A46 Coventry Junctions (Walsgrave)
Scheme number: TR010066

6.1 Environmental Statement
Chapter 8 - Biodiversity

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ENVIRONMENTAL STATEMENT
Chapter 8 - Biodiversity

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Table of contents

8. Biodiversity

8.1. Introduction

8.1.1. This chapter presents the information required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) to be provided in the Environmental Statement (ES) to enable the identification and assessment of likely significant effects on biodiversity.

8.1.2. This ES chapter provides an assessment of the likely significant effects on biodiversity as a result of the Scheme. This assessment includes a review of the existing biodiversity baseline conditions, assessment of potential impacts and identification of proportionate mitigation to mitigate against any likely significant adverse effects on ecological features[1] resulting from the Scheme.

8.1.3. The assessment approach follows the method detailed within the Environmental Scoping Report (**TR010066/APP/6.8**) submitted to the Planning Inspectorate in June 2023 and subsequent Environmental Scoping Opinion (received August 2023) (**TR010066/APP/6.9**) for the Scheme from the Planning Inspectorate on behalf of the Secretary of State.

8.1.4. The assessment in this chapter has been undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEMs) Guidelines for Ecological Impact Assessment (2018) and the Design Manual for Roads and Bridges (DMRB) LA 108 Biodiversity (Highways England 2020) and DMRB LD 118 Biodiversity design (Highways England, 2020).

8.1.5. This chapter is supported by the following ES Figures (**TR010066/APP/6.2**) and ES Appendices (**TR010066/APP/6.3**):

- ES Figure 8.1: Designated Sites, Priority Habitats, Ancient Woodland and Veteran Trees
- ES Figure 8.2: Ecological Constraints
- ES Figure 8.3: Proposed Construction Mitigation Noise Barrier – December 2026 Daytime
- ES Appendix 8.1: Biodiversity Net Gain Report
- ES Appendix 8.2: Badger Report
- ES Appendix 8.3: Breeding Bird and Barn Owl Report

[1] The term ecological feature has been used throughout this Chapter in accordance with CIEEM *Guidelines for Ecological Impact Assessment in the UK and Ireland (2018)*, as opposed to biodiversity resources in accordance with the DMRBs *LA 108 Biodiversity*.

- ES Appendix 8.4: Barn Owl Survey Report
- ES Appendix 8.5: Bat Roost Report
- ES Appendix 8.6: Bat Activity Report
- ES Appendix 8.7: Bat Crossing Point Report
- ES Appendix 8.8: Bat Hibernation Report
- ES Appendix 8.9: Great Crested Newt Report
- ES Appendix 8.10: Otter and Water Vole Report
- ES Appendix 8.11: Wintering Bird Report
- ES Appendix 8.12: Habitats Regulations Assessment Report
- ES Appendix 8.13: Draft Badger Mitigation Licence
- ES Appendix 8.14: Natural England Letter of No Impediment
- ES Appendix 8.15: Assessment of Air Quality Impacts on Ecological Features
- ES Appendix 8.16: Assessment of Noise Impacts on Ecological Features

8.2. Competent expert evidence

8.2.1. This assessment has been undertaken and reported by a team of competent biodiversity specialists. The ecological competent expert responsible for this assessment has over 13 years' experience in UK ecological consultancy including undertaking biodiversity impact assessments for major infrastructure projects and are a full member of CIEEM. They have used their knowledge and professional judgement in undertaking this assessment and identifying the likely significant effects of the Scheme upon biodiversity.

8.3. Legislative and policy framework

Legislation

8.3.1. The national legislation and regulatory framework applicable to the assessment for biodiversity are summarised in Table 8-1.

Table 8-1 : Summary of legislation and regulatory framework applicable to the biodiversity assessment

Legislation/regulation	Summary	How this is addressed in the assessment
The Conservation of Habitats and Species Regulations 2017 (as amended)	The 'Habitats Regulations' transpose European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. These	This Chapter fully assesses the impact of the Scheme upon European sites and European protected species, where present, within the baseline.

Legislation/regulation	Summary	How this is addressed in the assessment
	regulations provide for the designation and protection of 'European Sites', the protection of 'European Protected Species' and the adaptation of planning controls for the protection of such sites and species. Under the regulations, public bodies have a duty in exercising their functions to have regard to the EC Habitats Directive.	Section 8.8 details the baseline for the assessment. Sections 8.9, 8.10 and 8.11 go on to detail potential impacts of the Scheme, design, mitigation and enhancement measures and the assessment of likely significant effect respectively.
The Wildlife and Countryside Act 1981 (as amended)	The 'WCA 1981 (as amended)' provides detail on a range of protection and offences relating to wild birds, other animals, and plants. The level of protection depends on which Schedule of the Act the species is listed on. Licences are available for specific purposes to permit actions that would otherwise constitute an offence in relation to species.	This Chapter fully assesses the impact of the Scheme upon protected species, and upon controlled species listed on Schedule 9 of the WCA 1981 (as amended), present within the baseline. Section 8.8 details the baseline for the assessment detailed within this Chapter. Sections 8.9, 8.10 and 8.11 go on to detail potential impacts of the Scheme, design, mitigation and enhancement measures and the assessment of likely significant effect respectively.
The Protection of Badgers Act 1992	Badgers and their setts are protected under the Protection of Badgers Act 1992. This act makes it an offence, amongst other things, for any person to: • Wilfully kill, injure, or take a badger, or attempt to do so • Cruelly treat a badger • Dig for a badger • Destroy, damage, or obstruct an entrance to a badger's sett • Disturb a badger while it is occupying a sett	This Chapter fully assesses the impact of the Scheme upon badger. A mitigation licence would be required for badger during construction. A draft licence has been submitted to Natural England and a Letter of No Impediment received based upon this. Section 8.8 details the baseline for the assessment detailed within this Chapter. Sections 8.9, 8.10 and 8.11 go on to detail potential impacts of the Scheme, design, mitigation and enhancement measures and the assessment of likely significant effect respectively. Other relevant resources include ES Appendix 8.2 (Badger Report) (**TR010066/APP/6.3**), Appendix 8.13 (Draft Badger Mitigation

Legislation/regulation	Summary	How this is addressed in the assessment
		Licence) (**TR010066/APP/6.3**) and Appendix 8.14 (Natural England Letter of No Impediment) (**TR010066/APP/6.3**).
The Natural Environment and Rural Communities Act 2006 (as amended)	The 'NERC Act 2006 (as amended) (as amended)' imposes an obligation on all public bodies, including local authorities, to consider whether their activities can contribute to the protection of wildlife. The duty is created by section 40(1) of the Act, which states that every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Section 41 requires the Secretary of State to work with Natural England to publish a list of habitats and species that are a priority (hereafter referred to as 'priority habitats and priority species'), for local authorities to take into account, for example when assessing planning applications.~~, for example when assessing planning applications.~~	This Chapter fully assesses the impact of the Scheme upon priority habitats and species present within the baseline. Section 8.8 details the baseline for the assessment detailed within this Chapter. Sections 8.9, 8.10 and 8.11 go on to detail potential impacts of the Scheme, design, mitigation and enhancement measures and the assessment of likely significant effect respectively.
The Environment Act 2021	The "Act" introduces a framework to improve and protect the natural environment, overseen by the newly created Office for Environmental Protection. The Act introduces new statutory requirements, including the duty for local authorities to create new local nature recovery strategies. The Act also introduces a new mandatory requirement for developments to achieve measurable biodiversity net gain (BNG). A two-year transition period for this requirement is included in the Act. It is anticipated that the mandatory net gain requirement will come into force for NSIPs for those schemes submitting	As a Nationally Significant Infrastructure Project (NSIP) submitting a DCO application in late 2024 the Scheme is not subject to mandatory BNG under the Environment Act 2021. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme with targets set by the Applicant.

Legislation/regulation	Summary	How this is addressed in the assessment
	DCO applications from November 2025. Once in force, all DCO applications must be granted subject to a new general pre-commencement condition that requires approval of a biodiversity gain plan. The Planning Inspectorate would only approve the biodiversity gain plan if the biodiversity value attributable to a development exceeds the pre-development biodiversity value of the onsite habitat by 10%.	
The Hedgerow Regulations 1997	The '1997 Regulations' make provision for protection of hedgerows qualifying as 'important' under a set of criteria relating to ecology and cultural heritage. Under the 1997 Regulations it is an offence to remove a hedgerow (as defined within the Regulations) without applying to the local planning authority (LPA) for permission. If the hedgerow qualified as 'Important' under the 1997 Regulations the LPA must decide whether the reasons for removal justify the loss of an 'Important Hedgerow', with a presumption for retention.	Section 8.8 of this ES Chapter details the baseline, with regards to hedgerows. ES Chapter 6 (Cultural Heritage) (**TR010066/APP/6.1**) includes information regarding the assessment of hedgerow importance under The Hedgerow Regulations 1997 under non-ecological criteria.

National policy

National Networks National Policy Statement 2024

8.3.2. The National Networks National Policy Statement (NPS NN) sets out the policy which the Scheme should comply with. It is also the basis for informing a judgement on the impacts of a Scheme, for example whether the Scheme is consistent with the requirements of the NPS NN. Compliance of the Scheme with the NPS NN is detailed within the NPS NN Accordance Tables (**TR010066/APP/7.2**).

8.3.3. The requirements of the NPS NN in relation to assessing and mitigating the impacts of the Scheme on biodiversity and how they have been addressed in the assessment are summarised in Table 8-2.

Table 8-2: Summary of NPS NN planning policy relevant to the biodiversity assessment

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
4.23	*"Biodiversity net gain delivers measurable improvements for biodiversity by creating, enhancing, maintaining and monitoring habitats in association with developments. Biodiversity net gain should be applied in conjunction with the mitigation hierarchy and does not change or replace existing environmental obligations. In addition to provide net gains for biodiversity, applicants should also identify and deliver appropriate opportunities for nature recovery and wider environmental enhancements"*	As a Nationally Significant Infrastructure Project (NSIP) submitting a DCO application in late 2024 the Scheme is not subject to mandatory BNG under the Environment Act 2021. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme with targets set by the Applicant. Scheme mitigation has been designed in accordance with the mitigation hierarchy. Section 8.10 of this ES Chapter details mitigation for ecological features.
4.24	*"Applicants are encouraged to use the latest version of biodiversity metric (as advised by Defra) to calculate their biodiversity baseline and inform their biodiversity net gain outcomes and should present this data as part of their application."*	The latest version of Defra's Statutory Biodiversity Metric has been used to inform the assessment within ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**).
4.25	*"Biodiversity net gain can be delivered onsite or wholly or partially off-site and should also be set out within the application for development consent. When delivering biodiversity net gain off-site, developments should do this in a manner that best contributes to the achievement of relevant wider strategic outcomes, for example, by increasing habitat connectivity or enhancing other ecosystem service outcomes. Reference should be made to any local nature recovery strategies (which should be the primary reference point for those delivery biodiversity net gain off-site) and other relevant national and local plans and strategies, such as green infrastructure strategies, used to inform biodiversity net gain delivery."*	The current BNG calculations show that the Scheme can achieve the Applicant's targeted BNG within the Order Limits. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme. At the time of writing this ES the Local Nature Recovery Strategies for Warwickshire and the West Midlands have not been published.
4.26	*"The Environment Act 2021 contains provisions for a mandatory biodiversity net gain statement for NSIPs. A government Biodiversity Net Gain Statement will set out the concept and policy requirements for biodiversity net gain for Nationally Significant*	As a Nationally Significant Infrastructure Project (NSIP) submitting a DCO application in late 2024 the Scheme is not subject to mandatory BNG under the Environment Act 2021. ES Appendix 8.1 (Biodiversity Net Gain

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	Infrastructure Projects (NSIPs). When these provisions are commenced, the Secretary of State will need to be satisfied that the biodiversity net gain objective in any relevant Biodiversity Net Gain Statement has been met."	Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme with targets set by the Applicant.
5.44	*"Government policy and priorities for the natural environment are set out in the government's Environmental Improvement Plan, which is the first regular revision of the 25 Year Environment Plan, as required by the Environment Act 2021. The Act introduced the requirement for government to set legally binding long-term environmental targets, and introduced an enhanced biodiversity duty for public authorities, biodiversity net gain and local nature recovery strategies. Local nature recovery strategies will drive the creation of a Nature Recovery Network and will help to deliver the government's Environmental Improvement Plan, to expand, improve and connect wildlife-rich places."*	ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme. At the time of writing this ES the Local Nature Recovery Strategies for Warwickshire and the West Midlands have not been published.
5.46	*"The applicant should consider the potential direct and indirect impacts on ecosystems (including the impacts on habitats and protected species) and the interactions between these, and provide environmental information proportionate to the likely impacts of the infrastructure on biodiversity and nature."*	Section 8.5 of this ES Chapter details the methodology undertaken for this assessment. Ecological features considered during scoping are detailed within Table 8-5. The assessment of potential impacts is provided in section 8.9 and identification of proportionate mitigation is provided in section 8.10.
5.47	*"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geographical conservation interests as well as consider how their proposal will deliver biodiversity net gain in line with the requirements in a Biodiversity Gain Statement as set out in paragraphs 4.23 to 4.26 above [NPS NN]."*	Mitigation for ecological features, including avoidance and enhancement measures, are detailed within section 8.10 of this ES Chapter. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme. As BNG is not mandatory for this Scheme a Biodiversity Gain Statement is not a requirement.
5.48	*"To avoid direct and indirect harm or disturbance in line with the mitigation hierarchy the applicant should demonstrate:*	This assessment includes a review of the existing biodiversity baseline conditions (section 8.8) which has defined the constraints of the Scheme design.

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	• *developments are designed to avoid the risk of harm, for example by minimising the footprint of the development and/or retaining the site's important habitat features.* • *developments are designed and landscaped to provide green corridors and minimise habitat fragmentation (for example using underpasses or green bridges to link habitats).* • *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 and habitats follow the mitigation hierarchy (including as a consequence of transport access arrangements). For example, plan for construction work to be carried out at specific times to avoid sensitive times and location, such as breeding season for wild birds and lifecycles for migratory fish."*	The assessment also includes the potential impacts of the Scheme (section 8.9) and the identification of proportionate mitigation (section 8.10) to mitigate against any likely significant adverse effects on ecological features resulting from the Scheme. ES Figure 2.4 Environmental Masterplan (**TR010066/APP/6.2**) has been developed with ecologists to connect new habitat creation with existing habitats, such as Coombe Pool SSSI. Fragmentation has been identified for the construction and operation phases and reported in section 8.9 (Potential impacts) of this Chapter. Mitigation for fragmentation has been identified in section 8.10 (Design, mitigation and enhancement measures) which includes the provision of a badger crossing. The Order Limits have been kept to a minimum by requiring only land that is necessary for delivering the Scheme elements and to provide safe working areas. Temporary land has been kept to a minimum by using the existing Binley compound- (already consented as described in ES Chapter 2 (The Scheme) (**TR010066/APP/6.1**), and only providing a smaller satellite compound within the Order Limits. Furthermore, separate haul roads are not proposed with the contractor using the permanent corridors for works access. Refer to ES Figure 2.5 (Temporary Works) (**TR010066/APP/6.2**). Mitigation is included in the Register of Environmental Actions and Commitments (REAC) within Annex A the First Iteration EMP (**TR010066/APP/6.5**). The First Iteration EMP will be developed into the Second Iteration EMP for implementation during construction and is secured by Requirement 4 of the draft DCO (**TR010066/APP/3.1**). Mitigation includes best practice to reduce noise and vibration effects on protected species and habitats.
5.49	*"If avoidance or reduction of harm is not possible, applicants should include appropriate mitigation measures, in line with the mitigation hierarchy, as an integral part of the proposed development, including identifying where*	Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter. Mitigation is also included in the REAC in Appendix A of the First Iteration EMP

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	and how these will be secured in the long term."	(**TR010066/APP/6.5**). The First Iteration EMP will be developed into the Second Iteration EMP for implementation during construction and is secured by Requirement 4 of the draft DCO (**TR010066/APP/3.1**).
5.50	*"If avoidance or bespoke mitigation measures are insufficient or not possible, as a last resort, appropriate compensation measures should be sought and implemented."*	Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter. Compensation measures are not anticipated for the Scheme.
5.51	*"The applicant should not just look to mitigate direct harms but should show how the project has taken advantage of opportunities to conserve and enhance biodiversity, having due regard to any relevant local nature recovery strategies and species conservation strategies. Opportunities will be taken to enhance, expand or connect existing habitats and create new habitats in accordance with biodiversity net gain requirements. Habitat creation, enhancement and management proposals should include measures for climate resilience, including appropriate species selection. Maintaining and improving habitat connectivity is important for climate resilience and the biodiversity of ecological networks."*	The Environmental Masterplan (ES Figure 2.4 (**TR010066/APP/6.2**)) has been developed with ecologists to connect new habitat creation with existing habitats, such as Coombe Pool SSSI. Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter, which also details habitat creation and enhancement measures. including the provision of a badger crossing under the B4082. Further information about habitat creation is provided ES Chapter 7 (Landscape and Visual Effects) (**TR010066/APP/6.1**)). At the time of writing this ES the Local Nature Recovery Strategies for Warwickshire and the West Midlands have not been published. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme. Effects from climate change are discussed in paragraph 8.8.119.
5.52	*"Wider ecosystem services and benefits of natural capital should also be considered when designing enhancement measures in order to maximise multi-functional benefits whilst minimising land take. For example, this can be achieved through integration of biodiversity features within a sustainable drainage system; the use of green roofs and walls to harvest rainwater and ameliorate urban heating; or the*	Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter, which also details enhancement measures. Multi-functional measures include the provision of permanently wet drainage ponds which could create more diverse habitats than the existing arable land within the Hungerley Hall Farm Ecosite (as described further within Section 8.4), as discussed in

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	restoration of rivers to reduce flood risk and provide attractive amenity areas."	section 8.10.
5.53	*"The Secretary of State should consider the ten goals of the government's Environmental Improvement Plan, the United Nations Environmental Programme Convention on Biological Diversity of 1992 and any relevant measures and targets, such as the Environment Act 2021 targets. In doing so, the Secretary of State should also take account of the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity. The benefits of nationally significant low carbon transport infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. However, the mitigation hierarchy will still need to be applied."*	Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter, which also details enhancement measures.
5.54	*"The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into, to ensure that any necessary mitigation and compensatory measures are secured, delivered, managed and if necessary enforced, and that biodiversity improvements are registered in accordance with biodiversity net gain requirements."*	Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter, which also details enhancement measures. ES Appendix 8.13 and 8.14 detail a Draft Badger Mitigation Licence and Natural England Letter of No Impediment respectively (**TR010066/APP/6.3**). ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme.
5.55	*"As a general principle, and subject to the specific policies below, development should, at first avoid significant harm to biodiversity and geological conservation interests, including through consideration of reasonable alternatives. If avoidance is not possible, mitigation needs to be considered (as set out in paragraphs 5.48 to 5.52 above [within the NPS NN]). Where significant harm cannot be avoided or mitigated it should be compensated for as a last resort, with on-site mitigation being considered prior to*	Mitigation required for ecological features is detailed within section 8.10 of this ES Chapter and is in accordance with the mitigation hierarchy (CIEEM, 2022). Section 8.13 of this ES Chapter details residual effects. Compensation measures are not anticipated for the Scheme. The Scheme is anticipated to result in a residual significant effect following mitigation upon Coombe Pool SSSI during construction, due to construction noise impacts as detailed within ES Appendix 8.16

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	off-site. The Secretary of State will give significant weight to any residual harm."	(Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**). Mitigation is also included in the REAC in Appendix A the First Iteration EMP (**TR010066/APP/6.5**). The First Iteration EMP will be developed into the Second Iteration EMP for implementation during construction and is secured by Requirement 4 of the draft DCO (**TR010066/APP/3.1**).
5.56	*"In taking decisions, the Secretary of State should ensure that appropriate weight is attached to: designated sites of international, national, and local importance; irreplaceable habitats; protected species and habitats; other species of principal importance for the conservation of biodiversity; biodiversity and geological interests within the wider environment and to areas prioritised for nature's recovery in the relevant local nature recovery strategies."*	This ES Chapter fully assesses the impacts of the Scheme upon designated sites of international, national and local important, irreplaceable habitats, protected species and habitats and other species and habitats of principal importance for the conservation of biodiversity. At the time of writing this ES the Local Nature Recovery Strategies for Warwickshire and the West Midlands have not been published.
5.57	*"The Secretary of State will need to take account of the advice provided to the applicant by Natural England and/or the Marine Management Organisation and/or the Environment Agency, as regards any necessary mitigation measures and whether these organisations have granted or refused, or intend to grant or refuse, any relevant licences or permit, including protected species mitigation licences. In advance of the formal submission, applicants are encouraged to use Natural England's Letter of No Impediment Approach and engage with Natural England [GOV.UK, 2024]."*	Details of consultation with Natural England and Environment Agency are provided in section 8.4. ES Appendix 8.13 and 8.14 detail a Draft Badger Mitigation Licence and Natural England Letter of No Impediment respectively (**TR010066/APP/6.3**).
5.58	*"The most important sites for biodiversity in the UK are afforded special protection by the Habitats Regulations. These sites are designated as Special Areas of Conservation and Special Protection Areas and are collectively known as habitat sites. The following should be given the same protection as sites legally protected by the Habitats Regulations: potential Special Protection Areas and possible Special Areas of Conservation, listed or proposed Wetlands of*	ES Appendix 8.12 (Habitats Regulations Assessment Report) (**TR010066/APP/6.3**) details a Habitats Regulations screening assessment undertaken for the Scheme.

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	International Importance (Ramsar sites), and sites identified, or required, as compensatory measures for adverse effects on habitat sites."	
5.59	*"The Habitats Regulations set out a specific process (see paragraphs 4.14 to 4.18) to assess the likely implications for these sites from a proposed plan or project. To maintain the overall cohesion of the National Site Network, such plans or projects may only proceed if the assessment concludes they will not adversely affect the integrity of the site or, in the case of a negative assessment, if there are no alternative solutions, and they must proceed for imperative reasons of overriding public interest with the necessary compensatory measures secured."*	ES Appendix 8.12 (Habitats Regulations Assessment Report) (**TR010066/APP/6.3**) details a Habitats Regulations screening assessment undertaken for the Scheme.
5.60	*"Many Sites of Special Scientific Interest are also designated as habitats sites and are protected accordingly. Those that are not, or those features of Sites of Special Scientific Interest not covered by an international designation, are given a high degree of protection by the Wildlife and Countryside Act 1981. Most of the land that has been declared by Natural England as National Nature Reserves is also notified as Sites of Special Scientific Interest."*	This ES Chapter fully assesses impacts of the Scheme upon SSSIs.
5.61	*"Where a proposed development on land within or outside of a Site of Special Scientific Interest is likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) development consent should not normally be consented. An exception should only be made where the benefits of the development proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest. The Secretary of State should ensure that the applicant's proposals to mitigate the harmful aspects of the development and,*	Section 8.11 of this Chapter details the assessment of Scheme impacts on ecological features. The Scheme is anticipated to result in a residual significant effect following mitigation upon Coombe Pool SSSI during construction, due to construction noise impacts as detailed within ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**). No residual significant effects are anticipated during operation.

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest, are acceptable. The Secretary of State is bound by the duty placed on all public bodies in section 28G of the Wildlife and Countryside Act 1981 to take reasonable steps, consistent with the proper exercise of their functions, to further conservation and enhancement of the features by reason of which a site is of special scientific interest."	
5.62	*"Ancient woodland and ancient and veteran trees are irreplaceable habitats. England's ancient woodlands and ancient and veteran trees support high levels of biodiversity. They are home to a quarter of England's priority species for conservation and once lost they cannot be recreated. They also deliver many ecosystem services including clean water and healthy soils, carbon storage, support for people's wellbeing and their long-standing cultural values. The Keepers of Time published in 2022 updates the government's policy to recognise the value of England's ancient and native woodlands and ancient and veteran trees. It restates the government's commitment to evaluate the threats facing these habitats and sets out updated principles and objectives to protect and improve these habitats for future generations."*	This ES Chapter fully assesses impacts of the Scheme upon irreplaceable habitats including ancient woodland and veteran trees.
5.63	*"The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and ancient and veteran trees unless there are wholly exceptional reasons (for example, where the public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists."*	This ES Chapter fully assesses impacts of the Scheme upon irreplaceable habitats including ancient woodland and veteran trees. Table 8-21 details significant residual effects, which shows no likely significant effects on ancient woodland and veteran trees.
5.64	*"Marine Conservation Zones, introduced under the Marine and Coastal Access Act 2009, have been designated for the purpose of conserving marine flora or fauna, marine habitats or types of marine*	Section 8.8 of this ES Chapter details the ecological baseline for the Scheme. The Scheme will not affect any Marine Conservation Zones.

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	habitat or features of geological or geomorphological interest. Marine Conservation Zones form part of the Marine Protected Areas network together with Special Areas of Conservation and Special Protection Areas. The protected feature or features and the conservation objective for the Marine Conservation Zones are stated in the designation order for the Marine Conservation Zones, which provides statutory protection for these areas. Measures to restrict damaging activities are being implemented by the Marine Management Organisation and other relevant organisations. As a public authority, the Secretary of State is bound by the duties in relation to Marine Conservation Zones imposed by sections 125 and 126 of the Marine and Coastal Access Act 2009."	
5.65	*"Sites of regional and local biodiversity and geographical interest, which includes Local Geological Sites, Local Nature Reserves and Local Wildlife Sites and Nature Improvement Areas, are areas of substantive nature conservation value and make an important contribution to ecological networks and nature's recovery. They can also provide wider benefits including contributing to the quality of life and well-being of the community, and in supporting research and education. The Secretary of State should give due consideration to any such harm to the detriment of biodiversity and geological features of regional or local importance which s/he considers may result from a proposed development. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent, nevertheless the mitigation hierarchy applies to these sites."*	This ES Chapter fully assesses impacts of the Scheme upon regional and local designated sites. Section 8.8 of this ES Chapter details the ecological baseline for the Scheme. Table 8-21 details significant residual effects, which shows no likely significant effects regional and local designated sites.
5.66	*"Development proposals provide many opportunities for incorporating beneficial biodiversity or geological features as part of good design. Nature contributes to the quality of a place, to people's quality of life, the attractiveness of active travel*	ES Figure 2.4 Environmental Masterplan (**TR010066/APP/6.2**) details habitat creation as part of the Scheme, and further detail is provided in ES Chapter 7 (Landscape and Visual Effects) (**TR010066/APP/6.3**). Ecological enhancements are included in

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	routes and movements, and it is a critical component of well-designed development. Road and rail projects can also play a part in meeting government tree planting and nature recovery targets through partnership working with adjoining landowners, delivering biodiversity, carbon offsetting and social benefits."	section 8.10 of this Chapter.
5.67	*"Consideration should be given to the impacts on, and improvements to, habitats and species in, around and beyond developments, for wider ecosystem services and natural capital benefits, relevant to the local area and communities. The value of linear infrastructure and its footprint in supporting biodiversity and connecting habitats ecosystems should also be taken into account. Local nature recovery strategies will identify opportunities to create or enhance habitat likely to have greatest benefit to biodiversity and wider environmental improvement. Consideration should also be given to national priorities and targets, such as reduced flood risk, improved air or water quality, and increased access to natural greenspace, or tree planting, woodland creation and protecting long established woodlands."*	This Chapter fully assesses the impacts of the Scheme on ecological features. Potential impacts prior to mitigation are detailed in section 8.9. At the time of writing this ES the Local Nature Recovery Strategies for Warwickshire and the West Midlands have not been published.
5.68	*"When considering proposals, the Secretary of State should consider whether the applicant has maximised such opportunities and enhancement of wider biodiversity, in and around developments. The Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such beneficial features are delivered, and ongoing management and maintenance secured."*	Mitigation for the Scheme is in accordance with the mitigation hierarchy and is detailed within section 8.10 of this ES Chapter, which also details enhancement measures.
5.69	"*Many individual wildlife species receive statutory protection under a range of legislative provisions. Some species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and therefore requiring conservation action.*	This ES Chapter fully assesses impacts of the Scheme upon habitats and species of principal importance. The ecological baseline for the Scheme is presented in section 8.8. Table 8-21 details significant residual effects, which shows no likely significant effects

NPS NN 2024 Paragraph Number	Summary	How this is addressed in the assessment
	As a public authority, the Secretary of State is bound by the duty in section 40 of the Natural Environment and Rural Communities Act 2006 (as amended by section 102 of the Environment Act 2021) to periodically consider what action an authority can take, consistent with the exercise of its functions, to further the conservation and enhancement of biodiversity. In doing so, the Secretary of State may consider the impact on species and habitats listed under Section 41 of the Act. The Secretary of State should ensure that applicants have taken measures to ensure these species and habitats are protected from the adverse effects of the development by using requirements, planning obligations, or licence conditions. The Secretary of State should refuse consent where harm to habitats or species and their habitats would result, unless the benefits of the development (including need) clearly outweigh that harm."	regional and local designated sites. The Scheme is anticipated to result in a residual significant effect following mitigation upon Coombe Pool SSSI during construction, due to construction noise impacts as detailed within ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**). No residual significant effects are anticipated during operation.

National Planning Policy Framework

8.3.4. The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2023) sets out the Government's planning policies for England which are transposed into all local plans. Section 15 concerns "*Conserving and enhancing the natural environment*" including habitats and biodiversity. The section details how plans should conserve and enhance habitats and biodiversity and principles local planning authorities should apply when discharging their duties. The overall strategic aims of the NPS NN and NPPF are consistent. The NPPF may be an important and relevant matter but does not form the basis for a decision on a NSIP.

8.3.5. Section 15 covers Habitats and Biodiversity and provides a list of principles that Local Planning Authorities (LPAs) should apply when determining planning applications. These include:

- If significant harm to biodiversity cannot be avoided, adequately mitigated or as a last resort compensated for then planning permission should be refused
- Developments likely to have an adverse effect on a Site of Special Scientific Interest (SSSI) should not normally be permitted

- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland, and ancient or veteran trees) should normally be refused
- Developments whose primary objective is to conserve or enhance biodiversity should be supported. Opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure net gains for biodiversity

8.3.6. Paragraph 180 sets out how the Government expects planning decisions to contribute to and enhance the natural environment through a number of measures including protecting landscapes, recognition of wider benefits from natural capital, minimising impacts on and achieving net gains for biodiversity.

8.3.7. Paragraph 186 provides a number of principles that should be applied by LPAs when determining planning applications. These include refusing permission where significant harm cannot be avoided, mitigated or compensated for.

8.3.8. This assessment has taken account of the requirements of the NPPF by determining the biodiversity resource importance through desk study and field surveys, by implementing the mitigation hierarchy as a fundamental part of the Scheme design, and through identifying potential biodiversity gains.

Other national planning policies

8.3.9. The following national polices have been reviewed for this assessment:

- Green Infrastructure Planning and Design Guide (Natural England, 2023)
- A Green Future: Our 25 Year Plan to Improve the Environment (Defra, 2018)
- The England Trees Action Plan 2021 – 2024 (Defra ,2021)

Local policy

8.3.10. Local policy of relevance to the Biodiversity assessment is presented in Table 8-3.

Table 8-3 : Summary of local planning policy relevant to the biodiversity assessment

Policy document	Summary	How this is addressed in the assessment
Coventry City Council Local Plan 2011 – 2031 (2017)	Policy GE1: Green Infrastructure: The policy sets out the Council's approach regarding existing green infrastructure and new provision for new green infrastructure within development and states "*New development proposals should make provision for green infrastructure to ensure that such development is integrated into the landscape*	ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.3**) details habitat creation as part of the Scheme. Table 8-17 details the change in habitat areas as a result of the Scheme.

Policy document	Summary	How this is addressed in the assessment
	and contributes to improvements in connectivity and public access, biodiversity, landscape conservation, design, archaeology and recreation" and "*New development will be expected to maintain the quantity, quality and functionality of existing green infrastructure."* The policy lists actions by which the strategic network of green infrastructure already existing in the city will be safeguarded and enhanced.	
	Policy GE3: Biodiversity, Geological, Landscape and Archaeological Conservation The policy details how designated sites, ancient woodlands and protected species will be protected through planning and states *"Sites of Special Scientific Interest (SSSIs), Local Nature Reserves (LNRs), Ancient Woodlands, Local Wildlife and Geological Sites will be protected and enhanced"* and "*Development proposals will be expected to ensure that they:* *a. lead to a net gain of biodiversity, where appropriate, by means of an approved ecological assessment of existing site features and development impacts;* *b. protect or enhance biodiversity assets and secure their long term management and maintenance;* *c. avoid negative impacts on existing biodiversity;* *d. preserve species which are legally protected, in decline, are rare within Coventry or which are covered by national, regional or local Biodiversity Action Plans."*	This ES Chapter fully assesses the impacts of the Scheme on designated sites, ancient woodland and protected species. Section 8.10 of this ES Chapter details Scheme mitigation for ecological features. Section 8.13 details residual effects. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme.
	Policy GE4: Tree Protection – Part 1 and 2: *"1. Development proposals will be positively considered provided:* *a. there is no unacceptable loss of, or damage to, existing trees or woodlands during or as result of development, any loss should be supported by a tree survey* *b. trees not to be retained as a result of the development are replaced with new trees as part of a well designed landscape scheme; and*	ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**) details an arboricultural impact assessment undertaken for the Scheme. None of the trees proposed for removal are afforded statutory protection by either a Tree Protection Order or conservation area. ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**) details the habitat creation for the Scheme. Table 8-17 details the change

Policy document	Summary	How this is addressed in the assessment
	c. existing trees worthy of retention are sympathetically incorporated into the overall design of the scheme including all necessary measures taken to ensure their continued protection and survival during construction. *2. Development proposals that seek to remove trees that are subject to 'Protection', without justification, will not be permitted.'*	in habitat areas as a result of the Scheme.
Biodiversity Net Gain Supplementary Planning Document December 2022	The SPD provides more detailed guidance regarding Local Plan Policy GE3 and its four aims detailed above within this table, including detailing how development can avoid loss of biodiversity and thereafter offset loss.	ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme.
Rugby Borough Council Local Plan 2011 – 2031	The document contains the following policy which is relevant to biodiversity: Policy NE1: Protecting Designated Biodiversity and Geodiversity Assets. The policy details development requirements which include delivery of a net gain in biodiversity and application of the mitigation hierarchy. The Policy sets out the Council's approach with regards to granted or refusing planning permission due to matters relating to international designated sites, national designated sites, local designated sites and ancient woodland.	This ES Chapter fully assesses the impacts of the Scheme on designated sites, ancient woodland and protected species. Section 8.10 of this ES Chapter details Scheme mitigation for ecological features. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details a BNG assessment for the Scheme.
The Warwickshire, Coventry and Solihull Local Biodiversity Action Plan 2017 – 2022	The Local Biodiversity Action Plan outlines the approach to biodiversity in these locations and sets the habitats and species of conservation concern. There are 52 action plans in total including 27 for species and 25 for habitats.	This ES Chapter fully assesses the impacts of the Scheme on designated sites, ancient woodland and protected and notable species and habitats. Section 8.8 of this Chapter details the biodiversity baseline.
Warwickshire, Coventry and Solihull Sub-regional Green Infrastructure Strategy 2013	The strategy provides evidence for the preparation of plans, policies and strategies relating to Green Infrastructure (GI) at a sub-regional level. For biodiversity the strategy identifies sub-regional GI Biodiversity Assets and identifies Strategic Areas for delivering the Biodiversity Strategy's aim to reconnect habitats throughout the sub-region. It makes the recommendation consistent with national policies and strategies to safeguard, enhance and create GI Biodiversity Assets to connect individual sub-regional GI Biodiversity assets together to form core areas creating large functional clusters of woodland, wetland and grassland habitats.	ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**) details the habitat creation for the Scheme. Appendix 8.1: Biodiversity Net Gain Report details habitat creation and its strategic significance.
West Midlands Natural	The plan focuses on protecting, restoring, and enhancing the region's natural environment through various strategies. It aims to improve biodiversity and access to green and blue	ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**) details the habitat creation for the Scheme. Appendix 8.1 (Biodiversity

Policy document	Summary	How this is addressed in the assessment
Environment Plan: 2021-2026	spaces. Key initiatives include the Community Green Grants program, regional tree planting linked to the Commonwealth Games 2022 Legacy Forest, the establishment of a Wildlife Corridors Commission, and the development of natural capital data. Additionally, the plan promotes biodiversity net gain in new transport infrastructure and other developments, highlighting a comprehensive approach to environmental sustainability in the region.	Net Gain Report) (**TR010066/APP/6.3**) details habitat creation and its strategic significance.

National Highways policy

8.3.11. Biodiversity is entrenched within the Government's Road Investment Strategy and National Highways' Strategic Business Plan. In particular, the Road Investment Strategy states that by 2020, the company must deliver no net loss of biodiversity and that by 2040 it must deliver a net gain in biodiversity. The potential for the Scheme to deliver biodiversity net gains has been considered as part of the design-development and assessment processes. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme.

8.3.12. National Highways Biodiversity Action Plan Our Plan to Protect and Increase Biodiversity (2015) sets out how National Highways will work with service providers to halt overall biodiversity loss, and to maintain and enhance habitats and ecological networks. The document identifies National Highways' approach to meeting the challenge of the national decline in biodiversity. National Highways has identified five specific outcomes and related actions that will provide the most support for biodiversity across the network:

- Outcome 1: National Highways and its suppliers are equipped to produce good biodiversity performance.
- Outcome 2: The Strategic Road Network (SRN) is managed to support biodiversity.
- Outcome 3: National Highways has delivered biodiversity enhancements whilst implementing a capital programme of network improvement.
- Outcome 4: National Highways has addressed the legacy of biodiversity problems on their network via a targeted programme of investment.
- Outcome 5: National Highways is fully transparent about its biodiversity performance.

8.3.13. This ES fully assesses the impact of the Scheme upon ecological features. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details the BNG assessment undertaken for the Scheme.

8.4. Consultation

8.4.1. Consultee comments were received in response to the Environmental Scoping Report (**TR010066/APP/6.8**). The Applicant's responses to the Environmental Scoping Opinion (**TR010066/APP/6.9**) are contained in the ES Appendix 4.1 (Scoping Opinion Response) (**TR010066/APP/6.3**).

8.4.2. Responses in relation to the statutory consultation undertaken are presented in the Consultation Report (**TR010066/APP/5.1**). Details of how the Applicant has undertaken further engagement with statutory consultees is set out in the Consultation Report Consultation Report (**TR010066/APP/5.1**).

8.4.3. Table 8-4 details additional ongoing engagement undertaken as part of this assessment.

Table 8-4: Ongoing engagement

Stakeholder	Summary
Natural England	<u>Wintering bird survey methodology</u> • Natural England were issued, and commented on, the proposed wintering bird survey methodology. Natural England advised that two monthly surveys should be undertaken for the duration of the survey period (October 2023 to March 2024 inclusive) and that the methodology needs to include targeting shoveler *Anas clypeata* and other waterbirds due to the proximity of Coombe Pool Site of Special Scientific Interest (SSSI). In response to Natural England's comments two wintering bird surveys were undertaken monthly from October 2023 until March 2024 and two vantage points were incorporated into the survey design to survey the assemblage at Coombe Pool.
Natural England	<u>Discretionary Advice Service meeting held 06/11/2023</u> • Natural England were consulted on the biodiversity baseline and assessment including the defined study area for breeding birds and reptiles. • Natural England advised that a pond which received an inconclusive great crested newt (GCN) *Triturus cristatus* environmental DNA result should be subject to re-survey and waterbodies dry at the time of survey should be re-visited to ensure they remain so. • With regards to assessing impacts upon designated sites Natural England advised that designated sites which were scoped out within the Environmental Scoping Report (**TR010066/APP/6.8**) may need to be scoped in and assessed following establishment of the triggered links under assessment for air quality impacts (see ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**)). Following the Environmental Scoping Report and establishment of the triggered links a number of designated

Stakeholder	Summary
	sites (see Table 8-8) were scoped back into the assessment solely to assess potential impacts from changes in air quality.
Natural England	<u>Discretionary Advice Service meeting held 14/03/2024</u> • Natural England were consulted regarding the assessment of impacts upon Coombe Pool SSSI, including the noise assessment, the design of the badger *Meles meles* crossing under the B4082, the draft badger licence, updated GCN surveys, the Biodiversity Net Gain (BNG) Metric version to use for the Scheme, limitations to baseline surveys at Hungerley Hall Farm and proposed mitigation for barn owl *Tyto alba.* Cross sections of the proposed environmental bund alongside Coombe Pool were shared during the meeting and issued to Natural England following the meeting. • With regards to the design of the badger crossing Natural England advised against a plastic pipe and agreed with the design of associated badger fencing extents of 500m either side of the crossing entrance. Subsequent to the meeting Natural England provided a best practice guidance document for the design of badger crossing and fencing, the DMRB Volume 10 Section 4 Part 2 *HA 59/92 Mitigating Against Effects on Badgers* (Highways Agency, 1997). The design will be in accordance with the specifications set out in this document, however as this guidance has been withdrawn, where guidance is given in the updated Manual of Contracts Documents for Highway Works ((MCHW) Highways, Agency 2008) this document shall be referred to. • Natural England commented that ideally two underpasses would be provided per social group with regards to the proposed badger crossing design. • Natural England were accepting of the location of the proposed badger crossing, which is located as close to the existing commuting route as possible. • With regards to vegetation screens as embedded mitigation for barn owl mortality Natural England advised that screening is within 1m – 2m of the hard shoulder, otherwise if screening is further from the road barn owls would fly over and down onto the verge to forage. Consideration was given to the reduction of foraging habitat within the highway boundary, however it was acknowledged that this measure as mitigation for barn owls needs to be balanced with providing enhancement and valuable habitat for other species. Natural England confirmed they would only expect the Scheme to mitigate what is impacted and their remit is about protection for all species and as such there needs to be a balance based upon data.
Natural England	<u>Post 14/03/2024 meeting communication</u> • A post-meeting email from Natural England on 22 March 2024 advised that as BNG is not yet mandatory for NSIPs, the Scheme could use any Metric version that is agreed with the consenting body, however also advised that landowners would increasingly be using the Statutory Metric and as such this might be easier. • An email received from Natural England on 9 May 2024 advised that the number of badger crossings provided will to an extent depend upon the size of the territory, amount and nature of the territory severed and

Stakeholder	Summary
	the size of the resident social group. As a general rule two crossings are recommended per social group. • Natural England confirmed that their preference is to agree impacts and mitigation upon Coombe Pool SSSI as part of the DCO as opposed to a separate SSSI assent. • With regards to mitigation for wintering and breeding birds associated with Coombe Pool SSSI, Natural England have expressed that any lost habitat would require replacing ideally through natural regeneration. Screening would be required during construction to shield birds from noises they are not habituated to, which would be particularly relevant during cold periods when feeding is more crucial for winter ducks including shoveler. "The feeding and roosting behaviour of waterbirds can be compromised at noise levels as low as 50 dB, and high disturbance occurs at noise levels above 70dB." • Relating to the design of the badger crossing, Natural England advised that the concrete pipe should be horizontal to mitigate against flooding of the feature and that the bottom of the crossing is not required to be flat.
Natural England	<u>Submission of Draft Badger Licence Application</u> • A Draft Badger Mitigation Licence (ES Appendix 8.13 (**TR010066/APP/6.3**)) was submitted to Natural England on 7 May 2024. • Natural England have provided a Letter of No Impediment (dated 25 June 2024) in regard to the draft licence application for the closure of the badger subsidiary sett within the Scheme. This letter is included as ES Appendix 8.14 (Natural England Letter of No Impediment) (**TR010066/APP/6.3**).
Environment Agency	<u>Meeting held on 16/11/2023</u> • The Environment Agency were consulted regarding the assessment of potential indirect impacts to watercourses, designated sites, priority habitats and fish. • The Environment Agency commented that if a culvert was being extended as part of the Scheme then watercourse enhancements (under biodiversity net gain) may need to be considered as best practice. The Environment Agency have projects should off-site delivery of enhancements be required.
Coventry City Council	<u>Meeting held on 27/11/2023</u> • Coventry City Council were consulted regarding the assessment of impacts upon designated sites and the scoping of such as detailed within the Environmental Scoping Report. • Coventry City Council confirmed that Ecosites, as identified by the Warwickshire Biological Records Centre (WBRC), have no implications with regards to planning (i.e. would not be a material consideration). Subsequent consultation with WBRC has identified that these sites are considered important by Warwickshire County Council. As such only those Ecosites which will be directly impacted by the Scheme are

Stakeholder	Summary
	considered within this ES Biodiversity Chapter, and for these only direct impacts will be assessed. • The Council suggested incorporating a green bridge into the Scheme. • The Council suggested that liaison is undertaken with Coombe Abbey Park regarding opportunities for delivery of habitat creation and/or enhancement. • The Council can provide eDNA water vole *Arvicola amphibius* kits for update surveys, which will take place in 2025. Warwickshire can complete the analysis. • The Council suggested that a potential opportunity to create white-clawed crayfish *Austropotamobius pallipes* ark sites may be present within the design of the sustainable urban drainage system (SuDS). • The Council confirmed the presence of some sites within the area which would be suitable for the installation of bird and bat boxes as mitigation. A draft legal agreement has been issued to the Council (sent in June 2024) for the installation of barn owl boxes within Coombe Abbey Park and bat boxes in a location to be determined.
Coventry City Council - Coombe Abbey Park Estate	<u>Meeting held on 12/12/2023</u> • Coombe Abbey Park Estates Team were consulted with regards to opportunities to deliver habitat creation and/or enhancement opportunities off-site for BNG and potential areas for off-site delivery of bat and bird mitigation. • Coombe Abbey Park already manage the woodland including management targeting rhododendron *Rhododendron ponticum.* • All previously lost woodland within the Country Park has been replanted and there are no potential suitable areas for woodland creation due to the Registered Park and Garden status of Coombe Abbey Park I. Woodland could potentially be planted in the belt however this would require planning permission and is outside Coombe Pool SSSI. • Two potential enhancement opportunities within the woodland in the Country Park were identified including enhancement where there is currently no understorey and connecting the woodland parcel to the north near Ansty Park to the Country Park woodland (located outside of the Order Limits). • Coombe Abbey Park confirmed that no opportunities for hedgerow enhancement exist within the Country Park, however those to the north (outside the Order Limits) are fragmented. • An opportunity was identified to potentially enhance an avenue of oaks *Quercus sp,* through successional planting (located outside the Order Limits).
Coventry City Council - Coombe Abbey Park Estate	<u>On-site liaison with Coombe Abbey Park ecologist</u> • On-site liaison with the Country Park ecologist was undertaken to discuss bird assemblages within the Park (see Section 8.8)
Warwickshire County Council	<u>Meeting held on 12/10/2023</u>

Stakeholder	Summary
	• Warwickshire County Council were consulted regarding potential opportunities for off-site habitat creation and/or enhancement related to BNG. • The Council confirmed that in regard to BNG there is a focus within the council area on grassland as that is the habitat in demand, however woodland creation can be raised as a requirement to local landowners and managers. • The Council confirmed that scrub units can be created with prior notice. • The Council agreed with the use of Version 4.0 of the Biodiversity Metric (Note: this was prior to the release of the Statutory Metric). Following this consultation, and the release of the Statutory Metric, the decision was made to use the Statutory Metric following advice from Natural England (as noted above). • The Council suggested that management of an off-site delivery area could be achieved through the use of a Section 39 WCA 1981 (as amended) agreement which would allow the Council to enter into a land management agreement.

8.5. Assessment methodology

8.5.1. The following section describes the methodology used to determine the likely significant effects on biodiversity as a result of the Scheme.

8.5.2. The scoping of ecological features scoped into or out of the assessment are detailed in Table 8-3.

8.5.3. ES Figure 8.1 (Designated Sites, Priority Habitats, Ancient Woodland and Veteran Trees) (**TR010066/APP/6.2**) shows the locations of all scoped in designated sites identified within the relevant study areas (see Section 8.7) to support the scoping of designated sites detailed below. Section 8.8 details which non-statutory designated sites have been scoped in and out in accordance with Table 8-5 below.

8.5.4. It should be noted that following the submission of the Environmental Scoping Report and the receipt of the Planning Inspectorate's Scoping Opinion, the approach to scoping of Ecosites within the ES changed in response to comments received as part of the statutory consultation. Coventry City Council confirmed that Ecosites have no status of designation with regards to planning; however, Warwickshire Biological Records Centre has identified that these sites are considered important by Warwickshire County Council. As such, Ecosites are scoped into the assessment only where the Scheme would result in direct impacts upon the designated site. As the 'Field by Caludon Castle School' Ecosite is located outside of the Order Limits and would not be directly impacted

by the Scheme, it remains scoped out within the ES (**TR010066/APP/6.1**) (ID 3.4.1 in ES Appendix 4.1 (Scoping Opinion Response) (**TR010066/APP/6.3**)).

8.5.5. A Habitats Regulations Assessment screening exercise was undertaken to inform the preliminary design stage, as reported in ES Appendix 8.12 (Habitats Regulations Assessment Report) (**TR010066/APP/6.3**) to determine whether an Appropriate Assessment would be required regarding the Scheme's potential impact upon any sites of European importance (Special Areas of Conservation (SACs), candidate or possible SACs (cSACs or pSACs), Special Protection Areas (SPAs), potential SPAs (pSPAs) and Ramsar sites). This report concluded that no further assessment of European designated sites was required and so these are not discussed further within this chapter.

8.5.6. Section 8.7 includes details regarding the study areas for each ecological feature, however these are also summarised in Table 8-5 below for ease.

Table 8-5: Scoping of ecological features for the assessment, updated following Scoping Opinion

Ecological feature	Study area (distance from the Order Limits) prior to scoping in/out	Scoped in – construction	Scoped in – operation	Justification, where scoped out
European designated sites (SACs, SPAs and Ramsar)	30km (for sites designated for bats or where potential pathways for impacts upon birds exist only) Otherwise, 10km	No	No	None within 10km of the Order Limits, or within 30km of the Order Limits where bats are a reason for designation or where impact pathways for birds exist.
Coombe Pool SSSI	2km (nationally statutory designated site) and 200m from the triggered links for the air quality assessment	Yes	Yes	
Herald Way Marsh SSSI,LNR and LWS (Claybrookes Marsh)	2km (nationally and locally statutory designated site) and 200m from the triggered links for the air quality assessment	Yes	Yes	
Stoke Floods LNR	2km (locally statutory designated site)	Yes	Yes	

Ecological feature	Study area (distance from the Order Limits) prior to scoping in/out	Scoped in – construction	Scoped in – operation	Justification, where scoped out
	and 200m from the triggered links for the air quality assessment			
Willenhall Wood LNR	2km (locally statutory designated site) and 200m from the triggered links for the air quality assessment	No	Yes	The LNR is >2km from the Order Limits with no hydrological connection however is scoped in for assessment of air quality impacts during operation.
Stonebridge Meadows LNR	2km (locally statutory designated site) and 200m from the triggered links for the air quality assessment	No	Yes	The LNR is >2km from the Order Limits with no hydrological connection however is scoped in for assessment of air quality impacts during operation.
Local Wildlife Sites (LWSs) within 250m of the Order Limits, within 1km of the Order Limits and with a downstream hydrological connection to the Order Limits and/or within 200m of the operational triggered links for the air quality assessment	250m or 1km with a hydrological connection, and/or 200m from the triggered links for the air quality assessment	Yes	Yes	
LWSs >250m from the Order Limits with no downstream hydrological connection to the Order Limits and not within 200m of the triggered links for the air quality assessment	1km and 200m from the triggered links for the air quality assessment	No	No	The LWSs (eight in total) are a significant distance away and there are no potential pathways for indirect impacts (ID 3.4.2 in ES Appendix 4.1 (Scoping Opinion Response) (**TR010066/APP/6.3**))
Hungerley Hall Farm Ecosite and Coombe Abbey Pool Ecosite	Within the Order Limits only	Yes	No	An assessment of direct impacts only has been undertaken for Ecosites (see Table 8-1 and 8-16).
Priority habitats	1km	Yes	Yes	

Ecological feature	Study area (distance from the Order Limits) prior to scoping in/out	Scoped in – construction	Scoped in – operation	Justification, where scoped out
Ponds	500m	Yes	Yes	
Ancient woodland (irreplaceable habitat)	500m and 200m from the triggered links for the air quality assessment	No	Yes	None within 500m of the Order Limits however scoped in where within 200m of the triggered links for assessment of air quality impacts during operation
Veteran trees (irreplaceable habitat)	Within the Order Limits and 200m from the triggered links for the air quality assessment	Yes	Yes	
Other terrestrial habitats within the Order Limits	Within the Order Limits	Yes	Yes	
GCN	500m	Yes	Yes	
Breeding birds	A variable study area with regards to distance from the Order Limits (see Section 8.7.8)	Yes	Yes	
Barn owl	1.5km	Yes	Yes	
Wintering birds	A variable study area with regards to distance from the Order Limits (see Section 8.7.8)	Yes	Yes	
Bats	50m (roosting bats) Suitable habitat within the Order Limits (commuting and foraging bats)	Yes	Yes	
Badger	50m	Yes	Yes	
Otter *Lutra lutra*	200m	Yes	Yes	
Fish including brown trout *Salmo trutta*, bullhead *Cottus gobio* and European eel	Smite Brook and watercourses directly hydrologically connected (River	Yes	Yes	

Ecological feature	Study area (distance from the Order Limits) prior to scoping in/out	Scoped in – construction	Scoped in – operation	Justification, where scoped out
Anguilla anguilla in River Sowe	Sowe and Coombe Pool)			
Hazel dormouse *Muscardinus avellanarius*	250m where connected suitable habitat exists	Yes	Yes	
Reptiles	Within the Order Limits	Yes	Yes	
Water vole	200m	Yes	Yes	
White-clawed crayfish	Watercourses within the Order Limits (Smite Brook)	Yes	Yes	
Hedgehog *Erinaceous europeaus*	Within the Order Limits	Yes	Yes	
Other notable species – including brown hare *Lepus europaeus* and polecat *Mustela putorius*	Within the Order Limits	Yes	Yes	
Invasive non-native species (INNS) listed on Schedule 9 of the WCA 1981 (as amended)	Within the Order Limits	Yes	No	INNS listed in Schedule 9 will not be subject to the assessment detailed within Section 8.5 as they are not protected, nor do they have a conservation status. However, are included within this ES as they are a controlled species.

8.5.7. In accordance with the comments received from the Planning Inspectorate, the assessment of construction and operation impacts to GCNs and fish (including brown trout *Salmo trutta*, bullhead *Cottus gobio* and European eel *Anguilla Anguilla*) has been scoped into the EIA (see ID 3.4.3 and 3.4.5 in ES Appendix 4.1 (Scoping Opinion Response) (**TR010066/APP/6.3**)).

8.5.8. In addition to the eight LWSs scoped out due to being outside of the scoping criteria detailed in Table 8-5 above, a further two LWSs were scoped out due to:

- Sharman's Tip LWS - was identified within the study area by WBRC however has since been confirmed by WBRC to no longer exist.

- Lower Sherbourne Valleys Extension LWS - data provided by WBRC listed the status of this LWS as 'destroyed'.

8.5.9. Potential LWSs are not assessed within this chapter as they have no formal designation.

8.5.10. Table 8-6 details the surveys undertaken to establish the biodiversity baseline for the Scheme.

Table 8-6: Surveys undertaken to establish the biodiversity baseline and inform the assessment

Ecological feature	Guidance	Dates of survey
Badger	Delahay et al., 2001 – The use of marked bait in studies of the territorial organisation of the European badger (Meles meles) Harris et al., 1989 – Surveying Badgers	Initial walkover survey – September 2022 Bait marking survey – October 2022 Camera monitoring – September to December 2022, May to August 2023 (See ES Appendix 8.2 (Badger Report) (**TR010066/APP/6.3**)).
Bats	Berthinussen and Altringham 2015 – WC1060 Development of a Cost Effective Method for Monitoring the Effectiveness of Mitigation for Bats Crossing Linear Transport Infrastructure. Final Report 2015 Collins, 2016 – Bat Conservation Trust Bat Surveys for Professional Ecologists Good Practice Guidelines[2] Collins, J. (ed) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition) The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6 Elmeros et al., 2016 – Fumbling in the dark – effectiveness of bat mitigation measures on roads, Bat mitigation measures on roads – a guideline	Ground level preliminary roost assessments – March 2022 Activity transect and static monitoring surveys – April to October 2022 Emergence / re-entry surveys – May to September 2022 Crossing point surveys – May to October 2022 Tree climbing inspections – June 2022 Hibernation surveys – January and February 2024 (See ES Appendix 8.5 (Bat Roost Report), ES Appendix 8.6 (Bat Activity Report), ES Appendix 8.7 (Bat Crossing Point Report) and ES Appendix 8.8 (Bat Hibernation Report) (**TR010066/APP/6.3**)).
Barn owl	Shawyer, 2012 – The Barn Owl and its Habitat	Update Phase 1 surveys – June to August 2022 Stage 3 surveys and Stage 1, 2 and 3 of one area – July 2023 (See ES Appendix 8.3 (Breeding Bird and Barn Owl Report) and ES Appendix 8.4 (Barn Owl Survey Report) (**TR010066/APP/6.3**)).
Breeding birds	British Trust for Ornithology, 2018 – Breeding Bird Survey Instructions	March to July 2022 (See ES Appendix 8.3 (Breeding Bird and Barn Owl Report) (**TR010066/APP/6.3**)).

[2]Bat surveys were undertaken in accordance with the 3rd edition of the guidelines as the surveys preceded the release of the 4th edition in late 2023. This is with the exception of the hibernation surveys undertaken in 2024 which have been undertaken in accordance with the 4th edition guidelines.

Ecological feature	Guidance	Dates of survey
	Bird Survey Guidelines, 2023 – Breeding bird survey methodology	
Great crested newt	Oldham et al., 2001 – Evaluating the suitability of habitat for the great crested newt (Triturus cristatus) ARG UK, 2010 – Advice Note 5: Great Crested Newt Habitat Suitability Index Biggs et al., 2014 – Analytical and methodological development for improved surveillance of the great crested newt. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA	Habitat Suitability Index (HIS) assessments and environmental DNA (eDNA) surveys – June 2022 Update HSI surveys, eDNA surveys where ponds held water which had not been previously surveyed and a re-eDNA survey of one pond which returned in inconclusive results in 2022 - March – April 2024 (ponds 1, 2, 8, 9, 10, 13, 14 and 15) (See ES Appendix 8.9 (Great Crested Newt Report) **(TR010066/APP/6.3)**).
Habitats	Butcher et al., 2020 – The UK Habitat Classification User Manual Version 1.1	June to August 2022, updates in February and March 2024 due to changes in the Order Limits and age of initial data (See ES Appendix 8.1 (Biodiversity Net Gain Report) **(TR010066/APP/6.3)**).
Invasive non-native species	No specific guidance for invasive non-native species. Invasive non-native species were recorded during the UKHab survey and recorded incidentally during targeted species surveys.	June to August 2022 (UKHab)
Otter	Chanin, 2003 – Monitoring the Otter Lutra lutra	September 2022. May 2023 (See ES Appendix 8.10 (Otter and Water Vole Report) (**TR010066/APP/6.3**)).
Water vole	Harris et al., 2009 – A method for assessing water vole habitat suitability Strachan et al., 2016 – The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)	September 2022 May 2023 (See ES Appendix 8.10 (Otter and Water Vole Report) (**TR010066/APP/6.3**)).
Wintering birds	Bibby et al., 2000 – Bird Census Techniques (Second Edition) Gilbert et al., 1998 – Bird Monitoring Methods – a manual of techniques for key UK species	October 2022 October 2023 to March 2024 (two visits per month from November 2023 onwards) (See ES Appendix 8.11 (Wintering Bird Report) (**TR010066/APP/6.3**)).

8.5.11. A qualitative ecological assessment has been undertaken based upon the DMRB LA 108 Biodiversity and CIEEMs Guidelines for Ecological Impact Assessment for the UK and Ireland (2018). Desk studies and ecological surveys to inform the assessment have been undertaken in accordance with the DMRB LD 118 Biodiversity Design and CIEEMs Guidelines for Preliminary Ecological Appraisal (2017), with surveys used to inform this chapter updated if appropriate

and where the Scheme programme allowed in accordance with CIEEMs Advice Note on the Lifespan of Ecological Reports & Surveys (2019).

8.5.12. The following key stages of environmental impact assessment (EIA) have been undertaken:

- Identification of the zone of influence (ZOI) of the Scheme upon ecological feature and thereafter their relevant study areas
- Establishment of the biodiversity baseline of the Order Limits and within the individual ecological feature study areas
- Valuation of each ecological feature in terms of 'importance'
- Identification of potential impacts of the Scheme on ecological features during both construction and operation
- Identification of mitigation measures, in accordance with the mitigation hierarchy, to mitigate effects of the Scheme upon ecological features
- Identification of residual effects on ecological features and an evaluation of their significance
- Assessment of cumulative impacts and effects of the Scheme in conjunction with other developments (within ES Chapter 15 (Combined Cumulative Effects) (**TR010066/APP/6.1**))

8.5.13. The relative importance of each ecological feature has been established in accordance with the DMRB standard in Table 8-7.

Table 8-7: DMRB standard for determining the importance of ecological features (verbatim from DMRB LA 108 Table 3.9)

Resource[3] Importance		Description
International or European value	Sites	National Site Network sites including: Special Protection Areas (SPAs); Possible SPAs (pSPAs); Special Areas of Conservation (SACs); Candidate SACs (cSACs) or Possible SACs (pSACs); Sites of Community Importance (SCIs) and Wetlands of International Importance (Ramsar sites). Biogenetic Reserves, World Heritage Sites and Biosphere Reserves. Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such
	Habitats	N/A
	Species	Resident, or regularly occurring, populations of species which may be considered at an International or European level where: - the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale

[3] Feature

Resource[3] Importance		Description
		- the population forms a critical part of a wider population at this scale - the species is at a critical phase of its life cycle at this scale
UK or national value	Sites	Designated sites including: SSSIs; Marine Protected Areas (MPAs) including Marine Conservation Zones (MCZs); and National Nature Reserves (NNRs). Areas which meet the published selection criteria e.g. Joint Nature Conservation Committee (JNCC) (1998) for those sites listed above but which are not themselves designated as such.
	Habitats	Areas of key / priority habitats identified in the UK Biodiversity Action Plan (BAP), including those published in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) and those considered to be of principal importance for the conservation of biodiversity.
	Species	Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level where: - the loss of these populations would adversely affect the conservation status or distribution of the species at this scale - the population forms a critical part of a wider population at this scale - the species is at a critical phase of its life cycle at this scale
Regional value	Sites	Non-statutory designated sites, including heritage coasts.
	Habitats	Areas of key / priority habitats identified in the Regional BAP (where available); areas of key / priority habitat identified as being of Regional value in the appropriate Natural Area Profile (or equivalent); and areas that have been identified by regional plans or strategies as areas for restoration or re-creation of priority habitats.
	Species	Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level and key / priority species listed within the BAP where: - the loss of these populations would adversely affect the conservation status or distribution of the species at this scale - the population forms a critical part of a wider population - the species is at a critical phase of its life cycle Species identified in regional plans or strategies
County or equivalent authority importance	Sites	Wildlife / nature conservation sites designated at a county (or equivalent) level, including: Sites of Nature Conservation Importance (SNCIs); Conservation Wildlife Site (CWS); Local Wildlife Site (LWS); Local Nature Conservation Sites (LNCS); Sites of Importance for Nature Conservation (SINCs) and Local Nature Reserves (LNRs). Areas which meet the published selection criteria for those sites listed above but which are not themselves designated as such.
	Habitats	Areas of key / priority habitats identified in the Local BAP; and areas of habitat identified in the appropriate Natural Area Profile (or equivalent).

Resource[3] Importance		Description
	Species	Resident, or regularly occurring, populations of species which may be considered at an International, European, UK or National level where: - the loss of these populations would adversely affect the conservation status or distribution of the species across the County or Unitary Authority Area - the population forms a critical part of a wider population - the species is at a critical phase of its life cycle Species identified in county or equivalent authority area plans or strategies.
Local value	Sites	Wildlife / nature conservation sites designated at a local level, including: SNCIs; LWS; LNCS; SINCs; Sites of Local Nature Conservation Importance (SLNCIs) and LNRs.
	Habitats	Areas of habitat considered to appreciably enrich the habitat resource within the local context, including features of importance for migration, dispersal, or genetic exchange. Trees that are protected by Tree Preservation Orders (TPOs).
	Species	Populations / communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.

8.5.14. In addition to criteria in Table 8-7, the assessment of the importance of the wintering bird assemblage within the study area was based upon Fuller (1980) which details the diversity of criteria, for bird species diversity, as shown in Table 8-8. Although Fuller's (1980) criteria are principally concerned with breeding bird populations, they are used as an indication of importance for the wintering bird population. The number of species recorded in the area is a simple measure of diversity that can help indicate the importance of a site at each season of the year. The area's importance in value can be determined by several factors including geographical location, diversity of habitats present and size.

Table 8-8: Bird species diversity criteria: the importance of area based on the number of bird species recorded (Full, 1980)

National Importance	Regional Importance	County Importance	Local Importance
85+	70-84	50-69	25-49

8.5.15. As the citation for Coombe Pool SSSI details wintering wildfowl, including Shoveler, and states that the woodland is an important winter roost, the assemblage of wintering birds within the SSSI identified during targeted wintering bird surveys (see ES Appendix 8.11 (Wintering Bird Report) (**TR010066/APP/6.3**)) have been assessed separately within this assessment as features of interest within the SSSI and as such of national importance. The

wintering bird assemblages in the remainder of the study area are assessed independent of the SSSI assemblages and in accordance with Table 8-6 regarding importance.

8.5.16. The assessment detailed within this chapter includes an assessment of both direct and indirect impacts upon ecological features. Direct impacts include habitat loss and fragmentation, and species mortality. Indirect impacts are those which could occur via impact pathways and include hydrological impacts and air quality impacts (for example where changes in hydrology could result in changes in water levels in a particular habitat resulting in a decline of suitability of a habitat for a particular species).

8.5.17. Ecological features can be impacted, particularly indirectly, by multiple sources. The assessment of impacts on biodiversity has been informed by relevant information and assessments collated and undertaken by other disciplines including Air Quality (ES Chapter 5 (**TR010066/APP/6.1**), Landscape and Visual Effects (ES Chapter 7) (**TR010066/APP/6.1**), Noise and Vibration (ES Chapter 11) (**TR010066/APP/6.1**) and Road Drainage and the Water Environment (ES Chapter 13) (**TR010066/APP/6.1**).

8.5.18. The methodology for assessment of air quality impacts relating to changes in nitrogen (N) deposition, ammonia deposition (NH_3) and where relevant nitrogen oxides (NO_X) is detailed within ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**).

8.5.19. If considered potentially sensitive, ecological features within 200m of the Order Limits have been assessed for impacts due to dust deposition in accordance with the ZOI of dust applied within ES Chapter 5 (Air Quality) (**TR010066/APP/6.3**).

8.5.20. The methodology for assessment of noise impacts upon ecological features during construction and operation is detailed within ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**).

8.5.21. Assessment of impacts in relation to lighting during the operation phase have been undertaken based upon the Street Lighting Contour Layout Plans (ES Appendix 7.5 (Lighting Assessment) (**TR010066/APP/6.3**)).

8.5.22. Characterisation of ecological impacts has been undertaken in accordance with DMRB LA108 Biodiversity and has taken into consideration impacts during the construction and operation phases and whether the impact is positive or negative, permanent or temporary (the impact duration), reversible or irreversible, the extent/magnitude of the impact, the frequency and timing of the

impact and in accordance with CIEEMs *Guidelines for Ecological Impact Assessment in the UK and Ireland* the duration of the impact.

8.5.23. The level of an impact on ecological features has been based on Table 8-9. As required by DMRB LA108 Biodiversity the assessment will conclude the level of impact on 'biodiversity resources' (ecological features within this assessment) in accordance with CIEEMs Guidelines for Ecological Impact Assessment for the UK and Ireland (2018). The importance of the feature and the level of impact will be used to determine the significance of effect based on Table 8-10 and the principles of DMRB LA 104 Environmental assessment and monitoring.

Table 8-9: Level of impact and typical descriptions (taken verbatim from DMRB LA 108, Table 3.11)

Level of impact (change)		Typical description
Major	Adverse	Permanent/irreversible damage to a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
	Beneficial	Permanent addition of, improvement to, or restoration of a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Moderate	Adverse	Temporary/reversible damage to a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
	Beneficial	Temporary addition of, improvement to, or restoration of a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor	Adverse	Permanent/irreversible damage to a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
	Beneficial	Permanent addition of, improvement to, or restoration of a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible	Adverse	Temporary/reversible damage to a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
	Beneficial	Temporary addition of, improvement to, or restoration of a biodiversity resource. The extent, magnitude, frequency, and/or timing of an impact does not affect the integrity of key characteristics of the resource
No change		No observable impact, either positive or negative.

Table 8-10: Description of the significance of effect categories (taken verbatim from DMRB LA 108, Table 3.13)

	Level of Impact					
Resource[4] Importance		**No change**	**Negligible**	**Minor**	**Moderate**	**Major**
	International or European importance	Neutral	Slight	Moderate or large	Large or very large	Very large
	UK or national importance	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Regional importance	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	County or equivalent authority importance	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Local importance	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

8.5.24. Where Table 8-10 includes two significance categories, evidence will be provided to support the reporting of a single significance category. Significant effects typically comprise effects that remain within the moderate, large or very large categories once mitigation has been taken into account.

8.6. Assessment assumptions and limitations

8.6.1. The assessment has been based on the Scheme description and construction strategy presented in ES Chapter 2 (The Scheme) (**TR010066/APP/6.1**) and has taken into account the lateral limits of deviation illustrated on the Works Plans (**TR010066/APP/2.3**) and vertical limits of deviation secured under Article 7 of the draft DCO (**TR010066/APP/3.1**) to establish a realistic worst-case assessment scenario. To assume a worst case, all trees at risk of removal have been assumed lost.

8.6.2. Vertical limits of deviation are relevant to this assessment upon ecological features only where there is potential for impacts from groundwater. ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**) concludes that there will be no effects upon groundwater dependent terrestrial ecosystems (GWDTEs).

[4] Referred to as Ecological Feature throughout this assessment.

8.6.3. The protected species technical appendices that support this Chapter (ES Appendices 8.1 to 8.16 (**TR010066/APP/6.3**)) record and highlight associated assumptions and limitations in accordance with the survey type being reported.

8.6.4. CIEEM's 'Advice Note on the Lifespan of Ecological Reports and Surveys' (2019) states in the first paragraph that "*it is important that planning decisions are based on up-to-date ecological reports and survey data. However, it is difficult to set a specific timeframe over which reports or survey data should be considered valid, as this will vary in different circumstances*." The Advice Note states that survey results and reports that are 12-18 months old are likely to be valid in most cases with the following exceptions:

- Where a site may offer existing or new features which could be utilised by a mobile species within a short time frame
- Where a mobile species is present on site or in the wider area and can create new features of relevance to the assessment
- Where country-specific or species-specific guidance dictates otherwise

8.6.5. For data between 18 months and 3 years old, CIEEM makes the following recommendations:

- A professional ecologist will need to undertake a site visit and may also need to update desk study information (effectively updating the Preliminary Ecological Appraisal) and then review the validity of the report, based on the factors listed below.
- Some or all of the other ecological surveys may need to be updated.
- The professional ecologist will need to issue a clear statement, with appropriate justification, on:
  - The validity of the report
  - Which, if any, of the surveys need to be updated
  - The appropriate scope, timing and methods for the update survey(s)

8.6.6. As detailed within ES Chapter 2 (The Scheme) (**TR010066/APP/6.1**), pre-commencement works are proposed to begin from June 2026 with main construction works starting in October 2026, therefore over 18 months will have lapsed since initial survey data was collected in 2022. Survey results will need to be reviewed prior to construction to identify areas where protected species have previously been recorded 'likely absent' from suitable habitat that maybe directly impacted and therefore may require re-surveying to ensure the species is still absent. This process would be undertaken as part of a suite of pre-construction surveys in 2025 as detailed within the REAC (**APP-110**), which is Appendix A of the First Iteration EMP (**REP1-010**), which would include an updated UKHab and

species scoping survey. This will avoid risk of committing a wildlife offence should a mobile species have moved into identified suitable habitat since the initial survey and provide ample time to produce a Method Statement to apply for the relevant licence to Natural England, avoiding delays to the construction programme. Further survey results and any associated mitigation required will be provided to the relevant environmental stakeholders for consultation.

8.6.7. The baseline ecological surveys undertaken to inform this assessment surveyed study areas (see Section 8.7) for ecological features based upon the Order Limits as they were for statutory consultation during the earlier stages of the preliminary design stage. Changes to the Order Limits following baseline ecological surveys included some small changes to the Order Limits, in particular around the area of Hungerley Hall Farm, extending the Order Limits approximately 5m further east near the existing junction into the SSSI, incorporating Clifford Bridge Road roundabout into the Order Limits and extending the Order Limits to allow for an additional SuDS feature to the north-west of the proposed dumbbell junction. The surveys undertaken are considered sufficient to establish the baseline of the final study areas (within Section 8.7) and inform the assessment within this chapter.

8.6.8. Desk study data purchased during the preliminary design stage was done so based upon Order Limits as they were for the Preliminary Environmental Information Report (PEIR). The most significant changes in the Order Limits since the PEIR include an extension of the Order Limits out westwards from the location of the proposed dumbbell junction and westwards along the B4082 to include Clifford Bridge Road roundabout. As these extensions take the DCO Order Limits approximately 90m further north-west into arable habitat and approximately 35m further west along the B4082, the footprint of these extensions is small relative to the DCO Order Limits size, and as complete targeted species surveys have been undertaken to inform this assessment, it is not considered necessary to update the desk study data. Furthermore, any non-statutory designated sites brought into the 2km study area from these changes in the DCO Order Limits would be separated from the DCO Order Limits by significant areas of urban land and as such no indirect impacts would be anticipated.

8.6.9. Baseline surveys for roosting bats and barn owl were limited at Hungerley Hall Farm (adjacent to and partially within the Order Limits) due to lack of internal access to farm buildings and courtyards between buildings (for a complete external inspection) due to health and safety concerns (see ES Appendix 8.4 (Barn Owl Survey Report) (**TR010066/APP/6.3**) and ES Appendix 8.5 (Bat Roost Report) (**TR010066/APP/6.3**) respectively).

8.6.10. The lack of internal access to the farm buildings and courtyards at Hungerley Hall Farm is not considered to have compromised the ecological impact assessment detailed within this chapter. The bat roost surveys undertaken of the building complex (see ES Appendix 8.5 (Bat Roost Report) **(TR010066/APP/6.3)**) have confirmed that the potential roosting behaviour is not considered to indicate a roost of high conservation status (a maternity roost) and is likely to be attributable to a roost of lower status (a day roost, feeding roost or night roost). As such it is considered that the assessment of significance of effects of the Scheme upon the potential bat roosts at this location is not significantly limited. The lack of complete survey data with regards to barn owl at Hungerley Hall Farm and the two further farms within the study area (see Annex B of ES Appendix 8.4 (Barn Owl Survey Report) **(TR010066/APP/6.3)**) has been accounted for in the mitigation (section 8.10).

8.6.11. Several existing drainage ditches are present within the Order Limits in arable land to the north of the existing Walsgrave Junction. These drainage ditches have been observed on multiple occasions, at differing times of the year, during surveys to inform the ecological baseline and have been found to be dry. As such they are considered likely dry for the majority of the year and likely to hold water only ephemerally (ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**)) following periods of heavy rain and for short time periods to serve their function as drainage features.

8.6.12. The likely significant effects identified within this assessment differ slightly to the likely significant effects concluded within the PEIR. This is due to the further development of the Scheme design, including mitigation design, since the production of the PEIR and further information informing the assessment of noise and air quality impacts.

8.7. Study area

8.7.1. The study areas for ecological features relate to the Order Limits plus individual ZOI dependent upon the particular species or habitat, as detailed by DMRB LA 108. Each scoped in ecological feature has one study area for the assessment of both construction and operation impacts based upon the potential impacts identified within the largest ZOI. Where individual impacts would not occur within these study areas they are scoped out. Where sections of the Scheme include works which would not impact upon the identified ecological feature due to the footprint and/or nature of the works, further survey within these parts of the study area have been scoped out and this is detailed below.

8.7.2. The Order Limits and relevant survey ZOIs for the ecological features will be referred to as the ‘study area’ throughout the remainder of this assessment. This

combined with best practice guidelines (including those survey guidelines listed in Table 8-6) and professional judgement means that the study area will include suitable ZOIs for all ecological features that have the potential to be impacted by the Scheme.

8.7.3. As part of an updated desk study a search for habitats sites (sites of European importance such as SPAs and SACs) up to 30km from the Order Limits was carried out to identify those sites where bats are a primary reason for designation, or where potential impact pathways are present with regards to birds. SACs, SPAs and Ramsar sites were identified up to 10km from the Order Limits and national and local statutory nature conservation designations (where information was available) were identified up to 2km from the Order Limits.

8.7.4. At the preliminary design stage data was obtained from the WBRC for non-statutory designated sites, protected and notable species and invasive species listed on Schedule 9 of the WCA 1981 (as amended) within 2km of the Order Limits as reported in the PEIR. Data on non-statutory designated sites was also obtained for within 200m of the triggered links for the air quality assessment (ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**)) where this extended beyond 2km from the Order Limits.

8.7.5. As standard practice hydrological surface water impacts assessed within ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**) are considered within a study area, which comprises a ZOI of 1km around from the Order Limits. This study area is based on professional judgement to ensure the effects of the Scheme are sufficiently identified. In accordance with this, non-statutory designated sites, priority habitats and ancient woodlands within 1km of and which have a direct hydrological connection with the Order Limits have been scoped in for assessment within this Chapter.

8.7.6. The following study areas, including areas scoped out for further survey, for protected and notable species, with regards to their extension beyond the Order Limits, have been adopted to inform the ecological assessment within this Chapter:

- Badger – 50m
- Barn owl – 1.5km
- Bats (roosting) – 50m

- Sixty-nine trees with potential for roosting bats were scoped out of further survey following ground-level preliminary roost assessments due to being within 20m of the mitigation planting area only (ES Appendix 8.5 (Bat Roost Report) (**TR010066/APP/6.3**)). This was discussed with Natural England during the discretionary advice service meeting held on 6 November 2023 (Table 8-4).

- GCN – 500m
  - Three ponds were scoped out of survey due to being to the west of the River Sowe, the opposite side as the Scheme.
- Otter *Lutra lutra* – 200m
  - Three watercourses were scoped out of survey due to being within 200m of temporary works to highways verges and in carriageway works only.
- Water vole – 200m
  - Three watercourses were scoped out of survey due to being within 200m of temporary works to highways verges and in carriageway works only.

8.7.7. Further details of the above including figures showing survey extents are provided within the relevant annexes within the relevant species reports included as ES Appendices 8.2 to 8.5 and ES Appendices 8.9 to 8.11 (**TR010066/APP/6.3**).

8.7.8. As opposed to a set 500m study area for breeding and wintering birds, the study area adopted was variable due to the urban fringe of Coventry, the proposed works in the location of the transect, the land use and topography. In some locations, this results in a survey area of less than 500m but in some locations results in a survey area of more than 500m. The transect walked for the wintering bird surveys and the extent of bird recordings from this transect can be seen in Annex A in ES Appendix 8.11 (Wintering Bird Report) (**TR010066/APP/6.3**).

8.7.9. The Order Limits was considered an appropriate study area for habitats and invasive non-native species.

8.7.10. The Order Limits where suitable habitat exists that would be directly impacted by the Scheme was considered an appropriate study area for commuting and foraging bats.

8.7.11. The study area with regards to fish includes waterbodies within the Order Limits (Smite Brook) and those waterbodies directly hydrologically connected to Smite Brook (specifically the River Sowe and Coombe Pool). The ditches within the arable land within the Order Limits are considered to be dry for most of the year (specifically those that hold water for less than four months of the year) and as such fish are considered likely absent from these ditches.

8.7.12. The study area for reptiles has been defined as within the Order Limits only. Due to the limited areas of habitat within the Order Limits suitable to support reptiles, and the lack of connectivity between these areas and further suitable habitat in the wider unsuitable arable landscape, reptiles have been identified important at

a 'site level' only (see section 8.8 of this Chapter) in accordance with DMRB *LA 108* and as such no assessment of impacts has been undertaken for reptiles. Due to the protection of reptiles under the WCA 1981 (as amended) potential impacts have been identified in Section 8.11 and mitigation in Section 8.10.

8.7.13. Other notable species listed on section 41 of the NERC Act 2006 (as amended) (hedgehog, brown hare and polecat) have been assessed within the Order Limits only.

8.8. Baseline conditions

8.8.1. This section outlines the ecological features (designated sites, habitats and species) that have the potential to be affected by the Scheme and their importance in accordance with DMRB LA 108. The designated sites, priority habitats, ancient woodland and veteran trees plan and ecological constraints plan (ES Figure 8.1 (Designated Sites, Priority Habitats, Ancient Woodland and Veteran Trees) and ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**)) show the baseline conditions detailed in this section with baseline limitations detailed in Section 8.6 of this chapter.

8.8.2. The following sources have been used to identify the biodiversity baseline with regards to the Scheme:

- Records of protected and notable species recorded within the last 10 years and information regarding non-statutory designated sites within 2km of the Order Limits, and within 5km of the Order Limits for barn owl, obtained from WBRC in 2023. Records of barn owl within 5km of the Order Limits obtained from The Barn Owl Trust in 2023.
- Data on non-statutory designated sites within 200m of the triggered links for the air quality assessment where this extends beyond 2km from the Order Limits was obtained from WBRC in 2024.
- Defra's MAGIC interactive map (Defra, 2024) was reviewed to provide information regarding statutory designated sites, ancient woodland and priority habitats within their relevant study areas (see Section 8.7).
- Defra's MAGIC interactive map (Defra, 2024) was reviewed to provide information regarding granted European Protected Species (EPS) licences, GCN class survey licence returns and GCN pond survey results from 2017 – 2019 within 2km of the Order Limits.
- Records of roadkill provided by the National Highways Midlands Operations Team received in March 2024.
- Results of various targeted surveys undertaken between 2022 and 2024 (as detailed within Table 8-3 and ES Appendices 8.1 to 8.14 (**TR010066/APP/6.3**).

- Liaison with local stakeholders detailed within Section 8.4.
- Woodland Trust's Ancient Tree Inventory (Woodland Trust, 2024).
- Data from the arboricultural impact assessment undertaken for the Scheme (ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**)) pertaining to veteran trees.
- Natural England's designated sites data for Coombe Pool SSSI (Natural England, 2024).
- Natural England's Priority River Habitat – Rivers (England) mapping (Natural England, 2023).

Statutory designated sites

8.8.3. There are no internationally designated habitats sites within 10km, SACs designated for bats within 30km or sites with potential impact pathways for birds within 30km of the Order Limits. Two nationally designated SSSIs and two locally designated LNRs are present within 2km of the Order Limits.

8.8.4. Further detail of the statutory designated sites scoped in for assessment is provided in Table 8-11. ES Figure 8.1 (Designated Sites, Priority Habitats, Ancient Woodland and Veteran Trees) (**TR010066/APP/6.2**) shows the locations of all statutory designated sites in relation to the Order Limits.

Table 8-11: Nationally and locally important designated sites within 2km of the Order Limits scoped in for assessment

Site name / designation	Reason for designation	Location in relation to the Order Limits
Coombe Pool SSSI	The site is one of the most important ornithological sites in Warwickshire for its herons *Ardea cinerea*, and other breeding birds, and for its wintering wildfowl including shoveler.	Partially within the Order Limits, and adjacent to the east of the Order Limits. 0.19ha of the 50.97ha SSSI is within the Order Limits.
Stoke Floods LNR	The site supports a large lake, reedbeds and scrub next to the River Sowe. The lake is the result of mining subsidence and supports many wetland plants such as yellow flag *Iris pseudoacorus* and reed canary grass *Phalaris arundinacea*. Bird life is varied with many species of duck, seven species of warbler in the summer and occasional unusual migratory visitors such as black tern *Chlidonias niger* and yellow wagtail *Motacilla flava*.	580m south-west of the Order Limits, direct hydrological connection through the River Sowe and Smite Brook.

Site name / designation	Reason for designation	Location in relation to the Order Limits
Herald Way Marsh SSSI/LNR	The designation features for the SSSI include invertebrate assemblages on the following habitats: bare sand and chalk, open short swards, open water and disturbed sediments, undisturbed fluctuating marsh and reed-fen and pools.	1.5km south of the Order Limits, scoped into the assessment due to potential air quality impacts.

8.8.5. Table 8-12 details those statutory designated sites scoped into the assessment solely due to being within 200m of the triggered links for the air quality assessment.

Table 8-12: Locally important statutory designated sites scoped in solely due to being within 200m of the triggered links

Site name / designation	Reason for designation	Approximate location in relation to the triggered links
Herald Way Marsh LNR	The site is one of the most important sites within the Country for rare invertebrates. A wide range of habitats are present including relic marsh, bare ground and dry grassland.	15m from the A46 triggered links approximately 1.4km south of the Order Limits
Stonebridge Meadows LNR	The site consists of unimproved meadow and pasture with alder woodland. Grassland ranches from acidic to neutral to marshy. Notable plant species are present and there are a good range of birds and invertebrates.	15m from the A46 triggered links approximately 4.5km south-west of the Order Limits
Willenhall Wood LNR	Habitats on the site include mixed deciduous ancient and semi-natural woodland.	15m from the A46 triggered links approximately 2.5km south-west of the Order Limits

8.8.6. During liaison with the Coventry City Council ecologist for Coombe Pool SSSI in March 2024, during the surveys, it was reported that shoveler still use the site for breeding however in smaller numbers than outlined within the SSSI citation, usually "*about two to three pairs*". Likewise, herons were confirmed to still use the site to breed however in smaller numbers than within the SSSI citation. The ecologist suggested that the creation of new reserves and improvements in conservation in the wider area has reduced the importance of Coombe Pool to these populations. The ecologist also reported on an area of acidic grassland to the east of the Pool with a diverse fungal assemblage including waxcap species which 'may meet the criteria for a SSSI notification'.

8.8.7. A review of Natural England's data regarding the condition of the SSSI features and units, undertaken in March 2024, has confirmed the following status':

- aggregations of breeding birds – grey heron: unfavourable – recovering, dated 2010
- aggregations of non-breeding birds – shoveler: favourable, dated 2021
- assemblages of breeding birds – lowland open waters and their margins: favourable, dated 2010
- standing open water and canals: unfavourable – recovering, dated 2016

8.8.8. In accordance with Table 8-5 nationally important SSSIs are considered to be of **national importance**. LNRs, whilst designated statutorily for their local interest, have been assessed as being of **county importance** in consideration of their legal protection and in accordance with Table 8-5.

Non-statutory designated sites

8.8.9. Non-statutory sites located within 2km of the Order Limits and/or within 200m of the triggered links for the air quality assessment include 20 LWSs. LWSs are county important sites defined in local plans and are a material consideration in planning applications. The locations of these sites are shown on ES Figure 8.1 (Designated Sites, Priority Habitats, Ancient Woodland and Veteran Trees) (**TR010066/APP/6.2**).

8.8.10. Non-statutory designated sites have been scoped into the assessment in accordance with the scoping criteria detailed in Table 8-5.

8.8.11. In total 12 LWSs have been scoped into the assessment.

8.8.12. Table 8-13 details the Ecosites which would be directly impacted by the Scheme and scoped in LWSs (non-statutory sites) within 2km of the Order Limits (see ES Figure 8.1 (Designated Sites, Priority Habitats and Veteran Trees). See Table 8-5 in section 8.4 for further information regarding the scoping in of Ecosites within this assessment.

Table 8-13: Scoped in Ecosites and LWSs within 2km of the Order Limits

Site name / designation	Reason for designation	Location in relation to the Order Limits
Hungerley Hall Farm Ecosite	The south-west part of the site is designated as Gainford Rise LWS. The site was described as made-up ground which had developed high ecological interest following a survey in 1996. Habitats included bare and sparsely vegetated ground, floristically rich grassland and scattered scrub/bramble *Rubus fruticosus agg*. The plant list exceeds 100 species and includes species likely to support nationally scarce invertebrates.	Partially within the Order Limits

Site name / designation	Reason for designation	Location in relation to the Order Limits
Coombe Abbey Pool Ecosite	The Ecosite is designated for its ornithological interest, in particularly its large heronry. Otter and water vole have been known to use the site. The site is good for butterflies and moths and species include white-letter hairstreak *Satyrium w-album*, small phoenix *Ecliptopera silaceata* and small square-spot *Diarsia rubi*. The near threatened species tormentil *Potentilla erecta* was recorded on the site in 2010.	Partially within the Order Limits to the south-east of the Walsgrave Junction
Gainford Rise LWS	The site comprises a mosaic of floristically rich grassland, scrub and tall herb and includes the old Sharman's Tip site. The site is of value to birds and invertebrates.	Adjacent to the west of the Order Limits. The LWS boundary aligns with the Order Limit boundary to the south-west of the existing junction. Within 200m of the triggered links
Sowe Valley Dorchester Way LWS	The site comprises a considerable area of flood plain, including grassland, swamp, woodland, scrub, fen and mire. A variety of bird species have been recorded on the river. The site supports a strong colony of water vole on the Sowe. This species has disappeared from much of the county with the Coventry area being one of the few known remaining strongholds. Much of the river retains aquatic, emergent and bankside vegetation. Devil's-bit scabious *Succisa pratensis*, harebell *Campanula rotundifolia* and betony *Stachys officinalis* still survive along its length in patches.	25m north of the Order Limits Within 200m of the triggered links
Coombe Abbey LWS	The site comprises broadleaved woodland, coniferous plantation, a brook and standing water habitat. Species which use the site include water vole, otter and grass snake *Natrix helvetica.*	200m east of the Order Limits
Stoke Floods LWS	The site comprises part of the LNR of the same name but also includes two semi-improved grassland fields not part of the LNR. The site comprises a large lake, reedbeds and scrub next to the River Sowe.	450m south-west of the Order Limits with a hydrological connection via the River Sowe and Smite Brook

8.8.13. Table 8-14 includes those scoped in non-statutory LWSs which are scoped in solely due to being within 200m of the triggered links for the air quality assessment (ES Chapter 5 (Air Quality) (**TR010066/APP/6.3**)). The River Avon and Tributaries LWS whilst within 200m of the triggered links has been scoped out of assessment as a running watercourse in accordance with DMRB LA 105 Air quality.

Table 8-14: Non-statutory LWSs scoped into the assessment solely due to being within 200m of the triggered links

Site name	Interest and designated feature	Approximate proximity to the operational triggered links
Baginton Fields	The site consists of three distinct areas including an area of coarse semi-improved grassland, a grassland area with a medium to tall sward and an area of rank species-poor grassland. Scrub encroaches on the former two areas.	Adjacent to the A46 mainline approximately 3.7km south-west of the Order Limits
Lower Sowe Meadows	The four main components to the site include riverside woodland, marshy grassland, swamp and an old damp semi-improved grassland meadow. The woodland is naturally damp and situated alongside the River Sowe. The marshy grassland is regularly flooded and has a species-rich sward. The semi-improved grassland meadow is home to grasshoppers and butterflies.	Adjacent to the A46 mainline approximately 4.35km south-west of the Order Limits
Herald Way Marsh (Claybrookes Marsh)	The site contains a mosaic of habitats including bare sandy ground, semi-improved grassland, tall herb, scrub, reed swamp, wet willow carr and small pools. The site is part of Herald Way Marsh SSSI.	Adjacent to the A46 triggered links approximately 1.3km south-west of the Order Limits
Willenhall Wood	The site includes ancient woodland and semi-improved grassland. The woodland part of the site is also designated as an LNR (see Table 8-9).	Adjacent to the A46 triggered links approximately 2.4km south-west of the Order Limits
Stretton Croft	The site includes a mosaic of species-rich post-industrial habitats including woodland, grassland, scrub, and boundary hedges. Areas of bare ground and pioneer vegetation exist as do semi-improved grassland and tall herbs. The site is locally important for butterflies and appears to be attractive to birds.	Adjacent to the M69 triggered links approximately 10.45km north of the Order Limits
Piles Coppice	Ancient woodland with an adjoining area of semi-improved grassland. The woodland is one of the most historically important in the Midlands region, is rare in the county and of high conservation value.	25m from the A46 triggered links approximately 1.25km south of the Order Limits
Sowe Valley: Wyken Croft to Ansty Road	The site comprises the river and floodplain habitats including grassland, swamp, woodland, fen, scrub and mire. The river supports aquatic, emergent and bankside vegetation. The site supports otter and water vole.	Adjacent to the A4600 Ansty Road triggered links to the approximately 1.14km north-west of the Order Limits

Site name	Interest and designated feature	Approximate proximity to the operational triggered links
Stonebridge Meadows	Habitats include semi-improved grassland, woodland, scrub and marsh. Grassland ranges from wet flood meadows to dry grassland on acidic soils. The site includes a number of locally scarce plants.	15m from the A46 triggered links approximately 4.5km south-west of the Order Limits

8.8.14. In accordance with Table 8-5 LWSs are assessed as being of **county importance** and Ecosites are considered of **local importance**.

Habitats

Ancient woodland and veteran trees (irreplaceable habitats)

8.8.15. A review of MAGIC mapping (Defra, 2023) and data from WBRC identified no areas of ancient woodland within 500m of the Order Limits or within 1km of the Order Limits with a downstream hydrological connection. The designation information for Coombe Abbey Pool LWS provided by WBRC stated that the woodland to the north of the site is "*fairly ancient in origin*" with indicator species present including wood anemone *Anemone nemorosa*, remote sedge *Carex remota* and wood millet *Milium effusum*. Additionally, the description states there are veteran trees present in this area. However, there is no location information for this particular described area on the LWS citation. Furthermore, the area of woodland which is partially within the Order Limits has been subject to a UKHab survey and none of the above-mentioned species have been recorded and as such it is concluded that the woodland within the Order Limits is not ancient in origin.

8.8.16. One parcel of ancient wood pasture is present within Coombe Abbey Park within 1km of the Scheme. Whilst this habitat is located adjacent to Coombe Pool, this is upstream of the Order Limits and as such no pathway for hydrological impact exists.

8.8.17. In addition to those designated sites containing ancient woodland detailed within Tables 8-10 and 8-12 (including Willenhall Wood LWS and LNR and Piles Coppice LWS) one parcel of ancient woodland, as identified on MAGIC mapping, is within 200m of the triggered links for the air quality assessment within ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**) (see ES Figures 5.5a (Ecological Transects) and 5.5b (Ecological Transects) (**TR010066/APP/6.2**)).

8.8.18. The arboricultural impact assessment undertaken for the Scheme (ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**)) identified one

veteran pedunculate oak *Quercus robur* tree (T12) within 200m of the triggered links located 15m from the Order Limits to the north of Hungerley Hall Farm, the location of which is shown on ES Figure 8.1 (Designated Sites, Priority Habitats, Ancient Woodland and Veteran Trees) (**TR010066/APP/6.2**). A further three deciduous veteran trees have been identified within 200m of the triggered links on the Woodland Trust's Ancient Tree Inventory, in addition to one deciduous tree which was identified within the arboricultural impact assessment (ES Appendix 7.4 (Arboricultural Impact Assessment)) as beginning to veteranise (T11).

8.8.19. Ancient woodland and veteran trees scoped into the impact assessment are considered **important at a national level**. Ancient woodland and veteran trees are identified as irreplaceable habitats in the NPS NN (2024).

Priority habitats

8.8.20. A review of MAGIC mapping (Defra, 2023) identified the following priority habitats within 500m of the Order Limits and within 1km downstream with a hydrological connection to the Order Limits (shown on ES Figure 8.1 (Designated Sites, Priority Habitats and Veteran Trees) (**TR010066/APP/6.2**)):

- coastal and floodplain grazing marsh approximately 40m west of the Order Limits along the River Sowe corridor
- deciduous woodland bordering the Order Limits to the south-west of the Walsgrave Junction at its closest location
- lowland fens approximately 650m south-west of the Order Limits adjacent to the River Sowe

8.8.21. Wood-pasture and parkland habitat is present approximately 680m east of the Order Limits. Whilst this habitat is located adjacent to Coombe Pool it is upstream of the Order Limits and as such no impact pathway for hydrological impacts exists. Wood-pasture and parkland habitat is therefore scoped out of the assessment. The coastal and floodplain grazing marsh west of the Order Limits is upstream from the tributary of Smite Brook which provides the connection with the Order Limits, however drainage would discharge to the River Sowe immediately adjacent to the priority habitat and as such it has been scoped in.

8.8.22. Good quality semi-improved grassland habitat has been identified within 500m of the Order Limits in Coombe Abbey Park (east of the Order Limits) and within 1km adjacent to the River Sowe on MAGIC mapping (Defra, 2023). As these habitats are not priority habitats and would not be directly impacted they are not considered further within this ES.

8.8.23. Defra's MAGIC interactive map (Defra, 2024) identified parcels of the priority habitat deciduous woodland within the Order Limits in the highway boundary and SSSI woodland to the east and south-east of the Walsgrave Junction. However, an assessment of the habitat characteristics and species assemblage, based upon the results of UKHAB surveys undertaken in 2022 (ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**)) of this woodland, has established that the woodland does not qualify as this priority habitat woodland due to the species assemblages not resembling those of the priority habitat. As such these woodlands are not considered a priority habitat within this assessment.

8.8.24. MAGIC (Defra, 2023) also identified one parcel of traditional orchard within the study area approximately 20m east of the Order Limits. This area has been accessed as part of a targeted badger survey during January 2024 and the characteristics of the priority habitat, primarily the structure of the habitat being open grown trees in herbaceous vegetation and the species composition being primarily *Rosaceae*, are lacking. As such it is considered that this habitat parcel is not the priority habitat traditional orchard. This parcel is displayed on ES Figure 8.1 (Designated Sites, Priority Habitats and Veteran Trees) (**TR010066/APP/6.2**).

8.8.25. The priority habitat native hedgerows (15 in total) were recorded within the Order Limits during the UKHab survey (ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**)). No hedgerows were considered species-rich (which would be considered to contain five or more UK native or archaeophyte woody species per 30m stretch within this location in the UK (Defra, 2007)) based upon the UKHab survey.

8.8.26. ES Chapter 6 (Cultural Heritage) (**TR010066/APP/6.1**) includes information regarding the assessment of hedgerow importance under the 1997 Regulations under non-ecological criteria. Five hedgerows have been identified as potentially important by non-ecological criteria in the 1997 Regulations as reported in ES Appendix 6.1 (Cultural Heritage Information) (**TR010066/APP/6.3**). The total length of priority habitat native hedgerows within the Order Limits is 4.2km native hedgerows and 0.22km native hedgerow with trees.

8.8.27. Excluding Coombe Pool, thirteen ponds have been identified within 1km of the Order Limits. Six of these ponds, including one confirmed as priority due to the presence of GCN, are scoped out of assessment due to either being to the west of the River Sowe, and therefore on the far side of the river from the Order Limits, and upstream of the Order Limits and / or being a significant distance from the Order Limits with no downstream hydrological connection to the Order Limits which may act as impact pathway. Four ponds whose priority status has

not been determined are located adjacent to the River Sowe downstream of the Order Limits and as such are scoped into the assessment in consideration of potential indirect hydrological impacts in flood events. A further three ponds located within 200m of the Order Limits are scoped into the assessment to assess impacts of dust during construction. Ponds scoped in whose priority status has not been determined (four in total) have been treated as priority on a precautionary basis.

8.8.28. The locations of ponds within 1km scoped in are shown on ES Figure 8.1 (Designated Sites, Priority Habitats and Veteran Trees) (**TR010066/APP/6.2**).

8.8.29. Priority habitats scoped into the assessment are considered **important at a national level**.

Non-priority habitats

8.8.30. The dominant habitat within the Order Limits comprises arable fields to the north of the A46 Walsgrave Junction planted with cereal crops at the time of the UKHab survey between June and August 2022. The fields are bordered by native hedgerows (priority habitats) including boundaries adjacent to the A46.

8.8.31. The majority of the land within the highway boundary, and the land to the east and south-east of the junction, comprises other broadleaved woodland with small areas of mixed scrub and bramble in the former.

8.8.32. Small parcels of modified grassland are present within the Order Limits along the northern edge of Coombe Pool SSSI woodland and adjacent to Hungerley Hall Farm.

8.8.33. Watercourses are present within the Order Limits including Smite Brook and unnamed ditches and drains. The ditches and drains within the Order Limits are considered dry for most of the year (as they are considered to hold water only ephemerally and for less than four months of the year (see Section 8.6)) and as such are not considered ditch habitats within the ‘r1 standing open water and canals’ classification of UKHab and will not be considered as watercourses in this Chapter. Two of these ditches which will be directly impacted by partial severance and infilling to facilitate the Scheme have been confirmed ephemeral within ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**) and one of these has been confirmed to have no upstream connection and to only carry field and highway runoff.

8.8.34. Smite Brook flows from Coombe Pool to the east of the Order Limits and flows westwards to join the River Sowe approximately 50m north of the Order Limits at the nearest point. The Brook is culverted beneath the A46 and the B4082 within

the Order Limits. The Brook has not been identified as a priority habitat river on Natural England's Priority River Habitat – Rivers (England) mapping (Natural England, 2023). The condition of the un-culverted sections of brook within the Order Limits have been assessed in accordance with the Modular River Physical Survey methodology (Modular River Survey, 2022) as detailed within Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) of this ES.

8.8.35. ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) details in full the Order Limits baseline with regards to habitats and Annex A of the report includes a figure showing the habitats within the Order Limits.

8.8.36. Table 8-15 provides the areas or lengths of each terrestrial non-priority habitat within the Order Limits. Detailed habitat descriptions are available in ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**) in addition to condition assessments, in accordance with the Statutory Metric, per habitat parcel within Annex B of ES Appendix 8.1 (Biodiversity Net Gain Report) (**TR010066/APP/6.3**).

Table 8-15: Baseline terrestrial habitats within the Order Limits

UKHab baseline habitat	Area (ha) within the Order Limits
Area-based	
Cereal crops	16.79
Other broadleaved woodland	9.77
Developed land; sealed surface	7.75
Modified grassland	1.54
Mixed scrub	0.29
Bramble scrub	0.37
Introduced shrub	0.02

8.8.37. The remaining, non-priority terrestrial habitats within the Order Limits are considered **important at a 'site' level** only as they are considered to not meet criteria for 'local importance' within DMRB LA 108. As such they will not be subject to impact assessment as detailed within Section 8.5. However, information regarding habitat loss and creation is included within this chapter as good practice, and to inform the assessment of habitat loss impacts on species.

Protected and notable species

Great crested newt

8.8.38. The desk study confirmed GCN presence approximately 1.4km north-east to east of the Order Limits, within Hill Park Wood and Ansty Park. This GCN presence was identified from records of granted EPS licences and GCN class survey licence returns dated as recently as 2022.

8.8.39. GCN were confirmed as being present in two ponds within the study area (ponds 1 and 15, see ES Figure 8.1 (Designated Sites, Priority Habitats and Veteran Trees) (**TR010066/APP/6.2**)). eDNA testing of six other ponds in the study area, and one now beyond the study area following Order Limit changes, returned negative results for GCN. Given that GCN were absent from other ponds located immediately adjacent to ponds 1 and 15 (ponds 2 and 14 respectively), it is assumed that GCN in ponds 1 and 15 are likely present in low numbers.

8.8.40. Arable land unsuitable for GCN is present between pond 1 and the Order Limits. The pond is approximately 420m from the Order Limits along the nearby hedgerow and associated field boundary habitat which would be the single continuous suitable commuting corridor for GCN from the pond to the Order Limits. Suitable GCN habitat in the Order Limits within 500m of pond 1 is limited to the highway boundary woodland. As such it is considered unlikely that GCN from pond 1 are present in terrestrial habitat within the Order Limits.

8.8.41. Pond 15 is approximately 95m from the Order Limits however is approximately 430m from where works other than in-carriageway works (i.e., within existing hard standing areas which is unsuitable habitat) are proposed. It is considered unlikely GCN are within the terrestrial habitat to be impacted within the Order Limits within 500m of pond 15 as this is a significant distance from the pond (430m). Coventry Road (which is kerbed) may also act as a dispersal barrier for GCN which may commute north from pond 15. Additionally, it is not considered likely that GCN would move north from pond 15, due to lack of ponds north of pond 14.

8.8.42. Full details on the GCN surveys are provided in ES Appendix 8.9 (Great Crested Newt Report) (**TR010066/APP/6.3**)**.**

8.8.43. Great crested newt has been assessed as an ecological feature of **county importance**.

Other amphibians

8.8.44. The desk study identified records of common frog *Rana temporaria*, smooth newt *Lissotriton vulgaris* within 2km of the Order Limits. As these species are

common and widespread and they have no development related conservation status they are not considered further within this ES.

8.8.45. Common toad *Bufo bufo,* a species listed as of principal importance under Section 41 of the NERC Act 2006 (as amended), was identified within the desk study within 2km of the Order Limits. There are no standing water habitats within the Order Limits, with the exception of some ditches which may hold small amounts of water sporadically over the winter months and as such are considered unsuitable due to being dry during the amphibian breeding season.

8.8.46. Ponds are present in the wider landscape within 500m of the Order Limits. Due to a lack of significant areas of suitable habitat (such as grassland and scrub) within the Order Limits and the surrounding unsuitable arable land creating barriers to dispersal from surrounding areas of suitable habitat it is considered unlikely common amphibians are present within the Order Limits. Terrestrial habitat suitable for common amphibians, including common toad, is limited within the Order Limits to highway boundary woodland, small areas of scrub only and isolated field margin habitats. A such, it is considered in the unlikely event a population of common toad is present within the Order Limits it would constitute a small population. Therefore, the common and widespread species of amphibian are considered important at a 'site level' only and as such is scoped out of this assessment.

Breeding birds

8.8.47. The desk study identified records of numerous bird species within 2km of the Order Limits reported by WBRC, including the following species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended):

- Whooper swan *Cygnus cygnus*
- Red kite *Milvus milvus*
- Kingfisher *Alcedo atthis*
- Fieldfare *Turdus pilaris*

8.8.48. In addition, the following species red-listed on the British Trust for Ornithology's Birds of Conservation Concern 2021 (BoCC) which may use habitats within the Order Limits for nesting and/or foraging were also identified within 2km of the Order Limits within the desk study:

- House martin *Delichon urbicum*
- Woodcock *Scolopax rusticola*
- Swift *Apus apus*

- Herring gull *Larus argentatus*
- Marsh tit *Poecile montanus*
- House sparrow *Passer domesticus*
- Mistle thrush *Turdus viscivorus*

8.8.49. Records of starling *Sturnus vulgaris* were also identified just outside the 2km search area for protected species records from WBRC (as detailed within Section 8.7 (2.01km from the Order Limits)).

8.8.50. Breeding bird surveys undertaken between March and July 2022 identified 53 species within the study area, with an additional two species identified during other ecological surveys. There were 22 species confirmed breeding, 17 probably breeding, 10 possibly breeding and six species considered non-breeding. Of all recorded species 51 have a conservation or legal status including one on Schedule 1 of the WCA 1981 (as amended), 10 are listed on the BoCC red-list, 17 are listed on BoCC amber-list, 24 are listed on BoCC green-list and eight are listed on Section 41 of the NERC Act 2006 (as amended) including some species-which have multiple status' (for example are listed on both the BoCC amber-list and Section 41). Species recorded, their conservation status and their breeding status within the study area are detailed in Table 8-16 below. The status of each species in Warwickshire is detailed within ES Appendix 8.3 (Breeding Bird and Barn Owl Report) (**TR010066/APP/6.3**).

Table 8-16: Bird species and their breeding status within the study area, from the 2022 breeding bird surveys and incidental records

Common name	Scientific name	BoCC 5/ Sch. 1 / NERC status*	Breeding status
Blackbird	*Turdus merula*	Green	Confirmed
Blackcap	*Sylvia atricapilla*	Green	Confirmed
Black-headed gull	*Chroico-cephalus ridibundus*	Amber	Possible
Blue tit	*Cyanistes caeruleus*	Green	Probable
Buzzard	*Buteo buteo*	Green	Confirmed
Carrion crow	*Corvus corone*	Green	Probable
Chaffinch	*Fringilla coelebs*	Green	Possible
Chiffchaff	*Phylloscopus collybita*	Green	Confirmed
Common sandpiper	*Actitis hypoleucos*	Amber	Non-breeding

Common name	Scientific name	BoCC 5/ Sch. 1 / NERC status*	Breeding status
Common tern	*Sterna hirundo*	Amber	Non-breeding
Coot	*Fulica attra*	Green	Confirmed
Cormorant	*Phalacrocorax carbo*	Green	Non-breeding
Dunnock	*Prunella modularis*	Amber, NERC	Probable
Goldfinch	*Carduelis carduelis*	Green	Confirmed
Great Crested Grebe	*Podiceps cristatus*	Green	Probable
Great spotted woodpecker	*Dendrocopos major*	Green	Possible
Great tit	*Parus major*	Green	Confirmed
Green woodpecker	*Picus viridis*	Green	Confirmed
Greenfinch	*Chloris chloris*	Red	Probable
Grey heron	*Ardea cinerea*	Green	Confirmed
Grey wagtail	*Motacilla cinerea*	Amber	Possible
Greylag goose	*Answer anser*	Amber	Probable
Herring gull	*Larus argentatus*	Red	Possible
House Martin	*Delichon urbicum*	Red, NERC	Possible
House sparrow	*Passer domesticus*	Red, NERC	Probable
Jackdaw	*Coloeus monedula*	Green	Confirmed
Jay	*Garrulus glandarius*	Green	Probable
Kingfisher	*Alcedo atthis*	Green, Sch. 1	Non-breeding
Lesser black-backed gull	*Larus fuscus*	Amber	Possible
Linnet	*Linaria cannabina*	Red, NERC	Probable
Little egret	*Egretta garzetta*	Green	Possible
Long-tailed tit	*Aegithalos caudatus*	Green	Probable
Magpie	*Pica pica*	Green	Confirmed
Mallard	*Anas platyrhynchos*	Amber	Confirmed

Common name	Scientific name	BoCC 5/ Sch. 1 / NERC status*	Breeding status
Mistle thrush	*Turdus viscivorus*	Red	Probable
Moorhen	*Gallinula chloropus*	Amber	Confirmed
Mute swan	*Cygnus olor*	Green	Confirmed
Robin	*Erithacus rubecula*	Green	Confirmed
Rook	*Corvus frugilegus*	Amber	Confirmed
Skylark	*Alauda arvensis*	Red, NERC	Confirmed
Song thrush	*Turdus philomelos*	Amber, NERC	Probable
Starling	*Sturnus vulgaris*	Red, NERC	Probable
Swallow	*Hirundo rustica*	Green	Confirmed (one pair at Hungerley Hall barn)
Swift	*Apus apus*	Red	Possible
Tufted duck	*Aythya fuligula*	Green	Possible
Whitethroat	*Sylvia communis*	Amber	Confirmed
Wood-pigeon	*Columba palumbus*	Amber	Confirmed
Wren	*Troglodytes troglodytes*	Amber	Confirmed
Yellow-hammer	*Emberiza citrinella*	Red, NERC	Confirmed
Little owl	*Athene noctua*	Green	Probable
Tawny owl	*Strix aluco*	Amber	Probable

* BoCC 5 Birds of Conservation Concern (2021) – Red, Amber, Green, (or unlisted)
Sch. 1- WCA 1981 (as amended) Schedule 1.
NERC- Natural Environment and Rural Communities Act 2006 Section 41, species of principal importance.

8.8.51. Notable species include a minimum of three pairs of the BoCC red-listed skylark within the arable land, the BoCC red-listed species linnet, starling and swift, and the BoCC amber-listed song thrush. All of these BoCC red- and amber-listed species, apart from swift, are listed on Section 41 of the NERC Act 2006 (as amended). The latter four species are likely to be using the land within the Order Limits for foraging, though linnet, starling and song thrush may potentially breed within the tall hedgerows and boundary trees along the A46. Further species listed as species of principal importance for biodiversity conservation on Section 41 of the NERC Act 2006 (as amended) recorded within the study area include dunnock (probably breeding, amber-listed), house sparrow (probably breeding, red-listed), house martin (possibly breeding, red-listed) and yellow-hammer

(confirmed breeding, red-listed). Black-headed gull and the Section 41 species herring gull are amber- and red-listed BoCC species respectively and were concluded to be possibly breeding.

8.8.52. Kingfisher, which is listed on Schedule 1 of the WCA 1981 (as amended), was recorded within the study area. Kingfisher was recorded as non-breeding during the targeted breeding bird surveys. Kingfisher was regularly recorded commuting and foraging along a watercourse within Coombe Abbey Park to the east of the Order Limits during both the breeding bird surveys undertaken in 2022 and the wintering bird surveys undertaken in 2023/2024. The species was particularly well recorded on this watercourse during the late February and March 2024 wintering bird surveys with a pair frequently recorded calling together. The southernmost section of this watercourse is of variable (low to moderate) suitability for nesting kingfisher. Due to the presence of suitable nesting habitat and the observations recorded in February and March 2024 it is considered the species could potentially be breeding on this section of watercourse. ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**) shows the watercourse to the east of the Order Limits with suitability for nesting, and commuting and foraging, kingfisher and the extents of this suitability.

8.8.53. ES Appendix 8.3 (Breeding Bird and Barn Owl Report) (**TR010066/APP/6.3**) presents the full detailed survey results from the breeding bird surveys which includes Figures 1-5 in Annex A showing the locations of birds recorded during each survey.

8.8.54. Skylark, linnet, yellowhammer and song thrush have been identified as features of **county importance.** The remaining breeding bird assemblage within the baseline is considered of **local importance**. These levels of importance are applicable to all birds breeding within the study area, including those surveys that have identified species as possibly or probably breeding as listed in Table 8-14.

Barn owl

8.8.55. The distance measurements from the Order Limits within these sections relating to barn owl have excluded the area of the Order Limits which is identified for mitigation woodland planting only (shown on Sheet 2 of ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)). These habitat creation works are anticipated to have a much lower risk of impacts to barn owl, and at a much smaller zone of influence, than the main construction works.

8.8.56. The desk study identified records of barn owl within 5km of the Order Limits. Three records indicate the presence of barn owls nesting approximately 1.3km

south of the Order Limits. Further records include one approximately 500m south (although only accurate to 1km) and a second approximately 4.15km south-west of the Order Limits.

8.8.57. Anecdotal evidence from the Coombe Abbey Park Senior Estate Officer reports that barn owl sightings are occasional along the southern edge of Coombe Pool.

8.8.58. No confirmed active barn owl roost or nesting sites have been identified within the study area. Walsgrave farm, approximately 300m east of the Order Limits at its closest point, has been subject to survey and has been confirmed to have good suitability as both a potential nest site (PNS) and potential roost site (PRS), however no signs of nesting were found. Hungerley Hall Farm, partially within and adjacent to the west of the Order Limits, has the potential to also be suitable as PNS and/or PRS but was not able to be surveyed due to health and safety reasons preventing internal access to structures. Liaison with both the landowner and farmers at Hungerley Hall Farm, undertaken in March 2024, have reported no sightings or audible reports of barn owl near the farm.

8.8.59. With regards to PNS and PRS within trees within the study area surveys have identified the following:

- one tree with good suitability as a PRS approximately 1.3km north-east of the Order Limits
- four trees suitable as PRS at the following distances east of the Order Limits: 770m (approximately 550m from the mitigation planting area), 780m, 1.1km and 1.2km
- one tree with poor suitability as a PRS approximately 1.1km east of the Order Limits

8.8.60. The surveys identified a tree within Coombe Abbey Park that had suitability as both a PNS and a PRS which was reported on in the PEIR. However, in April 2024 liaison with Coombe Abbey Park staff identified that the tree was no longer standing.

8.8.61. Previous surveys undertaken in 2021 identified a tree west of the Order Limits in proximity to Hungerley Hall Farm as a possible temporary roost site, as reported in the PEIR. These surveys in 2021 were ground-level surveys only and assessment was limited due to lack of canopy visibility. Full survey was undertaken in 2023, including aerial assessment where required to fully assess features, and this tree was found unsuitable as a barn owl PNS or PRS (see T9 in ES Appendix 8.4 (Barn Owl Survey Report) (**TR010066/APP/6.3**)).

8.8.62. Surveys have classified the following within the study area with regards to barn owl foraging suitability:

- two areas of optimal foraging habitat including one located within Coombe Abbey Park approximately 800m east of the Order Limits and one area approximately 1.3km north-east of the Order Limits near Antsy Park.
- two areas of sub-optimal foraging habitat of transient value, including one area to the west of the River Sowe approximately 70m north-east of the Order Limits and one area approximately 1.3km north-east of the Order Limits near Antsy Park.
- four areas of poor foraging suitability. The first directly adjacent to the south-west of the junction, the second an area to the west of the River Sowe approximately 250m from the Order Limits, the third an area adjacent to Walsgrave Farm approximately 250m from the Order Limits and the fourth an area approximately 1.3km north-east of the Order Limits near Antsy Park.

8.8.63. ES Appendix 8.3 (Breeding Bird and Barn Owl Report) (**TR010066/APP/6.3**) and ES Appendix 8.4 (Barn Owl Survey Report) (**TR010066/APP/6.3**) detail the survey results with regards to barn owl. Figure 6 of Appendix 8.3 (Breeding Bird and Barn Owl Report) (**TR010066/APP/6.3**) shows PNS, PRS and suitable foraging habitat for barn owl within the study area.

8.8.64. Barn owl are considered of **county importance**.

Wintering birds

8.8.65. The overall assemblage of bird species recorded in the study area was typical of the range of habitat which dominates. These species are partially characterised by hedgerow, woodland, scrub habitat and arable fields. The majority of the birds recorded within the study area were common species with 32 classified as introduced or green-listed BoCC.

8.8.66. A total of 71 species were recorded within the study area during the wintering bird surveys. Of these species, 12 are BoCC red-listed, 24 BoCC amber-listed, 10 species are listed on Section 41 of principle importance under the NERC Act 2006, two Annex 1 and five listed under WCA Schedule 1. The full results of the wintering bird surveys are included in Annex B of ES Appendix 8.11 (Wintering Bird Report) (**TR010066/APP/6.3**).

8.8.67. As the wintering birds within Coombe Pool SSSI are assessed as features of interest within the SSSI, and as such of national importance, the remaining assemblage of wintering birds within the study area is assessed separately. Species recorded within the study area outside of the SSSI total 54 species, including those with legal protection and/or conservation status indicated in Table 8-15 below. In accordance with the methodology set out in Section 8.5 with regards to assessing the importance of an area for wintering birds, the study area qualifies as being of '**county importance'**.

8.8.68. A total of 35 species were recorded within the Order Limits only. Of these, 18 species have designations; six BoCC red-listed, 10 BoCC amber-listed, four listed on Section 41 of the NERC Act 2006 and three listed on Schedule 1 of the WCA 1981 (as amended).

8.8.69. Table 8-17 includes notable species (species excluding those introduced and green-listed BoCC species) recorded within the study area during wintering bird surveys.

Table 8-17: Birds recorded in the study area during wintering bird surveys with legal protection and/or a conservation status

Common name	Scientific name	BoCC 5/ Sch. 1 / NERC / BD Annex 1 status*	Recorded outside the SSSI
Black-headed gull	*Chroicocephalus ridibundus*	Amber	Yes
Bullfinch	*Pyrrhula pyrrhula*	Amber, NERC	Yes
Cetti's warbler	*Cettia cetti*	Sch. 1	
Common gull	*Larus canus*	Amber	Yes
Dunnock	*Prunella modularis*	Amber, NERC	Yes
Fieldfare	*Turdus pilaris*	Red, Sch. 1	Yes
Gadwall	*Mareca strepera*	Amber	
Goldeneye	*Bucephala clangula*	Red	
Great black-backed gull	*Larus marinus*	Amber	
Green sandpiper	*Tringa ochropus*	Amber, Sch. 1	
Greenfinch	*Chloris chloris*	Red	Yes
Grey wagtail	*Motacilla cinerea*	Amber	
Greylag goose	*Anser anser*	Amber	
Herring gull	*Larus argentatus*	Red, NERC	Yes
House sparrow	*Passer domesticus*	Red, NERC	Yes
Kestrel	*Falco falcis*	Amber	
Kingfisher	*Alcedo atthis*	Amber, Sch. 1, BD Annex 1	
Lapwing	*Vanellus vanellus*	Red, NERC	Yes
Lesser black-backed gull	*Larus fuscus*	Amber	Yes
Linnet	*Linaria cannabina*	Red, NERC	Yes
Little egret	*Egretta garzetta*	BD Annex 1	
Mallard	*Anas platyrhynchos*	Amber	

Common name	Scientific name	BoCC 5/ Sch. 1 / NERC / BD Annex 1 status*	Recorded outside the SSSI
Meadow pipit	*Anthus pratensis*	Amber	Yes
Mistle thrush	*Turdus viscivorus*	Red	Yes
Moorhen	*Gallinula chloropus*	Amber	Yes
Mute swan	*Cygnus olor*	Green BOCC	
Pochard	*Aythya ferina*	Red	
Redwing	*Turdus iliacus*	Amber, Sch. 1	Yes
Rook	*Corvus frugilegus*	Amber	Yes
Skylark	*Alauda arvensis*	Red, NERC	Yes
Song thrush	*Turdus philomelos*	Amber, NERC	Yes
Sparrowhawk	*Accipiter nisus*	Amber	Yes
Starling	*Sturnus vulgaris*	Red, NERC	Yes
Stock dove	*Columba oenas*	Amber	Yes
Teal	*Anas crecca*	Amber	
Wigeon	*Mareca penelope*	Amber	
Wood-pigeon	*Columba palumbus*	Amber	Yes
Wren	*Troglodytes troglodytes*	Amber	Yes
Yellow-hammer	*Emberiza citrinella*	Red, NERC	Yes

* BoCC 5 Birds of Conservation Concern (2021) – Red, Amber, Green, (or unlisted)
Sch. 1- WCA1981 (as amended) Schedule 1.
NERC- Natural Environment and Rural Communities Act 2006 Section 41, species of principal importance.
BD Annex 1 - Annex 1 of the Birds Directive as amended (2009)

Bats – roosting

8.8.70. The desk study identified records of common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, brown long-eared *Plecotus auritus*, Daubenton's *Myotis daubentonii*, Natterer's *Myotis nattereri*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus* and whiskered bat *Myotis mystacinus* within the study area. Records of roosting common pipistrelle and brown long-eared bat were identified through WBRC data and EPS licence records (all >100m from the Order Limits). Additionally, from a review of ecological survey reports from the options selection stage, a record of a roost approximately 35m east of Hungerley Hall Farm was identified, however no further information was provided.

8.8.71. Within the study area five trees have high bat roost potential (BRP), 26 trees have moderate BRP and 155 trees and one group of trees have low BRP. Three of these trees also have potential as bat hibernation roosts.

8.8.72. Buildings at Hungerley Hall Farm are considered to have BRP. From a review of imagery of the two Hungerley Hall Farm barns within the Order Limits captured during structural surveys undertaken using a drone in January 2024 an assessment of their BRP was undertaken. This assessment was undertaken in accordance with the recently released 4th edition of the Bat Conservation Trusts' *Bat Surveys for Professional Ecologists* (2023).

8.8.73. The southernmost 'barn' is a metal frame structure with a corrugated metal roof and has negligible potential for roosting bats.

8.8.74. The northernmost barn is a single storey brick barn with a pitched tile roof with a number of stalls on the northern elevation of the building where the doors have been removed or collapsed due to disrepair. Potential roosting features include gaps around a window frame on the eastern aspect and loose roof and ridge tiles on the north-east aspect of the barn. The roof tiles have been placed directly onto battens with no felt which will limit the potential for a stable climate within any potential roosting features. The interior of the barn did not have any features that were noted to be suitable for roosting bats. The building has low potential to support opportunistic individual roosting bats or small numbers of bats beneath roof tiles. The building is not considered to have potential to support a roost of higher conservation status (such as a maternity or hibernation roost).

8.8.75. No confirmed roosts have been identified within the study area, however instances of potential roosting behaviour (emergences) were recorded and are detailed in Table 8-18. Due to limitations associated with surveying in woodland (primarily lower light levels and associated visibility issues) it was not possible to confirm whether these bats emerged from a particular tree. These potential roosts were identified primarily through early (pre-sunset) recordings of bats in the vicinity during the surveys and in the case of the T152/T153, T154 or T156 roost, also through an early (pre-sunset) visual observation of a bat.

Table 8-18: Potential roosts within the study area

Structure/tree ID	Species	Potential roost type	Approximate distance* from the Order Limits and main works**
B4 at Hungerley Hall Farm	Common pipistrelle *Pipistrellus pipistrellus*	Day roost, night roost or feeding roost or a potential foraging resource	Partially within, and 50m from main works
B1 at Hungerley Hall Farm	Unidentified species	Day roost, night roost or feeding roost	10m, and 20m from main works
B2 at Hungerley Hall Farm	Unidentified species	Day roost, night root or feeding roost	30m, and 55m from the main works
T141 or T138	Soprano pipistrelle *P. pygmaeus*	Day roost	3.5m, and 25m from main works(T138), 16m, and 35m from main works (T141)
T152, T153, T154 or T156	Common pipistrelle *P. pipistrellus*	Day roost	≥35m, and upwards of 55m from main works

*Building distances are measured from their closest point to the Order Limits, **landscaping and maintenance access are excluded from main works

8.8.76. ES Appendix 8.5 (Bat Roost Report) (**TR010066/APP/6.3**) includes full details of survey results and the roosting status of bats within buildings and trees in the study area, with the exception of the bat roost potential assessment of the two barns at Hungerley Hall Farm within the Order Limits detailed above. ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**) shows the locations of potential roosts identified and trees with roosting potential.

8.8.77. The bat populations were assessed as being of local importance within the PEIR. However, following issue of the PEIR and review of the Warwickshire, Coventry and Solihull Local Biodiversity Action Plan (2005) this has been revised and bats are considered of **county importance** in accordance with Table 8-5 and the DMRB LA 108.

Bats – commuting and foraging

8.8.78. Bat activity surveys have identified the following species present within the study area; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Daubenton's bat, Leisler's and brown long-eared. Additionally, *Myotis* sp. which could not be identified to species level were recorded within the study area. All bats are European protected species protected under the Conservation of Habitats and Species Regulations 2017 and Schedule 5 of the WCA 1981 (as

amended), however noctule, soprano pipistrelle and brown long-eared bats are also listed as priority species on Section 41 of the NERC Act 2006.

8.8.79. Automated monitoring surveys recorded a higher level of bat activity within Coombe Pool SSSI woodland relative to other surveyed areas within the study area. Data recorded here in April 2022 suggested a much higher species richness in the assemblage with a minimum of five species recorded at this one location that month. Almost half (147 in total) of the recordings made in this location during the September recording period were of *Myotis* species, which due to the proximity of Coombe Pool is likely attributable to Daubenton's bats which have been recorded at this location before, however it is not possible to confirm this. Daubenton's were also occasionally recorded within the arable land in the Order Limits at locations near Hungerley Hall Farm and south of the farm.

8.8.80. A lesser amount of activity was recorded within the broadly arable landscape of the Order Limits across both automated monitoring and walked transect surveys, however bats were recorded foraging and commuting along field margins. The bats moving along hedgerows through the arable landscape were largely pipistrelle species (common and soprano pipistrelles), however *Myotis* species were occasionally recorded. Noctules were also recorded in the arable landscape, however as this species often commutes across sites flying much higher it is most likely they were exhibiting this behaviour as opposed to commuting along hedgerows.

8.8.81. Results of note within the arable areas of the Order Limits, specifically to the north of Hungerley Hall Farm west of the A46, include a large number (283) of *Myotis* species calls which were recorded during automated surveys along a hedgerow. This number was higher relative to the number of calls from this species group recorded in the arable land in other automated survey periods and walked transect surveys. However, it should be noted these calls could originate from a single bat foraging for a period of time, as opposed to be a reflection of numbers of multiple *Myotis* bats.

8.8.82. Surveys of three potential crossing point locations have confirmed a small number (less than five) of confirmed bat crosses in any one survey. Bats confirmed crossing at the Hungerley Hall Farm accommodation overbridge include soprano pipistrelle, common pipistrelle and noctule while the latter two species have been confirmed crossing the A46 at the Walsgrave Hill Farm accommodation overbridge. ES Appendix 8.7 (Bat Crossing Point Report) (**TR010066/APP/6.3**) includes full detailed results of the crossing point surveys.

8.8.83. The bat populations are considered of **county importance.**

Badger

8.8.84. The desk study identified badger setts within the wider area, beyond the 50m study area. The desk study also identified four records of badger road casualties on the A46 including two to the north of the existing Walsgrave Junction and two to the south, and one further road casualty within the residential area to the south-west. Additionally, a badger road casualty was identified close to the proposed dumbbell junction during ecological surveys in 2022.

8.8.85. Badger presence within the study area has been established and includes one partially active subsidiary sett within the Order Limits (sett 1) and a second partially active subsidiary sett approximately 35m from the Order Limits (sett 2). Outside of the study area a further two active outliers, approximately 120m (sett 4) and 170m (sett 5) from the Order Limits, and one active main sett approximately 230m (sett 3) from the Order Limits, were identified (see confidential ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**).

8.8.86. Badger use of Hungerley Hall Farm accommodation overbridge to cross the A46 has been confirmed through camera trap monitoring.

8.8.87. Due to the sensitive nature of the data, sett locations are not detailed within this Chapter and are not shown on ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**). This information, in addition to detailed survey information, has been included within confidential ES Appendix 8.2 (Badger Report) (**TR010066/APP/6.3**).

8.8.88. The badger population within the baseline is considered to be of **local importance**.

Reptiles

8.8.89. The desk study identified records of grass snake and slow worm within 2km of the Order Limits.

8.8.90. Habitat within the Order Limits suitable to support reptile populations is limited to small areas of scrub and grassland within the highway boundary and small areas of field margin habitat. This suitable habitat is isolated and located within an otherwise largely unsuitable arable landscape. As such it is considered unlikely that reptiles are present within the Order Limits and targeted surveys were not identified as a requirement. As their presence cannot be ruled out, should any reptiles be present within the Order Limits it is considered most likely it would be a small population due to the limited area of suitable habitat.

8.8.91. Given this, reptiles are considered to be **important at the 'site' level only.** As such no impact assessment has been undertaken for reptiles, however mitigation is required on a precautionary basis due to their protection under the WCA 1981 (as amended).

Otter

8.8.92. The desk study identified two records of otter within 2km of the Order Limits both located on the River Sowe, the closest of which was recorded approximately 0.75km from the Order Limits. Further historical records were identified, including one on Smite Brook to the east of Coombe Pool and the Order Limits and one on the River Sowe at Clifford Bridge Road to the west of the Order Limits.

8.8.93. Six waterbodies (including the River Sowe, Smite Brook, Coombe Pool and three unnamed watercourses) were identified within the study area and surveyed for otter. Five additional watercourses were scoped out due to being dry during both the September 2022 and the May 2023 survey visits. A further three watercourses/sections of watercourses were scoped out as no works are proposed which would directly impact watercourses within 200m up- or downstream of these watercourses/sections of watercourse and no works would impact the riparian habitats immediately adjacent to the channels.

8.8.94. Three otter couches were identified on the northern banks of Coombe Pool, one couch was identified on Smite Brook and one couch was identified on the River Sowe. Numerous feeding remains were also identified on the northern banks of Coombe Pool. The otter couches on the banks of Coombe Pool are located approximately 65m south of the mitigation planting works (shown on Sheet 2 of ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) with the closest to the main works approximately 200m away. The couch on Smite Brook is 110m from main works and 65m from the Order Limits. The couch on the River Sowe is approximately 185m from main works and 160m from the Order Limits.

8.8.95. Full details of the otter surveys are presented within ES Appendix 8.10 (Otter and Water Vole Report) (**TR010066/APP/6.3**). Otter couches and field signs can be seen on ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**).

8.8.96. Otter is considered of **county importance.**

Water vole

8.8.97. The desk study identified numerous historical records of water vole including records located on Coombe Pool, Smite Brook within Coombe Abbey, Withybrook and its tributaries and tributaries of the River Sowe. Furthermore, the

citations of designated sites, notably Coombe Abbey LWS and Coombe Abbey Pool Ecosite, include water vole (see Table 8-13). One record of water vole dated 2019 was identified however this was situated at Antsy Park 3.13km from the Order Limits.

8.8.98. Six waterbodies (including the River Sowe, Smite Brook, Coombe Pool and three unnamed watercourses) were identified within the study area and assessed for water vole. Further watercourses were identified and scoped out as detailed in previously within this section with regards to otter.

8.8.99. Stretches of watercourse considered optimal for water vole exist within the study area on the River Sowe and Smite Brook, with further sections of both watercourses considered to be sub-optimal. Sub-optimal habitat is also present on Coombe pool and two of three unnamed watercourses (see ES Figure 8.2: (Ecological Constraints) (**TR010066/APP/6.2**)).

8.8.100. Three instances of potential signs were recorded, including two potential burrows and one potential feeding station, however following lack of definitive field signs water vole are considered absent from the study area and are not considered further in this chapter.

8.8.101. Full details of the water vole surveys are presented within ES Appendix 8.10 (Otter and Water Vole Survey Report) (**TR010066/APP/6.3**). Update surveys would be undertaken in 2025 and would include a re-visit of all watercourses scoped in, including those which were previously dry.

Hazel dormouse

8.8.102. The desk study identified one historical record from 1905 located at Brandon Wood approximately 1.6km south of the Order Limits. The species have recently been recorded within the wood where they have been reintroduced however there is no connectivity, via hedgerows and/or woodland, between the wood and the Order Limits. This area comprises unsuitable arable and urban land, including roads. The species distribution in the area is very localised with presence at only a few sites in the county.

8.8.103. Within the Order Limits woodland habitat is limited to the highway boundary woodland and a small area of the woodland within Coombe Pool SSSI. The woodland within the SSSI and the majority of the highway boundary woodland lacks a continuous shrub layer and as such is unsuitable for dormouse. Hedgerows are present within the Order Limits however they are present within the wider unsuitable arable landscape and not connected to large areas of woodland. Therefore, dormice are not considered further within this ES Chapter.

Fish

8.8.104. There were no records of fish identified in the desk study within 2km of the Order Limits. There is expected to be a diverse assemblage of fish present within Coombe Pool, Smite Brook and the River Sowe. An Environment Agency consultation response (dated 23 July 2023) to the Environmental Scoping Report (National Highways, June 2023) reported that the River Sowe is a Salmonid river and suggested that brown trout *Salmo trutta,* bullhead *Cottus gobio* and European eel *Anguilla anguilla* are considered within the assessment due to the presence of historic records.

8.8.105. No direct impacts to any permanently wet watercourses are anticipated as part of the Scheme however fish, including brown trout, bullhead and European eel, have been scoped into the assessment to assess indirect impacts (for example, from changes in water quality and disturbance associated with lighting). Direct impacts will occur to a number of drainage ditches within the arable land which are considered to only sporadically, ephemerally hold water and as such are unlikely to contain fish.

8.8.106. The fish populations have been assessed as important at a **local level**, with the exception of European eel which is considered important at a **county level** due to the decline within the species across Europe.

Invertebrates – white-clawed crayfish

8.8.107. The Environmental Assessment Report at the options selection stage identified desk study information recording signal crayfish *Pacifastacus leniusculus* within the River Sowe in 2012 and concluded that as such the native species is likely absent. An updated desk study undertaken to inform this ES has not identified any records of either the invasive species or the native species of crayfish. No direct impacts to the channel or banks of Smite Brook are anticipated. Therefore, white-clawed crayfish are not considered further within this ES Chapter.

Invertebrates – all other terrestrial and aquatic species

8.8.108. The desk study identified records of purple emperor *Apatura iris*, white-letter hairstreak *Satyrium w-album*, buff ermine *Spilosoma lutea*, cinnabar *Tyria jacobaeae,* sallow *Cirrhia icteritia*, shaded broad-bar *Scotopteryx chenopodiata* and small heath *Coenonympha pamphilus*. All records are located >0.75km from the Order Limits. All species identified within the desk study are listed on Section 41 of the NERC Act 2006 (as amended), with the exception of the purple emperor. Habitats within the Order Limits are common and widespread, and habitat creation would include woodland, grassland, hedgerows and scrub

habitats as mitigation and compensation which would create habitat for terrestrial invertebrates.

8.8.109. The Scheme will not directly impact any waterbodies with the exception of a number of ditches within the arable land which are considered to sporadically hold water and for less than four months of the year and as such are unlikely to be of value to aquatic invertebrates.

8.8.110. As such notable invertebrates have not been considered further within this ES.

Notable plants (excluding invasive non-native species)

8.8.111. There were no records of notable plant species identified in the desk study and none were identified within the Order Limits during ecological baseline surveys. Therefore, notable plants have not been considered further within this ES.

Other notable species (Section 41 NERC Act 2006 species) – including hedgehog, polecat and brown hare

8.8.112. The desk study identified hedgehog *Erinaceus europaeus,* "true polecat" *Mustela putorius* and brown hare *Lepus europaeus* within 2km of the Order Limits. Habitat suitable for brown hare within the Order Limits includes the extensive arable land. Habitat suitable for hedgehog within the Order Limits is more limited to marginal habitats including hedgerows, field margins and woodland edges. True polecats if present may utilise the hedgerows, grassland and woodland habitats within the Order Limits.

8.8.113. Hedgehog, brown hare and polecat are considered important at a **local level**.

Invasive non-native species

8.8.114. Records of invasive non-native plant species (INNS) listed on Schedule 9 of the WCA 1981 (as amended) were identified within the desk study, however all records were ≥500m from the Order Limits.

8.8.115. Rhododendron is extensive throughout the Coombe Abbey Park woodland to the south-east of the Walsgrave Junction, including within the area of woodland which is partially within the Order Limits. Himalayan balsam *Impatiens glandulifera* has been identified on the banks of the River Sowe to the north-west and west of the Order Limits, and on the banks of Smite Brook to the east of the A46 culvert (outside of the Order Limits) and south of the B4082 culvert within the Order Limits during Modular Physical River surveys undertaken in June 2024.

8.8.116. The desk study identified records of the Schedule 9 fauna species Canada goose *Branta canadensis,* American mink *Neovison vison* and Wels catfish *Silurus glanis* within 2km of the Order Limits. Invasive non-native fauna listed on Schedule 9 identified during targeted ecological surveys include Egyptian goose *Alopochen aegyptiacus* and ring-necked parakeet *Psittacula krameri* identified within the breeding bird surveys, both species confirmed non-breeding.

8.8.117. Invasive non-native species listed on Schedule 9 of the WCA 1981 (as amended) are a controlled species and as such are scoped in for consideration within this ES.

Future baseline

8.8.118. Increasing development and housing in the area could put more pressure on the remaining natural habitats which may affect the local population and distribution of species and alter habitats present around the Scheme. The habitats and species within the SSSI are likely to remain protected by current legislation. It is likely that some areas of habitats used recreationally and for agriculture would remain but may become fragmented if large-scale housing developments and industrial developments occur in the area.

8.8.119. Any effect from climate change would be unlikely to significantly alter the land use, and therefore the habitats, prior to construction of the Scheme. Long term impacts from climate change could alter the species composition and types of habitats in and around the site, and therefore types and diversity of fauna. However, it is not anticipated that the combined impact of the Scheme and climate change would be any different to the impact of climate change in isolation (i.e. without the Scheme) as the habitats that would be created as part of mitigation proposals would be the same types as those found in the local area at the current time.

8.9. Potential impacts

8.9.1. Impacts within this section and its subsections are detailed prior to consideration of any mitigation (Section 8.10). Ecological features of local importance or higher, in accordance with DMRB LA 108, are taken forward for impact assessment. Those features considered important at a ‘site level’ only and not considered to qualify as being of local importance in accordance DMRB LA 108, are not subject to a full impact assessment. Where features not qualifying as being of ‘local importance’ are included within this chapter, reasoning has been provided for their inclusion, this is typically because they are protected under legislation or controlled through legislation and are included to demonstrate compliance.

8.9.2. Potential impacts are categorised as either constructional or operational impacts dependent upon the phase in which the impact was initiated (for example, permanent loss of a habitat type is classed as a construction impact as the habitat would be removed during construction, regardless of that habitat's ongoing absence during operation).

8.9.3. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) discusses potential impacts upon ecological features from nitrogen (N) deposition and ammonia (NH_3) deposition. ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**) discusses potential impacts upon ecological features from noise and ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.3**) discusses potential impacts upon ecological features due to hydrological changes. These impacts are listed in the below section in summary but have been scoped out from further assessment in this chapter.

8.9.4. Table 8-19 identifies the potential impacts during the construction and operational phase on each ecological feature. Further explanation of the type of impact is provided below the table.

Table 8-19: Potential impacts upon ecological features during construction and operation

Ecological feature	Potential impacts during construction	Potential impacts during operation
Coombe Pool SSSI	Habitat degradation due to runoff (water pollution), dust (air pollution) and spread of rhododendron. Disturbance to birds due to vibration, lighting and/or noise from construction activities. Habitat loss and loss of trees due to works in root protection zone.	Habitat degradation due to runoff (water pollution) and changes in air quality (N and NH_3 deposition). Reduction in availability of food sources for birds due to air quality (N and NH_3 deposition). Disturbance to birds due to noise and lighting.
Herald Way Marsh SSSI and LNR	Degradation of habitat due to changes in groundwater levels affecting the GWDTE.	Habitat degradation due to changes in air quality (N and NH_3 deposition). Potential impacts to the GWDTE due to changes in groundwater.
Stoke Floods LNR	Habitat degradation due to runoff (water pollution).	Habitat degradation due to runoff (water pollution).
Willenhall Wood LNR and LWS	None.	Habitat degradation due to changes in air quality (N, NH_3 and NO_x).
Stonebridge Meadows LNR	None.	Potential impacts on LNR due to changes in air quality (N and NH_3 deposition).
Gainford Rise LWS	Habitat degradation due to runoff (water pollution) and dust (air pollution) from construction activities.	Habitat degradation due to runoff (water pollution) and changes in air quality (N and NH_3 deposition).

Ecological feature	Potential impacts during construction	Potential impacts during operation
Coombe Abbey LWS	Habitat degradation for notable features (birds, otter, water vole, invertebrates) due to runoff (water pollution), due to hydrological connection to Smite Brook via a ditch, dust (air pollution), disturbance due to vibration and/or noise from construction activities.	Habitat degradation for (birds, otter, water vole, invertebrates) due to runoff and disturbance due to noise.
Stoke Floods LWS	Habitat degradation due to runoff (water pollution) associated with construction activities.	Habitat degradation due to runoff (water pollution).
Sowe Valley Dorchester Way LWS	Habitat degradation due to runoff (water pollution), due to connection via drainage ditches, and air quality (dust) associated with construction activities.	Habitat degradation due to runoff (water pollution) and changes in air quality (N and NH_3 deposition).
Baginton Fields LWS	None.	Habitat degradation due to changes in air quality (N, NH_3 and NO_x).
Sowe Valley Wyken Croft to Ansty Road LWS, Lower Sowe Meadows LWS, Herald Way Marsh (Claybrookes Marsh) LWS, Stretton Croft LWS, Piles Coppice LWS and Stonebridge Meadows LWS	None.	Habitat degradation due to changes in air quality (N and NH_3 deposition).
Hungerley Hall Farm Ecosite	Permanent and temporary habitat loss.	None. Direct impacts only considered for Ecosites (see Table 8-1).
Coombe Abbey Pool Ecosite	Permanent habitat loss. Degradation of habitats due to the spread of the INNS rhododendron and/or Himalayan balsam.	None. Direct impacts only considered for Ecosites (see Table 8-1).
Priority habitats: hedgerows	Permanent loss of native hedgerows within land north of the A46 Walsgrave Junction. Degradation due to runoff (water pollution) and dust (air pollution) from construction activities.	Degradation due to runoff (water pollution).
Priority habitats: coastal and floodplain grazing marsh, deciduous woodland	Degradation due to runoff (water pollution) and dust (air pollution) from construction activities.	Degradation due to runoff (water pollution).
Priority habitats: lowland fens	Degradation due to runoff (water pollution) from construction activities.	Degradation due to runoff (water pollution).

Ecological feature	Potential impacts during construction	Potential impacts during operation
Ponds	Degradation to three ponds, including one confirmed as priority habitat, from air quality (dust), four ponds through runoff (water pollution). Potential water level changes on a further three ponds located in proximity (<55m) to the Order Limits through changes in runoff.	Degradation of four ponds due to runoff (water pollution).
Ancient woodland (irreplaceable habitat)	None.	Habitat degradation of six parcels of ancient woodland due to changes in N and NH_3 deposition.
Veteran trees (irreplaceable habitat)	Damage to one veteran tree from air quality (dust).	Damage to trees due to changes in N and NH_3 deposition.
Great crested newt	Permanent loss of potential terrestrial habitat to the footprint of the new dumbbell junction and A46 mainline. Injury/mortality during site clearance and throughout the construction phase.	Increased mortality due to new areas of road including the dumbbell junction.
Breeding birds (outside Coombe Pool SSSI)	Loss of habitat (nest sites and foraging resource). Habitat fragmentation. Injury/mortality from site clearance. Disturbance due to noise and vibration, visual stimuli, dust and light spill from construction activities.	Changes in noise and lighting resulting in loss of suitably undisturbed habitat. Mortality to birds from vehicle collisions due to the creation of new road areas including the proposed dumbbell junction and B4082.
Barn owl	Loss of habitat (foraging resource) from indirect impacts associated with dust deposition and hydrological impacts. Disturbance due to noise and vibration, dust (air pollution) and lighting.	Disturbance due to noise and lighting from the new road layout being closer to potential nest sites at Hungerley Hall Farm and associated loss of suitably undisturbed habitat. Mortality to birds from the creation of new road areas including the proposed dumbbell junction and B4082.
Wintering birds	Loss of habitat (roost sites and foraging resource) from site clearance. Habitat fragmentation. Disturbance due to noise and vibration, dust (air pollution), visual stimuli and light spill from construction activities.	Disturbance due to noise and lighting and associated loss of suitably undisturbed habitat. Mortality to birds from the creation of new road areas including the proposed dumbbell junction and B4082.
Bats (roosting, commuting and foraging)	Injury/mortality during construction. Loss of potential roosting locations. Loss of foraging and commuting habitat. Disturbance due to noise, vibration and lighting. Habitat fragmentation.	Disturbance due to changes in noise and lighting and associated loss of suitably undisturbed habitat. Mortality to bats from the creation of new road areas including the proposed dumbbell junction and B4082.

Ecological feature	Potential impacts during construction	Potential impacts during operation
Badger	Loss of a subsidiary sett. Loss of potential foraging habitat. Disturbance due to noise, vibration and lighting. Fragmentation and severance of habitat through the construction of the new B4082. Injury/mortality during site clearance and construction works.	Disturbance due to changes in noise and lighting and associated loss of suitably undisturbed habitat. Increased mortality from incidents on newly created roads including the proposed dumbbell junction and B4082.
Otter	Loss of terrestrial habitat. Degradation of aquatic habitat through changes to run-off (water pollution) including decrease of food source (fish). Disturbance due to noise, vibration and lighting. Potential mortality and injury during site clearance and construction works. Potential fragmentation of habitat due to avoidance of areas with higher disturbance.	Degradation of habitat due to due to changes in runoff (water pollution). Disturbance due to changes in noise and lighting and associated loss of suitably undisturbed habitat.
Fish	Habitat degradation and potential increase in disease and mortality due to changes to runoff (water pollution). Disturbance due to lighting. Potential fragmentation of habitat due to avoidance of areas with lighting disturbance.	Habitat degradation due to changes to runoff (water pollution). Disturbance due to lighting. Potential fragmentation of habitat due to avoidance of areas with lighting disturbance.
Other notable species – hedgehog, brown hare, polecat	Injury/mortality during site clearance and construction works. Fragmentation of habitat due to the construction of the new B4082. Loss of potential habitat. Potential disturbance due to noise, vibration and lighting.	Increased mortality from incidents on newly created roads including the proposed dumbbell junction and B4082.

Construction

Habitat loss

8.9.5. Habitat loss would include areas permanently lost to areas of new carriageway, including the B4082, re-alignment of the A46 mainline and the construction of the new dumbbell junction. Further areas of habitat will be lost to temporary works to facilitate construction of the Scheme including working areas and the satellite compound. Habitat which would be lost includes cereal crops, modified grassland, other broadleaved woodland, bramble scrub and mixed scrub. Areas of cereal crop would be temporarily lost for construction areas and reinstated.

8.9.6. There would be some habitat loss of approximately 0.19ha within Coombe Pool SSSI and Coombe Abbey Pool Ecosite to facilitate replacement fencing along the SSSI and highway boundary fence line. Works at this location would require pruning/felling of understorey shrubs. Whilst mature canopy trees would be retained, as the understorey is being removed and the ground layer directly impacted this is assessed as a loss of woodland ecosystem. Adverse indirect impacts upon the SSSI and Ecosite woodland are also anticipated as environmental bund construction works would take place within the root protection zone (RPZ) of the SSSI woodland (as identified by the arboricultural impact assessment as detailed in ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**)).

8.9.7. Hungerley Hall Farm Ecosite would be directly impacted by the Scheme due to permanent and temporary habitat loss to facilitate the construction of the new dumbbell junction and re-alignment of the B4082. Habitats within the Ecosite subject to permanent loss would include cereal crops, hedgerows, other broadleaved woodland, modified grassland, bramble scrub and mixed scrub. Post-construction landscaping would re-instate habitats in areas of temporary land take.

8.9.8. No LWSs, ancient woodland or veteran trees would be directly impacted by the Scheme.

8.9.9. Habitat loss would include loss of priority habitat via the removal of sections of native hedgerow as detailed in Section 8.11.

8.9.10. One subsidiary badger sett would be lost to the realignment of the A46 mainline and construction of the new B4082.

8.9.11. Habitat loss would also include loss of habitat suitable to support protected and notable species including breeding birds, badger, wintering birds, bats, polecat, barn owl, hedgehog, brown hare, common amphibians, invertebrates, common reptiles and GCN. The loss of cereal crop would reduce the amount of available nesting habitat for the county important skylark and foraging habitat for both this species and the county important linnet.

Habitat fragmentation

8.9.12. Habitat fragmentation occurs where areas of habitat suitable for a species which were previously connected become smaller, disconnected areas of suitable habitat separated by unsuitable habitat. As the Scheme includes the realignment of the existing dual carriageway and construction of a new dumbbell junction, habitat fragmentation impacts would occur from the construction of the new B4082 and dumbbell junction only. The new B4082 alignment would result in

habitat between the B4082 and A46 mainline becoming fragmented from habitat to the west.

8.9.13. Temporary habitat fragmentation may also occur during the construction phase through removal of sections of hedgerow to facilitate construction.

Habitat degradation - air quality impacts

8.9.14. Air quality impacts in relation to N deposition, NH_3 deposition and NO_3 during construction have been scoped out within ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**). Therefore, construction air quality changes (with the exception of dust) are not anticipated to result in impacts upon ecological features and have also been scoped out of this Chapter and ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**).

8.9.15. Construction has the potential to create dust from activities such as earthworks and trackout which can cause habitat degradation and negatively impact sensitive ecological features. Dust can reduce the ability of plants to undertake photosynthesis, respiration and transpiration via the reduction of light reaching foliage surfaces and can also chemically alter soils and watercourses which can impact habitats and species. Where long-term works occur adjacent to a sensitive feature dust can lead to increased susceptibility to pathogens and air pollution. Dust originating from road surfaces has been found to carry pollutants which can cause adverse impacts upon water quality relating to pH, alkalinity, dissolved oxygen and turbidity (Dixon *et al.,* 2022).

8.9.16. Should habitats be impacted by dust, indirect impacts may then occur upon species which rely on these habitats, including abandonment of nests, roosts or resting places or a reduction in the suitability of the habitat for the species.

8.9.17. The dust risk potential for the Scheme, as detailed in ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**) in accordance with DMRB *LA 105*, has been identified as 'large'. As such the construction dust risk potential for features within 0m – 100m of the Order Limits is considered 'high' and the risk for features within 100m – 200m is considered 'low'.

Habitat degradation - hydrological impacts

8.9.18. Potential hydrological impacts could occur during construction from changes to surface waters which ecological features could be sensitive to. Hydrological changes could include water quality changes, such as through accidental spillage, the use of polluting substances and sediment pollution. Water quantity

changes can also occur when less water is available for ecological features or when too much water (i.e., flooding) occurs.

8.9.19. Potential impacts include impacts from changes to groundwater levels, flows and quality. This can be due to the presence of below-ground structures built for the Scheme. Such structures could result in barriers and changes to groundwater flows.

8.9.20. Changes in hydrology are discussed in full in ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**).

Disturbance

8.9.21. Disturbance to ecological features could result from changes in noise, light, vibration and/or visual stimuli during construction. Particularly sensitive features include the qualifying features of Coombe Pool SSSI. Other designated sites (with species noted in their citations) which could be impacted by disturbance due to noise, vibration and/or lighting include Coombe Abbey LWS for which otter is listed in the citation.

8.9.22. Disturbance may also impact upon species that may be present within and/or nearby the Order Limits including badger, otter, hedgehog, bats, birds, fish, polecat and brown hare.

8.9.23. Disturbance (through noise, vibration and/or lighting) could lead to species abandoning habitat, including potential nest sites (birds), roost sites (bats and wintering birds) and resting places (otter) in addition to foraging and commuting habitat. Avoidance of habitat due to disturbance could lead to habitat fragmentation for otter and fish, the former of which have been confirmed to use the watercourse corridor of Smite Brook.

8.9.24. The proximity of works to Hungerley Hall Farm could cause disturbance from noise, vibration and/or lighting to potential bat roosts.

Operation

Hydrological impacts

8.9.25. Changes to surface water quantity and quality during the operational phase could occur through road runoff and accidental pollution events. Water quality impacts can then impact aquatic habitats and species within the watercourse which could also act as an indirect impact pathway to designated sites, habitats and species present downstream.

8.9.26. Changes in hydrology are discussed in full in ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**).

Habitat degradation – air quality impacts

8.9.27. Changes in N deposition, NH_3 deposition and NO_3 during operation due to changes in road traffic could lead to habitat degradation. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) provides an assessment of impacts of air quality changes during operation (excluding dust which is covered in the main body of this Chapter) upon ecological features.

8.10. Design, mitigation and enhancement measures

Design

8.10.1. The development of the Scheme design has been an iterative process. The environment team has worked in close collaboration with the infrastructure design team to avoid or reduce environmental impacts through the Scheme design. This is referred to as embedded (or design) mitigation. The principles of the design and mitigation hierarchy outlined in DMRB LA 104 Environmental Assessment and Monitoring have been followed. The first principle being to avoid potential adverse effects, if at all feasible, before seeking to minimise or mitigate for any unavoidable impacts. Embedded mitigation for the Scheme is reported in ES Chapter 2 (The Scheme) (**TR010066/APP/6.1)**.

8.10.2. Scheme design principles adopted to avoid or prevent adverse environmental effects are set out within the Scheme Design Report (**TR010066/APP/7.4**). This includes general principles and specific commitments that will inform the detailed design of the scheme. ES Chapter 3 (Assessment of Alternatives) (**TR010066/APP/6.1**) details the design alternatives that have been considered, including the environmental factors which have influenced the decision-making.

8.10.3. The Scheme design developed during the preliminary design stage incorporates any mitigation measures for baseline ecological features in accordance with the mitigation hierarchy as set out within CIEEMs Guidelines for Ecological Impact Assessment (2018).

8.10.4. Adverse impacts of the Scheme on ecological features would as a first measure be avoided where feasible, and where they cannot be avoided would be appropriately mitigated for. If required compensation would be undertaken where significant residual effects upon ecological features exist after mitigation in accordance with DMRB LD 118. Compensation measures are not anticipated for the Scheme.

Mitigation

8.10.5. Mitigation is included in the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**). The First Iteration EMP secured by Requirement 2 of the draft DCO (**TR010066/APP/3.1)** will be developed into the Second Iteration EMP for implementation during construction which is secured by Requirement 4 of the draft DCO (**TR010066/APP/3.1**) (Commitment G1 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). Further information on the First Iteration EMP is provided within Section 4.8 of ES Chapter 4 (Environmental Assessment Methodology) (**TR010066/APP/6.1**).

Construction

8.10.6. This section summarises the mitigation required during the construction of the Scheme. Unless stated, all mitigation is considered to be embedded as it follows best practice measures and/or is required to achieve compliance with legislation.

General

8.10.7. The following measures or principles based on good practice guidance are relevant to ecology and included within the REAC (Appendix A within the First Iteration EMP (**TR010066/APP/6.5**)):

- Update surveys undertaken in 2025 (prior to construction) for the following ecological features to ensure an updated baseline prior to works to inform mitigation against a contravention of law: GCN, barn owl, bats, badger, otter and water vole (Commitment BD2 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).
- An Ecological Clerk of Works (ECoW) to be employed to provide advice and monitor the works' adherence to the EMP and construction mitigation measures, including supervision of site clearance and other activities during the construction phase where appropriate (Commitment BD3 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). The ECoW would, following assessment of each area, confirm the requirement for appropriate supervision or otherwise. No vegetation would be cleared without an assessment by an ECoW and supervision, if required
- Timing of works to avoid sensitive seasons for protected species where feasible and advised by the ECoW. Where this cannot be achieved appropriate mitigation would be employed (Commitments BD4 and BD5 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).
- Where appropriate and managed by the ECoW, pre-clearance inspections and sensitive felling techniques (Commitment BD3 in the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

- Establishment, monitoring and maintenance of exclusion zones where appropriate to protect habitats and/or protected species as directed by the ECoW.
- Management of works areas to reduce risk of encouraging species into them, where feasible, and reduce potential sources of injury. This would include consideration to the storage of materials in working areas and the satellite compound and covering of trenches/excavations overnight, or else insertion of a ramp into them. This may also include the maintenance of habitat in an unsuitable condition for species.
- Where the ECoW deems it beneficial, raising of temporary fencing off the ground or installation of regular gaps within the fencing where feasible to allow animal passage through. Where animal passage would be considered to create a risk of mortality as assessed by the ECoW then fencing would be installed to reduce likelihood of animals passing through.
- Construction lighting would minimise light spill, in particular into retained habitat (including woodland) and linear features such as Smite Brook and hedgerows (Commitment G3 in the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

8.10.8. Measures to reduce noise during construction are detailed within section 11.10 of ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the Environmental Statement Addendum (ESA) (Construction Noise Impacts on Coombe Pool SSSI) (**TR010066/EXAM/8.22**). Mitigation would include a temporary noise barrier for construction works near Coombe Pool SSSI.

8.10.9. Mitigation against impacts to retained trees and woodland, including within Coombe Pool SSSI and the veteran oak tree (T12), due to works within the RPZ is detailed within ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**).

8.10.10. Mitigation relating to surface water and groundwater (including pollution prevention measures) are detailed within section 13.10 of ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**) and within the First Iteration EMP (**TR010066/APP/6.5**).

8.10.11. As detailed within ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**) the First Iteration EMP (**TR010066/APP/6.5**) includes mitigation measures against construction dust in compliance with DMRB LA 105.

Coombe Pool SSSI

8.10.12. As detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the Environmental Statement Addendum (ESA) (Construction Noise Impacts on Coombe Pool SSSI) (**TR010066/EXAM/8.22**) mitigation for noise impacts

upon qualifying features of Coombe Pool SSSI (wintering waterbirds including Shoveler and breeding waterbirds including grey heron) during the construction phase would include the use of a mitigation noise barrier for the duration of works which would result in exceedances of baseline noise levels by >3dB within the SSSI. The noise barrier will be installed in accordance with Commitment NV2 of the REAC, Appendix A of the First Iteration EMP (**APP-110**)). Months where baseline noise levels are exceeded by >3dB are provisionally considered likely to be the following:

- November 2026 (daytime)
- December 2026 (daytime)
- January 2027 (daytime)
- February 2027 (daytime)
- March 2027 (daytime)
- August 2027 (daytime)
- October 2027 (daytime)
- December 2027 (nighttime)
- February 2028 (daytime)
- March 2028 (daytime)
- June 2028 (nighttime)

8.10.13. However, until such a time as construction has commenced the above should be considered provisional as these may vary due to changes and/or delays in the programme and as such where exceedance occurs mitigation measures will be necessary. Exceedances >3dB are also identified in September 2026 (daytime) and September 2027 (daytime), however as these periods are outside the sensitive breeding and wintering seasons, which are relevant in terms of qualifying features of the SSSI, no monitoring is required in these months.

8.10.14. As a means of determining the effectiveness of the construction noise mitigation barrier, checks of Coombe Pool lake, both prior to works starting and during the works, will be undertaken to provide some mechanism to ensure any unforeseen impacts can be accounted for and mitigated. An Ornithological Specialist (OS) will undertake monthly site visits during construction works over the sensitive winter (including winter passage) periods (October to February) and during the breeding season (March to August). The OS will deliver toolbox talks to the onsite teams and provide advice or guidance should any works be found to cause disturbance.

8.10.15. The purpose of these visits will be to record the presence and behaviour of waterbirds within the acoustic impact zone of the works (areas of the SSSI where exceedance of baseline noise levels would be >3dB (see ES Figure 8.3 Proposed construction mitigation noise barrier – December 2026 daytime updated and resubmitted at Deadline 3 of the Examination, showing the extent of exceedance during the worst-case month within the breeding or wintering (including winter passage) seasons - December 2026)), noting any disturbance events caused by the works or otherwise and to note the circumstances in which any action had to be taken to stop works (see below). The monthly visits will likely take place at the beginning of the week on a Monday following the break over a weekend as birds may be utilising areas near to the site following the weekend when works may be limited. The focus of each month will the weeks of the highest noise generating activities. The target species will be the qualifying features of the SSSI including breeding waterbirds, grey heron and wintering waterbirds including shoveler.

8.10.16. The monitoring will be undertaken each breeding or wintering (including winter passage) month during construction where the SSSI would experience exceedances of baseline noise levels >3dB in consideration of the qualifying features of the SSSI including both breeding and wintering assemblages. Nocturnal monitoring, with the use of night vision aids, will be undertaken in those breeding or wintering (including winter passage) months where night works are to take place and where absolute noise during construction is in exceedance of background levels by >3dB (as identified within ES Appendix 8.16 as December 2027 and June 2028). Given that night works would be minimal, as opposed to ongoing daytime works, nocturnal monitoring would be undertaken immediately prior to each night shift (a night shift including works over multiple consecutive nights).

8.10.17. The OS will stop works if there are significant numbers of qualifying species within the acoustic impact zone which display signs of being disturbed by the works. In order to determine disturbance the OS will record the behaviour of birds that come into the impact areas and a surrounding buffer and use professional judgement to determine whether the works are causing disturbance. If birds are feeding, loafing or roosting without being disturbed (i.e. no flight response or ‘headsup’) then works can continue. If there is a significant response or if it is considered that significant numbers of birds are actively avoiding using suitable habitat closer to the works than they currently were, then works will be stopped. Works can restart once the birds have moved outside the impact area or observations indicated that they were content to remain at their original location.

8.10.18. Full details of the wintering season and breeding season monitoring works policy will be presented within an Ornithological Noise Monitoring at Coombe Pool SSSI Method Statement (hereafter referred to as Ornithological method statement) or similar produced as part of the Second Iteration EMP. This Ornithological method statement will be secured through Commitment BD10 of the REAC, Appendix A of the First Iteration EMP (**APP-110**) resubmitted at Deadline 3), compliance with which is secured through Requirement 4 of the draft DCO (**REP1-002**).

8.10.19. A cold works policy will be enacted to cover the winter period. All works will stop when a Severe Weather warning is issued, in line with the JNCC guidance (2025). This occurs whenever half of the weather stations in England record a minimum daytime temperature of lower than +1°C air temperature and -2°C grass temperature for 7 consecutive days in line with JNCC warnings around extreme weather events. Works will restart when 48 hours have passed that do not fulfil the criteria for freezing conditions (the temperature does not remain below 0ºC for eighteen consecutive hours). The OS would monitor the Met Office weather and any local weather station data alongside the JNCC website and will need to carefully review assemblage numbers and both the ongoing and proposed works, to ensure disturbance does not occur. Full details of the cold works policy will be presented within the Ornithological method statement or similar produced as part of the Second Iteration EMP.

8.10.20. The monitoring results during construction along with a summary of disturbance events, updated construction programme and a register of attendance for Toolbox talks will be kept to demonstrate compliance.

*Construction lighting (as described in ES Chapter 2 (The Scheme)) (**APP-024**) would avoid, as far as feasible, any lighting* of the SSSI*. Any task lighting close to* sensitive receptors (including the SSSI) *would be discussed with the ECoW prior to its use (Commitment G*3 *of the REAC, Appendix A of the First Iteration EMP (**APP-110**)).Non-statutory designated sites, veteran trees and priority habitats*

8.10.21. To avoid impacts on non-statutory sites, veteran trees and priority habitats the works would adhere to the First Iteration EMP (**TR010066/APP/6.5**) which would detail mitigation measures such as pollution prevention and dust mitigation to avoid adverse impacts from construction activities.

Great crested newt, reptiles and other notable species (hedgehog, brown hare and polecat)

8.10.22. Measures to mitigate against injury/mortality during the construction phase are detailed in full within the First Iteration EMP (**TR010066/APP/6.5**) and would

include ECoW supervision and associated measures during vegetation clearance during the active season (April to September inclusive) (Commitment BD4 in the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

8.10.23. Where feasible, above-ground vegetation clearance of suitable habitat would be undertaken during the hibernation season (November to February inclusive). No ground-breaking works would be undertaken, and no potential hibernacula (for reptiles, hedgehog or GCN) impacted, during the hibernation season (November to February inclusive). Where this is not possible, and ground-breaking works and/or works to hibernacula are required during the hibernation season (November to February, inclusive), habitat is to be cleared under the supervision of the ECoW and with appropriate mitigation measures within suitable conditions in the active season (March to October, inclusive). The cleared areas which are to be impacted during the hibernation season would be kept clear of habitat until works in the area commence (Commitment BD3 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

Breeding birds

8.10.24. To avoid adverse impacts on breeding birds, habitat clearance should take place outside of the core breeding bird season (March to August inclusive). Where this is not possible, and habitats are cleared within the core breeding bird season (March to August inclusive), they would be subject to appropriate checks by the ECoW (Commitment BD5 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

8.10.25. Pre-construction checks of suitable habitat would be undertaken for kingfisher for works in the vicinity of the suitable habitat during the core breeding bird season (March to August, inclusive), with appropriate standoff distances in place should active nests be identified. This would mitigate against disturbance to this species listed on Schedule 1 of the WCA 1981 (as amended) (Commitment BD5 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

Barn owl

8.10.26. The Scheme would include the installation of two barn owl boxes within Coombe Abbey Park (Commitment BD6 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). The surveys of the barns at Hungerley Hall Farm have been limited due to health and safety reasons associated with the structural integrity of the structures, and as the barns are suitable and barn owl are known within the area the provision of alternative nesting locations would provide mitigation (assuming they are present) for potential impacts on the species. This is considered to be essential mitigation. The barn owl boxes would

be installed prior to construction and would provide alternative habitat further from the works during the construction phase. Draft legal agreements for the installation have been issued to Coventry City Council (see Table 8-2).

8.10.27. Should updated surveys identify any trees within the Order Limits with potential to support barn owl that would be directly impacted by the works during the core breeding season (March to August inclusive) these trees and all their potential features would be subject to a check for active barn owl nests by a licensed ecologist prior to impact.

Wintering birds (outside of Coombe Pool SSSI)

8.10.28. Where feasible, vegetation clearance undertaken in winter would be staggered to retain availability of natural food sources for foraging birds within the Order Limits (Commitment BD7 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

Bats

8.10.29. Prior to directly impacting any trees with bat roosting potential appropriate mitigation measures and checks would be undertaken (Commitment BD8 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**).

8.10.30. Where feasible, trees with bat roosting potential that would be directly impacted (felling or partial felling/pruning), would be felled/pruned during September or October to avoid the periods when bats are most sensitive during the maternity and hibernation seasons (Commitment BD8 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**).

8.10.31. Should felling/pruning during September/October not be feasible, to avoid impacts to roosting bats utilising summer roosting opportunities trees that have been subject to complete aerial assessments and have been confirmed to lack potential roosting features with hibernation potential should be felled or partially felled within the bat hibernation season (November to March (Collins, 2016)) (Commitment BD8 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). Details of these trees are included in ES Appendix 8.5 (Bat Roost Report) (**TR010066/APP/6.3**).

8.10.32. To avoid impacts to roosting bats utilising hibernation roosting opportunities, trees confirmed as having hibernation potential and trees which have not been subject to thorough aerial assessment should be felled or partially felled within the bat active season (April to October (Collins, 2016)) (Commitment BD8 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**). Details of

these trees are included in ES Appendix 8.5 (Bat Roost Report) (**TR010066/APP/6.3**).

Badger

8.10.33. A Natural England licence will be sought to facilitate the closure and destruction of one active subsidiary sett (sett 1 on ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**)) (Commitment BD1 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). A draft licence application has been submitted (ES Appendix 8.13 (Draft Badger Mitigation Licence) (**TR010066/APP/6.3**)) to Natural England and a Letter of No Impediment (ES Appendix 8.14 (Natural England Letter of No Impediment) (**TR010066/APP/6.3**)) has been received on the basis of the information within the draft licence. Details of mitigation relating to the closure of the sett are included in ES Appendix 8.13 (Draft Badger Mitigation Licence) (**TR010066/APP/6.3**).

8.10.34. Surveys would be undertaken during 2025 and prior to construction to provide up to date information on sett presence/absence, status and classification of this highly mobile species (Commitment BD2 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

8.10.35. The Hungerley Hall Farm accommodation overbridge would remain unobstructed during construction to maintain this commuting route for badger and avoid habitat fragmentation (Commitment BD1 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). This is considered to be essential mitigation.

Otter

8.10.36. To avoid impacts on otters, construction works would adhere to mitigation measures, such as pollution prevention measures, which are detailed within the First Iteration EMP (**TR010066/APP/6.5**). The First Iteration EMP will be further developed into the Second Iteration EMP prior to construction (Commitment G1 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

8.10.37. Construction lighting (as described in ES Chapter 2 (The Scheme)) would avoid, as far as feasible, any lighting of the River Sowe and Smite Brook corridors. Any task lighting close to sensitive receptors would be discussed with the ECoW prior to its use (Commitment G2 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

Fish, common amphibians and aquatic invertebrates

8.10.38. To avoid impacts on fish the works would adhere to a Second Iteration EMP (**TR010066/APP/6.5**) which would be developed based upon the First Iteration EMP prior to construction (Commitment G1 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). Mitigation measures are included within the First Iteration EMP and include pollution prevention measures to avoid adverse impacts from construction activities. These are also described further in section 13.10 of ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**).

8.10.39. Construction lighting mitigation detailed above at paragraph 8.10.37 with respect to otters would mitigate for disturbance impacts on fish using Smite Brook.

INNS

8.10.40. An Invasive Non-Native Species Management Plan will be prepared in full as part of the Second Iteration EMP prior to construction commencing (Commitment BD9 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

8.10.1. Mitigation measures to prevent the spread of rhododendron and Himalayan balsam resulting from the works in and near the SSSI and Smite Brook, including the A46 realignment, environmental bund and fencing works, are detailed within the First Iteration EMP (**TR010066/APP/6.5**).

8.10.2. An update walkover survey would be undertaken in 2026 for INNS to identify and map the extents of species listed on Schedule 9 of the WCA 1981 (as amended) within the Order Limits and inform the production of an INNS Management Plan to accompany the Second Iteration EMP.

Operation

8.10.3. This section provides further details on the mitigation required for biodiversity for the implementation of the Scheme. Unless stated all mitigation is considered to be embedded.

General

8.10.4. The design of the Scheme and proposed working areas have been kept to a feasible minimum to reduce habitat loss with habitat temporarily lost to construction works focused on less ecologically valuable habitat such as the arable land within the Order Limits. Temporarily lost habitat would be restored to its pre-construction condition at the end of the construction period, avoiding and

mitigating the effect of habitat loss as well as that upon species during the operation of the Scheme.

8.10.5. In accordance with the guidance within the NPPF (Department for Levelling Up Housing and Communities (2023) and the NPS NN (Department for Transport, 2024) the Scheme design seeks to maximise biodiversity delivery. The Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) has been designed to be appropriate to those habitats lost whilst also providing more ecologically valuable habitat in some cases (for example in place of cereal crops) and would be composed primarily of native species and species recognised of being of higher benefit to pollinators and birds with regards to food sources.

8.10.6. Habitat creation will take place along the verges of the Scheme and within SuDS areas and would include species-rich grassland, amenity grassland, shrubs, ground cover, woodland, scrub, native hedgerows with trees, marsh and wet grassland and individual tree planting. Table 8-20 details habitat creation and retention (displayed on the Environmental Masterplan in ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) within the Order Limits and the change in habitat areas/lengths as a result of the Scheme. An area within the Order Limits to the north-east of the existing junction will be used for mitigation woodland planting to mitigate for loss of woodland due to the Scheme. Habitat creation would mitigate for the impacts of habitat loss upon species including GCN, breeding birds, wintering birds, bats, badger, hedgehog, brown hare and polecat.

Table 8-20: Changes in habitat areas / lengths as a result of the Scheme

Broad habitat type	Specific habitat	Baseline area (ha) / length (km)	Area (ha) / length (km) retained	Area (ha) / length (km) lost	Area (ha) / length (km) created	Change in area (ha) / length (km) post-construction
Cropland	Arable land	16.79	0.09	16.7	0	-16.7
Grassland	Modified grassland	1.54	0.33	1.21	3.01	+1.8
	Species-rich grassland	0	0	0	4.29	+4.29
Scrub	Bramble scrub	0.37	0.01	0.36	0	-0.36

Broad habitat type	Specific habitat	Baseline area (ha) / length (km)	Area (ha) / length (km) retained	Area (ha) / length (km) lost	Area (ha) / length (km) created	Change in area (ha) / length (km) post-construction
	Mixed scrub	0.36	0.15	0.21	2.13	+1.92
	Shrubs	0	0	0	0.24	+0.24
Woodland	Other broadleaved woodland	9.77	3.83	5.94	5.37	-0.57
Urban	Introduced shrub/vegetated garden	0.02	0.02	0	0.34	+0.34
Individual trees	Rural trees	0	0	0	612*	+612*
Hedgerows**	Native hedgerow	4.2	1.9	2.3	0.29	-2.01
	Native hedgerow with trees	0.22	0.06	0.16	2.09	+1.93
Watercourses**	Culvert	0.101	0.101	0	0	0
	Other rivers and streams	0.096	0.096	0	0	0

*trees are input as a count

**hedgerows and watercourse measurements are in as lengths (km)

8.10.7. Habitats created would be managed in accordance with the OLEMP within the First Iteration EMP (**TR010066/APP/6.5**) to maximise biodiversity delivery and ensure robustness of mitigation measures embedded within the Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)). An OLEMP has been prepared as part of the First Iteration EMP. The OLEMP details the management requirements of any landscape and ecological mitigation required post-construction.

8.10.8. Habitat connectivity along the Scheme would be achieved through the creation of native hedgerows and tree lines along the verges created as a vegetative

screen and to maintain the local landscape character of the area (ES Chapter 7 (Landscape and Visual Effects) (**TR010066/APP/6.1**)).

8.10.9. The drainage design for the Scheme, detailed within ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**), has been designed to mitigate surface water flood risk from the Scheme and impacts to surface water and groundwater quality.

8.10.10. Adverse impacts due to changes in water quality during the operational phase would be mitigated for by the drainage design, which includes proposed filter drains and three drainage features (SuDS), as detailed within ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**).

8.10.11. The proposed A46 mainline drainage system excludes a kerb which would mitigate for species mortality associated with a kerb and gully system, whereby animals have been found to commute along the kerb and become entrapped in the gullies. This would mitigate for injury/mortality to GCN within the carriageway areas associated with the gullies during the operational phase.

8.10.12. The lighting for the Scheme, including lighting of the B4082 link road, has been designed to minimise spill and does not include lighting of the A46 mainline, as detailed in ES Chapter 2 (The Scheme) (**TR010066/APP/6.1**) and Annex D: Road Lighting Assessment Report of ES Chapter 7 (Landscape and Visual Effects) (Commitment G3 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)). The Smite Brook riparian corridor would not be impacted by Scheme lighting. The operational lighting would be further designed at the detailed design stage in accordance with the Bat Conservation Trust and Institute of Lighting Professionals Bats and Artificial Lighting at Night (2023) with regards to wildlife sensitive lighting measures.

Statutory designated sites

8.10.13. To reduce potential impacts upon Coombe Pool SSSI the A46 mainline realignment has been situated at the maximum possible distance from the SSSI whilst still achieving the required 50mph speed limit at the location of the current junction.

8.10.14. Habitat loss within the SSSI (loss of trees due to works within the RPZ and removal of understorey to facilitate replacement fencing works) would be mitigated through planting of woodland habitat within the mitigation planting area (as shown on sheet 2 of the Environmental Masterplan ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) adjacent and directly connected to the SSSI woodland. Habitat creation multipliers (including strategic significance relevant to the mitigation planting area, difficulty of creation and time

to target condition allowing for a delay appropriate to the Scheme programme) within the Statutory Biodiversity Metric have been used as guidance to determine the appropriate area of mitigation planting to ensure a net gain in woodland habitat as mitigation for the SSSI woodland loss. To mitigate for approximately 0.19ha of SSSI woodland loss, planting of 0.34ha of woodland will be undertaken, which is a 1.73 replacement ratio. Whilst the planted woodland would be outside of the SSSI it would have direct connectivity with the impacted area of woodland.

Non-statutory designated sites

8.10.15. The design of the Scheme and proposed working areas have been kept to a feasible minimum to reduce habitat loss, both temporary and permanent, within Hungerley Hall Farm Ecosite and Combe Abbey Pool Ecosite.

8.10.16. Areas temporarily lost due to construction areas and the satellite compound during construction will be restored to their pre-construction condition (Commitment G6 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)), or will become part of the landscape planting proposals, which will avoid the impact of loss in these areas during operation. The Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) includes creation of habitat within Hungerley Hall Farm Ecosite including species-rich grassland, woodland, scrub and hedgerows with trees.

Priority habitats

8.10.17. Hedgerow removal has been minimised as far as feasible. The Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) includes the creation of 0.29km of native species-rich hedgerow and 2.09km of native species-rich hedgerow with trees.

Ancient woodland and veteran trees (irreplaceable habitat)

8.10.18. The design has taken into consideration the root protection zone (RPZ) of the identified veteran tree (T12). The badger fencing proposed along the B4082 as mitigation against badger mortality, requires burying to a depth of 600mm below ground level. This fencing has been moved outside of the veteran tree RPZ to avoid impacts to the veteran tree (refer to ES Figure 8.1 (Designated Sites, Priority Habitats and Veteran Trees) showing the location of T12 (**TR010066/APP/6.2**) and sheet 2 of the General Arrangement (**TR010066/APP/2.6**) showing the fencing in this location).

Great crested newt

8.10.19. The Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) includes the creation of terrestrial habitat suitable for GCN (including scrub, woodland, grassland and hedgerow with trees) along the Scheme, including within 500m of the two ponds identified as GCN breeding ponds. This habitat creation would mitigate loss of habitat to facilitate construction of the Scheme.

Breeding and wintering birds (outside of Coombe Pool SSSI)

8.10.20. The inclusion of species-rich grassland, scrub and woodland within the Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) would provide foraging habitat and nesting/roosting for many species and would include species of value to invertebrates and fruiting, berry-rich species to provide a foraging resource for birds. The inclusion of less-managed, species-rich grassland would create habitat which would be allowed to develop a taller sward at times of the year and would increase both invertebrate and small mammal populations providing a foraging resource. The creation of hedgerows within the environmental masterplan would create nesting habitat for linnet and yellowhammer nearby the species-rich grassland foraging habitat and would promote species re-colonising the Order Limits following construction. The grassland habitat would provide a year-round foraging resource for linnet, which would eat the seeds during the winter season and forage for grubs in the breeding season. Creation of woodland, scrub and hedgerow with trees habitat would provide potential nesting habitat for the county important song thrush and potentially contribute towards the Warwickshire, Coventry and Solihull Biodiversity Action Plan Species Action Plan for the species (Warwickshire Wildlife Trust, 2021).

8.10.21. Species included within the created habitats would include native fruit bearing species to provide a foraging resource, and native nectar-rich species which would support invertebrate populations and therefore another foraging resource for birds. Planting palettes would be chosen to extend the flowering season and where feasible maximise year-round interest.

8.10.22. Management of created habitats post-construction would be sympathetic to wintering birds and would include cutting of hedgerows in February to retain this foraging resource for birds throughout much of winter. Cutting would be on rotation and every two to three years to allow areas of older growth. This would be detailed within the LEMP further developed at the detailed design stage for the Second iteration EMP (Commitment LV1 of the REAC, Appendix A of the First Iteration EMP (**TR010066/APP/6.5**)).

Barn owl

8.10.23. Targeted mitigation for barn owl would include creation of taller screens of vegetation along the road verges to mitigate for barn owl mortality. Screening of the A46 mainline, the B4082 and the dumbbell junction has been maximised as far as feasible to reduce the amount of unscreened carriageway. Vegetation screens consist of hedgerows with trees, and in areas woodland blocks, which would, over time once grown up, force birds to fly up and over the carriageway. The location of vegetation screens has been influenced by the topography of the Scheme regarding carriageway in cutting and on embankment.

8.10.24. In addition to vegetation screens, the soft landscaping has been designed with consideration of the amount of suitable barn owl foraging habitat on road verges. The areas of less managed (with a taller sward height) species-rich grassland and more intensively mown, short grassland verges proposed within the soft estate have, following discussions with Natural England, been designed to balance limiting barn owl foraging habitat on the verge adjacent to the carriageways (to decrease the risk of collisions with vehicles) with creating areas of more ecologically valuable grassland of benefit to biodiversity. The differing areas of grassland have also been influenced by design requirement (such as maintenance access and sight lines) and the locations of vegetation screens and other habitats.

Bats

8.10.25. The Scheme has been designed to maximise retention of existing trees where feasible. Retained trees within, or partially within, the Order Limits include 12 individual trees and one group of trees identified as having roosting potential for bats.

8.10.26. Retention of the Hungerley Hall Farm accommodation overbridge would maintain this as a commuting route and crossing point over the A46 carriageway for bats. The Farber Road overbridge would not be impacted and as such is retained as a potential commuting route.

8.10.27. The Scheme does not include any lighting on the A46 mainline within the Order Limits as described in ES Chapter 2 (The Scheme) (**TR010066/APP/6.1**). This would avoid disturbance impacts associated with lighting for bats commuting along and across the A46 and utilising verge habitats in these areas for foraging, in addition to avoidance of lighting impacts for other species within the Order Limits (including birds, badger and other mammals).

8.10.28. Further mitigation for commuting and foraging bats would include minimisation of habitat loss and landscaping designed to provide shelter, foraging opportunities

and connected dark corridors throughout the Scheme. The vegetation hedgerow and tree screens planted along the verges to mitigate for barn owl mortality would also mitigate for bat mortality, forcing bats to fly up higher and over the carriageways. The vegetation screens would also provide a commuting corridor along the Scheme for bats commuting north and south.

8.10.29. Creation of woodland, scrub, SuDS, hedgerows and species-rich grassland areas would provide foraging habitat for bats. Species within the planting scheme would be native and species of benefit to invertebrates, which would in turn provide a foraging resource for bats.

8.10.1. Bat boxes would be installed to mitigate the loss of potential roosts from the Scheme. This is considered to be essential mitigation. Two or three bat boxes would be installed for every tree with moderate or high roosting potential that would be lost. Three boxes would be installed to mitigate the loss of one tree with high roosting potential. A further two boxes would be installed to mitigate potential loss of habitat due to change in roosting surrounds as one tree with moderate roosting potential would have its canopy partially felled to allow an access route for construction. The loss of trees with low roosting potential would over time be compensated for as planted trees and woodland matures and provides potential roosting habitat. The locations of the bat boxes will be proposed by Coventry City Council and agreed with the Applicant along with any ongoing maintenance required following installation.

Badger

8.10.2. The Scheme design includes the retention of the Hungerley Hall Farm accommodation overbridge which badgers currently use to cross the A46. Maintaining the bridge as a commuting route for badger (i.e. keeping the bridge open and unobstructed for badger) during construction would reduce severance of habitat, however some temporary severance during the construction phase is likely due to the construction of the B4082.

8.10.3. The Scheme includes the creation of a badger crossing beneath the B4082 to mitigate against badger mortality on the realigned B4082 as badgers cross the retained Hungerley Hall Farm accommodation overbridge. The crossing would also mitigate against habitat fragmentation, allowing badgers to safely continue to access previously accessible habitat to the west of the A46. The location of the crossing (approximately 120m north of the Hungerley Hall Farm accommodation overbridge as shown on Sheet 4 of the Works Plans (**TR010066/APP/2.3**)) has been situated as close to the existing commuting route as feasible considering the topography of the Scheme and B4082.

8.10.4. Badger-proof fencing and gateways (gate-sized holes in the fencing with no swinging gate attached) would be used alongside the crossing to reduce badger mortality and increase the likelihood of badgers locating the crossing. The badger crossing and fencing has been designed in accordance with the Manual of Contract Documents for Highway Works (MCHW) and through liaison with Natural England. Details of the fencing and crossing are included within ES Appendix 8.13 (Draft Badger Mitigation Licence) (**TR010066/APP/6.1**). The creation of this crossing would also provide a potential crossing for other species. The detailed design of the crossing and fencing will be finalised during the detailed design stage in consultation with Natural England.

8.10.5. The Hungerley Hall Farm accommodation overbridge would remain unobstructed during operation to maintain this commuting route for badger and avoid habitat fragmentation. This is considered to be essential mitigation.

Enhancement measures

General

8.10.6. As the baseline outside of the highway boundary is composed largely of arable land, with other habitats with more ecological value limited to hedgerows, small, isolated areas of grassland and very narrow field margins the environmental masterplan would deliver larger areas of habitat with a higher ecological value than arable land post-development. The creation of two permanently wet drainage ponds, hedgerows and lines of trees, species-rich grassland, woodland and scrub habitats along the Scheme would create more foraging habitat for birds, bats, badgers, hedgehogs and polecats within the Order Limits. As such the creation of these areas of scrub and grassland can be considered an enhancement, providing habitat for species including birds, bats, badgers, invertebrates, hedgehog and polecat. This enhancement of terrestrial habitats within the Order Limits would also enhance Hungerley Hall Farm Ecosite.

8.10.7. Two of the proposed drainage features would be designed to be permanently wet and planted with aquatic species. Given the absence of permanently wet aquatic habitat within the Order Limits, the creation of a permanently wet drainage pond is considered an enhancement for aquatic invertebrates, common amphibians and potentially otter, water vole and GCN should these species colonise.

Non-statutory designated sites, veteran trees and priority habitats

8.10.8. Habitat creation within Hungerley Hall Farm Ecosite (as reported in Section 8.11) is considered to go beyond mitigation for lost habitat and provide an enhancement of the Ecosite. The Ecosite prior to construction is largely arable

land, a habitat which is not listed on the Ecosite description, and as such the creation of more ecologically valuable habitat would deliver an enhancement of the Ecosite. Habitat area (excluding hard standing, buildings and arable land) within the Ecosite would increase from 6.25ha prior to construction to 13.49ha post-construction.

Breeding birds

8.10.9. As the Order Limits within the baseline (i.e. prior to construction) are very intensively managed agriculture, the creation of species-rich grassland as part of the Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) is considered to go beyond mitigation for habitat loss and constitute an enhancement with regards to foraging habitat for the county important species skylark and linnet. The grassland habitat would provide a year-round foraging resource for linnet, which will eat the seeds during the winter season and forage for grubs in the breeding season. Habitat creation overall would amount to 17.45ha of habitat including SuDS, woodland, marsh and wet grassland, species-rich grassland, amenity grass, shrubs, ground cover and scrub in addition to planting of 612 individual trees. Linear features created include 0.29km of native species-rich hedgerows and 2.09km of native species-rich hedgerows with trees. As such habitat creation is considered an enhancement for breeding birds with regards to both foraging and nesting habitat within the Order Limits which is presently largely lower ecological value arable land.

Fish, common amphibians and aquatic invertebrates

8.10.10. The creation of two drainage features designed to permanently hold water would enhance the area within the Order Limits with regards to ponds and permanent standing water habitat. The areas within the baseline lack aquatic standing water habitat (with the exception of some ephemeral ditches), and the creation of the ponds planted with native aquatic vegetation would provide additional habitat for common amphibians, aquatic invertebrates and fish.

8.11. Assessment of likely significant effects

8.11.1. In accordance with DMRB LA 108 and CIEEMs Guidelines for Ecological Impact Assessment in the UK and Ireland (2018) impacts have only been assessed for ecological features of local importance or higher.

8.11.2. Effects detailed within this section are those residual effects only following consideration of the mitigation set out in section 8 of this Chapter and in the First Iteration EMP (**TR010066/APP/6.5**).

8.11.3. All identified residual effects upon ecological features are assessed separately. The overall significance of residual effects for each ecological feature is taken as the adverse effect of the highest significance and is reported in Tables 8-20 and 8-21 for the construction and operation phases respectively, and a summary is provided in Table 8-23. Where no adverse effects are reported, beneficial effects are reported as the overall effect before neutral effects as the latter can be considered to be no effect.

8.11.4. Ecological features are assessed together where potential impacts are identical to avoid unnecessary repetition.

Construction

General

8.11.5. Mitigation measures relating to dust, as detailed within the First Iteration EMP (**TR010066/APP/6.5**) and ES Chapter 5 (Air Quality) (**TR010066/APP/6.3**), will ensure that impacts due to dust will be minimised and so there will be no significant effect on ecological receptors due to dust.

8.11.6. Mitigation measures relating to hydrological impacts, as detailed within the First Iteration EMP (**TR010066/APP/6.5**) and within ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.3**) will ensure that the risk of pollution will be minimised and that effects on ground and surface water levels are minimised.

8.11.7. Given the above details of impacts due to dust and hydrology are not discussed in detail in the sections below.

8.11.8. Impacts from lighting are limited as lighting during the construction phase would be limited to lighting of the satellite compound and task lighting where required. Given this level of lighting, lighting during construction is not expected to have a significant effect on ecological receptors. Impacts of lighting during construction are however discussed in sections below where relevant to the ecological feature.

Statutory designated sites

Coombe Pool SSSI

8.11.9. Coombe Pool SSSI is located adjacent to, and partially within, the Order Limits to the east. In total 0.19ha of woodland within the SSSI is located within the Order Limits and would be adversely impacted by habitat loss to facilitate the replacement boundary fencing works between land owned by Coventry City Council (i.e. the SSSI) and that owned by the Applicant. As identified within the arboricultural impact assessment (ES Appendix 7.4 (Arboricultural Impact

Assessment) (**TR010066/APP/6.3**)) the understorey shrub layer of the woodland within the SSSI would be pruned/removed as necessary to facilitate fence repair and some pruning of branches of mature trees may be required to facilitate reinstatement of the environmental bund. Whilst no mature canopy layer trees would be removed to facilitate works, this impact is considered habitat loss as the understorey and ground layer would be directly impacted and they constitute part of the woodland ecosystem.

8.11.10. This habitat loss within the SSSI would be mitigated through creation of 0.34ha of woodland to the north of this area of loss. This woodland mitigation planting area is outside of the SSSI however is directly connected with the SSSI woodland. Habitat creation would occur towards the end of the construction phase following the direct impact of habitat loss within the SSSI. Furthermore, natural regeneration within the woodland would over time replace the understorey and the impacted ground layer and as such the habitat loss in the SSSI is assessed as a temporary impact. Taking into consideration the proposed mitigation the impact of the Scheme upon the SSSI from habitat loss, including upon the breeding birds in the woodland, would be negligible adverse and result in a **slight adverse effect (not significant).** Of the remaining qualifying features of the SSSI breeding and wintering waterbirds would not be impacted by the woodland habitat loss. As the heronry is located to the far east of the Pool no impacts are anticipated upon this species as a result of this impact.

8.11.11. Mitigation to minimise the risk of the spread of rhododendron throughout the woodland and Himalayan balsam in the vicinity of Smite Brook, would ensure no spread of the species and no adverse impact on the SSSI through this pathway. The removal of specimens of rhododendron, can be considered a temporary enhancement to the woodland habitat with a negligible beneficial level of impact and a resulting **neutral effect (not significant).** As removal of rhododendron shrubs to facilitate fencing works is not certain, this has not been reported as an enhancement in Section 8.10, however this effect has been reported as a neutral effect.

8.11.12. Best practice mitigation measures to reduce noise and vibration are detailed within the First Iteration EMP (**TR010066/APP/6.5**) and ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.3**). Literature has identified that noise stimuli rarely caused disturbance prior to disturbance from an associated visual stimulus (TIDE Tidal River Development, 2024). The retention of a belt of woodland approximately 50m wide between Coombe Pool itself and the Order Limits would contribute to mitigation against visual disturbance which in turn would result in any noise disturbance upon the waterbirds utilising the Pool being reduced, as the woodland belt would shield construction work (the visual stimuli) from the view of birds using the Pool.

8.11.13. Construction lighting (as described in ES Chapter 2 (The Scheme) (**APP-023**)) is limited to task lighting where required. Task lighting is localised lighting (i.e. work lights, spotlights and floodlighting typically associated with mobile lighting equipment used during construction) that is used to illuminate working areas for safety. Lighting mitigation measures detailed in Commitment G3 of the REAC (**APP-110**), Appendix A of the First Iteration EMP (**REP1-010**) related to luminosity, lighting guidance compliance, lighting position, duration and avoidance of sensitive receptors where feasible, would mitigate for disturbance impacts from lighting. In addition, the retention of an approximately 50m wide belt of woodland between the Order Limits and Coombe Pool itself would contribute to mitigation and shield any construction lighting from the view of the birds using the Pool. As such no disturbance from lighting would be anticipated upon qualifying features on the Pool (breeding waterbirds including grey heron, wintering waterbirds including shoveler) and therefore the effect is assessed as **neutral (not significant).** Clearance of woodland between the existing A46 and ~~up to~~ the SSSI would remove any mitigating vegetative buffer against light disturbance on the SSSI woodland and it~~'~~s bird assemblage. As such the birds within the SSSI woodland would likely experience some light disturbance during construction. Given that this disturbance would be reduced~~limited~~ by mitigation, temporary in nature, and the availability of connected, undisturbed areas of woodland for birds, this is assessed as a negligible adverse level of impact resulting in a **slight adverse (not significant) effect.**

8.11.14. Given the mitigation measures proposed for construction lighting detailed in Commitment G3 of the REAC (**APP-110**), Appendix A of the First Iteration EMP (**REP1-010**), the anticipated spatial scale and temporary nature of any necessary task lighting, and the availability of significant areas of connected woodland the impact of lighting disturbance on woodland wintering and breeding birds mentioned on the Coombe Pool SSSI citation is assessed as negligible adverse. As such the effect of construction lighting on the SSSI woodland bird assemblage is assessed as **slight adverse (not significant).**

8.11.15. The assessment of construction noise impacts upon Combe Pool SSSI is detailed within ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) resubmitted at Deadline 3 and concludes that, with the proposed temporary noise barrier during construction as described in the Environmental Statement Addendum (Construction noise Impacts at Coombe Pool SSSI (**TR010066/EXAM/8.22**) submitted at Deadline 3 and associated ornithological monitoring as described in section 8.10 the Scheme during construction would have a **slight adverse (not significant) effect** on breeding waterbirds, grey heron and wintering waterbirds including shoveler.

Herald Way Marsh SSSI and LNR

8.11.16. Herald Way Marsh SSSI has been identified as a GWDTE. ES Chapter 13 (Road Drainage and the Water Environment) (**APP-034**) concludes **no significant effect** upon the GWDTE and details mitigation for the site with regards to groundwater impacts.

Non-statutory designated sites

Coombe Abbey LWS

8.11.17. Construction activities have the potential to lead to disturbance from noise and vibration. Noise modelling has identified increases in noise levels which would be considered noticeable (i.e. increases >3dB) at the LWS during the construction period (ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**)). As such increases in noise levels during construction could result in impacts upon species which the LWS is designated for, including otter and water vole (see Table 8-11), which could result in abandonment of habitat and a reduction in the efficiency of behaviours such as foraging and breeding. As a worst-case scenario the level of impact of temporary noise increase during construction is assessed as moderate adverse, as a significant length of the pool banks within the LWS are impacted. This would result in a **slight adverse (not significant) effect** on the county important feature.

Hungerley Hall Farm Ecosite

Hungerley Hall Farm Ecosite would be directly adversely impacted through permanent and temporary habitat loss. The majority of the Ecosite lost due to construction consists of arable land to the north of the existing junction which is of low ecological value relative to other habitats such as grassland and scrub. The Gainford Rise LWS part of the Ecosite, which is considered the more valuable part of the Ecosite given the mosaic of habitats present, is largely untouched, with the only habitat directly impacted a small section of the highway boundary woodland adjacent to the A46.

8.11.18. Table 8-21 details areas of habitats within the Ecosite lost, areas created and the change in areas as a result of the Scheme. In addition to permanent loss, small areas of arable land would be temporarily lost during construction to facilitate working areas and the satellite construction compound. These areas would be reinstated to their pre-construction habitats within the 23-month construction period.

Table 8-21: Terrestrial habitats within Hungerley Hall Farm Ecosite within the Order Limits, including pre-construction areas, areas retained and areas permanently lost

Broad habitat	Specific habitat	Baseline area (ha) / length	Area (ha) / length retained	Area (ha) / length (km) lost	Area (ha) / length created	Change in area (ha) / length (km) post-construction
Cropland	Arable land	11.27	0.07	11.2	0	-11.2
Grassland	Modified grassland	0.95	0.2	0.75	1.14	+0.39
	Species-rich grassland	0	0	0	2.96	+2.96
Scrub	Bramble scrub	0.34	0.01	0.33	0	-0.33
	Mixed scrub	0.11	0.03	0.08	0.97	+0.89
	Shrubs	0	0	0	0.08	+0.08
Urban	Vegetated garden	0	0	0	0.07	+0.07
Woodland	Other broadleaved woodland	4.85	2.08	2.78	4.86	+2.09
SuDS	SuDS	0	0	0	1.09	+1.09
Individual trees**	Rural trees	0	0	0	433	+433
Hedgerows*	Native hedgerow	2.00	0.7	1.3	0.29	-1.01
	Native hedgerow with trees	0.22	0.06	0.16	1.26	+1.1

*hedgerow measurements are in length (km). Hedgerows on the Ecosite boundary have been included.

**individual trees are provided as a count

8.11.19. The permanent habitat loss within Hungerley Hall Farm Ecosite detailed within Table 8-19 above would be mitigated for by the creation of habitats as shown on the Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**) including species-rich grassland, scrub, two permanently wet drainage ponds, woodland and hedgerow with trees detailed within Table 8-19 above. The creation of these habitats within the Ecosite would deliver habitats of higher ecological value than the arable land which is currently present. The creation of these habitats within the Ecosite would deliver habitats of higher ecological value than the arable land which is currently present. The creation of these habitats within the Ecosite would deliver habitats of higher

ecological value than the arable land which is currently present. The creation of these habitats within the Ecosite would deliver habitats of higher ecological value than the arable land which is currently present.

8.11.20. Habitats (excluding hard standing and the built environment) within the Ecosite prior to development totalled 17.52ha, whilst habitat area post-construction totals 13.56ha, showing a loss of habitat of 3.96ha of habitat. However, 11.2 ha in reduction is attributable to arable land which is a habitat of limited value to biodiversity relative to other habitats within the baseline (for example woodland and scrub habitats). Table 8-19 above details an increase in areas of habitat of relatively higher ecological value, primarily woodland and species-rich grassland. Habitats within the Ecosite excluding arable land totalled 6.25ha within the baseline and would total 13.49ha post-development, showing an increase in habitat of 7.24ha. In addition to this, 433 individual trees would be planted where there were none present on the Ecosite prior to the Scheme.

8.11.21. The loss of arable land, which is of low ecological value relative to other habitats within the baseline (for example woodland and scrub habitats) and the loss of a small area (0.2ha) of scrub is considered sufficiently mitigated through habitat creation and an increase of 7.24ha of non-arable habitat within the Ecosite post-development. Hedgerow loss within the Ecosite is considered sufficiently mitigated through creation of native hedgerows and native hedgerows with trees resulting in a +0.09km gain in hedgerows post-construction. Furthermore, arable land is not detailed within the description for the Ecosite and as such is not considered a qualifying feature of the Ecosite. The level of impact of construction upon the Ecosite would be considered minor adverse due to the permanent loss of a small area of scrub, however due to the increase in non-arable habitat on the Ecosite by 7.24ha in addition to planted trees, the level of impact is assessed as major beneficial due to the extent of habitat creation on the Ecosite. This impact would result in a **slight beneficial effect (not significant)** on Hungerley Hall Farm Ecosite.

8.11.22. Temporary loss of small areas of arable land within the Ecosite during construction is assessed as a negligible adverse impact resulting in a **neutral effect (not significant).**

Coombe Abbey Pool Ecosite

8.11.23. Direct impacts upon the locally important Ecosite relate to habitat loss and the spread of INNS rhododendron and/or Himalayan balsam. These impacts are discussed in section 8.11 in relation to Coombe Pool SSSI and would result in a **neutral effect (not significant)** upon the Ecosite.

Priority habitats: hedgerows

8.11.24. There would be permanent loss of approximately 2.47km of native hedgerow from five hedgerows. Hedgerow loss includes loss of 0.16km, 0.12km, 0.05km and <0.01km from four important hedgerows, as identified in ES Chapter 6 (Cultural Heritage) (**TR010066/APP/6.1**).

8.11.25. Hedgerow loss would be mitigated by creation of 2.38km of native hedgerow as part of the Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)), including native hedgerows with trees. Whilst total length of hedgerow within the Order Limits would reduce by 0.09km, the hedgerows created would be species-rich with a minimum of five native woody species per 30m stretch and standard trees will be pre-dominantly native to mitigate for the species-poor hedgerows lost. Retained hedgerows would be protected by measures set out within the arboricultural impact assessment (ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**)) including appropriate stand-off distances. Whilst the permanent loss of hedgerow is considered a minor adverse impact, the length permanently lost is small and newly created hedgerows would be of higher benefit to biodiversity as species-rich hedgerows will be created in the place of species-poor hedgerows. Given the above in the long-term the level of impact will be minor beneficial due to the higher quality of the created 2.38km of hedgerows. For a feature of national importance, a minor beneficial impact would result in a slight or moderate effect in accordance with DMRB LA 108. As a small section of hedgerow would be permanently lost the lower of these is considered appropriate. As such there would be a **slight beneficial effect (not significant)** on hedgerows during construction.

Ponds

8.11.26. No ponds will be directly impacted by habitat loss. As part of the drainage strategy for the Scheme (ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**)) two drainage ponds would be created which would be designed to be permanently wet and be planted with native aquatic species to benefit biodiversity. This permanent addition of pond habitat would result in a minor beneficial impact and a slight or moderate beneficial effect on this ecological feature of national importance. The management and maintenance of the created ponds will primarily focus on the functionality of the feature as a SuDS feature. Opportunities to create the ponds as priority habitat would be considered at the detailed design stage, however as the priority habitat status of the proposed drainage ponds cannot at this time be confirmed it is considered that the lower category of this effect should be considered on a precautionary basis, and therefore a **slight beneficial effect (not significant)** is

assessed for ponds during the construction phase due to the proposed habitat creation.

Veteran trees

8.11.27. The RPZ of veteran tree T12 extends approximately 3m into the Order Limits. The footprint of the Scheme would not impact the RPZ. Mitigation measures to avoid and reduce impacts upon the veteran tree from works in the RPZ are detailed within the arboricultural impact assessment in ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**).

8.11.28. Given the above, therefore there will be a **neutral effect (not significant)** on veteran trees.

Protected and notable species

Great crested newt

8.11.29. The two ponds within the study area identified as ponds utilised by GCN would not be directly impacted by the Scheme. Terrestrial habitat suitable for GCN within 500m of the ponds would be lost (within approximately 420m and 435m), including hedgerows and modified grassland and deciduous woodland within the existing highway boundary. GCN are known to utilise terrestrial habitat within 500m of breeding ponds to forage, rest in shelter and hibernate.

8.11.30. Due to the small footprint of vegetation clearance within 500m of each of the GCN ponds and the distance of this impact from the ponds (being more than 250m away) a mitigation licence from Natural England to facilitate works is not required. Furthermore, and in support of this, the potential commuting corridor between one of these ponds and the Scheme is a single hedgerow through unsuitable arable habitat and the route from the second GCN pond to impacted habitat would include crossing of a busy road. This decision has been reached with use of the Natural England Rapid Risk Assessment tool (Natural England, 2023) which concluded an offence from vegetation removal works would be highly unlikely.

8.11.31. Loss of terrestrial habitat would be mitigated for by habitat creation as part of the Scheme as presented in the Environmental Masterplan (ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**)) including species-rich grassland, native hedgerow with trees and woodland which would provide foraging habitat and shelter for GCN.

8.11.32. As the footprint of permanent habitat loss is small and more than 250m from the ponds confirmed to be used by GCN, the level of impact is assessed as minor adverse resulting in a **slight adverse effect (not significant).** Whilst DMRB

reports two levels of effect (neutral or slight adverse) for this level of impact upon a feature of county importance a slight adverse effect is considered appropriate as there is some loss of potential habitat within 500m of the ponds.

8.11.33. There is a risk of injury/mortality during works in habitat suitable for GCN within 500m of the ponds confirmed to be used by GCN. Mitigation which would be employed during construction (as detailed within the First Iteration EMP (**TR010066/APP/6.5**)) including timing of works to avoid sensitive periods for GCN, where feasible, and precautionary working methods for vegetation clearance under supervision of an ECoW, will ensure that effects on GCN population due to injury/mortality are minimised. With mitigation there is anticipated to be no effect on GCN populations due to mortality/injury during the construction phase and as such the Scheme would be expected to have a **neutral effect (not significant).**

Breeding and wintering birds (outside of Coombe Pool SSSI)

8.11.34. To avoid mortality to birds and destruction of nests and/or eggs mitigation includes timing of vegetation clearance outside of the core breeding season (March to August, inclusive) where feasible and nesting bird checks by an ECoW should clearance in the core breeding season (March to August, inclusive) be required, as detailed within the First Iteration EMP (**TR010066/APP/6.5**). There would therefore be no impact to populations of breeding birds with regards to mortality and nest destruction during the construction phase and a **neutral effect (not significant)** for the county important skylark, yellowhammer, linnet and song thrush and breeding birds of local importance**.**

8.11.35. Habitat loss, both permanent (as detailed within Table 8-21) and temporary, would result in loss of potential nesting/roosting and foraging habitat for a range of bird species. Habitats permanently lost include broadleaved woodland, bramble scrub, mixed scrub, modified grassland and native hedgerows (areas to be added). Habitat creation as part of the Scheme would include species-rich grassland, native hedgerows with trees, scrub, shrub, woodland and marsh and wet grassland and will provide mitigation for lost nesting and foraging habitat. Post-construction there will be a 6.09ha increase in grassland and 1.8ha increase in scrub in addition to planting of 612 individual trees and creation of 1.44ha of SuDS. Reductions in the area of woodland and length of hedgerows will be minimal (-0.57ha and -0.08km respectively). It is therefore considered that the temporary loss of habitat during construction is a negligible adverse impact considering the availability of habitat in the wider area, would be adequately mitigated for through habitat creation. Due to habitat creation the area within the Order Limit would be considered to have significantly more habitat, better suited than cropland, suitable for breeding and wintering birds post-construction and

therefore this is a major beneficial impact. This would result in a **slight beneficial (not significant) effect** on locally important breeding birds (with the exception of the county important species discussed below). For county important wintering birds, the effect is **considered slight beneficial (not significant)** in the context of the available suitable habitat in the wider area.

8.11.36. Habitat loss includes loss of nesting habitat for the county important ground-nesting species skylark. Skylark are a farmland species which nests in open farmland with a preference for larger arable and grassland fields with distance between any taller vegetation and potential predators. The areas of arable land lost to the Scheme are considered of limited suitability for nesting skylark due to proximity of these areas to field margins and woodland including highway boundary woodland. This assessment is supported by the results of the breeding bird surveys (ES Appendix 8.3 (Breeding Bird and Barn Owl Report) (**TR010066/APP/6.3**)) which identified skylark within arable land in the study area however outside of the Order Limits and the taller highway boundary woodland within them. Only one instance of a skylark within the Order Limits was recorded, within the mitigation woodland planting area. The proposed mitigation planting is not considered to provide suitable nesting habitat for skylark, as this species prefer to nest in areas away from tall vegetation. Due to the limited suitability of lost arable habitat as habitat suitable for skylark the impact upon skylark is considered minor adverse. A **slight adverse (not significant) effect** of construction upon skylark due to habitat loss is reported on a precautionary basis.

8.11.37. Nesting habitat lost for yellowhammer, linnet and song thrush includes hedgerows (loss of 2.46km), scrub (loss of 0.58ha) and woodland (loss of 5.94ha). The creation of woodland (5.37ha), scrub/shrub habitats (2.37ha) and native hedgerows (2.38ha) adjacent to created species-rich grassland habitats (4.29ha managed as meadows) will create more suitable habitat for these species as part of the Scheme.

8.11.38. With mitigation there is not expected to be an effect in the long-term on these county important species, there will however be an impact in the short-term until new habitats establish. The level of impact upon the county important species yellow-hammer, song thrush and linnet due to the temporary habitat loss during the construction phase is assessed as negligible adverse resulting in a neutral or slight adverse effect (not significant) during the construction phase, only. However, mitigation through proposed habitat creation is considered to sufficiently mitigate for temporary habitat loss for yellowhammer, linnet and song thrush. Due to habitat creation the areas within the Order Limits would be considered to have significantly more habitat post-construction for linnet and song thrush and therefore the level of impact in the long-term is a major

beneficial impact resulting in a **slight adverse (not significant) effect** on these county important species considering the site in the context of suitable habitat in the wider area. The provision of hedgerows within the wider arable landscape mitigates for the loss of hedgerow during construction for the farmland species yellowhammer. The increase in scrub habitat within the Order Limits due to the Scheme will provide an increase in habitat for this species within nearby adjacent arable land and as such is considered a minor beneficial level of impact. Given the permanent loss of arable land, the effect is assessed as **neutral (not significant)** on yellowhammer.

8.11.39. Habitat fragmentation would occur during the construction phase due to the creation of the B4082 creating isolated habitat between the B4082 and the A46 carriageway and the removal of sections of hedgerow which are used by breeding and wintering birds to move across the study area. This would likely see a temporary reduction in farmland species during construction. The environmental masterplan includes the creation of hedgerows with trees as part of the Scheme and will reinstate these connective corridors for species. The impact of habitat fragmentation would not be considered to affect the characteristics of the breeding and wintering bird populations as they would be anticipated to utilise habitat outside of the Order Limits during construction. The level of impact is assessed as negligible adverse resulting in a **neutral effect (not significant)** for breeding birds of local importance and a **slight adverse effect (not significant)** on the county important yellowhammer, skylark, linnet and song thrush and county important wintering bird assemblage from habitat fragmentation during construction.

8.11.40. Construction lighting would be limited to the satellite compound and task lighting, which would be limited in duration and where feasible directed away from retained habitats. A temporary negligible adverse impact could occur as a worst-case considering availability of habitat in the wider area, and as such lighting during construction could result in **neutral (not significant) effect** on locally important breeding birds. The effect on county important skylark, yellowhammer, linnet and song thrush and county important wintering birds is also considered to be **neutral (not significant)** in light of the anticipated limited extent and likely frequency of any construction lighting and resultant impacts on birds. Best practice measures to reduce noise and vibration, as detailed within the First Iteration EMP (**TR010066/APP/6.5**) and ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**), would mitigate for disturbance to birds. Alternative habitat, including arable land, hedgerows, woodland, scrub and grasslands, are available in the wider area and birds as highly mobile species can make use of these during the construction phase.

8.11.41. There is also potential for disturbance to breeding and wintering birds during the construction phase from visual stimuli (i.e., the presence of coloured machinery and workers in hi-vis clothing). Literature has identified that noise stimuli rarely caused disturbance prior to disturbance from an associated visual stimulus (TIDE Tidal River Development, 2024). As such visual stimulus from construction works could be considered a more accurate marker for disturbance than noise. However as visual stimuli cannot be modelled it cannot be quantified. Disturbance impacts from visual stimuli are identical to those of other types of disturbance and include abandonment of nests and avoidance of nesting/roosting and foraging habitat. Alternative habitat, including arable land, hedgerows, woodland, scrub and grasslands, are available in the wider area and birds, as highly mobile species, can make use of these during the construction phase. For breeding birds as a worst-case scenario abandonment of nests (a permanent impact) could result in a **slight adverse effect (not significant)** on the county important species skylark, linnet, yellowhammer and song thrush and on species of local importance. For wintering birds the level of impact of temporary disturbance during construction is assessed as negligible adverse resulting in a **slight adverse effect (not significant).**

Barn owl

8.11.42. No confirmed PNS, PRS or suitable foraging habitat suitable for barn owl will be directly impacted by the Scheme.

8.11.43. Features with suitability for barn owl within the Order Limits include Hungerley Hall Farm (ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.3**)). The farm buildings have not been subject to a thorough survey due to health and safety issues however it is considered to potentially be suitable as a PNS and/or PRS and as such this assessment is undertaken on a precautionary basis assuming barn owls may nest in the farm buildings. There is potential for disturbance to active nests from noise and vibration, which could lead to nest/young abandonment. For mitigation two barn owl nest boxes would be installed within suitable habitat within Coombe Abbey Park to provide alternative nesting habitat a minimum of 1km from the Order Limits during the construction phase. Disturbance from noise and vibration would be a temporary impact assessed as negligible adverse considering nests have not been confirmed. On a precautionary basis a **slight adverse (not significant) effect** is anticipated.

8.11.44. Lighting during the construction phase would be limited to lighting of the satellite construction compound (approximately 700m north of Hungerley Hall Farm) and task lighting where required. Task lighting would be limited in duration and where feasible directed away from retained habitats and the Farm. It is considered unlikely that if barn owl are present they would be affected by this lighting. As

such the Scheme could have a **slight adverse effect (not significant)** on barn owl from lighting should they nest at Hungerley Hall Farm during construction considering potential disturbance from task lighting near Hungerley Hall Farm and elsewhere to commuting barn owl.

Bats

Roosting Bats

8.11.45. No known bat roosts would be lost as a result of the Scheme. The three potential bat roosts identified at Hungerley Hall Farm (detailed within Section 8.8 and ES Appendix 8.5 (Bat Roost Report) (**TR010066/APP/6.3**) would not be directly impacted. Habitat with the potential to support roosting bats which would be lost to the Scheme includes:

- One tree with high BRP
- Twelve trees with low BRP

8.11.46. One further tree with moderate BRP would have its canopy lifted to facilitate construction access beneath it. As pruning can alter the characteristics of potential roosting features, and potentially result in them no longer being suitable for roosting bats, this tree is also considered lost as a potential roost feature.

8.11.47. Twelve trees and one group of trees with low BRP will be retained within the Order Limits.

8.11.48. Loss of trees with moderate and high BRP would be mitigated for by installation of two or three bat boxes per tree respectively in suitable locations within the Coventry City Council area as advised by the Council. Liaison with Coombe Abbey Park has confirmed that the Coventry City Council do not wish for boxes to be installed in the Park, and as such boxes will be installed in areas within Coventry City Council owned land elsewhere. The planting of trees within hedgerows and other broadleaved woodland as part of the environmental masterplan would, once matured sufficiently, mitigate for the loss of low potential roosting habitat with a temporary reduction in roosting habitat only. As such, considering the extensive habitat potentially suitable for roosting within the wider area the level of impact on roosting bats due to temporary habitat loss would be negligible adverse resulting in a **slight adverse effect (not significant).**

8.11.49. Whilst no roosts were identified during targeted surveys, bats are known to regularly change roost sites and as such may sporadically use the identified features with roosting potential or may begin to use these features in future. Updated bat roost surveys undertaken in 2025 would mitigate injury/mortality to roosting bats during construction, in addition to mitigation measures detailed within the First Iteration EMP (**TR010066/APP/6.5**) which include timing of works

to avoid sensitive seasons for bats and pre-felling checks of roosting features. With mitigation there would be no effect upon roosting bats due to injury/mortality during construction and therefore a **neutral effect (not significant).**

8.11.50. Disturbance to bats, including those potential bat roosts identified at Hungerley Hall Farm, may occur through noise and vibration, and lighting. Such disturbance could lead to loss of foraging and commuting habitat, and avoidance of habitat which bats may potentially utilise in future as roosts. Lighting during construction would be limited to lighting of the satellite construction compound, approximately 700m north of Hungerley Hall Farm, and task lighting which would be limited in duration and where feasible directed away from retained habitats and the farm. As such impacts to bats from lighting during the construction phase are considered unlikely. As a worst case, temporary task lighting could have an impact on potential roosts at Hungerley Hall Farm and may lead to bats abandoning the roost. As the roosts have been identified as either day, feeding or night roosts, which are considered less sensitive compared to maternity or hibernation roosts, any bats disturbed would simply relocate to alternative roosting locations nearby. The level of impact from lighting in a worst-case scenario would therefore be negligible adverse resulting in a **slight adverse effect (not significant)** on the locally important bat population.

8.11.51. Best practice measures to reduce noise and vibration, as detailed within the First Iteration EMP (**TR010066/APP/6.5**) and Chapter 11: Noise and Vibration (**TR010066/APP/6.1**), would mitigate for disturbance to commuting and foraging bats from noise and vibration. As stated above, bats may make use of potential roosting features in future. This would be mitigated through updated surveys in 2025. Should surveys confirm the presence of roosting bats, a licence would be sought from Natural England where appropriate and mitigation would be designed to minimise impacts on bats.

8.11.52. ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) **(TR010066/APP/6.3)** identifies, in a worst-case scenario, a **slight adverse (not significant) effect** on potential bat roosts at Hungerley Hall Farm due to increases in noise during construction.

Foraging and Commuting Bats

8.11.53. Activity surveys undertaken in 2022 have identified the highest amount of bat activity in Coombe Abbey Park woodland. Approximately 0.19ha of this woodland would be directly impacted by the Scheme with removal of understorey shrubs to allow for replacement boundary fencing. The remainder of the Country Park woodland adjacent to and beyond the Order Limits would be

unaffected by loss and available for bats to use as foraging habitat during construction. Mitigation for loss of this woodland as bat foraging habitat includes the creation of an area of woodland approximately 3ha in size adjacent to the existing woodland.

8.11.54. A smaller amount of bat activity in other areas within the Order Limits is focused on field margins used as commuting routes and foraging resources.

8.11.55. The mitigation presented on the ES Figure 2.4 (Environmental Masterplan) (**TR010066/APP/6.2**) includes creation of habitat that would be of value to foraging and commuting bats once established including scrub, grassland, woodland, three drainage features two of which would be designed to be permanently wet ponds and planted with aquatic species, and native hedgerows with trees. Post-construction there will be a 6.09ha increase in grassland and 1.8ha increase in scrub in addition to planting of 612 individual trees and creation of 1.44ha of SuDS. Reductions in the area of woodland and length of hedgerows will be minimal (-0.57ha and -0.08km respectively). Habitats created will have a higher value for bats as they will maximise native species and nectar-rich species which would be of benefit to invertebrates and provide a food source for bats, maximise the flowering season and provide a foraging resource for a longer season. Due to habitat creation, including creation of habitats of a higher value than the existing arable land, the Order Limits would be considered to have significantly more habitat, better suited than arable land, suitable for foraging and commuting bats post-construction and therefore the level of impact is major beneficial.

8.11.56. The existing Hungerley Hall Farm and Walsgrave Hill Farm accommodation overbridges, confirmed to be used by bats to cross the existing A46 mainline will both be retained.

8.11.57. The creation of native hedgerows with trees along the majority of the highway verges would provide commuting routes for bats to move north and south along the Scheme.

8.11.58. The temporary loss of habitat during construction for foraging and commuting bats would be considered a negligible adverse level of impact resulting in a **slight adverse effect (not significant**) with mitigation**.** Upon maturity of the proposed habitats and vegetation planting it is considered that there would be overall more suitable foraging habitat within the Order Limits post-construction which was intensively managed arable land prior to construction. This permanent landscaping would have a major beneficial level of impact on commuting and foraging bats in the long-term resulting in a **slight beneficial effect (not significant).**

Badger

8.11.59. The closure of one subsidiary sett under licence will minimise the impact on badgers that might have been occupying the sett at the time of closure. All other identified setts are more than 30m from the Order Limits and would not be impacted.

8.11.60. Further setts are present within proximity to the lost sett which will not be impacted by the Scheme including an active main sett approximately 710m east of the sett to be lost and two active outliers approximately 550m and 430m east of the sett to be lost. It can be assumed that badgers have further setts in the vicinity which has been supported by desk study data identifying setts to the north-west and south of the lost sett outside of the study area. However, as a single badger clan utilises multiple setts of varying activity levels and for varying uses/purposes, the loss of a sett is considered to negatively affect the characteristics of the badger clan. As such the permanent loss of one active subsidiary sett is considered to have a major adverse level of impact on badger and would result in a **slight adverse effect (not significant)** upon the ecological feature of local importance.

8.11.61. Good practice measures with regards to reducing risk during construction would mitigate for badger mortality/injury and are detailed within the First Iteration EMP (**TR010066/APP/6.5**).

8.11.62. The Hungerley Hall Farm accommodation overbridge would remain open to badger passage during construction. There is potential for some temporary fragmentation of habitat and commuting route whilst the access track from the Hungerley Hall Farm accommodation overbridge onto the B4082 is created. In this event badgers may attempt to cross the A46 carriageway. Additionally, fragmentation would occur where construction of the B4082 commences ahead of construction of the badger crossing and installation of associated fencing. As such there may be a temporary increase in risk of mortality to badger. Baseline surveys have concluded that badgers use the accommodation overbridge to cross the A46, however the majority of badger activity and identified setts within the study area are to the east of the A46 and it is concluded badger mostly use the east side of the A46. As such the risk of badger mortality during any temporary obstruction of the retained bridge is considered low. The level of impact of the Scheme construction upon badger mortality, at a worst-case in the event of temporary obstruction of the accommodation overbridge, is assessed as a minor adverse impact resulting in a **slight adverse effect (not significant).**

8.11.63. Loss of terrestrial habitat includes loss of suitable sett-building habitat and foraging and commuting habitat for badger. Habitats lost would include

hedgerows, modified grassland, other broadleaved woodland, bramble scrub, mixed scrub and arable land (lost areas of which are detailed within Table 8-13). The planting presented in the environmental masterplan would mitigate for habitat loss and includes creation of scrub, woodland, grassland, SuDS, vegetated garden and hedgerow habitats, including an area of woodland not associated with a highway boundary located adjacent to the existing Coombe Abbey Park woodland (creation areas are detailed within Table 8-13), east of the A46. Badger fencing proposed along the B4082 link road would exclude badgers from soft landscaping in this area and therefore it is considered that there would be a permanent loss in area of suitable, accessible badger habitat within the Order Limits during construction. Due to the presence of suitable habitat within the wider area this loss would not be considered to affect the integrity of the local badger population and as such the level of impact from habitat loss is assessed as minor adverse resulting in a **slight adverse effect (not significant)** upon badger.

8.11.64. Construction of the Scheme would result in temporary habitat fragmentation for badger. Badger have been confirmed to use Hungerley Hall Farm accommodation overbridge to cross the A46 mainline. The construction of the re-aligned B4082 would fragment the habitat between the A46 and re-aligned road from habitat in the wider area to the east and west of the Scheme. The fragmented habitat would be inaccessible to badger due to the proposed badger fencing design (see Annex D of ES Appendix 8.13 (Draft Badger Mitigation Licence) (**TR010066/APP/6.3**)) and as such this has been assessed as minor adverse resulting in a **slight adverse effect (not significant)** upon badger. The temporary habitat fragmentation during construction of the B4082 is assessed as a worst-case scenario is anticipated to be a moderate adverse impact. This would result in a **slight adverse effect (not significant)**.

8.11.65. The construction of the Scheme has the potential to disturb badger through noise and vibration. Disturbance could lead to abandonment of setts and avoidance of impacted foraging and commuting habitat. With the exception of the lost sett, all remaining identified setts are more than 30m from the Order Limits and as such construction is not anticipated to result in damage to any setts. Given the distances between the main works and the setts outside the Order Limits (Sett 3 (main sett)- located approximately 460m away, Setts 4 and 5 (active outliers) are approximately 180m and 280m respectively from main works, Sett 2 (an active subsidiary) is located approximately 90m), there is potential for temporary disturbance impacts from noise and vibration upon one subsidiary and two outlier setts (sett 2, and setts 4 and 5). The badger setts being located in proximity to the existing A46 means the badgers are already habituated to a certain level of noise. Good practice measures to reduce noise

and vibration would be implemented during construction and are detailed in the First Iteration EMP (**TR010066/APP/6.5**) and ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**). A review of construction noise modelling has confirmed there is unlikely to be noise impacts upon badgers occupying setts, given the modelled increases in noise at the sett locations and the fact that badgers occupying setts are underground which would further reduce noise reached the badger. However, some increase in noise and vibration levels during construction are anticipated and as a worst-case badgers may temporarily abandon secondary (non-breeding) setts (two outliers and a subsidiary sett), which would result in a negligible adverse impact on the badger clan and a **neutral (not significant) effect.**

8.11.66. Disturbance during construction upon commuting and foraging badger could, in a worst-case scenario, result in badgers not making use of impacted previously available foraging resources. This temporary impact is assessed as a moderate adverse level of impact on a precautionary basis in the absence of establishment of clan boundaries in the wider area. As a worst-case scenario the effect would therefore be a **slight adverse (not significant) effect.**

8.11.67. Lighting during construction would be limited to lighting of the satellite construction compound (located approximately 750m from the nearest identified sett) and task lighting as required, with task lighting where feasible directed away from adjacent retained habitats. As such lighting is unlikely to impact upon badgers occupying setts due to distance from works and in the case of sett 2 woodland between works and the sett. Lighting of the satellite compound and task lighting may result in badgers temporarily avoiding use of commuting and foraging habitat in the vicinity of the lighting. This impact would be temporary and suitable habitat exists in the wider area for commuting and foraging badgers. The level of impact of construction lighting on badger would there be negligible adverse resulting in **neutral effect (not significant).**

Common reptiles

8.11.68. Potential impacts upon reptiles during construction, in the absence of mitigation, include injury and mortality as a result of activities including earthworks and vegetation clearance. Mitigation measures for injury/mortality of reptiles (as detailed within the First Iteration EMP (**TR010066/APP/6.5**)) will include timing of vegetation and ground-breaking works to avoid sensitive periods for reptiles where feasible, supervision of vegetation clearance by an ECoW and good practice measures with regards to material storage and trenches/excavations.

Otter

8.11.69. No works are anticipated to be required in watercourses or on bank faces of watercourses, with the exception of the works upon the two existing drainage ditches, which are only ephemerally wet and so of negligible value to otter. All watercourses considered of value to otter (i.e. considered to be potentially used by otter) will remain open and unobstructed during construction.

8.11.70. Scheme construction could result in injury/mortality of otter where realignment of the A46 mainline and associated works are in proximity to Smite Brook. The A46 main line works are located approximately 4.5m from the brook channel adjacent to the east of the A46 culvert (approximately 7 – 9m above ground level within Coombe Abbey Park). Otter have been confirmed to use the Brook and can venture onto watercourse banks in search of resting places. None of the identified otter holts are within the Order Limits and as such injury/mortality whilst occupying a holt is not considered further. Update surveys undertaken in 2025 and subsequent mitigation where appropriate would mitigate against injury/mortality of otters in any newly created holts within the Order Limits. Mitigation measures to prevent injury/mortality to otter are detailed within the First Iteration EMP (**TR010066/APP/6.5**) and include good practice measures such as covering of trenches/excavations overnight to prevent falling and entrapment. As such the effect on otter populations due to injury/mortality is anticipated to result in a **neutral effect (not significant).**

8.11.71. There would be a loss of terrestrial riparian woodland habitat adjacent to Smite Brook to the east of the A46 culvert. Woodland creation in the area of loss would mitigate this impact, however there is anticipated to be some reduction in woodland due to the need for sightlines on road verges and planting restrictions relating to the proposed reinstated embankment slope. This slight permanent reduction in suitable riparian habitat would not be considered to affect the integrity or key characteristics of the otter population as there is considerable further riparian woodland habitat within Coombe Abbey Park adjacent to Smite Brook and unnamed watercourses to the east, to the west along Smite Brook and also along the River Sowe corridor. There would be no direct impacts to riparian habitats suitable for otter elsewhere within the Order Limits; the two ditches to be directly affected by the Scheme are only ephemerally wet. The level of impact of the small-scale permanent habitat loss within the riparian zone of Smite Brook is assessed as minor adverse resulting in a **slight adverse effect (not significant).**

8.11.72. Of the five identified otter couches the closest to the main works is located on Smite Brook approximately 100m from main works. As such no disturbance impacts from lighting during the construction phase are anticipated to effect

otters occupying resting places. Disturbance from lighting, noise and vibration could impact upon otters during construction leading to avoidance of resting places, commuting routes and foraging habitat. Lighting would be limited to the satellite construction compound and task lighting and would be limited in duration and where feasible be directed away from watercourses. Potential task lighting could be required near Smite Brook during realignment of the A46 mainline and reinstatement of the embankment slope works. Lighting disturbance on Smite Brook could lead to avoidance of this as a commuting route for otter, which would cause fragmentation of habitat for otter between Coombe Pool and unnamed ditches to the east and Smite Brook and the River Sowe to the west. This fragmentation would be temporary and as such is assessed as a moderate adverse level of impact which would result in a **slight adverse effect (not significant)**.

8.11.73. Good practice measures to reduce noise and vibration would be employed during construction and are detailed in Chapter 11 (Noise and Vibration) and the First Iteration EMP (**TR010066/APP/6.5**). ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**) has identified a **slight adverse (not significant) effect** on otters occupying couches due to increases in noise during construction.

Fish

8.11.74. Potential impacts upon fish during construction include disturbance impacts associated with lighting, and potential fragmentation of habitats should lighting of the Smite Brook corridor occur and result in avoidance behaviour. Potential task lighting could be required near Smite Brook during realignment of the A46 mainline and reinstatement of the embankment slope works. Mitigation detailed in Commitment G3 of the REAC (**APP-110**), Appendix A of the First Iteration EMP (**REP1-110**) related to luminosity, lighting guidance compliance, lighting position, duration and avoidance of sensitive receptors where feasible, will minimise adverse impacts of any task lighting. However, as a precautionary, worst-case assessment, any temporary lighting disturbance on Smite Brook could lead to avoidance of this as a commuting route for fish, which would cause fragmentation of habitat between Coombe Pool and unnamed ditches to the east and Smite Brook and the River Sowe to the west. This fragmentation would be temporary (caused by task lighting during construction activities in close proximity) and as such is assessed as a moderate adverse level of impact which would result in a **slight adverse effect (not significant)** on the county important European eel and locally important fish assemblages.

Other notable species – hedgehog, brown hare and polecat

8.11.75. Potential impacts upon hedgehog, brown hare and polecat during construction, in the absence of mitigation, include injury and mortality as a result of activities including vegetation clearance and movement of vehicles. Mitigation against injury/mortality during construction detailed within the First Iteration EMP (**TR010066/APP/6.5**) would include timing of vegetation clearance to avoid sensitive periods where feasible, supervision of vegetation clearance by an ECoW and good practice measures such as covering of trenches/excavations overnight. As such the level of impact upon these species from injury mortality during construction would be a **neutral effect (not significant).**

8.11.76. Construction would result in habitat loss for these species. Habitat loss includes is detailed in Table 8-13. As the Scheme includes creation of species-rich grassland, SuDS, woodland, scrub and native hedgerows this habitat loss would largely be temporary, with a smaller footprint of permanent habitat loss totalling 6.91ha. The habitats created between the new B4082 and the A46 mainline would be fragmented from further habitat and as such this area of habitat can be considered largely inaccessible to these species in addition to the permanent habitat loss. Whilst there will be some permanent habitat loss, due to the provision of further available habitat in the Order Limits and suitable habitat in the wider landscape for these species this is assessed as a minor adverse impact with a **slight adverse effect (not significant)** on hedgehog, brown hare and polecat.

8.11.77. Lighting is not expected to cause disturbance to these species.

8.11.78. Good practice noise and vibration reduction measures would be employed and are detailed in ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**). Given the presence of further suitable habitat for the species beyond the Order Limits, and considering the detailed mitigation, the temporary disturbance from increases in noise during construction which may lead to avoidance of the Order Limits would not be considered to affect the integrity and key characteristics of hedgehog, brown hare and polecat. The negligible adverse impact would result in a **neutral effect (not significant)** on the locally important hedgehog, brown hare and polecat.

Summary of construction effects

8.11.79. Table 8-22 summarises the overall significance of effect of the Scheme during construction upon all identified ecological features. Table 8-23 provides a summary of the assessment in full, including ecological feature importance,

potential impacts in the absence of mitigation, mitigation and the level of impact and residual effect on each ecological feature.

Table 8-22: Overall significance of effect of the Scheme upon each ecological feature during construction

Ecological features	Overall significance of effect during construction
Coombe Pool SSSI	Slight adverse (not significant)
Coombe Abbey LWS	Slight adverse (not significant)
Hungerley Hall Farm Ecosite	Slight beneficial (not significant)
Coombe Abbey Pool Ecosite	Neutral (not significant)
Priority habitat: hedgerows	Slight beneficial (not significant)
Ponds	Slight beneficial (not significant)
Veteran trees (irreplaceable habitat)	Neutral (not significant)
GCN	Slight adverse (not significant)
Breeding birds, including skylark, linnet, yellowhammer and song thrush	Slight adverse (not significant)
Barn owl	Slight adverse (not significant)
Wintering birds	Slight adverse (not significant)
Bats	Slight adverse (not significant)
Badger	Slight adverse (not significant)
Otter	Slight adverse (not significant)
Fish	Slight adverse (not significant)
Other notable species including hedgehog, brown hare and polecat	Slight adverse (not significant)

Operation

Hydrological impacts

8.11.80. Hydrological impacts during operation for those relevant ecological features (as identified in Table 8-17 and below) are discussed in this section to avoid repetition throughout the wider assessment of operational impacts section.

8.11.81. Potential operational impacts of the Scheme upon ecological features include hydrological impacts from changes to water quality (including pollution) and/or quantity from runoff during operation. Ecological features at risk of such impacts, either due to proximity to or hydrological connection with the Scheme, include

Coombe Pool SSSI, Gainford Rise LWS, Coombe Abbey LWS, Stoke Floods LNR, Stoke Floods LWS, Sowe Valley Dorchester Way LWS, native hedgerow priority habitat, coastal and floodplain grazing marsh and deciduous woodland priority habitat, lowland fens priority habitat, ponds, otter and fish including brown trout, bullhead and European eel.

8.11.82. As detailed within ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**), the drainage strategy is designed to attenuate new drainage systems to the greenfield runoff rate and existing modified drainage systems would see no increase in the existing runoff rate. As such there would be no change in the level of impact of the Scheme upon ecological features during operation resulting from hydrological changes and a **neutral effect (not significant).**

Air quality

8.11.83. A full assessment of the impacts of air quality on ecological features is provided as ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**). Given this a summary for each feature only is included in the section below.

Statutory designated sites

Coombe Pool SSSI

8.11.84. The Scheme does not include any lighting of the A46 mainline and as such no impacts are anticipated upon the Pool from operational lighting. Whilst the existing junction and its approaches are currently lit the removal of lighting as part of the Scheme would not be considered a beneficial impact upon the SSSI. Lighting of the A46 at present is not considered to impact upon the SSSI based upon the light levels recorded during the lighting survey for Coombe Abbey Park as part of the lighting assessment (ES Appendix 7.5 (Lighting Assessment) (**TR010066/APP/6.3**)) and the presence of approximately 30m of woodland between the existing carriageway and the SSSI.

~~8.11.84.~~8.11.85. The Scheme includes planting of grassland on the proposed A46 verge adjacent to the SSSI (Environmental Statement Figure 2.4). This road verge between the existing A46 and the SSSI prior to the Scheme consisted of woodland, which would have provided some natural screening~~buffer~~ against lighting impacting the woodland. ~~however~~ W~~w~~ith the removal of the verge woodland it is anticipated that operational lighting impacting the SSSI woodland would increase due to light from traffic. However, the reinstatement of the environmental bund will screen some light from traffic. ~~T~~Therefore, the level of impact of increased operational lighting disturbance on the SSSI woodland bird

assemblage is assessed as minor adverse. Given the area of woodland which would be impacted, and the significant areas of connected SSSI woodland which would not be impacted, the effect is assessed as **slight adverse (not significant).**

Noise

~~8.11.85.~~8.11.86. The assessment of short-term operational noise impacts detailed within ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes that the Scheme during construction would have the following effects due to an increase in noise:

- A **slight beneficial (not significant) effect** on breeding waterbirds
- A **slight beneficial (not significant) effect** on breeding grey heron
- A **neutral (not significant) effect** on wintering waterbirds including shoveler
- A **slight beneficial (not significant) effect** on wintering and breeding woodland birds

Air quality

~~8.11.86.~~8.11.87. The assessment of air quality impacts detailed within ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes that the Scheme during operation would have the following effects due to an increase in N deposition >1% of the lower critical load:

- A **slight adverse effect (not significant)** upon herons due to a potential depletion in fish (food source) supply due to increase in N deposition within the pool.
- A **slight adverse effect (not significant)** upon wintering wildfowl, including shoveler, due to a potential reduction in available prey due to an increase in N deposition. This should be taken as a worst-case scenario with regards to shoveler, as in the event shovelers are not present within the Pool, as was the conclusion based upon surveys undertaken for this assessment alone, there would be no impact.
- A **slight adverse effect (not significant)** upon breeding waterbirds due to a potential depletion in fish (food source) supply due to increase in N deposition.
- A **slight adverse effect (not significant)** upon breeding and wintering bird assemblages within the woodland due to impacts upon the woodland habitat.

~~8.11.87.~~8.11.88. The Scheme would also result in decreases of N deposition >1% of the lower critical load in some locations within the SSSI as detailed in ES

Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**).

Herald Way Marsh SSSI, LNR and LWS (Claybrookes Marsh)

~~8.11.88.~~8.11.89. Modelling identifies increases in N deposition >1% of the lower critical load. The assessment detailed in ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes that the Scheme during operation would result in a **slight adverse effect (not significant)** upon the nationally important SSSI and a **slight adverse effect (not significant)** upon the county important LNR and LWS.

~~8.11.89.~~8.11.90. ES Chapter 13 (Road Drainage and the Water Environment) (**TR010066/APP/6.1**) concludes no significant effect upon the GWDTE and details mitigation for the site with regards to groundwater impacts.

Willenhall Wood LNR, LWS and ancient woodland (irreplaceable habitat)

~~8.11.90.~~8.11.91. Modelling has identified an increase in NH_3 upwards of the lower critical load and in N deposition >1% of the lower critical load (1µg/m^3). The assessment detailed in ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes a **slight adverse effect (not significant)** upon the LNR and LWS and a **slight adverse effect (not significant)** upon the ancient woodland from both NH_3 and N deposition.

Gainford Rise LWS

~~8.11.91.~~8.11.92. Modelled N deposition at Gainford Rise LWS demonstrated both increases and decreases >1% of the lower critical load. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes a **slight adverse effect (not significant)** from changes in N deposition during operation of the Scheme.

Coombe Abbey LWS

~~8.11.92.~~8.11.93. Modelling of short-term operational noise change has identified increases in noise levels <+3dB, which is considered the threshold for a noticeable change, impacting a section of the banks of Coombe Pool within the LWS. As this 3dB threshold is for human receptors, a precautionary worst-case approach has been taken to this assessment. Interest features of the LWS (i.e. otter and water vole) could be impacted by increases in operational noise resulting in avoidance of habitat and/or decreased efficiency or behaviours such as breeding and foraging. As a worst-case scenario the level of impact would be moderate adverse given the area of Pool banks in the LWS impacted. It is

considered that animals would habituate to the noise levels in the long-term, especially given the noise increases are <3dB, and as such the effect is assessed as **slight adverse (not significant) effect.**

Stretton Croft LWS

~~8.11.93.~~8.11.94. Air quality modelling has identified that Stretton Croft LWS would experience increases in N deposition during the operational phase of the Scheme >1% of the lower critical load. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes a **slight adverse effect (not significant)** due to changes in N deposition during operation of the Scheme.

~~8.11.94.~~8.11.95. Air quality modelling has also identified that the LWS would experience NH_3 levels above the lower critical load (3µg/m^3) during operation, where background levels are below this critical load at 2.2µg/m^3. Due to the increase resulting from the Scheme being minor (see ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**)) the assessment concludes a **slight adverse effect (not significant).**

Piles Coppice LWS and ancient woodland (irreplaceable habitat)

~~8.11.95.~~8.11.96. As ancient woodland is of national importance, the assessment of effect upon the ancient woodland LWS is undertaken on this basis. The Scheme in the operational phase would result in an increase in N deposition >1% of the lower critical load. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) (**TR010066/APP/6.3**) concludes a **slight adverse effect (not significant)** during Scheme operation.

Baginton Fields LWS

~~8.11.96.~~8.11.97. Air quality modelling has identified that Baginton Fields LWS would experience NO_x 1.57µg/m^3 above the critical level during the operational phase of the Scheme with the difference in levels between the 'do minimum' and 'do something' scenarios 0.17µg/m^3, in addition to increases in N deposition >1% of the lower critical load due to the Scheme. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**) concludes a **neutral effect (not significant)** upon the LWS from NO_x due to the absence of the habitats included within the citation in the impacted area and a **slight adverse (not significant) effect** on the LWS due to N deposition during Scheme operation.

Sowe Valley Dorchester Way LWS and Sowe Valley Wyken Croft to Ansty Road LWS

~~8.11.97.~~8.11.98. As detailed within ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**), operational air quality impacts for these sites would be **neutral (not significant).**

Stonebridge Meadows LNR and LWS, Lower Sowe Meadows LWS and Veteran Tree within Piles Coppice

~~8.11.98.~~8.11.99. ES Chapter 5 (Air Quality) (**TR010066/APP/6.1**) has identified that increases in N deposition less than 1% of the lower critical threshold and as such they do not consider the Scheme to result in a significant effect on these sites.

~~8.11.99.~~8.11.100. However, a review of background N deposition levels for the habitats at each of these designated sites shows that the background level is already in exceedance of the critical load and as such any potential increase may have a negative effect. The Scheme would result in an increase in N deposition of 0.06 kg N/ha/yr (0.63% increase) at Stonebridge Meadows LNR and LWS, 0.08 kg N/ha/yr (0.79% increase) at Lower Sowe Meadows LWS and less than 0.01 kg N/ha/yr (0.02% increase) at the veteran trees within Piles Coppice. As such, whilst these numbers are relatively minor they are increasing N deposition on these sites which are already in excess of their background levels. As such, the Scheme would result in a minor adverse impact which is not significant. Note, individual habitat surveys of these sites have not been undertaken. This assessment is based on the most sensitive habitat detailed within the designated site citations and assumes them to be present within the impacted area. As such, it is a worst-case scenario and impacts are likely to be less than the reported levels. This minor adverse impact would result in a **slight adverse (not significant) effect** on Lower Sowe Meadows LWS, Stonebridge Meadows LNR and LWS and the veteran tree at Piles Coppice considering the small increases.

Ancient woodland and veteran trees (irreplaceable habitat)

~~8.11.100.~~8.11.101. Where ancient woodland forms part of a designated site impacts have been assessed in the above sections pertaining to designated sites.

~~8.11.101.~~8.11.102. ES Appendix 8.15 (Assessment of Air Quality Impacts on Ecological Features) (**TR010066/APP/6.3**), concludes a **slight adverse effect (not significant)** upon ancient woodland and a veteran tree during operation due to changes in air quality, due to impacts upon one veteran tree (T12) outside of the Order Limits and one further tree (T11) also outside of the Order Limits identified as ‘beginning to veteranise’ in the arboricultural impact assessment (ES Appendix 7.4 (Arboricultural Impact Assessment) (**TR010066/APP/6.3**)) and

ancient woodland at Binley Common Farm Wood. T12 and T11 are shown on ES Figure 8.1(Designated Sites, Priority Habitats and Veteran Trees) (**TR010066/APP/6.2**).

Great crested newt

~~8.11.102.~~8.11.103. There is potential for an increase in GCN mortality during the operational phase of the Scheme due to new increased areas of carriageway associated with the dumbbell junction located within 500m of a pond 1 confirmed to be used by GCN. There is no increase of carriageway within 500m of pond 15, only a re-alignment of the A46 mainline. The risk of this potential increase in mortality is considered low as the new areas of carriageway are approximately 435m from the pond at the closest point. Furthermore, unsuitable arable land is located between the pond and proposed new area of road reducing the likelihood of GCN reaching the new areas of carriageway, although a connection will exist via an existing hedgerow. No gullies are proposed within new carriageways within 500m of the ponds confirmed as being used by GCN. As the risk of GCN mortality on the new areas of carriageway is low the level of impact is assessed as minor adverse with a **slight adverse effect (not significant)** as a worst-case scenario**.**

Breeding and wintering birds

~~8.11.103.~~8.11.104. There would be an increased risk of mortality to birds due to collision with vehicles during the operational phase due to an increase in carriageway within the Order Limits resulting from the presence of the B4082 link road and the new dumbbell junction. This risk would be partially mitigated through creation of frequently mown grass verges adjacent to the B4082 and dumbbell junction associated with sight line requirements. Frequently mown grassland with a shorter sward height would be less valuable for invertebrates and as such less of a foraging resource for birds directly adjacent to the roads. However, some species would still forage in shorter grassland habitats and as such there is still risk of mortality. Overall, and due to the local bird population already inhabiting roadside habitats, the risk of mortality on new areas of road is considered low and as such the level of permanent impact would be minor adverse resulting in a **slight adverse effect (not significant)**, as a worst-case scenario, on both the county important skylark, linnet, yellowhammer and song thrush, and the locally important breeding and wintering birds.

~~8.11.104.~~8.11.105. The Scheme does not include lighting of the A46 mainline. This would provide a slight beneficial impact with regards to lighting disturbance at the location of the existing A46 Walsgrave Junction, which prior to the Scheme is lit. However, the lighting design includes lighting of the proposed B4082 and the

dumbbell junction and associated slip roads. The street lighting contour plans in ES Appendix 7.5 (Lighting Assessment) (**TR010066/APP/6.3**) show a light spill between 10lux and 1lux upon highway boundary habitats on the B4082 and dumbbell junction. This permanent disturbance impact upon birds utilising created habitats is considered unlikely to affect the integrity or characteristics of the local populations due to the presence of suitable habitat elsewhere within the Order Limits unaffected by lighting and within the wider area. As such the level of impact from lighting is considered to be minor adverse resulting in a **slight adverse effect (not significant)** on both the county important skylark, linnet, yellowhammer and song thrush, and the locally important breeding and wintering birds.

~~8.11.105.~~8.11.106. Modelled short-term operational noise change has identified both increases and reductions in noise levels across the ZOI for breeding and wintering birds between the 'do minimum opening year' in the absence of the Scheme and the 'do something opening year' (i.e. with the Scheme in the first year of operation). Increases in noise would occur mainly along the proposed B4082 and adjacent to the south-east of the current junction location. Impacts upon birds due to increases in noise levels could include abandonment of breeding/roosting and foraging habitat, and a reduced efficiency in behaviours including foraging and breeding.

~~8.11.106.~~8.11.107. The remainder of the Order Limits and ZOI for breeding and wintering birds would experience a decrease in noise levels of up to -7.5dB in the most beneficially impacted area. The areas of the ZOI subject to decreases in noise levels are significantly larger than those areas which would experience increases in noise levels and as such significantly mitigate for those areas. Reductions in noise could improve the suitability of the ZOI for breeding and wintering birds. Although the reductions in many areas are below what is considered a noticeable threshold (3dB (see ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**)) smaller reductions in noise may still deliver benefits particularly to breeding birds where noise may drop to be >3dB below singing and result in an increased efficiency of breeding behaviour.

~~8.11.107.~~8.11.108. The level of impact of noise changes during operation is therefore assessed as minor beneficial for wintering birds, considering the areas of the ZOI which would experience reductions >3dB, resulting in a **slight beneficial (not significant)** effect. The level of impact on breeding birds, where benefits can be experienced from reductions <3dB, is assessed as minor beneficial, which would result in a **slight beneficial (not significant) effect** on locally important species. The effect on county important yellowhammer, linnet, song thrush and skylark is assessed also as **neutral (not significant)** on a conservative basis given the uncertainty of benefits of noise reductions <3dB.

Barn owl

~~8.11.108.~~8.11.109. There would be an increased risk of mortality to barn owl due to collision with traffic during the operational phase due to an increase in carriageway within the Order Limits resulting from the presence of the B4082 link road and the new dumbbell junction. Embedded mitigation includes creation of screens of taller vegetation (hedgerows with trees) along the Scheme to encourage birds to fly up and over the carriageways. Additionally, the Scheme with regards to cover and location of less frequently mown species-rich grassland has been designed to limit potential foraging habitat on the road verges whilst also achieving a balance with delivering areas of more valuable grassland for other species. Slight gaps in the vegetation screens along the B4082 link road are present at the Hungerley Hall Farm access track and at a location with overhead power lines. As such as a worst-case scenario there would be a minor adverse impact resulting in a **slight adverse effect (not significant).**

~~8.11.109.~~8.11.110. The Scheme includes introducing lighting in the vicinity of Hungerley Hall Farm along the B4082 link road at the request of Coventry City Council. The street lighting contour layout plants (ES Appendix 7.5 (Lighting Assessment) (**TR010066/APP/6.3**)) show light spill from the B4082 link road impacting one corner of one barn at Hungerley Hall Farm at levels of 1lux. No further lighting impacts would occur and as this impact reaches the corner of the building only it is considered unlikely to have an impact. As such there would be a **neutral effect (not significant)** upon barn owl from operational lighting at the farm**.**

~~8.11.110.~~8.11.111. No areas of suitable foraging habitat would be impacted by the Scheme lighting. Lighting of the B4082 link road and new dumbbell junction may impact potential barn owl commuting routes to suitable foraging areas including the area to the west of the River Sowe and south-west of the existing Walsgrave Junction (see ES Figure 8.2 (Ecological Constraints) (**TR010066/APP/6.2**)). It is considered barn owls would most likely alter their route to these habitats, however as a worst-case scenario these two foraging areas may become inaccessible to barn owl from the east, resulting in a minor adverse impact and a **slight adverse effect (not significant).**

Bats

~~8.11.111.~~8.11.112. There would be an increased risk of mortality to bats due to collision with traffic during the operational phase due to an increase in carriageway within the Order Limits resulting from the presence of the B4082 link road and the new dumbbell junction. This risk would be partially mitigated through the creation of frequently mown grass verges adjacent to the B4082 link road and dumbbell

junction associated with sight line requirements, reducing the potential foraging suitability of the habitat immediately adjacent to the carriageway. The Scheme also includes planting of native hedgerows with trees along the length of the roads. These linear features would encourage bats approaching the Scheme from the east or west to commute north or south along the Scheme and also force bats to fly higher above the carriageway if undeterred from crossing. A small risk of mortality would still exist. The level of impact is assessed as minor adverse resulting in a **slight adverse effect (not significant).**

~~8.11.112.~~8.11.113. The Scheme includes removal of lighting near the location of the existing Walsgrave Junction. The removal of lighting at this location would remove lighting impacts for bats foraging and commuting along highway boundary woodland. However, as woodland on a dual carriageway highway boundary and with no bat activity data specific to this location it is not possible to quantify this minor beneficial impact.

~~8.11.113.~~8.11.114. The Scheme introduces lighting along the B4082 link road and the dumbbell junction in areas which prior to the Scheme were not lit. The street lighting contour plans show light spill impacting the immediate verge habitats and as such bats using these features as commuting routes or as foraging habitat could be impacted. Artificial lighting of habitats can lead to bats avoiding use of these habitats. Impacts of lighting differs between species. Species primarily recorded within the Order Limits during targeted activity surveys include common and soprano pipistrelle, noctule and Myotis species (see Annex A of ES Appendix 8.6 (Bat Activity Report) (**TR010066/APP/6.3**)). Myotis species have been identified as a species group which avoid commuting and foraging routes illuminated by artificial lighting (BCT and ILP, 2023), whilst species including pipistrelles and noctule have been shown to forage around white light sources (BCT and ILP, 2023). Species sensitive to light can be at a disadvantage with foraging efficiency impacted, and those species using lighting to forage can be at increased risk of predation.

~~8.11.114.~~8.11.115. The lighting design for the Scheme to be undertaken during the detailed design stage will be in accordance with the latest BS 5489 standard (British Standards Institution, 2020) and National Highways' specifications. The design also takes into consideration guidance within the Institution of Lighting Professionals and Bat Conservation Trust Guidance Note 08/23 – Bats and Artificial Lighting at Night (2023).

~~8.11.115.~~8.11.116. Due to the presence of suitable foraging habitat in unlit areas of the Order Limits and beyond the Order Limits, the potential impacts of bats due to lighting in those affected habitats would not be considered to impact the integrity and characteristics of the bat populations. The level of impact from operational

lighting on bats is assessed as minor adverse resulting in a **slight adverse effect (not significant).**

~~8.11.116.~~8.11.117. Modelled short-term operational noise change has identified both increases and reductions in noise levels across the Order Limits between the 'do minimum opening year' in the absence of the Scheme and the 'do something opening year' (i.e. with the Scheme in the first year of operation). Increases in noise would occur mainly along the proposed B4082 and adjacent to the south-east of the current junction location. Impacts upon commuting and foraging bats due to increases in noise levels could include abandonment foraging and commuting habitat, and a reduced efficiency in foraging.

~~8.11.117.~~8.11.118. ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**) identifies a **neutral (not significant) effect** on potential bat roosts at Hungerley Hall Farm due to changes in noise during operation.

~~8.11.118.~~8.11.119. Significant areas of suitable habitat for bats within the Order Limits would see reduction in noise levels and as such these areas are considered sufficient to mitigate areas of increased noise. The effect is therefore considered **neutral (not significant).**

Badger

~~8.11.119.~~8.11.120. There would be an increased risk of mortality to badger due to collision with vehicles during the operational phase due to an increase in carriageway within the Order Limits resulting from construction of the B4082 link road and the new dumbbell junction. Badgers have been recorded using the Hungerley Hall Farm accommodation overbridge to cross the A46 and as such the presence of the B4082 link road creates a risk of mortality as badgers cross the bridge and continue on or across the B4082 carriageway to reach suitable habitat to the west. Embedded mitigation against badger mortality on the B4082 link road includes the provision of a badger crossing the B4082 link road and associated badger fencing, as fully detailed in ES Appendix 8.13 (Draft Badger Mitigation Licence) (**TR010066/APP/6.3**). The associated fencing fully mitigates for badger mortality along the B4082, however there remains an increased risk of mortality on the proposed dumbbell junction to the east of the A46 main line where new carriageway is proposed. As such the level of impact is assessed as minor adverse resulting in a slight adverse effect (not significant), as a worst-case scenario, on badger from mortality during the operational phase.

~~8.11.120.~~8.11.121. Artificial lighting along the B4082 link road and on the dumbbell junction could lead to disturbance to commuting and foraging badger. The street

lighting contour plans show light spill onto verge habitats. Badger fencing along the B4082 will ensure badger have no access to the verges on the B4082 link road and as such there can be no impact in these locations. There is a small risk of disturbance to badger around the dumbbell junction due to proposed lighting, however it is considered unlikely badger would forage on habitat immediately adjacent to the verge and as such the level of impact is not anticipated to change and the effect is assessed as **neutral (not significant).**

~~8.11.121.~~8.11.122. Modelled short-term operational noise change has identified both increases and reductions in noise levels across the Order Limits between the 'do minimum opening year' in the absence of the Scheme and the 'do something opening year' (i.e. with the Scheme in the first year of operation). Increases in noise would occur mainly along the proposed B4082 and adjacent to the south-east of the current junction location. Impacts upon badger due to increases in noise levels could include abandonment of suitable habitat.

~~8.11.122.~~8.11.123. Significant areas of suitable habitat for badger within the Order Limits would see reduction in noise levels and as such these areas are considered sufficient to mitigate areas of increased noise. The effect is therefore considered **neutral (not significant).**

Otter

~~8.11.123.~~8.11.124. The Scheme includes lighting along the B4082 link road and on the new dumbbell junction. Lighting would not impact upon Coombe Pool, Smite Brook or the River Sowe and as such no impacts are anticipated upon otter from Scheme lighting. There would therefore be a **neutral effect (not significant).**

~~8.11.124.~~8.11.125. Modelled short-term operational changes in noise has identified increases in noise on the banks of Coombe Pool and Smite Brook to the east of the A46. Smite Brook to the west of the A46 and the River Sowe would experience reductions in noise during operation.

~~8.11.125.~~8.11.126. ES Appendix 8.16 (Assessment of Noise Impacts on Ecological Features) (**TR010066/APP/6.3**) details the assessment with regards to identified otter couches. In terms of commuting and foraging otter, the increases in noise may result in abandonment of foraging habitat. Given that Coombe Pool is a fishing lake, it is considered that the area of pool impacted by increases in noise could be a significant foraging resource for otter. However, considering likely habituation of otter to the increase noise over time, the level of impact is assessed as moderate adverse and the effect is assessed as **slight adverse (not significant).** Increases along Smite Brook could, as a worst case, lead to avoidance of this commuting corridor and thereby effectively sever suitable

habitat at Coombe Pool from further suitable habitat to the west. Considering likely habitation of otter to increased noise in operation in the long-term the impact is assessed as a temporary moderate adverse impact resulting in a **slight adverse (not significant) effect.**

Fish

~~8.11.126.~~8.11.127. The Scheme includes lighting along the B4082 link road and on the new dumbbell junction. Lighting would not impact upon Coombe Pool, Smite Brook or the River Sowe and as such no impacts are anticipated upon fish from Scheme lighting. There would therefore be a **neutral effect (not significant).**

Other species including hedgehog, brown hare and polecat

~~8.11.127.~~8.11.128. There would be an increased risk in mortality to hedgehog, brown hare and polecat due to creation of new areas of carriageway including the B4082 link road and the new dumbbell junction. Habitats created on road verges as part of the Scheme include habitats suitable for these species such as woodland and species-rich grassland.

~~8.11.128.~~8.11.129. It is considered that brown hare are unlikely to cross the new areas of carriageway. Brown hare are mostly associated with open arable land and associated grassland and woodland verges and as such there would be little need for brown hare to cross the B4082 due to the presence of suitable habitat in the wider area and the lack of open arable land between the proposed B4082 link road and the realigned A46. Due to this low risk the level of impact is assessed as minor adverse resulting in a **slight adverse effect (not significant),** as a worst-case scenario, upon the locally importance feature.

~~8.11.129.~~8.11.130. Habitat suitable for hedgehog and polecat would be created between the B4082 and the A46 mainline, and within the verge habitats along the B4082 and the dumbbell junction. As habitat for these species exists within the wider area, including habitat created in accessible areas of the highway boundary, it is considered unlikely that these species would frequently attempt to cross carriageways. As such the level of impact is assessed as minor adverse resulting in in a **slight adverse effect (not significant),** as a worst-case scenario, upon locally important hedgehog and polecat.

Summary of operation effects

~~8.11.130.~~8.11.131. Table 8-23 summarises the effects of the Scheme during the operational phase upon ecological features.

Table 8-23: Summary of the Scheme operational effects upon ecological features

Ecological features	Overall significance of effect during operation
Coombe Pool SSSI	Slight adverse (not significant)
Herald Way Marsh SSSI, LNR and LWS (Claybrookes Marsh)	Slight adverse (not significant)
Willenhall Wood LNR, LWS and ancient woodland (irreplaceable habitat)	Slight adverse (not significant)
Gainford Rise LWS	Slight adverse (not significant)
Stretton Croft LWS	Slight adverse (not significant)
Coombe Abbey LWS	Slight adverse (not significant)
Piles Coppice LWS and ancient woodland (irreplaceable habitat)	Slight adverse (not significant)
Stonebridge Meadows LNR and LWS, Lower Sowe Meadows LWS and veteran tree in Piles Coppice	Slight adverse (not significant)
Baginton Fields LWS	Neutral (not significant)
Sowe Valley Dorchester Way LWS and Sowe Valley Wyken Croft to Ansty Road LWS	Neutral (not significant)
Hungerley Hall Farm Ecosite	N/A, no pathway for effect, direct impacts only assessed
Coombe Abbey Pool Ecosite	N/A, no pathway for effect, direct impacts only assessed
Priority habitats: hedgerows	Neutral (not significant)
Priority habitats: coastal and floodplain grazing marsh, deciduous woodland	Neutral (not significant)
Priority habitats: lowland fens	Neutral (not significant)
Ponds	Neutral (not significant)
Ancient woodland and veteran trees (irreplaceable habitat)	Slight adverse (not significant)
GCN	Slight adverse (not significant)
Breeding birds	Slight adverse (not significant)
Barn owl	Slight adverse (not significant)
Wintering birds	Slight adverse (not significant)
Bats	Slight adverse (not significant)
Badger	Slight adverse (not significant)
Otter	Slight adverse (not significant)
Fish including brown trout, bullhead and European eel	Neutral (not significant)
Other notable species including hedgehog, brown hare and polecat	Slight adverse (not significant)

8.12. Monitoring

General

8.12.1. The Scheme is anticipated to result in a residual significant effect upon Coombe Pool SSSI during construction. No residual significant effects are anticipated during operation. Monitoring during both construction and operation will aim to record changes in the ecological baseline, determine whether the mitigation/compensation measures are successful, and inform whether remedial actions are required. The Scheme monitoring requirements are detailed within the First Iteration EMP (**TR010066/APP/6.5**). In accordance with Requirement 4 of the draft DCO (**TR010066/APP/3.1**) a Second Iteration EMP will secure the monitoring requirements and procedures, as summarised below, to reduce or eliminate impacts on the environment prior to construction commencing.

8.12.2. An ECoW would be employed during the construction phase where relevant to monitor implementation and effectiveness of mitigation measures during construction detailed within the Second Iteration EMP which would be developed prior to construction and based upon the First Iteration EMP (**TR010066/APP/6.5**).

Habitats

8.12.3. Habitats planted as part of the Scheme would require specific monitoring and management to ensure embedded mitigation achieves and maintains its integrity. Monitoring would identify any required remedial measures. Required monitoring and management will be outlined within the LEMP in the Second Iteration EMP.

8.12.4. Monitoring of habitats would also include monitoring of the Schedule 9 INNS rhododendron and Himalayan balsam within the Order Limits within the SSSI woodland during construction. This would be detailed within the Second Iteration EMP developed prior to construction commencing.

Protected species

8.12.5. Specific protected species monitoring surveys are not considered a requirement for the Scheme post-construction. Monitoring during construction would be as detailed within the First Iteration EMP REAC (**TR010066/APP/6.5**).

8.13. Conclusions

8.13.1. The Scheme is anticipated to have the following effects (worst adverse effects only reported), excluding neutral only effects, during the construction phase, assessed as **not significant** in accordance with DMRB LA 108:

- Slight adverse effect on Coombe Pool SSSI
- Slight adverse effect on Coombe Abbey LWS
- Slight beneficial effect on Hungerley Hall Farm Ecosite
- Slight beneficial effect on priority habitat hedgerows
- Slight beneficial effect on ponds
- Slight adverse effect on GCN
- Slight adverse effect on breeding birds including skylark, linnet, yellowhammer and song thrush
- Slight adverse effect on barn owl
- Slight adverse effect on wintering birds
- Slight adverse effect on bats
- Slight adverse effect on badger
- Slight adverse effect on otter
- Slight adverse effect on fish
- Slight adverse effect on hedgehog, brown hare and polecat

8.13.2. The Scheme is anticipated to have the following effects (worst adverse effects only reported), excluding neutral only effects, during the operation phase, assessed as **not significant** in accordance with DMRB LA 108:

- Slight adverse effect on Coombe Pool SSSI
- Slight adverse effect on Herald Way Marsh SSSI, LNR and LWS (Claybrookes Marsh)
- Slight adverse effect on Willenhall Wood LNR, LWS and ancient woodland (irreplaceable habitat)
- Slight adverse effect on Gainford Rise LWS
- Slight adverse effect on Stretton Croft LWS
- Slight adverse effect on Coombe Abbey LWS
- Slight adverse effect on Piles Coppice LWS and ancient woodland (irreplaceable habitat)
- Slight adverse effect on Lower Sowe Meadows LWS
- Slight adverse effect on Stonebridge Meadows LNR and LWS
- Slight adverse effect on irreplaceable habitat ancient woodland and veteran trees (including veteran tree in Piles Coppice)
- Slight adverse effect on GCN

- Slight adverse effect on breeding birds, including skylark, linnet, yellowhammer and song thrush
- Slight adverse effect on barn owl
- Slight adverse effect on wintering birds
- Slight adverse effect on bats
- Slight adverse effect on badgers
- Slight adverse effect on otter
- Slight adverse effect on other notable species including hedgehog, brown hare and polecat

8.13.3. There would be no **residual significant effects** upon ecological features as a result of the Scheme during either construction or operation.

8.13.4. Table 8-24 summarises the assessment of significance of effect of the Scheme upon ecological features.

Table 8-24: Summary of assessment of significance of effect

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
National designated site	Coombe Pool SSSI	National	Construction • Hydrological impacts • Air quality impacts (dust) • Disturbance impacts (noise and vibration, lighting) • Temporary habitat loss • Spread of INNS Operation • Hydrological impacts • Air quality impacts (N and NH3 deposition) • Disturbance (noise and lighting)	Operation • Location of the A46 mainline situated at the maximum distance from the SSSI to reduce potential impacts • Planting of 0.5ha of woodland adjacent to the north of Coombe Pool SSSI woodland to mitigate habitat loss • The lighting design does not include lighting of the A46 mainline • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention, dust and lighting mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**) • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within Chapter 13 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**). • A temporary noise barrier during construction. • Ornithological monitoring during construction works alongside the SSSI. An Ornithological monitoring plan will be produced.	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				• Mitigation in EMP to prevent spread of INNS.	
	Herald Way Marsh SSSI, LNR and LWS (Claybrookes Marsh)	National (SSSI), county (LNR and LWS)	Construction • Hydrological impacts upon the GWDTE from groundwater impacts Operation • Hydrological impacts upon the GWDTE from groundwater impacts • Air quality impacts (N and NH3 deposition)	None required	Construction N/A, no pathway for effect Operation Slight adverse effect (not significant)
	Stoke Floods LNR	County	Construction • Hydrological impacts Operation • Hydrological impacts	Operation • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention measures within the First Iteration EMP (**TR010066/APP/6.5**)	Construction Neutral (not significant) Operation Neutral (not significant)
	Stonebridge Meadows LNR and LWS	County	Construction • None Operation • Air quality impacts (N and NH_3 deposition)	None required	Construction N/A, no pathway for effect Operation Slight adverse (not significant)
Statutory designated site (LNR),	Willenhall Wood LNR, LWS and	County (LNR and LWS), national	Construction • None	None required	Construction N/A, no pathway for effect

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
non-statutory designated site (LWS)	ancient woodland (irreplaceable habitat)	(ancient woodland)	Operation • Air quality impacts (N and NH_3 deposition)		Operation Slight adverse (not significant)
Locally designated site	Gainford Rise LWS	County	Construction • Hydrological impacts • Air quality impacts (dust) Operation • Hydrological impacts • Air quality impacts (N and NH3 deposition)	Operation • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention and dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**)	Construction Neutral (not significant) Operation Slight adverse (not significant)
	Lower Sowe Meadows LWS	County	Construction • None Operation • Air quality impacts (N and NH_3 deposition	None required	Construction Neutral (not significant) Operation Slight adverse (not significant)
	Stretton Croft LWS	County	Construction • None Operation • Air quality impacts (N and NH_3 deposition)	None required	Construction N/A. No pathway for effect. Operation Slight adverse (not significant)
	Coombe Abbey LWS	County	Construction • Hydrological impacts • Air quality impacts (dust)	Operation • The drainage design would mitigate surface water flood risk and impacts from the Scheme Construction	Construction Slight adverse (not significant) Operation

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			• Disturbance (noise and vibration) Operation • Disturbance impacts (noise)	• Construction works would adhere to pollution prevention and dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**) • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	Slight adverse (not significant)
	Piles Coppice LWS and ancient woodland (irreplaceable habitat)	National (ancient woodland), county (LWS)	Construction • None Operation • Air quality impacts (N and NH_3 deposition	None required	Construction Neutral (not significant) Operation Slight adverse (not significant)
	Stoke Floods LWS	County	Construction • Hydrological impacts Operation • Hydrological impacts	Operation • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention measures within the First Iteration EMP (**TR010066/APP/6.5**)	Construction Neutral (not significant) Operation Neutral (not significant)
	Sowe Valley: Dorchester Way LWS	County	Construction • Hydrological impacts • Air quality impacts (dust) Operation	Operation • The drainage design would mitigate flood risk and impacts from surface water Construction	Construction Neutral (not significant) Operation

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			• Hydrological impacts • Air quality impacts (N and NH3 deposition	• Construction works would adhere to pollution prevention and dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**)	Neutral (not significant)
	Sowe Valley Wyken Croft to Ansty Road LWS, Lower Baginton Fields LWS and	County	Construction • None Operation • Air quality impacts (N and NH_3 deposition	None required	Construction Neutral (not significant) Operation Neutral (not significant)
	Hungerley Hall Farm Ecosite	Local	Construction • Permanent and temporary habitat loss. Operation • None. Direct impacts only assessed for Ecosites.	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss • The environmental masterplan would include habitat creation within the Ecosite Construction • None	Construction Slight beneficial (not significant) Operation N/A, no pathway for effect, direct impacts only assessed
	Coombe Abbey Pool Ecosite	Local	Construction • Permanent and temporary habitat loss. • Spread of INNS. Operation • None. Direct impacts only assessed for Ecosites.	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss Construction • Mitigation in EMP to prevent spread of INNS.	Construction Neutral (not significant) Operation N/A, no pathway for effect, direct impacts only assessed
Priority habitat	Hedgerows	National	Construction • Permanent habitat loss	Operation • Hedgerow removal has been minimised	Construction

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			• Hydrological impacts • Air quality impacts (dust) Operation • Hydrological impacts	• The environmental masterplan includes the creation of 2.38km of hedgerow • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention and dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**)	Slight beneficial (not significant). Operation Neutral (not significant)
	Coastal and floodplain grazing marsh, deciduous woodland		Construction • Hydrological impacts • Air quality impacts (dust) Operation • Hydrological impacts	Operation • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention and dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**)	Construction Neutral (not significant) Operation Neutral (not significant)
	Lowland fens		Construction • Hydrological impacts Operation • Hydrological impacts	Operation • The drainage design would mitigate flood risk and impacts from surface water Construction • Construction works would adhere to pollution prevention measures within the First Iteration EMP (**TR010066/APP/6.5**)	Construction Neutral (not significant) Operation Neutral (not significant)
	Ponds	National	Construction	Operation	Construction

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			• Hydrological impacts • Air quality impacts (dust) Operation • Hydrological impacts	• The drainage design would mitigate flood risk and impacts from surface water • The drainage design includes creation of two drainage ponds designed to be permanently wet and planted with aquatic species Construction • Construction works would adhere to pollution prevention and dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**)	Slight beneficial (not significant) Operation Neutral (not significant)
Ancient woodland (irreplaceable habitat)	Ancient woodland and veteran trees	National	Construction • Air quality impacts (dust) upon one veteran tree and one tree beginning to veteranise Operation • Air quality impacts (N and NH_3 deposition)	Operation • Badger fencing has been set back outside of the RPZ to avoid impacts Construction • Construction works would adhere to dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**)	Construction Neutral (not significant) Operation Slight adverse (not significant)
Protected and Notable Species	GCN	County	Construction • Permanent loss of terrestrial habitat • Injury/mortality • Disturbance impacts in terrestrial habitat (noise, vibration and lighting) Operation • Mortality	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss • Creation of suitable terrestrial habitat within 500m of GCN ponds to mitigate habitat loss • Exclusion of a kerb and gully system within the drainage design along the	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				A46 mainline which would mitigate injury and mortality during operation Construction • Update surveys would be undertaken in 2025 • Where feasible timing of above-ground vegetation clearance works during hibernation season (November to February inclusive) within 500m of a GCN pond • No ground-breaking works during the hibernation season within 500m of a GCN pond • Vegetation clearance under supervision of an ECoW with associated mitigation measures • Good practice measures with regards to storage of material and trenches/excavations to mitigate mortality during construction • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) **(TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Breeding birds	Local County (Skylark, linnet,	Construction • Loss of habitat (nest sites and foraging resource) • Injury/mortality • Habitat fragmentation	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss	Construction Slight adverse (not significant) Operation

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
		yellowhammer and song thrush)	• Air quality impacts (dust) • Disturbance impacts (noise, vibration and lighting) <u>Operation</u> • Injury/mortality • Loss of terrestrial habitat due to disturbance (noise, lighting)	• The environmental masterplan would create nesting and foraging habitat for many species • The creation of hedgerows nearby species-rich grassland would create nesting habitat for the county important linnet and yellowhammer nearby a foraging resource • Grassland creation would provide a year-round foraging resource for the county important linnet • Creation of woodland, scrub and trees would provide nesting habitat for the county important song thrush • The lighting design does not include lighting of the A46 mainline <u>Construction</u> • Construction works would adhere to dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**) • Vegetation clearance outside of the core breeding bird season (March to August inclusive) where feasible • Nest checks by an ECoW where vegetation clearance takes place in the core breeding bird season (March to August inclusive) • Pre-construction checks of suitable habitat for kingfisher for works in the	Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				vicinity in the core breeding bird season (March to August inclusive) • Appropriate stand-off distances for active kingfisher nests • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Barn owl	County	Construction • Loss of habitat (foraging resource) from indirect air quality (dust) and hydrological impacts • Disturbance impacts (noise, vibration and lighting) Operation • Mortality • Disturbance impacts (noise and lighting)	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss • Planting of tall vegetative screens along the road verges to force birds to fly higher over the carriageway and mitigate mortality • Design of less managed species-rich grassland and mown short verges to balance minimisation of barn owl foraging habitat on verges with provision of grassland of a higher biodiversity value • The lighting design does not include lighting of the A46 mainline Construction • Update surveys would be undertaken in 2025 • Installation of two barn owl boxes within Coombe Abbey Park to provide	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				alternative nesting habitat during construction works • Pre-works checks by licensed ecologist of any newly identified trees (from update surveys in 2025) which would be directly impacted • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Wintering birds		Construction • Injury/mortality • Loss of habitat (roost sites and foraging resource) • Habitat fragmentation • Air quality impacts (dust) • Disturbance impacts (noise, vibration and lighting) Operation • Mortality • Disturbance impacts (noise, lighting) and associated loss of suitably undisturbed habitat	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss • The environmental masterplan would create roosting and foraging habitat for many species • Grassland creation would provide a year-round foraging resource for the county important linnet • The lighting design does not include lighting of the A46 mainline Construction • Construction works would adhere to dust mitigation measures within the First Iteration EMP (**TR010066/APP/6.5**) • Good practice measures with regards to minimising noise and vibration would be	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Bats	County	Construction • Injury/mortality • Loss of habitat (potential roosting locations, foraging and commuting) • Disturbance impacts (noise, vibration and lighting) Operation • Mortality • Disturbance impacts to future roosts and commuting and foraging bats (noise, lighting) and associated loss of suitably undisturbed habitat	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss • Retention of existing trees where feasible including twelve individual trees and one group of trees with roosting potential • Retention of the Hungerley Hall Farm accommodation overbridge as a commuting route • No lighting of the A46 mainline • Minimisation of habitat loss and design of the environmental masterplan to provide shelter, foraging opportunities and dark corridors • The lighting design does not include lighting of the A46 mainline Construction • Update surveys would be undertaken in 2025 • Where feasible trees with roosting potential where felling/pruning is unavoidable would be felled during September or October	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				• Should felling/pruning in September/October not be feasible felling/pruning would be timed to avoid impacts dependent upon roosting potential identified • Checks of trees with roosting potential prior to felling/pruning • Installation of five bat boxes within Coventry City Council area to mitigate for loss of one tree with high roosting potential and pruning of one with moderate roosting potential • Bat boxes would include two with suitability for hibernation roosts to mitigate loss of one hibernation potential feature in high potential tree felled • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Badger	Local	Construction • Mortality • Loss of a habitat (a subsidiary sett, foraging habitat) • Disturbance impacts (noise, vibration and lighting) • Severance of habitat	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss • Retention of the Hungerley Hall Farm accommodation overbridge as a commuting route	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			Operation • Mortality • Disturbance impacts (noise, lighting) and associated loss of suitably undisturbed habitat	• Creation of a badger culvert beneath the B4082 and associated fencing to mitigate mortality • The lighting design does not include lighting of the A46 mainline Construction • Update surveys would be undertaken in 2025 • A Natural England licence would be sought to close and destroy the active subsidiary sett within the Order Limits • The Hungerley Hall Farm accommodation overbridge would remain unobstructed during construction to mitigate habitat fragmentation • Good practice measures with regards to trenches/excavations to mitigate mortality during construction • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Otter	County	Construction • Injury/mortality • Loss of terrestrial riparian habitat	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss	Construction Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			• Hydrological impacts • Disturbance impacts (noise, vibration, lighting) • Fragmentation of habitat <u>Operation</u> • Hydrological impacts • Disturbance impacts (noise, lighting) and associated loss of suitably undisturbed habitat	• The drainage design would mitigate flood risk and impacts from surface water • The lighting design does not include lighting of the A46 mainline. The Smite Brook riparian corridor would not be impacted <u>Construction</u> • Update surveys would be undertaken in 2025 • Construction works would adhere to pollution prevention measures within the First Iteration EMP (**TR010066/APP/6.5**) • Construction lighting would avoid lighting of the River Sowe and Smite Brook • Good practice measures with regards to trenches/excavations to mitigate mortality during construction • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	<u>Operation</u> Slight adverse (not significant)
	Fish, including brown trout, bullhead and European eel	Local County (European eel)	<u>Construction</u> • Hydrological impacts • Disturbance impacts (lighting)	<u>Operation</u> • The drainage design would mitigate flood risk and impacts from surface water	<u>Construction</u> Slight adverse (not significant) <u>Operation</u>

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
			• Fragmentation of habitat due to avoidance of disturbed areas Operation • Hydrological impacts • Disturbance impacts (lighting) • Fragmentation of habitat due to avoidance of disturbed areas	• The lighting design does not include lighting of the A46 mainline. The Smite Brook riparian corridor would not be impacted Construction • Construction works would adhere to pollution prevention measures within the First Iteration EMP (**TR010066/APP/6.5**) • Construction lighting would avoid lighting of the River Sowe and Smite Brook	Neutral (not significant)
	Hedgehog	County	Construction • Injury/mortality • Loss of habitat • Severance of habitat • Disturbance impacts (noise, vibration, lighting) Operation • Mortality	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss Construction • Supervision of vegetation clearance by an ECoW during the hedgehog active season (March/April to October/November) • Where feasible habitat suitable for hibernating hedgehog would be cleared during suitable conditions in the active season (March/April to October/November) • Good practice measures with regards to storage of material and trenches/excavations to mitigate mortality during construction	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Ecological feature		Feature importance	Potential impact (in the absence of mitigation)	Mitigation (specific to the feature)	Residual effect
				• Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	
	Brown hare and polecat	Local	Construction • Injury/mortality • Loss of habitat • Severance of habitat • Disturbance impacts (noise, vibration, lighting) Operation • Mortality	Operation • Scheme design and working areas have been kept to a minimum to reduce habitat loss Construction • Good practice measures with regards to trenches/excavations to mitigate mortality during construction • Good practice measures with regards to minimising noise and vibration would be employed during construction as detailed within ES Chapter 11 (Noise and Vibration) (**TR010066/APP/6.1**) and the First Iteration EMP (**TR010066/APP/6.5**)	Construction Slight adverse (not significant) Operation Slight adverse (not significant)

Acronyms

Acronym	
LBAP	Local Biodiversity Action Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
cSAC	Candidate Special Area of Conservation
CWS	Conservation Wildlife Site
GCN	Great crested newt
GWDTE	Ground-water dependent terrestrial ecosystem
LNCS	Local Nature Conservation Sites
LNR	Local Nature Reserves
LWS	Local Wildlife Site
NERC	Natural Environment and Rural Communities
NNRs	National Nature Reserves
pSACs	Possible Special Areas of Conservation
pSPAs	Possible Special Protection Areas
SACs	Special Areas of Conservation
SCIs	Sites of Community Importance
SINCs	Sites of Importance for Nature Conservation
SLNCIs	Sites of Local Nature Conservation Importance
SNCIs	Sites of Nature Conservation Importance
SPAs	Special Protection Areas
SSSI	Site of Special Scientific Interest
SuDS	Sustainable urban drainage systems
TPOs	Tree Preservation Orders
ZOI	Zone of influence

Glossary

Glossary term	Definition
Biodiversity	The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems.
Designated sites	Internationally, nationally, or locally designated sites for species and/or habitats.
Ecological features	Habitats, species or ecosystems which for the purposes of this document are collectively referred to as ecological features.
Ecosite	Local site identified by Coventry City Council and by the Warwickshire Biological Records Centre (WBRC). The ecosites have no implications with regards to planning (i.e. would not be a material consideration).
Enhancement	Enhancement is improved management of an ecological feature or provision of new ecological features which result in a net benefit to biodiversity. Enhancement is 'over and above' that required to mitigate or compensate for an adverse impact.
Habitat	The place or type of site where an organism or population naturally occurs. Often used in the wider sense referring to major assemblages of plants and animals found together.
Priority habitats and species	Those species and habitats which are listed on Section 41 of the Natural Environment and Rural Communities (2006) Act as species of principal importance for conservation
Significant effect	As defined by DMRB LA 108 significant effects are those determined as moderate, large or very large considering mitigation using the significance of effect matrix in Table 3.13 of LA 108. The significance of effect is determined considering the importance of the ecological feature and the level of impact including the extent, magnitude, frequency, timing and whether the impact is permanent or temporary.
Triggered links	All roads that trigger the traffic screening criteria and adjoining roads within 200m for the assessment of air quality impacts
Zone of influence	The area(s) over which biodiversity resources can be affected by biophysical changes as a result of the Scheme.

References

Air Pollution Information System (APIS) 2016). Available at: https://www.apis.ac.uk/ (Accessed June 2024).

Bat Conservation Trust and Institute of Lighting Professionals (2023). Guidance Note GN 08/23 Bats and Artificial Lighting at Night. Available at: https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ (Accessed May 2024).

CIEEM (2017). Guidelines for Preliminary Ecological Appraisal. [online] available at: https://cieem.net/resource/guidance-on-preliminary-ecological-appraisal-gpea/ April 2023

CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland. [online] available at: https://cieem.net/wp-content/uploads/2019/02/Combined-EclA-guidelines-2018-compressed.pdf. Accessed April 2023

CIEEM (2019). Advice Note on the Lifespan of Ecological Reports and Surveys. [online] available at: https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys. Accessed April 2023.

Coventry City Council (2017) Coventry City Council Local Plan 2011-2031. [online] available at: https://www.coventry.gov.uk/downloads/file/25899/final-local-plan-december-2017 Accessed March 2023

Defra (2024). MAGIC Map. [online] available at: https://magic.defra.gov.uk/MagicMap.aspx. Accessed June 2023

Defra. (2007). *Hedgerow Survey Handbook.* A standard procedure for local surveys in the UK. Defra, London.

Defra (2018). A Green Future: Our 25 Year Plan to Improve the Environment. Available at: https://assets.publishing.service.gov.uk/media/5ab3a67840f0b65bb584297e/25-year-environment-plan.pdf (Accessed April 2024).

Defra (2021). The England Trees Action Plan 2021 – 2024. Available at: https://assets.publishing.service.gov.uk/media/60a3ddd1d3bf7f2886e2a05d/england-trees-action-plan.pdf (Accessed April 2024).

Department for Transport (2020) Road Investment Strategy 2: 2020–2025[online]. Available at: Road Investment Strategy 2: 2020-2025 (Accessed September 2024).

Department for Transport (2014). National Policy Statement for National Networks. [online] available at National policy statement for national networks - GOV.UK (www.gov.uk) Accessed April 2023

Dixon, H. J., Elmarsafy M., Hannan, N., Gao, V., Wright, C., Khan, L. and Gray D. K. (2022). *The effects of roadways on lakes and ponds: a systematic review and assessment of knowledge gaps.* Environmental Reviews. Volume 30, Number 4. (https://cdnsciencepub.com/doi/10.1139/er-2022-0022)

GOV.UK (2024). Guidance: Nationally Significant Infrastructure Projects – Advice Note Eleven, Annex C: Natural England and the Planning Inspectorate. Available online at: https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-eleven-working-with-public-bodies-in-the-infrastructure-planning-process/nationally-significant-infrastructure-projects-advice-note-eleven-annex-c-natural-england-and-the-planning-inspectorate (Accessed August 2024.)

Her Majesty's Government (1981) The Wildlife and Countryside Act (as amended)

Her Majesty's Government (1992) The Protection of Badgers Act

Her Majesty's Government (1997) The Hedgerow Regulations

Her Majesty's Government (2006) The Natural Environment and Rural Communities Act (as amended)

Her Majesty's Government (2017) The Conservation of Habitats and Species Regulations (as amended)

Her Majesty's Government (2021) The Environment Act

Highways England (2015). Biodiversity Plan. [online] available at: biodiversity-plan.pdf (nationalhighways.co.uk) Accessed March 2023

Highways England (2020). DMRB LA 104 Environmental assessment and monitoring

Highways England (2020). DMRB LA 108 Biodiversity

Highways England (2020) DMRB LD 118 Biodiversity design

JNCC (2025). Severe weather scheme criteria and weather station locations. Available online at: Severe Weather Scheme criteria and weather station locations (Accessed June 2025).

Ministry of Housing, Communities & Local Government (2023). National Planning Policy Framework. [online] available at https://www.gov.uk/government/publications/national-planning-policy-framework--2 Accessed August 2024

Modular River Survey (2022). The MoRPh Survey Technical Reference Manual 2022 version. Modular River Survey.

National Highways. (2023). A46 Coventry Junction (Walsgrave Junction) PEIR.

National Highways (2008). Manual of Contract Documents for Highways Works Volume 1 Specification for Highway Works, Series 300 Fencing. Available online at: MCHW VOLUME 1 - SPECIFICATION FOR HIGHWAY WORKS (standardsforhighways.co.uk) (Accessed August 2024).

National Highways (1997). Design Manual for Roads and Bridges, Volume 10 Environmental Design and Management, Section 4 Nature Conservation, Part 2, HA 59/92 Mitigating Against Effects on Badgers (Withdrawn).

Natural England (2024). Designated Sites View Coombe Pool SSSI. Available online at: https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001242 (Accessed August 2024)

Natural England (2023). Method statement template for great crested newt mitigation licence Available at: https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence (Accessed June 2024).

Natural England (2023). Priority River Habitat – Rivers (England). Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/7e5dd3c72f424fd5bc6f013d18dd770c/explore Accessed March 2024

Natural England (2023). The Green Infrastructure Design Guide. Available at: https://designatedsites.naturalengland.org.uk/GreenInfrastructure/downloads/Design%20Guide%20-%20Green%20Infrastructure%20Framework.pdf (Accessed April 2024).

Rugby Borough Council (2019) Rugby Borough Council Local Plan 2011-2031. [online] available at: https://www.rugby.gov.uk/w/local-plan-2011-2031 Accessed April 2024.

The Woodland Trust (2024). Ancient Tree Inventory. Available at: Tree Search - Ancient Tree Inventory (woodlandtrust.org.uk). Accessed April 2024.

TIDE Tidal River Development (2024). Waterbird Disturbance and Mitigation Toolkit. Available at: https://www.tide-toolbox.eu/tidetools/waterbird_disturbance_mitigation_toolkit/#:~:text=The%20Waterbird%20Disturbance%20Toolkit%20has,wetland%20systems%20can%20be%20assessed. (Accessed May 2024).

Warwickshire Museum and Natural Environment (2024). Warwickshire, Coventry and Solihull Sub-regional Green Infrastructure Strategy [online] available at: Sub Regional Green Infrastructure Strategy – Warwickshire County Council Accessed August 2024

Warwickshire Wildlife Trust (2024). Local Biodiversity Action Plan. [online] available at: Warwickshire, Coventry & Solihull Local Biodiversity Action Plan (LBAP) | Warwickshire Wildlife Trust Accessed August 2024

Warwickshire Wildlife Trust (2022). Great crested newt species action plan. Revised Plan March 2022. Available online at https://www.warwickshirewildlifetrust.org.uk/sites/default/files/2022-03/Great%20Crested%20Newt.%20March%202022.pdf (Accessed April 2024).

Warwickshire Wildlife Trust (2021). Revised Plan July 2021, Song Thrush *Turdus philomelos* Available online at: https://www.warwickshirewildlifetrust.org.uk/sites/default/files/2021-08/Song%20Thrush.July%202021.pdf (Accessed June 2024)

Woodland Trust (2024). Ancient Tree Inventory. Available online at: https://ati.woodlandtrust.org.uk/ (Accessed August 2024)