chest height cavity located on the tree should be carried out prior to works commencing in close proximity to the tree.

Table 3-3 - Tree preliminary roost assessment results

Tree No (T#)	Tree Species	Grid Reference	Description of Tree	Description of Potential Roosting Features	Evidence of roosting bats recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
T1	Unknown	NZ 25898 58204	An over mature dead tree of unknown species. The tree is dead and there is significant evidence of rot and potential ingress of water. Surrounding habitat includes scrub and immature woodland.	<ul style="list-style-type: none"> ∣ Flaking bark; ∣ Rot holes; ∣ Woodpecker holes; and ∣ Evidence of damp rot has reduced the classification. See Photo 18. 	None	Moderate	No
T2	Oak species <i>Quercus sp.</i>	NZ 26004 57936	A mature tree approximately 12 meters tall. Bird box is situated on the northern elevation. Situated in a semi-mature plantation woodland.	<ul style="list-style-type: none"> ∣ Three woodpecker holes; ∣ Two rot holes; ∣ A slim hazard beam; ∣ There are splits at the top but these are likely to let in water. See Photo 19. 	None	Moderate	No
T3	Crack willow	NZ 25090 58510	A mature tree situated on woodland edge near	<ul style="list-style-type: none"> ∣ The trunk is completely hollow 	None	Low	No

Tree No (T#)	Tree Species	Grid Reference	Description of Tree	Description of Potential Roosting Features	Evidence of roosting bats recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
	<i>Salix fragilis</i>		hedgerows. The 10 m tall tree contained features although they were heavily exposed to the elements.	and open to the elements along its length. i Holes in the trunk provide access to the cavity. See Photo 20 .			
T4	Ash <i>Fraxinus excelsior</i>	NZ 25090 58452	A mature tree measuring approximately 15 meters tall was recorded along woodland edge and hedgerow habitats.	i A single large hole at chest height was recorded. Hole is obstructed by branches. See Photo 21 .	None	Moderate	Yes
T5	Oak species	NZ 25058 58602	A single mature tree was recorded within a small copse in a splitter island.	i Thin cover of ivy provided no potential. i No other features identified.	None	Negligible	No
Woodland 1	Mixed species plantation	NZ 25038 58609	An area of woodland within a splitter island of the roundabout with the	i None recorded.	None	Negligible	No

Tree No (T#)	Tree Species	Grid Reference	Description of Tree	Description of Potential Roosting Features	Evidence of roosting bats recorded?	Overall Assessment of Suitability to Support Bat Roosts	Further Survey Effort Required?
			Team Valley Sainsburys. Semi-mature, mixed species woodland.				
Woodland 2	Mixed species plantation	NZ 24866 58497	An area of woodland within a splitter island of the roundabout with the Banesley Lane. Semi-mature, mixed species woodland.	i None recorded.	None	Negligible	No

4 IMPLICATIONS FOR DEVELOPMENT

4.1 OVERVIEW

- 4.1.1. In the absence of mitigation, the Scheme has potential to affect bats, through direct effects upon potential bat roosts associated with bridges, buildings and trees, within the Scheme. The legislation and planning policy relevant to bats and their roosts set out below is therefore relevant. Recommendations as to how the legislation and planning policy may be satisfied are set out in the Recommendations section.

4.2 LEGAL COMPLIANCE

- 4.2.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitat Regulations'), the legislation means that it is an offence to:
- i Deliberately capture, injure or kill a wild bat;
 - i Deliberately disturb wild bats; 'disturbance of animals includes in particular any disturbance which is likely:
 - (a) to impair their ability —
 - (i) to survive, to breed or reproduce, or to rear or nurture their young; or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - (b) to affect significantly the local distribution or abundance of the species to which they belong.' and
 - i Damage or destroy a breeding site or resting place used by this species.
- 4.2.2. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.
- 4.2.3. Due to the high level of protection afforded to bats and their habitat, impacts to roosts (including loss, damage or obstruction) is governed by a strict licensing procedure administered by Natural England, which requires the development of suitable mitigation and compensation to avoid impacts to the Favourable Conservation Status (FCS) of the bat species.
- 4.2.4. Certain species of bats including noctule bat, brown long-eared *Plecotus auritus* bat and soprano pipistrelle bat are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

NATIONAL POLICY STATEMENT FOR NATIONAL NETWORKS

4.2.5. As a road scheme, the Scheme should abide by the National Policy Statement for National Networks (DT, 2014). This states that:

- i *“Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how these will be secured. In particular, the applicant should demonstrate that:*
 - *during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;*
 - *during construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised (including as a consequence of transport access arrangements);*
 - *habitats will, where practicable, be restored after construction works have finished;*
 - *developments will be designed and landscaped to provide green corridors and minimise habitat fragmentation where reasonable; and*
 - *opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals, for example through techniques such as the 'greening' of existing network crossing points, the use of green bridges and the habitat improvement of the network verge.”*

5 RECOMMENDATIONS

5.1 FURTHER SURVEY EFFORT

- 5.1.1. Following the completion of the PRA to determine bat roost suitability, the bridges, buildings, trees and woodland were categorised into the following classifications:

Table 5-1 - Further survey effort required for the bridges, buildings and trees

Name	Overall Potential	Further Survey Effort Required?	Recommendations
Smithy Lane Overbridge	Moderate	Yes	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May to September with at least one of the surveys between May and August.
Allerdene Railway Underbridge	Moderate	Yes	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May to September with at least one of the surveys between May and August.
Eighton Lodge slip road Underbridge	Moderate	Yes	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May to September with at least one of the surveys between May and August.
Eighton Lodge north Underbridge	Moderate	Yes	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May to September with at least one of the surveys between May and August.
Eighton Lodge south Underbridge	Moderate	Yes	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May to September with at least one of the surveys between May and August.
North Side Overbridge	Moderate	Yes	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey between May to September with at

Name	Overall Potential	Further Survey Effort Required?	Recommendations
			least one of the surveys between May and August.
North Dene Footbridge	Negligible	No	-
Longbank Bridleway Underbridge	Negligible	No	-
Building 1	Negligible	No	-
Building 2	Moderate	No	-
Tree 1	Moderate	No	-
Tree 2	Moderate	No	-
Tree 3	Low	No	-
Tree 4	Moderate	Yes	An endoscope survey by a bat licenced ecologist (minimum of level 2 class licence) of the chest height cavity located on the tree should be carried out prior to works commencing in close proximity to the tree.
Tree 5	Negligible	No	-
Woodland 1	Negligible	No	-
Woodland 2	Negligible	No	-

BRIDGES

- 5.1.2. Those bridges classified as 'Negligible' are screened out from further survey effort, in accordance with good practice guidance (Collins, 2016), due to lacking suitable features to support roosting bats.
- 5.1.3. It is recommended that the six bridges classified as 'Moderate' in **Table 2-1** are subject to two separate survey visits each including a single dusk emergence and a separate single dawn re-entry survey. The surveys should be conducted between May and September in suitable weather conditions.

- 5.1.4. No further survey effort is required for Longbank Bridleway Underbridge in regard to assessment of roosting features. It is considered, however, that this bridge may be used by commuting bats as a crossing point under the A1. No further survey effort is required for North Dene Footbridge either due to its 'Negligible' suitability. But it is known there are bat roosts between 150- 300m south-west of the footbridge at the site of the EPSL and at Birtley Northside LWS. Therefore, it is possible that commuting bats may use the footbridge as a crossing point across the A1 also.
- 5.1.5. As a result, if the Scheme requires Longbank Bridleway Underbridge to be closed or moved between March and September, the period of time when bats may be active and therefore displaced, further survey effort may be required to determine the importance of the underpass and footbridge and inform the requirements of mitigation. The survey effort should consist of a minimum of six 60-minute surveys (either dusk or dawn) between June and August. Surveyors should be positioned at either end of the underbridge and footbridge to record bats flying through and across these crossing points.
- 5.1.6. Surveys should be conducted in accordance with the Bat Conservation Trust's (BCT) Good Practice Guidelines (Collins, 2016) and DEFRA Linear Infrastructure Guidelines (Berthinussen & Altringham, 2015) and be undertaken at least two weeks apart.

BUILDINGS

- 5.1.7. Building B1 is well-sealed and does not offer significant value for roosting bats. As such, no further survey effort is deemed necessary.
- 5.1.8. The external building inspection of Building B2 recorded PRFs and potential droppings were seen on the wall, resulting in the building being assigned 'Moderate' potential to support roosting bats.
- 5.1.9. Whilst Building B2 holds potential value to support a bat roost, it will not be directly impacted by the Scheme and therefore there will be no loss of roosting space associated with this building. In addition, the building will only be subject to nearby construction activities that are unlikely to constitute significant disturbance impacts over and above those already present. The building has been subject to localised environmental/ habitat change in previous years, including the removal of the tree screen between the property and the A1 carriageway and the installation of a sound wall. This means that any bats present are likely to have become habituated to the higher levels of disturbance created by the motorway, reducing the impact of nearby construction activities and the disturbance levels this may generate.
- 5.1.10. Both Building B1 and B2 are currently subject to high levels of ongoing disturbance due to proximity to the A1 carriageway, which is likely to reduce the value of the building for roosting bats. This high level disturbance would suggest a low suitability for high value roosts, such as maternity and hibernation roosts.
- 5.1.11. As there will be no direct impacts to Building B1 or Building B2 and the nearby construction activities are not considered to pose significant levels of disturbance that may change the

use of any potential roost, further survey effort is not recommended in relation to this scheme. Indirect disturbance impacts, such as light, will be avoided or reduced through the implementation of appropriate mitigation.

TREES

- 5.1.12. All the trees located in woodlands 1 and 2 were identified as having no potential bat roosting features meaning all trees have negligible bat roost potential. As a result, no further bat survey is recommended for the trees within these small areas of woodland.
- 5.1.13. Despite being given 'Moderate' suitability to support roosting bats, Trees T1 and T2 are scoped out for further survey due to their distance from the Scheme (both in excess of 30 m) and the levels of disturbance they are already exposed to such as light and noise pollution from the A1 (current alignment).
- 5.1.14. Due to Tree T3 having 'Low' suitability, no further survey effort is required according to good practice guidance (Collins, 2016).
- 5.1.15. Tree T4 is classified as having 'Moderate' suitability for roosting bats and is within an area of land required for the Scheme. Subsequently, it is recommended that an endoscope survey of the cavity located on the tree trunk at chest height should be carried out prior to works commencing in close proximity to the tree.
- 5.1.16. Should the endoscope survey indicate the presence of roosting bats and the tree is to be impacted or lost as part of the Scheme, a European Protected Species mitigation licence may be required from Natural England to permit the works. As part of the licence application, a mitigation and compensation strategy would be developed and implemented; detailing actions to avoid or reduce the potential impacts to roosting bats and how any loss or damage of roosts will be adequately compensated for.
- 5.1.17. If the surveys suggest likely absence of a roost, precautionary working methods may still be required should low value for roosting remain. This may involve working under a toolbox talk or method statement, pre-commencement inspection and/or supervised soft/sectional felling.

5.2 EUROPEAN PROTECTED SPECIES LICENSING

- 5.2.1. Should a bridge, building or tree supporting a bat roost be directly impacted or lost as part of the proposal, an EPSL may be required from Natural England to permit the works. As part of the licence application, a mitigation and compensation strategy would be developed and implemented; detailing actions to avoid or reduce the potential impacts to roosting bats and how any loss or damage of roosts will be adequately compensated for.
- 5.2.2. The results of the open data search on MAGIC show that a resting area used by a common pipistrelle was located 150 m from the Scheme. This shows that populations of bats, for which necessary efforts to reduce and avoid impacts on are needed, are present in the local area. Therefore, an EPSL may be needed if bats roosts are confirmed in any of the features.

5.3 AVOIDANCE, MITIGATION AND COMPENSATION

- 5.3.1. The emergence/ re-entry surveys detailed for the bridges will record any bats accessing or egressing from the bridges, as well as the level of bat activity in the vicinity to give further indication of the likelihood of roost presence. Following the completion of the survey effort, appropriate recommendations for avoidance, mitigation and compensation can be determined.
- 5.3.2. Due to the bridges, buildings and trees falling within the Scheme footprint, mitigation is required as well as the additional survey effort detailed above, in order to reduce the disturbance impacts. It is recommended that a sensitive lighting scheme is designed, in appropriate locations, to be determined by the recommended survey, which seeks to retain the extant unlit foraging/commuting corridors.
- 5.3.3. Such a scheme would limit any isolation and fragmentation impacts and seek to maintain links between the bat roosting features and nearby foraging habitat within the scheme and adjacent land. The scheme should be designed to ensure that the suitable bat features are not exposed to any light trespass.
- 5.3.4. The lighting scheme should include lighting restrictions both during and post-construction, which could include the following (as recommended in BCT, 2014):
- ┆ Use the minimum amount of light needed for the task;
 - ┆ Minimise the spread of light to at, or near, horizontal and ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required only;
 - ┆ The use of variable lighting regimes (VLR) to limit the times that lights are on to provide some dark periods e.g. switch off or reduce the light between 23:00 and 03:00 (seasonally dependent)
 - ┆ Avoid use of blue-white short wavelength lights and high UV content; and/or
 - ┆ Create light barriers utilising hedgerow and tree planting.
- 5.3.5. For further information please refer to the Bats and Lighting guidance (Stone, 2013).
- 5.3.6. The Scheme requires the Longbank Bridleway Underbridge to be widened and so Precautionary Working Measures may be required to minimise potential impacts, during the construction period. The surveys crossing point surveys will be utilised to inform appropriate mitigation proposals.

5.4 MONITORING

- 5.4.1. The emergence/ re-entry surveys of Longbank Bridleway Underbridge and North Dene Footbridge may highlight the requirement of during and post-construction monitoring surveys (using the same methodology), which would be utilised to confirm the effectiveness of mitigation proposals.

REFERENCES

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Figure 1 - Scheme Footprint



Figure 2 - Bridge Locations and Results



Figure 3 - Bridge Locations and Results



Figure 4 – Bridge Locations and Results



Figure 5 - Building Locations and Results



Figure 6 - Tree Locations and Results

Appendix A

PHOTOGRAPHS

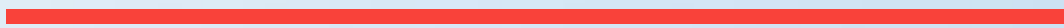




Photo 1- Layout of Smithy Lane Overbridge



Photo 2- Potential roosting feature of the gaps between abutments and bridge deck on Smithy Lane Overbridge, as well as the gaps between the concrete beams on the underside of the bridge deck



Photo 3- Layout of Allerdene Railway Underbridge



Photo 4- Potential roosting feature of the cavity between the concrete and steel deck structure on the southern end of the western pillar on Allerdene Railway Underbridge



Photo 5- Layout of Eighton Lodge slip road Underbridge



Photo 6 -



Photo 7- Potential roosting feature of the gap between the abutment and bridge deck on the north-east side of Eighton Lodge north Underbridge



Photo 8 -



Photo 9- Layout of Eighton Lodge South Underbridge



Photo 10 -



Photo 11- Lay out of North Dene Footbridge



Photo 12 -



Photo 13- Lay out of North Side Overbridge



Photo 14 -



Photo 15 – North facing elevation of Building B2



Photo 16 -



Photo 19 – Woodpecker hole on underside of trunk in Tree T2



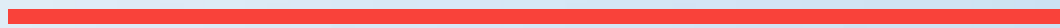
Photo 20 – Large cavity/hollow in trunk of Tree T3, likely as a result of a tear out.



Photo 21 – A very advanced knot holes that has formed a large chest height rot hole in Tree T4

Appendix B

SITE ASSESSMENT NOTES





Longbank Bridleway Underbridge Preliminary Roost Assessment Notes

Bridge Name	Longbank Bridleway Underbridge	Location	NZ 27095 57334	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/ bridge (m)	No. of arches or spans
Footpath	Road	Concrete & steel	N/A	Tunnel	4	N/A
Habitats within 100 m	Broadleaved trees/ woodland, walls and buildings					
Additional Notes	No features.					



Northside Overbridge Preliminary Roost Assessment Notes

Bridge Name	Northside Overbridge	Location	NZ 28092 56757	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/bridge (m)	No. of arches or spans
Road	Road	Concrete	Concrete	Beam	10	2
Habitats within 100 m	Broadleaved trees/ woodland and scrub.					
Additional Notes	Minor gaps in the bridge wing walls. Ledge under brick deck and between abutments.					



Smithy Lane Overbridge Preliminary Roost Assessment Notes

Bridge Name	Smithy Lane Overbridge	Location	NZ 25759 58276	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/bridge (m)	No. of arches or spans
Road & footpath	Road	Concrete	Concrete	Beam	10	3
Habitats within 100 m	Broadleaved trees/ woodland.					
Additional Notes	Cracks found under abutment. Gaps between deck and piers. Potential gaps in underside of bridge deck, between concrete lines.					



Allerdene Railway Underbridge Preliminary Roost Assessment Notes

Bridge Name	Allerdene Railway Underbridge	Location	NZ 25477 58486	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/ bridge (m)	No. of arches or spans
Road & footpath	Railway	Concrete & steel	Concrete	Beam	7	3
Habitats within 100 m	Broadleaved trees/ woodland, scrub and semi- improved grassland.					
Additional Notes	Gap located between concrete and steel deck structures on both ends of the bridge.					



Eighton Lodge North underbridge Preliminary Roost Assessment Notes

Bridge Name	Eighton Lodge North Underbridge	Location	NZ 26684 57518	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/ bridge (m)	No. of arches or spans
Road	Road	Concrete	Concrete	Beam	8	1
Habitats within 100 m	Broadleaved trees/ woodland, scrub and semi- improved grassland.					
Additional Notes	Very tight brick work on northern and southern facades and gaps between the deck and piers.					



Eighton Lodge South Underbridge Preliminary Roost Assessment Notes

Bridge Name	Eighton Lodge South Underbridge	Location	NZ 26796 57459	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/ bridge (m)	No. of arches or spans
Road	Road	Concrete	Concrete	Beam	5	1
Habitats within 100 m	Broadleaved trees/ woodland, scrub and semi- improved grassland.					
Additional Notes	Small gap between compression pads on north side of bridge. Gaps between the deck and piers.					



Eighton Lodge Slip Road Underbridge Preliminary Roost Assessment Notes

Bridge Name	Eighton Lodge Slip Road Underbridge	Location	NZ 26521 57587		Surveyors	Jack Fenwick & Gill Birtles
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/bridge (m)	No. of arches or spans
Road	Road	Concrete	Concrete	Beam	8	1
Habitats within 100 m	Broadleaved trees/ woodland, scrub and semi- improved grassland.					
Additional Notes	Gaps between the deck and piers.					



North Dene Footbridge

Bridge Name	North Dene Footbridge	Location	NZ 27535 57099	Surveyors	Jack Fenwick & Gill Birtles	
Date of Survey	09/11/17					
Bridge Details						
Type	Over	Span	Abutments	Construction	Height of arch/ bridge (m)	No. of arches or spans
Footpath	Road	Steel	Steel	Cast	8	3
Habitats within 100 m	Scrub, semi- improved grassland and buildings.					
Additional Notes	No suitable features present.					



Building Preliminary Roost Assessment Notes

Site Name:	A1 Birtley to Coalhouse	Surveyors:	Jack Fenwick and Barney Leigh
Weather Description:	Mild, overcast day. No rain during survey.		
Notes/Limitations:	Occupant of Building 1 was having a bonfire which temporarily obscured the view of any features and may have deposited ash on the buildings.		
Building No.	Description		
1	<p>Roof ridges are sealed tightly with lead flashing – no gaps. At the rear of the property there is a gap under the eaves next to what appears to be an old disused swift/swallow nest. Although there appears to be a gap between the tiles connecting the roof of the two properties. There is an exposed eave along the rear of the property which appears to be utilised by birds. Small gaps observed under the eaves at the rear of the property near evidence of birds. The gable end looked well finished but some small gaps were observed. Front eaves look intact but some small gaps were recorded. Heavily disturbed by the motorway.</p> <p>There are potentially 2-3 droppings on the rear of the property, although it could be ash, poor rendering. At the front of the property there are slight gaps above the front room window, top floor. On the gable end there is a thin gap between eave and wall. Heavily disturbed by the motorway. Moderate.</p>		
2	Red brick property in good condition. Recently repaired roof was in good condition with neat flashing and neat tiles. Ridge looked sound. Soffits and eaves had no gaps or cracks. 3 bird boxes (2 rear and 1 gable). No value. Negligible		

Tree Preliminary Roost Assessment Notes

Site Name	A1 Birtley to Coalhouse	Surveyors	Jack Fenwick and Barney Leigh
Weather Description:	Mild, overcast day. No rain during survey.		
Notes/Limitations:	None		
Tree No.	Description		
1	Unknown species. Approximately 10m tall. Over Mature. Tree was situated in Scrub and Immature Woodland. Features include flaking bark, rot holes, woodpecker hole/rot hole. There was clear evidence of rot and the classification as therefore reduced to moderate.		
2	Oak species. Approximately 12m tall. Mature tree. Tree was situated in semi mature plantation woodland. Features include 3 woodpecker holes, 2 rot knots, 1 open slim hazard beam and an unused bird box. Splits at the top of the tree appear to let water in and any holes and cavities are likely damp. Moderate.		
3	Crack willow <i>Salix fragilis</i> . Approximately 10m tall. Mature tree, situated in woodland edge/hedgerow habitat. Features include a large hollow and open trunk exposed to elements and evidently wet. Low.		
4	Ash tree. Approximately 15m tall. Mature tree, situated in woodland edge/hedgerow habitat. The ash has a large hole at chest level blocked by branches. Moderate.		
5	Oak species. Approximately 20m tall. Mature tree situated in small copse in splitter island. Tree has thin ivy exhibiting no crawl spaces or decent crevices. Remainder of the tree is in good condition with no features. Negligible.		
Woodland 1	0.46 ha of broadleaved semi-natural woodland comprising of semi-mature alder <i>Alnus glutinosa</i> , ash <i>Fraxinus excelsior</i> , field maple <i>Acer campestre</i> , oak species <i>Quercus</i> sp., willow species <i>Salix</i> sp. and horse chestnut <i>Aesculus hippocastanum</i> . Approximately 180 trees are present within this woodland, all of which have no bat roosting features and therefore all have negligible potential.		
Woodland 2	0.81 ha of broadleaved semi-natural woodland comprising of semi-mature alder, ash, field maple, oak species, willow species and horse chestnut. Approximately 135 trees are present within this		



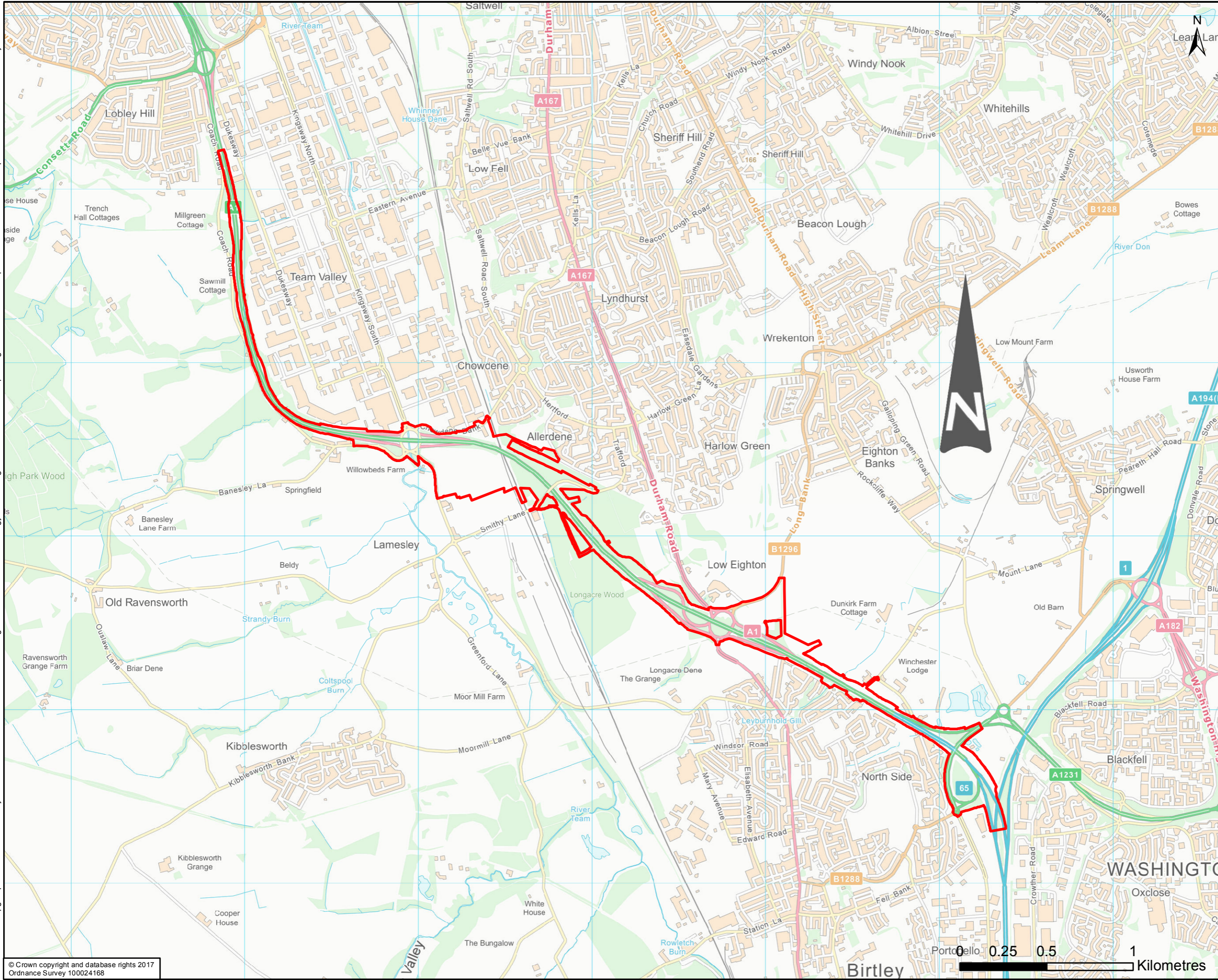
	woodland, all of which have no bat roosting features and therefore all have negligible potential.
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William Armstrong Drive
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NE4 7YQ

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Scheme Footprint



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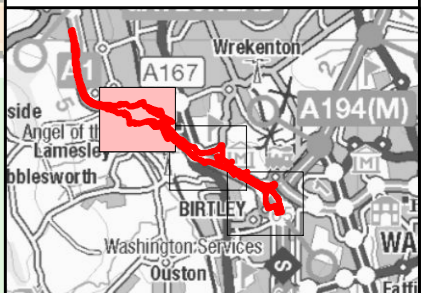
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Scheme Footprint
Bat roost potential
Moderate potential



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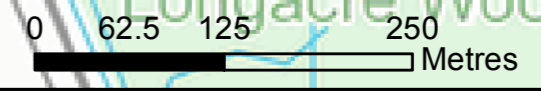
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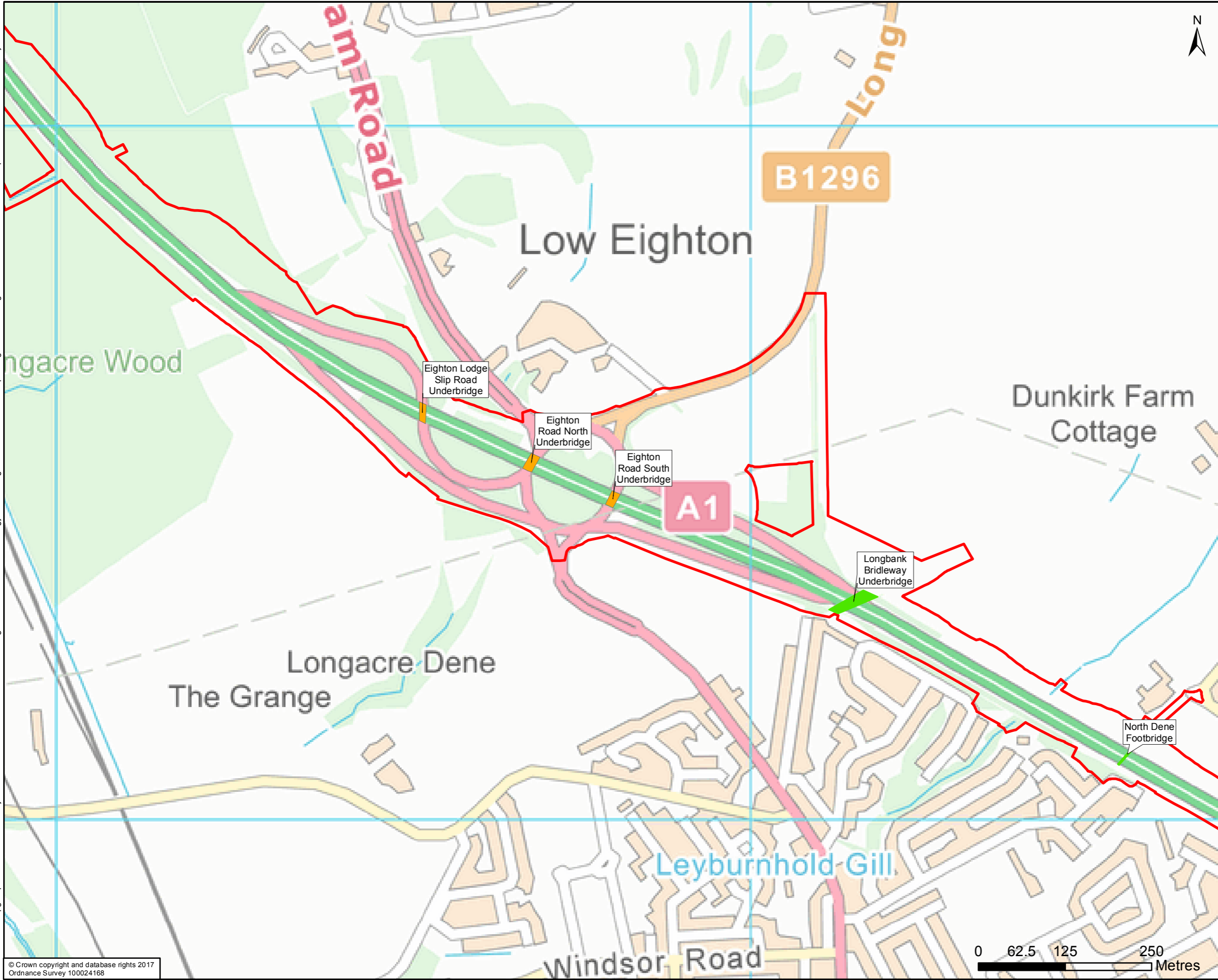
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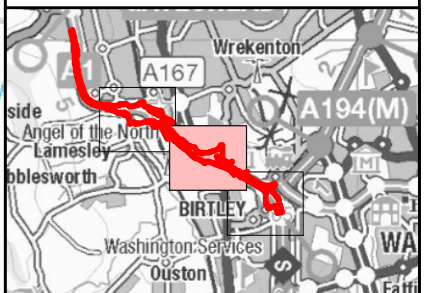
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-  Scheme Footprint
- Bat roost potential**
-  Moderate potential
-  Negligible potential



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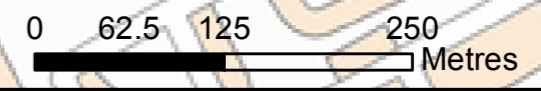
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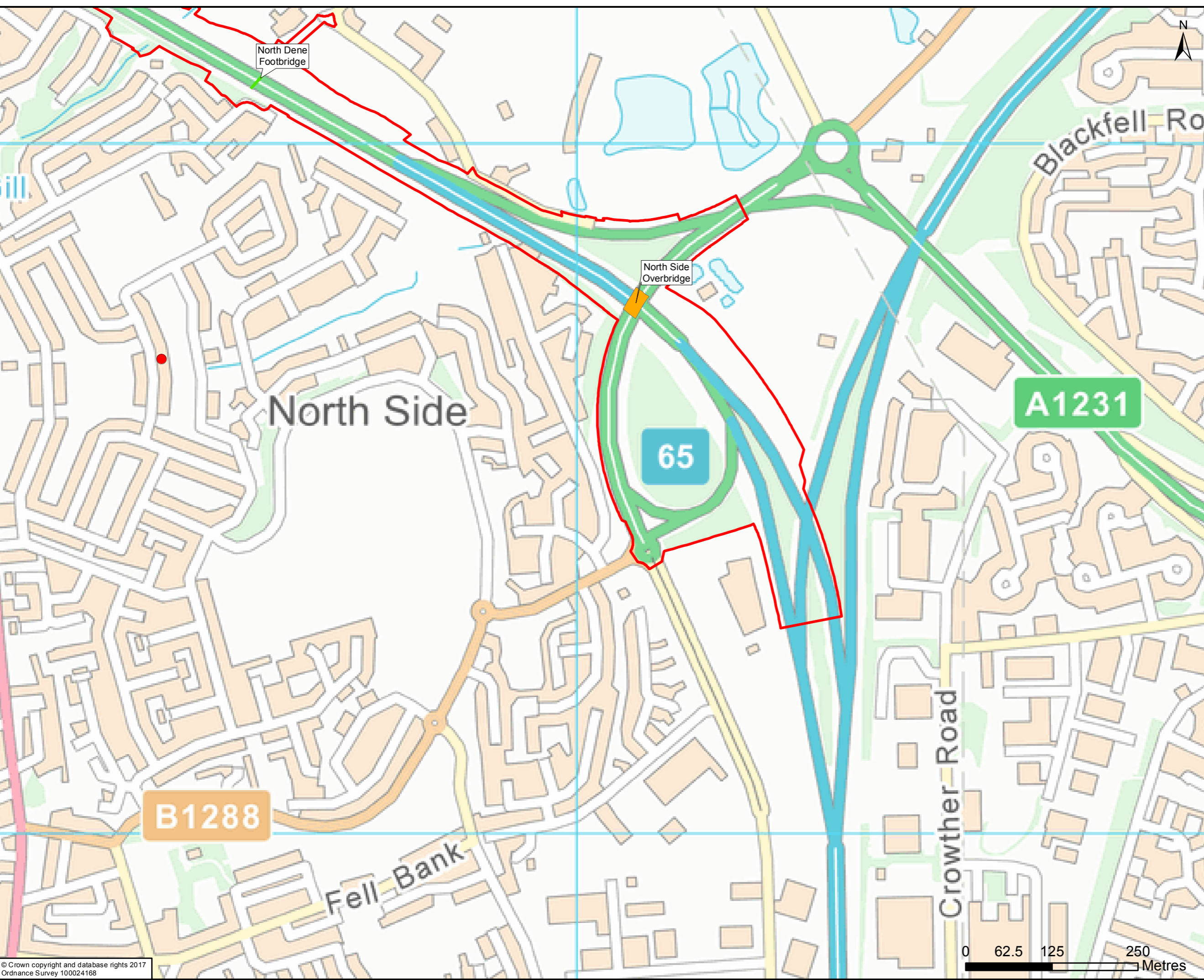
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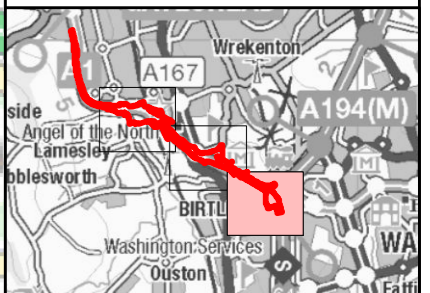
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- Scheme Footprint
- Birtley Northside LWS
- Bat roost potential
- Moderate potential
- Negligible potential



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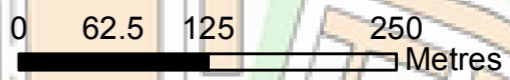
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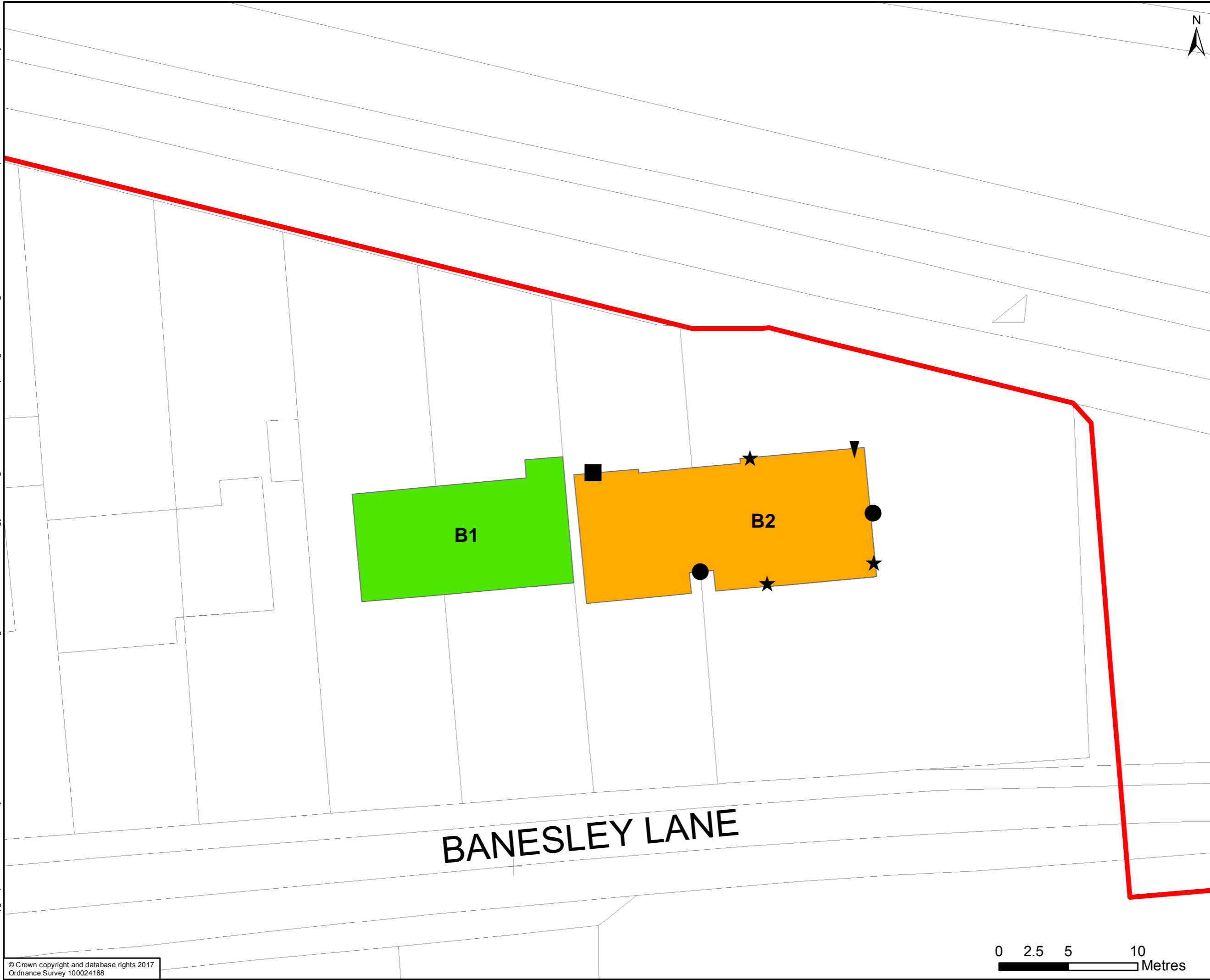
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- Scheme Footprint
- Building location in relation to scheme footprint
- Gaps under bricks
- Gap under eave
- Missing Timber
- Potential bat droppings
- Bat Roost Potential**
- Moderate Potential
- Negligible Potential



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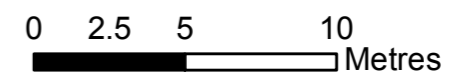
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- Scheme Footprint
- Trees with Bat roost potential**
 - Low potential
 - Moderate potential
 - Negligible potential
 - Scoped Out
- Woodland with Bat roost potential**
 - Negligible potential



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Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Bat Roost and Commuting Route Survey Report



Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Bat Roost and Commuting Route Survey Report

PUBLIC

PROJECT NO. 70041947

OUR REF. NO. HE551462-WSP-EBD-ZZ-RP-LE-00011

DATE: DECEMBER 2018

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QUALITY CONTROL

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EXECUTIVE SUMMARY

WSP UK Ltd. was commissioned by Highways England to undertake bat emergence / re-entry surveys of several bridges and a DEFRA survey of an underpass to inform the proposals and the Development Consent Order (DCO) for the A1 Birtley to Coal House Scheme (hereafter referred to as 'the Scheme') in Gateshead.

Following the completion of an assessment for bat roost suitability on the structures located along the Scheme, several bridges were identified as having 'Moderate Roost Suitability'. Each bridge was subject to two separate survey visits including a single dusk emergence and a single dawn re-entry survey to determine if bat roosts are present within the structure. This was in accordance with current good practice guidelines (Collins, 2016).

A total of six bridges were subject to survey effort. These were:

- § Smithy Lane overbridge
- § Allerdene underbridge
- § Eighton Lodge slip road underbridge
- § Eighton Lodge north underbridge
- § Eighton Lodge south underbridge
- § North Side overbridge.

Of these structures, a single common pipistrelle bat *Pipistrellus pipistrellus* was confirmed. The bat was located within the underside of Eighton Lodge South underbridge, confirming that a roost is present.

Additionally, Longbank Bridleway underpass was identified as having potential to support bats commuting beneath the A1. As this feature will be directly impacted by the works (due to be extended), the structure was subject to DEFRA Local Scale surveys (crossing point surveys). Longbank Bridleway underpass was initially subject to two crossing point surveys. As a minimum number of bats were recorded to use this structure, a further four surveys were completed.

A Natural England Licence will likely be required to undertake the works to Eighton Lodge South underbridge. This will likely include exclusion of the bats from the roost, prior to the partial demolition and rebuild of the bridge. More details of methods of exclusion will be outlined in full within the mitigation statement to inform the Statement of Common Ground.

As bats have been recorded utilising Longbank Bridleway underpass, it is recommended that a sensitive lighting scheme is required, in order to allow the continued use of the feature and attempt to reduce the fragmentation impacts which may occur by increasing the length of the feature. Monitoring of the use of Longbank Bridleway underpass will be required during construction and over a number of years post-construction.

In addition to these recommendations, consideration has been given to opportunities to enhance the value of the Scheme for bat species.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

- 1.1.1. WSP UK Ltd ('WSP') was commissioned by Highways England to undertake bat emergence/ re-entry surveys of several bridges and DEFRA surveys of an underpass in order to inform the proposals and Development Consent Order (DCO) for the A1 Birtley to Coal House Scheme (hereafter referred to as 'the Scheme') in Gateshead, Newcastle upon Tyne.
- 1.1.2. The Scheme is 6.5km in length and will include replacement of Allerdene Bridge. Most of the work will take place within the highway boundary, however, some additional land will be required alongside the A1 at certain points to enable the additional lanes to be constructed.
- 1.1.3. The Scheme will provide additional capacity by widening to four lanes between junction 65 and 67 on the southbound carriageway and three lanes with an additional lane to help manage traffic joining and leaving the A1 between junctions on the northbound carriageway. It also includes a replacement structure of Allerdene Bridge to the immediate south of the current structure, which will tie in to the existing junction 67 Coal House roundabout. The Scheme will also look to install electronic signage to provide driver information along the road.

1.2. ECOLOGICAL BACKGROUND

- 1.2.1. An extended Phase 1 habitat survey was undertaken during March and April 2015 (WSP | PB, 2016b) and updated during September 2018 (WSP, 2018a). Habitats were identified within the Scheme, which are suitable to support bats, including the presence of structures (bridges and underpasses) which may support roosting bats (WSP | PB, 2016a).
- 1.2.2. The update ecological assessment (WSP, 2018) concluded that Longbank Bridleway underpass would be affected by the works. Therefore, an assessment of this structure for its suitability to support commuting bats should be undertaken to determine whether artificial lighting, an increase in length or disturbance from plant and machinery could impact commuting bats.
- 1.2.3. An assessment for bat roost suitability was undertaken on the structures located along the Scheme in November 2017 (WSP, 2018b). This assessment concluded that the structures listed below have 'Moderate Roost Suitability', meaning it was recommended that each structure required further survey and assessment, in accordance with good practice guidance (Collins, 2016).
- 1.2.4. The structures assessed as requiring further survey (and surveys required) are detailed below:
 - § Smithy Lane overbridge (Dusk / Dawn Assessment)
 - § Allerdene Bridge (Dusk / Dawn Assessment)
 - § Eighton Lodge slip road underbridge (Dusk / Dawn Assessment)

- § Eighton Lodge north underbridge (Dusk / Dawn Assessment)
- § Eighton Lodge south underbridge (Dusk / Dawn Assessment)
- § North Side Overbridge (Dusk / Dawn Assessment)
- § Longbank Bridleway underpass (DEFRA Local Scale Survey)

1.3. BRIEF AND OBJECTIVES

- 1.3.1. Highways England commissioned WSP to complete bat surveys along the Scheme in February 2018. The brief was to:
- § Complete dusk emergence, and/or pre-dawn return to roost surveys of built structures with suitability to support bat roosts to establish the presence or likely absence of bat roosts along the Scheme.
 - § Complete DEFRA Local Scale Surveys of Longbank Bridleway underpass to determine how the underpass is used for bats crossing the A1.
 - § Evaluate the value of the area of the Scheme for bats and make recommendations as to how proposals should account for bats with respect to legislation, planning and biodiversity policy.
- 1.3.2. The results of these surveys, and subsequent recommendations, are included within this report.

2. METHODS

2.1. OVERVIEW

- 2.1.1. Potential Roosting Features (PRFs) were recorded within the bridges / underpass listed in Table 1 during the bat preliminary roost assessment undertaken in November 2017. Full details regarding the assessment and conclusion of suitability to support roosting bats is detailed within the separate bat assessment report (WSP, 2018).
- 2.1.2. The PRFs were subject to further surveys to record bats emerging from or returning to roost and, in the case of Longbank Bridleway underpass, how bats cross the A1, if present. The level of survey effort employed was conducted with reference to good practice guidelines (Collins, 2016).
- 2.1.3. Given that a bat roost was recorded within Eighton Lodge South underbridge, the level of survey effort was increased in line with current good practice guidelines (Collins, 2016), to allow an assessment of the status of that roost.

2.2. BAT DUSK EMERGENCE / PRE-DAWN RETURN SURVEY

- 2.2.1. Six bridges were identified to have features with suitability to support bat roosts and were subject to further surveys to watch and listen for bats emerging from, or returning to roost. The level of survey effort employed was proportional to the level of suitability for roosts to be present and the number and timing of survey visits is shown in Table 1 in section 3.5 below. Surveyor locations were utilised to fully cover the PRFs on all suitable buildings. These surveyor locations are shown in Figure 2.
- 2.2.2. The dusk emergence surveys began 15 minutes before sunset and continued until 120 minutes after sunset. The dawn return to roost surveys began 120 minutes before sunrise and finished at sunrise.
- 2.2.3. The surveyors used Bat Box duet bat detectors to listen to and record echolocation calls of bats observed. During the survey, surveyors mapped the flight-lines used by any bats observed and noted any features used by the bats to exit/enter the buildings. Incidental records of bat activity near the surveyor locations was also collected.

2.3. DEFRA LOCAL SCALE SURVEYS

- 2.3.1. Longbank Bridleway underpass was identified to have potential to be used by bats as a crossing point underneath the A1, therefore, a DEFRA Local Scale survey was undertaken to determine how the structure is used by bats in accordance with DEFRA guidance (Berthinussen & Altringham 2015).
- 2.3.2. The dusk surveys began at sunset and commenced for 60 minutes following sunset. The dawn surveys began 60 minutes prior to sunrise and finished at sunrise.
- 2.3.3. Surveyors used full spectrum bat detectors and were positioned at either end on the underbridge and observed any bat activity, which may have occurred including counts of all

commuting bats, with data on flight height, direction and distance from the underbridge. Notes were also recorded regarding whether bats passed over the road or through the underpass. A standardised DEFRA form was used to collate the data required.

- 2.3.4. Two surveys were initially undertaken to assess if bats “used” the underpass. Use was bats passing through the underpass / over the road or within 5m of the underpass / road. As more than 10 bats were recorded using the underpass (between 1-5 bat passes for rare species, depending upon abundance) a full set of six surveys were undertaken.

2.4. DATA ANALYSIS

DUSK EMERGENCE AND DAWN RE-ENTRY

- 2.4.1. Where needed, the recordings of bat echolocation calls collected during the surveys was analysed using specialist computer software (Kaleidoscope, Analook and Bat Sound), which was utilised to identify bat calls to species / species group level, with calls identified with reference to published data (Russ, 2013).
- 2.4.2. The analysis enables confirmation of species or species groups based on call parameters, and the relative activity of different species of bats by counting the minimum number of bats recorded within discrete sound files.
- 2.4.3. For *Pipistrellus* species the following criteria based on measurements of peak frequency are used to classify calls:
- § Common pipistrelle *Pipistrellus pipistrellus* ≥ 42 and <49 KHz
 - § Soprano pipistrelle *Pipistrellus pygmaeus* ≥ 51 KHz
 - § Nathusius’ pipistrelle *Pipistrellus nathusii* <39 KHz
 - § Common/ soprano pipistrelle ≥ 49 and <51 KHz
 - § Common/ Nathusius’ pipistrelle ≥ 39 and <42 KHz
- 2.4.4. In addition, the following categories are used for calls, which cannot be identified with confidence, due to the overlap in call characteristics between species or species groups:
- § *Myotis/ Plecotus* sp.
 - § *Nyctalus* sp. (either Leisler’s bat *Nyctalus leisleri* or noctule *Nyctalus noctula*)
 - § Serotine *Eptesicus serotinus* /Leisler’s bat
 - § Serotine/*Plecotus* sp

DEFRA LOCAL SCALE SURVEYS

- 2.4.5. Bat recordings were auto analysed utilising BatClassify¹ (GPL, Version 3) to classify all bat calls to species level, where possible.
- 2.4.6. Data sheets were assessed for each surveyor and each survey, to remove duplicate crossing events e.g. bats recorded crossing at the same time, height, distance and direction

¹ <http://www.bitbucket.org/chrisscott/batclassify>

by more than one surveyor. These events were then assigned a species by comparing times between the data sheets and sound recordings.

- 2.4.7. The threshold utilised for correct identification within BatClassify was >0.9, anything below this threshold was manually checked.
- 2.4.8. Data was then assessed as to whether the bats were recorded “using” the existing feature and if so was it “safe”. Both definitions are adapted from the DEFRA guidance, which are:
 - § Use of a crossing structures, in this case an underbridge, is defined as bats passing with 5m of the structure or passing beneath the road through the structure; and
 - § ‘Safe’ crossing is considered passing through the underbridge below the road or passing over the road at a height of greater than 5m above the road surface.
- 2.4.9. This data was then assessed to gain total numbers and percentages of bats utilising the structure and safe/unsafe passage.
- 2.4.10. Further assessment utilising statistical analysis will be undertaken following the construction and post-construction monitoring surveys.

2.5. DATES OF SURVEY AND PERSONNEL

- 2.5.1. The bat surveys were led by an experienced surveyor who has three years’ experience of ecological survey, including extensive bat survey experience and is a graduate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 2.5.2. The timing of other survey visits and surveyors responsible is summarised in **Table 2-1**.

Table 2-1 - Dates for Bat Dusk Emergence/ Pre-dawn Re-entry Survey Visits

Bridge Ref.	No. Surveyor Positions	Dates of Survey
Eighton Lodge Slip Road underbridge	2	1 st May 2018 - Dusk Emergence
	2	16 th May 2018 - Dawn Re-entry
Eighton Lodge North underbridge	4	2 nd May 2018 - Dawn Re-entry
	4	15 th May 2018 - Dusk Emergence
Eighton Lodge South ² underbridge	4 ³	2 nd May 2018 - Dusk Emergence
	4	17 th May 2018 - Dawn Re-entry
	2	30 th August 2018 - Dusk Emergence

² The number of surveys were increased to three for Eighton Lodge South, following the confirmation of the presence of a roosting bat

³ Four surveyors were initially utilised for health and safety reasons and to ensure all features / egress points could be viewed. At the time of the initial surveys it was not clear as to whether surveyors would be at risk from lone working. It was considered that surveyor numbers could be lowered to two surveyors as there was no risk to the team.

Bridge Ref.	No. Surveyor Positions	Dates of Survey
Allerdene underbridge	2	3 rd May 2018- Dawn Re-entry
	4	16 th May 2018- Dusk Emergence
North Side Overbridge	3	3 rd May 2018- Dusk Emergence
	4	18 th May 2018- Dawn Re-entry
Smithy Lane Overbridge	4	4 th May 2018- Dawn Re-entry
	3	17 th May 2018- Dusk Emergence
Longbank Bridleway Underpass	2	4 th June 2018- Dusk
	2	14 th June 2018 – Dusk
	2	05 th July 2018 – Dusk
	2	06 th July 20108- Dawn
	2	11 th July 2018- Dusk
	2	12 th July 2018 – Dawn

2.6. NOTES AND LIMITATIONS

- 2.6.1. During the dawn re-entry survey for Allerdene underbridge, two surveyors undertook the survey and were located on the south side of the bridge. This was due to not being able to gain access from the north side of the bridge. Alternate access was gained for the dusk emergence survey and so all sides of the bridge were covered (see Figure 2). Given the activity recorded and the viewpoints gained, it is considered that the survey is valid.
- 2.6.2. The undersides of Allerdene underbridge and Northside Overbridge were very dark during the surveys and so it was difficult for the surveyors to confirm if bats were emerging or re-entering to a roost. Given the timings of the bat passes recorded (heard after peak emergence periods) and flight lines recorded, it is considered that no emerging bats were missed and the surveys remain valid.
- 2.6.3. Long-eared bats *Plecotus spp.* echolocate more quietly than other bat species and so are often more difficult to detect, meaning this species could have been missed during the survey, but this is not considered to be a significant constraint to the interpretation of the results as surveys were extended to two hours after sunset and two hours before sunrise to pick up any later emerging/returning to roost bats.

3. RESULTS

3.1. OVERVIEW

- 3.1.1. The structures included within this assessment that are located along the Scheme include: Eighton Lodge Slip Road underbridge, Eighton Lodge North underbridge, Eighton Lodge South underbridge, Allerdene underbridge, North Side overbridge and Smithy Lane overbridge and Longbank Bridleway underpass.
- 3.1.2. The bat preliminary roost assessment confirmed that the PRFs within these bridges have ‘Moderate Roost Suitability’ (WSP, 2018). Further surveys confirmed that a roost is present within Eighton Lodge South underbridge, with a single common pipistrelle emerging from a PRF within the soffit of the bridge.
- 3.1.3. It is confirmed that there is a likely absence of roosts from Eighton Lodge Slip Road underbridge, Eighton Lodge North underbridge, Allerdene underbridge, North Side Overbridge and Smithy Lane Overbridge.

3.2. BAT DUSK EMERGENCE / PRE-DAWN RETURN SURVEY

- 3.2.1. A single common pipistrelle was recorded emerging from Eighton Lodge South underbridge during the dusk emergence survey (See **Figure 2**), confirming that a roost is present. Further details of the roost are described in **Table 3-1** below.
- 3.2.2. No bats were recorded emerging from, or returning to roost within Eighton Lodge Slip Road underbridge, Eighton Lodge North underbridge, Allerdene underbridge, North Side overbridge and Smithy Lane Overbridge.

Table 3-1 - Overview of Eighton Lodge South Underbridge Survey Findings

Bridge Ref.	No. of roosts	No. of bats emerged/ accessed	Roosting species	Roost location(s)
Eighton Lodge South underbridge	1	1	Common pipistrelle	Crack in the soffit arch on the east side of the bridge.

- 3.2.3. Details regarding the presence of bat roosts recorded within the surveyed bridges are described in further detail below along with an overview of bat activity recorded during the surveys. Full details of the surveys are provided within Appendix A.

EIGHTON LODGE SOUTH UNDERBRIDGE– CONFIRMED BAT ROOST

- 3.2.4. During the emergence survey in May 2018, a common pipistrelle bat was recorded emerging at approximately 21:29 (c. 46 minutes following sunset) from within a crack

located on the soffit arch of the bridge, on the east side. The bat then flew south and commuted to an unknown location beyond the detection or visible range of the surveyors. Further bat activity was recorded during the night with one bat heard in the area ten minutes after the first and only emergence.

- 3.2.5. No further roost regress / re-entry was observed during the dawn re-entry survey and second dusk survey on this bridge.

BAT ACTIVITY DURING SURVEYS – SEVEN BRIDGES

- 3.2.6. Very few bat passes were recorded at all locations during the first round of surveys. However, during the dusk emergence survey at Allerdene underbridge, there were common pipistrelles activity, which were commuting from the south, under the bridge and to the north. This activity started 15 minutes after sunset and ended an hour later.
- 3.2.7. During the dusk emergence survey at Smithy Lane overbridge, several pipistrelle bats were recorded foraging along the treeline to the south of the bridge. During the dusk emergence survey at North Side overbridge, many unknown bat species were recorded commuting north over the bridge.

3.3. DEFRA LOCAL SCALE SURVEYS – LONGBANK BRIDLEWAY UNDERPASS

- 3.3.1. The Longbank Bridleway underpass passes beneath the A1 carriageway and is utilised by bats to pass under the Scheme. Species recorded during the DEFRA local surveys include common pipistrelle, soprano pipistrelle, Daubenton's bat *Myotis daubentonii* and *Nyctalus* spp. Species recorded as using the underpass include common pipistrelle and soprano pipistrelle. A total of 241 passes were recorded during the DEFRA local scale surveys, of which 181 had recorded flight lines and were using the structure. **Table 3-2** provides a summary of the findings. **Appendix B** provides a full breakdown of the surveys. A full run-through of the data recorded is provided within **Appendix B**.

Table 3-2 - DEFRA Local Scale Survey Results

Species	Number of Recorded Passes	Number of Flight Lines Using the Structure ⁴	Number of Safe passes ⁵
Common Pipistrelle	238	180 (75.63%)	153 (85%)
Soprano Pipistrelle	3	1 (33.33%)	1 (100%)

⁴ Brackets showing percentage of passes using the structure

⁵ Brackets showing percentage of safe passes using the structure

4. IMPLICATIONS FOR DEVELOPMENT

4.1. OVERVIEW

- 4.1.1. In the absence of mitigation, the Scheme has the potential to affect bats, through direct effects upon the confirmed bat roost within Eighton Lodge South underbridge and the loss of a known commuting route under the Scheme and/or removal or degradation of habitat used by foraging and commuting bats along the Scheme. The legislation and planning policy relevant to bats and their roosts is set out below is therefore relevant. Recommendations as to how the legislation and planning policy may be satisfied are set out in Section 5.

4.2. LEGAL COMPLIANCE

- 4.2.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017 (the 'Habitat Regulations'), the legislation means that it is an offence to:
- § Deliberately capture, injure or kill a wild bat;
 - § Deliberately disturb wild bats; '*disturbance of animals includes in particular any disturbance which is likely:*
 - (a) to impair their ability —
 - (i) to survive, to breed or reproduce, or to rear or nurture their young; or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - (b) to affect significantly the local distribution or abundance of the species to which they belong.' and
 - § Damage or destroy a breeding site or resting place used by this species.
- 4.2.2. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.
- 4.2.3. Due to the high level of protection afforded to bats and their habitat, mitigation for bats is governed by a strict licensing procedure administered by Natural England (normally, planning permission must be obtained before a licence can be sought). Licencing is subject to three tests, as defined under the Habitats Regulations 2017, these must also be applied by the planning authority before granting permission for activities affecting bats. For permission to be granted the following criteria must be satisfied:
- § The proposal is necessary '*to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment*';
 - § '*There is no satisfactory alternative*'; and
 - § The proposals '*will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range*'.

- 4.2.4. Certain species of bats including the noctule bat, brown long-eared bat and soprano pipistrelle bat are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

4.3. PLANNING POLICY COMPLIANCE

- 4.3.1. At the national level the National Planning Policy Framework (NPPF) (2018) forms the basis for planning system decisions with respect to conserving and enhancing the natural environment, including bats; the ODPM circular 06/2005 also provides supplementary guidance, including confirmation that *'the presence of a protected species is a material consideration when a planning authority is considering a development proposal'*.

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

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

- 4.3.3. A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF, and includes the following:

- § *'if significant harm resulting from a development cannot be avoided...adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- § *- ...opportunities to incorporate biodiversity in and around developments should be encouraged;*
- § *- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland...unless the need for, and benefits of, the development in that location clearly outweigh the loss...'*

- 4.3.4. At a local level, the Local Plan is the future Plan for Gateshead to deliver Vision 2030. The Local Plan is made up of several documents including:

- § Planning for the Future – Core Strategy and Urban Core Plan for Gateshead and Newcastle Upon Tyne, 2010-2030 (Adopted March 2015);
- § Gateshead Unitary Development Plan (UDP) - Remaining Saved Policies (March 2015); and
- § Other supplementary documents.

- 4.3.5. The following policies are in the Local Plan documents and are relevant to the Scheme.

CS18 Green Infrastructure and the Natural Environment

4.3.6. A high quality and comprehensive framework of interconnected green infrastructure that offers ease of movement and an appealing natural environment for wildlife will be achieved by:

- § Maintaining, protecting and enhancing the integrity, connectivity, multi-functionality and accessibility of the Strategic Green Infrastructure Network;
- § Protection, enhancement and management of green infrastructure assets which include:
 - Addressing gaps in the network and making improvements in Opportunity Areas;
 - Improving and extending linkages to and within the Strategic Green Infrastructure Network; and
 - Protecting and enhancing open spaces, sport and recreational facilities in accordance with agreed standards in line with National Policy.

DC1 Environment

4.3.7. Planning permission will be granted for new development where it:

- § Achieves an improved landform, landscape or more beneficial after-use;
- § Does not have an adverse impact on statutorily protected species;
- § Takes opportunities to undertake advance planting/screening;
- § Does not significantly pollute the environment with dust, noise, light, emissions, out-fall, or discharges of any kind; and
- § Includes a waste audit or site waste management plan, where large volumes of waste or secondary aggregates are likely to be produced during development.

ENV44 Woodland, Trees and Hedgerows

4.3.8. Works that will damage or lead to the loss of trees which contribute to the amenity of an area, or which enhance the character and/or appearance of a Conservation Area, or have a significant wildlife interest, will not normally be permitted. Healthy trees which contribute to the character of an area and which are under threat will be protected by means of Tree Preservation Orders or conditions attached to planning permissions.

4.3.9. Proposals for works to trees will be considered based on the following criteria:

- § The condition of the trees;
- § The contribution of the trees to the local landscape and/or character of an area;
- § The nature conservation value of the trees, woodland or hedgerows;
- § The impact that the trees have on existing structures and the amenity value enjoyed by individual occupiers;
- § The extent and content of replanting proposals; and
- § The extent and impact of the works.

4.3.10. In addition, schemes that will protect, maintain, manage and enhance existing woodland, trees and hedgerows will be generally encouraged.

ENV46 The Durham Biodiversity Action Plan

- 4.3.11. The delivery of relevant targets for species and habitats in the Durham Biodiversity Action Plan will be actively pursued in considering development proposals.

ENV47 Wildlife Habitats

- 4.3.12. Wherever possible, all types of wildlife habitats will be protected and enhanced. Land management practices beneficial to wildlife will be encouraged in line with the Durham Biodiversity Action Plan. New development will be laid out and landscaped to be beneficial to wildlife. Proposals should avoid the use of non-native or inappropriate species in sensitive locations. Where there is evidence of damaging species that are invasive to existing habitats, these should be removed.

ENV49 Sites of Nature Conservation Importance

- 4.3.13. Sites of Nature Conservation Importance will be protected from adverse development wherever possible.

ENV51 Wildlife Corridors.

- 4.3.14. A network of wildlife corridors will be protected by resisting development or recreational use which would seriously impair their integrity or value to wildlife. Exceptionally, damaging developments may be allowed where habitats would be enhanced or where suitable replacement land is provided to retain the integrity of the corridor.
- 4.3.15. Certain species of bats are also priority species in the UK Biodiversity Action Plan (UKBAP) which was formally transposed into the UK-Post 2010 biodiversity framework (2012) that puts all species listed as SPI under NERC, 2006. Pipistrelle species, the most common species recorded during the emergence/ re-entry surveys, are listed in the Newcastle City Council (NCC) BAP and have a specific Species Action Plan (SAP).
- 4.3.16. Mitigation, compensation and enhancement measures are recommended in Section 5 to enable the Scheme to be compliant with the above legislation and planning policy.

5. RECOMMENDATIONS

5.1. AVOIDANCE AND MITIGATION MEASURES

BAT ROOSTS

- 5.1.1. Where possible, it is recommended that the soffit arch crack known to be used by one roosting bat in Eighton Lodge South underbridge is retained and incorporated into the Scheme design. Should this not be feasible, it will be necessary to mitigate potential negative effects that would otherwise result from the removal of features and provide replacement roosting opportunities.
- 5.1.2. When determining a DCO Application, which is necessary for this Scheme, in relation to a proposal that will affect bats and/or their roosts the local planning authority must ensure that they are satisfied that three tests, as set out in Regulation 53 of the Habitat Regulations 2017 (as amended), are likely to be met (see Section 5.2). To satisfy the third test, if roosts will be directly affected by works a mitigation strategy should be prepared, based on recommendations within this report, showing that it will be feasible to progress the Scheme and maintain the favourable conservation status of bat species identified on Site. Once the DCO has been obtained, this strategy may then be refined and form the basis of a licence application to Natural England to permit the commencement of works affecting known bat roosts.
- 5.1.3. It is recommended that the mitigation strategy includes the following key components:
- § Provision of alternative roosting opportunities such as bat boxes along the whole length of the Scheme as the surveys showed that pipistrelle species use the woodlands' edges for foraging and commuting. Bat boxes should also be provided within the woodlands closest to Eighton Lodge South underbridge and the existing bat roost;
 - § The bat boxes should be installed in positions where they are out of reach of people from the ground (to limit interference) and high enough to deter cats and other predators (without being placed too high as this makes maintenance more difficult and can leave the boxes exposed to weather, particularly strong winds). In practice, placing them between 3 metres and 4.5 metres from the ground is optimal; and
 - § Boxes should be placed in a range of locations at slightly different heights and facing in slightly different directions to give a choice of roost site options (Mitchell-Jones, 2004). The direction of the boxes should be selected to avoid facing them into the prevailing weather and will preferably be positioned facing in a southerly direction (i.e. south-west through south to south-east) where they will receive a good degree of sunlight.
- 5.1.4. As the Scheme requires the roost located in Eighton Lodge South underbridge to be disturbed, via the partial demolition and rebuild of the bridge, it is recommended that this be avoided during the hibernation period (core months include mid-November to mid-March, inclusive). It is recommended that should this approach be undertaken that a mitigation statement is produced to inform the works.

- 5.1.5. If the destruction of the roost is needed for the Scheme to be completed then a Natural England licence will need to be obtained for the works to be undertaken and exclusion of the bats from the roost may also be necessary. More details of methods of exclusion will be outlined in full within the licence application.
- 5.1.6. To minimise the potential for killing, injury or disturbance to bats, and to mitigate for the loss of potential roosting opportunities for bats during both the construction and post development (operational) phases of the proposed development, the following recommendations will be adopted:

FORAGING AND COMMUTING HABITAT

- 5.1.7. All the woodlands and trees which are present along the edge of the A1 should be retained, as far as possible, in order to retain the foraging and commuting habitat which was used by bats during the dusk emergence / dawn re-entry surveys.

SENSITIVE LIGHTING

- 5.1.8. Longbank Bridleway underbridge is utilised by commuting bats to pass under the Scheme. To reduce the impacts of fragmentation, it is recommended that a sensitive lighting scheme is designed to allow this continued use, once the underbridge has been extended.
- 5.1.9. Lighting both during the construction phase and operational phase of the Scheme could have a negative effect upon bat activity. It is recommended that the lighting strategy for the Scheme seeks to:
- § Use the minimum light levels necessary for the relevant task / function, this may equate to reducing light intensity, and/or using the minimum number or light sources or minimum column height;
 - § Use hoods, louvres or other luminaire design features to avoid light spill onto any areas of woodland and vegetation located throughout the length of the Scheme and newly created areas of vegetation likely to be used by foraging and commuting bats;
 - § Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wave length blue light, using instead warm/neutral colour temperature <4,200 kelvin lighting (BCT, 2014a); and
 - § Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light.
- 5.1.10. Where possible, consideration should also be given to varying the lighting levels in particularly ecologically valuable areas. For example, it may be possible to reduce lighting levels or perhaps even switch installations off after certain times e.g. between 00:00 and sunrise in the vicinity of tree lines of proposed landscaping. This use of “adaptive lighting” can tailor the installation to suit human health and safety as well as wildlife needs (BCT, 2014a).

5.2. MONITORING

5.2.1. Given that Longbank Bridleway underpass is utilised by commuting bats, monitoring of the structure will be required during and post-construction, in line with DEFRA guidelines (Berthinussen & Altringham 2015). It is recommended that this takes the form of:

- § Six survey visits per year, with two during June and four during July
- § The six visits to consist of four dusk visits and two dawn visits
- § A single year of monitoring during the construction period
- § Visits on years 0, 3, 5 and 10 post-construction.

5.3. ECOLOGICAL ENHANCEMENT MEASURES

5.3.1. Planning policy promotes the inclusion of ecological enhancement; accordingly, it is recommended that consideration is given to the following enhancement measures:

- § Inclusion of nectar-rich plant species in soft landscaping areas that are attractive to night-flying insects to enhance foraging opportunities for bats.
- § Creation of linear vegetation (tree-lines and hedgerows) within the landscaping scheme to provide additional commuting corridors across the Scheme for bats.
- § Provision of standing water-bodies to provide an additional foraging resource for bats using the Scheme, which may benefit *Myotis* and *Nyctalus* bats in particular.
- § Installation of bat bricks or bat tubes (above those required for mitigation and compensation of the known roosts) into the fabric of any new structures and/or installation of additional bat boxes to suitable retained trees and habitat to increase the roosting opportunities within the Scheme for bats.

6. CONCLUSIONS

- 6.1.1. During the dusk emergence / dawn re-entry surveys, a single common pipistrelle bat was recorded emerging from Eighton Lodge South underbridge from within the soffit arch on the eastern side, confirming that a roost is present for low numbers of roosting bats.
- 6.1.2. No bats roosts were recorded to be present within Eighton Lodge Slip Road underbridge, Eighton Lodge North underbridge, Allerdene underbridge, North Side Overbridge and Smithy Lane Overbridge.
- 6.1.3. To minimise the disturbance upon the bat roost located within Eighton Lodge South underbridge, it is recommended any works should be avoided during the hibernation period. If this approach is taken and the roost can be retained, a mitigation statement will be required. If the roost is due to be lost, a Natural England Licence will be required for these works to be undertaken.
- 6.1.4. As Longbank Bridleway underpass is utilised by commuting bats, a sensitive lighting regime is required. In addition, during and post construction monitoring is required of the structure in line with DEFRA guidelines (Berthinussen & Altringham 2015).
- 6.1.5. In addition to these recommendations, consideration has been given to the opportunities available to enhance the value of the Scheme for bat species.

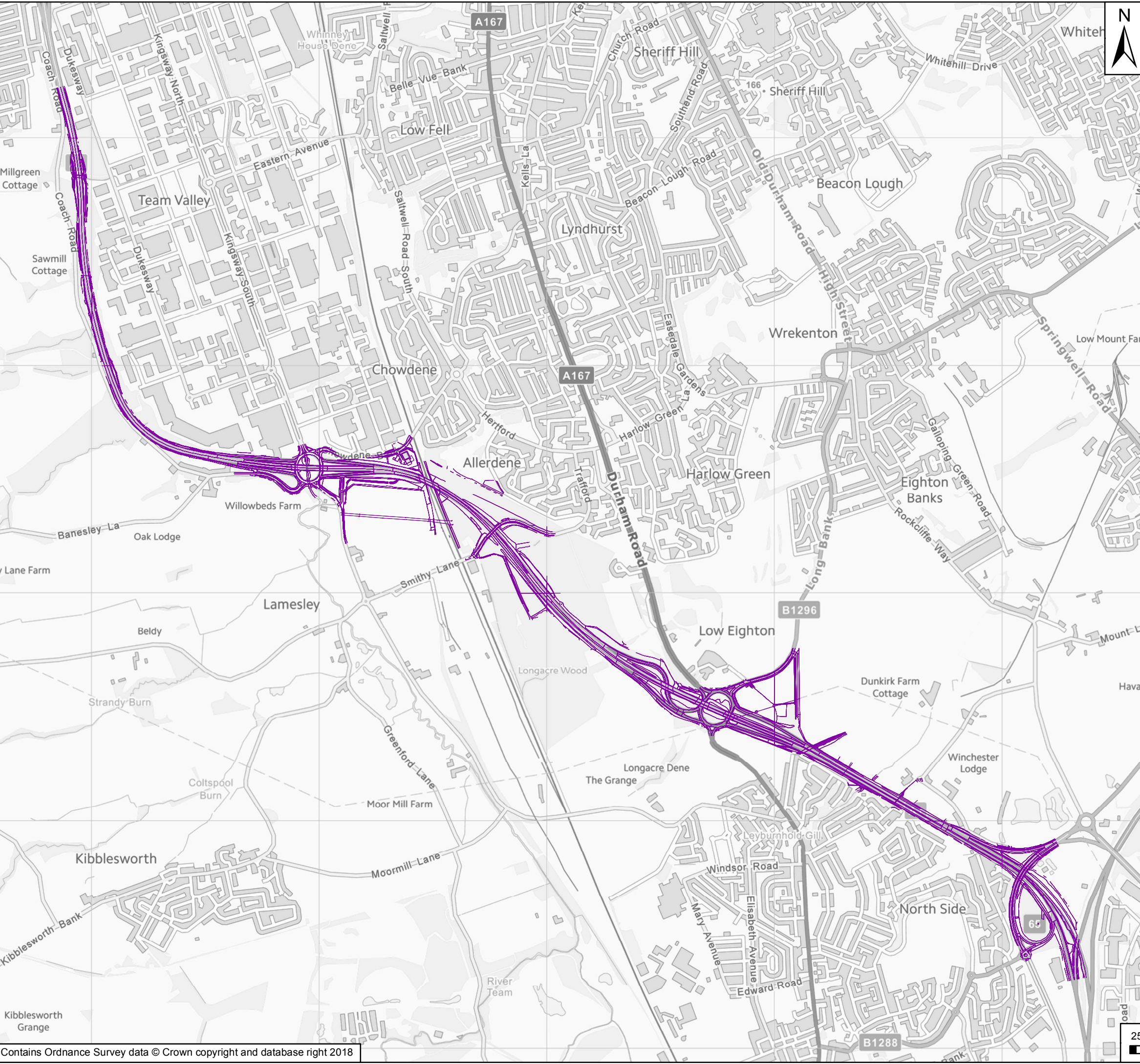
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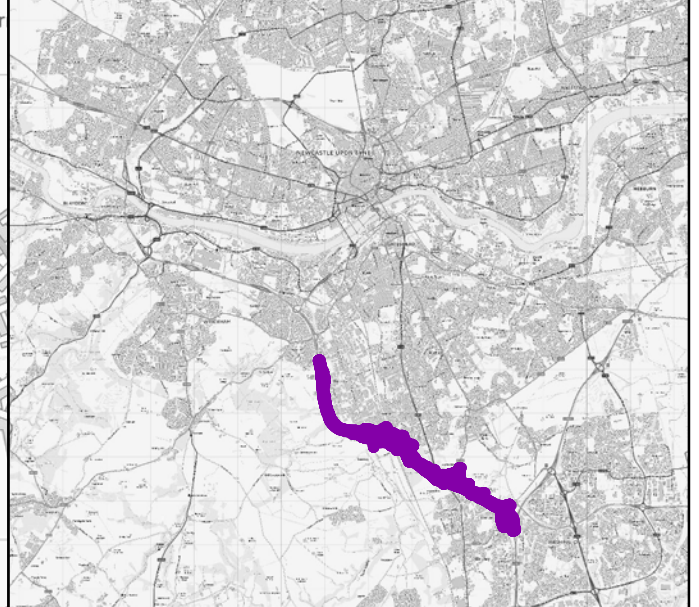
TECHNICAL REFERENCES

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Key

Proposed Scheme Footprint



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--



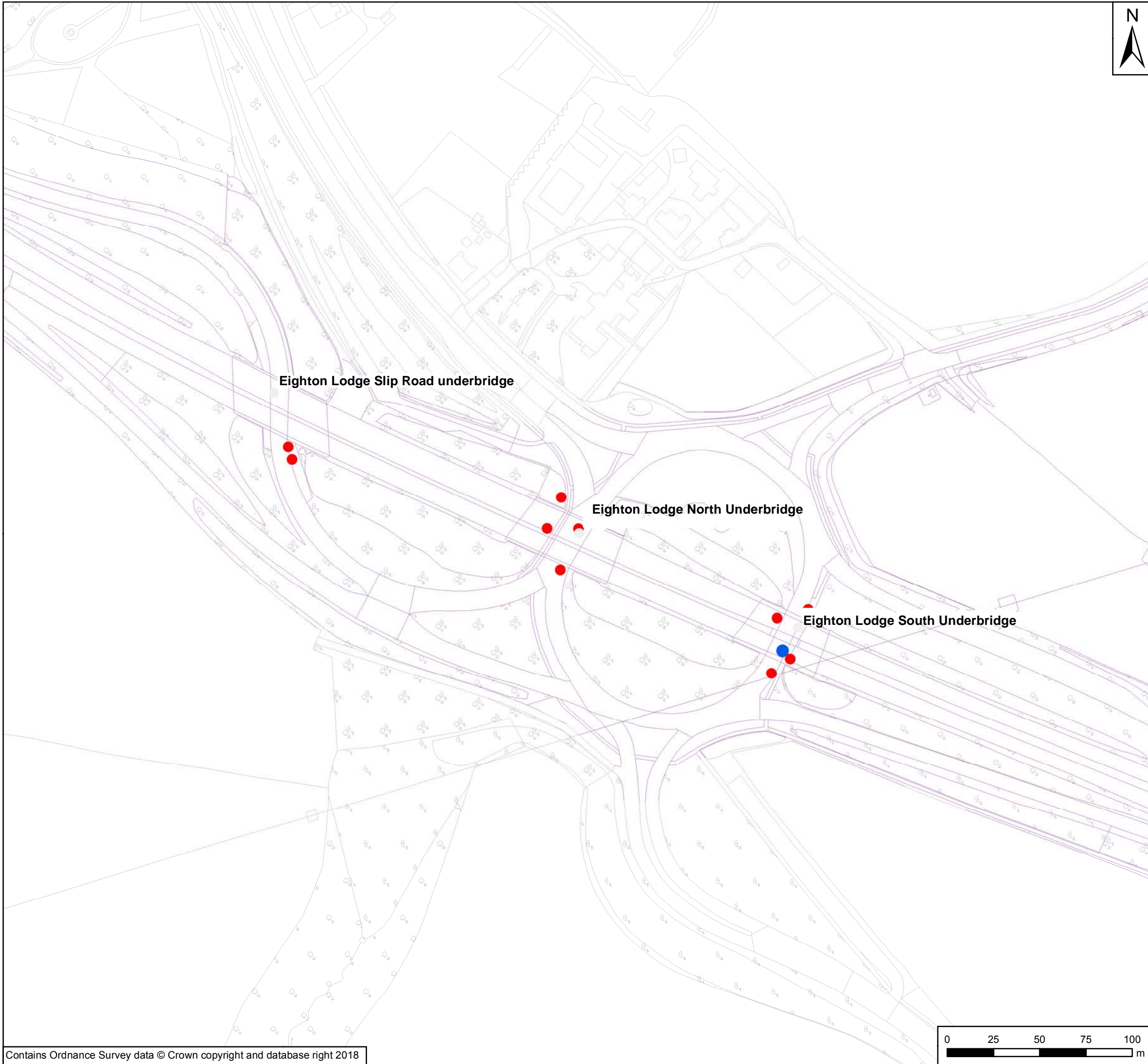
Project Title
A1 Birtley to Coal House Improvement Scheme

Drawing Title
Figure 1:
Proposed Scheme

Scale	Drawn	Checked	Approved	Authorised
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Original Size	Date	Date	Date	Date
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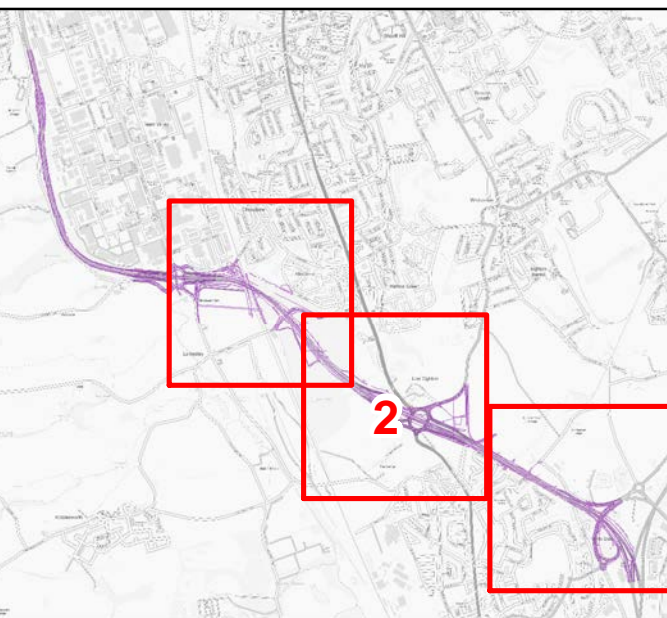
Drawing Status
For Comment

Drawing Number Project TR010031	Originator WSP	Volume	Project Ref. No. 7004197
Revision P01			



- Key**
- Roost
 - Surveyor Location
 - Scheme Footprint

Please note the surveyor locations are indicative. Where locations appear to be on an overbridge, surveyors were located beneath the overpass.



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--



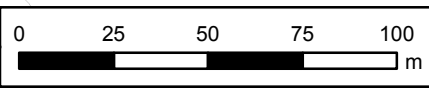
Project Title
A1 Birtley to Coal House Improvement Scheme

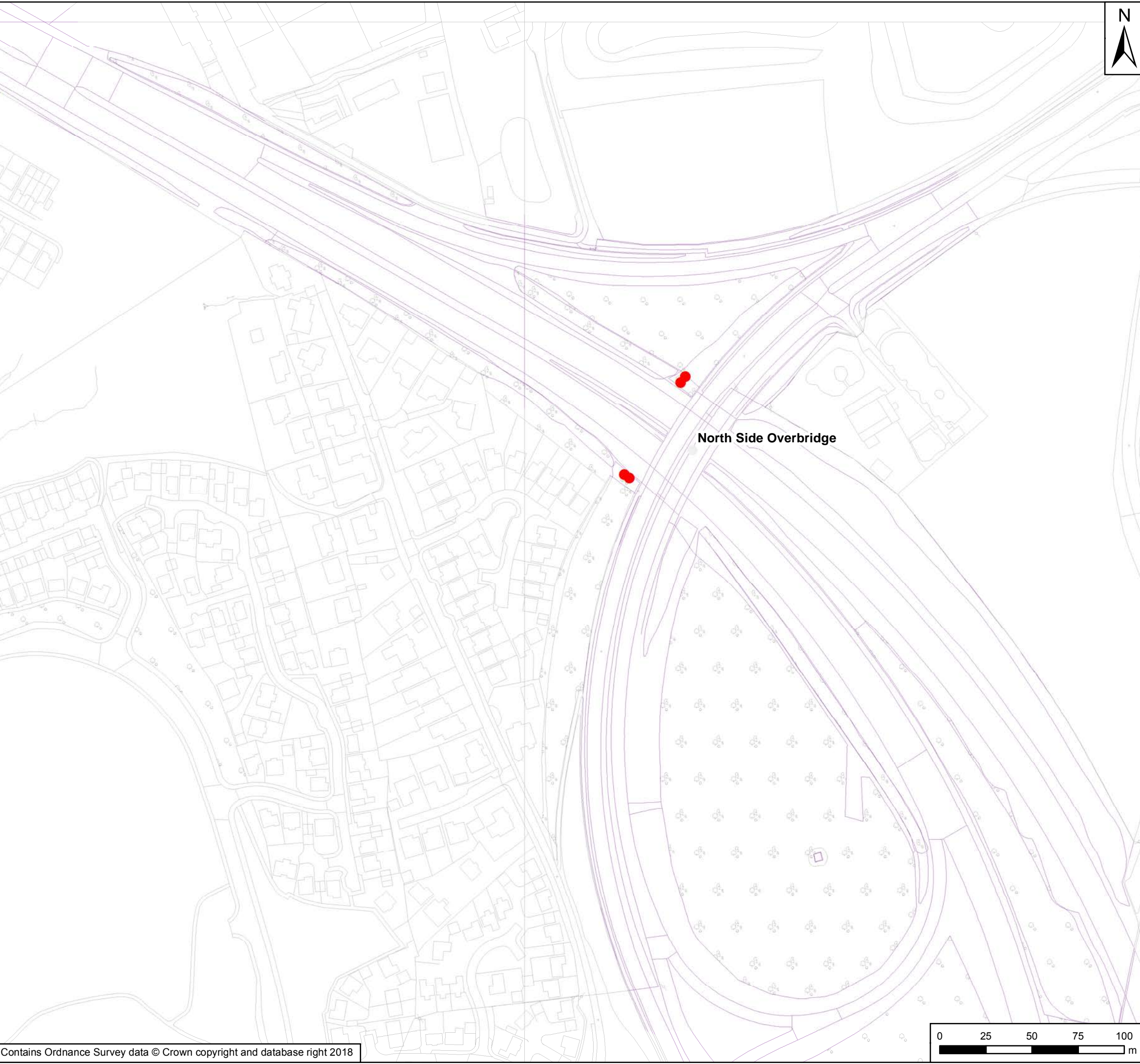
Drawing Title
Figure 2: Bat Survey Locations and Results
Page 2 of 3

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Drawing Status: For Comment
Suitability: S1

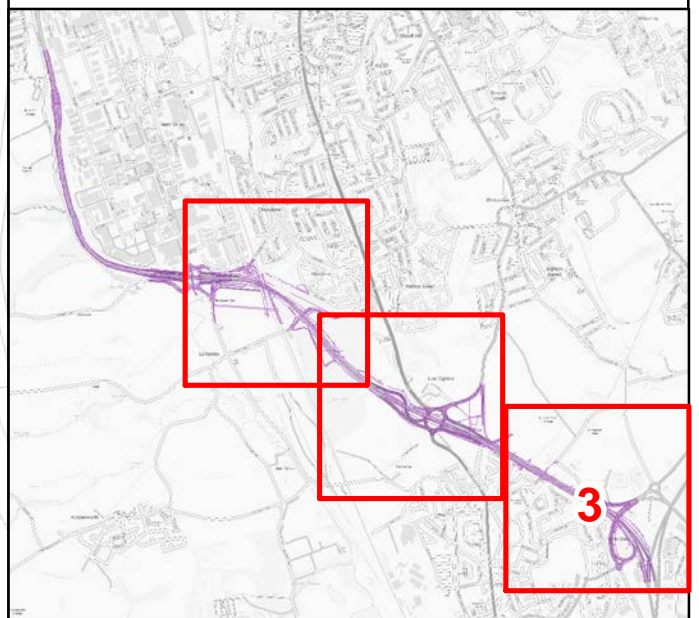
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B2CH Location	Type	Role	Number P01





- Key**
- Roost
 - Surveyor Location
 - Scheme Footprint

Please note the surveyor locations are indicative. Where locations appear to be on an overbridge, surveyors were located beneath the overpass.



Rev	Date	Description	By	Chk'd	App'd
P01	--/--	First Issue	--	--	--



Project Title
A1 Birtley to Coal House Improvement Scheme

Drawing Title
Figure 2: Bat Survey Locations and Results

Page 3 of 3

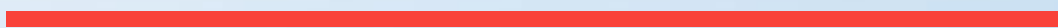
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Drawing Status: **For Comment** Suitability: **S1**

Drawing Number Project TR010031	Originator WSP	Volume	Project Ref. No. 7004197
B2CH Location	Type	Role	Number P01

Appendix A

RAW DATA



Bridge Reference	Survey Date	Type of Survey	No. of surveyors	Survey Start Time	Dusk/Dawn Time	Survey End Time
Eighton Lodge Slip Road underbridge	01/05/18	Dusk emergence	2	20:26	20:41	22:41
	16/05/18	Dawn Re-entry	2	02:58	04:58	05:13
Eighton Lodge North underbridge	02/05/18	Dawn Re-entry	4	03:25	05:25	05:40
	15/05/18	Dusk Emergence	4	20:52	21:07	23:07
Eighton Lodge South underbridge	02/05/18	Dusk Emergence	4	20:28	20:43	22:43
	17/05/18	Dawn Re-entry	4	02:56	04:56	05:11
	30/08/18	Dusk Emergence	2	19:47	20:02	22:02
Allerdene underbridge	03/05/18	Dawn Emergence	2	03:45	05:23	06:01
	16/05/18	Dusk Emergence	4	20:54	21:09	23:09
North Side Overbridge	03/05/18	Dusk Emergence	4	20:30	20:45	22:45
	18/05/18	Dawn Re-entry	4	02:54	04:54	05:09
Smithy Lane Overbridge	04/05/18	Dawn Re-entry	4	03:19	05:20	05:36
	17/05/18	Dusk Emergence	4	20:55	21:10	23:10

Bridge Reference	Survey Date	Start temp. (C)	End temp. (C)	Wind (start/end) (beaufort)	Rain (start/end) ⁶	Cloud Cover (start/end) (oktas)
Eighton Lodge Slip Road underbridge	01/05/18	10.0	9.7	2 / 2	0 / 0	7 / 7
	16/05/18	9.0	8.6	4 / 2	1 / 0	8 / 8
Eighton Lodge North underbridge	02/05/18	8.0	7.5	4 / 4	0 / 1	8 / 8
	15/05/18	15.1	14.0	0 / 2	0 / 0	8 / 8
Eighton Lodge South underbridge	02/05/18	8.6	6.9	3 / 2	0 / 0	1 / 1
	17/05/18	5.0	5.0	1 / 1	0 / 0	0 / 1
	30/08/18	14	11	1/1	0/0	2/1
Allerdene underbridge	03/05/18	6.4	6.6	0 / 0	0 / 0	4 / 2
	16/05/18	9.0	5.3	0 / 0	0 / 0	0 / 0
North Side Overbridge	03/05/18	10.0	10.0	3 / 2	0 / 0	7 / 7
	18/05/18	3.0	2.0	1 / 1	0 / 0	0 / 0
Smithy Lane Overbridge	04/05/18	7.0	7.0	4 / 3	0 / 0	8 / 8
	17/05/18	10.0	4.0	1 / 1	0 / 0	0 / 0

⁶ 0= none, 1= drizzle, 3= moderate, 4= heavy

Appendix B



DEFRA LOCAL SCALE SURVEY
RESULTS

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
1	04/06/2018	AJ	1	21:49:00	-3	Below	Safe	0	N		Ppip
1	04/06/2018	AJ	2	21:54:00	-3	Below	Safe	0	N	S-N, N-S	Ppip
1	04/06/2018	AJ	3	21:57:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	4	21:59:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	5	22:01:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	6	22:06:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	7	22:12:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	8	22:14:00	-3	Below	Safe	0	N	S-N, W-E	Ppip
1	04/06/2018	AJ	9	22:15:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	10	22:18:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	11	22:19:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	12	22:23:00	-3	Below	Safe	0	N	S-N, N-S	Ppip
1	04/06/2018	AJ	13	22:25:00	-3	Below	Safe	0	N	S-N	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
1	04/06/2018	AJ	14	22:27:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	15	22:28:00		Unknown	Unknown				Ppip
1	04/06/2018	AJ	16	22:34:00	-3	Below	Safe	0	N	S-N	Ppip
1	04/06/2018	AJ	17	22:36:00		Unknown	Unknown				Ppip
1	04/06/2018	RMc	1	21:47:00		Unknown	Unknown				Ppip
1	04/06/2018	RMc	2	21:47:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	3	21:50:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	4	21:51:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	5	21:53:00	-3	Below	Safe	0	S		Ppip
1	04/06/2018	RMc	6	21:55:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	7	21:57:00	-3	Below	Safe	0	S	S-N, N-S	Ppip
1	04/06/2018	RMc	8	21:58:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	9	21:59:00	-3	Below	Safe	0	S	S-N	Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
1	04/06/2018	RMc	10	21:59:00	3	Above	Unsafe	0	S	S-N	Ppip
1	04/06/2018	RMc	11	22:05:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	12	22:05:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	13	22:06:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	14	22:11:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	15	22:12:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	16	22:14:00		Unknown	Unknown	0	S	S-N	Ppip
1	04/06/2018	RMc	17	22:14:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	18	22:15:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	19	22:18:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	20	22:23:00	-3	Below	Safe	0	S	S-N	Ppip
1	04/06/2018	RMc	21	22:24:00	-3	Below	Safe	0	N	N-S	Ppip
1	04/06/2018	RMc	22	22:25:00	3	Above	Unsafe	0	S	S-N	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
1	04/06/2018	RMc	23	22:27:00	3	Above	Unsafe	10	E	E-W	Ppip
1	04/06/2018	RMc	24	22:35:00	-3	Below	Safe	0	N	N-S	Ppip
2	14/06/2018	AJ	1	22:07:00	-4	Below	Safe	0	E	E-W	Ppip
2	14/06/2018	AJ	2	22:09:00	-4	Below	Safe	0	E	E-W	Ppip
2	14/06/2018	AJ	3	22:12:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	4	22:13:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	5	22:16:00	-4	Below	Safe	0	E	E-W	Ppip
2	14/06/2018	AJ	6	22:17:00	-4	Below	Safe	0	E	W-E	Ppip
2	14/06/2018	AJ	7	22:19:00	-4	Below	Safe	0	E	E-W	Ppip
2	14/06/2018	AJ	8	22:20:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	9	22:22:00	-4	Below	Safe	0	E	W-E	Ppip
2	14/06/2018	AJ	10	22:25:00	-4	Below	Safe	0	E	E-W	Ppip
2	14/06/2018	AJ	11	22:27:00	-4	Below	Safe	0	E	E-W	Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
2	14/06/2018	AJ	12	22:30:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	13	22:31:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	14	22:33:00	-4	Below	Safe	0	E	E-W	Ppip
2	14/06/2018	AJ	15	22:35:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	16	22:38:00	-4	Below	Safe	0	E	W	Ppip
2	14/06/2018	AJ	17	22:40:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	18	22:45:00	-4	Below	Safe	0	E	E	Ppip
2	14/06/2018	AJ	19	22:45:00	-4	Below	Safe	0	W	W	Ppip
2	14/06/2018	DC	1	20:45	0	Below	Safe	0	S	N-S, S-N	Ppip
2	14/06/2018	DC	2	21:18	0	Below	Safe	0	S	N-S, S-N	Ppip
2	14/06/2018	DC	3	00:00:35	0	Below	Safe	0	S	N-S, S-N	Ppip
2	14/06/2018	DC	4	00:01:30	0	Below	Safe	0	S	N-S, S-N	Ppip
2	14/06/2018	DC	5	00:03:32	0	Below	Safe	0	S	S-N	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
2	14/06/2018	DC	6	00:04:36	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	7	00:05:33	0	Below	Safe	0	S		Ppip
2	14/06/2018	DC	8	00:06:19	0	Below	Safe	0	S		Ppip
2	14/06/2018	DC	9	00:08:29	0	Below	Safe	0	S		Ppip
2	14/06/2018	DC	10	00:08:55	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	11	00:09:46	0	Below	Safe	0	S	N-S	Ppip
2	14/06/2018	DC	12	00:10:28	0	Below	Safe	0	S		Ppip
2	14/06/2018	DC	13	00:11:04	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	14	00:11:57	0	Below	Safe	0	S	S-N, N-S	Ppip
2	14/06/2018	DC	15	00:13:21	0	Below	Safe	0	S	N-S	Ppip
2	14/06/2018	DC	16	00:14:54	0	Below	Safe	0	S	S-N	Ppip
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Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
2	14/06/2018	DC	19	00:01:40	0	Below	Safe	0	S	N-S	Ppip
2	14/06/2018	DC	20	00:02:35	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	21	00:04:00	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	22	00:06:55	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	23	00:10:54	0	Below	Safe	0	S	N-S	Ppip
2	14/06/2018	DC	24	00:12:29	0	Below	Safe	0	S	S-N	Ppip
2	14/06/2018	DC	25	00:15:03	1	Below	Safe	0	S	S-N	Ppip
3	05/07/2018	AK	1	21:58:00	2.5	Above	Unsafe	5	S	S-N	Ppip
3	05/07/2018	AK	2	21:59:00	3	Above	Unsafe	6	S	S-N	Ppip
3	05/07/2018	AK	3	22:00:00	3	Below	Safe	Underpass		N-S, S-N	Ppip
3	05/07/2018	AK	4	22:01:00	2.5	Below	Safe	Underpass		N-S, S-N	Ppip
3	05/07/2018	AK	5	22:01:00	2	Below	Safe	Underpass		N-S, S-N	Ppip
3	05/07/2018	AK	6	22:02:00	3	Below	Safe	Underpass		N-S	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
3	05/07/2018	AK	7	22:03:00	3	Above	Unsafe	3		S-N	Ppip
3	05/07/2018	AK	8	22:03:00	3	Above	Unsafe	5		N-S, S-N	Ppip
3	05/07/2018	AK	9	22:04:00	2.5	Below	Safe	3		S-N	Ppip
3	05/07/2018	AK	10	22:05:00	3	Below	Safe	Underpass		N-S	Ppip
3	05/07/2018	AK	11	22:06:00	2.5	Below	Safe	Underpass		N-S	Ppip
3	05/07/2018	AK	12	22:06:00	2	Above	Unsafe	4		S-N	Ppip
3	05/07/2018	AK	13	22:06:00	2	Above	Unsafe	4		S-N	Ppip
3	05/07/2018	AK	14	22:06:00	2.5	Above	Unsafe	4		S-N	Ppip
3	05/07/2018	AK	15	22:06:00	3.5	Below	Safe	Underpass		N-S	Ppip
3	05/07/2018	AK	16	22:07:00	3	Below	Safe	Underpass		N-S	Ppip
3	05/07/2018	AK	17	22:07:00	3	Above	Unsafe	3		S-N, N-S	Ppip
3	05/07/2018	AK	18	22:08:00	2.5	Above	Unsafe	1		N-S, S-N	Ppip
3	05/07/2018	AK	19	22:08:00	2.5	Below	Safe	Underpass		N-S	Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
3	05/07/2018	AK	20	22:09:00	2.5	Below	Safe	Underpass		N-S	Ppip
3	05/07/2018	AK	21	22:09:00	3	Above	Unsafe	1		S-N	Ppip
3	05/07/2018	AK	22	22:10:00	2.5	Below	Safe	Underpass	S	N-S, S-N	Ppip
3	05/07/2018	AK	23	22:11:00	3	Below	Safe	4	S	S-N, N-S	Ppip
3	05/07/2018	AK	24	22:12:00	3	Above	Unsafe	3	S	S-N	Ppip
3	05/07/2018	AK	25	22:12:00	2.5	Above	Unsafe	3	S	S-N	Ppip
3	05/07/2018	AK	26	22:13:00	4.5	Below	Safe	Underpass	S		Ppip
3	05/07/2018	AK	27	22:13:00	3	Below	Safe	Underpass	S		Ppip
3	05/07/2018	AK	28	22:15:00	3	Above	Unsafe	3	S	S-N	Ppip
3	05/07/2018	AK	29	22:15:00	2.5	Below	Safe	Underpass	S		Ppip
3	05/07/2018	AK	30	22:16:00	2.5	Above	Unsafe	2	S	S-N	Ppip
3	05/07/2018	AK	31	22:17:00	6	Above	Unsafe	2	S	S-N	Ppip
3	05/07/2018	AK	32	22:17:00	2.5	Above	Unsafe	2	S	S-N	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
3	05/07/2018	AK	33	22:18:00	5	Above	Unsafe	3	S	S-N-E	Ppip
3	05/07/2018	AK	34	22:19:00	3	Below	Safe	Underpass	S	N-S	Ppip
3	05/07/2018	AK	35	22:19:00	3	Above	Unsafe	3	S	S-N	Ppip
3	05/07/2018	AK	36	22:19:00	2.5	Below	Safe	Underpass	S		Ppip
3	05/07/2018	AK	37	22:20:00	5	Below	Safe	Underpass	S	N-S, S-N	Ppip
3	05/07/2018	AK	38	22:20:00	3	Above	Unsafe	3	S	S-N	Ppip
3	05/07/2018	AK	39	22:22:00	3	Above	Unsafe	4	S	S-N	Ppip
3	05/07/2018	AK	40	22:23:00	3	Above	Unsafe	4	S	S-N	Ppip
3	05/07/2018	AK	41	22:23:00	2	Above	Unsafe	4	S	S-N	Ppip
3	05/07/2018	AK	42	22:24:00	3	Below	Safe	Underpass	S	N-S, S-N	Ppip
3	05/07/2018	AK	43	22:25:00	2.5	Below	Safe	Underpass	S	N-S	Ppip
3	05/07/2018	AK	44	22:25:00	2.5	Above	Unsafe	3	S	S-N	Ppip
3	05/07/2018	AK	45	22:25:00	2.5	Above	Unsafe	3	S	S-N	Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
3	05/07/2018	CG	1	22:10:20	-1	Below	Safe	2	NW	NW	Ppip
3	05/07/2018	CG	2	22:10:40	-1	Below	Safe	2	NW	SE	Ppip
3	05/07/2018	CG	3	22:11:30	-1	Below	Safe	2	NW	NW	Ppip
3	05/07/2018	CG	4	22:12:50	-1	Below	Safe	3	NE	NE	Ppip
3	05/07/2018	CG	5	22:13:30	-1	Below	Safe	3	NE	SW	Ppip
3	05/07/2018	CG	6	22:15:14	-2	Below	Safe	5	NE	NE	Ppip
3	05/07/2018	CG	7	22:16:18	-2	Below	Safe	5	NE	NE	Ppip
3	05/07/2018	CG	8	22:17:27	-1	Below	Safe	2	NE	SW	Ppip
3	05/07/2018	CG	9	22:17:37	-2	Below	Safe	5	NE	NE	Ppip
3	05/07/2018	CG	10	22:18:42	-2	Below	Safe	5	NE	NE	Ppip
3	05/07/2018	CG	11	22:21:50	-3	Below	Safe	5	NE	NE	Ppip
3	05/07/2018	CG	12	22:23:30	-4	Below	Safe	6	NE	NE	Ppip
3	05/07/2018	CG	13	22:25:26	-3	Below	Safe	4	NE	NE	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
3	05/07/2018	CG	14	22:27:48	-2	Below	Safe	3	NE	NE	Ppyg
3	05/07/2018	CG	15	22:29:12	-4	Below	Safe	5	NE	NE	Ppip
3	05/07/2018	CG	16	22:29:30	-2	Below	Safe	4	NE	NE	Ppip
3	05/07/2018	CG	17	22:32:20	-4	Below	Safe	6	NE	NE	Ppip
3	05/07/2018	CG	18	22:33:45	-4	Below	Safe	6	NE	NE	Ppyg
3	05/07/2018	CG	19	22:38:22	-5	Below	Safe	6	NE	NE	Ppip
4	06/07/2018	CG	1	03:39:00	-3	Below	Safe	4	NE	NE	Ppip
4	06/07/2018	CG	2	03:46:20	-2	Below	Safe	1	NE	SW	Ppip
4	06/07/2018	CG	3	03:47:02	-2	Below	Safe	1	NE		Ppip
4	06/07/2018	CG	4	03:50:55	-2	Below	Safe	4	NE	SW	Ppip
4	06/07/2018	CG	5	03:52:26	-2	Below	Safe	4	NE	SW	Ppip
4	06/07/2018	CG	6	03:54:30	-2	Below	Safe	3	NE	SW	Ppip
4	06/07/2018	CG	7	03:56:54	-3	Below	Safe	2	NE	SW	Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
4	06/07/2018	CG	8	03:57:40	-3	Below	Safe	6	NE	NE	Ppyg
4	06/07/2018	CG	9	03:58:20	-3	Below	Safe	3	NE	SW	Ppip
4	06/07/2018	CG	10	03:59:09	-2	Below	Safe	1	NE		Ppip
4	06/07/2018	CG	11	03:59:49	-2	Below	Safe	4	NE	NE	Ppip
4	06/07/2018	CG	12	04:01:20	-3	Below	Safe	0	NE		Ppip
4	06/07/2018	CG	13	04:05:20	-3	Below	Safe	2	NE	SW	Ppip
4	06/07/2018	AK	1	03:37:00	4	Below	Safe	Underpass	S	N-S-E	Ppip
4	06/07/2018	AK	2	03:39:00			unknown				Ppip
4	06/07/2018	AK	3	03:39:00			unknown				Ppip
4	06/07/2018	AK	4	03:46:00	2.5	Below	Safe	Underpass	S	N-S	Ppip
4	06/07/2018	AK	5	03:46:00	4	Below	Safe	Underpass	S	N-S, S-N	Ppip
4	06/07/2018	AK	6	03:47:00	2	Below	Safe	Underpass	S	N-S	Ppip
4	06/07/2018	AK	7	03:51:00	2	Below	Safe	Underpass	S	N-S	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
4	06/07/2018	AK	8	03:52:00	4	Above	Unsafe	1	S	S-N	Ppip
4	06/07/2018	AK	9	03:53:00	3.5	Below	Safe	Underpass	S	N-S, S-N	Ppip
4	06/07/2018	AK	10	03:53:00	4	Below	Safe	Underpass	S	N-S-E	Ppip
4	06/07/2018	AK	11	03:55:00	3.5	Below	Safe	Underpass	S	N-S, S-N	Ppip
4	06/07/2018	AK	12	03:55:00	4	Below	Safe	Underpass	S	N-S	Ppip
4	06/07/2018	AK	13	03:55:00			unknown				Ppip
4	06/07/2018	AK	14	03:56:00	2	Above	Unsafe	2	S	S-N	Ppip
4	06/07/2018	AK	15	03:56:00	1	Below	Safe	Underpass	S	N-S-E	Ppip
4	06/07/2018	AK	16	03:57:00	2	Below	Safe	Underpass	S	N-S-N	Ppip
4	06/07/2018	AK	17	03:57:00	2	Below	Safe	Underpass	S	N-S-N	Ppip
4	06/07/2018	AK	18	03:57:00	2	Below	Safe	Underpass	S	N-S-N	Ppip
4	06/07/2018	AK	19	03:58:00	2	Below	Safe	Underpass	S	N-S-N	Ppip
4	06/07/2018	AK	20	03:58:00	1	Below	Safe	Underpass	S	N-S	Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
4	06/07/2018	AK	21	03:58:00	3	Below	Safe	Underpass	S	N-S	Ppip
5	11/07/2018	GB	1	00:10:15	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	2	00:50:00	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	3	00:03:00	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	4	00:03:30	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	5	00:05:25	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	6	00:07:20	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	7	00:10:00	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	8	00:02:09	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	9	00:05:00	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	10	00:07:20	Under	Below	Safe	0	North	S-N	Ppip
5	11/07/2018	GB	11	00:09:00	4	Above	Unsafe	4	S-N	S-N	Ppip
5	11/07/2018	AE	1	22:00	-5	Below	Safe	1	S		Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
5	11/07/2018	AE	2	22:06	-5	Below	Safe	1			Ppip
5	11/07/2018	AE	3	22:11	-6	Below	Safe	2	S		Ppip
5	11/07/2018	AE	4	22:13	-5	Below	Safe	1	S		Ppip
5	11/07/2018	AE	5	22:15	-5	Below	Safe	1			Ppip
5	11/07/2018	AE	6	22:18	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	7	22:18	-6	Below	Safe	2	S	S-N	Ppip
5	11/07/2018	AE	8	22:20	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	9	22:21	-6	Below	Safe	2	S		Ppip
5	11/07/2018	AE	10	22:21	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	11	22:22	-5	Below	Safe	1	S		Ppip
5	11/07/2018	AE	12	22:23	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	13	22:26	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	14	22:29	-6	Below	Safe	1	S		Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
5	11/07/2018	AE	15	22:30	-6	Below	Safe	1			Ppip
5	11/07/2018	AE	16	22:33	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	17	22:38	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
5	11/07/2018	AE	18	22:41	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	
6	12/07/2018	GB	1	03:53	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	2	03:55	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	3	03:58	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	4	04:02	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	5	04:07	Under	Below	Safe	0	North	N-S, S-N	Ppip
6	12/07/2018	GB	6	04:07	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	7	04:10	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	8	04:14	Under	Below	Safe	0	North	S-N	Ppip
6	12/07/2018	GB	9	04:15	Under	Below	Safe	0	North	N-S, S-N	Ppip



Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
6	12/07/2018	GB	10	04:19	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	GB	11	04:24	Under	Below	Safe	0	North	N-S	Ppip
6	12/07/2018	AE	1	03:46:00	-6	Below	Safe	1		S-N	Ppip
6	12/07/2018	AE	2	03:53:00	-5	Below	Safe	1		N-S	Ppip
6	12/07/2018	AE	3	03:55:00	-5	Below	Safe	1		N-S	Ppip
6	12/07/2018	AE	4	03:58:00	-6	Below	Safe	1		N-S	Ppip
6	12/07/2018	AE	5	03:59:00	-3	Above	Unsafe	0			Ppip
6	12/07/2018	AE	6	04:02:00		Below	Safe	1		S-N	Ppip
6	12/07/2018	AE	7	04:05:00	-6	Below	Safe	1	South		Ppip
6	12/07/2018	AE	8	04:07:00	-5	Below	Safe	2			Ppip
6	12/07/2018	AE	9	04:10:00		Below	Safe	1			Ppip
6	12/07/2018	AE	10	04:10:00	-5	Below	Safe	0			Ppip
6	12/07/2018	AE	11	04:12:00	-5	Below	Safe	1			Ppip

Visit	Date	Surveyor	Record	Time	Height above road/ below road (M)	Above or Below road	Safe or unsafe	Distance from Feature (M)	Side of Feature	Direction Crossing	Species
6	12/07/2018	AE	12	04:13:00	-6	Below	Safe	0			Ppip
6	12/07/2018	AE	13	04:15:00	-5	Below	Safe	2	S	N-S	Ppip
6	12/07/2018	AE	14	04:16:00	-6	Below	Safe	1	S	S-N	Ppip
6	12/07/2018	AE	15	04:16:00	-5	Below	Safe	2	S	N-S, S-N	Ppip
6	12/07/2018	AE	16	04:17:00		Below	Safe	1			Ppip
6	12/07/2018	AE	17	04:20:00	-5	Above	Unsafe	0			Ppip
6	12/07/2018	AE	18	04:21:00		Below	Safe	1		N-S, S-N	Ppip



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Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Bat Activity Survey Report





Highways England

A1 BIRTLEY TO COAL HOUSE SCHEME

Bat Activity Survey Report

PUBLIC

PROJECT NO. 70041947

OUR REF. NO. HE551462-WSP-EBD-ZZ-RP-LE-00013

DATE: DECEMBER 2018

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APPENDICES



APPENDIX A AUTOMATED DETECTOR SURVEY PERIOD
APPENDIX B SPECIES/SITE EVALUATION SYSTEM
APPENDIX C WALKED TRANSECT POINT COUNT DATA

EXECUTIVE SUMMARY

WSP was commissioned by Highways England to undertake bat activity surveys in support of proposals for the A1 Birtley to Coal House Scheme. The Scheme is located between J65 (Birtley) and J67 (Coal House) and is approximately 4.2 km in length, as shown on **Figure 1**. The Scheme involves on-line widening, upgrading and the replacement of Allerdene Railway Bridge, to enable the retention of Coal House interchange.

A Preliminary Ecological Appraisal undertaken by WSP (then WSP | Parson Brinckerhoff) during 2015, identified the Scheme as having 'Low' bat suitability. The desk study, undertaken as part of the PEA, returned 35 bat records within 1 km of the Scheme.

Bat activity surveys were undertaken during May, July and October 2017 (spring, summer and autumn), which included walked transect and automated detector surveys. The area covered during the activity survey included areas of suitable bat foraging and commuting habitat within approximately 30 m of the Scheme (hereafter referred to as the 'Study Area'). Suitable habitats within the Study Area include woodland and scrubland, covering approximately 5.75 hectares.

During the walked transect surveys common pipistrelle, soprano pipistrelle and *Myotis* species were recorded using the habitats within the Study Area for commuting and foraging. Automated detector surveys returned two species of bat, namely common pipistrelle and noctule.

Mitigation and enhancement measures have been recommended within this report. The measures include landscape planting in order to retain or enhance connectivity to commuting and foraging habitats as well as forming a buffer between wider foraging and commuting habitat and the Scheme. Sensitive lighting schemes have also been recommended, covering both construction and operational phases.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

- 1.1.1. WSP was instructed by Highways England to conduct bat activity surveys in support of the proposed widening scheme of the A1 between Birtley and Coal House.
- 1.1.2. The A1 Birtley to Coalhouse Scheme, hereafter referred to as "the Scheme", is 6.5km in length and will include replacement of Allerdene Bridge. Most of the work will take place within the highway boundary, however, some additional land will be required alongside the A1 at certain points to enable the additional lanes to be constructed.
- 1.1.3. The Scheme will provide additional capacity by widening to four lanes between junction 65 and 67 on the southbound carriageway and three lanes with an additional lane to help manage traffic joining and leaving the A1 between junctions on the northbound carriageway. It also includes a replacement structure of Allerdene Bridge to the immediate south of the current structure, which will tie in to the existing junction 67 Coal House roundabout. The Scheme will also look to install electronic signage to provide driver information along the road.

1.2. ECOLOGICAL BACKGROUND

- 1.2.1. WSP (then WSP | Parsons Brinckerhoff) undertook a Preliminary Ecological Appraisal (PEA)¹ during 2015 (WSP|PB, 2016), which identified potential foraging and commuting habitat for bats within the Scheme boundary. Habitats identified include woodland, scattered trees, scrub, hedgerows, and poor semi-improved grassland measuring approximately 5.75 ha. Roosting habitats, including the Allerdene bridge which is scheduled for demolition, are being considered in a separate report (WSP, 2017).
- 1.2.2. Woodland and hedgerows adjacent to the Scheme provide connectivity to features within the wider landscape including optimal foraging and commuting habitat.
- 1.2.3. The desk study carried out as part of the PEA in 2015 returned records of brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctula* and soprano pipistrelle *Pipistrellus pygmaeus* within 1 km of the Scheme (WSP|PB, 2016). The details of these records were not confirmed by the Ecological Records Centre.

¹ The Preliminary Ecological Appraisal report in question is titled Extended Phase 1 Habitat Survey; however in this report it has been referred to as a PEA report.

1.3. BRIEF AND OBJECTIVES

1.3.1. WSP was commissioned to undertake bat activity surveys within potential bat commuting and foraging habitats along or immediately adjacent to the Scheme (the area covered during the bat activity surveys is hereafter referred to as the 'Study Area'). The objectives of the survey were to:

- § Identify the species composition of bats utilising the land within the Study Area;
- § Provide an indication of relative bat activity levels throughout the Study Area;
- § Evaluate the value of the habitats within the Study Area for bats and any key areas of activity;
- § Enable recommendations for how proposals should account for bats with respect to legislation, planning and biodiversity policy; and
- § Provide information to guide recommendations for appropriate mitigation and enhancement measures to provide an overall biodiversity gain in respect to bats.

2. METHODOLOGY

2.1. SURVEY RATIONALE

- 2.1.1. The PEA undertaken during 2015 (WSP|PB, 2016) utilised the Second Edition of the Bat Conservation Trust (BCT) Bat Surveys Good Practice Guidelines (Hundt, et.al. 2012) to classify the habitat suitability for bats. However, following the publication of the Third Edition of the Guidelines (Collins, 2016); this later edition was utilised to determine the required survey effort.
- 2.1.2. A number of suitable habitats are present within the Study Area, including woodland (continuous and woodland rides), scattered trees, scrub, hedgerows and poor semi-improved grassland, which typically provide a mosaic of suitable foraging and commuting habitats. However, the Study Area is exposed to disturbance effects from the adjacent A1, which reduces the habitat suitability for bats (Berthinussen and Altringham, 2012). This is considered to create an impact on both the species composition and overall activity levels.
- 2.1.3. Therefore, given the perceived disturbance, it is considered that the Study Area provides 'Low' suitability habitat for bats as defined in the Guidelines (Collins, 2016).
- 2.1.4. As per Table 8.3 in Collins (2016) for such sites with 'Low' suitability habitat, the following visit frequency and timing for activity and automated detector surveys is recommended:
- § Walked transect Survey: single survey visit per season (spring – April/May, summer – June/July/August, autumn – September/October) in appropriate weather conditions for bats; and
 - § Automated Detector Survey: single location per transect, data to be collected on five consecutive nights per season (spring – April/May, summer – June/July/August, autumn – September/October) in appropriate weather conditions for bats.

Given that the project includes widening of an existing scheme and no additional severance of habitats will occur, it is considered that additional surveys in line with the DEFRA guidelines (Berthinussen, A. and Altringham, J., 2015) would not be required. In addition, the guidance specifically states that areas of woodland should be avoided when designing surveys. However, this would not be achievable within this Study Area (Berthinussen, A. and Altringham, J., 2015).

2.2. DESK STUDY

- 2.2.1. The data search was undertaken as part of the PEA in order to identify records of legally protected or notable species in proximity to the Scheme (WSP|PB, 2016). For bat species, the search radius for records was 1 km from the boundary of the Scheme. Data was sourced from:
- § Environmental Records and Information Centre North East (ERIC NE);
 - § Durham Bat Group; and
 - § EnVIS data from Area 14 MAC.

- 2.2.2. The search radii were selected with regard for the Institute of Environmental Assessment guidelines (IEA, 1995) and Chartered Institute of Ecology and Environmental Management Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013), the guidance available at the time.
- 2.2.3. The desk study was updated in March 2018 with an updated data search requested from ERIC NE. The search radius for bats was extended to 2km from the Scheme boundary.

2.3. WALKED TRANSECT SURVEYS

- 2.3.1. A walked transect route was designed using the Bat Conservation Trust Good Practice Guidelines (BCT, 2016) around the suitable habitats for bat foraging and commuting identified in the PEA (WSP|PB, 2016). The habitats comprised woodland, grassland, scrubland, buildings and hardstanding.

The transect route is shown in **Figure 2**. The activity transect route was split into three sections. On occasions where the transect began at Point Count (PC) 1 surveyors walked from PC1 to 2 and then doubled back on themselves before driving to the start of section two and PC3. PC 3-4 were walked before surveyors walked over to the remained of section 3 (PC5-7), finishing south east of the Angel of the North. Surveyors walked back to the start of section 3 (15minutes) and then commenced section 4 and PCs 8-10. Time spent walking between sections totalled an estimated 20mins. This process was done in reverse when starting at PC10.

- 2.3.2. The walked transect route was surveyed in line with the requirements for a 'Low' suitability site, including a single visit per survey season, namely: spring, summer and autumn. It was walked at a constant pace by two surveyors, in order for them to record bat activity (seen and/or heard) along the route. The direction of travel along the transect routes alternated between the first, second and third bat activity surveys to ensure that the various habitats were surveyed at different times. Five minute long point counts were conducted at each of the 10 sample point location. Sample points were mapped at locations along the transect route, which exhibit features suitable for bat foraging or commuting (i.e. hedgerow or woodland ride) or where significant changes to the type of habitat were identified.
- 2.3.3. The habitats and areas to the south of the Scheme have been omitted from the survey effort as drawings and information available at the time of survey show the Scheme Footprint narrowing at the southern half of the Study Area. Current Highways General Arrangement drawings illustrate that works south of Junction 66 are localised to within the Highways boundary and the central reservation, with few locations where a land grab outside the Highways boundary is required (WSP 2018). Land grabs outside of the Highways boundary are located north of the southbound carriageway; these habitats include thin swathes of semi improved grassland and scattered broadleaved trees totalling approximately 0.6 hectares (excluding habitats within the Highways boundary).

Table 2-1 - Bat activity transect point count description

Point count	Grid reference	Habitat description
1	NZ 25149 58481	On gravel track adjacent to broadleaved woodland, semi-improved grassland and fence line. Section 1.
2	NZ 25460 58463	On gravel track adjacent to a small area of broad-leaved woodland, semi-improved grassland and the East Coast Mainline Railtrack. Section 1.
3	NZ 25724 58273	In a clearing within mixed species plantation woodland adjacent to the A1. Section 2.
4	NZ 25706 58378	Near the edge of mixed species plantation woodland adjacent to the A1 and further woodland. Section 2.
5	NZ 25825 58271	In a clearing within mixed species plantation woodland adjacent to the A1. Section 2.
6	NZ 26093 57973	In a cleared ride (for telephone cable) within mixed species woodland adjacent to the A1. Section 2.
7	NZ 26477 57717	On a footpath between two swathes of mixed species plantation woodland. Section 2.
8	NZ 25805 58163	On a footpath/clearing within mixed species woodland. Section 3.
9	NZ 25897 57944	At the end of footpath/clearing where woodland becomes more dense. Section 3.
10	NZ 26174 57772	Within area of broad-leaved woodland, under high canopy. Section 3.

- 2.3.4. The surveys were conducted using a hand-held bat detector (BatBox Duet frequency division and heterodyne). When bats were heard and/or seen, the time, location and behaviour was recorded and flight paths were mapped by hand, where possible. Bat detector data was recorded onto a digital recorder for subsequent analysis using Batsound sonogram analysis software, in order to identify bat calls to species/species group level.
- 2.3.5. Surveys were carried out in accordance with BCT guidelines at the time of commission (Collins, 2016). The dusk transect surveys commenced approximately 15 minutes before or at sunset and continued for approximately two to three hours. Details of survey dates and times, sunset times, and weather conditions are provided in **Table 2-2** below.

Table 2-2 - Survey times and conditions for the walked transect surveys

Date	Surveyors	Sunset /Sunrise Time	Start Time	End Time	Temp (°C) Start-End	Rain	Cloud Cover (Otkas) Start-End)	Wind (Beaufort) Start-End
17.05.17	BL & GB	21.12	20.54	23.35	14-13	None	3-5	2-2
03.07.17	BL & GB	21.47	21.33	23.51	14-14	None	4-7	1-1
18.10.17	BL & DdP	18.00	17.45	20.20	12-11	None	8-7	3-3

2.4. AUTOMATED DETECTOR SURVEYS

- 2.4.1. As per BCT guidelines (Collins, 2016), a single static detector location was surveyed for at least five consecutive nights in each survey window, spring (April/May), summer (June/July/August) and autumn (September/October).
- 2.4.2. An SM2 Bat+ Detector (SM2) was used for the automated detector survey. The SM2 unit was positioned at shoulder height in a tree, with the microphone angled perpendicular to the trunk. The tree was situated on the edge of a woodland ride approximately 50m north of the southbound carriageway. The microphone was pointing north, away from the A1 along the edge of the woodland. The woodland habitat is connected to further woodland both to the east and west. The SM2 location is shown on **Figure 2**.
- 2.4.3. The detector was programmed to record in full spectrum mode from at least 30 minutes before sunset until 30 minutes after sunrise. Details of survey dates and times, sunset/sunrise times, weather conditions and locations are provided in Appendix A.

2.5. BAT CALL ANALYSIS

- 2.5.1. Bat calls from the walked transects were analysed using Batsound analysis software to identify bat calls to species level. A bat pass is considered to be a distinct bat call heard on the detector. If activity was continuous, any clear break in activity would result in a second pass being recorded.
- 2.5.2. The automated detector (SM2) files were analysed in zero-crossing format using Analook software to identify bat registrations to species level as far as possible. The SM2 WAV files were converted to zero-crossings using Kaleidoscope software. The automated detector analysis enables confirmation of species or species group based on call parameters and the relative activity of different species of bats by counting the minimum number of bats recorded within discrete sound files.
- 2.5.3. Once triggered by ultrasound, the SM2 detectors record sound files with a duration of 15 seconds, which may contain a number of individual bat calls (or passes), or discrete groups

of ultrasound ‘pulses’. The assessment of relative bat activity between species is based on the relative abundance of recorded calls of each species within each survey period (i.e. each walked transect survey or period of automated monitoring per month) and across the combined study period.

- 2.5.4. It should be recognised that a series of separate sound files may represent a series of different bats commuting within the range of an automated detector, or a smaller number of bats repeatedly triggering the detector (e.g. a single bat making repeated foraging passes within the range of a detector).
- 2.5.5. Where possible, bat calls are identified to species level with reference to published data (Russ, 2012). However, species of the genus *Myotis* are grouped together in most cases as their calls are similar in structure and have overlapping call parameters, making species identification problematic (Russ, 2012). For *Pipistrellus* species the following criteria based on measurements of peak frequency are loosely used to classify calls:
- § Common pipistrelle *Pipistrellus pipistrelles* ≥ 42 and <49 KHz;
 - § Soprano pipistrelles *Pipistrellus pygmaeus* ≥ 51 KHz;
 - § Nathusius’ pipistrelle *Pipistrellus nathusii* <39 KHz;
 - § Common/soprano pipistrelle ≥ 49 and <51 KHz; and
 - § Common/Nathusius’ pipistrelle ≥ 39 and <42 KHz.
- 2.5.6. In addition, the following categories are used for calls, which cannot be identified with confidence due to the overlap in call characteristics between species or species groups:
- § *Myotis/Plecotus* sp.;
 - § *Nyctalus* sp. (either Leisler’s bat *Nyctalus leisleri* or noctule *Nyctalus noctula*);
 - § Serotine *Eptesicus serotinus/Nyctalus* sp.; and
 - § Serotine/*Plecotus* sp.
- 2.5.7. The Bat Activity Index (BAI – bat passes per hour or per night) can be used to compare activity in different parts of a site or at different times, but again does not represent the number of bats present. The BAI of each species was calculated for each walked transect survey and automated detector survey.

2.6. SURVEY PERSONNEL

- 2.6.1. All surveys were undertaken by experienced bat surveyors all of which are members of CIEEM.

2.7. SITE/SPECIES EVALUATION

- 2.7.1. Assessment methods have been undertaken with reference to Wray et al. (2010), i.e. the Scheme’s foraging/commuting habitats were assigned a value using the following geographic frame of reference, which has been adapted from CIEEM (2016) guidelines:

- § International;
- § National;

- § Regional;
- § County;
- § District, Local or Parish; and
- § Negligible (Not Important).

2.7.2. Individual values were calculated for each species, with the overall site value defined as the highest value obtained for any individual species (usually the least common species present). Details of the habitat valuation system are provided in Appendix B.

2.8. LIMITATIONS

- 2.8.1. The walked transect route was designed using the Scheme Footprint available at the time of survey. The drawings illustrated the Scheme Footprint narrowing in the southern half making it difficult to accurately incorporate all habitats into the transect route. Where the Scheme Footprint narrows, safe access to habitats would have been difficult and therefore the route would have covered the swathes of woodland from outside of the Scheme and the results of which may potentially have impacted the accuracy of our findings by returning data which may not pertain to the Scheme. As per BCT best practice guidelines, complementary methods such as spot counts were included in the survey effort for the longest recommended period of 5 minutes (BCT, 2016). The spot counts were located in habitat areas representative of the Scheme.
- 2.8.2. As the works south of junction 66 are localised to the central reservation and small areas of the soft estate and land north of the southbound carriageway, it is not considered that the omission of these areas from survey is a limitation to the study.
- 2.8.3. During the automated detector surveys, rain showers occurred during two nights in the spring and a single night in the summer. These showers were light and short in duration and are not expected to impact the validity of the recordings.
- 2.8.4. In addition, the automated detector surveys were undertaken for differing durations. The spring automated detector was in place for 13 consecutive nights, above the current survey requirements, whilst the summer and autumn were each in place for 5 consecutive nights. The data was manipulated in to bat passes per night to ensure that the data was comparable. Therefore, the difference between the spring and, summer and autumn automated detector survey periods is not considered to be a constraint when comparing data. Therefore, it is considered that the automated detector surveys results are valid.
- 2.8.5. The autumn automated detector survey was installed in September but the autumn activity survey was carried out in October. This is not expected to impact the validity of the recordings nor the conclusions drawn from data comparisons.

3. RESULTS

3.1. ORIGINAL DESK STUDY

3.1.1. Bat records returned through the desk study included four species of bat. A summary can be found in **Table 3-1** below.

Table 3-1 - Desk study bat data

Species	No of Records	Roost Records	Distance and Direction of Nearest Record	Notes
Brown long-eared	1	N/A	1.7 km north west	Closest to junction 67
Common pipistrelle	18	N/A	1.7 km north west	Closest to junction 67
Noctule	5	N/A	1.9 km south	Closest to junction 67
Soprano pipistrelle	11	N/A	1.7 km north west	Closest to junction 67

3.1.2. The desk study returned one Site of Nature Conservation Importance (SNCI), which is known to support bat roosts. Birtley Northside SNCI lies approximately 250 m west of the southern end of the scheme. “Several roosts” of “Pipistrellus pipistrellus” were recorded within the citation.

3.1.3. Other sites returned by the desk study did not list bats as significant features and these sites include:

- § Lamesley Reedbeds Local Wildlife Site;
- § Long Acre Dene LWS;
- § Long Acre Wood SNCI;
- § Bowes Railway Line SNCI;
- § Lamesley Meadows SNCI;
- § Birtley Union Brickworks SNCI;
- § Dunkirk Farm West SNCI;
- § Ravensworth Ponds and Woods SNCI;
- § Sheddons Hill SNCI;
- § Dunkirk Pond SNCI; and
- § River Team Woodlands LWS.

3.2. 2018 DESK STUDY UPDATE

3.2.1. Bat records returned through the desk study in March 2018 included three species of bat. A summary can be found in **Table 3-2** below.

Table 3-2 - 2018 Update desk study bat data

Species	No. of Records	Roost Records	Distance and Direction of Nearest Record	Notes
Common pipistrelle	93	5 roosts associated with a building demolition in 2014 (NZ2658559772. 2km north of Junction 66)	1.2 km west	Closest to Junction 65
Noctule	7	None. Feeding and commuting	2.2 km south west	Closest to Junction 66
Soprano pipistrelle	9	None. Feeding and commuting	1.4 km north	Closest to Junction 67

3.3. WALKED TRANSECT SURVEYS

- 3.3.1. At least three bat species were recorded during the walked transects, namely common pipistrelle, soprano pipistrelle and Myotis species.
- 3.3.2. During the walked transect surveys, 49 observations of bats were made (including bats that were heard not seen, as well as bat activity that was seen by surveyors). Within these observations of bat activity, a total of 110 bat passes were recorded during the three dusk surveys. Figure 2 illustrates observations of bats made during the transect surveys and during the five minute point counts, which are recorded within **Table 3-3** below (See Appendix C for data). For example, where a single bat may have been viewed foraging along a treeline the survey map will have been illustrated, species (where possible) listed and behaviours recorded and may have made multiple passes in that time.
- 3.3.3. Of the total bat passes recorded, 89 passes were identified as common pipistrelle, 17 passes were made by soprano pipistrelle and 4 passes by Myotis sp. Therefore 81% of activity was common pipistrelle, 15% was soprano pipistrelle and 4% was Myotis sp.

Table 3-3 - Summary of walked transect results

Survey Date	Transect Direction	Length of Survey (Hrs:Min)	No of bat passes per species (BAI ²)			No. of minutes after sunset before 1 st bat recorded	Activity
			C. Pip	S.Pip	<i>Myotis</i>		
17.05.17	1-10	2:52	20 (6.97)	5 (1.74)	1 (0.35)	22	Foraging and commuting
03.07.17	10-1	2:24	50 (20.83)	9 (3.75)	0	30	Foraging and limited commuting
18.10.17	1-10	2:35	19 (7.36)	3 (1.16)	3 (1.16)	41	Commuting and foraging

C.Pip- Common Pipistrelle; S.Pip – Soprano Pipistrelle

SPRING WALKED TRANSECT

- 3.3.4. During the spring walked transect the first bat was a common pipistrelle, recorded in section 2, near PC 3 in well-lit woodland and woodland edge habitat adjacent to the A1, at 21:34, 22 minutes after sunset. Surveyors observed no bats during the spring walked transect so no flight paths were recorded.
- 3.3.5. Foraging behaviour was not observed by surveyors but recorded at Point Counts (PCs) 3 and 4. Both PCs 3 and 4 are in woodland habitats. Further foraging behaviour was recorded at location C (Figure 3.1)
- 3.3.6. Spring walked transect peak activity was recorded in woodland (PCs 3, 4, 6 and 10) and woodland edge (PC 7). Activity recorded between point counts was also associated with woodland (close proximity to PCs 3, 4, 6, 10) and woodland edge with path habitat (close proximity to PC 7).

² BAI – Bat Activity Index

SUMMER WALKED TRANSECT

- 3.3.7. During the summer walked transect the first bat was a common pipistrelle, recorded on the edge of a footpath leading to a well-lit roundabout adjacent to areas of woodland, at 22:17, 30minutes after sunset. Surveyors observed this single bat foraging on a footpath between two swathes of woodland (Figure 4.3, Green Circle A).
- 3.3.8. Summer walked transect peak activity was recorded in woodland habitat (PC 3), woodland edge (PC 7) and also along bare ground track and fence-line (PCs 1, 2).
- 3.3.9. The summer walked transect, returned activity recorded between point counts predominantly associated with bare ground track and fence-line (close proximity to PCs 1 – 2); woodland (close proximity to PC 5) and woodland edge habitats (close proximity to PC 7).

AUTUMN WALKED TRANSECT

- 3.3.10. During the autumn walked transect, the first bat was a common pipistrelle, recorded in woodland and woodland edge habitat adjacent to the A1, at 18:41, 41 minutes after sunset. Surveyors observed no bats during the autumn walked transect, so no flight paths were recorded.
- 3.3.11. Autumn walked transect peak activity was recorded in woodland (PCs 4, 5, 8 and 10). Activity recorded between PCs was also associated with woodland (close to PC 9). See Appendix C for PC raw data

3.4. AUTOMATED DETECTOR SURVEYS

- 3.4.1. Two bat species were recorded via the automated detector surveys, namely common pipistrelle and noctule. **Table 3-4** provides a summary of the total bat passes recorded by the automated detector and the BAI values for the automated detector during its deployment. The location of automated detector is provided in **Figure 2**.

Table 3-4 - Summary of the total bat passes and the Bat Activity Index Values for automated detector surveys

Month	N. noctula		C. Pipistrelle	
	Total passes	BAI value	Total passes	BAI value
May	2	0.2	26	2.6
July	0	0	8	1.6
September	0	0	0	0
Total Values	2	0.1	5	1.7



- 3.4.2. The automated detector recorded 36 bat passes in total across the three recording periods. No bat passes were recorded during the September automated detector survey. Common pipistrelle and noctule were the only species recorded.

4. EVALUATION AND DISCUSSION

4.1. DESK STUDY

- 4.1.1. The desk study highlighted Birtley Northside SNCI which supports “several roosts” of common pipistrelle bats. This SNCI lies 60 m west of the south of the Scheme Footprint. Works nearest to the SNCI are localised to the central reservation and the right hand lane and is therefore unlikely to impacts to the habitats south of the A1. Additionally, disturbance is unlikely to exceed that of general day-to-day use.
- 4.1.2. The habitat at the south of the northbound carriageway was excluded from further bat survey as the works here are limited and the areas of habitat here are isolated, sub-optimal and unlikely to experience disturbance exceeding that experienced on a daily basis. Therefore, the presence of common pipistrelle roosts within the neighbouring SNCI is not considered to constrain the Scheme. Within the 60m between the Scheme and Birtley Northside SNCI is an under construction residential development.

4.2. GENERAL ACTIVITY ACROSS THE SCHEME

- 4.2.1. The summer walked transect survey recorded the most bat activity with BAI scores of 20.83 and 3.75 for common pipistrelle and soprano pipistrelle respectively. The spring walked transect had BAI scores of 6.97, 1.74, and 0.35 for common pipistrelle, soprano pipistrelle and Myotis sp, respectively.
- 4.2.2. The lowest levels of activity were recorded during the autumn walked transect. BAI scores were 7.36, 1.16 and 1.16 for common pipistrelle, soprano pipistrelle and Myotis sp, respectively.
- 4.2.3. Activity during the walked transects was primarily located along the edge of woodland, along tracks/footpaths and inside the woodland within the Study Area.
- 4.2.4. The spring period of automated detector survey recorded the highest level of bat activity. The summer period of automated detector survey recorded less bat activity. The September period of automated detector survey recorded no bat activity.

4.3. FORAGING AND COMMUTING HABITAT

- 4.3.1. During the walked transects peak levels of activity were recorded adjacent to a fence, which boarded an area of scrub (See Figure 6 – between Point Counts 1 and 2). All activity recorded at this location is within the Scheme, apart from bat activity point K, recorded during the summer transect (See Figure 4.1). This habitat type will be lost as part of the Scheme and it is important that landscaping proposals mitigate this. Recommendations are made in Section 5.
- 4.3.2. Point counts (PCs) 3 and 4 also picked up foraging and commuting activity during the spring, summer and autumn walked transects (other than no activity at PC 3 during the autumn transect). PCs 3 and 4 are situated in woodland and are well connected to further woodland, making them suitable habitat for foraging and potential commuting habitat. PC 3

lies within the Scheme boundary and the commuting/foraging habitat is likely to be lost during construction and operational phases. PC 4 is outside the current Scheme boundary and is therefore unlikely to be exposed to disturbance exceeding everyday levels. No evidence of management was recorded during surveys, only low levels of human disturbance. The woodland here is relatively small as it backs onto the A1, which causes disturbance, and also backs onto grassland, providing a mosaic of habitats. The variety of habitats provides foraging and commuting habitats and could account for the peak activity levels.

- 4.3.3. PCs 5 and 6 are situated in a large area of woodland east of PCs 3 and 4 (across Smithy Lane). Peak activity was recorded in the thin strip of juvenile and semi-mature woodland nearest to the A1. This section of the Study Area lies within the Scheme boundary. PC 5 and the surrounding habitat east of Smith Lane is unlikely to be exposed to disturbance exceeding everyday levels as no works are anticipated at this location. PC 6 and the surrounding habitats are likely to be impacted by the Scheme through direct habitat loss to accommodate for lane widening and lengthening of the southbound exit slip at Elton Interchange. The quality of woodland varies here, from juvenile to semi-mature and mature trees; no evidence of management was recorded during surveys. This area of the Study area is exposed to disturbance from the A1 and from irregular human disturbance. The woodland here is connected to more woodland and areas of amenity grassland and the Scheme is not expected to alter the habitat's carrying capacity.
- 4.3.4. Habitats between PCs 6 and 7 change from semi-mature woodland to thin swathes of woodland around the Angel of the North. The woodland undergoes management to prevent encroachment into the surrounding areas of grassland, scrubland and hedgerow. Embankment works are scheduled between PCs 6 and 7. Peak activity levels along this section of the transect route were located in the woodland near PC 7 and along the footpath, adjacent to a woodland strip at the most easterly part of the transect. The majority of the activity was recorded outside of the Scheme boundary and away from Scheme embankment works. However, habitats where activity was recorded are present within the Scheme boundary and therefore impacts to commuting and foraging habitats are likely to be caused by the Scheme during construction.
- 4.3.5. Limited activity was recorded at PC 8 during the autumn walked transect. Limited activity does not necessarily indicate that bats are not utilising the habitats, rather that they were not recorded during the periods surveyors were present. PC 8 is situated within the Scheme boundary as is likely to be impacted through habitat loss associated with lane widening and spread of embankment earthworks. Effective landscape planting could be employed on all earthworks and embankments in order to mitigate against the effects of habitat loss.
- 4.3.6. Activity was recorded in woodland habitat within which PC 9 is situated. PC 9 is outside the Scheme Boundary but is located at the nearest suitable point (outside of woodland), as per BCT Good Practice Guidelines (Collins, 2016). There is likely to be limited impacts to the

habitats surrounding PC 9 as there is a very small section of lane widening, located within the existing Highways boundary.

- 4.3.7. PC 10 and the surrounding area (towards PC 9) also recorded bat activity, during the spring, summer and autumn walked transects. The Study Area in this location is established woodland, which is quite large in size and offers commuting routes and foraging habitats in clearings and beneath the canopy. Peak activity was recorded within the Scheme boundary and no impacts are anticipated as there is no scheduled lane widening at this location within the Scheme.

Common Pipistrelle

- 4.3.8. Common pipistrelle were the most frequently occurring bat species recorded within the Study Area and present within all habitats. Common pipistrelle accounted for the majority of activity recorded for both automated (94% of activity) and walked transect surveys (77% of activity).
- 4.3.9. Bat activity index scores for common pipistrelle were 6.97, 20.83 and 7.36 for the spring, summer and autumn walked transects, respectively
- 4.3.10. During the spring walked transect common pipistrelle were recorded approximately 22 minutes after sunset in close proximity to Smithy Lane (Figure 3.2 – Green Circle A) on 17th May 2017. Given that this individual was recorded around the typical emergence time (typically 25 – 35 minutes after sunset (Russ, 2012)), it is considered that the timing could indicate that a common pipistrelle roost could be present in close proximity to the start of Section 2. Further activity was also recorded during the same survey 75 m further along the transect route at PC 3.
- 4.3.11. A common pipistrelle was also recorded close to sunset during the summer walked transect survey. On 3rd July 2017, approximately 30 minutes after sunset a common pipistrelle was recorded foraging at the eastern end of the Scheme near PC 7 (Figure 4.3 – Green Circle A). This is within normal emergence time for common pipistrelle but its proximity to sunset suggests that there could be a roost near to this section of the Study Area.
- 4.3.12. Common pipistrelle were recorded within 30 minutes before sunrise during the spring automated detector survey on 18th May. This supports the early common pipistrelle observations made in the spring and summer walked transect survey.
- 4.3.13. Bat activity index values for the automated detector recording periods for common pipistrelle was 1.6 for both spring and summer automated detector recordings. No common pipistrelle were recorded during autumn automated detector recordings. The overall BAI value for the automated detector period is 5.

Soprano Pipistrelle

- 4.3.14. Soprano pipistrelle accounted for a small amount of the activity recorded during the walked transect surveys. Bat activity index scores for soprano pipistrelle were 1.74, 3.75, and 1.16

for the spring, summer and autumn walked transects, respectively. No soprano pipistrelle were recorded during any of the automated detector survey periods.

- 4.3.15. A bat activity index value of 1.74 was recorded during the spring dusk walked transect. Peak soprano pipistrelle activity was recorded in the semi-mature woodland around PC 6 and also within the more mature woodland south of the Scheme (Figure 2 – Green Circle G).
- 4.3.16. Soprano pipistrelle passes were recorded during the summer walked transect. Peak soprano pipistrelle activity was recorded along the woodland edge and path habitat at PC 7, approximately 43 minutes after sunset. Soprano pipistrelles were also recorded in Section 1 for a total of three passes (Figure 2 – Blue Squares G and J).
- 4.3.17. Three soprano pipistrelle passes was recorded during the autumn dusk activity survey. The passes were within the woodland between PC 9 and PC 10 in Section 3 (See Figure 5.2, Teal Circle B).

Noctule

- 4.3.18. Noctule were identified during the spring automated detector recording period. Two noctule were recorded approximately 53 minutes before sunrise on the 27th May and approximately 60 minutes after sunrise on the 18th May. Bat activity index values for the spring automated detector recording period for noctule sp. was 0.2 passes per night. Noctule were not detected during the walked transect surveys or during automated monitoring in summer or autumn.

It is likely that the noctule passes are individuals commuting through the Study Area.

Myotis sp

- 4.3.19. *Myotis* species were only identified during the spring and autumn walked transect survey, within woodland habitat on both occasions. During the autumn survey *Myotis* sp. was recorded within woodland habitat near PC 9 (See **Figure 5.2** – Purple Circle C). The BAI value for *Myotis* sp. during the autumn walked transect survey was 0.35 and 1.16, respectively.

4.4. SPECIES/SITE EVALUATION

- 4.4.1. Based on the assessment criteria shown in Appendix B (Wray et al. 2010) and scores shown in **Tables 4-1** and **4-2**, the commuting and foraging habitats within the Study Area are categorised as being of District, Local or Parish value (in accordance with criteria) for each of the bat species recorded. The Scheme would therefore be categorised as being of District, Local or Parish value for bats overall. The criteria used for assessment within both tables can be found within **Appendix B**.

Table 4-1 - Commuting habitat scores

Species	National Rarity	Activity	Site/Nearby Roost Potential	Type & Complexity of Linear Feature	Total Score	Value
Common pipistrelle	2	5	4	4	15	District/Local or Parish
Soprano pipistrelle	2	5	4	4	15	District/Local or Parish
Noctule.	5	5	4	4	15	District/Local or Parish

Table 4-2 - Foraging habitat scores

Species	National Rarity	Activity	Site/Nearby Roost Potential	Type & Complexity of Linear Feature	Total Score	Value
Common pipistrelle	2	5	4	4	15	District/Local or Parish
Soprano pipistrelle	2	5	4	4	15	District/Local or Parish
Noctule	2	5	4	4	15	District/Local or Parish

4.5. SUMMARY

- 4.5.1. Habitat loss as the result of the Scheme is not expected to sever any of the commuting and foraging habitats known to be used by bats. Vegetation clearance to accommodate for carriageway widening and the relocation of Allerdene Bridge will lead to a minor reduction in the carrying capacity of habitats present within the Study Area, due to habitat loss. The Study Area is predominantly sub-optimal habitat due to its proximity to the A1. However, optimal habitat located between and at PCs 1, 2, 3, 6, 7 and 8 will be lost or impacted as a result of the Scheme. These habitats include woodland and woodland edge which provide foraging and commuting opportunities and also grassland which likely supports a prey source for bats.

- 4.5.2. The area of land south of Junction 65, consisting of bare ground, scrub and fenceline, recorded peak activity during the bat activity surveys and will be lost as part of the Scheme. This habitat needs to be replaced in order to prevent impacts to commuting and foraging habitats. Similarly, in order to reduce the permanent loss of habitat associated with the removal and replacement of Allerdene Railway Bridge landscape planting on any earthworks, embankments and new areas of land will be necessary in order to achieve habitat connectivity and avoidance of channelling of bats towards the railway line.
- 4.5.3. Lighting both during the construction phase and operational phase of the Scheme, could have a negative effect upon bat activity within the Study Area.
- 4.5.4. Further information will be included in a Construction Environmental Management Plan (CEMP)

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. FURTHER SURVEY

- 5.1.1. The bat activity survey was carried out in line with the BCT Good Practice Guidelines (2016) and it is therefore considered that the data gathered is adequate to inform the assessment of impacts. Therefore, no further surveys are required. Avoidance and mitigation measure outlined below are recommended in order to prevent disturbance to any commuting, foraging bats which are occupying roosts nearby but outside of the Study Area.

5.2. AVOIDANCE AND MITIGATION MEASURES

HABITAT

- 5.2.1. The habitat features within the Study Area are important for both foraging and commuting and should be left intact, where practicable. The habitats primarily comprise woodland and scrub, all of which were included in the walked transect route of the Study Area illustrated in Figure 2. Vegetation clearance will be necessary as part of the Scheme. Where vegetation is to be removed and where there is sufficient space for its replacement post-construction, landscape planting should be employed in order to replace areas lost. Targeted landscape planting will reduce the loss of commuting and foraging habitat and ensure connectivity to wider habitats is maintained.
- 5.2.2. Given the activity levels recorded in the northern end of the Scheme around J65 (south of A1, current alignment); landscape planting, post construction, should seek to provide a continuous pathway and corridors on the soft estate, within this area. Where it is practicable landscape planting should be included on the earthwork banks in order to retain and enhance the habitat currently present between PCs 1 and 2 south of Junction 65. This would further improve connectivity with the woodland east of the East Coast Mainline and with the Lamesley Pastures SNCI to the west of the Scheme. In addition, the newly located Highways boundary fence could include a hedgerow, in order to enhance commuting and foraging away from the carriageway.
- 5.2.3. A grass margin must be retained between the carriageway and any landscape planting in order to avoid channelling any bats into live traffic.

LIGHTING

- 5.2.4. Given the predicted effects, it is recommended that a sensitive lighting scheme is designed where practical along known foraging and commuting areas (see Figure 6.1-6.3). Where possible, the sensitive lighting should focus on avoiding the habitats suitable for bats which are adjacent to the road network. The lighting scheme should apply to both construction and operational phases.
- 5.2.5. It is recommended that the lighting strategy for the Scheme seeks to:

- § Use the minimum light levels necessary for the relevant task / function, this may equate to reducing light intensity, and/or using the minimum number or light sources or minimum column height;
- § Use hoods, louvres or other luminaire design features to avoid light spill onto retained and newly created areas of vegetation likely to be used by foraging and commuting bats;
- § Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wave length blue light, using instead warm/neutral colour temperature <4,200 kelvin lighting (BCT, 2014); and
- § Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light.

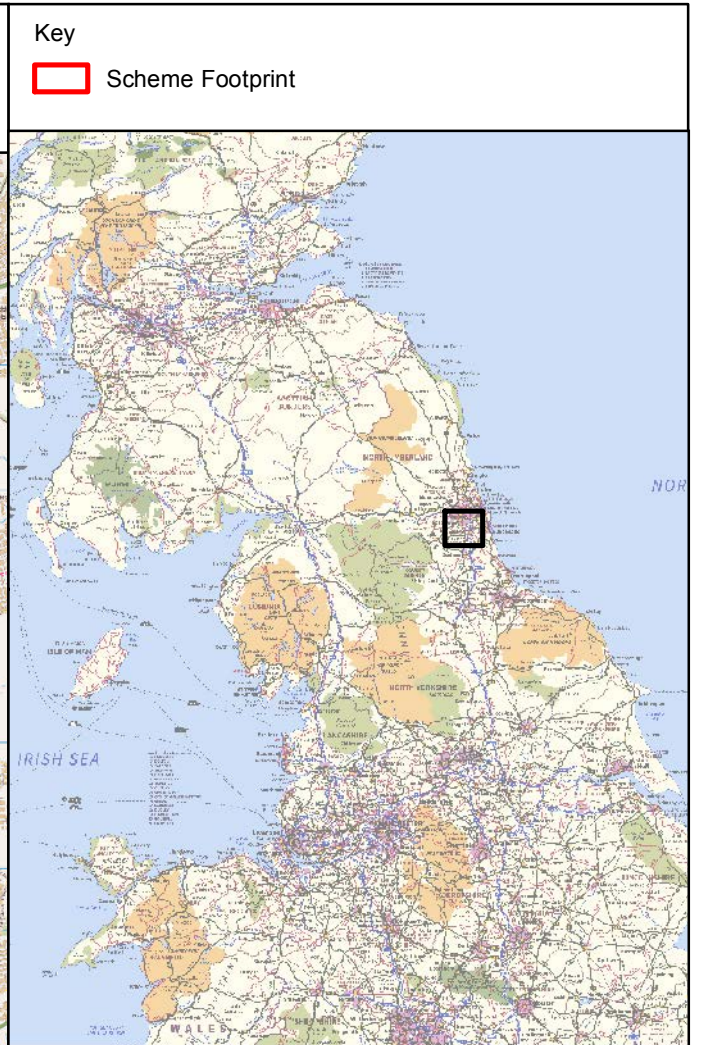
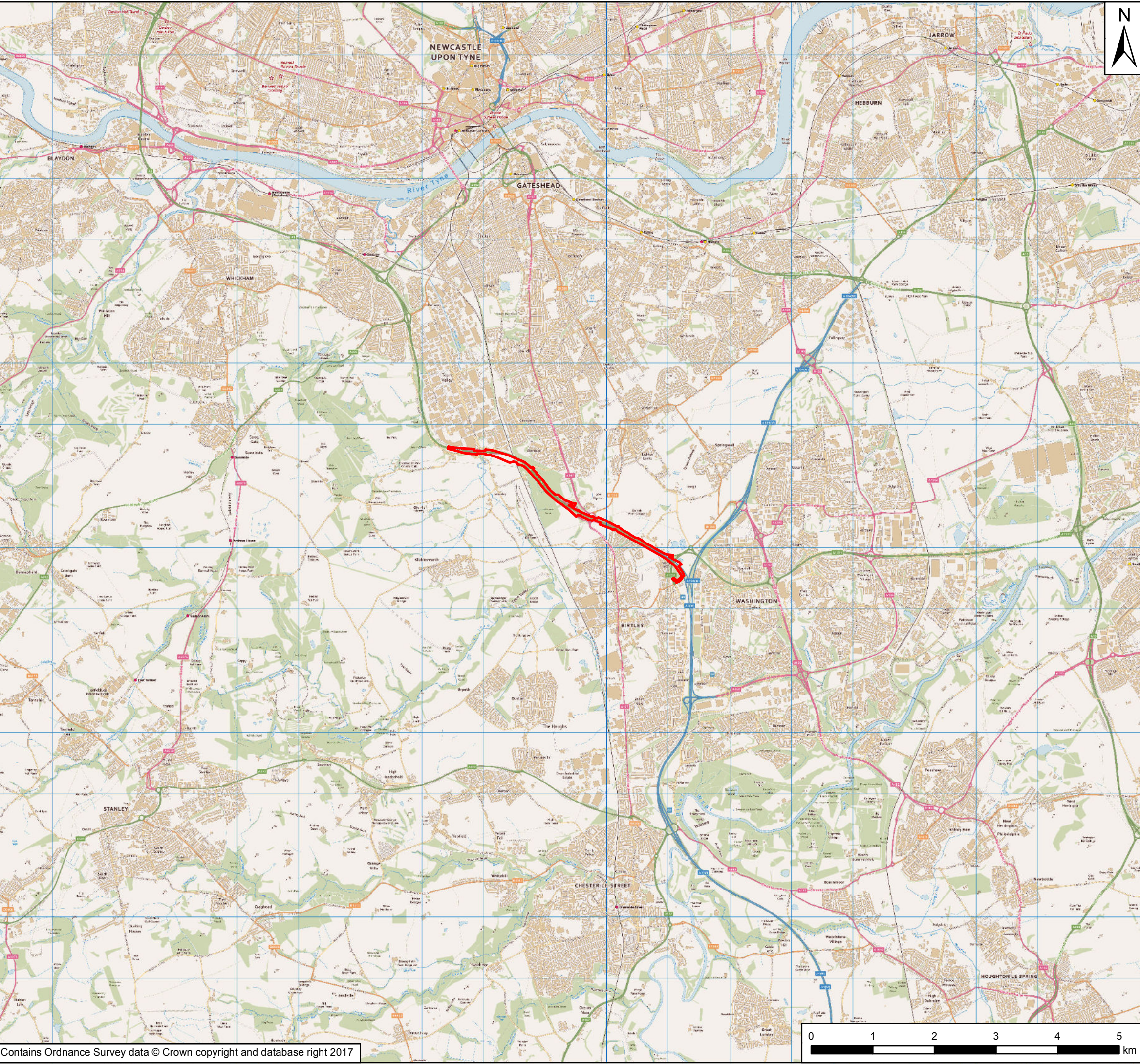
5.3. ECOLOGICAL ENHANCEMENT MEASURES

- 5.3.1. Planning policy promotes the inclusion of ecological enhancement (NPPF, 2012) and so accordingly it is recommended that consideration is given to the following enhancement measures. However, enhancements should be undertaken in areas where peak activity was recorded and new carriageway or structures are proposed. Otherwise in order to prevent bats utilising habitats in close proximity to the road, enhancement should be avoided in close proximity to the Scheme. Full details of enhancement measures will be included within the CEMP but will include the following:
- § A continuation of linear hedgerow and tree lines within the landscaping scheme in order to improve foraging and commuting corridors across the Study Area and into the wider landscape for bats, would be an appropriate enhancement.
 - § Hedgerow species to be planted should include native species or species of local prominence, such as; hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and dog rose *Rosa canina*. Tree species which are best for supporting foraging bats if planted within linear features include oak *Quercus spp.* and birch *Betula spp.* species.
 - § The planting of species-rich grassland with grasses of differing heights, throughout any open areas of vegetation planned to be included within the Scheme design would be appropriate. Wild-flower meadows and species rich grassland attract invertebrates, a key feeding source for bats. The potential for these areas as a place for bat foraging would be increased if the linear features led to these areas. If included within the Scheme design, discussions should be had with highways officials regarding potential location restrictions.
 - § Bat boxes, which will encourage roosting bats, could be installed onto suitable trees/ buildings or mounted on poles. If installed, bat boxes should be installed in unlit areas on multiple aspects (including facing south, west or east) at a height of 3 m plus and have a clear flight path to the access point. The bat boxes should be located within existing or newly created suitable foraging and commuting habitats.

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- § WSP (2017) A1 Birtley to Coal House. Preliminary Roost Assessment Report. Leeds
- § WSP (2018) Offline Replacement of Allerdene Bridge General Arrangement Sheets 1-3. Leeds

User Name: UKGDH001 Date Saved: 19/09/2017 15:07:31
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Rev	Date	Description	By	Chk'd	App'd
P01	20/09/17	First Issue	GH	BL	EH

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Client

Project Title: **A1 BIRTLEY TO COALHOUSE**
 Drawing Title: **Figure 1 Location Plan**

Scale	Drawn	Checked	Approved	Authorised
1:60,000	GH	BL	EH	NR
Original Size	Date	Date	Date	Date
A3	20/09/17	20/09/17	20/09/17	20/09/17

Drawing Status: **First Issue** Suitability: **S1**

Drawing Number: **WSP** Project: **WSP** Originator: **WSP** Volume: **WSP** Project Ref. No: **70015226** Revision: **P01**

BCH Location	Type	Role	Number





LEGEND:

- Scheme Boundary
- Point Counts
- ← SM2
- Activity Transect Route
- Survey Section 1
- Survey Section 2
- Survey Section 3

STATUS:
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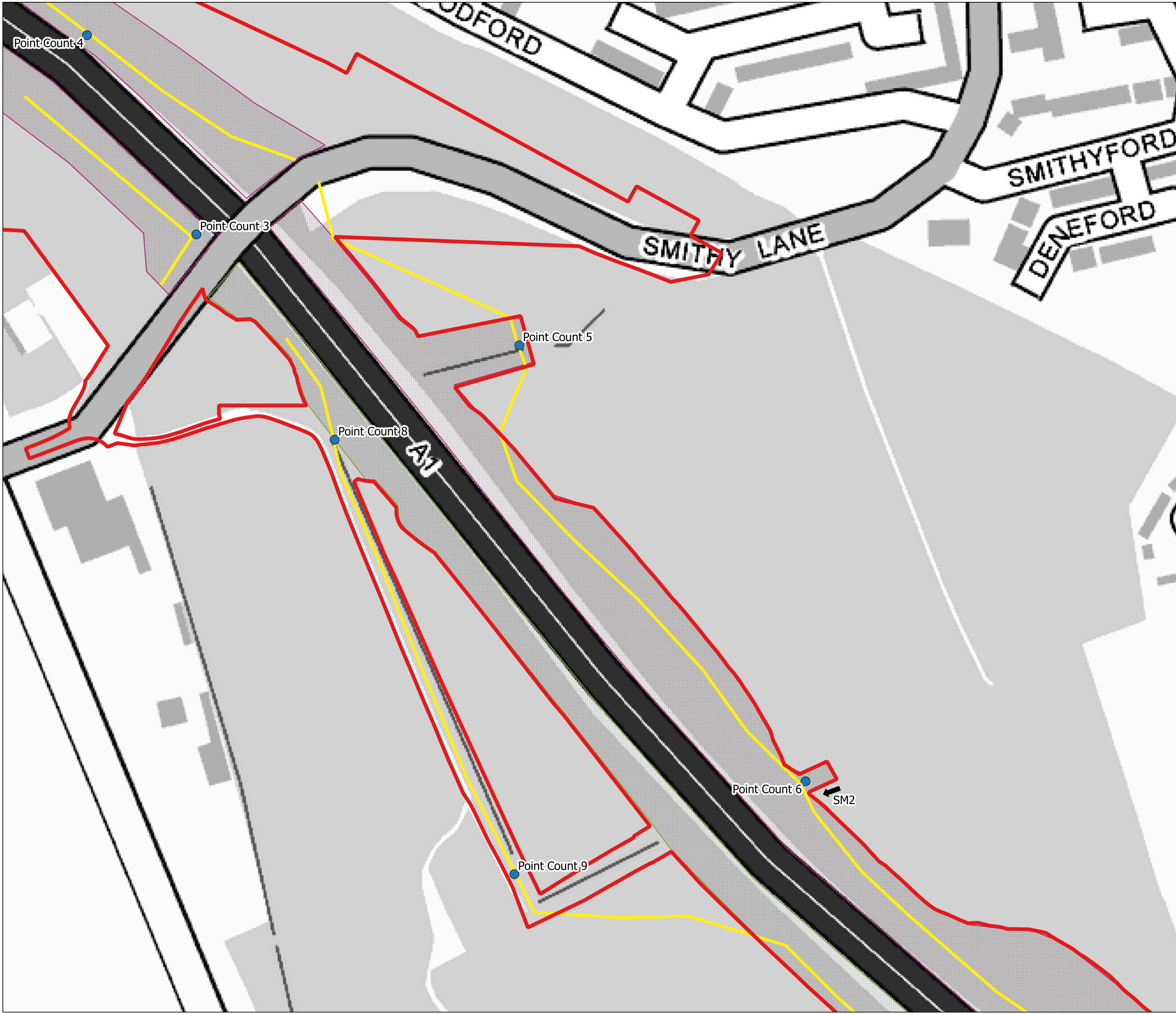
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PROJECT:
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TITLE:
Figure 2.1 - Transect Route

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LEGEND:

- Scheme Boundary
- Point Counts
- ← SM2
- Activity Transect Route
- Survey Section 1
- Survey Section 2
- Survey Section 3

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TITLE:
Figure 2.2 - Transect Route

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LEGEND:

- Scheme Boundary
- Point Counts
- ↔ SM2
- Activity Transect Route
- Survey Section 1
- Survey Section 2
- Survey Section 3

STATUS:
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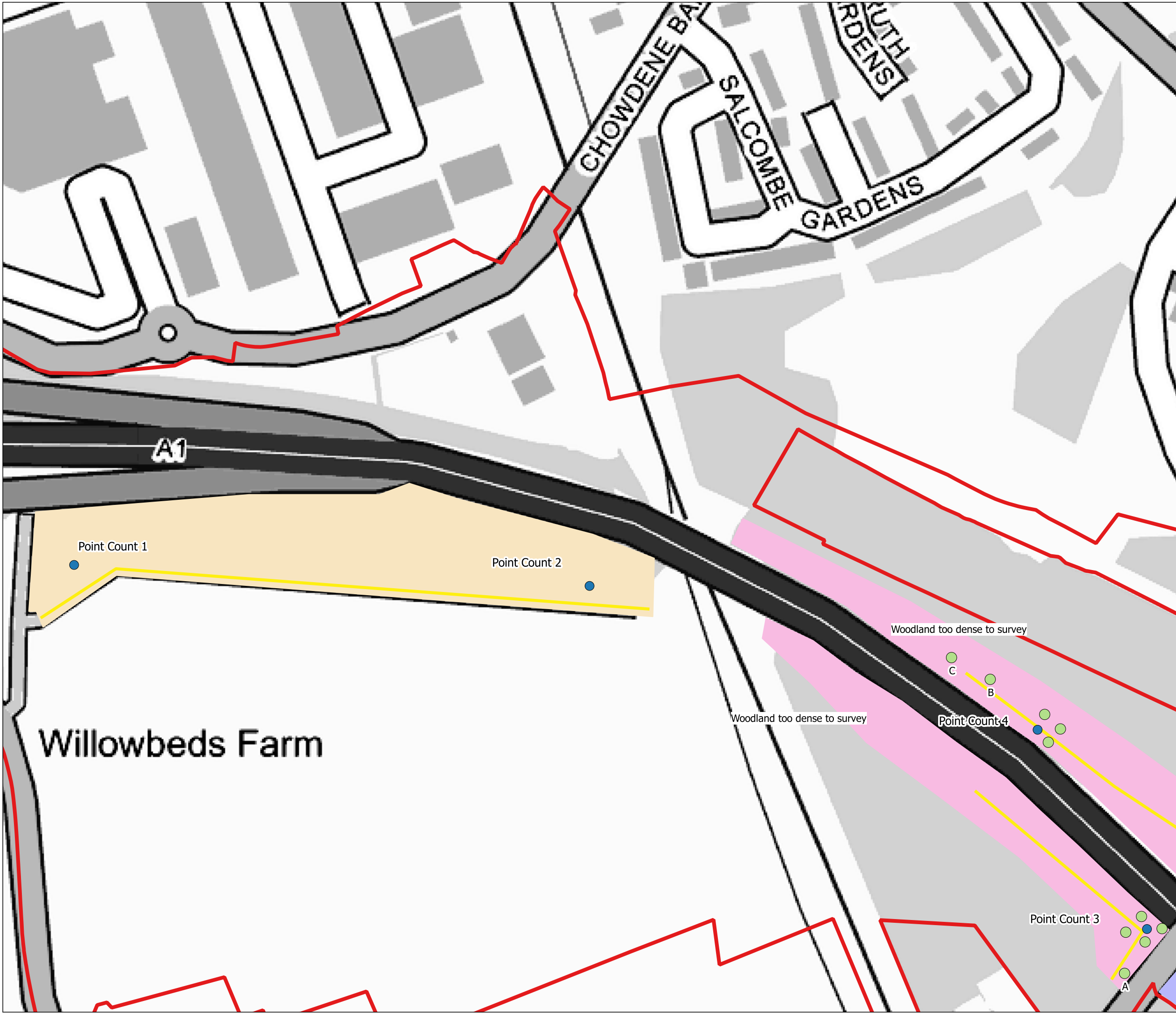
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Figure 2.3 - Transect Route

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PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1



LEGEND:

- Scheme Boundary
- Point Counts
- C. Pip
- S. Pip
- ↖ SM2
- Activity Transect Route
- Survey Section 1
- Survey Section 2
- Survey Section 3

STATUS:
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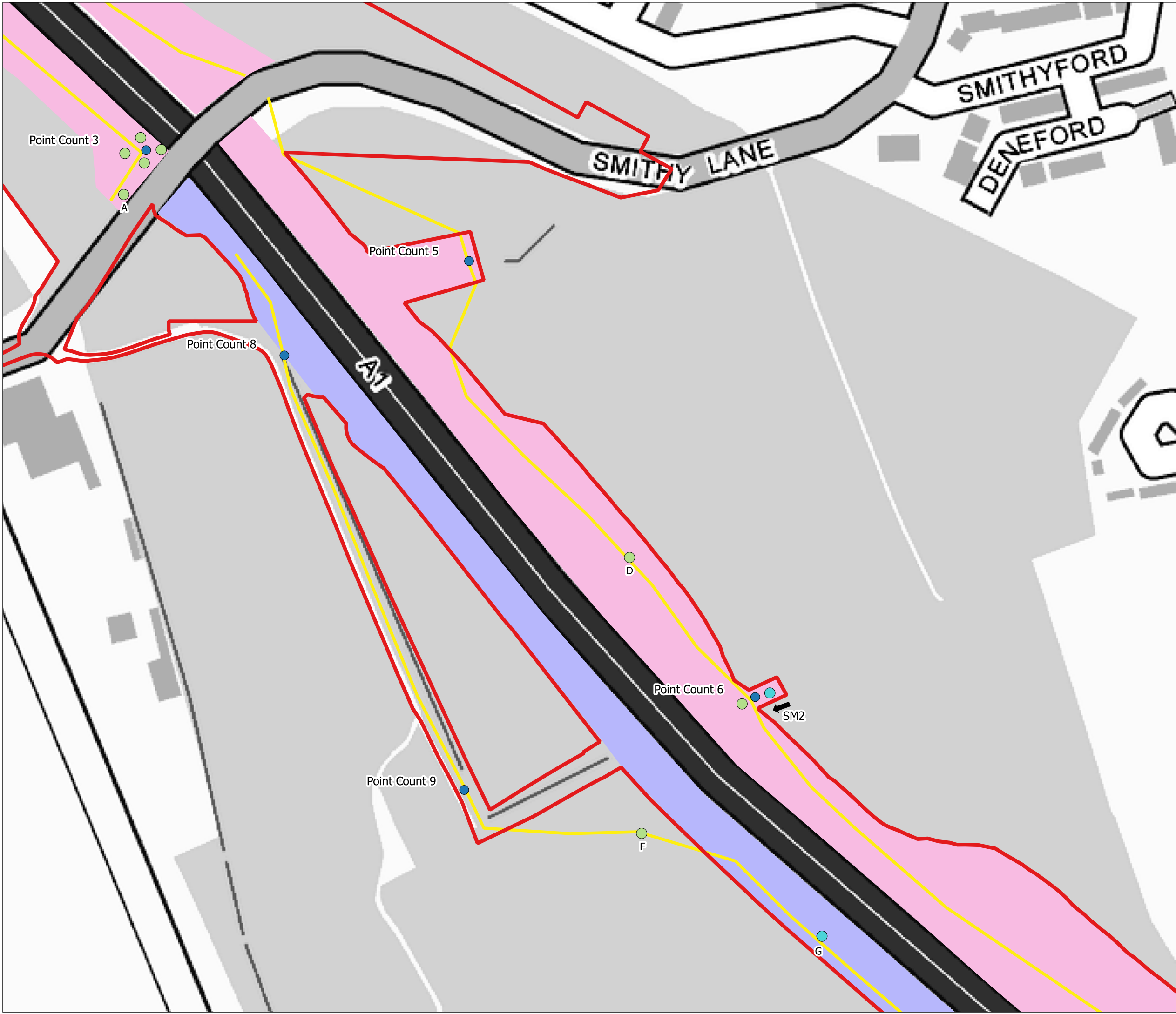
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Figure 3.1 - Spring Activity Survey

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LEGEND:

- Scheme Boundary
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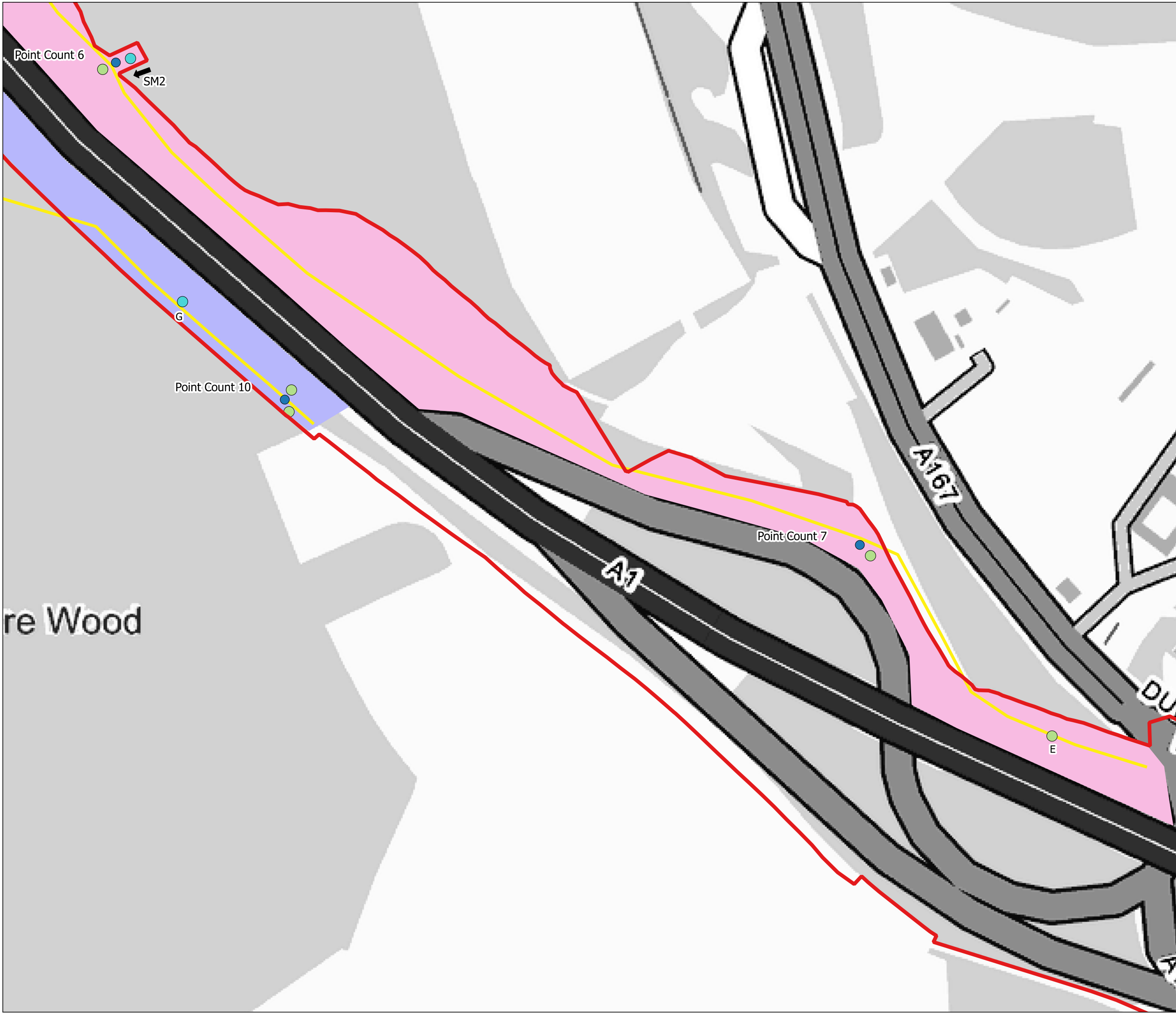
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TITLE:
Figure 3.2 - Spring Activity Survey

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LEGEND:

- Scheme Boundary
- Point Counts
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- ↙ SM2
- Activity Transect Route
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- Survey Section 2
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STATUS:
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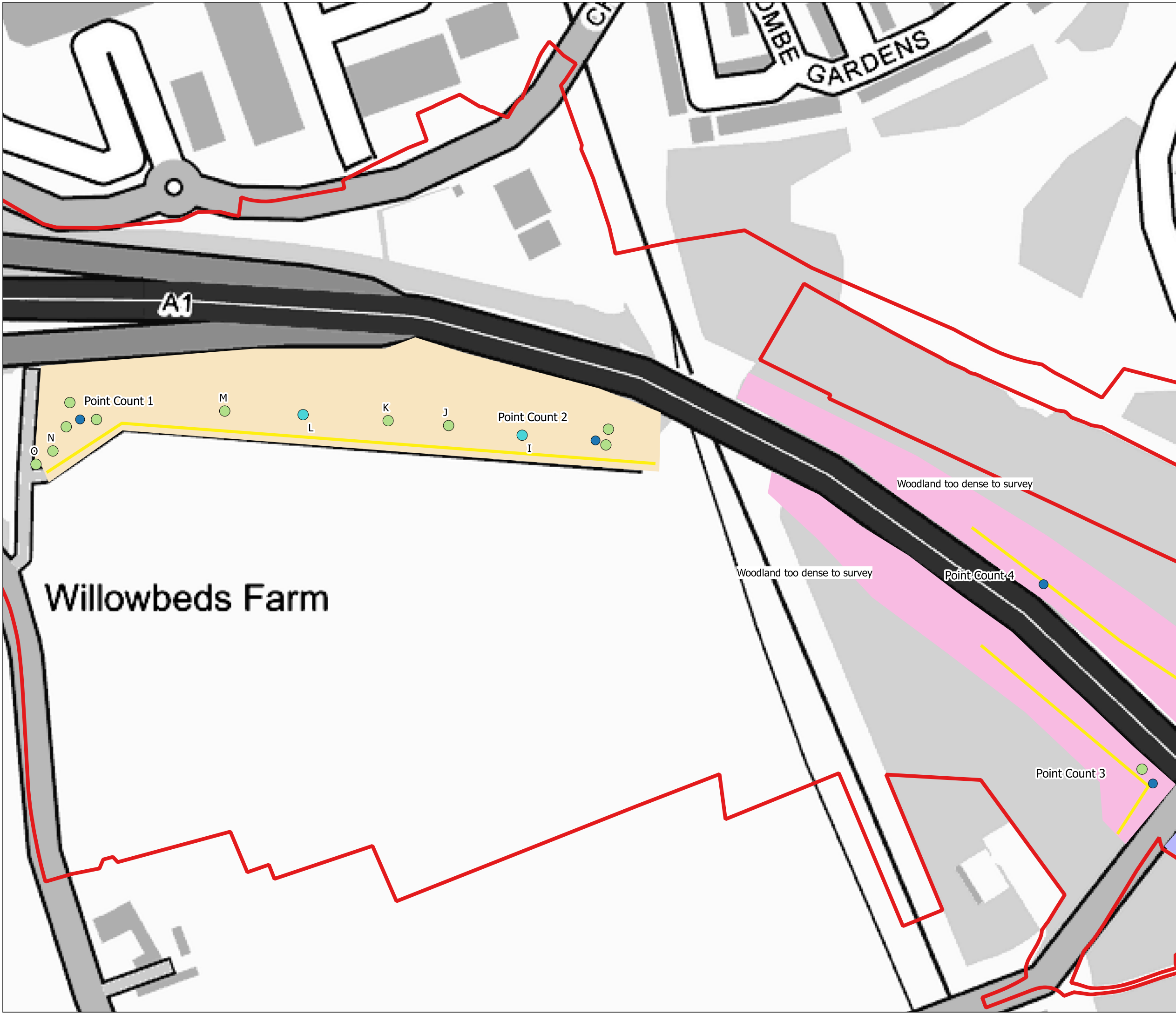
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TITLE:
Figure 3.3 - Spring Activity Survey

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- LEGEND:**
- Scheme Boundary
 - Point Counts
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 - S. Pip
 - ➔ SM2
 - Activity Transect Route
 - Survey Section 1
 - Survey Section 2
 - Survey Section 3

STATUS: **FOR INFORMATION ONLY**



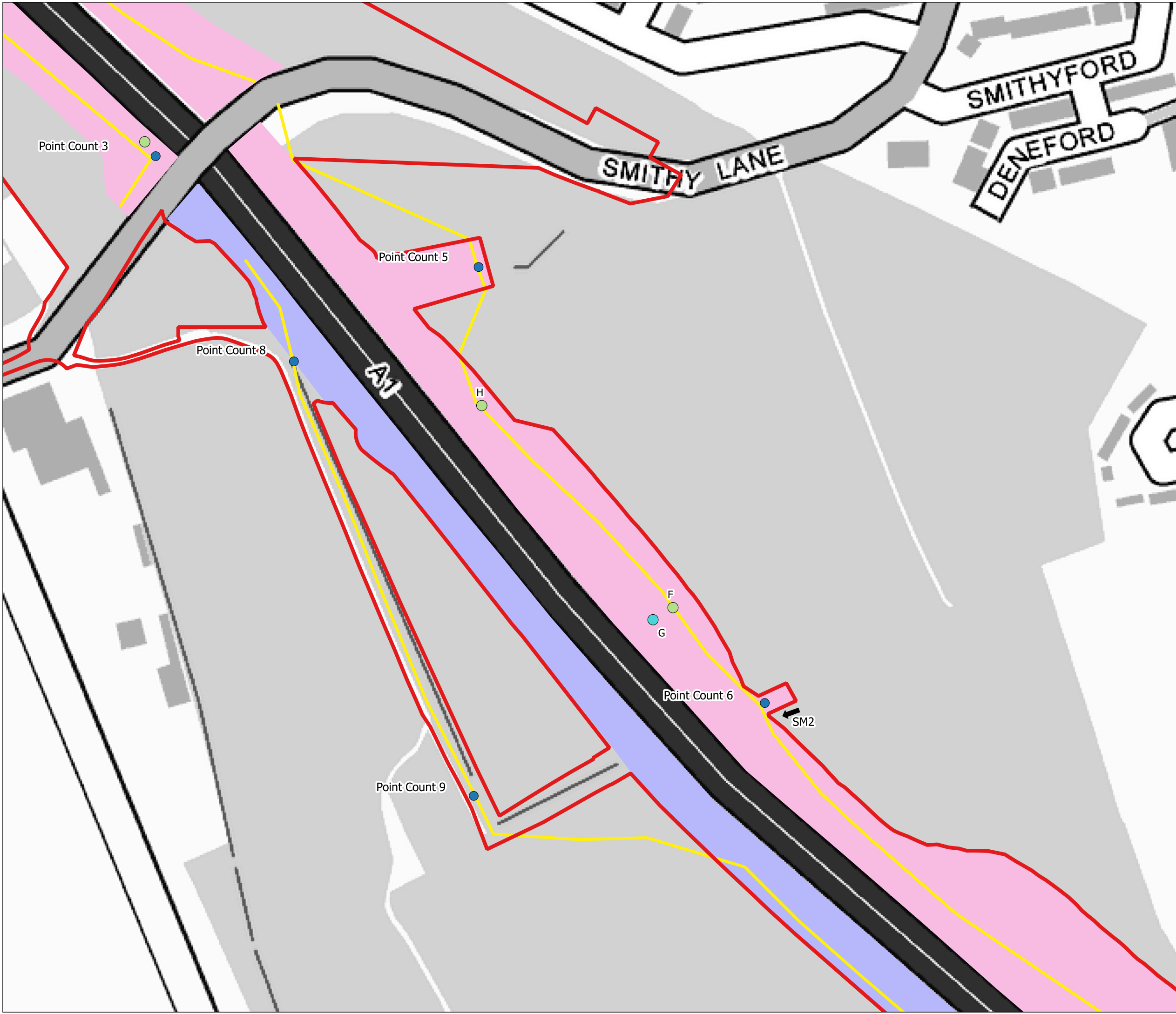
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PROJECT: **A1 Birtley to Coalhouse**

TITLE: **Figure 4.1 - Summer Activity Survey**

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- LEGEND:**
- Scheme Boundary
 - Point Counts
 - C. Pip
 - S. Pip
 - ← SM2
 - Activity Transect Route
 - Survey Section 1
 - Survey Section 2
 - Survey Section 3

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PROJECT:
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TITLE:
Figure 4.2 - Summer Activity Survey

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- LEGEND:**
- Scheme Boundary
 - Point Counts
 - C. Pip
 - S. Pip
 - Flight Path
 - ↙ SM2
 - Activity Transect Route
 - Survey Section 1
 - Survey Section 2
 - Survey Section 3

STATUS:
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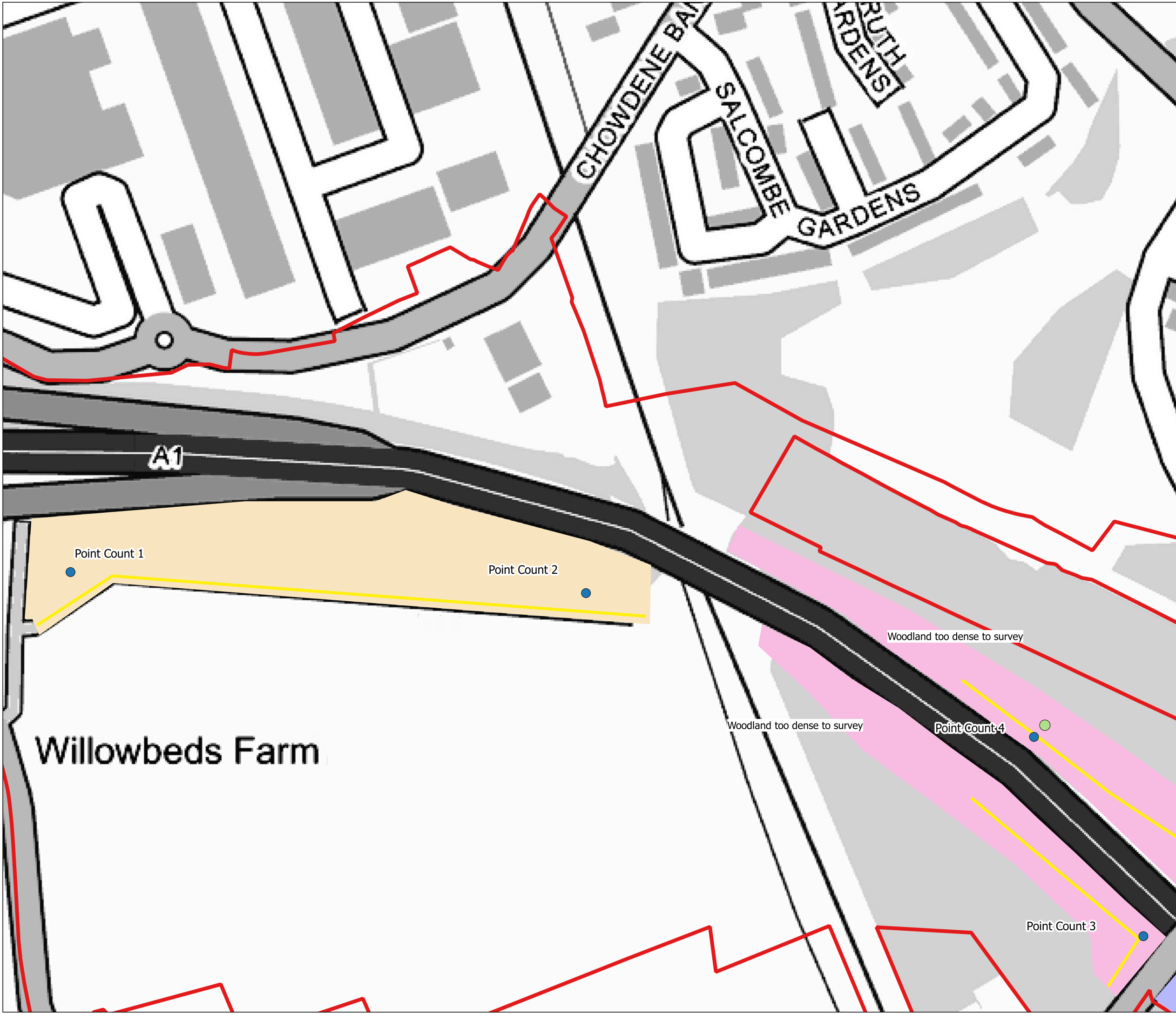
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TITLE:
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PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1



- LEGEND:**
- Scheme Boundary
 - Point Counts
 - C. Pip
 - S. Pip
 - Myotis
 - Unknown Bat
 - ← SM2
 - Activity Transect Route
 - Survey Section 1
 - Survey Section 2
 - Survey Section 3

STATUS:
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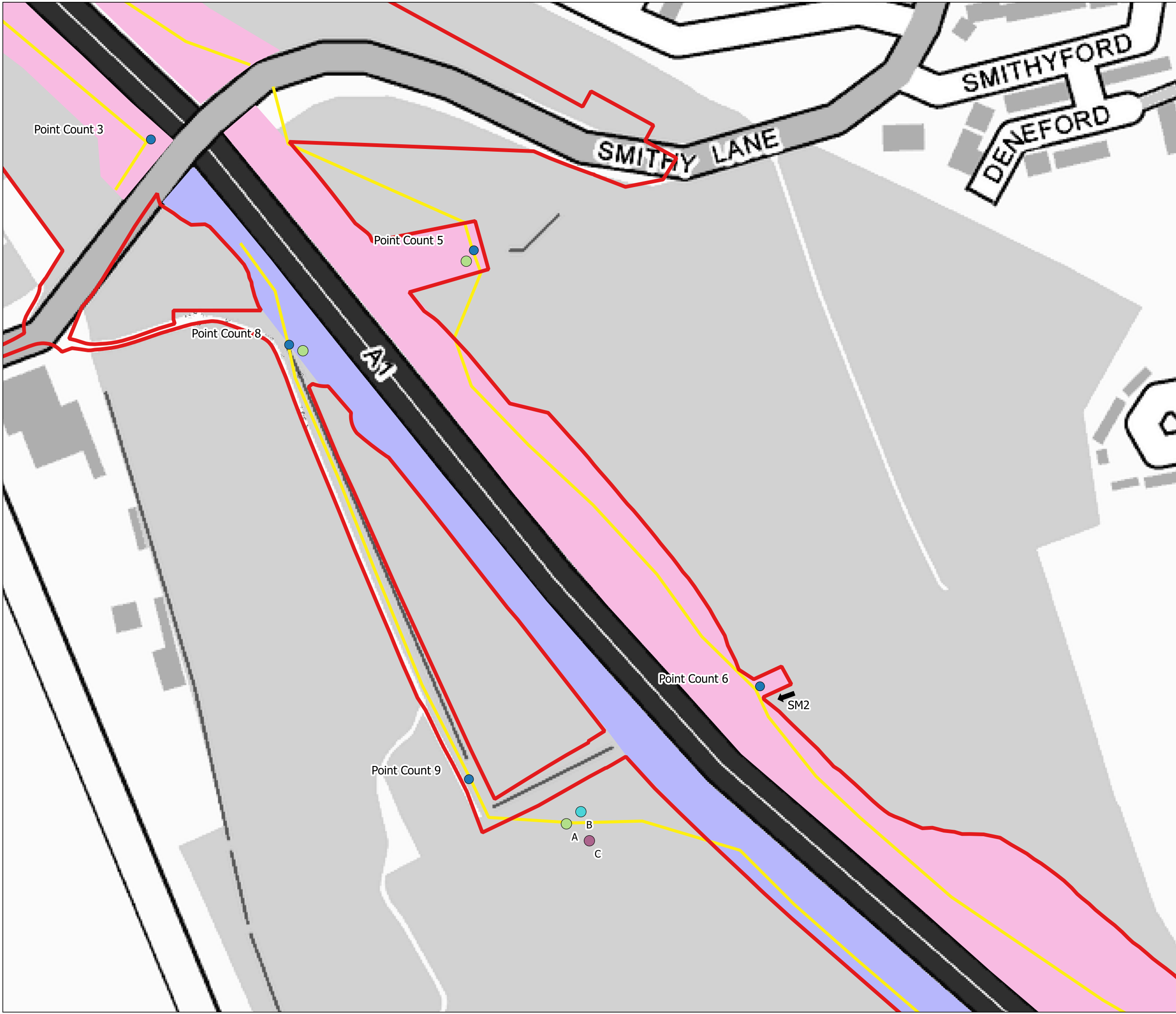
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PROJECT:
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TITLE:
Figure 5.1 - Autumn Activity Survey

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PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1	



- LEGEND:**
- Scheme Boundary
 - Point Counts
 - C. Pip
 - S. Pip
 - Myotis
 - Unknown Bat
 - ← SM2
 - Activity Transect Route
 - Survey Section 1
 - Survey Section 2
 - Survey Section 3

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TITLE:
Figure 5.2 - Autumn Activity Survey

SCALE @A3: 1:2,000	DRAWN: BL	APPROVED: EH	
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PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1	



LEGEND:

- Scheme Boundary
- Point Counts
- C. Pip
- S. Pip
- Myotis
- Unknown Bat
- ↖ SM2
- Activity Transect Route
- Survey Section 1
- Survey Section 2
- Survey Section 3

STATUS:
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TITLE:
Figure 5.3 - Autumn Activity Survey

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- LEGEND:**
- Scheme Boundary
 - Point Counts
 - ← SM2
 - Activity Transect Route
 - Peak Activity

STATUS:
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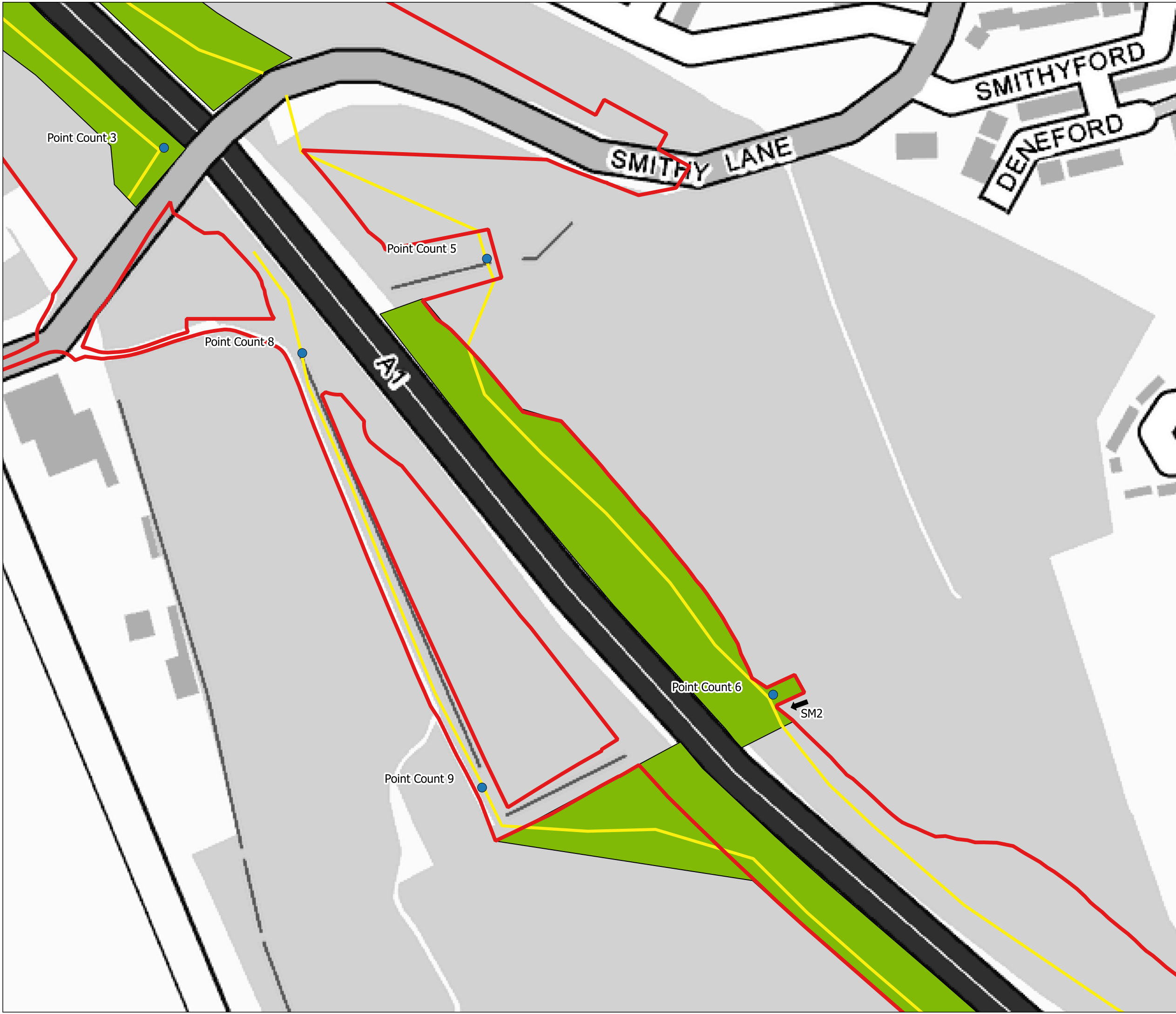
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CLIENT: **Highways England**

PROJECT:
A1 Birtley to Coalhouse

TITLE:
Figure 6.1 - Peak Activity

SCALE @A3: 1:2,000	DRAWN: BL	APPROVED: EH
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PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1



- LEGEND:
- Scheme Boundary
 - Point Counts
 - ← SM2
 - Activity Transect Route
 - Peak Activity

STATUS:
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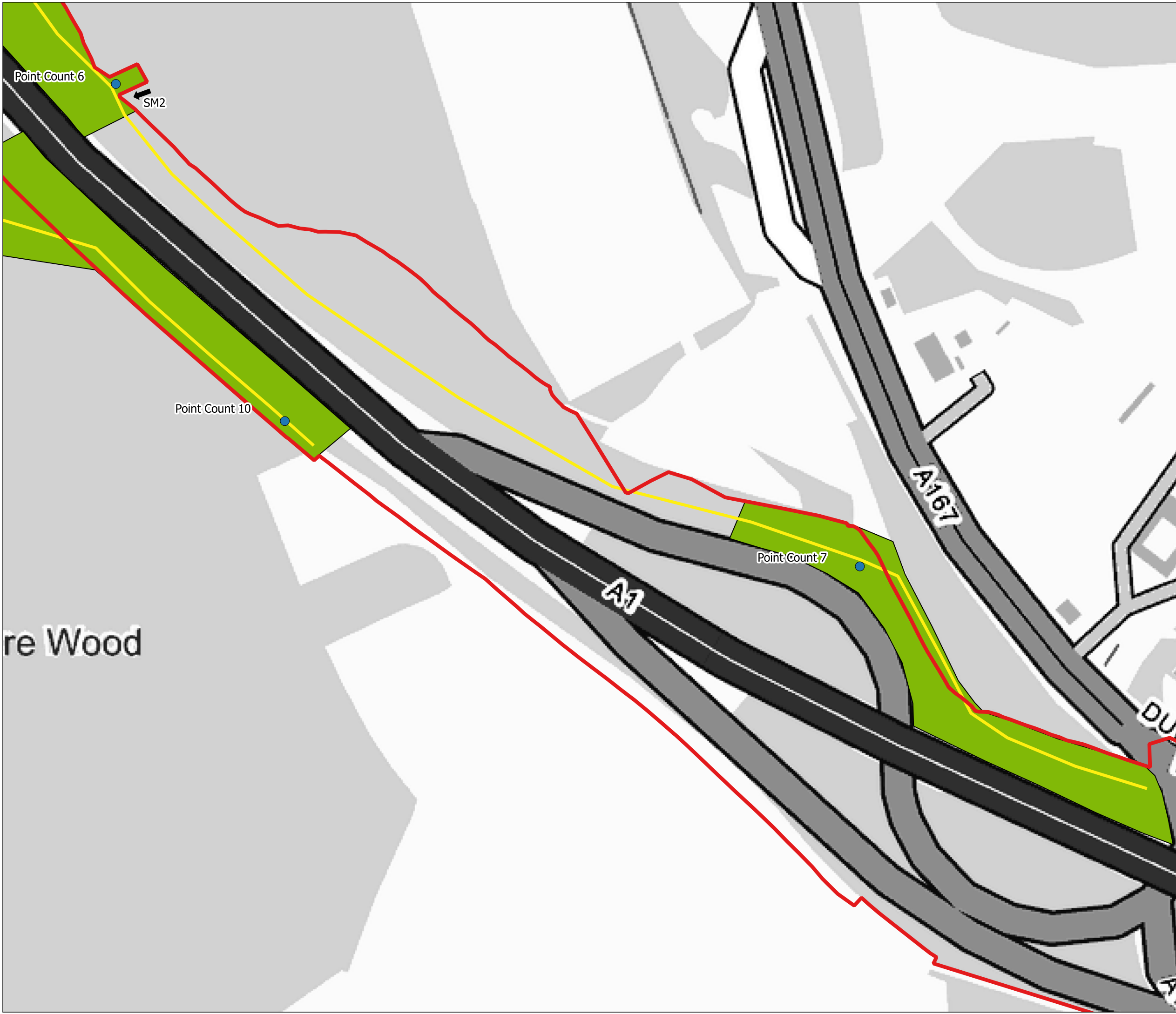
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CLIENT: **Highways England**

PROJECT:
A1 Birtley to Coalhouse

TITLE:
Figure 6.2 - Peak Activity

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PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1



- LEGEND:**
- Scheme Boundary
 - Point Counts
 - ← SM2
 - Activity Transect Route
 - Peak Activity

STATUS:
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CLIENT: **Highways England**

PROJECT:
A1 Birtley to Coalhouse

TITLE:
Figure 6.3 - Peak Activity

SCALE @A3: 1:2,000	DRAWN: BL	APPROVED: EH
QGIS FILE: N/A	DRAWN: 01/05/2018	DATE: 02/05/18
PROJECT No: 70041947	DRAWING No: N/A	REV: 0.1

re Wood

A167

A1

DU

Point Count 6

SM2

Point Count 10

Point Count 7

Appendix A



AUTOMATED DETECTOR SURVEY PERIOD

Survey Period	Date	Sunrise	Sunset	Max temp (°C)	Min temp (°C)	Rain
May	17.05.17	04:52	21:12	13	9	None
	18.05.17	04:53	21:13	12	8	None
	19.05.17	04:52	21:15	12	8	Short shower
	20.05.17	04:50	21:17	13	7	Early rain shower
	21.05.17	04:49	21:18	16	10	None
	22.05.17	04:47	21:20	18	9	None
	23.05.17	04:46	21:22	15	13	None
	24.05.17	04:44	21:23	19	12	None
	25.05.17	04:43	21:25	13	12	None
	26.07.17	04:41	21:26	20	11	None
	27.05.17	04:20	21:28	19	15	None
	28.05.17	04:39	21:29	13	11	None
	29.05.17	04:38	21:31	12	12	None
July	05.07.17	04:35	21:46	13	12	None
	06.07.17	04:36	21:45	18	14	None
	07.07.17	04:37	21:44	16	7	None
	08.07.17	04:39	24:44	16	7	None
	09.07.17	04:40	21:43	16	13	Early light shower
September	06.09.17	06:22	19:46	13	11	None
	07.09.17	06:24	19:43	14	10	None
	08.09.17	06.26	19:41	12	10	None
	09.09.17	06.28	19:38	12	9	None
	10.09.17	06:30	19:36	12	9	None

Appendix B

wsp
SPECIES/SITE EVALUATION SYSTEM

The valuation system used in this report is modified from Wray et al. (2010). Values are assigned using a geographic frame of reference as shown in Species/Site Evaluation System table below. The scores used to assign these values are calculated using Calculation of Foraging Habitat Scores table and Calculation of Commuting Habitat Scores table. 'National Rarity' values used in Calculation of Commuting Habitat Scores table and Categorisation of Bats by National Rarity table are based on the categorisation system shown in Categorisation of Bats by National Rarity table.

Species/Site Evaluation System

Geographic Frame of Reference	Score
Negligible.(Not important)	1-10
District, Local or Parish	11-20
County	21-30
Regional	31-40
National/UK	41-50
International	>50

Calculation of Foraging Habitat Scores

National Rarity	Activity	Site/Nearby Roost Potential	Habitat Characteristics
Common (2)	Low (5)	None (1)	Industrial or other site without established vegetation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Moderate (10)	Moderate number / not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
		Large no. of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture (small field sizes with well-grown and small villages/hamlets (4)

Rarest (20)	High (20)	Close to or within a SAC for the species (20)	Mosaic of pasture (small fields), woodlands and wetland areas (5)
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Calculation of Commuting Habitat Scores

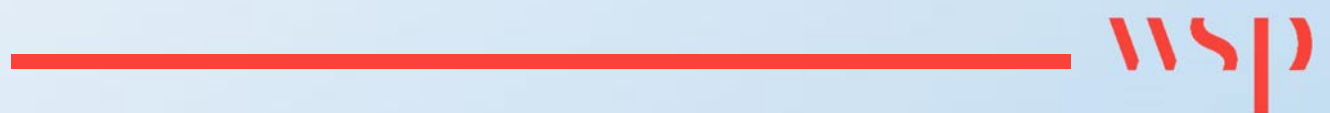
National Rarity	Activity	Site/Nearby Roost Potential	Habitat Characteristics
Common (2)	Low (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Moderate (10)	Moderate number / not known (4)	Walls, gappy or failed hedgerows, isolated well-grown hedgerows, and moderate sized fields (3)
		Large no. of roosts, or close to a SSSI for the species (5)	Well-grown and well-connected hedgerows, small field sizes (4)
Rarest (20)	High (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

Categorisation of Bats by National Rarity

Rarity Within Range	England	Wales	Scotland	Northern Ireland
Common (population. over 100,000)	Common Pipistrelle Soprano Pipistrelle Brown Long-eared	Common Pipistrelle Soprano Pipistrelle	Common Pipistrelle Soprano Pipistrelle	Common Pipistrelle Soprano Pipistrelle
Rarer (population.	Lesser Horseshoe	Lesser Horseshoe	Daubenton's Bat	Daubenton's Bat

Rarity Within Range	England	Wales	Scotland	Northern Ireland
10,000 100,000)	Whiskered Brandt's bat Daubenton's Bat Natterer's Bat Leisler's Bat Noctule Nathusius' Pipistrelle Serotine	Daubenton's Bat Natterer's Bat Brown Long- eared	Natterer's Bat Brown Long- eared	Natterer's Bat Leisler's Bat Nathusius' Pipistrelle Brown Long- eared
Rarest (population. under 10,000)	Greater Horseshoe Bechstein's Bat Alcathoe Bat Greater Mouse- eared Barbastelle Grey Long- eared	Greater Horse- shoe Whiskered Brandt's Bat Bechstein's Bat Alcathoe Bat Noctule Nathusius' Pipistrelle Serotine Barbastelle	Whiskered Brandt's Bat Alcathoe Bat Noctule Nathusius' Pipistrelle Leisler's bat	Whiskered

Appendix C



WALKED TRANSECT POINT COUNT DATA

Spring Walked Transect

Point Count	Bat passes		
	Common pipistrelle	Soprano pipistrelle	<i>Myotis sp.</i>
1			
2			
3	3		1
4	5		
5			
6	1	1	
7	1		
8			
9			
10	2		

Summer Walked Transect

Point count	Bat passes		
	Common pipistrelle	Soprano pipistrelle	<i>Myotis sp.</i>
10			
9			
8			
7	2		
6			
5			
4			



3	1		
2	5		
1	8		

Autumn Walked Transect

Point count	Bat passes		
	Common pipistrelle	Soprano pipistrelle	<i>Myotis sp.</i>
1			
2			
3			
4	1		
5	5		
6			
7			
8			1
9			
10	4	2	



Amber Court
William Armstrong Drive
Newcastle upon Tyne
NE4 7YQ

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WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name: LONG BANK UNDERPASS		Bridge Number: 7-on mcp	Grid ref:	Altitude: -	
Location: NEWCASTLE		Road number: A1	Water course Reference: -		
Surveyor name(s): G. BIRTLES + J. FENWICK		Date of Survey: 09/11/17			
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)
Start:	12:47	10	3	1	0
End:	12:53	10	3	1	0
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>					
Bat Potential			Evidence of bats		
None		Droppings	Details:		
Crevices of possible use to bats		Staining			
Ideal crevices		Bats Observed (visually)			
Evidence of bats		Bats Detected (audibly)			
Bridge Details					
Type	Over <input checked="" type="checkbox"/> UNDER <input checked="" type="checkbox"/>		Span	Abutments N/A	Construction
Road	Watercourse		Concrete X	Concrete	Arch
Aqueduct	Dry Watercourse		Wood	Wood	Cast
Railway	Road X		Steel X	Steel	Beam
Disused Railway	Canal		Brick	Brick	Slab
Track	Railway		Stone	Stone	Clapper
Footpath X	Disused Railway		Other	Other	Tunnel
Other	Track / path		Arch and Spans		Culvert
	Other		Height of arch / bridge m	TUNNEL	Pipe
			No of. Arches or Spans		Other
River Bed Substrate					
Silt	Gravel		Stones / cobbles / boulders	Rock	Other

Habitats within 100 m

Broadleaved trees / woodland	X	Arable	
Coniferous trees / woodland		Hedges	
Scrub		Walls	X
Improved grassland		Buildings	X
Semi / unimproved grassland / moorland		Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

Small cracks + ~~cracks~~ crevices in adjacent brick underpass.

Other Wildlife

/

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

Eighteen Lodge South underbridge E side

WSP/Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name: DOEHAN ROAD ROUNDABOUT - WASH EAST		Bridge Number: 5	Grid ref:	Altitude: ✓	
Location: A1 B2EH		Road number:	Water course Reference: /		
Surveyor name(s): JACK FRENWICK, GILL BIRCHES		Date of Survey: 09/11/17			
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)
Start:	11:30	10	7	1	0
End:	11:37	10	45	1	0
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>					
Bat Potential			Evidence of bats		
None		Droppings	Details:		
Crevices of possible use to bats		Staining			
Ideal crevices		Bats Observed (visually)			
Evidence of bats		Bats Detected (audibly)			
Bridge Details					
Type	Over		Span	Abutments	Construction
Road	✓	Watercourse	Concrete	X	Concrete X Arch
Aqueduct		Dry Watercourse	Wood		Wood Cast
Railway		Road	✓	Steel	Steel Beam
Disused Railway		Canal		Brick	Brick Slab
Track		Railway		Stone	Stone Clapper
Footpath		Disused Railway		Other	Other Tunnel
Other	Track / path		Arch and Spans		Culvert
	Other		Height of arch / bridge m	5	Pipe
			No. of. Arches or Spans	1	Other
River Bed Substrate					
Silt		Gravel	Stones / cobbles / boulders	Rock	Other

Habitats within 100 m

Broadleaved trees / woodland	<input checked="" type="checkbox"/>	Arable	
Coniferous trees / woodland		Hedges	
Scrub	<input checked="" type="checkbox"/>	Walls	
Improved grassland	<input checked="" type="checkbox"/>	Buildings	
Semi / unimproved grassland / moorland		Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

o B-gyp between compression pads.
 o Ledge on west end - same as bridge
 1, 3 + 4.
 o C-hole.

Other Wildlife

/

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name:	NORTHSIDE BRIDGE		Bridge Number:	8-on map	Grid ref:		Altitude:	-
Location:	BIRTLEY, NEWCASTLE		Road number:	A1	Water course Reference:			
Surveyor name(s):	G. BIRTLES + J. FENWICK			Date of Survey:	09/11/17			
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)			
Start:	13:07	10	3	1	0			
End:	13:25	10	3	1	0			
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>								
Bat Potential				Evidence of bats				
None	X	Droppings		Details:				
Crevices of possible use to bats		Staining						
Ideal crevices		Bats Observed (visually)						
Evidence of bats		Bats Detected (audibly)						
Bridge Details								
Type	Over		Span		Abutments	Construction		
Road	X	Watercourse	Concrete	X	Concrete	X	Arch	
Aqueduct		Dry Watercourse	Wood		Wood		Cast	
Railway		Road	X	Steel	Steel		Beam	
Disused Railway		Canal		Brick	Brick		Slab	
Track		Railway		Stone	Stone		Clapper	
Footpath		Disused Railway		Other	Other		Tunnel	
Other	Track / path		Arch and Spans				Culvert	
	Other		Height of arch / bridge m	10		Pipe		
			No of. Arches or Spans	2		Other		
River Bed Substrate								
Silt		Gravel		Stones / cobbles / boulders		Rock		Other

Habitats within 100 m

Broadleaved trees / woodland	X	Arable	
Coniferous trees / woodland		Hedges	
Scrub	X	Walls	
Improved grassland		Buildings	
Semi / unimproved grassland / moorland		Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

- o Minor gaps in the bridge wings - under cap stones
- o Same as Bridge # 3.
- o Constraint - can't view A.

ledge under bridge deck + between abutments

Other Wildlife

Pigeons.

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

Eighthon Lodge North underbridge

WSP | Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name: DURHAM ROAD FOUNDATION - WEST		Bridge Number: 44	Grid ref:		Altitude:	
Location: A1 BECH		Road number: A1	Water course Reference:			
Surveyor name(s): Jack Fenwick, Gill Birtel			Date of Survey: 09/11/17			
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)	
Start:	11:19	10	3	1	0	
End:	11:25	10	3	1	0	
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>						
Bat Potential			Evidence of bats			
None		Droppings	Details:			
Crevices of possible use to bats	X	Staining				
Ideal crevices		Bats Observed (visually)				
Evidence of bats		Bats Detected (audibly)				
Bridge Details						
Type	Over		Span	Abutments	Construction	
Road	✓	Watercourse	Concrete	X	Concrete	Arch
Aqueduct		Dry Watercourse	Wood		Wood	Cast
Railway		Road	✓	Steel	Steel	Beam
Disused Railway		Canal		Brick	Brick	Slab
Track		Railway		Stone	Stone	Clapper
Footpath		Disused Railway		Other	Other	Tunnel
Other	Track / path		Arch and Spans			Culvert
	Other		Height of arch / bridge m	8		Pipe
			No. of Arches or Spans	1		Other
River Bed Substrate						
Silt		Gravel		Stones / cobbles / boulders	Rock	Other

Habitats within 100 m

Broadleaved trees / woodland	X	Arable	
Coniferous trees / woodland		Hedges	
Scrub	X	Walls	
Improved grassland	X	Buildings	
Semi / unimproved grassland / moorland		Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

V = light brick work on facades (N+S).
 Same as bridge I + 3 - ledge.
 Pigeon nesting
 A - in-filled, damp crack / - 10cm in depth.
 void. 5cm wide. - Not a feature.

Other Wildlife

Pigeon.

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

Allerdene railway bridge

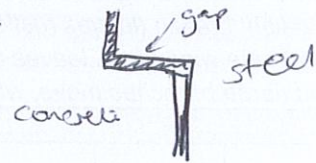
WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name: AGN Bridge BRIDGE ECMS 243B		Bridge Number: 2-on map	Grid ref:	Altitude: ✓		
Location: BIRTLEY, NEWCASTLE		Road number: A1	Water course Reference: ✓			
Surveyor name(s): C. BIRTLES + J. FENWICK		Date of Survey: 09/11/17				
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)	
Start:	10:34	10	3	1	0	
End:	10:49	11	2	1	0	
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>						
Bat Potential			Evidence of bats			
None		Droppings	Details: Bridge @ 76m SLch.			
Crevices of possible use to bats	X	Staining				
Ideal crevices		Bats Observed (visually)				
Evidence of bats		Bats Detected (audibly)				
Bridge Details						
Type	Over		Span	Abutments	Construction	
Road	X	Watercourse	Concrete	X	Concrete	Arch
Aqueduct		Dry Watercourse	Wood		Wood	Cast
Railway		Road	Steel	X	Steel	Beam
Disused Railway		Canal	Brick		Brick	Slab
Track		Railway	Stone	X	Stone	Clapper
Footpath	X	Disused Railway	Other		Other	Tunnel
Other	Track / path		Arch and Spans			Culvert
	Other		Height of arch / bridge m	7		Pipe
			No of. Arches or Spans	3		Other
River Bed Substrate						
Silt		Gravel	Stones / cobbles / boulders		Rock	Other

Habitats within 100 m			
Broadleaved trees / woodland	X	Arable	
Coniferous trees / woodland		Hedges	
Scrub	X	Walls	
Improved grassland		Buildings	
Semi / unimproved grassland / moorland	X	Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

xA Gap between concrete + steel deck structures.
↳ into cavity



xB Void at similar location to A.

↳ Same at other end of bridge on both sides.

Other Wildlife

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

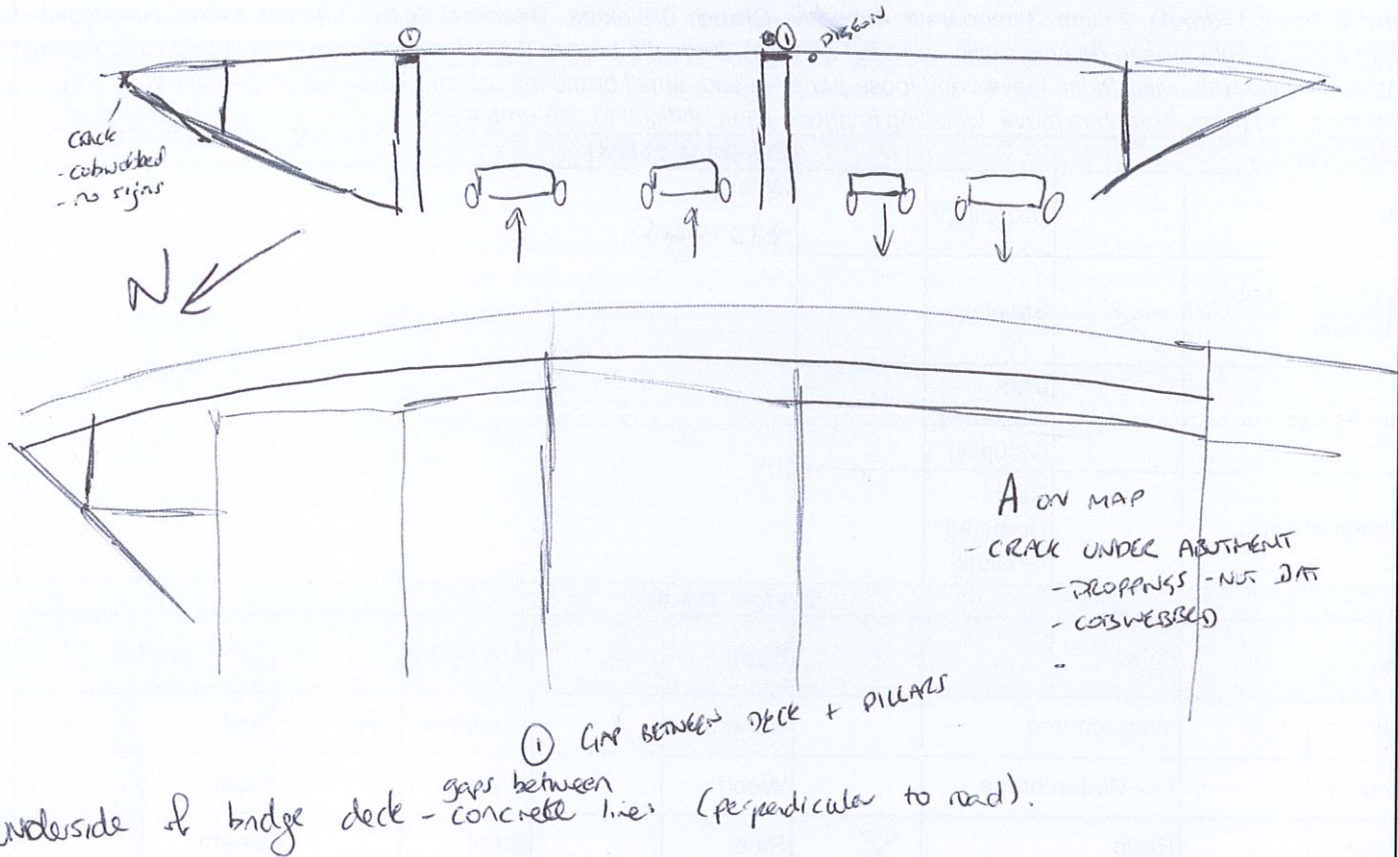
WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name:	SMITHY LAKE BRIDGE		Bridge Number:	1-on map.	Grid ref:		Altitude:	/
Location:	BIRTLEY, NEWCASTLE		Road number:	A1	Water course Reference:	/		
Surveyor name(s):	G. BIRTLES + J. FENWICK			Date of Survey:	09/11/17			
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)			
Start:	09:56	10	5	1	0			
End:	1020		4	2	0			
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>								
Bat Potential				Evidence of bats				
None		Droppings		Details: No signs.				
Crevices of possible use to bats	X	Staining						
Ideal crevices		Bats Observed (visually)						
Evidence of bats		Bats Detected (audibly)						
Bridge Details								
Type	Over		Span		Abutments		Construction	
Road	X	Watercourse	Concrete	X	Concrete	X	Arch	
Aqueduct		Dry Watercourse	Wood		Wood		Cast	
Railway		Road	X	Steel	Steel		Beam	
Disused Railway		Canal		Brick	Brick		Slab	
Track		Railway		Stone	Stone		Clapper	
Footpath	X	Disused Railway		Other	Other		Tunnel	
Other		Track / path		Arch and Spans			Culvert	
		Other		Height of arch / bridge m	10m.		Pipe	
				No of. Arches or Spans	3		Other	
River Bed Substrate								
Silt		Gravel		Stones / cobbles / boulders		Rock		Other

Habitats within 100 m

Broadleaved trees / woodland	X	Arable	
Coniferous trees / woodland		Hedges	
Scrub		Walls	
Improved grassland		Buildings	
Semi / unimproved grassland / moorland		Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)



Other Wildlife

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

Eighton Lodge Slip Road Underbridge

(WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma)

Bridge Name: Slip Road Underbridge Slip Road		Bridge Number: 3	Grid ref:		Altitude: ✓			
Location: A1 B204		Road number: A1	Water course Reference: /					
Surveyor name(s): Jack Fenwick, Gill Davies			Date of Survey: 09/11/17					
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)			
Start:	11:11	10	3	1	0			
End:	11:47	10	3	1	0			
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>								
Bat Potential			Evidence of bats					
None		Droppings	Details:					
Crevices of possible use to bats		Staining						
Ideal crevices		Bats Observed (visually)						
Evidence of bats		Bats Detected (audibly)						
Bridge Details								
Type	Over		Span	Abutments	Construction			
Road	✓	Watercourse	Concrete	X	Concrete	X	Arch	
Aqueduct		Dry Watercourse	Wood		Wood		Cast	
Railway		Road	✓	Steel		Steel		Beam
Disused Railway		Canal		Brick		Brick		Slab
Track		Railway		Stone		Stone		Clapper
Footpath		Disused Railway		Other		Other		Tunnel
Other	Track / path		Arch and Spans			Culvert		
	Other		Height of arch / bridge m	8		Pipe		
			No. of. Arches or Spans	1		Other		
River Bed Substrate								
Silt		Gravel		Stones / cobbles / boulders	Rock		Other	

WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Habitats within 100 m

Broadleaved trees / woodland	X	Arable	
Coniferous trees / woodland		Hedges	
Scrub	X	Walls	
Improved grassland		Buildings	
Semi / unimproved grassland / moorland	X	Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

ledge between abutments + ledge - same as bridge 1.
 Constraints - obscured view - see map.

Other Wildlife

/

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

NORTH DENE FOOTBRIDGE.

WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Bridge Name:	CRATHIE FOOTBRIDGE.	Bridge Number:	6-on map.	Grid ref:		Altitude:	✓
Location:	B NEWCASTLE	Road number:	AI	Water course Reference:	✓		
Surveyor name(s):	G. BIRTLES + J. FENWICK.			Date of Survey:	09/11/17		
	Time	Air temperature °C (in shade):	Cloud cover (oktas)	Wind speed (Beaufort Scale)	Rain (0-4)		
Start:	12:33	10	6	1	0		
End:	12:39	10	4	1	0		
<p>Rain: 0=none, 1=drizzle, 2=light, 3=moderate, 4=heavy. Cloud: 0-8 oktas. Beaufort Scale: 0=calm, 1=light air (smoke drifts in wind), 2=light breeze (leaves rustle, wind felt on face), 3=gentle breeze (light flags extended, small twigs in constant motion); 4=moderate wind (dust, leaves and loose paper raised, small branches move), 5=fresh wind (small trees sway), 6=strong wind (large branches move, whistling in phone lines, difficult to use umbrellas), 7-12=inappropriate conditions.</p>							
Bat Potential				Evidence of bats			
None	X	Droppings		Details:			
Crevices of possible use to bats		Staining					
Ideal crevices		Bats Observed (visually)					
Evidence of bats		Bats Detected (audibly)					
Bridge Details							
Type	Over		Span		Abutments		Construction
Road	Watercourse		Concrete		Concrete		Arch
Aqueduct	Dry Watercourse		Wood		Wood		Cast
Railway	Road	X	Steel	X	Steel	X	Beam
Disused Railway	Canal		Brick		Brick		Slab
Track	Railway		Stone		Stone		Clapper
Footpath	X	Disused Railway	Other		Other		Tunnel
Other	Track / path		Arch and Spans			Culvert	
	Other		Height of arch / bridge m	8		Pipe	
			No. of. Arches or Spans	3		Other	
River-Bed Substrate							
Silt	Gravel		Stones / cobbles / boulders		Rock		Other

WSP|Parsons Brinckerhoff Bat Bridge Survey Proforma

Habitats within 100 m			
Broadleaved trees / woodland		Arable	
Coniferous trees / woodland		Hedges	
Scrub	X	Walls	
Improved grassland		Buildings	X
Semi / unimproved grassland / moorland	X	Bog / marsh / wet ground	
Fast-flowing water		Slow-flowing water / ponds / ditches	

Additional Notes and Summary (include limitations)

(This area contains a faint grid pattern for handwritten notes.)

Other Wildlife

(This area contains a faint grid pattern for handwritten notes.)

Recommendations Actions

Bat roost present. EPS licence and consultation with relevant statutory body required before start of works.

Not possible to determine at present. Further survey required.

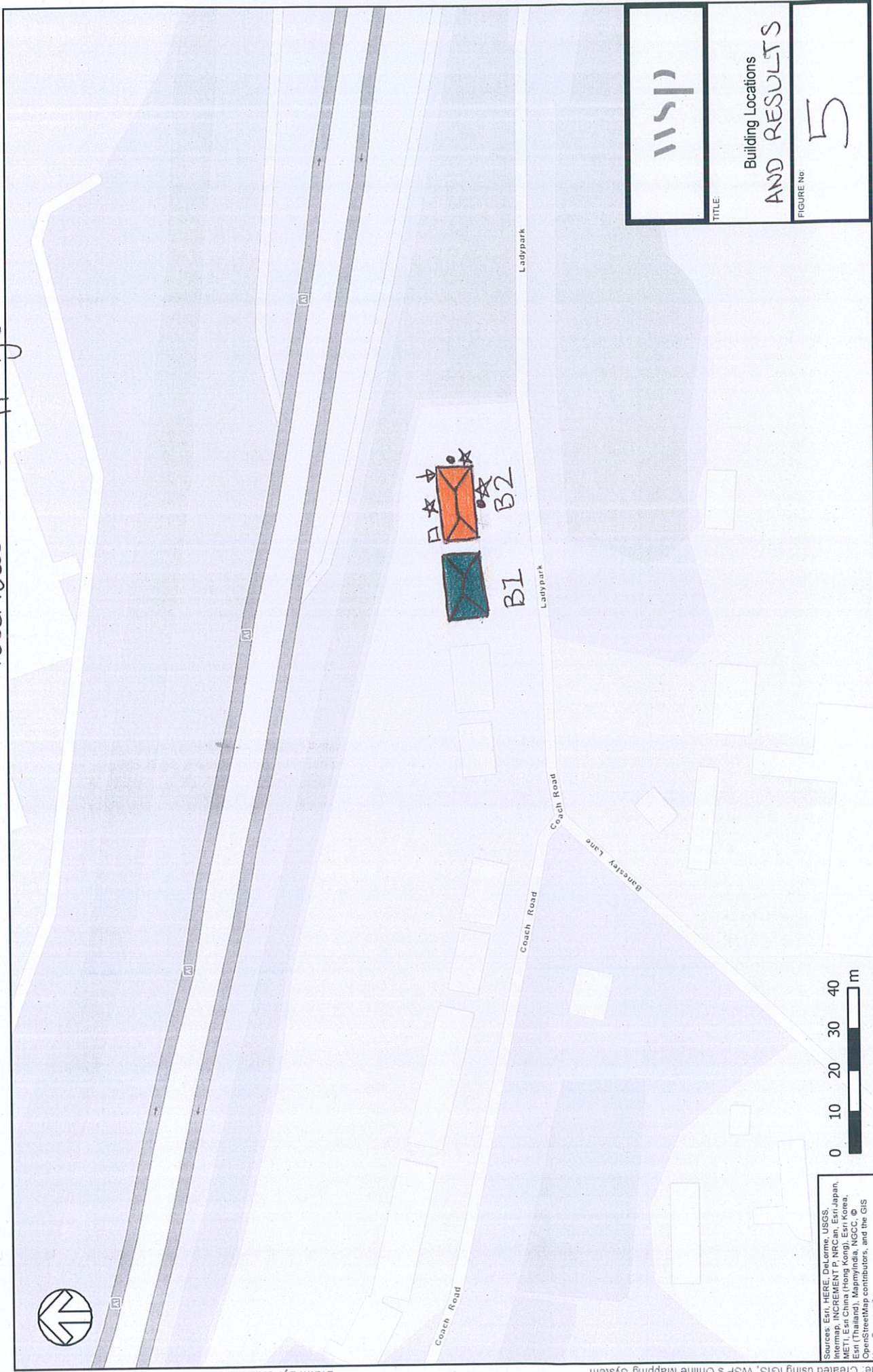
Proceed with work. No evidence / potential for bats

Avoid works between _____ and _____ due to bats / nesting birds

Recommendations for Conservation / Potential Improvement

(This area contains a faint grid pattern for handwritten notes.)

- Gaps under eaves
- Missing timber
- Potential bat droppings
- Negligible potential



wsp	
TITLE	Building Locations AND RESULTS
FIGURE No	5

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, OpenStreetMap contributors, and the GIS User Community.



Chowdena Bank
T5

T3
T4

T1

T2

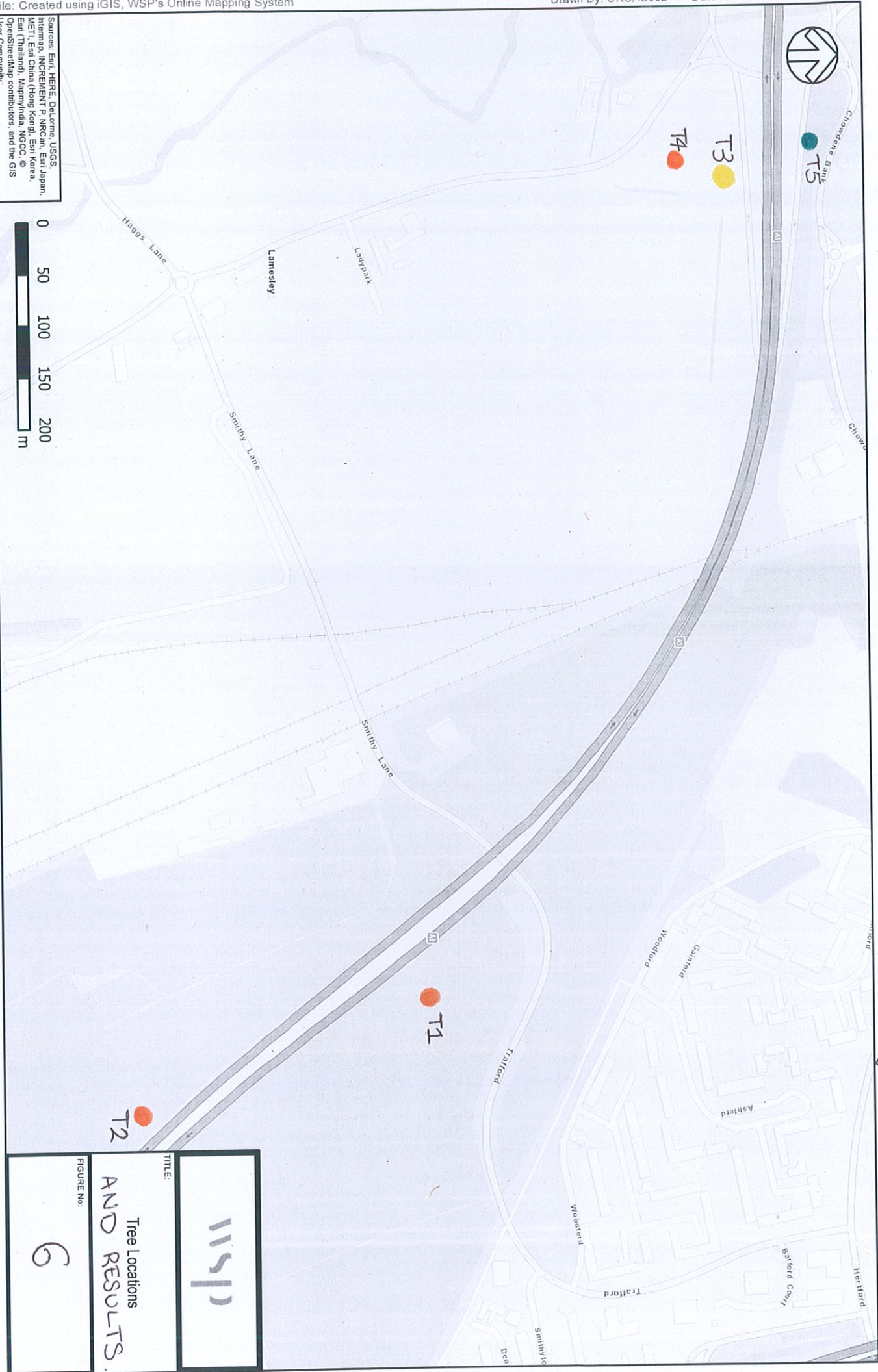
- moderate potential
- low potential
- negligible potential

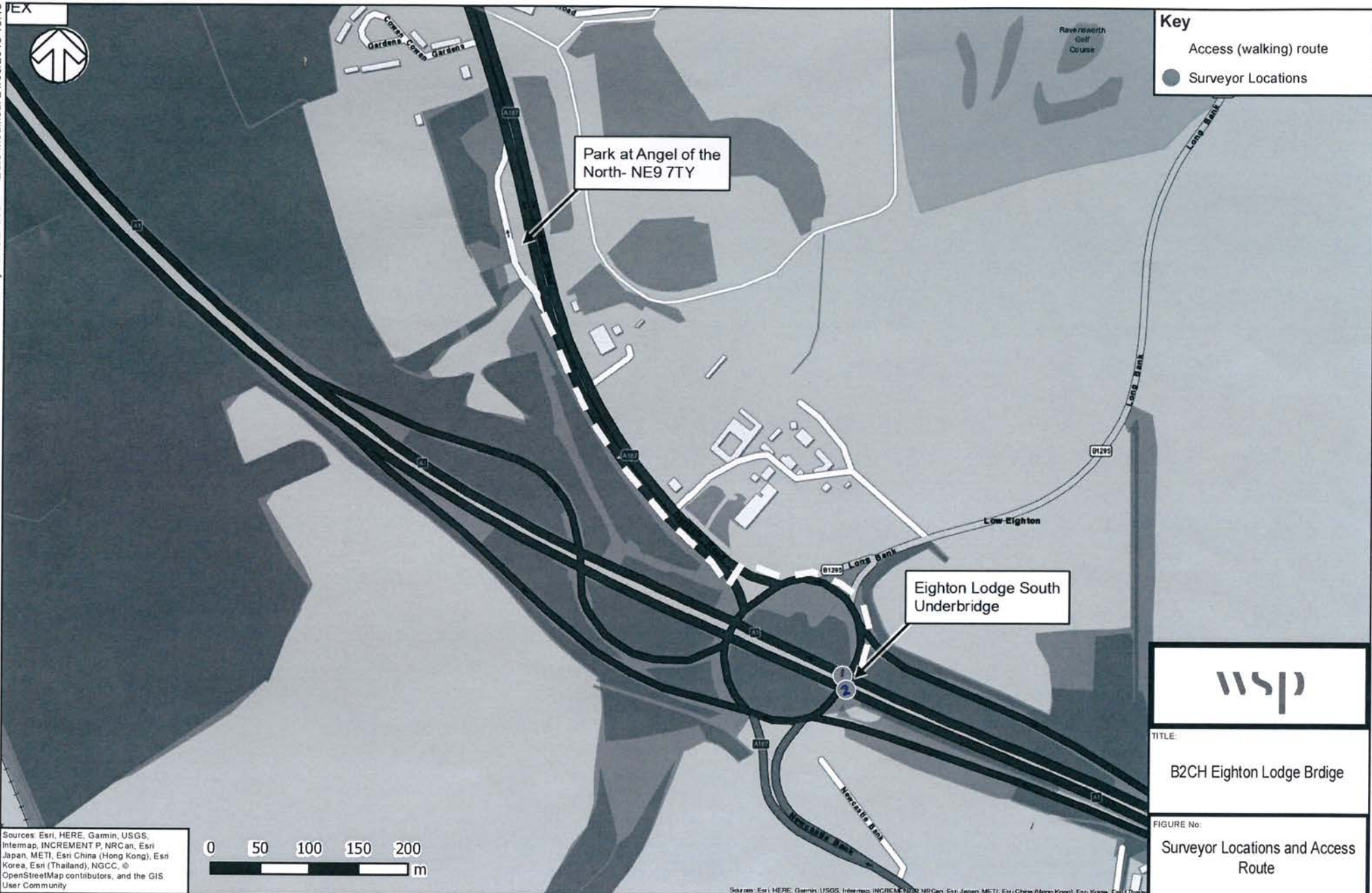


TITLE:
Tree Locations
AND RESULTS.

FIGURE No:

6





Key

- Access (walking) route
- Surveyor Locations

wsp

TITLE:
B2CH Eighton Lodge Brdige

FIGURE No:
Surveyor Locations and Access Route

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

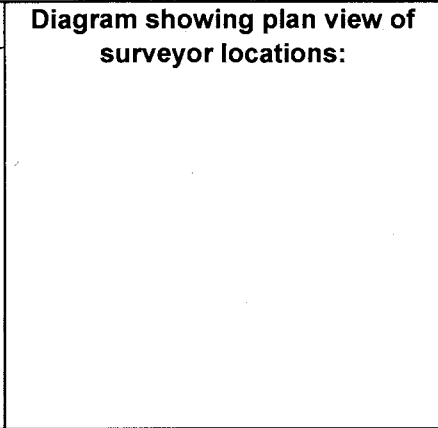
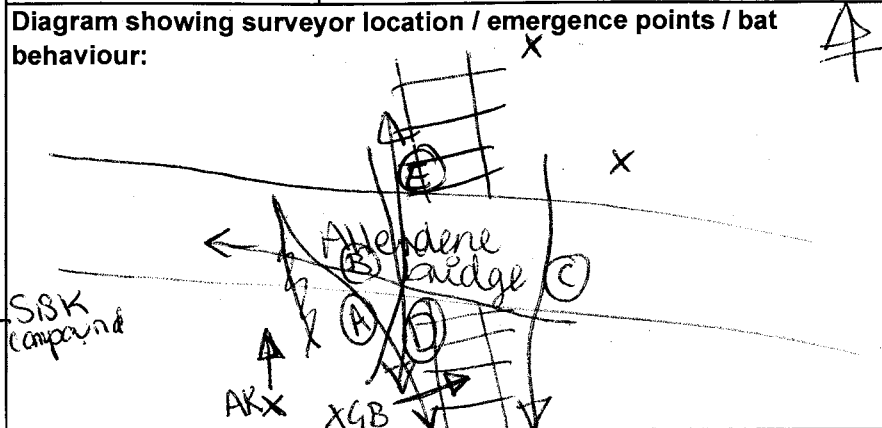
WSP ALLERDENE BRIDGE

Site Name: HYB2CH
 Surveyor location: _____ Surveyor name: C. BIRTLES
 Date: 16/05/18 Detector Model: DUET L7 Recorder model: N/A

Sunset/sunrise time: 21:09 Survey type: dusk emergence / dawn re-entry

	Time	Temp (°C)	Cloud cover (oktas)	Wind speed (Beaufort)	Wind direction	Rainfall	Humidity
Start:	20:54	9.0	0	0	-	0	-
End:	23:09	5.3	0	0	-	0	-

Notes/Limitations: _____



Comments from sound analysis. Including peak frequency (KHz)

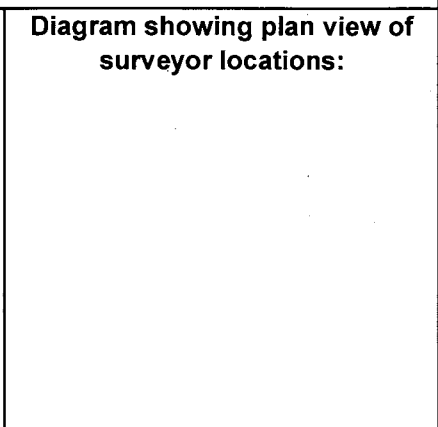
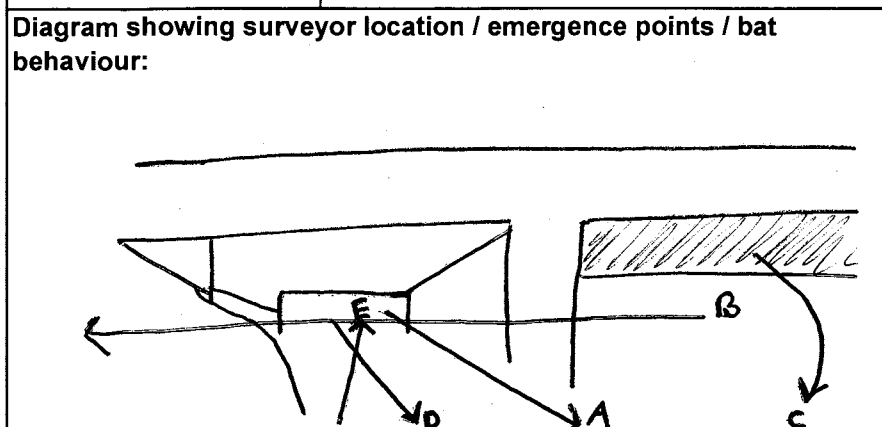
Time	Fig ref.	Track no.	Species	Passes	Comments on behaviour etc.
* 21:26	(A)	-	C pip.	1	Seen flying, seen under bridge - pass emergence south along railway track
21:29	(B)	-	C pip		Seen commuting
21:29	(C)	-	" "		Seen commuting
21:40		-	Pip. sp.	1	HNS - faint
21:44		-	C pip	1	HNS
21:46		-	Pip. sp.	1	" - faint
* 21:50	(D)	-	S. pip.	1	Seen flying south along railway - pass emergence
21:52		-	Pip. sp.	1	HNS
21:53		-	C pip	1	"
21:57		-	Pip. sp.	1	"
* 21:57	(E)	-	C pip	1	Seen commuting - pass emergence
22:09	(E)	-	C pip	1	Seen commuting under bridge
22:11		-	S. pip	1	HNS
22:14		-	C pip x 2		Seen flying under bridge
* 22:14	(E)	-	C pip	1	Seen flying under bridge - pass - kept flying?
22:16		-	C pip	1	HNS
* 22:17	(E)	-	S. pip		Seen flying underneath bridge - pass emergence?
22:17		-	C pip	1	Seen - flying under bridge
* 22:18	(E)	-	C pip	1	Seen flying under bridge - pass - kept flying?
* 22:20	(E)	-	C pip	1	Seen flying under bridge - pass - kept flying?
22:21		-	Pip. sp.	1	HNS
22:23	(E)	-	C pip	1	Seen - flying under bridge
22:24	(E)	-	" "	1	" " " "
22:27	(E)	-	" "	1	" " " "

WSP ALLERDEN NE BRIDGE

Site Name: **ALB2CH**
 Surveyor location: _____ Surveyor name: **Alex Keen**
 Date: **16/05/18** Detector Model: **Batbox Duet L5** Recorder model: **n/a**
 Sunset/sunrise time: **21:09** Survey type: **dusk emergence / dawn re-entry**

	Time	Temp (°C)	Cloud cover (oktas)	Wind speed (Beaufort)	Wind direction	Rainfall	Humidity
Start:	20:54	9.0	0	0	n/a	0	-
End:	23:09	5.3	0	0	n/a	0	-

Notes/Limitations: **No recorder used.**



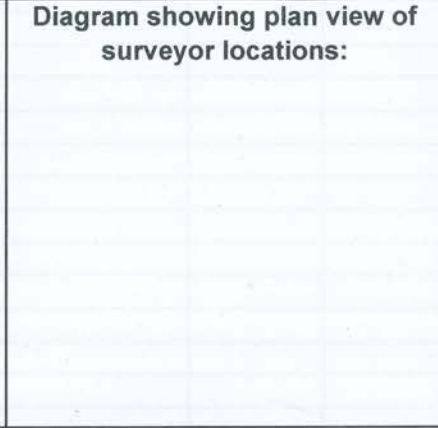
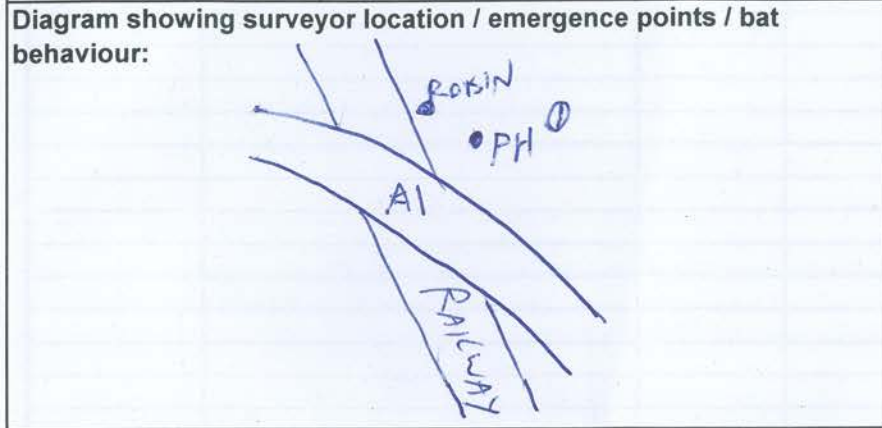
Comments from sound analysis. Including peak frequency (KHz)

Time	Fig ref.	Track no.	Species	Passes	Comments on behaviour etc.
21.26	A	n/a	CP	1	Commuting from bridge
21.29	B	"	"	1	Across back of bridge cover
21.29	C	"	"	1	From under bridge
21.44	-	"	"	1	HNS
21.50	O	"	SP	1	Comm. From under bridge
21.52	-	n/a	Pip spp.	1	HNS
21.53	-	"	CP	1	Comm for left of bridge
21.57	-	"	"	1	"
21.57	-	"	Pip spp.	1	HNS
22.06	Same as B	"	CP	1	From under bridge
22.08	E	"	"	1	Flew under + out of bridge
22.10	"	"	"	2	"
22.11	-	"	Pip spp.	1	HNS
22.14	E	"	"	1	2 bats in view out of bridge
22.14	-	"	"	1	Entered at sweep side - didn't see exit
22.16	-	"	"	1	Seen under bridge
22.17	-	"	CP	1	Flew out of bridge
"	"	"	"	"	In and out
22.18	"	"	"	1	Flew in - didn't see fly out
22.20	"	"	CP	1	"
22.23	"	"	CP	1	2 in 2 out
22.27	"	"	CP	1	2 in and out of bridge
22.35	"	"	CP	1	Flew in and out
* No emergence seen. Likely commuting route under bridge from southern side *					
** Pathway E used mainly **					

WSP ALLERDENE BRIDGE

Site Name: <u>AI B2CH</u>		Surveyor location:		Surveyor name: <u>PAUL HANSON</u>			
Date: <u>16/05/18</u>	Detector Model: <u>BATBOX DUEY 6</u>		Recorder model: <u>NA</u>				
Sunset/sunrise time: <u>21:09</u>		Survey type: <u>dusk emergence</u> / dawn re-entry					
	Time	Temp (°C)	Cloud cover (oktas)	Wind speed (Beaufort)	Wind direction	Rainfall	Humidity
Start:	<u>20:54</u>	<u>9.0</u>	<u>0</u>	<u>0</u>	<u>-</u>	<u>0</u>	<u>-</u>
End:	<u>23:09</u>	<u>5.3</u>	<u>0</u>	<u>0</u>	<u>-</u>	<u>0</u>	<u>-</u>

Notes/Limitations:



Comments from sound analysis. Including peak frequency (KHz)

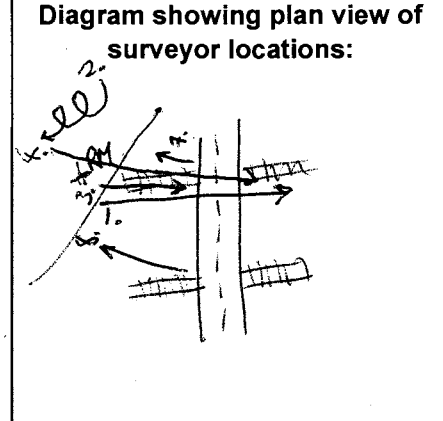
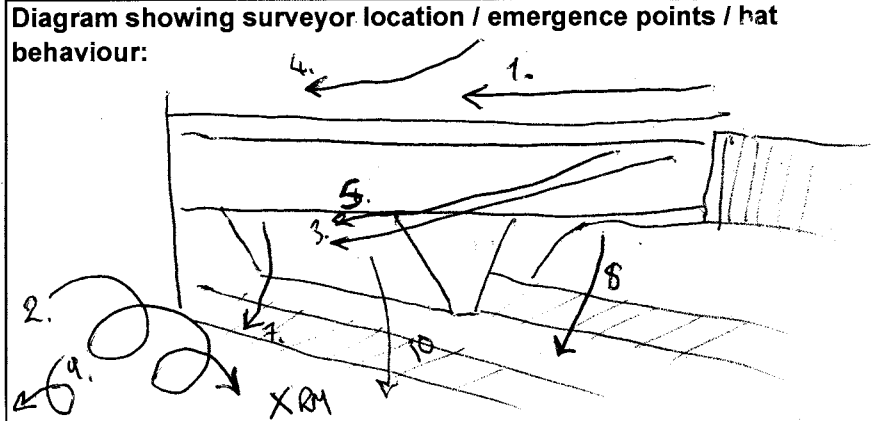
Time	Fig ref.	Track no.	Species	Passes	Comments on behaviour etc.
21:26	1	-	Com Pip		2x com pips feeding in clearing behind me
21:29	1	-	'' ''		Briefly ignored by third bat
21:30	1	-	Com Pip		1 bat flew under bridge
21:30-21:33	1	-	'' ''		Activity still detected faintly
21:35	1	-	Com Pip		but heard not seen
					1 bat flew south over my head and beneath bridge.
21:40	1	-	Com Pip		1 bat flew south over my head to bridge then immediately back north.
21:41	1	-	Com Pip		1 bat flew south over my head to bridge then heard not seen for next minute.
21:44	1	-	'' ''		1 bat flew south
21:45	1	-	'' ''		'' '' '' ''
21:52			unidentified		very brief pick up hns
21:53			Com Pip.		Flew north overhead from bridge
21:56			Com pip		hns
22:04			Com pip		Foraging overhead
22:06			'' ''		Flew south overhead
22:08			'' ''		Flew north ''
22:11			'' ''		Flew north ''
22:14			'' ''		'' '' ''
22:16			'' ''		'' '' ''
22:21			'' ''		2x com pips North overhead.
22:27			'' ''		1x '' '' '' ''
22:38			'' ''		1x com pip north overhead

m

P.T.O.

WSP ALLERDENE BRIDGE

Site Name: A1B2CH
 Surveyor location: Surveyor name: Rosin McLaen
 Date: 16/05/18 Detector Model: Duet Recorder model: Roland 001
 Sunset/sunrise time: 21:09 Survey type: dusk emergence down to entry
 Time Temp (°C) Cloud cover (oktas) Wind speed (Beaufort) Wind direction Rainfall Humidity
 Start: 20:54 9.0 0 0 = 0 =
 End: 23:09 5.2 0 0 = 0 =
 Notes/Limitations: Couldn't see very well the underside of the bridge. If I stood close to rail fence I could have bird did feel that was safe

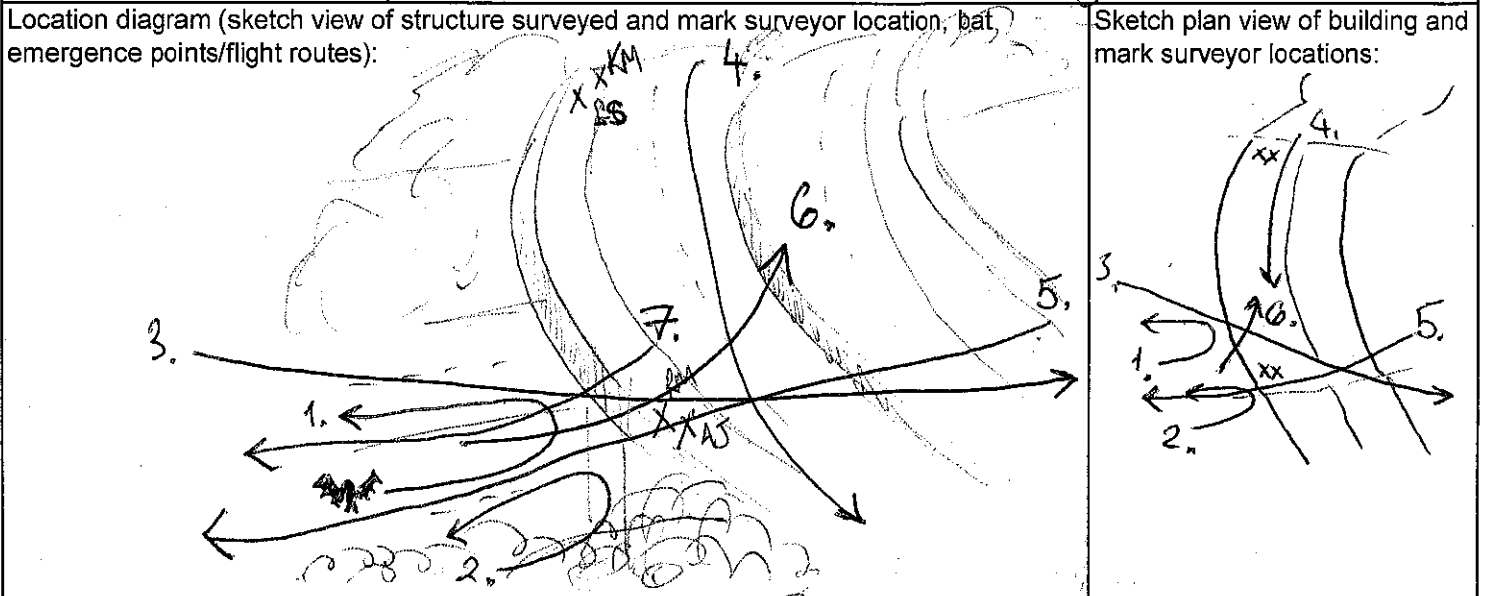


Comments from sound analysis. Including peak frequency (KHz)

Time	Fig ref.	Track no.	Species	Passes	Comments on behaviour etc.
9.25		1			HNS
9.27	1	1			
9.35	2	1			Foraging in wood
9.40	3	2			Combing under bridge
9.41	4	2			Combing over bridge
9.49	5	2			Combing under bridge
9.53		2			HNS
9.59		2			HNS
10.00	6	2			Flying from under the bridge
10.00	7	3			Flying from bridge
10.05	8	3			HNS
10.05		3			HNS
10.09		3			HNS*
10.09	9	3			Foraging x 2
10.10	10	2			Under bridge
10.15		3			HNS
10.17		4			HNS
10.18		4			HNS
10.25		4			HNS

Site Name: North Bridge 41	Project Number:	Surveyor Name: AJ & RM				
Date: 3/5/18	Detector type: Duet / Petterson D240X / Batlogger / EM3 / other (please specify): NA	Recorder Type and Number: Tascam BBO3				
Sunset / sunrise time: 20:45	Survey type: dusk emergence / dawn re-entry	Dusk				
Time	Temp (°C)	Cloud cover (oktas)	Wind speed (Beaufort)	Wind direction	Rainfall	Humidity
Start 20:30	10°C	7	3	SW	0	62%
End 22:45	10°C	7	2	SW	0	71%

Notes / Limitations: difficult to see under bridge to confirm emergence or not



[hns=heard not seen, snh = seen not heard, comm = commuting, for = foraging]

Time	Fig ref.	Track no.	Species	Passes	Comments on behaviour
21:28	1.	3	Unknown	1	North bound along tree line circled then returned North
21:31		3	HNS	1	
21:32	2	3	Unknown	1	from north circled returned north
21:41		3	U	1	
21:44	3	3		1	North over bridge
22:06	4	4	HNS	1	
22:14	4	4		2	For 1 bat seen over bridge
22:20	5	5		1	For
22:22		5	HNS	1	For
22:24		5	HNS	1	
22:25		5	HNS	1	
22:26	6	6		1	Commuting?
22:29		6	HNS	1	Faint passes
22:36		6	HNS	1	
22:40	7	7		1	South to north along woodland over bridge
22:41		7		1	Eye detected not seen
22:42		7	HNS	1	Faint passes
22:45		7		1	over bridge east to west

WML-A13a-E5a&b – WORK SCHEDULE FOR BAT ANNEXED LICENCE



Site name and address (as stated on the application form or licence granted): A1 Birtley to Coal House Eighton Lodge South Underbridge

Please ensure that the work schedules are S.M.A.R.T and appropriate timescales are provided for each activity, to fit with order of events. Complete these schedules to show timings for all categories of work (mitigation and compensation measures), and to show the main construction period. The most common activities are listed here, and you can add up to 6 more if needed. Leave blank if not applicable. Enter timing by stating **start and end dates, to nearest month and year** (see first lines for examples). Enter comments if you need to clarify timings. For very complex schemes (e.g. high impact or phased development schemes) if additional lines are needed please do add in. This work schedule will form part of any annexed licence.

E5a

PLEASE INCLUDE DATE OF SUBMISSION (e.g. 01 July 2016). This will be referenced in the annex → 31/07/2019	
Activity	Timing
Comments	
Pre- development activity	
<i>Example: Bat house creation (in advance of licence)</i>	<i>Sept-14 to Nov-14</i>
	<i>Also put up 3 bat boxes before end of December 2015, in advance of works commencing</i>
Creation of standalone bat feature/s (state completed and fit for purpose if created before licensable works due to commence)	N/A
Installation of bat boxes pre-development works (state completed and fit for purpose if created <u>before</u> licensable works due to commence)	April 2020- November 2020
	Errection of 4 x tree mounted bat boxes. To be installed prior to start of construction. All boxes will be completed and fit for purpose before licensable works commence. All timeframes would be confirmed during the detailed design stage.

Permanent exclusion measures (e.g. use of one-way excluders prior to permanent blocking of access points or destruction of roost)	April 2020 - November 2021	Eighton South Underbridge will be subjected to dusk and dawn surveys, if considered necessary exclusion devices may be fitted. All timeframes would be confirmed during the detailed design stage.
Emergence/re-entry Survey after 5 days of exclusion device installation to confirm absence		
Mid-development activity		
<i>Example: Capture exercise (e.g. by hand /hand-held nets, etc)</i>	<i>Sept-2016</i>	<i>By hand</i>
Pre-works inspection by Named Ecologist or Accredited Agent	April 2020 - November 2021	A dusk and dawn survey will be carried out prior to works. All timeframes would be confirmed during the detailed design stage.
Installation of protective measures (e.g. separation membranes whilst working in lofts)	N/A	N/A
Disturbance by noise, illumination or vibration (please specify)	N/A	N/A
Temporary exclusion measures (e.g. use of one-way excluders with access re-instated following works)	N/A	It is assumed at this stage that the design requires a permanent exclusion. During detailed design development temporary exclusion measures rather than permanent will be explored. All timeframes would be confirmed during the detailed design stage.
Permanent exclusion measures (e.g. use of one-way excluders prior to permanent blocking of access points or destruction of roost)	April 2020 - November 2021	Eighton South Underbridge will be subjected to dusk and dawn surveys, if considered necessary exclusion devices may be fitted. All timeframes would be confirmed during the detailed design stage.
Capture exercise (e.g. by hand / hand-held nets, etc – please state)	April 2020 - November 2021	If considered necessary the Named Ecologist will capture bat by hand. All timeframes would be confirmed during the detailed design stage.
Destructive search by soft demolition	N/A	Unlikely that the feature can be softly demolished due to the need to retain the bridges structural integrity. All timeframes would be confirmed during the detailed design stage.

During development		
<i>Example: Mechanical demolition</i>	Oct-2016	<i>Buildings X and Y will be knocked down after sign off from Named Ecologist</i>
Mechanical demolition of all or part of structures (once declared free of bats by Named Ecologist or Accredited Agent) – please state	N/A	N/A
Construction period start and end dates	September 2020 - August 2023	Construction dates will be dependant on the NSIP process and likely to be subject to change. All timeframes would be confirmed during the detailed design stage.
Site checks and maintenance during construction	April 2020- November 2021	A final check of the site will be undertaken on completion of construction by the Licenced Ecologist or their Accredited Agent,. All timeframes would be confirmed during the detailed design stage.
Post construction mitigation/compensation on ‘development’ site or other (provide details below)		
<i>Example: Installation of access points and bat boxes</i>	Feb-2017	<i>Access points will be installed after completion of new roof structure; remaining 3 x bat boxes installed by end of this month.</i>
Creation of mitigation/compensation <u>post development</u> (e.g. installation of bat tubes, bricks, boxes, access points, etc – specify in comments section)	Construction Completion October 2021	Bat Boxes will be installed on the extended Eighton South Underbridge abutments. All timeframes would be confirmed during the detailed design stage.
Habitat reinstatement or restoration (following temporary impacts)	October 2021 onwards	Landscape Reinstatement will be undertaken following construction. All timeframes would be confirmed during the detailed design stage.
Hedgerow or woodland planting (please specify)	October 2021 onwards	Additional Landscape Planting will be undertaken following construction. All timeframes would be confirmed during the detailed design stage.

E5b) Post-development works - type a "Y" where each activity will occur for a given year and leave blank for no activity.

Year:	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Monitoring												
Habitat management												
Site maintenance												

Year:	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Monitoring												
Habitat management												
Site maintenance												

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