

Appendix L

Precautionary Method of Works for Building B5



West Sussex County Council

A29 REALIGNMENT

Precautionary Method of Works for Building B5



West Sussex County Council

A29 REALIGNMENT

Precautionary Method of Works for Building B5

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70079718

OUR REF. NO. B5 PMOW

DATE: NOVEMBER 2021

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft for client comment			
Date	November 2021			
Prepared by	Charlotte Hewitt			
Signature	 Hewitt, Charlotte (UKCMH003) 2021.11.17 17:36:30			
Checked by	Bradley Williams			
Signature	 Peat, Owen (UKODP001) Signed on behalf of Bradley Williams (reviewer) 2021.11.17 17:47:00			
Authorised by	Owen Peat			
Signature	 Peat, Owen (UKODP001) 2021.11.17 17:47:35			
Project number	70079718			
Report number	B5 PMOW			
File reference	\\uk.wspgroup.com\Central Data\Projects\70079xxx\70079718 - WSCC - A29 Phase 1 Post Planning Support\03 WIP\Ecology\B5 PMoW			

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BRIEFING RECORD

1 INTRODUCTION

1.1 PLANNING BACKGROUND

1.1.1. West Sussex County Council (WSCC) obtained detailed planning permission in June 2021 for Phase 1 of the realignment of the A29 (hereafter referred to as ‘the Scheme’), to the north of Eastergate and to the north-west of Barnham, villages north of Bognor Regis (as shown in Figure 1). The full area encompassed by the Scheme is hereafter referred to as the ‘Site’.

1.1.2. The Site is currently greenfield agricultural land including open fields and unmanaged orchard, and partially incorporates a wooded Public Right of Way (PRoW) running in a north-to-south direction and connects between Eastergate Lane and the B2233 Barnham Road. To the west of the Site is the current route for the A29, and to the north of the Site is Eastergate Lane. The B2233 Barnham Road runs along the southern side of the Site, and a residential complex is present to the east of the Site.

1.1.3. The Scheme will comprise the following:

The construction of a 1.3km single carriageway with a 3m wide shared cycleway / footway, 2.5m wide central island, four uncontrolled crossings, three roundabouts, landscaping, noise barriers and other associated works.

1.1.4. A number of conditions are associated with the planning permission of the Scheme. In particular, Condition 3 refers to the Construction Environmental Management Plan (CEMP) and states the following:

No development shall be carried out until an updated Construction Environmental Management Plan – CEMP (in general accordance with the submitted Outline Construction Environmental Management Plan – Ref. 70079718 V04 dated April 2021) has been submitted to and approved in writing by the County Planning Authority.

The CEMP shall address the environmental management of the construction works and describe how construction activities will be managed in accordance with relevant standards and best practice to safeguard the environment and mitigate the effects of construction works...Further, it shall include, but not be limited to, the following:..

- Provision for all works to be carried out under the supervision of an Environmental Clerk of Works, Ecological Clerk of Works, Project Arboriculturalist and provide for the appointment of a Public Liaison Officer and specify their respective roles and responsibilities.*
- Precautionary Method of Works (PMoW) for bats/birds/reptiles/invertebrates – protected and notable species.*

1.2 AIMS AND OBJECTIVES

1.2.1. In order to contribute to the discharge of Condition 3, WSCC commissioned WSP to prepare a PMoW document detailing how construction works should proceed in relation to Building B5, a confirmed bat roost (see ecological background in Section 2 for further details).



- 1.2.2. General precautionary working methods for ecological constraints across the remainder of the Scheme, including bats in trees and other protected species, are detailed in a separate PMoW (WSP, 2021).

2 ECOLOGICAL BACKGROUND AND LEGISLATION

2.1 ECOLOGICAL BACKGROUND

- 2.1.1. A suite of ecological surveys were completed in 2019 to inform the planning application for the Scheme, including surveys for roosting bats.
- 2.1.2. An initial Preliminary Bat Roost Assessment (PBRA) was conducted in 2019 which identified three buildings (B2, B5, B7 on Figure 1) and 44 trees with suitability to support roosting bats. For the buildings, subsequent dusk emergence and/or dawn re-entry surveys were undertaken to determine the presence or likely absence of roosting bats. An individual soprano pipistrelle *Pipistrellus pygmaeus* and an individual serotine bat *Eptesicus serotinus* were observed emerging from building B5 during the dusk/dawn surveys, and as such building B5 was confirmed as a transitional bat roost for these species. It is considered that building B5 has negligible suitability to support a hibernation roost, based on the construction and condition of the structure. Roosting bats are considered to be likely absent from buildings B2 and B7 as a result of the dusk emergence and dawn re-entry surveys completed.

2.2 RELEVANT LEGISLATION

- 2.2.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017, as amended. The 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;
 - (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.
- 2.2.2. 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.
- 2.2.3. Building B5, and therefore the transitional soprano pipistrelle and serotine roost, will be retained as part of the Scheme and therefore there will be no direct loss of this roost. However, as building B5 is located directly adjacent to the construction works area, construction activities resulting in excessive noise or vibrations have the potential to disturb roosting bats and may deter roosting bats from using the structure.
- 2.2.4. The precautionary working methods set out in Section 3 below include measures which will seek to minimise the disturbance of roosting bats during the construction phase of the Scheme.

3 PRECAUTIONARY METHOD OF WORKS

3.1 OVERVIEW

- 3.1.1. This PMoW has been produced with reference to the following good practice guidance:
- Bat Mitigation Guidelines (English Nature, 2004);
 - Bat Mitigation Guidelines: A guide to impact assessment and compensation for developments affecting bats (Beta version 1.0: June 2021) (CIEEM, 2021); and
 - Bats and Artificial Lighting in the UK Guidance Note (Institute of Lighting Professionals, 2018).
- 3.1.2. Under the mitigation hierarchy set out in the Bat Mitigation Guidelines (English Nature, 2004), impacts should be avoided wherever possible in the first instance to ensure no negative impacts on existing roosts or populations. Where avoidance is not possible, impacts should be mitigated to reduce the likely impacts to the roost. As a last resort, where avoidance or mitigation cannot be used, the principle of compensation should be used to offset the damage caused by development.
- 3.1.3. It is considered the Scheme and the measures set out in this PMoW follow the principles of the mitigation hierarchy as set out in the Bat Mitigation Guidelines (English Nature, 2004). In particular, the Scheme has been designed to retain building B5, and thereby avoid direct loss of this roost. Mitigation measures as set out below will be utilised to reduce the impacts of disturbance from construction activities to the roost.

3.2 TOOLBOX TALK

- 3.2.1. The details of this PMoW will be presented to all staff conducting works near building B5 by a suitably qualified ecologist (SQE). An SQE is defined in this document as an ecologist with prior bat experience and knowledge of the roost in building B5.
- 3.2.2. The SQE will carry out the production of inductions and toolbox talks to contractors and will explain the ecological sensitivities of building B5 in relation to the Scheme. A record of briefings should be maintained by the nominated contractor. Appendix A provides a model briefing record which may be used.

3.3 PROPOSED ACTIVITIES

- 3.3.1. Based on the current programme of works for the Scheme, it is understood that construction activities in the vicinity of B5 will comprise the following as set out in Table 3-1 below.
- 3.3.2. It is understood that the majority of activities described in Table 3-1 will be undertaken during regular daytime working hours (indicatively 08:00-18:00). However, infrequent evening shifts between 19:00 and 00:00 may be required to complete elements of the carriageway tie-in and carriageway reconstruction works towards the end of the construction phase. As such, artificial lighting and vehicle lighting is likely to be required to complete these works.

Table 3-1 – Construction activities in the vicinity of B5

Activity	Plant/equipment required	Closest distance from B5 (approx.)
Earthworks	25t tracked 360 excavator	5m

Activity	Plant/equipment required	Closest distance from B5 (approx.)
	A25 dumpertruck 160 earthworks roller	
Road construction	20t tracked 360 excavator 20t delivery lorries 120 roller	15m
Footway construction	9t tracked 360 excavator 6t dumpers 120/80 rollers Mini paver Petrol disc cutter	7m (30m for petrol disc cutting)
Drainage works	25t tracked excavator Trench compactor plate 6t dumper Petrol disc cutter	40m
Demolition works	30t tracked 360 excavator with jaws 30t tracked excavator with breaker 30t tracked excavator Disposal lorries	50m
Surfacing works	Paving machine Delivery lorries 160 road rollers	15m
Carriageway reconstruction	1m road planer JCB excavator with breaker 18t wheeled excavator 120/160 road rollers Paving machine Delivery lorries Petrol disc cutter Road breaker	70m
Carriageway tie-in	1m road planer JCB excavator with breaker 160 road rollers	70m

Activity	Plant/equipment required	Closest distance from B5 (approx.)
	Paving machine Delivery lorries Petrol disc cutter Road breaker	

3.4 TIMINGS OF WORKS

- 3.4.1. Building B5 supports a transitional/summer roost for soprano pipistrelle and serotine bats, and therefore is used opportunistically by a small number of bats. B5 is considered unsuitable to support hibernating bats. As such, it is considered that low numbers of bats will be actively using building B5 between the summer active season (May to September inclusive), and that bats are considered unlikely to be present within building B5 during the typical hibernation period (October/November to April inclusive, depending on prevailing weather conditions).
- 3.4.2. In light of the above, the following mitigation measures in relation to timing of the works will be adhered to:
- Wherever possible, all construction activities within 20m of building B5 should be conducted in the period October/November to April inclusive, when roosting bats are considered to be likely absent from building B5. It is understood that this will be feasible for the majority of works within 20m of B5 (see Table 3-1), including the road construction, footway construction and surfacing works.
 - Where construction activities within 20m of building B5 are unavoidable within the summer roosting season (May to September inclusive), these will be conducted during daytime hours. Such works will be completed no later than one hour before sunset each working day so as to avoid discouraging bats to emerge from the roost through construction activities. It is understood that this is likely to apply to a small section of works including earthworks and part of the road construction programme.
 - The remaining construction activities described in Table 3-1 (demolition works, carriageway reconstruction and carriageway tie-in) are understood to be located over 20m from building B5 and are not expected to cause significant disturbance through vibration or noise. The majority of these works will be conducted during daytime hours, although a small number of infrequent evening shifts with artificial lighting may be required to complete certain elements. Where artificial lighting is used, this will comply with the measures set out in Section 3.5 below.

3.5 GENERAL MITIGATION MEASURES

Roost protection measures

- 3.5.1. Building B5 is currently located outside the proposed highway boundary of the Scheme, but within approximately 5m of this boundary and within the vicinity of Site Compound B. In order to minimise

the risk of accidental damage caused to the roosting features, Heras fencing (or similar) will be erected around building B5 to demark this building from construction plant and machinery.

- 3.5.2. Heras fencing will be installed with acoustic reduction barriers or similar noise cancellation material in order to minimise noise disturbance from adjacent construction works and vehicle movements. It is also expected that the use of such barriers will assist in reducing light spill onto the roost, in addition to the lighting measures set out below.
- 3.5.3. Heras fencing should be installed in such a way so as not to block the known access/egress point used by roosting bats on building B5 (refer to Figure 1 for the location of this access/egress point). The installation of the Heras fencing will be confirmed with the SQE upon completion to verify that confirmed roosting features have not been obstructed. The Heras fencing should remain in place for the duration of the construction phase.
- 3.5.4. Plant access routes required for the Scheme will not be directed within 5m of building B5, so as to minimise the risk of plant collision during the construction phase.

Artificial lighting

- 3.5.5. It is understood that the majority of construction activities will be conducted during regular daytime hours (indicatively 08:00 – 18:00 inclusive). However, depending on the time of year, later works (after approximately 16:00) may be undertaken in low light conditions after sunset. Similarly, a small number of activities will be completed on evening shifts, including works associated with the carriageway reconstruction and the carriageway tie-in. As such, there may be a requirement for artificial lighting for works in the vicinity of building B5.
- 3.5.6. In order to minimise the risk of disturbance to the roost, the following measures will be adhered to:
 - The confirmed roosting feature on the northern aspect of the building will not be directly illuminated by any temporary artificial construction lighting.
 - Wherever possible, overnight, evening and dark works will be restricted to the hibernation period as set out in Section 3.4, when bats are likely to be absent from B5, to minimise the risk of direct or indirect light spill onto the roosting feature.
 - Where the use of artificial lighting is unavoidable, this will be task-orientated with luminaires sited only where required to complete the required tasks, with lighting column heights and horizontal mounting carefully considered to minimise light spill. The use of baffles, hoods or louvres will be considered as a last resort to reduce light spill and direct light where it is needed.
 - Luminaires selected for temporary lighting will use a warm white spectrum (ideally 2700k or less) to reduce blue light components, and should feature wavelengths higher than 550nm to avoid the component of light most disturbing to bats.

3.6 UNEXPECTED DISCOVERY PROCEDURE

- 3.6.1. In the event that a grounded bat is encountered in the vicinity of building B5 during the construction phase, the work must stop immediately and the SQE must be informed. Operatives must not handle the bat, unless the animal is in absolute and immediate danger and you have been instructed to do so by the SQE.



3.7 MONITORING

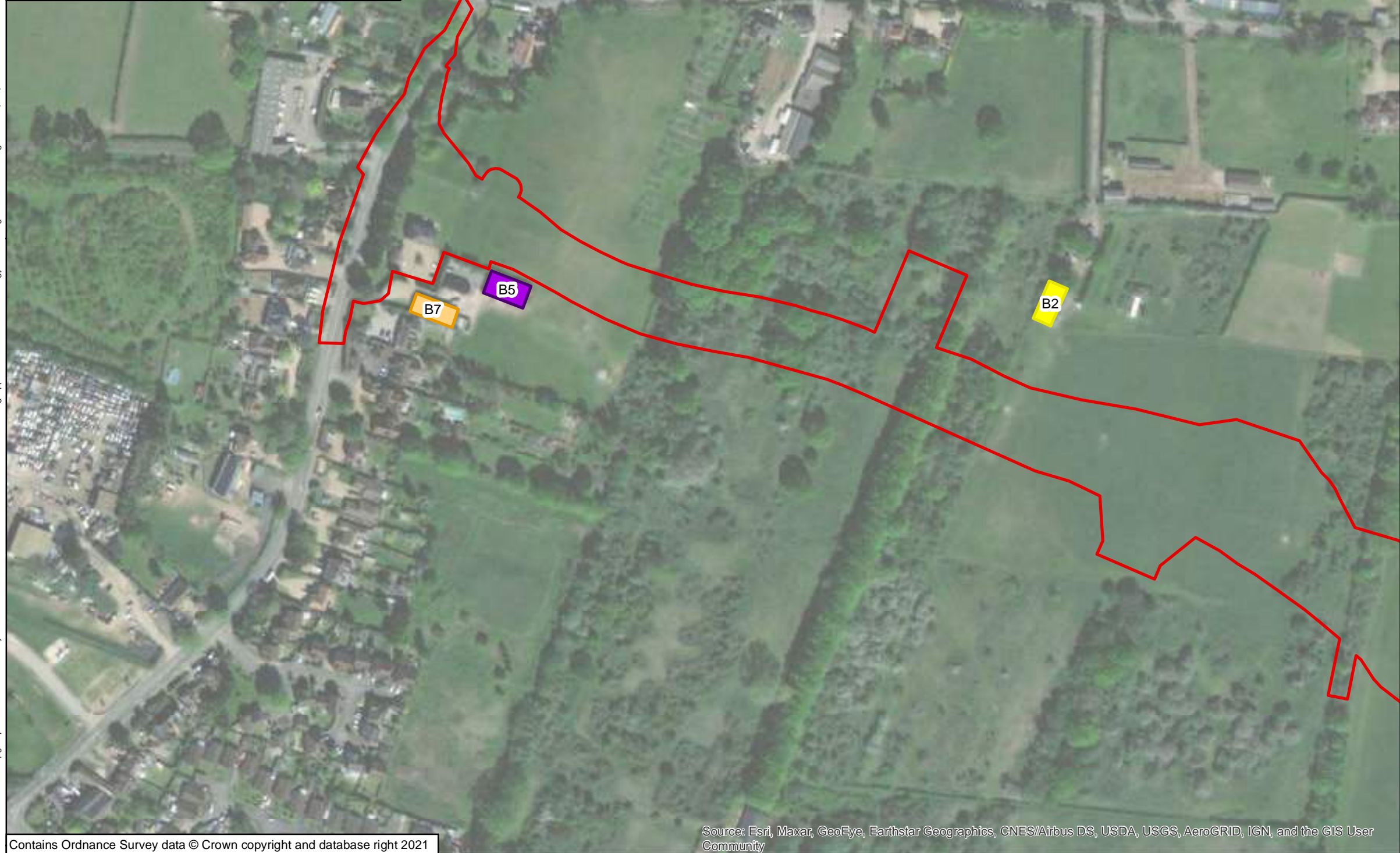
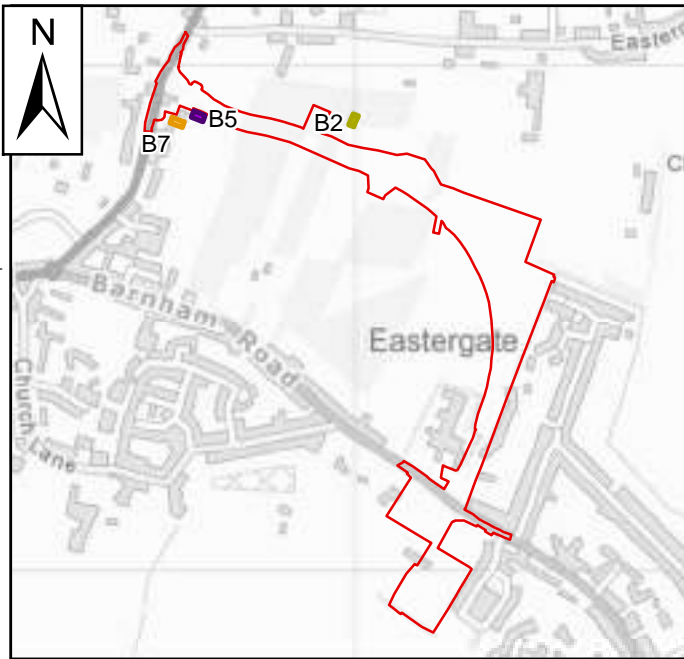
- 3.7.1. The SQE will attend Site at least once every two months during the construction period, to ensure that the protective Heras fencing around B5 remains in place, and to ensure that the mitigation measures set out in this document are complied with.



4 FIGURES

Figure 1 – Building Locations

Figure 2 - B5 Mitigation Strategy

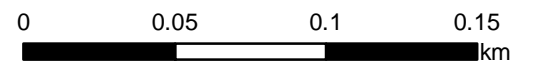


Key

- Red Line Boundary

Building Suitability for Roosting bats

- Confirmed Roost
- Moderate
- Low



Client:	West Sussex County Council
Project:	A29 Realignment
Title:	Building Locations

Drawing No:	Figure 1	Drawn:	RD
Date:	November 2021	Checked:	CH
Scale:	2,500 @ A3	Approved:	OP

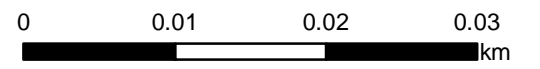


Key

- Red Line Boundary
- Heras Fencing
- Vehicle Exclusion Zone
- Confirmed Roost
- Emergence Location

Potential Roost Features

- // Lifted corrugated roof panels
- Damaged window providing access
- | Dense Ivy - May obscure features, B5
- | Gaps between corrugated panels, B5
- x Gaps between wooden panels, B5
- | Open access into building, B5



Client:	West Sussex County Council
Project:	A29 Realignment
Title:	B5 Mitigation Strategy

Drawing No: Figure 2	Drawn: RD
Date: November 2021	Checked: CH
Scale: 500 @ A3	Approved: OP

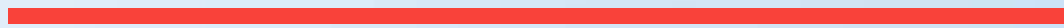
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

5 REFERENCES

- Chartered Institute of Ecology and Environmental Management (CIEEM) (2021) Bat Mitigation Guidelines: A guide to impact assessment and compensation for developments affecting bats (Beta version 1.0: June 2021)
- English Nature (2004) Bat Mitigation Guidelines.
- Institute of Lighting Professionals (2018) Bats and Artificial Lighting in the UK Guidance Note. Bat Conservation Trust, London.
- WSP (2021) A29 Realignment: Precautionary Method of Works.

Appendix A

BRIEFING RECORD





Ecologist (delivering brief)	Site Worker (being briefed)	Signature	Date



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Appendix M

Precautionary Method of Works – Scheme Wide



West Sussex County Council

A29 REALIGNMENT

Precautionary Method of Works





West Sussex County Council

A29 REALIGNMENT

Precautionary Method of Works

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70079718

OUR REF. NO. PMOW

DATE: NOVEMBER 2021

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft			
Date	November 2021			
Prepared by	Robyn Darnell			
Signature	 Darnell, Robyn (UKRED002) 2021.11.19 13:47:38			
Checked by	Charlotte Hewitt			
Signature	 Hewitt, Charlotte (UKCMH003) 2021.11.19 13:44:30			
Authorised by	Owen Peat			
Signature	 Peat, Owen (UKODP001) 2021.11.19 14:02:53			
Project number	70079718			
Report number	PMOW			
File reference	\\uk.wspgroup.com\Central Data\Projects\70079xxx\70079718 - WSCC - A29 Phase 1 Post Planning Support\03 WIP\Ecology\Protected and Notable Sp PMoW			

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FIGURES



No table of figures entries found.

APPENDICES

APPENDIX A

RECORD KEEPING AND PERMITTING

1 INTRODUCTION

1.1 PLANNING BACKGROUND

1.1.1. West Sussex County Council (WSCC) obtained detailed planning permission in June 2021 for Phase 1 of the realignment of the A29 (hereafter referred to as 'the Scheme'), to the north of Eastergate and to the north-west of Barnham, villages north of Bognor Regis (as shown in Figure 1). The full area encompassed by the Scheme is hereafter referred to as 'the Site'.

1.1.2. The Site is currently greenfield agricultural land including open fields and unmanaged orchard, and partially incorporates a wooded Public Right of Way (PRoW) running in a north-to-south direction and connects between Eastergate Lane and the B2233 Barnham Road. To the west of the Site is the current route for the A29, and to the north of the Site is Eastergate Lane. The B2233 Barnham Road runs along the southern side of the Site, and a residential complex is present to the east of the Site.

1.1.3. The Scheme will comprise the following:

The construction of a 1.3km single carriageway with a 3m wide shared cycleway / footway, 2.5m wide central island, four uncontrolled crossings, three roundabouts, landscaping, noise barriers and other associated works.

1.1.4. A number of conditions are associated with the planning permission of the Scheme. In particular, Condition 3 refers to the Construction Environmental Management Plan (CEMP) and states the following:

No development shall be carried out until an updated Construction Environmental Management Plan – CEMP (in general accordance with the submitted Outline Construction Environmental Management Plan – Ref. 70079718 V04 dated April 2021) has been submitted to and approved in writing by the County Planning Authority.

The CEMP shall address the environmental management of the construction works and describe how construction activities will be managed in accordance with relevant standards and best practice to safeguard the environment and mitigate the effects of construction works...Further, it shall include, but not be limited to, the following:..

- *Provision for all works to be carried out under the supervision of an Environmental Clerk of Works, Ecological Clerk of Works, Project Arboriculturalist and provide for the appointment of a Public Liaison Officer and specify their respective roles and responsibilities.*
- *Precautionary Method of Works (PMoW) for bats/birds/reptiles/invertebrates – protected and notable species.*

1.2 AIMS AND OBJECTIVES

1.2.1. In order to contribute to the discharge of Condition 3, WSCC commissioned WSP to prepare a PMoW document detailing the general precautionary working methods for the following species:

- Bats in trees;
- badgers;
- birds;



- reptiles; and
- invertebrates.

1.2.2. A separate PMoW document has been produced in relation to the building, B5, in which a confirmed bat roost has been identified¹. Mitigation measures in relation to building B5 are therefore not discussed further in this PMoW.

¹ WSP (2021) A29 Realignment: Building B5 Precautionary Method of Works.

2 BATS IN TREES

2.1 ECOLOGICAL BACKGROUND

2.1.1. Habitat removal required to facilitate construction will result in the loss of ten trees (as shown on Figure 1) assessed to have low to high potential to support roosting bats, including:

- T32, T36 and T42 with low potential
- T34-35, T37-38, T40 and T44 with moderate potential
- T39 with high potential

2.2 RELEVANT LEGISLATION

2.2.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017, as amended. The 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;
 - (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.

2.2.2. 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.

2.3 PRECAUTIONARY METHOD OF WORK STATEMENT

2.3.1. This PMoW comprises four stages, all of which must be implemented:

- toolbox talk;
- tree removal;
- general mitigation measures; and
- unexpected discovery procedure.

TOOLBOX TALK

2.3.2. The details of this PMoW will be presented to all staff carrying out vegetation clearance works by a Suitably Qualified Ecologist (SQE).

2.3.3. The SQE will carry out the production and delivery of inductions and toolbox talks to contractors and explain the ecological sensitivities of the Site and proposed works. The methodology for habitat clearance should also be explained. A record of briefings should be maintained by the nominated contractor (Appendix A provides a model briefing record which may be used).

TREE REMOVAL

2.3.4. Prior to tree removal, all trees within and adjacent to the Scheme will be subject to an updated ground level tree assessment (GLTA) in 2022, undertaken by a SQE following good practice

guidance (Collins, 2016²) to confirm the level of suitability for bat roosts to be present. These surveys can be undertaken throughout the year, however optimum survey season is between December – February when trees are not in leaf and potential roost features are therefore more visible.

2.3.5. Following the GLTA (or combined with it), the following approach will be taken:

- Trees assessed as having moderate or high suitability to support bat roosts will be subject to climbing inspections sufficient in number to enable a thorough assessment of suitability and to search for evidence indicating the presence of roosting bats. Optimal timing for these surveys will be during the bat active season which runs from May to September inclusive, although this may be varied to reflect the roost features identified. If at this stage the suitability is downgraded to low, the trees will be soft felled by suitably qualified arborists as above.
- Where no suitable features for roosting bats are found, the tree can be downgraded to negligible potential and felled sectionally.
- Trees assessed as having low suitability to support bat roosts will be soft felled by suitably qualified arborists.
- In the event that the presence of a bat roost is highlighted during the GLTA or climbing inspections, the requirement for works affecting the roost would be reconsidered to identify whether adverse effects can be avoided. Where possible, in this scenario proposals would be updated to enable retention and protection of the bat roost. In the event that retention is not possible, a licence would be sought from Natural England to permit works to proceed and the licence application would be subject to a detailed method statement.

2.3.6. Soft felling techniques will be used for low, moderate and high suitability trees and confirmed roost trees (under licence) where required and under the instruction of a bat licensed ecologist. This includes works being undertaken in a sensitive manner. Sections of the tree and tree limbs with potential bat roost features will not be directly sawn through, unless as directed by the licensed bat ecologist (i.e. in the circumstance the extent of the feature is not clear, but the cut is made through the section of the feature where there is certainty no bats are present). Any sections of the tree with potential bat roost features will be lowered carefully to the ground using ropes. These tree sections will be left on the ground for at least 24-48 hours, with the features clear to allow any unrecorded roosting bats to emerge.

GENERAL MITIGATION MEASURES

2.3.7. General mitigation measures will be needed to avoid disturbance to retained trees with suitability to support roosting bats. This will be further detailed within the CEMP and will include best practice construction measures such as:

- All retained trees will be protected in accordance with British Standard BS5837:2012 Trees in Relation to Construction, including the erection of robust protective fencing encompassing root protection areas.

² Collins (2016) Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition).

- Measures must be taken to prevent dust and other emissions from construction affecting retained trees beyond the Site.
- Noise and vibration must be controlled and kept to the minimum necessary.
- These measures are notably important for T3 (as identified in the Preliminary Bat Roost Assessment, east of T9 and T10) which has previously been identified as a confirmed bat roost outside the Scheme boundary.

2.3.8. Insensitive lighting during construction of the Scheme could have a negative effect on bat activity within and around the Scheme. These will be further detailed in the lighting strategy and will follow good practice guidance (ILP, 2018³) and will include the following recommendations:

- Use minimum light levels necessary for the relevant task / function. This may equate to reducing light intensity, and/or using the minimum number of light sources or minimum column height.
- Narrow spectrum light sources must be used where possible to lower the range of species affected by lighting, specifically avoiding shorter wavelength blue light, using instead warm/neutral colour temperature <4,200 kelvin lighting (BCT, 2014⁴).
- Light sources should emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light.
- Lights should be positioned away from retained vegetation. Hoods, louvres, or other luminaire design features can be used to avoid light spill when lighting is required but should be used as a last resort.

TIMINGS OF WORK

- Night time working should be avoided wherever possible. Where this is unavoidable, any use of temporary lighting should be in accordance with the above measures.

2.4 UNEXPECTED DISCOVERY PROCEDURE

2.4.1. In the event that a grounded bat is encountered during the construction phase, the work must stop immediately and the SQE must be informed. Operatives must not handle the bat unless the animal is in absolute and immediate danger and you have been instructed to do so by the SQE.

³ Institution of Lighting Professionals (IPL) (2018). Guidance Note 8 Bats and artificial lighting.

⁴ Bat Conservation Trust (2014) Artificial Lighting and Wildlife – Interim Guidance: Recommendations to help minimise the impact of artificial lighting

Building with a confirmed bat roost. Works within proximity of this building should be discussed in advance with an ecologist and in line with the Precautionary Methods of Works document for B5.



Key

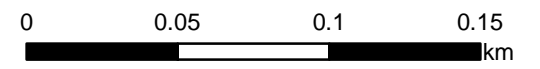
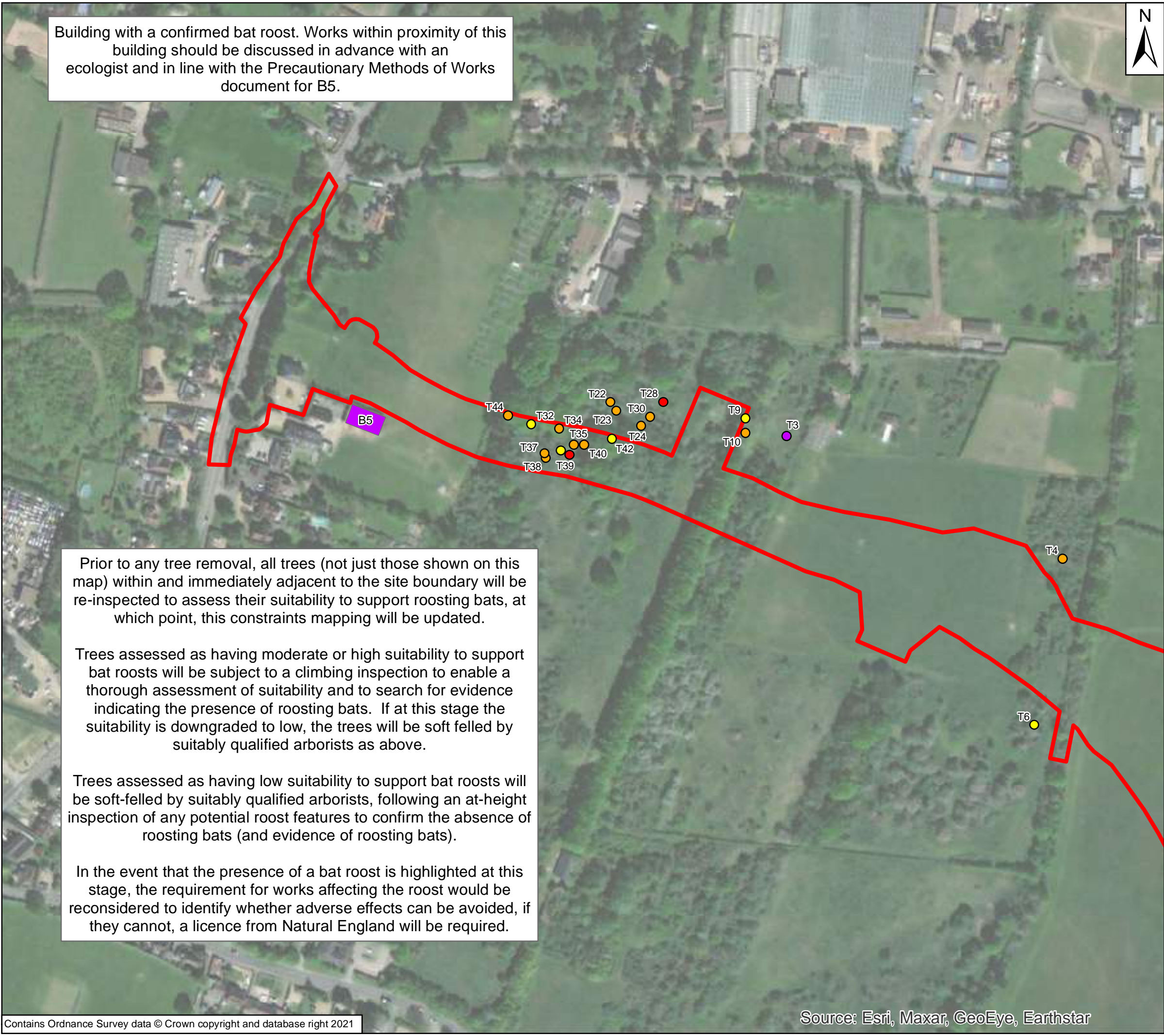
- Red Line Boundary

Building Suitability

- Confirmed Roost

Tree Suitability

- Confirmed
- High
- Moderate
- Low



Client:	West Sussex County Council
Project:	A29 Realignment
Title:	Precautionary Method of Works: Bats

Drawing No:	Figure 1	Drawn:	RD
Date:	November 2021	Checked:	CH
Scale:	2,500 @ A3	Approved:	OP

Prior to any tree removal, all trees (not just those shown on this map) within and immediately adjacent to the site boundary will be re-inspected to assess their suitability to support roosting bats, at which point, this constraints mapping will be updated.

Trees assessed as having moderate or high suitability to support bat roosts will be subject to a climbing inspection to enable a thorough assessment of suitability and to search for evidence indicating the presence of roosting bats. If at this stage the suitability is downgraded to low, the trees will be soft felled by suitably qualified arborists as above.

Trees assessed as having low suitability to support bat roosts will be soft-felled by suitably qualified arborists, following an at-height inspection of any potential roost features to confirm the absence of roosting bats (and evidence of roosting bats).

In the event that the presence of a bat roost is highlighted at this stage, the requirement for works affecting the roost would be reconsidered to identify whether adverse effects can be avoided, if they cannot, a licence from Natural England will be required.

3 BADGERS

3.1 ECOLOGICAL BACKGROUND

- 3.1.1. One badger clan is residing within the Site. At the time of the most recent survey in 2020, this clan had three very active setts (Sett 1-3, Figure 2) likely comprising a main, annex and subsidiary. Several outlier setts were also identified within the Site. A new artificial sett has been created to the north of the Site, as shown on Figure 2, which is in current use by the local badger population.
- 3.1.2. Works relating to the closure of the active badger setts within the Scheme will be covered under a separate method statement for a licence to be submitted to Natural England.

3.2 RELEVANT LEGISLATION

- 3.2.1. This PMoW contains a series of recommended measures, to be adopted during habitat management works, to avoid committing an offence under the legislation outlined below:
- 3.2.2. Badgers and their setts are afforded protection under the Protection of Badgers Act 1992. Under this legislation, it is an offence to:
- kill, injure or take a badger
 - damage or interfere with a sett unless a license is obtained from a statutory authority allowing the badgers to be carefully excluded, making them move elsewhere in their territory.

3.3 PRECAUTIONARY METHOD OF WORK STATEMENT

- 3.3.1. This PMoW comprises four stages, all of which must be implemented:
- toolbox talk;
 - vegetation clearance and habitat manipulation;
 - general mitigation measures; and
 - unexpected discovery procedure.

TOOLBOX TALK

- 3.3.2. The details of this PMoW will be presented to all staff carrying out vegetation clearance works by a SQE.
- 3.3.3. The SQE will carry out the production and delivery of inductions and toolbox talks to contractors and explain the ecological sensitivities of the Site and proposed works. The methodology for habitat clearance should also be explained. A record of briefings should be maintained by the nominated contractor (Appendix A provides a model briefing record which may be used).

LICENCESABLE ACTIVITIES

- 3.3.4. Badgers are active throughout the year and can excavate new setts at any time. Prior to vegetation clearance, the Scheme will be searched for new setts in late 2021 or early 2022 by an SQE. The results of this survey will also be used to produce a revised location plan of the badger setts (Figure 2) and to inform the licence application for sett closure.
- 3.3.5. All identified badger sett entrances within the footprint of the works will be permanently closed under licence from Natural England, using a methodology agreed with Natural England. These entrances are shown in red on Figure 2. Construction activities within 30m of these sett entrances must be

avoided until after sett closure, although light vegetation clearance activities can proceed up to within 5m of sett entrances as set out in the following section.

- 3.3.6. All identified sett entrances outside, but within 30m of, the footprint of the works will be temporarily closed (using one-way gates and ground meshing) under licence from Natural England, using an agreed methodology. These entrances are shown in amber on Figure 2. Upon completion of the construction phase, these sett entrances will be reopened by removing the one-way gates and ground meshing. Construction activities within 30m of these sett entrances must be avoided until after temporary sett closure, although light vegetation clearance can proceed up to within 5m of sett entrances as set out in the following section.
- 3.3.7. All remaining sett entrances (i.e. those over 30m from the footprint of the works) will be retained as part of the Scheme. These sett entrances are shown in green on Figure 2. As these entrances are over 30m from the footprint of the works, it is not considered that these entrances will be subject to damage or disturbance during the construction phase.

VEGETATION CLEARANCE AND HABITAT MANIPULATION

- 3.3.8. Work should be avoided within 30m of the artificial badger sett at all times throughout the construction phase, to encourage the continued use of this sett. This includes any vegetation clearance or construction activities.
- 3.3.9. Should any vegetation clearance need to be undertaken within 30m of an existing sett entrance prior to closure, then it must be undertaken in the presence of a SQE and undertaken using hand tools only. Vegetation clearance will not go closer than 5m to a sett entrance to ensure that setts remained screened until closure. WSP will provide a marked plan indicating acceptable clearance zones around sett entrances, and will attend a site visit in advance of vegetation clearance to demark these zones. No machinery should track within 30m of any entrance to an active sett until after the entrance has been temporarily or permanently closed under licence.
- 3.3.10. It is likely that rabbit burrows may exist on site. Any potential mammal burrows encountered within the red line boundary during vegetation clearance will be assessed by the SQE for their potential to support badgers and will be left *in-situ* until the badger licence for the Scheme is obtained, if badger presence is confirmed.

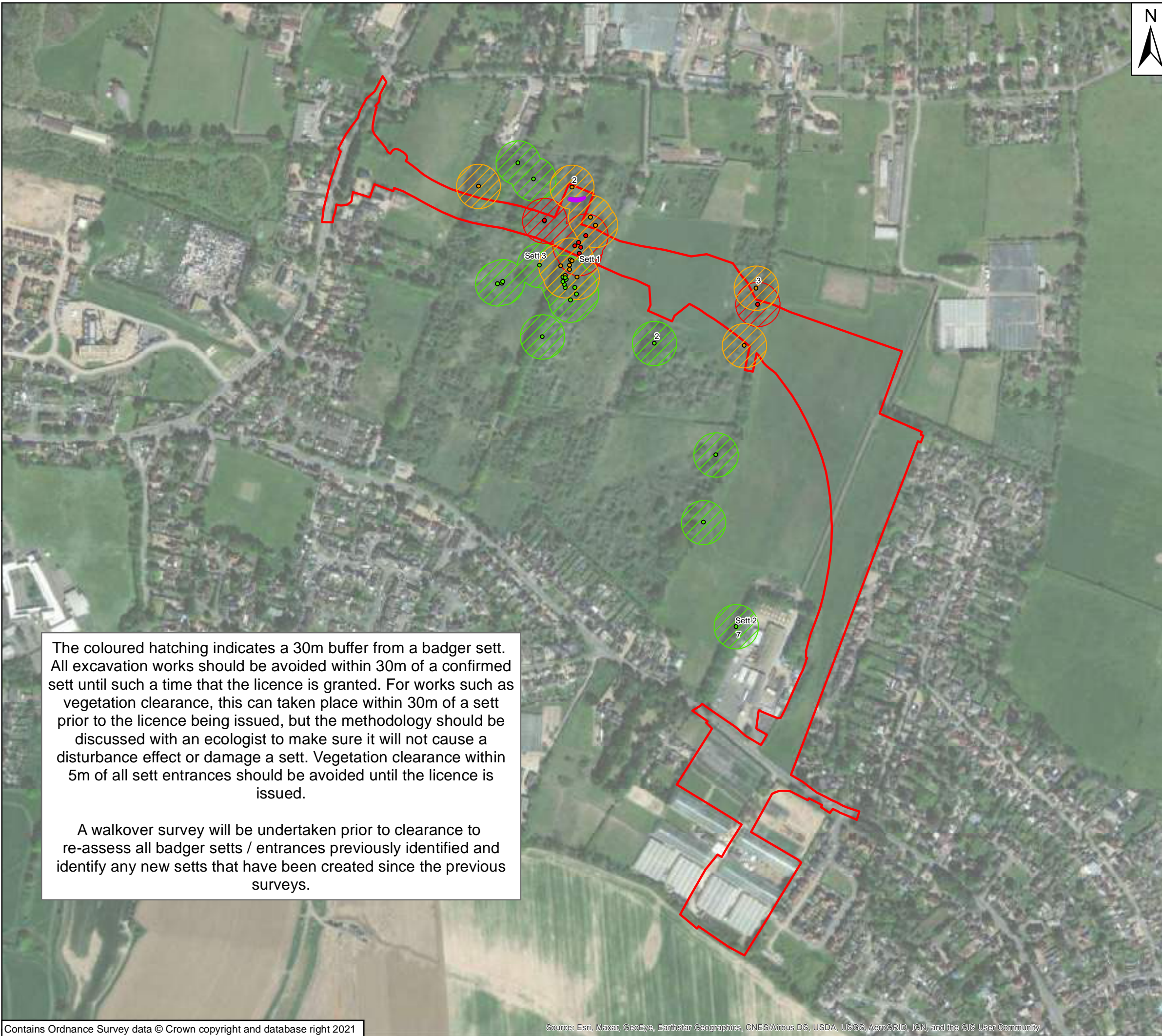
GENERAL MITIGATION MEASURES

- 3.3.11. Badgers use the wider area for foraging and commuting purposes and therefore measures need to be put in place during the construction phase, once the badger licence has been obtained, to minimise effects upon badger movement and foraging activity. The following measures should be implemented:
- Fencing of dangerous areas of the construction site (e.g. deep excavations) or providing a means of egress from shallow excavations, whilst ensuring other construction fencing is raised 180mm above ground level to enable badgers to pass beneath.
 - Good practice measures will be implemented to reduce noise during construction and there will be no night works unless specifically needed, to avoid disturbance by artificial lighting.
 - Where the use of lighting is unavoidable, hoods, cowls or shields will be used to avoid light spill onto setts or badger paths.



UNEXPECTED DISCOVERY PROCEDURE

- 3.3.12. If a new badger sett is found during the clearance works, work must stop immediately in that area and the SQE informed. Workers must not resume work in the vicinity of the badger sett until advised to do so by an SQE.



Key

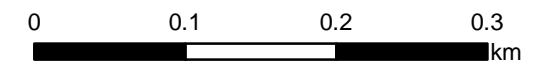
- Red Line Boundary
- Artificial Badger Sett

Badger Sett Entrances (Number labelled where <1 entrance)

- Retained setts over 30m from Red Line Boundary, no closure required
- Retained setts within 30m of the Red Line Boundary, temporary sett closure required
- Setts to be lost within RLB, permanent sett closure required

Buffer - 30m

- Retained setts over 30m from Red Line Boundary, no closure required
- Retained setts within 30m of the Red Line Boundary, temporary sett closure required
- Setts to be lost within RLB, permanent sett closure required



The coloured hatching indicates a 30m buffer from a badger sett. All excavation works should be avoided within 30m of a confirmed sett until such a time that the licence is granted. For works such as vegetation clearance, this can taken place within 30m of a sett prior to the licence being issued, but the methodology should be discussed with an ecologist to make sure it will not cause a disturbance effect or damage a sett. Vegetation clearance within 5m of all sett entrances should be avoided until the licence is issued.

A walkover survey will be undertaken prior to clearance to re-assess all badger setts / entrances previously identified and identify any new setts that have been created since the previous surveys.

Client:	West Sussex County Council	
Project:	A29 Realignment	
Title:	Precautionary Method of Works: Badgers	
Drawing No:	Figure 2	Drawn: RD
Date:	November 2021	Checked: CH
Scale:	5,000 @ A3	Approved: OP

4 BIRDS

4.1 ECOLOGICAL BACKGROUND

- 4.1.1. A total of 26 species were recorded as confirmed, probably or possible breeders during the breeding bird surveys. The majority of species identified were common and widespread however twelve species are of notable status, listed as a Species of Principal Importance, Biodiversity Action Plan Species or on the Birds of Conservation Concern lists. Two of the twelve species are also listed as a Schedule 1 species on the Wildlife and Countryside Act.
- 4.1.2. Suitable breeding bird habitat includes grassland, scrub and woody vegetation (Figure 3).

4.2 RELEVANT LEGISLATION

- 4.2.1. This PMoW contains a series of recommended measures, to be adopted during habitat management works, to avoid committing an offence under the legislation outlined below.
- 4.2.2. It is an offence under the Wildlife and Countryside Act 1981 to:
- Intentionally kill, injure or take any wild bird.
 - Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built.
 - Intentionally take or destroy the egg of any wild bird.
 - Use traps or similar items to kill, injure or take wild birds.
 - Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

4.3 PRECAUTIONARY METHOD OF WORK STATEMENT

- 4.3.1. This PMoW comprises five stages, all of which must be implemented:
- toolbox talk;
 - building inspection for barn owl;
 - vegetation clearance and habitat manipulation;
 - timings of work; and
 - unexpected discovery procedure.

TOOLBOX TALK

- 4.3.2. The details of this PMoW will be presented to all staff carrying out vegetation clearance works by a SQE.
- 4.3.3. The SQE will carry out the production and delivery of inductions and toolbox talks to contractors and explain the ecological sensitivities of the Site and proposed works. The methodology for habitat clearance should also be explained. A record of briefings should be maintained by the nominated contractor (Appendix A provides a model briefing record which may be used).

BUILDING INSPECTION FOR BARN OWL

- 4.3.4. The building B5, currently outside the Scheme boundary but within 20m of the Scheme, may be of suitability for barn owl *Tyto alba*. A pre-works check for barn owl should be undertaken at this building to ensure that construction works do not cause disturbance to this species.

VEGETATION CLEARANCE AND HABITAT MANIPULATION

- 4.3.5. It is strongly advised that clearance of grassland, scrub and woody vegetation is undertaken outside of the breeding bird season (i.e. clearance is undertaken between September and February inclusive).
- 4.3.6. If this is not possible an SQE should complete a pre-clearance survey search for active bird nests. An SQE will attend site early in the morning to identify species on site and record any typical breeding bird behaviours. The SQE will subsequently walk over the habitats conducting a thorough search for nests (including for ground nesting species).
- 4.3.7. Where active nests are present, appropriately sized exclusion area (species dependent, indicatively 5m) will be implemented, in which no works will occur until the nest is deemed no longer active by an SQE.
- 4.3.8. Should the nest of any bird species listed on the Schedule 1 list of the Wildlife & Countryside Act 1981^{5,6} be identified, a larger bespoke exclusion zone and revised assessment of habitat clearance works would need to be needed.
- 4.3.9. Where deemed necessary, electric machinery (i.e. electric chainsaws/brushcutters) may be required to reduce the risk of disturbance.

TIMINGS OF WORK

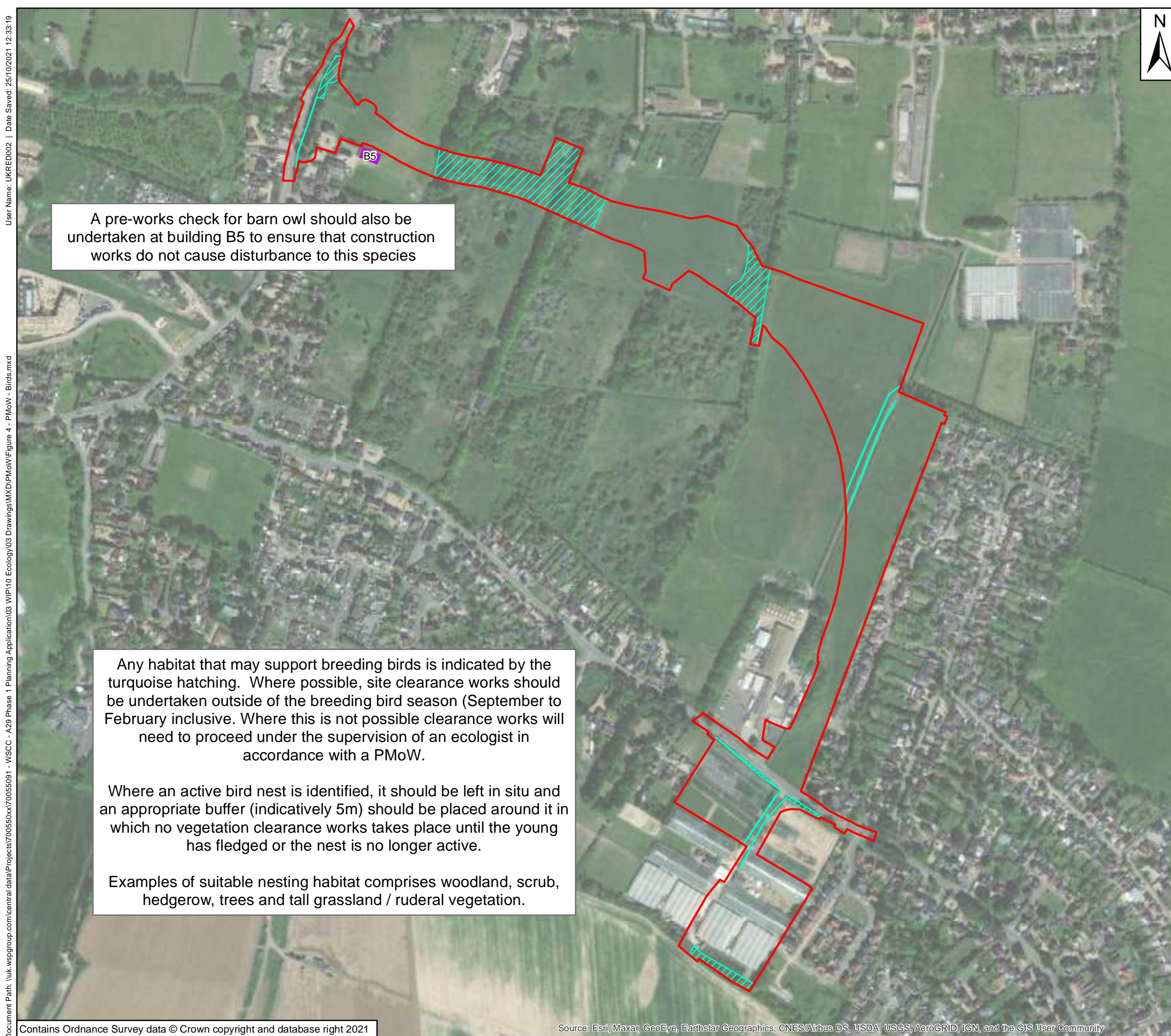
- Night time working should be avoided.
- Works in suitable breeding bird habitat – September to February optimal.

UNEXPECTED DISCOVERY PROCEDURE

- 4.3.10. If a distressed bird or bird nest is found during the clearance works, the work must stop immediately and inform the SQE. Workers must not handle the bird or touch the nest, unless the animal is in absolute and immediate danger and you have been instructed to move the bird by an SQE. Workers must not resume work until advised to do so by an SQE.

⁵ <https://www.legislation.gov.uk/ukpga/1981/69/schedule/1>

⁶ Cetti's Warbler have been identified on Site and recorded as a possible breeder. Barn Owl has been identified anecdotally by land owners and on a bat survey and may be a possible breeder on site



A pre-works check for barn owl should also be undertaken at building B5 to ensure that construction works do not cause disturbance to this species

Any habitat that may support breeding birds is indicated by the turquoise hatching. Where possible, site clearance works should be undertaken outside of the breeding bird season (September to February inclusive). Where this is not possible clearance works will need to proceed under the supervision of an ecologist in accordance with a PMoW.

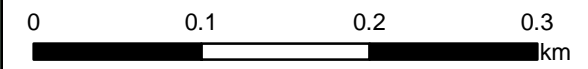
Where an active bird nest is identified, it should be left in situ and an appropriate buffer (indicatively 5m) should be placed around it in which no vegetation clearance works takes place until the young has fledged or the nest is no longer active.

Examples of suitable nesting habitat comprises woodland, scrub, hedgerow, trees and tall grassland / ruderal vegetation.



Key

- Red Line Boundary
- Suitable Habitat for Breeding Birds
- Suitable for Barn Owls



Client:	West Sussex County Council
Project:	A29 Realignment
Title:	Precautionary Method of Works: Birds

Drawing No:	Figure 3	Drawn:	RD
Date:	November 2021	Checked:	CH
Scale:	4,500 @ A3	Approved:	OP

5 REPTILES

5.1 ECOLOGICAL BACKGROUND

- 5.1.1. Common reptiles are present in low populations across suitable habitat within the Site (Figure 4).
- 5.1.2. The reptile survey confirmed the presence of two reptile species within the Site; slow worm *Anguis fragilis* and common lizard *Zootoca vivipara*, with low populations of both species present. Additionally, records of grass snake *Natrix helvetica* were returned in the desk study as present within 150m of the Site. Due to the close proximity of these records and also the suitability of the habitats on Site, it is considered that a low population of grass snake may also be present.

5.2 RELEVANT LEGISLATION

- 5.2.1. This PMoW contains a series of recommended measures, to be adopted during habitat management/clearance works, to avoid committing an offence under the legislation outlined below.
- 5.2.2. It is an offence under the Wildlife and Countryside Act 1981 to:
- intentionally (or recklessly) kill or injure a reptile.

5.3 PRECAUTIONARY METHOD OF WORK STATEMENT

- 5.3.1. This PMoW comprises four stages, all of which must be implemented:
- toolbox talk;
 - vegetation clearance and habitat manipulation;
 - timings of work; and
 - unexpected discovery procedure.

TOOLBOX TALK

- 5.3.2. The details of this PMoW will be presented to all staff carrying out vegetation clearance works by a SQE.
- 5.3.3. The SQE will carry out the production and delivery of inductions and toolbox talks to contractors and explain the ecological sensitivities of the Site and proposed works. The methodology for habitat clearance should also be explained. A record of briefings should be maintained by the nominated contractor (Appendix A provides a model briefing record which may be used).

VEGETATION CLEARANCE AND HABITAT MANIPULATION

- 5.3.4. In order to deter reptiles from the construction area, suitable habitat for reptiles should be made unsuitable using vegetation clearance methods prior to works commencing. Where tall herbaceous vegetation (grassland, scrub and woodland edges) clearance is required during the active reptile season (March-September), it should be undertaken in two stages over at least two consecutive days in order to progressively render habitat unsuitable for reptiles.
- 5.3.5. An SQE will provide ecological supervision for habitat clearance that could impact active reptiles during habitat clearance and construction works.
- 5.3.6. The SQE should agree with the nominated contractor the extent of habitat clearance. The maximum extent of habitat clearance permitted will be informed by the SQE. The area should not be extended

or modified without consultation of the SQE. Permissible vehicle access routes and materials storage areas will be agreed between SQE and contractor.

- 5.3.7. Habitat clearance will be undertaken using hand tools (these can include mechanised hand tools such as chainsaws and brush cutters) and in a sensitive manner, to minimise the likelihood of disturbing or killing reptile.
- 5.3.8. The habitat clearance should be a staged process. The following must be completed to clear habitats sensitively:
- Hand search for reptiles within vegetation to be cleared. Should any log, stone or debris piles or other potential refugia (such as fly tipped material) be present within the location, they will be dismantled to check for reptiles and removed from the works area.
 - An initial cut should be made to approximately 150mm.
 - The second cut (preferably on a consecutive day) should reduce vegetation as close as possible down to ground level.
 - Vegetation clearance should proceed in a directional manner to displace animals which may be present into areas of suitable retained habitat.
 - The habitat should then be maintained in an unsuitable condition for reptiles, such as by regular cutting of vegetation or by removal of topsoil, until works are completed.

WINTER VEGETATION CLEARANCE AND HABITAT MANIPULATION

- 5.3.9. In order to avoid impacts to hibernating reptiles which are more vulnerable during winter, ground works should be timed to avoid the sensitive hibernation season (indicatively October-February inclusive, weather dependent). If this is not possible caution should be taken to ensure that potential hibernacula are not disturbed. Hibernacula could include mammal burrows or objects under which animals could be hibernating including logs or amongst the roots of trees and shrubs.
- 5.3.10. An SQE will provide ecological supervision for habitat clearance that could impact hibernating reptiles during habitat clearance and construction works.
- 5.3.11. The SQE should agree with the nominated contractor the extent of habitats clearance. The maximum extent of habitat clearance permitted will be informed by the SQE. The area should not be extended or modified without consultation of the SQE. Permissible vehicle access routes and materials storage areas will be agreed between SQE and contractor.
- 5.3.12. Habitat clearance will be undertaken using hand tools (these can include mechanised hand tools such as chainsaws and brush cutters) and in a sensitive manner, to minimise the likelihood of disturbing or killing reptiles.

The habitat clearance should be a staged process. The steps listed below must be completed:

- Hand search for reptiles within vegetation to be cleared. Should any log, stone or debris piles or other potential refugia (such as fly tipped material) be present within the location, they will be dismantled to check for reptiles or common amphibians and removed from the works area. Should hibernating reptiles be identified, works may be required to be postponed until the reptile active season to avoid killing/injury to individuals.
- Clearance of vegetation to approximately 150mm above ground level using hand tools (hand strimmer/brush cutter).
- Re-inspection of vegetation to search for reptiles or refugia.

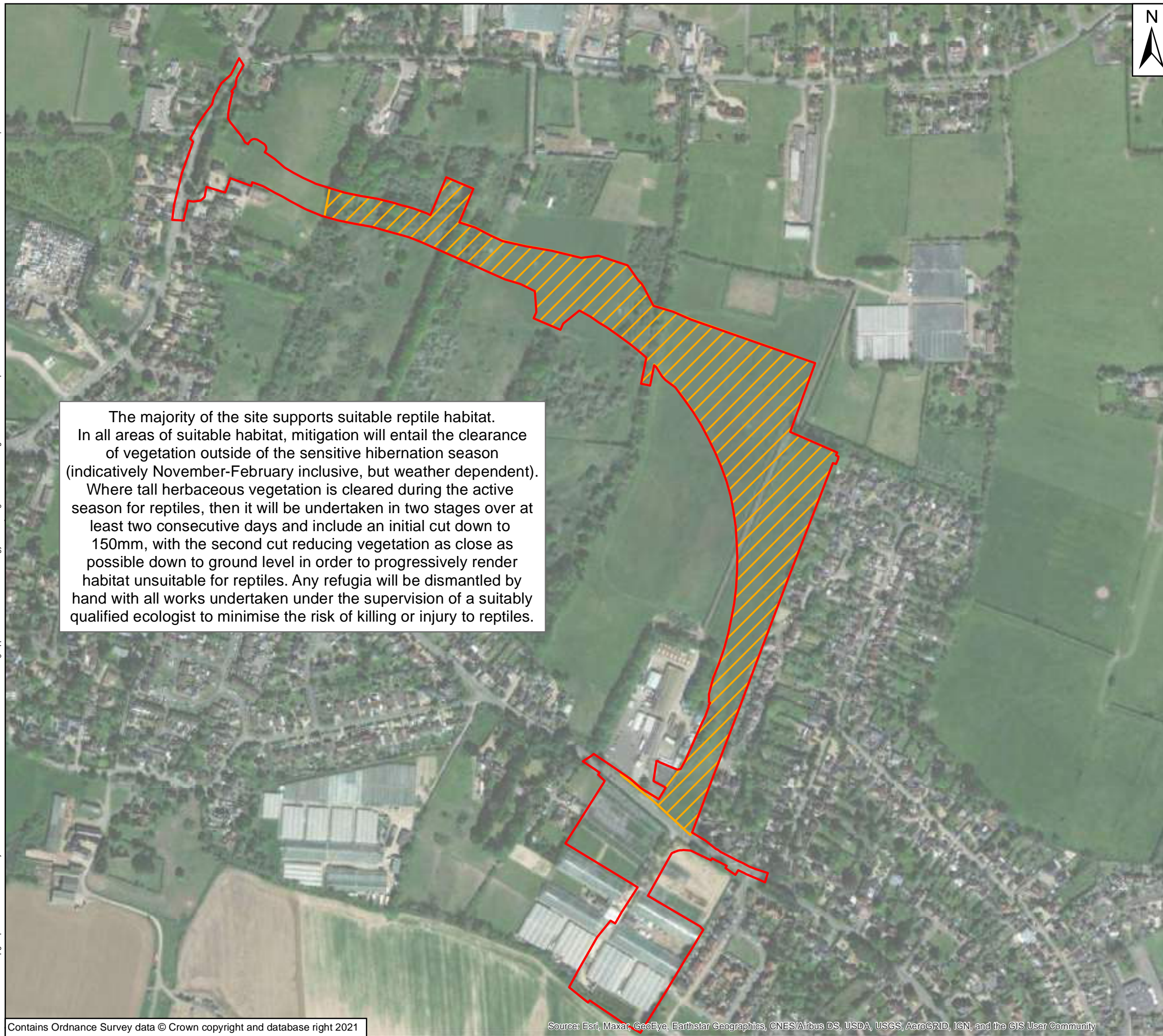
- 5.3.13. Clearance to ground level (or as close as is practicable).
- 5.3.14. The SQE will also thoroughly inspect all leaf litter, around tree stumps and under refugia to check for amphibians and reptiles immediately prior to tree stump removal or tracking of vehicles over these areas. Any arisings from the vegetation clearance will be disposed of off-site or in areas agreed with the SQE.
- 5.3.15. Wherever possible suitable habitat (i.e. grassland and scrub) should be retained, and the area of the clearance required reduced. Where feasible, site workers should stack any arisings, logs, dead wood and debris away from the site within retained semi-natural habitat, or chip materials and remove from the site.

TIMINGS OF WORK



- Night time working should be avoided.
- Works affecting reptile habitat should ideally be undertaken in the reptile active season - indicatively March-September.

UNEXPECTED DISCOVERY PROCEDURE

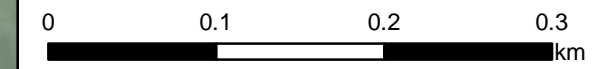
- 5.3.16. If a reptile is found during the clearance works, the work must stop immediately and inform the SQE. Workers must not handle the reptile, unless the animal is in absolute and immediate danger and you have been instructed to move the reptile by a SQE. Workers must not resume work until advised to do so by an SQE.
- 5.3.17. If any smooth newts, common frogs or common toads are found during the works they should be removed carefully by hand to areas away from the working area, such as hedgerows or scrub not to be affected by the works.



Key

-  Red Line Boundary
-  Suitable Reptile Habitat

The majority of the site supports suitable reptile habitat. In all areas of suitable habitat, mitigation will entail the clearance of vegetation outside of the sensitive hibernation season (indicatively November-February inclusive, but weather dependent). Where tall herbaceous vegetation is cleared during the active season for reptiles, then it will be undertaken in two stages over at least two consecutive days and include an initial cut down to 150mm, with the second cut reducing vegetation as close as possible down to ground level in order to progressively render habitat unsuitable for reptiles. Any refugia will be dismantled by hand with all works undertaken under the supervision of a suitably qualified ecologist to minimise the risk of killing or injury to reptiles.



Client:	West Sussex County Council
Project:	A29 Realignment
Title:	Precautionary Method of Works: Reptiles

Drawing No:	Figure 4	Drawn:	RD
Date:	November 2021	Checked:	CH
Scale:	4,500 @ A3	Approved:	OP

6 INVERTEBRATES

6.1 ECOLOGICAL BACKGROUND

- 6.1.1. Stag beetle *Lucanus cervus*, a SPI which are of high conservation concern, and protected under the Wildlife and Countryside Act (1981, as amended) were recorded incidentally on Site, within suitable habitat. Suitable stag beetle habitat includes standing dead wood and hedgerows.

6.2 RELEVANT LEGISLATION

- 6.2.1. This PMoW contains a series of recommended measures, to be adopted during habitat management works, to avoid committing an offence under the legislation outlined below:
- 6.2.2. It is an offence under the Wildlife and Countryside Act 1981 to:

- Sell, offer to sell, hold, or transport for sale either live or dead, whole or part.

6.3 PRECAUTIONARY METHOD OF WORK STATEMENT

- 6.3.1. This PMoW comprises three stages, all of which must be implemented:
- toolbox talk;
 - vegetation clearance and habitat manipulation
 - unexpected discovery procedure.

TOOLBOX TALK

- 6.3.2. The details of this PMoW will be presented to all staff carrying out vegetation clearance works by a SQE.
- 6.3.3. The SQE will carry out the production and delivery of inductions and toolbox talks to contractors and explain the ecological sensitivities of the Site and proposed works. The methodology for habitat clearance should also be explained. A record of briefings should be maintained by the nominated contractor (Appendix A provides a model briefing record which may be used).

VEGETATION CLEARANCE AND HABITAT MANIPULATION

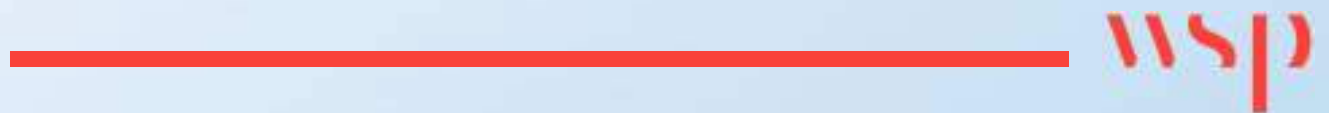
- 6.3.4. In order to preserve important stag beetle habitat, any deadwood habitat is removed from the Scheme will be retained and incorporated within the areas of proposed landscaping.
- 6.3.5. Habitat removal will also include a check of the soil around the deadwood / hedgerows to check for stag beetle larvae.

UNEXPECTED DISCOVERY PROCEDURE

- 6.3.6. If any stag beetles are found during the works, they should be removed carefully by hand to areas away from the working area, such as hedgerows or scrub not to be affected by the works.

Appendix A

RECORD KEEPING AND PERMITTING





2 London Square
Cross Lanes
Guildford, Surrey
GU1 1UN

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