East Midlands Gateway
Phase 2 (EMG2)

Document DCO 6.9/MCO 6.9

ENVIRONMENTAL STATEMENT

Main Statement

Chapter 9

Ecology and Biodiversity

October 2025

09

The East Midlands Gateway Phase 2 and Highway Order 202X and The East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

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9. Ecology and Biodiversity

Contents

9.1. Introduction

9.1.1. This chapter of the ES assesses the likely significant environmental effects of the EMG2 Project in respect of ecological and biodiversity matters. The assessment is based on the project description set out in **Chapter 3: Project Description (Document DCO 6.3/MCO 6.3)** including the development parameters set out in **Table 3.5** of that Chapter. In brief the EMG2 Project comprises three main components as follows:

Table 9.1: The EMG2 Project Components

Main Component	Summary of Component	Works Nos.
DCO Application made by the DCO Applicant for the DCO Scheme		
EMG2 Works	Logistics and advanced manufacturing development located on the EMG2 Main Site south of East Midlands Airport and the A453, and west of the M1 motorway. The development includes HGV parking and a bus interchange. Together with an upgrade to the EMG1 substation and provision of a Community Park.	DCO Works Nos. 1 to 5 including relevant Further Works as described in the draft DCO (**Document DCO 3.1**). DCO Works Nos. 20 and 21 including relevant Further Works as described in the draft DCO (**Document DCO 3.1**).
Highway Works	Works to the highway network: the A453 EMG2 access junction works (referred to as the EMG2 Access Works); significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements), works to the wider highway network including the Active Travel Link, Hyam's Lane Works, L57 Footpath Upgrade, A6 Kegworth Bypass/A453 Junction Improvements and Finger Farm Roundabout Improvements.	DCO Works Nos. 6 to 19 including relevant Further Works as described in the draft DCO (**Document DCO 3.1**).
MCO Application made by the MCO Applicant for the MCO Scheme		
EMG1 Works	Additional warehousing development on Plot 16 together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.	MCO Works Nos. 3A, 3B, 5A, 5B, 5C, 6A and 8A in the draft MCO (**Document MCO 3.1**).

9.1.2. In recognition that this chapter forms part of a single ES covering both the DCO Scheme and the MCO Scheme, it makes a clear distinction between the component parts and, consistent with the dual application approach**,** separately assesses the impacts arising from:

i. The DCO Scheme (Section 9.5);

ii. The MCO Scheme (Section 9.6);

iii. The EMG2 Project as a whole, comprising the DCO Scheme and MCO Scheme together (Section 9.7); and

iv. The EMG2 Project as a whole in combination with other planned development (i.e. the cumulative effects) (Section 9.8) using the list of projects identified in **Appendix 21B** to **Chapter 21: Cumulative Impacts (Document DCO 6.21B/MCO 6.21B)**.

9.1.3. The scope of the Ecology and Biodiversity work is as follows:

- Describe the baseline conditions of the sites affected by the EMG2 Project and the surroundings, covering ecological features, designations and quality and review the importance within the existing ecological framework and its sensitivity to change;
- Review all relevant planning policy and guidance on ecology and biodiversity issues;
- Assess the ecological character of the sites and context in the wider area, predict the ecological effects of the EMG2 Project, and its component parts, and assess the significance of these effects;
- Identify and evaluate the impacts of the EMG2 Project, and its component parts, and provide a mitigation strategy including a Biodiversity Net Gain Assessment; and
- Quantify any residual impacts.

9.1.4. Additional supporting information is provided within **Appendices 9A to 9J** (**Documents DCO 6.9A to 6.9J**) as follows:

- **Appendix 9A – Preliminary Ecological Appraisal (Document DCO 6.9A/MCO 6.9A)**
- **Appendix 9B – Badger Report (Confidential) (Document DCO 6.9B/MCO 6.9B)**
- **Appendix 9C – Bat Report (Document DCO 6.9C/MCO 6.9C)**
- **Appendix 9D – Bird Report (Document DCO 6.9D/MCO 6.9D)**
- **Appendix 9E – Invertebrate Report (Document DCO 6.9E//MCO 6.9E)**
- **Appendix 9F – Otter and Water Vole Report (Document DCO 6.9F/MCO 6.9F)**
- **Appendix 9G – Reptile Report (Document DCO 6.9G/MCO 6.9G)**
- **Appendix 9H – Shadow Habitats Regulation Assessment (sHRA) (Document DCO 6.9H/MCO 6.9H)**
- **Appendix 9I – Biodiversity Net Gain Report (Document DCO 6.9I/MCO 6.9I)**
- **Appendix 9J – Landscape and Ecological Management Plan (LEMP) (Document DCO 6.9J//MCO 6.9J)**
- **Appendix 9K – Bird Strike Hazard Management Plan (Document DCO 6.9K/MCO 6.9K)**
- **Appendix 9L – Letters Of No Impediment (Document DCO 6.9L/MCO 6.9L)**

9.2. Scope and Methodology of the Assessment

Scoping Criteria

9.2.1. As discussed in **Chapter 1: Introduction** (**Document DCO 6.1/MCO 6.1**), section 1.6 "*Factors likely to be significantly affected by the development*", an EIA Scoping Request was submitted on 14 August 2024 to seek the Secretary of State's opinion as to the scope, and level of detail, of the information to be provided in the ES. The Scoping Report is provided as **Appendix 1C** (**Document DCO 6.1C/MCO 6.1C**) and set out the proposed methodology for this chapter.

9.2.2. The Planning Inspectorate (PINS), on behalf of the Secretary of State, adopted its Scoping Opinion (**Appendix 1D**) (**Document DCO 6.1D/MCO 6.1D**) on 24 September 2024 which confirmed Ecology and Biodiversity as requiring consideration in the ES. In addition to the Inspectorate's comments, the Scoping Opinion includes individual responses from prescribed consultation bodies, relevant statutory undertakers, and local authorities. Responses relevant to this chapter were received from the following:

- Environment Agency;
- Natural England;
- Forestry Commission;
- National Grid;
- National Highways;
- Leicestershire County Council;
- North West Leicestershire District Council;
- Rushcliffe Borough Council;
- Breedon on the Hill Parish Council; and
- Long Whatton and Diseworth Parish Council.

9.2.3. **Table 9.2** below details the comments received from PINS and how this guidance has been applied to this assessment.

Table 9.2: PINS Scoping Responses on Ecology and Biodiversity

ID	Description	Inspectorate Comment Summary	Applicant Response
3.2.1	Scoping of Rail freight and highways works	The Inspectorate considers that in the absence of information to confirm the negligible ecological value of these areas of land, that it does not agree that significant effects would not occur. The ES should confirm the status of the highways and	Baseline information, and an assessment of effects has now been provided. For clarity a distinction is made between the EMG2 Project components; namely the EMG2 Works, the Highways Works and the EMG1 Works.

ID	Description	Inspectorate Comment Summary	Applicant Response
		EMG1 land, supported by appropriate baseline information. An assessment of effects should be provided, where significant effects may occur.	
3.2.2	Desktop study and baseline	The Inspectorate considers that the desktop data study presented in the ES should be completed for the whole Proposed Development.	The desk study has been updated to cover the whole EMG2 Project. In addition, based on comments received from Natural England, the geographical search area has been expanded to 20km for international sites which support birds with extended foraging distance, i.e. wintering geese/ swans, and 30km for international sites where bats are a notifying feature. Furthermore, during the consultation process Natural England requested that Attenborough Gravel Pits SSSI (located approximately 5.5km at its closest point from the EMG2 Project) is included in the assessment of nationally important sites.
3.2.3	Great Crested Newt – District Level Licensing	If the Applicant enters into the DLL scheme, NE will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including information on the Proposed Development's impact on GCN and the appropriate compensation required.	SEGRO has applied to utilise the Natural England (NE) District Level Licensing (DLL) scheme. The EMG2 Project is within an amber risk zone. A Great Crested Newt District Level Licensing Impact Assessment & Conservation Payment Certificate was secured (DLL-ENQ-LEIC-00056-1).
3.2.4	Field surveys	The ES should also set out the methods and guidance employed for field surveys,	The field survey methods are reported in full in the relevant technical appendices, and also

ID	Description	Inspectorate Comment Summary	Applicant Response
		including justification for their temporal and spatial extent. The ES should discuss any limitations or difficulties encountered during surveys.	summarised within the main body of the ES in the Field Survey Methods section.
3.2.5	Priority Woodland Habitat	The ES should include an assessment of effects on any woodland present in addition to considering effects on individual mature trees. This should include consideration of effects on woodland from fragmentation during construction and operational activities.	Areas of broadleaved woodland listed as habitats of principal importance (HPI) on Defra's Priority Habitats Inventory (England) are considered within the context of each component of the Application. An assessment of effects on woodland has been included within the ES.
3.2.6	Noise, dust and lighting	The ES should consider potential effects from noise, lighting and dust as a result of the Proposed Development from all phases of the Proposed Development, where there is potential for significant effects.	The ES recognises potential impacts from noise, dust and light and adopts mitigation measures through a comprehensive Construction Environmental Management Plan for the DCO application (CEMP) (**Document DCO 6.3A**), adherence to a Construction Management Framework Plan for the MCO Application under the EMG1 DCO, and through a sensitive Lighting Strategy (**Document DCO 6.11A**)
3.2.7	Effects on watercourses and waterbodies	The ES should set out an appropriate study area for consideration of effects on receptors from all phases of the Proposed Development, taking account of potential indirect effects to downstream receptors such as the River Soar or its tributaries, Lockington Marshes Site of Special Scientific Interest (SSSI) and Attenborough Gravel Pits SSSI. This information should be accompanied by appropriate figures and should cross reference to relevant water assessments.	The study area is set out within the desk study section of the assessment. This now includes Lockington Marshes Site of Special Scientific Interest (SSSI) and Attenborough Gravel Pits SSSI. New drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level.
3.2.8	Functionally linked land	The ES should consider the effects on identified designated sites including effects on any	Consideration has been given to effects on identified designated sites including potential effects on functionally

ID	Description	Inspectorate Comment Summary	Applicant Response
		functionally linked land outside of the designated site.	linked land. The assessment includes a sHRA in relation to the River Mease SAC.
3.2.9	Confidential information	Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex.	A confidential badger report has been provided as **Appendix 9B**.

Consultation

9.2.4. A summary of the key issues raised during consultation activities undertaken to date specific to ecology and biodiversity is presented in **Table 9.3** and **Table 9.4** below, together with how these issues have been considered in the production of this Chapter. This includes the relevant comments received from statutory consultees during the statutory consultation process, which was undertaken over a six-week period between Monday 3rd February 2025 and Monday 17th March 2025 as well as the additional consultation over a four-week period between Tuesday 1st July and Tuesday 29th July and provides a response to the issue raised as required. **Table 9.3** details the comments received from statutory consultees during the statutory consultation.

Table 9.3: Statutory Consultation - Consultee Responses

Consultee	Comment Summary	Applicant Response
Environment Agency	We would strongly encourage you to engage with us on these documents prior to DCO submission: • Preliminary Ecological Assessment • Otter & Water Vole Surveys • Biodiversity Net Gain Assessment • Draft Landscape & Ecological Management Plan • Draft or Outline Construction Environmental Management Plan	Drafts of the requested documentation have since been shared and were also consulted upon during the Further Consultation period.
National Highways	Biodiversity Net Gain Report should confirm whether the 10 per cent Biodiversity Net Gain requirement set out in the EIA Scoping Opinion has been achieved in relation to any loss associated with works to the SRN, due to the targets it is required to meet in	The Biodiversity Net Gain Report has been shared with National Highways and is appended at **Appendix 9J (Document DCO 6.9J/MCO 6.9J)**

Consultee	Comment Summary	Applicant Response
	respect of the Road Investment Strategy. National Highways requires this to be provided on the National Highways estate.	
National Highways	National Highways would seek to review the CEMP.	The CEMP has since been shared and is appended to Chapter 3 of this ES at Appendix 3A (**Document DCO 3.1A / MCO 3.1A**).
Natural England	It is proposed that Natural England will continue to work with the Applicant to provide advice regarding nationally designated sites through our Discretionary Advice Service following this S42 statutory consultation	Natural England has provided advice to the applicant and project team through the Discretionary Advice Service. This has informed the preparation of this Chapter.
Natural England	Natural England generally welcome the approach taken to avoid impacts to protected species, in line with the mitigation hierarchy.	Natural England has provided advice to the applicant and project team through the Discretionary Advice Service. This has informed the preparation of this Chapter.
Forestry Commission	No details appear to have been provided on any protection measures that will be used to protect existing trees and woodland, particularly during construction. Plans should also be in place to ensure the long-term management and maintenance of new and existing woodland, perhaps by the creation of a UK Forestry Standard-compliant management plan.	These supporting documents, including tree survey data, detailed protection measures and landscape management were shared direct during further consultation and are submitted as part of the application (**Document DCO 6.10C/ MCO 6.10C**) and **Document DCO 6.9J/ MCO 6.9J**).
Forestry Commission	In regards to irreplaceable habitats, full details of the woodland and tree loss are required to inform consideration of any compensation measures.	Where the loss of such trees is unavoidable, a bespoke compensation strategy will be developed. The project team have invited the Forestry Commission to discuss and explore the bespoke mitigation strategy for these higher-value trees.

9.2.5. **Table 9.4** below details the comments received from statutory consultees during and after the additional consultation, together with the Applicant's responses.

Table 9.4: Additional Consultation - Consultee Responses

Consultee	Comment Summary	Applicant Response
Leicestershire City Council (25/07/25)	The Council Ecologist was generally satisfied with the survey approaches and mitigation recommendations. There were requests for additional information in relation to: • Farmland bird evaluation and mitigation, including skylarks; • BNG assessment. There were requests for the following documents to be provided for LPA review at a later stage: • Sensitive lighting scheme; • Bat box location and rationale.	Farmland bird breeding assemblages are fully detailed in the bird report **Appendix 9D (Document DCO 6.9D/MCO 6.9D)**. The breeding assemblage includes skylark, which have been given specific consideration in the evaluation of impacts. The BNG assessment has been provided in **Appendix 9I (Document DCO 6.9I/MCO 6.9I)**. The strategy for lighting has been set out within Chapter 11: Lighting (**Document DCO 6.11/MCO 6.11**) and its associated appendices. Detailed lighting scheme and bat box details are expected to be provided for LPA review post consent at detailed design stage.
Natural England (28/07/25)	S42-8: An assessment of air quality impacts remains outstanding. S42-9: There is a potential for construction phase water quality impacts from pollution events. The CEMP provides appropriate control measures, however Natural England would prefer if this was embedded rather than additional mitigation. It is noted that this is unlikely to make a material difference, providing the CEMP is secured as a DCO requirement.	Air quality data has been reviewed and an assessment of impacts has since been included within this document. Natural England's preference is noted, however in this instance the structure of the assessment remains as presented, with the CEMP considered additional, going beyond standard construction methodologies, and providing tailored consideration for specific ecological receptors. We agree that the difference in assessment structure is unlikely to result in any material differences. The CEMP is secured at Requirement 11 of the draft DCO that accompanies the DCO Application. The MCO Application will be bound by Requirement 11 of the original EMG1 DCO which requires the submission of a phase specific CEMP before development commences.

Consultee	Comment Summary	Applicant Response
	S42-10: Natural England request an expansion on assessment of operational phase pollution pathways which should be linked in to SuDS design.	These matters are addressed primarily within the Drainage chapter. Further expansion on the assessment of potential pollution pathways has been provided within the ecological assessment.
Natural England (28/07/25)	S42-21: Natural England requests that Air Quality effects are assessed against ancient woodland and ancient and veteran trees, with avoidance and mitigation measures, as well as opportunities for enhancement considered.	Based on the current strategic transport model, ancient woodland and ancient / veteran trees within 200m of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) were scoped in for an assessment of air quality impacts. Two ancient woodlands and seven veteran trees were identified for consideration with regards air quality, beyond those identified within the order limits. The woodlands were March Covert Ancient Woodland and Tonge Gorse Ancient & Semi Natural Woodland.
Natural England (27/08/25)	Natural England were broadly accepting of air quality screening criteria used, however they requested that additional consideration be given to in-combination effects in this regard.	The traffic modelling used to prepare the traffic data which forms the basis of the air quality assessments, (**Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6.**), considers scenarios with and without Freeport and Local Plan sites. Therefore, in using the projected future traffic levels from the model, this element of the assessment has already considered the cumulative effects of the EMG2 Project and other developments likely to come forward. The cumulative assessment confirmed that there were no changes to the conclusions of the core assessment. In terms of spatial consideration, The Area of Influence and study area for the assessment extends to A50 Junction 1. No other part of the A50 corridor to the west falls within the Area of Influence. This means that past A50 Junction 1, impacts from the EMG2 will be minimal and require no further

Consultee	Comment Summary	Applicant Response
		consideration. This position has been agreed with National Highways.
Natural England (27/08/25)	Natural England requested further justification for predicted impacts, and highlighted that existing unfavourable condition does not provide a basis for negating potential impacts.	The guidance provided has been incorporated, and the assessment of impacts has been revised.

Methodology

9.2.6. This assessment is guided by the third edition of the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland [i]. The guidelines are endorsed by statutory and non-statutory organisations including the Department of Agriculture, Environment and Rural Affairs (Defra), Association of Local Government Ecologists (ALGE), Institute of Environmental Management and Assessment (IEMA), the Chartered Institute of Water and Environmental Management (CIWEM), and the Wildlife Trusts. The guidance provides a similar broad structure as set out in **Chapter 1: Introduction (Document DCO 6.1/MCO 6.1)** but is more specific to ecological assessment.

9.2.7. The assessment involves the following key stages:

- identifying the zone of influence (study area) arising from the whole lifespan of the project;
- a background data search to obtain archival records of sites and species, and to gain information to focus the field surveys;
- identifying ecological features through field surveys;
- determination of the ecological value of ecological features;
- identification of the potential impacts and assessment of impacts on the integrity or conservation status of the ecological features;
- incorporation of ecological enhancement and mitigation measures to avoid or reduce impacts, and compensation measures to balance any unavoidable significant impacts; and
- assessment of the significance of any residual ecological impacts remaining after the implementation of mitigation and compensation measures.

Identification of Study Area

9.2.8. In determining a study area, the CIEEM guidelines first consider 'important ecological features' (IEF), defined as those warranting detailed assessment (thus generally excluding any that are 'widespread, unthreatened and resilient to project impacts and will remain viable and sustainable'). They are to be expressed geographically (international, national, regional, county, local) and to be identified on the basis of expert judgement, including published information (for example designations, guidelines and scientific literature) and also –

especially at the local level - that of experienced professionals (ecological facilitators and specialist consultees).

9.2.9. The zone of influence (referred to as the study area) for the assessment (the area within which ecological features may be affected) was determined with reference to IEFs on or around the EMG2 Project (including designated sites), the extent and nature of project activities liable to give rise to potentially significant impacts, any incidence of mobile or migratory species, seasonality of ecological features, and ecosystem functioning including interdependencies between ecological features. The study area was influenced by responses from consultees during the scoping exercise and on information gathered in the background data search, especially in respect of designated sites/species that may be remote from the EMG2 Project. Natural England provided extensive advice on the scope of the assessment as part of the consultation process.

9.2.10. On this basis, the study area includes:

- the land within the EMG2 Project boundary (Order Limits) (**Documents DCO 2.1 and MCO 2.1)**;
- ecological features adjacent to the Order Limits (e.g. adjacent features or designated nature conservation sites) or close by (at distances increasing with their likely sensitivity to likely impacts);
- ecological features at moderate distances from the EMG2 Project but which support species/habitats that could be affected by the forms of development/operational activities proposed; and
- sites/features at greater distances if they are important for species that might also depend on habitats within the Order Limits.

9.2.11. In order to enable separate and cumulative assessment, a distinction is made between the EMG2 Project components; the DCO Application which includes the EMG2 Works and the Highway Works**,** and the MCO Application which covers the EMG1 Works**.** The term 'Study Area' refers to the zones of influence covered by the desk-based and field surveys, which varies as appropriate for the ecological feature being considered, due it its particular sensitivity, species home-range etc., as well as the nature of the predicted impacts. Unless otherwise specified within specific methodologies and baseline, the zones of influence for the desk study have been taken as follows:

- 15km around the EMG2 Project Order Limits for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites, extended to 20km for international sites which support birds with extended foraging distance, i.e. wintering geese/ swans, and 30km for international sites where bats are a notifying feature.
- 2km for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs);
- 2km for European protected species records (e.g. The Conservation of Habitats and Species Regulations 2017, SCHEDULE 2);

- 1km for sites of Local or County Importance or statutory sites such as Local Nature Reserves (LNRs), Priority Habitats and Ancient Woodland;
- 1km for other species records (e.g. protected, or Section 41 NERC species of principal importance and notable species); and
- Order limits/adjacent – listed habitats of principal importance (HPI) under the NERC Act.

9.2.12. In addition to the parameters set out above, certain impact pathways may exert wider influences. As such additional IEF may be considered where further potential impact pathways are identified.

9.2.13. The Area of Influence and study area for the Transport Assessment, and consequently the Air Quality assessment, extends to A50 Junction 1. No other part of the A50 corridor to the west falls within the Area of Influence. This means that past A50 Junction 1, impacts from the EMG2 will be minimal and require no further consideration.

Field Survey Methods

9.2.14. This section discusses the field survey methods which are relevant to collection of baseline data. The assessment methods used to determine magnitude of effect, sensitivity of receptor and therefore significance are described in the Assessment of Significance section later in this chapter.

Habitat Survey Methodology

9.2.15. Survey methods followed the extended Phase 1 Survey technique[ii] as recommended by Natural England. This involved a systematic walk over of the EMG2 Project (other than operational roads) to classify the broad habitat types and identify any Habitats of Principal Importance (HPI) for the conservation of biodiversity as listed within Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006.

9.2.16. Where feasible, target notes and species lists were compiled for individual areas and assessments of abundance were made using the DAFOR scale (Dominant, Abundant, Frequent, Occasional or Rare). Vascular plant nomenclature follows Stace[iii]. Whilst the species lists collected should not be regarded as exhaustive, sufficient information was gained during the survey to enable classification and assessment of broad habitat types and identify features likely to be of interest.

9.2.17. The EMG2 Project was also assessed using the UKHab Survey technique[iv] as recommended by Natural England[v] and the Chartered Institute of Ecology and Environmental Management[vi]. Condition assessments used the methodology as detailed within the Statutory Biodiversity Metric Technical Annex 1: Condition Assessment Sheets and Methodology[vii].

9.2.18. Hedgerows were broadly assessed against the 'Wildlife and Landscape criteria' contained within The Hedgerow Regulations 1997 to determine whether they qualified as 'Important Hedgerows'. This has been achieved using a methodology in accordance with both the Regulations and Defra guidance. It should be noted that hedgerows may also qualify as Important under the Archaeology and History criteria of the Hedgerow Regulations 1997 Act,

which is beyond the scope of this assessment which has been undertaken from an ecological standpoint. Such matters where relevant are covered in **Chapter 12: Cultural Heritage** (**Document DCO 6.12/MCO 6.12**),

9.2.19. A River Condition Assessment (RCA) was conducted by accredited MoRPh field surveyors, recording data using the RCA information system and interpreting RCA indicators and scores for baseline and post-intervention scenarios. The levels of 'in-watercourse' and 'riparian' encroachment were also assessed following guidance provided in the Statutory Biodiversity Metric – User Guide[viii].

Faunal Surveys

9.2.20. During the initial extended Phase 1 Habitat survey, observations, identification and signs of any species protected under the following list of Acts and Regulations (collectively referred to herein as 'Protected Species') were recorded:

- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992; and
- The Conservation of Habitats and Species Regulations 2017.

9.2.21. Consideration has also been given to the potential presence of species listed within one or more of the following (collectively referred to herein as 'Notable Species'):

- Species of Principal Importance (SPI) for the conservation of biodiversity in England on the Natural Environment and Rural Communities (NERC) Act, Section 41 (S41);
- Species listed on any Local Biodiversity Action Plan (LBAP) initiatives; and
- Red Data Book (RDB) species.

9.2.22. Following the extended Phase 1 Habitat survey, further surveys undertaken were:

- Badger – Badgers are known to occur locally, and the EMG2 Project and adjacent habitat provide areas of suitable habitat for foraging, commuting and shelter. Surveys were undertaken in 2022 and 2024 following the standard methodology as recommended by Harris, Creswell and Jefferies (1989)[ix].
- Bats – A network of hedgerows provide potential commuting routes for bats. A significant number of trees had features which could support roosting bats. A suite of surveys for bats were undertaken in 2024. These consisted of ground-based tree assessments, aerial tree assessments, nocturnal emergence / re-entry surveys and bat activity surveys. The methodologies take into account guidance from the Bat Conservation Trust (BCT)[x] and the Joint Nature Conservation Committee (JNCC)[xi]. Previous survey data from 2022 which followed the now superseded BCT Guidance[xii] provided additional context.
- Birds – The EMG2 Project provides suitable habitat for a range of farmland and urban bird species. Winter and breeding bird surveys were conducted in the 2024 to 2025 season following the latest guidelines[xiii]. This assessment was supplemented by previous survey data which broadly followed the methodology based on territory

mapping as used for the British Trust for Ornithology (BTO) Common Bird Census (CBC)[xiv].

- Reptiles – Field margins along EMG2 Project boundaries and watercourses provide areas of suitable habitat for foraging and shelter. Surveys were undertaken in 2022 and 2024 based on methodology detailed in the Herpetofauna Workers Manual (1998)[xv] and the Froglife Advice Sheet 10 (Froglife 1999)[xvi].
- Otter and Water Vole – While no records of these species were returned, the EMG2 Project and adjacent habitat provide restricted areas of suitable habitat. Surveys were undertaken in 2022 and 2024 based on the methodologies within Strachan et al (2011)[xvii], Strachan et al (2016)[xviii] and Crawford (2011)[xix].

9.2.23. Survey methods followed best practice methods such as those recommended by the CIEEM[xx].

Assessment of Significance

9.2.24. The following section expands on the general significance criteria guidance set out within **Chapter 1: Introduction** (**Document DCO 6.1/MCO 6.1**) of this ES, with specific reference to ecology. Reference has been made to the Guidelines for Baseline Ecological Assessment (1995)[xxi] and to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland (2018)[xxii].

9.2.25. Having established the baseline ecology within the study area, the IEFs are identified, i.e. those considered to be both potentially affected and important. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline. It is only necessary to complete a detailed assessment where significant impacts are possible. On that basis many habitats and species that are widespread, unthreatened and resilient to impacts do not require further detailed assessment.

9.2.26. The importance level of any existing designations (e.g. SSSI, LWS, Red Data species), provides the starting point for identifying IEFs, since such designations embody a wide range of established knowledge and reflect consensus views about what is important.

9.2.27. CIEEM Guidance states that: '*Ecologists may identify ecological features that are not included in lists of important sites or features, but considered important on the basis of expert judgment e.g. because of their local rarity or because they enable effective conservation of other important features*.' A wide range of properties of IEFs may contribute to such judgements e.g. habitat connectivity issues, information on the distribution of species (e.g. from county Floras), restriction to ancient features of the countryside that cannot easily be re-created, dependencies between one species and another etc.

9.2.28. The IEFs that may be affected by such activities have been evaluated within a geographical framework, which is based on expert judgement and a wide range of legislation and governmental guidance. An assessment of the nature conservation importance of features (sensitivity) has been made following the criteria suggested in CIEEM as follows; International, National, Regional, County and Local (**Table 9.5**). Features with a value of Local (low) or above were considered to represent IEFs. Features not meeting the criteria

for IEFs are those that have been classified as having either less than Local or Negligible ecological importance.

Table 9.5: Definition of Sensitivity

Sensitivity	Typical descriptors
International/National (High)	High importance and rarity, international/national scale, and limited potential for substitution.
Regional/County (Moderate)	Medium importance and rarity, regional/county scale, limited potential for substitution
Scheme/Local (Low)	Low importance and rarity, district/local scale.
Negligible	Very low importance and rarity.

9.2.29. Describing and taking into account the embedded mitigation, the potential effects arising from the construction and operation of the EMG2 Project are identified.

9.2.30. The likelihood that a change / activity will occur as predicted has a degree of confidence assigned (i.e. certain, near certain, probable, unlikely, extremely unlikely). Where there is an impact on an IEF, the change / activity can result in a beneficial or adverse impact. Other parameters used to describe an impact upon an ecological structure or function are the extent, size, duration, reversibility and frequency of the effect. The CIEEM Guideline state in broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

9.2.31. The magnitude of the effect prior to and post mitigation is addressed in **Table 9.6** below.

Table 9.6: Definition of Magnitude of Impact

Magnitude	Typical criteria descriptors
High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse).
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Low	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse).
	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of adverse impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse).
	Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).

9.2.32. The ecological significance of the impacts has been assessed, based upon the likely effect on the structure, function or conservation status of each feature. The assessment of impact significance has identified the need for mitigation and residual impacts have been assessed.

9.2.33. The significance of likely direct or indirect effects is determined by identifying those ecological features likely to be affected. The features have been evaluated to identify the important ones, i.e. those which, if their level of importance reduced, national or local policies (or in some cases legislation) would be triggered. The nature of the individual and combined impacts have been characterised on each important feature, to determine the longevity, reversibility and consequences for the feature in terms of ecological structure and function. Where it is concluded that an effect would be likely to undermine the conservation objectives of an IEF, it will be described as significant. In accordance with CIEEM guidelines, an effect may be significant at any geographical scale, i.e. from local to international.

9.2.34. The overall level of each effect is determined qualitatively by comparing its magnitude against the value (sensitivity) of the IEF. For this purpose, magnitude of effect is expressed synoptically on a scale of high, medium, and low (or negligible, if the magnitude of effect would have no perceptible effect on the integrity of the IEF). The value (sensitivity) of the affected IEF (already assessed on a geographical scale) can similarly be expressed as negligible, low, medium, high (or combined classifications, such as low/medium) as shown in the table below. The level of the effect is identified on a scale of negligible, minor, moderate and major. Where the matrix below (**Table 9.7**) identifies a combined classification, professional judgement is used to choose one classification or the other, or a "mid" level between the two significance levels is assumed.

Table 9.7: Effect Significance Matrix

Magnitude	**Sensitivity**		
	High	**Moderate**	**Low**
High	Major Adverse/Beneficial*	Major-Moderate Adverse/Beneficial*	Moderate-Minor Adverse/Beneficial
Moderate	Moderate Adverse/Beneficial*	Moderate-Minor Adverse/Beneficial	Minor Adverse/Beneficial
Low	Moderate-Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor-Negligible
Negligible	Negligible	Negligible	Negligible

* These effects are considered significant for the purposes of the EIA Regulations.

9.2.35. Whether an effect is direct or indirect is considered:

- Direct impacts are changes directly attributable to a defined action of the proposed development such as the physical loss of a habitat or the immediate mortality of an individual of a particular species; and

- Indirect impacts are attributable to an action which affects ecological resources through effects on an intermediary ecosystem, process or receptor, e.g. a loss of food resources for a species downstream of a site due to fish-kill by polluted runoff entering a river.
- Residual and cumulative impacts are also considered. After assessing the impacts of the proposal all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts should be undertaken to determine the significance of their effects on ecological features. Effects of major and moderate are generally considered significant in EIA terms.
- Cumulative impacts are the collective effects of changes that may be insignificant individually but in combination, often over time, have the potential to be significant. Intra-project ("in combination") cumulative effects (i.e. cumulative effects on the same receptor from different aspects of the EMG2 Project are assessed; for example, bats could be affected by noise, and lighting; and so are intra-project effects. Inter-project effects arise due to the interaction of the EMG2 Project with other development proposals within the zone of influence; for example, habitat loss resulting from multiple projects either concurrently or consecutively.

9.3. Policy, Guidance and Legislative Context

9.3.1. This section of the chapter is common to both the DCO Application and the MCO Application.

9.3.2. **Table 9.8** below summarises national and local policy specific to the assessment topic.

Table 9.8: Policy Context Relevant to Assessment

Policy Document	Policy Issue
NPSNN (2024)	The National Policy Statement for National Networks (NPSNN) at Paragraph 5.45 notes that international and national legislative impacting planning decisions affecting biodiversity and nature conservation issues are set out in the National Planning Policy Framework and that the Natural Environment Planning Practice Guidance document sets out good practice in England in relation to planning for biodiversity and geological conservation. The NPSNN requires applicants to 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. The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests as well as consider how their proposal will deliver biodiversity net gain in line with the requirements in a Biodiversity Gain Statement. Further requirements with regard to biodiversity net gain is provided at Paragraphs 4.23 to 4.26 of the NPS. The requirements with regard to Habitat Regulations Assessment are considered at Paragraph 4.14 to 4.22 of the NPSNN.
NPPF (2024)	The Government published a revised version of the National Planning Policy Framework (NPPF) in 2024. Paragraph 187 of the NPPF states that “Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.” Paragraph 187 also states that: “d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;”

	With regard to planning applications and biodiversity, Paragraph 193 of the NPPF states that: "When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location 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; c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate." In Paragraph 198, the NPPF advises that "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."
North West Leicestershire Local Plan 2011-2031 Adopted November 2017 (as amended in 2021)	Policy EN1- Nature Conservation Proposals for development will be supported which conserve, restore or enhance the biodiversity in the district. Where a proposal for development would result in significant harm to one of the following and which cannot be avoided, or mitigated or compensated for, then planning permission will be refused: a) Special Areas of Conservation (SAC);

	b) Sites of Special Scientific Interest (SSSI); c) Local and Regionally Important Geodiversity Sites (RIGS) and candidate Regionally Important Geodiversity Sites (cRIGS); d) Local Wildlife Sites (LWSs), Local Nature Reserves (LNRs) and candidate Local Wildlife Sites (cLWSs) which meet the Leicester, Leicestershire and Rutland LWS criteria; e) Local and National Biodiversity Action Plan-related (BAP) priority habitats; f) River corridors; g) Irreplaceable habitats (defined as Ancient woodlands; Mature plantation or secondary woodland; Species-rich ancient hedgerows; Aged or veteran trees; Species-rich neutral grassland; Acid grassland and heath grassland; Dry and wet heathland; Bogs and Sphagnum pools and Rock outcrops). New development will be expected to maintain existing ecological networks, hotspots and landscape features (such as water courses and waterways, disused railway lines, trees and hedgerows) for biodiversity, as well as for other green infrastructure and recreational uses. Where a proposed development would attract additional visitors to an area or facility it should be demonstrated how any potential impact upon an area or feature of biodiversity interest will be managed as part of the new development. The use of Sustainable Urban Drainage Systems (SuDS) to create wetland and marshland habitats will be encouraged subject to the provisions of Policy Cc4.
Space for Wildlife: Leicester, Leicestershire and Rutland Biodiversity Action Plan (LLRBAP). 2016-2026 2nd Edition December 2016.	The document aims to promote a flexible approach to nature conservation and areas managed for wildlife in Leicestershire and Rutland which is relevant and applicable to all parts of the local landscape. ‘Space for Wildlife’ has three components: • To promote the restoration, management and creation of BAP Priority Habitats • To promote the creation of new wildlife habitat in the wider countryside • To survey, monitor and promote favourable management of existing good sites through the Local Wildlife Sites system. The document provides details of 19 Priority Habitats and includes sixteen Species Action Plans. Nearly 1000 species are listed Inventory of Key Species, published by Leicestershire Museums Arts and Records Service (LMARS). To recognise this, the definition of ‘Local BAP species’ has been widened to include an additional core list of priority species, based on listing in Local Red Data Books or identified as ‘rare’ in a County or VC55 checklist.

9.3.3. In addition to the context provided by national and local policy, the nature conservation legislation that has been used to inform this assessment is as follows:

Environment Act 2021

9.3.4. The Environment Act 2021 came into force on 9th November 2021. Most developments subject to the Town and Country Planning Act are required provide an at least 10% biodiversity net gain (BNG), as calculated using a Biodiversity Metric and provide a Biodiversity Gain Plan, with habitat used for net gain to be secured for a minimum of 30 years. Delivery of BNG may be on site, off-site or undertaken using statutory biodiversity credits.

9.3.5. At the time of writing, Nationally Significant Infrastructure Project (NSIP) developments are not yet subject to mandatory BNG requirements. The implementation of BNG in relation to NSIPs was originally programmed for November 2025 . However, consultation held by the Department for environment, Food & Rural Affairs in the summer of 2025 (28 May 2025 to 24 July 2025) proposed introducing BNG for NSIPs from May 2026.

Natural Environment and Rural Communities (NERC) Act 2006

9.3.6. Section 41 of the Natural Environment and Rural Communities Act, 2006 requires that the Secretary of State should produce a list of 'habitats and species of principal importance for conservation of biodiversity'. The list guides decision makers in having regard to the conservation of biodiversity when carrying out their normal functions.

Wildlife and Countryside Act 1981 (as amended)

9.3.7. The Wildlife and Countryside Act, 1981 (as amended) is the principal mechanism for wildlife protection in the UK. It was originally aimed at consolidating and amending previous legislation to implement the requirements of the Bern Convention and the Birds Directive.

9.3.8. Under the Wildlife and Countryside Act, 1981 nature conservation site protection measure in the UK (i.e. the statutory designation of Sites of Special Scientific Interest (SSSI)) is established.

9.3.9. It provides a range of protection relating to wild birds, other animals, and plants.

Conservation of Habitats and Species Regulations 2017

9.3.10. The Conservation of Habitats and Species Regulations 2017 (as amended) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law.

9.3.11. The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European sites.

The Protection of Badgers Act 1992

9.3.12. Under the Protection of Badgers Act 1992 the following acts relevant to the proposals are criminal offences: taking, injuring or killing badgers, cruelly ill-treating a badger and interfering with badger setts.

9.3.13. Licences can be obtained under the Act to carry out certain acts which would otherwise be forbidden by the Act for the following purposes. This includes for the purpose of development.

The Hedgerow Regulation 1997

9.3.14. These regulations, enforced under the Environment Act 1995, restrict the removal of important agricultural hedgerows, or parts of them which are over 20m in length.

9.3.15. The regulations include criteria for identifying “important” hedgerows where notice must be given for their removal. Exemptions to this include the carrying out of planning permission.

Background Data Search

9.3.16. In order to compile existing baseline information, relevant ecological information was sought from both statutory and non-statutory organisations, for the purpose of this report these include:

- Multi Agency Geographic Information for the Countryside (MAGIC);
- Leicestershire and Rutland Environmental Records Centre (LRERC);
- Derbyshire Biological Records Centre (DBRC); and
- Nottinghamshire Biological and Geological Record Centre (NBGRC).

9.3.17. The search area for biodiversity information was related to the significance of the site, species and potential zones of influence, as detailed above in paragraph 9.2.10.

9.3.18. Further inspection, using colour 1:25,000 OS base maps and aerial photographs from online sources were also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

9.3.19. Details of any limitations encountered, and assumptions made during the surveys are provided in the relevant Technical Appendix. No limitations encountered were considered to have significantly affected results or subsequent assessment.

9.4. Approach to Assessment of Applications

9.4.1. In recognition that this chapter forms part of a single ES covering both the DCO Application and the MCO Application (as explained in Section 9.1 and in full within **Chapter 1: Introduction and Scope**) it makes a clear distinction between the component parts and, consistent with the dual application approach**,** assesses the impacts arising from the DCO Application and MCO Application separately and then together as the EMG2 Project in combination. An assessment of the cumulative impacts of the EMG2 Project with other existing and, or approved developments, has also been completed using the list of projects identified in **Appendix 21B** to **Chapter 21: Cumulative Impacts (Document DCO 6.21B/MCO 6.21B)**.

9.4.2. Accordingly the remaining sections of this Chapter are structured as follows:

- An Assessment of the DCO Scheme within Section 9.5;
- An Assessment of the MCO Scheme within Section 9.6;
- An Assessment of the EMG2 Project as a whole, comprising the DCO Scheme and MCO Scheme together, within Section 9.7;
- An Assessment of the EMG2 Project as a whole in combination with other planned development (i.e. the cumulative effects), within Section 9.8; and
- An overall summary and conclusions of the above within Section 9.9.

9.5. Assessment of DCO Application

9.5.1. As set out in Section 1 of this Chapter, and at **Table 9.1**, the DCO Scheme comprises the following component parts:

- The EMG2 Works: Logistics and advanced manufacturing development located on the EMG2 Main Site together with the provision of a community park, HGV parking, a bus interchange, and an upgrade to the EMG1 substation;
- The Highway Works**:** Works to the highway network: the A453 EMG2 access junction works; significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements) and works to the wider highway network including active travel works.

9.5.2. For the purposes of this Chapter, all references to the EMG2 Works scope out the upgrade to the EMG1 substation, as this will not result in any material ecological effects. Similarly, the assessment of Highways Works scopes out the six isolated parcels along the M1 motorway where works are limited to changes to the existing motorway signage and present no potential impact pathways.

Baseline Conditions

Desk Study

Statutory Designated Sites

9.5.3. A single statutory site of international conservation importance was located within 30km of the Order Limits. This was the River Mease SAC located approximately 13.5km at its closest point. As a relatively un-modified lowland river, the River Mease contains a diverse range of physical in-channel features and is designated for the following features[xxiii]:

- H3260 Water courses of plain to montane levels with R. fluitantis;
- S1092 Freshwater crayfish, Austropotamobius pallipes;
- S1149 Spined loach, Cobitis taenia;
- S1163 Bullhead, Cottus gobio; and
- S1355 Otter, *Lutra lutra.*

9.5.4. The River Mease SAC is listed as unfavourable for nutrient pressure from phosphorus[xxiv].

9.5.5. A single nationally designated site of nature conservation interest was identified within 2km of the Order Limits. This was Lockington Marshes SSSI located approximately 1km at its closest point. The site comprises one of the largest remaining areas of willow carr woodland in Leicestershire and a diverse complex of wetland habitat supporting an important invertebrate fauna with many nationally scarce species. Lockington Marshes SSSI is designated for:

- Invertebrate assemblage of W3 permanent wet mire (unfavourable- recovering);

- Lowland fens, including basin, flood-plain, open water transition and valley fens (unfavourable- recovering); and
- Lowland mixed deciduous woodland (unfavourable- recovering).

9.5.6. Undergrazing is the only pressure listed on the Lockington Marshes SSSI.

9.5.7. During the consultation process Natural England requested that Attenborough Gravel Pits SSSI, located approximately 5.5km at its closest point, was also considered due to potential for hydrological connection. Attenborough Gravel Pits SSSI is a nationally important site for:

- eutrophic lakes (unfavourable – no change);
- wet woodland (favourable);
- lowland neutral grassland (unfavourable - recovering);
- breeding bird assemblages associated with lowland open waters and their margins (no details);
- wintering shoveler Anas clypeata (favourable); and
- wintering bittern *Botaurus stellaris* (favourable).

9.5.8. Pressures on the Attenborough Gravel Pits SSSI are listed as land use change, agricultural sources of water pollution and other/unknown sources of water pollution.

9.5.9. The above sites referenced were not considered from an air quality perspective as they are located more than 200m from the affected road network. Based on the current strategic transport model, three SSSIs were identified to be within proximity of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) on highways. These were Lount Meadows SSSI, Oakley Wood SSSI, and Breedon Cloud Wood and Quarry SSSI. These three SSSIs were scoped into the air quality assessment for further scrutiny.

9.5.10. Lount Meadows SSSI is an area of Lowland neutral grassland (MG5) consisting of sub-units:

- 001 Neutral Grassland - Lowland (unfavourable – recovering);
- 002 Neutral Grassland - Lowland (unfavourable – no change);
- 003 Neutral Grassland - Lowland (unfavourable – no change); and
- 004 Neutral Grassland - Lowland (unfavourable – declining).

9.5.11. The sole pressure on the Lount Meadows SSSI is listed as undergrazing.

9.5.12. Oakley Wood SSSI is an area of Lowland mixed deciduous woodland (unfavourable – recovering).

9.5.13. The sole pressure on the Oakley Wood SSSI is listed as disease. Records highlight ash dieback and acute oak decline, however state that the site is under management which is looking to address these issues.

9.5.14. Breedon Cloud Wood and Quarry SSSI was notified for both geological and biological importance. The biological feature is Lowland mixed deciduous woodland which consist of three sub-units:

- 002 Broadleaved, mixed and Yew Woodland - Lowland (favourable);
- 003 Broadleaved, mixed and Yew Woodland - Lowland (favourable); and
- 004 Broadleaved, mixed and Yew Woodland - Lowland (unfavourable – recovering).

9.5.15. The sole pressure on the Breedon Cloud Wood and Quarry SSSI is listed as woodland management.

9.5.16. Different components of the EMG2 Project fall within several SSSI Impact Risk Zones (IRZs). Natural England were consulted whilst identifying relevant triggers and sensitive sites. Potential impacts on Lockington Marshes SSSI and Attenborough Gravel Pits SSSI will both be considered, with the relevant triggers outlined below.

9.5.17. The Lockington Marshes SSSI 2km IRZ covers part of the Highway Works on the A453, A50 and the M1. The relevant triggers for further consideration are:

- Infrastructure: Pipelines and underground cables, pylons and overhead cables (excluding upgrades and refurbishment of existing network). Any transport proposal including new or extended footways, cycleways, roads/car parks, railways and waterways (excluding routine maintenance). Airports, helipads and other aviation proposals.
- Water Supply: Large infrastructure such as warehousing/industry where the total net additional gross internal floorspace following development is 1,000m² or more.
- Rural Non-Residential: Large non-residential developments outside of existing settlements/urban areas where the footprint exceeds 1ha.
- Discharge: Any discharge of water or liquid waste of more than 5m³/day that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

9.5.18. The Lockington Marshes SSSI 5km IRZ covers the majority of the Highway Works, and part of the EMG2 Works. The relevant trigger for further consideration is:

- Discharge: Any discharge of water or liquid waste of more than 5m³/day that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

9.5.19. The Attenborough Gravel Pits SSSI 7km IRZ covers part of the Highway Works. The relevant trigger for further consideration is:

- Discharge: Any discharge of water or liquid waste of more than 20m³/day that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream.

9.5.20. The Attenborough Gravel Pits SSSI 10km IRZ covers the majority of the Highway Works, and part of the EMG2 Works. The relevant trigger for further consideration is:

- Discharge: Any discharge of water or liquid waste of more than 20m³/day that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

9.5.21. The identified SSSIs and SAC are of national/international importance and of high sensitivity.

Non-Statutory Designated Sites

9.5.22. Consultation with the local record centres identified 80 sites of local conservation importance within 1km. These are detailed in **Appendix 9A** (**Document DCO 6.9A**) and summarised below.

9.5.23. Four local designations were reported within 1km. In brief, these consisted of:

- There were 5 LWSs. These are designated as locally important reservoirs of rare, local and declining native species and are the best local examples of habitats.
- There were 44 candidate LWSs (cLWS), three of which were closely bordering or overlapping the Order Limits. These are sites that meet the criteria for designation. Their status has not been formally agreed with landowner.
- There were 13 potential LWSs (pLWS). These are sites where there is recent evidence that they are likely to meet the LWS criteria, but further survey would be required to confirm this.
- There were 18 potential-historic LWSs (pLWS.hist), four of which were closely bordering or overlapping the Order Limits. These are sites that have not been recently surveyed to check their modern status. These sites were designated during the late 1980s/early 1990s, based on comprehensive habitat surveys.

9.5.24. The identified locally designated sites are of county importance and of medium sensitivity. The latter two designations have been assigned this value on a precautionary basis given the lack of available data.

Offsite Ancient Woodland and Ancient / Veteran Trees

9.5.25. Based on the current strategic transport model, ancient woodland and ancient / veteran trees within 200m of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) on highways, were scoped in for an assessment of air quality impacts.

9.5.26. Two ancient woodlands and seven veteran trees were identified for consideration with regards air quality, beyond those identified within the order limits. The woodlands were March Covert Ancient Woodland and Tonge Gorse Ancient & Semi Natural Woodland.

Protected and notable species records

9.5.27. Records of protected and/or notable species have been received from those consultees highlighted above. Records were filtered to provide data from the last twenty years (2004 onwards), with either 2km for European protected species, or 1km for other notable and

protected species. Records are provided in **Appendix 9A** (**Document DCO 6.9A**) and summarised below in **Table 9.9.**

Table 9.9: Summary of Relevant Protected and Notable Species Records (DCO Scheme)

Species	Status	Summary
European Protected Species – 2km		
Great crested newt *Triturus cristatus*	WCA, NERC, CHSR, BAP, Bern, HDir	Thirteen locations recorded. Records on and immediately adjacent to the EMG2 Works. Based on the coordinates supplied, the records located within the Order Limits were in an arable field. However, the recorded location description was for a pond within the grounds of the adjoining Donington services. The grid reference is considered erroneous, and the true location is likely the offsite pond within Donington Park Services.
Otter *Lutra lutra*	WCA, NERC; CHSR, BAP, Bern, CITES, HDir,	Five locations recorded with closest 1.83m east of the Highway Works. Additional non-specific location within grid square SK4422 c1.7km southwest of the EMG2 Works.
Bats- *Chiroptera* – unidentified bat Brown long-eared *Plecotus auritus* *Pipistrelle* Sp. Common pipistrelle *Pipistrellus pipistrellus* Nathusius's Pipistrelle *Pipistrellus nathusii* Soprano pipistrelle *Pipistrellus pygmaeus* *Myotis* sp. Daubenton's *Myotis daubentonii* Natterer's *Myotis nattereri* Whiskered *Myotis mystacinus* *Nyctalus* sp. Leisler's *Nyctalus leisleri* Noctule *Nyctalus noctule* Serotine *Eptesicus serotinus*	WCA, NERC; CHSR	Various records in 2km of the Order Limits. The closest recorded roosts were in [redacted] and included common pipistrelle and brown long-eared bat Summer roosts. [redacted] is located [redacted]

Species	Status	Summary
Other Protected and Notable Species		
Mammals – Badger *Meles meles* Black rat *Rattus rattus* Brown hare *Lepus europaeus* Hedgehog *Erinaceus europaeus* Polecat *Mustela putorius* Water vole *Arvicola amphibius*	PBA, BAP, Bern, CHSR, HDir, NERC	For badger records see confidential **Appendix 9B**. A single record of black rat 330m north of the Highway Works. Fourteen records of hare with closest 300m north-east of EMG2 Works. Fifty-nine records of hedgehog, with a record within EMG2 Works. Two records of polecat with the closest 125m north of the EMG2 Works, within the grounds of Donnington Services. Two records of water vole in grid square SK4829.
Herpetofauna- Common frog *Rana temporaria* Common toad *Bufo bufo* Smooth newt *Lissotriton vulgaris*	BAP, Bern, NERC, WCA.	Thirteen records of common frog with the closest 30m south of the Highway Works. Twelve records of common toad with the closest 150m south of EMG2 Works.
Invertebrates– Blood-vein *Timandra comae* Cinnabar *Tyria jacobaeae* Hairy Dragonfly *Brachytron pratense* Shaded Broad-bar *Scotopteryx chenopodiata* Small Heath *Coenonympha pamphilus*	BAP, NERC, WCA.	Of the species listed the small heath is noted as uncommon, with the remaining species considered common and widespread. An additional record was noted just outside of the temporal search parameters of a White-letter Hairstreak *Satyrium w-album*. This was recorded in 2003 approximately 450m west of Order Limits. This species is in serious decline and is therefore a priority species for conservation efforts.
Plants – Various records of notable plants within 1km of the EMG2 Project.	CITES, LRPR	On-site records were: Bee orchid *Ophrys apifera* on the A453 road verge. Buck's-horn Plantain *Plantago coronopus* on the A453 kerbside. Burnet Rose *Rosa spinosissima* at Hyam's Lane Chicory *Cichorium intybus* on the A453 road verge. Grass Vetchling *Lathyrus nissolia* at Hyam's Lane

Species	Status	Summary
		Scarlet pimpernel *Anagallis arvensis* subsp. *arvensis* south of A453. On-site records were all listed as locally rare.
Birds- Fifty-eight notable bird species including twenty-seven WCA Schedule 1 species.	BoCC Red List, BoCC Amber List, NERC, WCA, BAP, Bern, Bonn, BDir, CITES.	Bird records were clustered around apparent targeted recording locations. Skylark *Alauda arvensis*, dunnock *Prunella modularis* and red kite *Milvus milvus*, yellow hammer *Emberiza citronella*, and lapwing *Vanellus vanellus* were all recorded within [redacted].

Key to Conservation Status: CHSR – The Conservation of Habitats and Species Regulations 2017 (as amended), NERC – Natural Environment and Rural Communities Act 2006, WCA – Wildlife and Countryside Act 1981 (as amended), PBA - Protection of Badgers Act 1992, BoCC Amber – Amber Listed under Birds of Conservation Concern, BoCC Red – Red Listed under Birds of Conservation Concern, BAP – UK Biodiversity Action Plan Priority Species, RedList– Red lists based on IUCN guidelines, Bern - Bern Convention on the Conservation of European Wildlife and Natural Habitats, HDir - Habitats Directive, CITES- Convention on International Trade in Endangered Species, Bonn- Bonn Convention on the Conservation of Migratory Species of Wild Animals, BDir- EU Birds Directive Annex, LRPR - VC55 Rare Plant Register 2022

9.5.28. A search on MAGIC indicated five European Protected Species Licences (EPSL) within 2km of the DCO Scheme. The details for the ESPL are as follows:

- Natural England reference 2016-25575-EPS-MIT – brown long-eared bat, common pipistrelle, Natterer's bat, and whiskered bat resting site. License valid 21/09/2016 – 19/09/2021.
- Natural England reference EPSM2010-2454 – common pipistrelle and brown long-eared bat breeding and resting site. License valid 01/11/2010 – 31/10/2012.
- Natural England reference EPSM2012-4876 – common pipistrelle and brown long-eared bat breeding and resting site. License valid 17/12/2012 – 31/08/2014.
- Natural England reference EPSM2012-4829 – common pipistrelle resting place. License valid 27/09/2012 – 31/10/2012
- Natural England reference EPSM2011-3211 – common pipistrelle and brown long-eared bat resting place. License valid 21/07/2011 – 31/08/2013.

Field Surveys - Habitats

EMG2 Works

9.5.29. The EMG2 Main Site and the Community Park comprises land immediately south of East Midlands Airport and to the east of the village of Diseworth and is described in **Chapter 2: Site Description** (**Document DCO 6.2**). It is dominated by arable field compartments bounded by hedgerows and scattered mature trees. In addition, there is one improved grassland field and one semi-improved grassland field compartment and 3 small areas standing water. Surrounding land-use is dominated variously by grassland and arable field

compartments, with Diseworth village to the south-west, East Midlands Airport to the north and the Donington Park Services and the M1 motorway to the east.

9.5.30. A detailed description of each habitat type is described provided in **Appendix 9A** (**Document DCO 6.9A**) and summarised below in **Table 9.10** below.

Table 9.10: Summary of habitats at the EMG2 Works (DCO Scheme)

Habitat Type	Description	Evaluation
Individual Trees	Mature and semi-mature trees were present, mainly in association with hedgerows. Eighty-six individual trees were identified. These were trees which were not considered a constituent part of the habitat in which they were sited. As a group the trees were set in agricultural landscape with limited natural vegetation surrounding them. One tree was considered to be veteran under NPPF (2024) definition, with a further fourteen also considered to be veterans under the Biodiversity Gain Requirements[xxv].	Veteran Trees, as classified under either definition, are considered to be of Local importance, being typical in the landscape, with ash trees declining from ash dieback (Chalara) being a prevalent feature. The remaining trees are considered to typical of the wider landscape and also of Local importance.
Mixed Scrub	Small areas of scrub were present in association with ponds P1 and P3, along ditch D1, and along hedgerows. The extents of these habitats were restricted by adjoining agricultural activities.	Scrub is common and widespread within the local area and is considered to be of Negligible importance.
Broadleaved woodland	Several areas of offsite broadleaved woodland listed as HPIs on Defra's Priority Habitats Inventory (England) bounded the northern boundary of the A453. These appeared of relatively modern origin, with the majority thought to have been planted in association with the creation of the A453.	While of a planted origin, the woodlands have developed a more diverse structure including a range of mature trees, woodland edge habitats, and associated ground flora. The woodland habitats are considered to be of Local importance.
Other neutral grassland	One semi-improved neutral grassland field was present within the site. The sward height was largely uniform as a result of grazing, and there was more than 5% combined cover of undesirable species (creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, white clover *Trifolium repens* and broad-leaved dock *Rumex obtusifolius*).	The grassland is relatively species-poor and support common and widespread floral species. Such grassland habitats are frequent and widespread. Accordingly, the semi-improved grassland is considered to be of Negligible importance.
Modified grassland	One improved horse grazed field was present. It had a sward height of 5-	The grassland is relatively species-poor and support common and widespread floral

Habitat Type	Description	Evaluation
	15cm and was dominated by perennial ryegrass *Lolium perenne*.	species. Such grassland habitats are frequent and widespread. Accordingly, the modified grassland is considered to be of Negligible importance.
Bare ground with Ruderal Vegetation	Two distinct areas were being used for soil and manure storage mounds within a larger area of bare ground. These had become colonised by ruderal vegetation, including bramble *Rubus fruticosus agg*., common dandelion *Taraxacum officinale*, cocksfoot grass *Dactylis glomerata* and common nettle *Urtica dioica*. The vegetation structure was not varied, and there was a limited variety of flowering species.	These areas were considered to be of Negligible importance.
Ponds	Three ponds (P1-P3) were present. Pond (P1) was seasonal pond approximately 5 x 8m in size, and was bound by a small group of crack willow trees. The pond lacked any aquatic vegetation. Pond (P2) is a steep banked field pond adjacent to a hedgerow. It measured c.20m x 5m and was bounded by dense bramble scrub. The pond is known to support a population of great crested newts. Pond (P3) comprised a wet depression, with a small rectangular area of open water at its centre. The pond was surrounded by scattered scrub. Pond P3 is listed as a potential historic wildlife site, however does not appear to meet current criteria to selected as a LWS.	As a potential historical LWS, pond P3 is considered under the assessment of designated sites. Within Leicestershire, field ponds have declined in number and quality[xxvi]. Ponds act as important stepping-stone habitats for mobile species, and can contribute to supporting metapopulations of local amphibians. The ponds do not currently meet the criteria for Local Wildlife Site designation[xxvii] and are considered to be of Local importance.
Cereal Crops and associated margins.	The majority of the site comprised a arable field compartments with narrow grassy margins (1-2m). Species included common couch *Elytrigia repens*, creeping bent *Agrostis stolonifera*, and cocksfoot grass.	Cropland is common and widespread within the local area and considered to be of Negligible significance. Arable margins were narrow, species poor and not under any stewardship scheme and considered to be of Negligible importance.
Hedgerows	There were 60 native hedgerows present on site. All comprised at least 80% native woody species and therefore qualify as Habitats of Principal Importance (HPI) under S41	The hedgerows provide a relatively undisturbed network of habitat for wildlife through what is ostensibly an

Habitat Type	Description	Evaluation
	of the NERC Act. The hedgerows were all heavily managed within their agricultural context, acting as formal field boundaries. Twelve hedgerows (H7, H11b-c, H12, H18a-c, H22, H26a, H35, H36 and H39) were considered to be of Importance under the Hedgerow Regulations.	intensively managed agricultural area. They do not currently meet the criteria for Local Wildlife Site designation and are considered to be of Local importance.
Watercourse	A shallow field ditch in poor condition runs through the south-east of the site, feeding into an offsite subterranean drainage system. The nature of the channel is clearly straightened to serve as a field ditch. Hydrological monitoring and modelling indicate that the ground water level is generally below the depth of the ditch. The function of the feature is considered to be surface water drainage from the surrounding arable land. Beyond the western Order Limits, a small tributary of the Diseworth brook runs from north to south. As the stream comes within 10m of the site, it is considered that the associated riparian zone extends into the site red line. The stream appears to be fed from attenuation and drainage features within the East Midlands Airport Complex, with a culverted section crossing under the A453 in the northwest corner of the site. The stream has straightened and reinforced channel sections and was classified as over-deep.	While the ditch provides some value as a habitat in itself, the lack of connectivity to a wider riparian network means it is considered to be of negligible significance. Given its hydrological connectivity the stream is considered to be of Local importance.

Highway Works

9.5.31. The DCO Scheme includes improvements to the strategic and local road networks as part of the Highway Works to accommodate the anticipated traffic flows. This will involve new highway infrastructure and works to the existing road network including at Junction 24 of the M1 as described in full in **Chapter 3: Project Description** (**Document DCO 6.3).**

9.5.32. While much of the highways land is comprised of hardstanding, a variety of habitats bound the existing infrastructure. A detailed description of each habitat type is described provided in **Appendix 9A** (**Document DCO 6.9A**) and summarised below in **Table 9.11** below.

Table 9.11: Summary of habitats in association with Highway Works (DCO Scheme)

Habitat Type	Description	Evaluation
Individual Trees	Mature and semi-mature trees were present throughout the Highway Works area, mainly in association with hedgerows and lines of trees. Eight individual trees are located by Ashby Road South of junction 24 of the M1, with an additional 2 trees to the south of that. Four individual trees were present within the roundabout island off Beverley Road along the A53. Nine individual trees were present parallel to J24. One tree was considered to be veteran under the Biodiversity Gain Requirements[xxviii].	The veteran tree is considered to be of Local importance, being typical in the landscape. The remaining trees are considered to typical of the wider landscape and also of Local importance.
Mixed Scrub	Mixed scrub was recorded along woodland edges and in areas of recent planting. Bramble scrub was recorded on roadside verges and central roundabout islands.	Scrub is common and widespread within the local area and is considered to be of Negligible importance.
Other Neutral grassland	Many of the roadside verges and compartments classified as other neutral grassland supporting species compositions which were typical of commercial seeding mixes. Management appeared to be being undertaken sensitively allowing a longer sward to develop in summer months.	The grasslands were subject to high levels of disturbance from adjacent highways. They supported common and widespread floral species. Such grassland habitats are frequent and widespread. Accordingly, the other-neutral grassland is considered to be of Negligible importance.
Modified Grassland	Modified grassland was recorded in association with boundary habitats along highways and around Donington services. These were generally formally managed with a short sward.	The grassland is relatively species-poor and heavily managed. Such grassland habitats are frequent and widespread. Accordingly, the modified grassland is considered to be of Negligible importance.
Broadleaved woodland	Several areas of broadleaved woodland bounded the highways and extended offsite. These appeared of relatively modern origin, with the majority thought to have been planted in association with the creation of the M1 motorway and the A453.	While of a planted origin, the woodlands have developed a more diverse structure including a range of mature trees, woodland edge habitats, and associated ground flora. The woodlands generally connect to, and in a limited area are listed themselves as HPIs on

Habitat Type	Description	Evaluation
		Defra's Priority Habitats Inventory (England). The woodland habitats are considered to be of Local importance.
Sustainable drainage systems (SuDS) basins	Several drainage basins were present in association with the M1 motorway. The SuDS were dry at time of survey but supported vegetation typical of damp habitats.	These areas were considered to be of Negligible importance.
Tall forbs	Area of tall forbs dominated by common nettle *Urtica dioica* was recorded in on the edge of woodland blocks and footpaths. The vegetation structure was not varied, and there was a limited variety of flowering species.	These areas were considered to be of Negligible importance.
Hedgerows	There were 23 hedgerows and five lines of trees present along the Highways. All comprised at least 80% native woody species and therefore qualify as Habitats of Principal Importance (HPI) under S41 of the NERC Act.	The hedgerows provide habitat connectivity for a range of wildlife. They are considered to be of Local importance.

Field Survey - Fauna

9.5.33. A suite of field surveys for fauna were undertaken during 2022 and 2024. Survey findings are summarised below in **Table 9.12** below and are included in **Appendices 9B to 9G**.(**Documents DCO 6.9B – 6.9G**).

Table 9.12: Summary of Relevant Protected and Notable Species Records (DCO Scheme)

Species	Description	Evaluation
Amphibians (including GCN)	**EMG2 Works** A medium population of GCN have been recorded in ponds located adjacent to the EMG2 Main Site within the Donington Park Services area. Further local records of smooth newts, common frog and common toad. Potential aquatic habitat is provided by field ponds. The supporting ecological documentation (Tyler Grange 2024) for the "*Land South of A453*" application (24/00727/OUTM) includes eDNA results confirming GCN presence	**EMG2 Works** It is considered that the existing habitats on-site could, at best, support amphibian populations of Local importance.

Species	Description	Evaluation
	in on-site pond P2. Terrestrial habitat restricted to hedgerow network which provides connectivity to off-site habitats.	
	Highway Works Local records of GCN, smooth newts, common frog and common toad. No aquatic habitats identified. Limited areas of suitable terrestrial habitat along hedgerows, woodland, scrub and some restricted areas of tussocky grassland.	**Highway Works** Any amphibian assemblage utilising these areas is considered to be of Negligible importance.
Badger	**EMG2 Works** A badger survey was conducted in 2022 and 2024 with results detailed in the confidential report provided in **Appendix 9B**. Crop fields provide seasonal foraging resources for badgers. The network of hedgerows provides commuting corridors and additional foraging opportunities. Smaller areas of additional foraging opportunities are provided by the grassland field compartments and pockets of scrub.	**EMG2 Works** While badger welfare is protected under legislation (The Protection of Badgers Act 1992), they are common and widespread, and for planning purposes are not ascribed a particular conservation value and are considered to be of Negligible importance.
	Highway Works A badger survey of accessible areas was conducted in 2024 with results detailed in the confidential report provided in **Appendix 9B**. While habitats within the Highway Works boundaries, including woodland, scrub and grassland, were restricted in scale, many extended into more extensive off-site areas and so provided a component of a wider resource.	**Highway Works** While badger welfare is protected under legislation (The Protection of Badgers Act 1992), they are common and widespread, and for planning purposes are not ascribed a particular conservation value and are considered to be of Negligible importance.
Bats	**EMG2 Works** A suite of surveys was conducted in 2024 with data from 2022 providing further context. Results detailed in **Appendix 9C**. The habitats on-site are very limited, the majority of the EMG2 Works is located on arable fields, which are of low value to bats, due to the lack of floristic diversity	**EMG2 Works** As many tree-dwelling bat species switch roosts regularly, the collection of trees with potential roost features, can be considered as a resource of Local importance for roosting bats. The bat assemblage was consistent with the poor nature of the habitats present. Despite

Species	Description	Evaluation
	resulting in limited numbers of invertebrates. Grasslands, hedgerows, ponds and scrub have the potential to offer a more diverse range of invertebrates and are therefore of greater value to bats. Good connecting habitats include hedgerows and wet ditches which link the EMG2 Works with suitable off-site habitats in the local and wider environment. Ground and subsequent aerial tree surveys identified 21 trees supporting potential bat roost features Three further trees identified as unsafe to climb. Following a combination of aerial inspections and nocturnal surveys, no trees were identified to be in current use by roosting bats. Additional reference has been made to data from 2022 and the supporting ecological documentation (Tyler Grange 2024) for the "*Land South of A453*" application (24/00727/OUTM), neither of which identified any bat roosts beyond the 2024 survey area. Bat activity surveys comprised both transects and automated (static) bat detector surveys, The transects identified that activity levels across the EMG2 Works were low, whilst bats were utilising hedgerows across the site this was mainly for commuting, with very limited periods of foraging activity recorded. Static detectors located around the site recorded a relatively low number of registrations.	their listing of noctule, brown long-eared and soprano pipistrelle as species of principal importance, all species recoded within the EMG2 Works are relatively common and widespread across Leicestershire and levels of activity recorded across the study area were unexceptional. Nathusius pipistrelles were detected in small numbers, which given the site location within the Trent valley is not unexpected. The only Annex II species recorded on-site were three registrations of barbastelle in association with the hedgerows along the northeastern boundary in August. Based on the above, the site was considered to be of no more than Local importance for commuting and foraging bats.
	Highway Works A habitat suitability assessment was carried out in 2024. Due to the nature of the Highway Works, the likelihood of significant bat assemblages occurring were considered unlikely, with habitats most able to support bats species tolerant of urban environments. No potential bat roosting habitats were identified.	**Highway Works** Any bat assemblage utilising these areas is considered to likely be of Negligible importance.

Species	Description	Evaluation
Birds	**EMG2 Works** Breeding bird surveys were conducted in 2024 and winter bird surveys over the 2024 to 2025 season. Previous survey data (FPCR 2022) and additional supporting ecological documentation (Tyler Grange 2024) for the "*Land South of A453*" application (24/00727/OUTM providing further context. Results are detailed in the report provided in **Appendix 9D**. The majority of species recorded are typical of the habitats present at the EMG2 Works in a regional context, being heavily influenced by the intensive arable agricultural land use. The actively cropped arable field interiors supported a fairly limited assemblage of breeding birds with the exception of moderate numbers of skylark and yellow wagtail. Arable field margins and boundaries provided suitable foraging habitat for small numbers of widespread farmland birds. The two parcels of grassland in the southwest corner of the site supported a similar assemblage to the arable fields and margins with each parcel supporting singing male skylarks and small numbers of notable farmland birds in their peripheral habitats. The hedgerows, areas of scrub around the ponds, and woodland bordering the arable and grassland compartments hosted a number of resident and migratory breeding species including a range of common and widespread taxa. The watercourses and inundated grassland areas supported a few breeding mallard. The number and assemblage of wintering birds across the site was exceptionally low for a site of this size and the arable habitats of which it is comprised. The majority of the wintering bird assemblage recorded was	**EMG2 Works** Arable fields and their associated margins supported a somewhat limited breeding bird assemblage. The assemblage associated with the grassland compartments was largely identical to that of the arable fields but with a more limited species diversity. There were low to moderate numbers of skylark and moderate to high numbers of yellow wagtail, an uncommon breeder in Leicestershire, both of which are associated with arable habitats. There is an abundance of similar agricultural habitats locally which includes a mixture of cereal cropland and thus the site is not considered to represent an isolated resource for this species with usage likely to depend on the respective crop rotations. As such the agricultural land was assessed as being of Local importance for the breeding farmland bird assemblage. Hedgerows, scrub, and woodland blocks on-site provided breeding and/or foraging habitat for a variety of common and widespread generalist species. There are several larger areas of similar scrub and woodland habitats in the surrounding landscape and so the EMG2 Works is considered at most of Local importance for breeding generalist bird assemblage. The wintering farmland bird assemblage recorded is typical of such habitat in the region with a small number of notable species in low numbers. Given the extensive area of suitable habitat available locally, the EMG2 Works is considered to be of no more than Local importance for its wintering farmland bird assemblage. The hedgerows, scrub, and trees within the site provided good shelter and foraging opportunities for a variety of common and

Species	Description	Evaluation
	associated with the hedgerows, scrub, and perimeter woodland though none of the species recorded occurred in significant numbers.	widespread generalist species. The wintering assemblage recorded in association with these habitats is typical of similar habitats in the region and is considered to be at most of Local importance.
	Highway Works The Highway Works areas involve very limited areas of habitat suitable for breeding and/or wintering birds and any areas of such habitat to be lost are negligible in the context of adjacent habitats.	**Highway Works** Hedgerows, scrub, and woodland blocks on-site provided breeding and/or foraging habitat for a variety of common and widespread generalist species. There are several larger areas of similar scrub and woodland habitats in the surrounding landscape and so the Highway Works area is considered at most of Local importance for breeding generalist bird assemblage.
Invertebrates	**EMG2 Works** Invertebrate surveys were conducted in 2024 (**Appendix 9E**). 3064 records of 951 invertebrate species were made over the course of the survey. This included 36 Nationally Scarce species and 4 Red Data Book or Nationally Rare species.	**EMG2 Works** The arable margins, where most invertebrate interest tends to be concentrated, were narrow and supported a limited ruderal flora and associated invertebrates. The invertebrate fauna is likely to be present on arable margins in the wider countryside. The grassy field margins and two grass fields present in the Development Area are of low quality, being nutrient enriched, species poor and limited in extent. They support an invertebrate fauna composed largely of widespread and common species. The wetland habitats that will be lost from the EMG2 Works are all heavily degraded and support little invertebrate interest. Hedgerows support an invertebrate fauna largely composed of common and widespread species but including some uncommon saproxylic species associated with small diameter dead wood. The overmature trees and their extensive associated wood decay habitats are the most valuable identified feature of the EMG2

Species	Description	Evaluation
		Works for saproxylic invertebrates. While of more interest than surrounding habitats, comparable trees are typical of the local landscape as a result of Ash dieback. The habitats present on-site are generally considered to be of at most local importance for invertebrate assemblages.
	Highway Works The Highway Works areas involve very limited areas of habitat suitable for invertebrate assemblages and any areas of such habitat to be lost are negligible in the context of adjacent habitats.	**Highway Works** Any invertebrate assemblage utilising these areas is considered to likely be of Negligible importance.
Otter and Water vole	**EMG2 Works** Surveys undertaken in 2022 and 2024 (**Appendix 9F**) confirmed that suitable aquatic and terrestrial habitat for otter and water vole was present both within the EMG2 Works area and directly adjacent to it. Offsite records of both species were identified as part of the desk study, and evidence of otter was detected along the Diseworth brook tributary adjacent to the western boundary.	**EMG2 Works** Otter have large linear territories and the low status tributary will reflect only a small percentage of a much wider territory. The EMG2 Works is considered to be of at most Local importance for otter.
	Highway Works No suitable aquatic habitats were identified within the Highway Works area.	**Highway Works** Any assemblage utilising these areas is considered to likely be of Negligible importance.
Plants	**EMG2 Works** Local records include bee orchid *Ophrys apifera*, buck's horn plantain *Plantago coronopus*, bogbean Menyanthes trifoliata, monkey flower Mimulus guttatus and hybrid bluebell *Hyacinthoides x massartiana*. Further low accuracy records in the area include the Schedule 9 listed, invasive variegated yellow archangel *Lamiastrum galeobdolon argentatum*. Habitat	**EMG2 Works** Local records are primarily located on the site boundaries. The botanical records identified are generally introduced species, and those spread along highways. Bee orchids are relatively common in the area and are not ascribed a particular conservation value. The botanical assemblage is considered to be of Negligible importance.

Species	Description	Evaluation
	surveys recorded species typical of arable landscapes.	
	Highway Works Further records of bee orchid along road verges. Habitat surveys recorded a mixture of habitats including diverse grassland compositions.	**Highway Works** There is a diversity of habitats found in conjunction with the existing highways. The botanical assemblage is considered to have at most Local importance.
Reptiles	**EMG2 Works** During the initial extended phase 1 habitat assessment certain areas of the EMG2 Works were assessed as having some suitability to support reptiles. On-site habitats, including long-swarded areas of poor semi-improved grassland, hedgerows, tall ruderal and dense/scattered scrub, were all considered to offer suitable commuting, foraging and refuge habitats for reptiles. The presence of narrow grass verges also had the potential to provide basking areas. Targeted surveys (**Appendix 9G**) have been undertaken on the EMG2 Works.	**EMG2 Works** These species are likely absent from the EMG2 Works.
	Highway Works The highway's verges and associated land is comprised of typical habitats. This includes areas of grassland, scrub and immature woodland alongside ruderal habitats. This mosaic is considered suitable for reptiles. The scope of impact within the Highway Works zone is generally limited to in nature and unlikely to affect any significant area of suitable reptile habitat.	**Highway Works** Any assemblage present in the Highway Works areas is likely to be limited in scale and not dependent on the habitats therein.

Future Baseline

9.5.34. Giving consideration to the existing pressures identified on international/national statutory sites, positive interventions are expected to combat any deterioration in condition. These are expected to be delivered as part of landowner obligations.

- The River Mease SAC is reported to be under pressure from excessive phosphorus concentrations [xxiii]. The condition of the waterbody, and the habitats which support the designated features, are in part dependent on the water quality. Should

additional nutrients continue to enter the catchment upstream, they will add further pressure to the condition of the SAC.

- Lockington Marshes SSSI is noted on the Natural England webpage[xxviii] to be under pressure from undergrazing. The notifiable features are all listed as recovering with recorded notes for specific units seeking grazing management to improve conditions.
- Attenborough Gravel Pits SSSI is noted on the Natural England webpage[xxix] to be under pressure from land use change, agricultural sources of water pollution and other/unknown sources of water pollution. Notifiable features which were not in favourable condition were either stable or recovering, with interventions listed including a new water outfall to improve water quality and adjustments to grazing management to benefit grassland habitat.
- Lount Meadows SSSI is noted on the Natural England webpage [xxx] to be under pressure from undergrazing. The recorded notes for specific units include landowner discussions around management to improve conditions.
- Oakley Wood SSSI is noted on the Natural England webpage [xxxi] to be under pressure from disease. Records highlight ash dieback and acute oak decline, however state that the site is under management which is looking to address these issues.
- Breedon Cloud Wood and Quarry SSSI is noted on the Natural England webpage[xxxii] to be in favourable or recovering condition, and noted to be well managed.

9.5.35. Designated sites in the local area are unlikely to be directly affected by the continuance of the existing land uses without the DCO Scheme.

9.5.36. In the absence of the DCO Scheme, the majority of the habitats affected by the EMG2 Works would be reasonably assumed to be managed as agricultural land and much of it would therefore experience limited change, continuing to support an overall low biodiversity value for wildlife across the managed habitats. The exception to this would be the ash trees that are declining due to Chalara dieback (ash dieback). This includes the trees identified to hold veteran status under the published biodiversity net gain related definition. Young ash trees rapidly succumb to the effects of ash dieback, while mature specimens may survive for 20-30 years subsequent to infection[xxxiii]. As such the longevity of the already infected ash trees is severely limited, and they would be expected to continue to decline, and eventually fail or be removed by management.

9.5.37. In the absence of the DCO Scheme, the habitats affected by the Highway Works would be expected to continue to be managed to maintain their condition.

Potential Impacts

Assessment of Likely Significant Effects

9.5.38. The likely significant ecological effects arising as a result of the DCO Scheme have been assessed with regard to the works set out in **Chapter 3: Project Description** (**Document DCO 6.3**).

9.5.39. Likely significant effects are considered below for IEFs classified to have local or greater sensitivity as detailed in the above section. These include:

- Direct or indirect effects;
- Short or long-term effects;
- Intermittent, periodic or permanent effects; and
- Cumulative effects (covered in Section 9.8).

9.5.40. Potential effects prior to mitigation include:

- Direct loss of habitats and associated flora and fauna, interruption of wildlife corridors, decrease in value to wildlife through reduction in species and / or habitats;
- Indirect effects on retained vegetation within and bordering the DCO Scheme, through increase disturbance and through local changes in soils, drainage and hydrology;
- Potential effects upon protected and scarce species through disturbance;
- Operational effects such as air quality changes, pollution incidents from chemical spills, pollution of streams and fragile habitats from runoff, and damage through incorrect storage of materials; and
- Long-term beneficial effects arising as a result of the favourable enhancement of parts of the DCO Scheme to beneficial after-use.

9.5.41. Throughout, the potential effects below are initially based on the scenario of the DCO Scheme taking place in the absence of additional mitigation. However the embedded mitigation is included as explained below. That is followed by an assessment of residual impact having regard to all the proposed mitigation.

Embedded Mitigation

9.5.42. From the outset and following review of the ecological baseline the likely significant effects arising as a result of the design of the DCO Scheme have been reviewed in order that, where possible, potential adverse effects can be avoided through an alteration in design.

9.5.43. The NPS-NN sets out expectation regarding project approaches to biodiversity.

> *The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity (paragraph 5.47)*
>
> *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. (paragraph 5.51)

Wider ecosystem services and benefits of natural capital should also be considered when designing enhancement measures in order to maximise multifunctional benefits whilst minimising land take (paragraph 5.52).

9.5.44. The North West Leicestershire Local Plan (2011-2031) Policy EN1 states that:

Proposals for development will be supported which conserve, restore or enhance the biodiversity in the district.

and that

New development will be expected to maintain existing ecological networks, hotspots and landscape features (such as water courses and waterways, disused railway lines, trees and hedgerows) for biodiversity, as well as for other green infrastructure and recreational uses.

9.5.45. Relevant ecological mitigation measures that are embedded into the design of DCO Scheme focus on the EMG2 Works and are identified on the Parameters Plan (**Document DCO 2.5**) and the Community Park Plan (**Document DCO 2.16)** and include:

- the retention of habitats such as trees, hedgerows, and ponds;
- buffering of sensitive offsite habitats and designated sites;
- proposed Community Park and other new green spaces including grassland and scrub habitats, ponds, hedgerows and trees;
- enhancement of green and blue corridors; and
- strategic drainage infrastructure.

9.5.46. Further detail is provided below.

Site Design

9.5.47. The EMG2 Works have been designed to create a substantial area of green infrastructure following the western boundary, including the proposed Community Park. This will provide a significant buffer for the Diseworth Brook Tributary, and in doing so enhance both the green and blue corridor running north-south across the EMG2 Works.

9.5.48. Further east-west green corridors will follow both Hyam's Lane, and the southern site boundary. The Hyam's Lane green corridor will be crossed by an estate road, however sensitive designs of this crossing point in combination with the provision of a wider green corridor relative to the current extent will mean that this will provide functional connectivity for a range of mobile species. The southern green corridor will include new grassland and SuDS features, providing an uplift in habitat diversity relative to the current offering.

9.5.49. The two cLWS at Donington Park Services (the ash trees, and the grassland and scrub habitats) which both sit adjacent to the eastern boundary of the EMG2 Main Site will be

buffered from the development area through the retention of boundary hedgerows, and additional planting areas will create a further stand-off.

Habitat Retention

9.5.50. The following habitats have been retained within the EMG2 Works:

- The single veteran tree which meets the NPPF definition criteria, and five further veteran trees as defined more broadly under the Biodiversity Gain regulations;
- Pond P3 which was classified as potential-historic LWS (11975), and the associated vegetation surrounding it; and
- Hedgerows and associated trees around the periphery and along the majority of Hyam's Lane, with the exception of sections along the A453 where site access is required.

9.5.51. The following habitats have been retained within the Highways Works:

- The single veteran tree (as defined under the Biodiversity Gain regulations); and
- The majority of boundary hedgerows and associated trees.

Habitat Creation

9.5.52. The Green Infrastructure (GI) proposals will provide a network of multi-functional green space, incorporating the above retained habitats which is capable of delivering a wide range of environmental and biodiversity gains. This includes enhancements to existing areas, new habitat creation, including a sustainable drainage system (SuDS). Habitat creation has focussed on locally appropriate habitats, prioritising a mixture of grassland, scrub and woodland. A variety of planting/seed mixes will be used within each habitat type to create additional species diversity and tailor species to local conditions. Targeted creation and management prescriptions based on the criteria required to achieve a net gain in biodiversity will ensure that the condition of habitats meets those defined within the Biodiversity Net Gain Assessment provided as **Appendix 9I (Document DCO 6.9I)** in the short medium and long term (30 years) with monitoring and remediation mechanisms incorporated, ensuring that the biodiversity gains are achieved.

9.5.53. The proposals will enable the delivery of areas of species-rich and biodiverse grassland, located widely throughout the GI. Grassland seed mixes of native provenance will be prioritised or if the opportunity arises a green hay would be locally sourced. Mixes will be tailored with damper areas using a wet meadow mixture, and more shade tolerant woodland meadow mixes used in association with scrub and woodland habitats. Where high quality, ecologically valuable grasslands are targeted, topsoils would be removed or mixed with subsoils to provide a substrate more conducive to the establishment of a more species-rich sward. A variation in topography would be provided with shallow scrapes and undulations left to provide a high level of variation in micro-topography. Selected areas of species-rich grassland areas will be less formally managed to allow vigorous growth and the development of a structurally diverse habitat suitable for the colonisation of a range of species.

9.5.54. More formal urbanised settings will use species and management appropriate to their setting, and flowering lawn mixes will be used to enhance amenity areas.

9.5.55. New native woodland and scrub habitat will be created within the GI in the form of small blocks and linear belts to enhance habitat connectivity. The planting mix will be representative of local native woodlands. Management will encourage the development of structurally diverse woodland.

9.5.56. New native hedgerows will be created along selected unit boundaries and roads and softening the transition between developed areas and the wider GI, as well as providing inherent habitat value. Together with retained hedgerows they will provide sheltered corridors for wildlife to move along, encouraging dispersal. Retained hedgerows will include be subject to a more sympathetic management regime to add additional biodiversity value, increasing species and structural diversity.

9.5.57. Due to the nature of the proposals, habitat creation associated with the Highways Works is relatively limited in scale, however will include:

- Hedgerows will be gapped up to remove redundant field access points.
- Limited areas of scrub and grassland creation.

Lighting Design

9.5.58. In addition, and as set out in **Chapter 11: Lighting (Document DCO 6.11**) the design of lighting will minimise light-spill onto retained habitats. This will be achieved by ensuring that the design of lighting is based upon guidance published by the Institution of Lighting Professionals & Bat Conservation Trust [xxxiv]. In general, the sensitive design of lighting with regard to bats will be achieved through a combination of the following measures:

- Avoiding unnecessary lighting;
- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used;
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component;
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- Internal luminaires can be recessed (as opposed to using a pendant fitting) - where installed in proximity to windows to reduce glare and light spill;
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges;
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards;

- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered;
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt;
- Where appropriate, external security lighting should be set on motion-sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate;
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand. Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS;
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues; and
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely

Construction Impacts

Introduction

9.5.59. Effects during construction may include:

- direct habitat loss and degradation including damage such as root compaction and physical damage to branches;
- harm or disturbance to species including through fragmentation and isolation, and disruption during sensitive periods such as breeding or hibernation seasons;
- pollution events which may result in localised damage or more diffuse effects through spillages into wetland features, including potential for silt-laden construction Site run-off; and
- dust deposition as a result of an increase in airborne dust, particularly during periods of dry weather, when soil-stripping or earth moving is being undertaken (The Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction[xxxv] identifies a maximum 50m zone from the EMG2 Project and vehicle routes, and a 250m zone from site entrances should be considered for ecological Impacts).

9.5.60. Locations discussed below are provided in **Appendix 9A (Document DCO 6.9A)**.

Statutory Designated Sites

9.5.61. The River Mease SAC located approximately 13.5km from the DCO Scheme at its closest point. The River Mease rises in the Coal Measures of north-west Leicestershire and flows approximately 25 kilometres westwards across a largely rural and agricultural landscape to its confluence with the River Trent at Croxall. As a relatively un-modified lowland river, the River Mease contains a diverse range of physical in-channel features, including riffles, pools, slacks, vegetated channel margins and bankside tree cover, which provide the conditions necessary to sustain populations of spined loach *Cobitis taenia*, bullhead *Cottus gobio*, freshwater white-clawed crayfish *Austropotamobius pallipes* and otter *Lutra lutra*. An assessment of potential impact pathways is provided in **Appendix 9H (Document DCO 6.9H)**. No significant direct or indirect effects are anticipated due to the distance from Site and the lack of potential impact pathways in relation to the following topics:

- direct habitat loss;
- thermal effects;
- biological connectivity and vegetation structure;
- reduction in water quality (pollutants);
- reduction in water quality (nutrients);
- water abstraction;
- increased risk of invasive plant species entering the watercourse;
- increased risk of siltation entering the watercourse; and,
- inappropriate weirs, dams and other structures.

9.5.62. Lockington Marshes SSSI is located approximately 1km from the closest part of the DCO Application **(**the Highways Works component), with the EMG2 Works being over 4km away. The Lockington Marshes are located within the Hemington Brook Catchment (Soar Management Catchment). The EMG2 Works also sit within Soar Management Catchment.

9.5.63. The EMG2 Works to the north of Hyam's Lane drains predominantly into the Hall Brook, which flows west and south to join the Diseworth Brook in the village of Diseworth. Land to the south of Hyam's Lane drains toward a minor watercourse in the southeast corner, which enters the Diseworth Brook via a culverted connection beneath the A42. Potential indirect temporary, reversable adverse effects are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

9.5.64. The existing highways within the Order Limits (including the A453, M1 J24, and A50 links) are drained via the Strategic Road Network drainage system, which outfalls to the Hemington Brook, Lockington Brook, and a minor tributary of the River Soar. The proposed Highways Works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and

SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level.

9.5.65. The confluence of the above-mentioned waterbodies is approximately 30m downstream of the Lockington Marshes SSSI where it feeds into the River Soar. Any hydrological link for aquatic pollution would therefore be limited to potential flood events large enough to extend back upstream into the SSSI from the river Soar. Due to the significant distance and dilution effects from the upstream catchment area of 1370km^2, any effects on the SSSI are considered negligible.

9.5.66. Attenborough Gravel Pits SSSI is located approximately 5.5km from the DCO Scheme, at its closest point, and is approximately 4.8km further downstream of the Lockington Marshes SSSI discussed above. The Attenborough Gravel Pits are located within the Trent Lower and Erewash Management Catchment, downstream of the confluence between the River Trent and the Soar Management Catchment in which the DCO Scheme sits. As such there is a hydrological link, however as detailed above, the potential dilution from the upstream catchment any potential effects on the SSSI are considered negligible.

9.5.67. Oakley Woods SSSI is predicted to be exposed to an increase in the Process Contribution (PC) from airborne pollutants exceeding 1% of critical levels. Specifically, a maximum annual mean increase above 1% NH3 PC (Table 8H.63 & Table 8H.88 in **Appendix 8H**, (**Document DCO 6.8H**) up to c.0-2m from the start of the modelled transect (taken from the edge of the designated feature). Levels are anticipated to reach 4.12 µg m^{-3} which exceed the critical loads for higher plants (3 µg m^{-3})[xxxvi].

9.5.68. Oakley Wood SSSI is recorded to be in unfavourable condition (recovering) with ash dieback and acute oak decline recorded. Both these diseases may be exacerbated by stress from air pollution. The SSSI citation and features listing do not include lichens or bryophytes, and so while these assemblages may be affected by predicted changes, they do not form the basis of the SSSI notification. Increased nitrogen levels can also lead to a greater abundance of nitrogen tolerant plant species at the expense of other woodland floral species, and can have knock on effects on invertebrate assemblages. The woodland sits over 15m from the M1 carriageway at its closest point and is buffered by an established woodland belt (c.=/>10m) along the M1 motorway verges. The modelled effect does not account for established trees, which act as a physical barrier and absorb pollutants, and so the ultimate spread and levels of pollutants can reasonably be expected to be lower than those reported above. Given the limited spatial extent of significant reductions in air quality (up to 2m), and the expected buffering effect of the existing woodland belt, it is considered unlikely that the predicted decrease in air quality would result in a detectable alteration to the overall woodland composition and condition, and so the potential impacts are considered negligible.

9.5.69. Breedon Cloud Wood and Quarry SSSI is predicted to be exposed to increased Process Contribution (PC) of airborne pollutants exceeding 1% of critical levels. Specifically, a maximum annual mean increase above 1% PC acid deposition (Table 8H.79 & Table 8H.104 in **Appendix 8H** (**Document DCO 6.8H**) up to c.30-40m from the start of the modelled transect. The peak predicted level is 2.21 kgN/ha/yr which falls within the critical levels (MaxCLminN 2.731kgN/ha/yr) and so the potential impacts are considered negligible.

Non-statutory sites

9.5.70. Pond P3 which is the on-site potential-historic LWS (11975) within the EMG2 Works area is to be retained along with the majority of surrounding vegetation. Based on the phase 1 survey data, this pond did not meet the requirements to be selected as a LWS published in Leicester, Leicestershire and Rutland Guidance. To the north, earthworks will create a plateau for a HGV parking, with the EMG2 Main Site spine road also running to the north-west. A footpath/cycle way passing in proximity to the south of the pond, connecting Hyam's Lane to the bus terminal and wider pedestrian/cycle network. There is a potential direct adverse impact from vehicle tracking and material storage outside the construction footprint. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of degradation to the quality of the pond which constitutes a moderate magnitude of adverse impact.

9.5.71. The Donington Park Services Ash Trees (92034) candidate LWS, form part of hedgerow H6, and are referred to as trees T4 and T5. The arboricultural assessment as detailed in the Tree Schedule (FPCR 2022) **Appendix 9J** (**Document DCO 6.9J**) lists these trees as being of low quality with an estimated remaining life expectancy of at least 10 years. This boundary habitat to the adjoining service station is to be retained. Earthworks to the south will ultimately form part of the green infrastructure which will also include the provision of a new footpath. Beyond this will be new commercial buildings with associated infrastructure. There is a potential direct adverse impact from vehicle tracking and material storage outside the construction footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage of the trees which constitutes a moderate magnitude of adverse impact.

9.5.72. The Donington Park Services Grassland and Scrub (92033) candidate LWS is listed as an area of mesotrophic grassland (5ha) and scrub (2.5ha), meeting LWS criteria for grassland and offering suitability for leaf mines and galls. A ground-mounted solar farm (Application Reference. 23/01712/FULM) has been approved which will extend across much of this sit, with central areas of woodland and scrub habitat are to be cleared in favour of expansion of grassland habitat. Boundary corridors of trees and scrub are to be maintained at the eastern, western and southern boundaries. The earthworks required for the EMG2 Main Site to the immediate west and south will ultimately form part of the green infrastructure which will also include the provision of a new footpath. Beyond this will be new commercial buildings with associated infrastructure. There is a potential direct adverse impact from vehicle tracking and material storage outside the construction footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage to the condition of the periphery habitat which constitutes a low magnitude of adverse impact.

9.5.73. The Paddock (11965) potential-historic LWS is found approximately 50m south-west of the EMG2 Works on the far side of Long Holden. Defra's Priority Habitats Inventory (England) lists the area as mainly traditional orchard, with some deciduous woodland. No recent survey data was available, however from aerial imagery the site appears to be a largely managed grassland area. Given the separation, direct impacts are considered unlikely, however

indirect temporary impacts include dust and littering arising from construction activities. In the absence of mitigation, there is a risk of a temporary, short-term change in the quality or vulnerability of the site which constitutes a negligible magnitude of adverse impact.

9.5.74. Lockington (EMG) Oak 143 candidate LWS (90888) is recorded as a mature oak of 1370mm DBH in poor condition. The tree sits within a hedgerow that bounds the A50 and would be retained within the A50 West Bound Merge component of the Highway Works. There is a potential direct adverse impact from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage of the trees which constitutes a moderate magnitude of adverse impact.

9.5.75. Lockington Park potential-historic LWS (11952) is found approximately 40m west of the A50 West Bound Merge component of the Highway Works. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and is partially recorded as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. Given the separation, direct impacts are considered unlikely, however indirect temporary impacts include dust and littering arising from construction activities. In the absence of mitigation, there is a risk of a temporary, short-term change in the quality or vulnerability of the site which constitutes a negligible magnitude of adverse impact.

Other Sites

9.5.76. The remaining local sites identified above are more than 50m from the construction activities and no additional sites were identified within 250m of the DCO Limits. Any detrimental impacts on these more distant sites, for example as a temporary bi-product of site traffic, would be very minor and constitute a negligible magnitude of adverse impact.

Semi-natural Habitats

9.5.77. Semi-natural habitats of significant nature conservation value are rare within the DCO Scheme due to the past predominance of intensive agriculture, and existing highways.

9.5.78. The vast majority of the built development within the DCO Scheme is associated with the EMG2 Works and will occur on former arable or species-poor grassland of negligible nature conservation value. The Highway Works are primarily on land that has previously been developed or subject to clearance.

9.5.79. In the context of the DCO Scheme, the following habitats were considered of below local importance and have not been considered further:

- Mixed Scrub
- Other neutral grassland
- Modified Grassland
- Bare ground
- Derelict land

- Cereal crops
- SuDS
- Tall forbs
- Ditches

9.5.80. Construction phase effects from the DCO Scheme on habitats with at least a local level of sensitivity are summarised and discussed in **Table 9.13**

Table 9.13: Potential construction effects on habitats (DCO Scheme)

Habitat Type	Sensitivity	Evaluation
Individual Trees (excluding veterans)	Local importance (Low)	**EMG2 Works** Tree loss will be required to facilitate the main site development. Impacts to retained trees include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
		Highway Works Tree loss will be required to facilitate the modification of the highways network. Impacts to retained trees include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
Veteran Trees	Local importance (Low)	**EMG2 Works** Nine veteran trees defined under the Biodiversity Gain regulations are to be lost. Compensation for veteran trees is not covered by the BNG framework. This represents a permanent, irreversible adverse effect. Impacts to retained trees include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
		Highway Works A single veteran tree defined under the Biodiversity Gain regulations is to be retained.

Habitat Type	Sensitivity	Evaluation
		Impacts to retained trees include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
Broadleaved woodland	Local importance (Low)	**EMG2 Works** No direct losses of woodlands are anticipated. Impacts to retained woodlands include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
		Highway Works Some areas of partial woodland loss are expected to facilitate the proposed woks. Ground-truthed mapping as reported in Appendix 9a illustrates the extent of woodland habitats, with minor differences from the extents of HPI woodland as listed on Defra's Priority Habitats Inventory (England). All HPI woodland is located offsite, with some areas adjacent to the Highway Works boundaries. Impacts to retained woodlands include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
Ponds (excluding pond P3).	Local importance (Low)	**EMG2 Works** Both ponds P1 and P2 will be lost to facilitate the development. Pond P3, which is considered separately under the designated sites assessment, is to be retained.
		Highway Works No ponds have been identified within this area.
Hedgerows	Local importance (Low)	**EMG2 Works** Hedgerow loss will be required across much of the EMG2 Main Site to facilitate the proposed development. Impacts to retained hedgerows include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works

Habitat Type	Sensitivity	Evaluation
		footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
		Highways Works Some hedgerow loss will be required to facilitate the proposals.
Diseworth brook tributary	Local importance (low)	**EMG2 Works** The Diseworth brook tributary runs parallel to the northern extent of the western boundary of the proposed Community Park. The riparian zone (10m buffer) extends onto site in this area. The proposals will enhance the bank top habitats in this area, and any construction work is significantly set back away from the site boundary. Potential indirect temporary, reversable adverse effects are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
		Highways Works The Highways Works extend along the existing crossing point on the A453. No direct effects are anticipated. Potential indirect temporary, reversable adverse effects are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

Construction Phase - Species Level

9.5.81. Construction phase effects on species with at least a local level of sensitivity from the DCO Scheme are summarised and discussed in have been discussed in **Table 9.14** below.

Table 9.14: Potential construction effects on species (DCO Scheme)

Species	Sensitivity	Evaluation
Amphibians (including GCN)	Local importance	**EMG2 Works** Some loss of aquatic habitats (ponds p1 and p2, and ditch D1) will be required to facilitate the development. Habitats loss will be compensated through embedded mitigation with new on-site habitat creation as part of BNG requirements, but also with specific regard to GCN through a District Level Licencing (DLL) scheme. However, there will be a delay in equivalent provision as new habitat establishes. According to research published by Natural England[xxxvii], GCN are unlikely to travel in excess of 200-250m from a breeding pond and if the habitats adjacent to the pond

Species	Sensitivity	Evaluation
		are of good quality, the distance travelled from the pond is likely to be reduced. The report states: *"By far the most captures were recorded within 50 m of ponds and few animals were captured at distances greater than 100 m"* *"Captures on fences (and by other methods) at distances between 100 m and 200 – 250 m from breeding ponds tended to be so low as to raise serious doubts about the efficacy of this as an approach, although a small number of projects did report captures on significant linear features at distances approximately 150 – 200 m from ponds."* Jehle[xxxviii] determined a terrestrial zone of 63m, within which 95% of summer refuges were located. In addition, following the breeding season, Jehle and Arntzen[xxxix] recorded 64% of newts within 20m of the pond edge". For the purpose of mitigation licences Natural England classify core terrestrial habitats as those within 50m of a breeding pond, habitats between 50m and 250m are classified as intermediate, and beyond this habitats are classified as distant. Loss of suitable terrestrial habitats will restricted to hedgerows, with the majority of the area around ponds being utilised for crop production. Retained on-site scrub habitat surrounding pond P3 and offsite woodland and grassland habitats associated with the Donington Park Services Grassland and Scrub (92033) candidate LWS provide more optimal habitats and has numerous records of GCN. Impacts to retained habitats include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. New habitat creation will buffer retained Pond P3, and offsite habitats. New SuDS features providing temporary damp areas (sensitive to aerodrome safeguarding). There is the potential for direct harm or mortality to amphibians resulting from construction activity.
		Highway Works No impacts are anticipated.
Bats	Local importance	**EMG2 Works** The removal of habitats as part of the proposed works will lead to some loss of foraging and commuting habitat, largely in connection with hedgerows. Survey work within the site has shown that bat activity is relatively low and the proposals retain periphery habitats that are associated with bat foraging and commuting activity. Nevertheless the proposals will lead to the

Species	Sensitivity	Evaluation
		temporary reduction of hedgerow habitats that are used by bats and there will therefore be some alteration in the pattern of use of the site by bats. The magnitude of any impact is also likely to be highly reduced by the wide availability of similar, suitable foraging habitat in the surrounding area. The temporary loss of habitat is likely to lead to some minor effect, although is unlikely to significantly affect any local population of any species identified. Current plans indicate 17 of the 27 trees on site with potential roost features will be lost to facilitate the development. The loss of trees will reduce the available local roost resource. With specific regards to tree roosts, the BCT guidance[x] states that: *"…it is arguable that all trees with bat roosting potential should be considered part of a resource that will be used at one time or another by tree roosting bats in order to determine the extent of impacts. Survey work on individual trees may confirm presence but is unlikely to conclusively confirm absence. Precautionary measures are likely to still be essential during works even where surveys have not identified occupancy."* The use of high intensity lighting can impact on bats during the construction stage, particularly where lighting is close to retained habitat that is used for foraging and as corridors of movement by some of the slower flying species such as the Myotis and brown long-eared bat species. While this is unlikely to significantly affect the viability of any local population, it could lead to their displacement from some areas or decline in foraging efficiency in the short-term during construction. Other species, including Noctule and Pipistrellus, the most numerous species recorded, are likely to benefit from the increase in floodlighting as they feed on the insects attracted to the light.
		Highway Works The removal of habitats as part of the proposed works will lead to some loss of foraging and commuting habitat, largely in connection with hedgerows. The use of high intensity lighting can impact on bats during the construction stage, particularly where lighting is close to retained habitat that is used for foraging and as corridors of movement by some of the slower flying species such as the Myotis and brown long-eared bat species. While this is unlikely to significantly affect the viability of any local population, it could lead to their displacement from some areas or decline in foraging efficiency in the short-term during construction. Other species, including Noctule and Pipistrellus, the most numerous species recorded, are likely to benefit from the increase in floodlighting as they feed on the insects attracted to the light.

Species	Sensitivity	Evaluation
Birds	Local importance	**EMG2 Works** The potential impact of the loss or change of habitat upon breeding bird species arising from the effects of development is based upon an understanding of each species' ecological requirements, the type of development, number of birds recorded within the survey area, their nature conservation criteria based on legislation and current guidance, their county status according to the county bird report and professional judgement. The permanent loss of agricultural habitats through the footprint of the proposed buildings and associated infrastructure will impact on the species typically associated with arable farmland (including BoCC red and amber listed species). Given the low numbers of species breeding on site, their abundance in the county, and the availability of similar habitat immediately adjacent to the EMG2 Works, it is anticipated that these species will be displaced to similar habitats in proximity to the site. The loss of this arable habitat is unlikely to represent a significant effect in terms of the conservation status of species assemblages. Similarly, the temporary reduction of hedgerow and scrub will result in minor displacement impacts to the birds which rely on these features. However, the loss of these areas is unlikely to result in the total loss of the majority species from the site or adverse effects to any local bird population and the resulting impact is negligible. The individual species recorded on site that are arguably the most vulnerable to impacts from the habitat loss include the 18 notable species that are either specially protected, appear on the BoCC Red or Amber lists and/or are listed as a NERC priority species and were recorded in at least locally important numbers. Of these species, skylark and yellow wagtail will be most greatly impacted with a permanent loss of suitable on-site habitat. These are both declining species associated with arable habitats and confirmed as breeding on-site. Yellow wagtails are uncommon as a breeding species within the county. Construction operations have the potential to disturb birds using the development area of the EMG2 Works for roosting, foraging, and breeding. Operations likely to disturb breeding birds include noise and displacement during vegetation clearance, initial ground works and some construction activities. During the breeding season (March to August, inclusive) disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as the retained hedgerows or woodland edge. There is some potential for direct harm to nesting birds and their young, and for breeding success to be reduced, this is expected to have a minor impact on the

Species	Sensitivity	Evaluation
		local conservation status of most of the bird species using the survey area for breeding. New habitat creation within the green infrastructure will in the long term create new opportunities for generalist and urban species assemblages.
		Highway Works The temporary reduction of hedgerow and scrub will result in minor displacement impacts to the birds which rely on these features. However, the loss of these areas is unlikely to result in the total loss of the majority species from the Highway Works or adverse effects to any local bird population and the resulting impact is negligible. Construction operations have the potential to disturb birds using the development area of the Highway Works for roosting, foraging, and breeding. Operations likely to disturb breeding birds include noise and displacement during vegetation clearance, initial ground works and some construction activities. During the breeding season (March to August, inclusive) disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as the retained hedgerows or woodland edge. There is some potential for direct harm to nesting birds and their young, and for breeding success to be reduced, this is expected to have a minor impact on the local conservation status of most of the bird species using the survey area for breeding.
Invertebrates	Local importance	**EMG2 Works** The majority of the habitats within the footprint of the core development areas of the EMG2 Main Site will be lost or at least modified to a significant extent. Some habitats will be retained, in particular the north-west marginal stream along with associated hedges and trees will be retained with an adjacent buffer strip. The loss of the arable land will be of little consequence to the invertebrate fauna. The loss of most of grassland, scrub, pond and hedgerow habitats will be compensated for within the green infrastructure as part of the biodiversity net gain requirements. The loss of the overmature trees and their associated wood decay habitats constitutes the largest impact of invertebrate assemblages. Impacts to retained habitats include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

Species	Sensitivity	Evaluation
		Highway Works Minor habitat losses which will ultimately be compensated for within the green infrastructure as part of the biodiversity net gain requirements. are unlikely to significantly affect the invertebrate fauna. Impacts to retained habitats include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.
Otter	Local importance	**EMG2 Works** The Diseworth Brook Tributary is offsite and will not be directly impacted. The proposals will enhance the riparian zone through additional planting and a reduction in land under agricultural use and an artificial log otter holt will be constructed. There is the potential for direct harm or mortality to otter resulting from construction activity. Potential indirect temporary, reversable adverse effects are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities which could reduce habitat quality for otters.
		Highway Works The highways works extend along the existing crossing point of the Diseworth Brook Tributary under the A453. There is the potential for direct harm or mortality to otter resulting from construction activity. Potential indirect temporary, reversable adverse effects are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities which could reduce habitat quality for otters.
Plants	Local importance	**EMG2 Works** The habitats to be lost are all common in the local area, and as such losses are not considered to represent a significant impact to local population levels. Impacts to retained habitats include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

Species	Sensitivity	Evaluation
		New habitat creation will provide increased botanical interest, and it is likely that species identified will recolonise the EMG2 Works from surrounding areas.
		Highway Works The habitats to be lost are all common in the local area, and as such losses are not considered to represent a significant impact to local population levels. Impacts to retained habitats include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

Operational Impacts

9.5.82. On completion of the DCO Scheme, the following operations will occur which will potentially affect designated sites, habitats and species as set out below:

- Use of proposed buildings and infrastructure by personnel;
- Increased traffic; and
- Recreational use of the surrounding area.

Statutory Designated Sites

9.5.83. The River Mease SAC is located approximately 13.5km from the DCO Scheme at its closest point. An assessment of potential impact pathways is provided in **Appendix 9H** (**Document DCO 6.9H**). No significant direct or indirect effects are anticipated due to the distance from DCO Scheme and the lack of potential impact pathways.

9.5.84. Lockington Marshes SSSI is located approximately 1km from the closest part of the DCO Application **(**the Highways Works component), with the EMG2 Works being over 4km away. The Lockington Marshes are located within the Hemington Brook Catchment (Soar Management Catchment). The EMG2 Works also sit within Soar Management Catchment.

9.5.85. Post development surface water from the EMG2 Works will be managed through a series of SuDS basins, swales and below ground attenuation tanks, attenuating flows and discharging under controlled conditions into the A42 culvert system, bypassing the village of Diseworth, and onward to the Diseworth Brook and Long Whatton Brook. The "Long Whatton Brook Catchment (trib of Soar) Water Body" is identified to have a "poor status". This is partially due to diffuse pollution from agriculture and rural land management, which the development will reduce. It is noted that transport drainage is also a contributing factor to the poor status of the water body, this is likely associated with historical infrastructure that was built before water quality was given sufficient consideration. The proposed development at the EMG2 Works will include SuDS designed in accordance with the latest CIRIA SuDS manual and

water treatment index to ensure that water quality as well as the water quantity leaving the EMG2 Works is given appropriate consideration. Therefore, this is expected to represent a minor improvement over the current conditions. The maximum discharge rate from the development has been limited to greenfield rates based on the existing natural catchment to the south of Hyam's Lane; thus providing a betterment to the maximum rate of discharge into Diseworth Brook.

9.5.86. The existing highways within the Order Limits (including the A453, M1 J24, and A50 links) are drained via the Strategic Road Network drainage system, which outfalls to the Hemington Brook, Lockington Brook, and a minor tributary of the River Soar. The proposed Highways Works are largely associated with improvements to existing highways, junctions and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level.

9.5.87. The confluence of the above mentioned waterbodies is approximately 30m downstream of the Lockington Marshes SSSI where it feeds into the River Soar. Any hydrological link for aquatic pollution would therefore be limited to potential flood events large enough to extend back upstream into the SSSI from the river Soar. Due to the embedded SuDS design, significant distance and dilution effects from the upstream catchment area of 1370km^2, any effects on the SSSI are considered negligible.

9.5.88. The potential for air quality impacts has been discounted as there are no affected highways within 700m. Any impacts the Lockington Marshes SSSI are considered negligible.

9.5.89. Attenborough Gravel Pits SSSI is located approximately 5.5km from the DCO Scheme at its closest point and is approximately 4.8km further downstream of the Lockington Marshes SSSI discussed above. The Attenborough Gravel Pits are located within the Trent Lower and Erewash Management Catchment, downstream of the confluence between the River Trent and the Soar Management Catchment in which the EMG2 Project sits. As such there is hydrological link, however as detailed above, the potential dilution from the upstream catchment any potential effects on the SSSI are considered negligible. This site lies beyond the extent of the strategic transport model, and so it is deemed any air quality impacts could reasonably be discounted as negligible. Any impacts the Attenborough Gravel Pits SSSI are considered negligible

9.5.90. Oakley Woods SSSI is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically:

- There is a maximum annual mean increase above 1% NOx PC (Table 8H.1 & Table 8H.31 in **Appendix 8H, (Document DCO 6.8H)**) up to c.10-20m from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded up to c.5-10m, with levels at and beyond 10m predicted to be within the critical load.
- There is a maximum annual mean increase above 1% NH_3 PC (Table 8H.3 & Table 8H.33 in **Appendix 8H (Document DCO 6.8H)**) up to c.180-190m from the start of

the modelled transect. Levels are anticipated to exceed the critical loads for higher plants (3 µg m-3) at up to 30m.

- There is a maximum annual mean increase above 1% acid deposition PC (Table 8H.4 & Table 8H.34 in **Appendix 8H (Document DCO 6.8H)**), for c.50-60m from the start of the modelled transect. The peak predicted level is 2.39kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 2.731kgN/ha/yr), and so the potential impacts are considered negligible.
- There is a maximum annual mean increase above 1% nitrogen deposition PC (Table 8H.5 & Table 8H.35 in **Appendix 8H (Document DCO 6.8H)**) for 90-100m from the start of the modelled transect. Background levels of nitrogen deposition already exceed the critical load (15-20kg N/ha/yr), and so the significant process contribution above the critical load covers the full and 90-100m zone identified above.

9.5.91. Oakley Wood SSSI is recorded to be unfavourable condition (recovering) with ash dieback and acute oak decline recorded. Both these diseases can be exacerbated by stress from air pollution. The SSSI citation and features listing do not include lichens or bryophytes, and so while these assemblages may be affected by predicted changes, they do not form the basis of the SSSI notification. Increased nitrogen levels can also lead to a greater abundance of nitrogen tolerant plant species at the expense of other woodland floral species, and can have knock on effects on invertebrate assemblages. The woodland sits over 15m from the M1 carriageway at its closest point and is buffered by an established woodland belt (c.=/>10m) along the M1 motorway verges. The model of air pollution spread does not account for established trees which act as a physical barrier and absorb pollutants, and so the ultimate spread and levels of pollutants can reasonably be expected to be lower than those reported above.

9.5.92. Given the limited spatial extent of significant reductions in air quality from NOx (up to 10m into the SSSI), and the expected buffering effect of the existing woodland belt, it is considered unlikely that the predicted decrease in air quality would result in a detectable alteration to the overall woodland composition and condition, and so the potential impacts are considered negligible.

9.5.93. Considering NH_3,the critical loads are exceeded for higher plants at up to 30m into the SSSI (1.7% SSSI extent). Given the limited spatial extent of significant reductions in air quality in relation to higher plants, which are likely to be further reduced by both the buffering effect of the existing woodland belt, and the dampening effect that woodland itself has on air pollutant spread, it is considered that the impact would not affect the condition of the SSSI features, or their future management and so the potential impacts are considered negligible.

9.5.94. Nitrogen deposition is shown to have significant increases above the critical load at up to 100m into the SSSI (c.6.6% SSSI extent). This change could exacerbate existing deleterious effects within this zone, resulting in minor detrimental alteration to the woodland condition and ground flora composition, and impacting on the effectiveness of future management. The buffering effect of the existing woodland belt along the motorway and the expected dampening effect that woodland itself has on air pollutant spread can reasonably be expected to provide some degree of amelioration. Given the spatial coverage of the SSSI, there could be a minor measurable adverse change in the attributes, quality and vulnerability

of the woodland which constitutes a low magnitude of adverse impact, which is expected to be reversible in the long-term as vehicles transition to cleaner fuels.

9.5.95. Lount Meadows SSSI is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.11 & Table 8H.41 in **Appendix 8H, (Document DCO 6.8H)**) up to c.100-110m from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded up to c.10-20m.
- A maximum annual mean increase above 1% NH_3 PC (Table 8H.13 & Table 8H.43 in **Appendix 8H, (Document DCO 6.8H)**) up to c.10-20m from the start of the modelled transect. Levels are anticipated to exceed the critical loads for higher plants (3 µg m-3) at up to 2m.
- Nitrogen deposition (Table 8H.15 & Table 8H.45 in **Appendix 8H (Document DCO 6.8H)**) exceeds the 1% PC for c.50-60m from the start of the modelled transect respectively. Background levels of nitrogen deposition already exceed the critical load (10-20kg N/ha/yr), and so the significant process contribution above the critical load covers the full and 50-60m zone identified above.

9.5.96. Lount Meadows SSSI is recorded to be unfavourable condition with undergrazing listed as the sole pressure, however the description of individual site units also list overgrazing as in issue in the southern extent of the site. Impacts on grasslands from reductions in air quality resulting in nitrogen deposition (including ammonia), can alter species compositions and reduce overall species richness. Lount Meadows SSSI extends to within 20m of the A42 carriageway at its closest point. The A42 is buffered by a woodland belt (c.15m wide) along the length in proximity to Lount Meadows, which, as set out above, will serve to reduce the ultimate spread and levels of pollutants, thus significant changes to air quality at Lount meadows are considered to be limited to the eastern extent.

9.5.97. Given the limited spatial extent of significant reductions in air quality from NOx (up to 20m into the SSSI), and NH_3 (up to 2m into the SSSI), and the expected buffering effect of the existing woodland belt, it is considered unlikely that the predicted decrease in air quality would result in a detectable alteration to the grassland composition and condition, and so the potential impacts are considered negligible.

9.5.98. Nitrogen deposition is shown to have significant increases above the critical load at up to 60m (c.8.7% SSSI extent). The predicted decrease in air quality could exacerbate existing deleterious effects within this zone. Within a managed grassland context, nitrogen deposition from air pollution interacts with grazing and mowing regimes which can serve to reduce nutrient levels. Under-grazing is listed as a current management issue which will exacerbate effects of nutrient enrichment promoting productive grasses. Natural England are seeking positive management of this SSSI, which must ultimately account for levels of nutrient deposition, and so management will have a significant role in determining ultimate nutrient loads. The identified nitrogen deposition from air pollution is unlikely to impact the success of any such future management. However, there is a risk that the changes in air quality, could impact the vulnerability of the SSSI to some detrimental changes. There will be some reduction in the spatial scale of impact as a result of the buffering effect from the existing

woodland belt. It is therefore considered that there remains the possibility of minor measurable adverse change in the attributes, quality and vulnerability of the grassland which constitutes a low magnitude of adverse impact, which is expected to be reversible in the long-term as vehicles transition to cleaner fuels.

9.5.99. Traffic increases along the boundary roads of Breedon Cloud Wood and Quarry SSSI are below the significant levels (>1000AADT) which would trigger an air quality assessment. However, the road northwards from the junction (located at the north-east corner of the SSSI) of these two lanes (Top Brand with Stocking Lane) is predicted to have an AADT of 1082 and therefore triggers the requirement for assessment.

9.5.100. An air quality transect from the junction identified Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- An annual mean increase above 1% NOx PC (Table 8H.16 & Table 8H.46 in **Appendix 8H, (Document DCO 6.8H)**) up to c.30-40m from the start of the modelled transect. The peak predicted level is 17.51 µg/m3, which falls below the critical level (30µg/m^3), and so the potential impacts are considered negligible.
- An annual mean increase above 1% NH_3 PC (Table 8H.18 & Table 8H.48 in **Appendix 8H, (Document DCO 6.8H)**) up to c.50-60m from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg m-3), and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.19 & Table 8H.49 in **Appendix 8H (Document DCO 6.8H**)), exceed the 1% PC critical load threshold for c.110-120m. The peak predicted level is 2.21kgN/ha/yr which falls within the acceptable critical acceptable critical levels (MaxCLminN 2.731kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.20 & Table 8H.50 in **Appendix 8H (Document DCO 6.8H)**) exceed the 1% PC critical load threshold for c.30-40m from the start of the modelled transect respectively. Background levels already exceed the critical load (15-20kg N/ha/yr), and so the significant process contribution above the critical load for this group covers the full 30-40m zone identified above.

9.5.101. Breedon Cloud Wood and Quarry SSSI is recorded to be predominantly in favourable condition with the exception an area of spoil heap that does not yet support and is woodland listed as unfavourable but recovering. Management is listed as the sole potential pressure, however the woodland is currently recorded as well-managed. Increased air pollutants may increase the sensitivity of trees to biotic and abiotic stress, ultimately impacting tree health, as well as potentially reducing species diversity of ground flora and epiphytes. The SSSI citation and features listing do not include lichens or bryophytes, and so while these assemblages may be affected by predicted changes, they do not form the basis of the SSSI notification.

9.5.102. Nutrient nitrogen deposition already exceeds stated thresholds and so further increases have potential exacerbate existing effects up to 40m into the SSSI (c.0.28% of the total SSSI area). The road junction (Top Brand and Stockings Lane) where the modelled transact commences, lies immediately adjacent to the Breedon Cloud Wood, and so there is a lack of spatial separation and buffering from the source of pollutants. The woodland itself will, to

some extent, ameliorate the impacts by dampening the spread of pollutants resulting in any impacts being greatest at woodland edge habitats adjacent to existing carriageways. While there is a risk to the condition of part woodland identified above, the very minor spatial scale of detrimental alteration, means that consequently any impact is considered negligible.

Non-statutory sites

9.5.103. Pond P3 which is within the EMG2 Works and is a potential-historic LWS (11975) is to be the retained along with the majority of surrounding vegetation. Based on the phase 1 survey data, this pond did not meet the requirements to be selected as a LWS published in Leicester, Leicestershire and Rutland Guidance. To the north, there will be HGV parking, with an access road running to the north-west. A footpath/cycle way will pass in proximity to the south of the pond, connecting Hyam's Lane to the bus terminal and wider pedestrian/cycle network. Given the sites existing proximity to intensely managed arable land and the Donington Park services, the current adjacent footpath and the existing evidence of fly-tipping within the surrounding habitats, the increased pedestrian/cyclist traffic along formally managed routes is expected to lead to, at most, a low magnitude of adverse impact. The proximity to the HGV parking also carries a risk of contaminated surface water runoff and chemical spills. In the absence of mitigation, there is a risk of temporary degradation to the quality of the pond which constitutes a low magnitude of adverse impact.

9.5.104. The Donington Park Services Ash Trees (92034) candidate LWS, form part of hedgerow H6, and are referred to as trees T4 and T5. A new footpath will run adjacent to hedge H6. The footpath follows the EMG2 Main Site boundary and will not provide the most direct route for pedestrian commuters traveling to various parts of the proposed development. Its use is therefor likely to be primarily recreational, with users from the proposed development and local area. Increased pedestrian traffic passing in proximity to these trees can cause an increase in littering and potential disturbance to wildlife using the site. Given the sites existing proximity to intensely managed arable land and the Donington Park services, any impacts from the increased pedestrian/cyclist traffic along formally managed routes are considered negligible.

9.5.105. The area of Donington Park Services Grassland and Scrub (92033) candidate LWS - (92034) adjacent to the EMG2 Main Site is consented to be utilised as a ground mounted solar farm (Application Reference. 23/01712/FULM). A new footpath will follow the EMG2 Main Site boundary and will not provide the most direct route for pedestrian commuters traveling to various parts of the proposed development. Its use is therefor likely to be primarily recreational, with users from the proposed development and local area. Increased pedestrian traffic passing in proximity to the CLWS can cause an increase in littering and potential disturbance to wildlife on the periphery of the site. Given the sites existing proximity to intensely managed arable land, the Donnington Park services, and expected future management as a solar farm, any impacts from the increased pedestrian/cyclist traffic along formally managed routes are considered negligible.

9.5.106. Castle Donington, Charnock Hill Grassland potential-historic LWS (11840) sits just south of the A453. This road will serve as the main access to the proposed development site and is expected that there will be a measurable increase in traffic as a result of the development. The A453 currently serves as the access route for East Midlands Airport and so there is a significant existing level of disturbance from traffic in terms of noise. The site is not

considered to be vulnerable to impacts on air quality, nor is there expected to be increased public access. As such, any operations effects are considered negligible.

9.5.107. Lockington (EMG) Oak 143 candidate LWS (90888) is recorded as a mature oak of 1370mm DBH in poor condition. The tree sits within a hedgerow that bounds the A50 and would be retained within the A50 West Bound Merge component of the Highway Works. There is a potential adverse impact from decreased air quality as a result of increased traffic, which could impact the trees health. Given that the existing level of traffic the additional impact would not be considered significant.

9.5.108. Lockington Park potential-historic LWS (11952) is found approximately 40m west of the A50 element of the Highway Works. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and is partially recorded as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. Adverse impacts from decreased air quality as a result of increased traffic can arise on some woodland types, particularly where they are known to support sensitive features, such as important lower plant communities. However, given the nature of the woodland and its location close to existing roads, sensitive features are unlikely to be present and, as a result, any potential effect arising from a decrease in air quality would be of negligible significance.

Other Sites

9.5.109. Based on the current strategic transport model, Tonge Gorse Ancient & Semi Natural Woodland was identified to be within proximity of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) on highways and was scoped into the air quality assessment for further scrutiny.

9.5.110. Tonge Gorse Ancient & Semi Natural Woodland was modelled from two separate transects relating to the northern and southern compartments which are separated by Gelscoe Lane.

9.5.111. The northern parcel is predicted to be exposed to an increased Process Contribution (PC) of airborne pollutants exceeding 1% of critical levels. The northern modelled transect is limited to 60m as this encompasses the whole woodland parcel. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.6 & Table 8H.36 in **Appendix 8H (Document DCO 6.8H)**) to the 60m maximum from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded for up to c.30-40m into the woodland.
- A maximum annual mean increase above 1% NH_3 PC (Table 8H.8 & Table 8H.38 in **Appendix 8H, (Document DCO 6.8H)**) to the 60m maximum from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg m-3) and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.9 & Table 8H.39 in **Appendix 8H (Document DCO 6.8H)**) exceeds the 1% PC critical load threshold to the 60m maximum from the start of the modelled transect. The peak predicted level is 2.37 kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 4.928kgN/ha/yr), and so the potential impacts are considered negligible.

- Predicted nitrogen deposition (Table 8H.10 & Table 8H.40 in **Appendix 8H (Document DCO 6.8H)**) exceeds the 1% PC critical load threshold to the 60m maximum from the start of the modelled transect. Background levels already exceed the critical load (10kg N/ha/yr) and so the significant process contribution above the critical load for this group covers the full 60m zone of woodland identified above.

9.5.112. The southern parcel is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.6 & Table 8H.36 in **Appendix 8H, (Document DCO 6.8H)**) up to c.100-110m from the start of the modelled transect. The peak predicted level is 24.61 µg/m3, which falls below the critical level (30µg/m^3), and so the potential impacts are considered negligible.
- A maximum annual mean increase above 1% NH_3 PC (Table 8H.8 & Table 8H.38 in **Appendix 8H, Document DCO 6.8H)**) up to c.130-140m from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg m-3), and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.9 & Table 8H.39 in **Appendix 8H (Document DCO 6.8H)**), exceeds the 1% PC critical load threshold up to c.170-180m. The peak predicted level is 2.25 kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 4.928kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.10 & Table 8H.40 in **Appendix 8H (Document DCO 6.8H)**) exceed the 1% PC critical load threshold up to c c.150-160m from the start of the modelled transect. Background levels already exceed the critical load (10kg N/ha/yr) and so the significant process contribution above the critical load covers the full 150-160m zone of woodland identified above.

9.5.113. Tonge Gorse Ancient & Semi Natural Woodland is listed within the Ancient Woodland inventory published by Natural England. No information regarding its current condition is held in association with this listing. Increased air pollutants can increase the sensitivity of trees to biotic and abiotic stress, ultimately negatively impacting tree health, as well as reducing species diversity of ground flora and epiphytes. In the UK lichen and bryophyte distribution is focussed in Atlantic regions, which have high rainfall and humidity. For EIA purposes, the assemblages with the East Midlands in small open woodlands is likely to represent at most local importance and impacts any potential effects of air quality reductions are not considered to be significant. The road network (A42, Gelscoe Road and unnamed road) where the modelled transacts commence, lie immediately adjacent to the woodland, and so there is a lack of spatial separation or buffering from the source of pollutants. The woodland itself will, to some extent, dampen the spread of pollutants, resulting in any impacts being greatest at woodland edge habitats adjacent to existing carriageways.

9.5.114. The levels of air pollution reported at Tonge Gorse Ancient & Semi Natural Woodland are greatest in the northern parcel closest to the A42. Nitrogen oxides are predicted to exceed critical loads in the northern area to 30-40m (c.11.30 % designation extent), and will remain within critical loads in the southern parcel. Nitrogen deposition exceeds critical levels across the whole of the northern parcel, and up to 150-160m into the southern parcel (c.70.62% designation extent). These changes have the potential to exacerbate existing air quality

impacts. In the absence of mitigation, there is a risk of damage to the condition of some areas of habitat within the woodland which constitutes a low magnitude of adverse impact.

9.5.115. Based on the current strategic transport model, March Covert Ancient Woodland was identified to be within proximity of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) on highways and was scoped into the air quality assessment for further scrutiny. March Covert Ancient Woodland is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.21 & Table 8H.51 in **Appendix 8H, (Document DCO 6.8H)**) up to c.20-30m from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded for up to c.20-30m into the woodland (c.5.41% designation extent).
- A maximum annual mean increase above 1% NH3 PC (Table 8H.23 & Table 8H.53 in **Appendix 8H, (Document DCO 6.8H)** up to c.20-30m from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg/m^3), and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.24 & Table 8H.54 in Appendix 8H (Document DCO 6.8H)), exceeds the 1% PC critical load threshold up to c.40-50m from the start of the modelled transect. The peak predicted level is 2.39 kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 4.928kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.25 & Table 8H.55 in Appendix 8H (Document DCO 6.8H)) also both exceed the 1% critical load threshold up to c.30-40m from the start of the modelled transect. Background levels already exceed the critical load (10kg N/ha/yr) and so the significant process contribution above the critical load for this group covers the full 30-40m zone of woodland identified above (c.8.30% designation extent).

9.5.116. March Covert is listed as an area of ancient woodland on the Natural England managed Ancient Woodland inventory. The site is utilised by a commercial paintball provider, with a broad range of photographic imagery and videos publicly available. A review of these materials gives an indication of the degree that human activity has impacted the naturalness of the woodland. Ground flora and shrub layers appear to have been particularly impacted and it is considered that March Covert is in poor condition. Increased air pollutants can increase the sensitivity of trees to biotic and abiotic stress, ultimately negatively impacting tree health, as well as reducing species diversity of ground flora and epiphytes. In the UK lichen and bryophyte distribution is focussed in Atlantic regions, which have high rainfall and humidity. For EIA purposes, the assemblages with the East Midlands in small open woodlands is likely to represent at most local importance and impacts any potential effects of air quality reductions are not considered to be significant. The road network (A453) where the modelled transact commences, lies immediately adjacent to the woodland, and so there is a lack of spatial separation or buffering from the source of pollutants. The woodland itself will, to some extent, dampen the spread of pollutants, resulting in any impacts being greatest at woodland edge habitats adjacent to existing carriageways.

9.5.117. While there is a risk to the condition of a part of woodland identified above, the restricted spatial scale of this is considered to class as a very minor detrimental alteration, and any impact is therefore considered negligible.

9.5.118. The remaining local sites are considered to be adequately removed from the DCO Scheme so that any detrimental effect would be only constitute a negligible magnitude of impact.

Semi-natural Habitats

9.5.119. Operational phase effects on habitats with at least a local level of sensitivity from the DCO Scheme are summarised and discussed in **Table 9.15** below**.**

9.5.120. Detailed landscape plans are not yet available and so a conservative approach to potential effects has been adopted. The new green infrastructure will create a larger and more diverse extent of semi-natural habitats than currently present at the DCO Scheme, leading to an overall increase in biodiversity (see **Appendix 9I** for full details of the biodiversity net gain assessment, **Document DCO 6.9I**). New habitats are considered likely to be of local importance, at most.

Table 9.15: Potential operational effects of habitats (DCO Scheme)

Habitat Type	Sensitivity	Evaluation
Individual Trees (excluding veterans)	Local importance (Low)	**EMG2 Works** Retained and newly planted individual trees could be degraded by increased pressures from site users such as littering and damage, and inappropriate management.
		Highway Works Retained and newly planted individual trees could be degraded by increased pressures from site users such as littering and damage, and inappropriate management.
Veteran Trees	Local importance (Low)	**EMG2 Works** Retained veteran trees could be degraded by increased pressures from site users such as littering and damage, and management activities (either necessary for health and safety reasons, or inappropriate). A single onsite veteran tree T55 (Receptor ID: 20002) is modelled to be exposed to increased levels of airborne pollutants exceeding 1% PC of critical levels. Specifically, • An annual mean increase above 1% NOx PC, (Table 8H.26 & Table 8H.56 in **Appendix 8H, (Document DCO 6.8H**)) with levels not anticipated to exceed the critical load ($30\mu g/m^3$). • An annual mean increase above 1% NH_3 PC (Table 8H.28 & Table 8H.58 in **Appendix 8H, (Document DCO 6.8H**)), with levels not

Habitat Type	Sensitivity	Evaluation
		anticipated to exceed the critical loads for higher plants (3 µg/m^3). • Predicted acid deposition exceeding the 1% PC critical load (Table 8H.29 & Table 8H.59 in **Appendix 8H, (Document DCO 6.8H**)), with levels not anticipated to exceed the critical levels (MaxCLminN 4.928kgN/ha/yr). • Predicted nitrogen deposition exceeding the 1% PC critical load (Table 8H.30 & Table 8H.60 in **Appendix 8H, (Document DCO 6.8H**)), with levels exceeding the critical load (10kg N/ha/yr). Seven offsite veteran trees are modelled to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically, • 7 trees (Receptor IDs: 20008, 20009, 2000A, 2000B, 2000C, 2000D and 20012) are predicted to be exposed to a maximum annual mean increase above 1% NH3 PC (Table 8H.28 & Table 8H.58 in **Appendix 8H, (Document DCO 6.8H**)). Levels are not anticipated to exceed the critical loads (3 µg/m^3) for higher plants. • One tree (Receptor ID: 2000A) is predicted to be exposed to a maximum annual mean increase above 1% acid deposition (Table 8H.29 & Table 8H.59 in **Appendix 8H, (Document DCO 6.8H**))). Levels not anticipated to exceed the critical levels (MaxCLminN 4.928kgN/ha/yr). • Six trees (Receptor IDs: 20008, 20009, 2000A, 2000C, 2000D and 20012) are predicted to be exposed to a maximum annual mean increase above 1% nitrogen deposition (Table 8H.30 & Table 8H.60 in **Appendix 8H, (Document DCO 6.8H**))). Levels are expected to exceed the critical load (10kg N/ha/yr). Increased air pollutants can increase the sensitivity of trees to biotic and abiotic stress, ultimately negatively impacting tree health. Given the onsite tree (T55) location in a cropland field boundary, it has been regularly exposed to fertilizers, and was assessed as category C (low quality) in the arboricultural assessment (**Appendix 10C: Arboricultural Assessment (Document 6.10C**). While there is an increase in nitrogen deposition from the reduction in air quality, this is considered likely to be significantly offset from the cessation of agricultural inputs. As such the potential scale of impacts from reduced air quality are unlikely to be detectable, with the potential for only very minor detrimental alteration to tree condition, and any impact is therefore considered negligible. The offsite veteran trees are located within a grazed parkland setting. Within a managed grassland context,

Habitat Type	Sensitivity	Evaluation
		nitrogen deposition from air pollution interacts with grazing and mowing regimes which can serve to reduce nutrient levels. The identified nitrogen deposition from air pollution is unlikely to impact the success of any such future management. The area is bounded by woodland clusters and belts which will serve to reduce air pollution spatial spread and levels at the identified veteran trees. Given the above, the potential impacts are only very minor detrimental alteration to tree condition, and are therefore considered negligible.
		Highway Works Single veteran tree - Lockington (EMG) Oak 143 candidate LWS (90888) - discussed under Non-statutory Sites section above.
Broadleaved woodland (boundaries)	Local importance (Low)	**EMG2 Works** There is a potential adverse impact from decreased air quality as a result of increased traffic generated by the EMG2 Main Site, which could impact woodlands in close proximity to highways. Given that the existing level of traffic the additional impact would be negligible. Adjacent woodland could be degraded by increased pressures from site users such as littering and damage.
		Highway Works Woodland habitats within and adjacent to the highways area could be degraded by littering, accidental damage, and inappropriate management.
Ponds (excluding pond P3).	Local importance (Low)	**EMG2 Works** Pond P3 is considered separately under the designated sites assessment. Newly created ponds could be degraded by increased pressures from Site users such as littering and damage, and inappropriate management.
		Highway Works No ponds have been identified within this area.
Hedgerows	Local importance (Low)	**EMG2 Works** Retained and newly created hedgerows could be degraded by increased pressures from site users such as littering and damage, and inappropriate management.
		Highways Works Retained and newly created hedgerows could be degraded by increased pressures from site users such as littering and damage, and inappropriate management.

Habitat Type	Sensitivity	Evaluation
Diseworth brook tributary	Local importance (low)	**EMG2 Works** The development will reduce pollution from agriculture and rural land management, which the development will reduce. The proposed development will include SuDS designed in accordance with the latest CIRIA SuDS manual and water treatment index to ensure that water quality as well as the water quantity leaving the EMG2 Works is given appropriate consideration. Therefore, this is expected to represent a minor improvement over the current conditions. There could be some increased pressures from site users such as littering, however, on it's own this is expected to have a negligible impact.
		Highway Works The Highway Works extend along the existing crossing point on the A453. No direct effects are anticipated. There could be some increased pressures from site users such as littering, however, on it's own this is expected to have a negligible impact.

Operational Phase - Species Level

9.5.121. Operational phase effects on species with at least a local level of sensitivity from the DCO Scheme are summarised and discussed in **Table 9.16** below.

Table 9.16: Potential operational effects of species (DCO Scheme)

Species	Sensitivity	Evaluation
Amphibians (including GCN)	Local importance	**EMG2 Works** As set out above there is potential for habitat degradation from site users which could have a detrimental effect of associated species assemblages. There is the potential for direct harm from traffic and damage to aquatic and terrestrial habitats from littering and inappropriate management.
		Highway Works No impacts are anticipated.
Bats	Local importance	**EMG2 Works** Habitat degradation from littering, damage, and inappropriate management as well as disturbance from site users could have a detrimental effect of roosting bats utilising retained trees with roost features. Lighting around retained and newly created habitats used by bats can lead to a reduction/alteration in foraging commuting and roosting bats. Some species, including barbastelle bats, (of which a very small number was recorded onsite) are particularly sensitive

		to lighting and will avoid heavily lit areas. The impact can disrupt commuting routes and impact of available foraging resources for such species. Other species, including Noctule and Pipistrellus, the most numerous species recorded at the EMG2 Works, are likely to benefit from the increase in lighting as they feed on the insects attracted to the light. The extent of the GI will enable the provision of dark bat suitable habitats away from built areas.
		Highway Works Lighting around offsite habitats used by bats can lead to a reduction/alteration in foraging commuting and roosting bats. Some species, including barbastelle bats, are particularly sensitive to lighting and will avoid heavily lit areas. The impact can disrupt commuting routes and impact of available foraging resources for such species. Other species, including Noctule and Pipistrellus, are likely to benefit from the increase in lighting as they feed on the insects attracted to the light.
Birds	Local importance	**EMG2 Works** Site maintenance activities involving vegetation clearance have the potential to disturb nesting birds and damage their nests, or kill dependent young. An increase in pedestrian access across the EMG2 Works will encourage both commuting and recreational users including dog walkers in greater numbers and in closer proximity to nesting habitats relative to the pre-development baseline. While there is potential for disturbance, the type of activity is predominantly transient, following footpaths/cycle way networks as opposed to creating hubs of increased disturbance.
		Highway Works Site maintenance activities involving vegetation clearance have the potential to disturb nesting birds and damage their nests, or kill dependent young.
Invertebrates	Local importance	**EMG2 Works** Site maintenance activities involving vegetation clearance could have a detrimental effect of associated species assemblages, particularly those found in association with wood decay habitats in retained overmature and veteran trees.
		Highway Works Site maintenance activities involving vegetation clearance could have a detrimental effect of associated species assemblages, particularly those found in association with wood decay habitats in retained overmature and veteran trees.

Otter	Local importance	**EMG2 Works** A reduction in farming runoff and the increased green corridor following the Diseworth Brook Tributary could be expected to provide a low magnitude benefit to otter.
		Highway Works There is the potential for direct harm or mortality to otter resulting from operational activity where otters are exposed to increased traffic passing over the Diseworth Brook Tributary.
Plants	Local importance	**EMG2 Works** The development will result increased access across site, however this will be in association with footpaths/cycle way networks.
		Highway Works No impacts are anticipated.

Summary of Impacts

9.5.122. **Table 9.17** summarises the IEFs, their sensitivity and the assessed impact at construction and operational phases. The Significance of the effect, taking into account embedded mitigation, is given based on the greatest impact. **Table 9.17** below demonstrates that there will be no significant impacts in EIA terms.

Table 9.17: Summary of Impacts (DCO Scheme)

Ecological feature	Sensitivity	Construction Impacts Magnitude	Operational Impacts Magnitude	Significance
River Mease SAC	International (High)	Negligible	Negligible	Negligible
Lockington Marshes SSSI	National (High)	Negligible	Negligible	Negligible
Attenborough Gravel Pits SSSI	National (High)	Negligible	Negligible	Negligible
Lount Meadows SSSI	National (High)	Negligible	Low Adverse	Moderate - Minor Adverse (Reversable)
Breedon Cloud Wood and Quarry SSSI	National (High)	Negligible	Negligible	Negligible
Oakley Wood SSSI	National (High)	Negligible	Low Adverse	Moderate - Minor Adverse (Reversable)
Pond P3 pLWS.hist (11975)	County (Moderate)	Moderate Adverse	Low Adverse	Moderate - Minor Adverse
Donington Park Services Ash Trees cLWS (92034)	County (Moderate)	Moderate Adverse	Negligible	Moderate - Minor Adverse
Donington Park Services Grassland and Scrub cLWS (92033)	County (Moderate)	Low Adverse	Negligible	Minor Adverse

The Paddock pLWS.hist (11965)	County (Moderate)	Negligible	Negligible	Negligible
Castle Donington, Charnock Hill grassland pLWS.hist (11840)	County (Moderate)	Negligible	Negligible	Negligible
Lockington (EMG) Oak 143 cLWS (90888)	County (Moderate)	Moderate Adverse	Negligible	Moderate - Minor Adverse
Lockington Park pLWS.hist (11952)	County (Moderate)	Negligible	Negligible	Negligible
Tonge Gorse Ancient & Semi Neutral Woodland	Local / County importance (Low / Moderate)	Negligible	Low Adverse	Minor Adverse
March Covert Ancient Woodland	Local / County importance (Low / Moderate)	Negligible	Negligible	Negligible
Individual Trees (excluding veterans)	Local importance (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Veteran Trees	Local (Low)	Moderate Adverse	Moderate Adverse	Minor Adverse
Broadleaved woodland	Local (Low)	Low Adverse	Low Adverse	Minor-Negligible Adverse
Ponds (excluding pond P3).	Local (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Hedgerows	Local (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Diseworth brook tributary	Local (Low)	Low Adverse	Low Beneficial	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Amphibians (including GCN)	Local (Low)	Low Adverse	Low Adverse	Minor-Negligible Adverse
Bats	Local (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Birds (excluding skylark and yellow wagtail)	Local (Low)	Low Adverse	Low Adverse	Minor-Negligible Adverse
Skylark and yellow wagtail	Local (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Invertebrates	Local (Low)	Moderate Adverse	Moderate Adverse	Minor Adverse
Otter	Local (Low)	Low Adverse	Negligible	Minor-Negligible Adverse
Plants	Local (Low)	Low Adverse / beneficial	Negligible	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Other species: black rat, brown hare, hedgehog and polecat.	Local (Low)	Low Adverse	Low Adverse	Minor-Negligible Adverse

Mitigation Measures

General Principles

9.5.123. The DCO Scheme has been carefully designed to avoid significant ecological effects by applying the mitigation hierarchy:

- Avoidance – adopt options that avoid harm to ecological features, e.g. selecting a site of relatively low ecological value, review and realignment to avoid significant ecological receptors e.g. avoidance of Pond 3 (pLWS Historic).
- Mitigation – where effects cannot be avoided, adopt options that reduce and minimise them, e.g. reduction of noise, dust etc. through good construction practice.
- Translocation – where effects on certain IEFs (not all) cannot be avoided in a particular location it may sometimes be possible to move the IEF to a new and safe location (this approach is only possible in specific circumstances).
- Compensation – where ecological effects cannot be avoided or fully mitigated and therefore give rise to significant residual adverse effects, appropriate compensatory provisions can be made, such as in the creation of alternative foraging habitat for bats.
- Enhancements – encouraged in various planning policies are measures to provide benefits to biodiversity or ecosystem functioning over and above what is required for avoidance, mitigation or compensation of effects. Opportunities to provide nature conservation enhancement have Mitigation by Design.

9.5.124. The proposed application includes a range of intrinsic (embedded) ecological avoidance, mitigation and enhancement measures. The provision of the green infrastructure is a primary mitigation measure (i.e. actions undertaken by the EIA process to influence the design and layout of the DCO Scheme).

Additional Mitigation

9.5.125. In addition to the above embedded mitigation, the following measures will be adopted to mitigate the identified significant effects. Detailed measures to ensure legal compliance are also provided.

Mitigation of Construction Effects of Development

9.5.126. Measures will be undertaken during the construction phase in-line with industry guidelines to minimise disruption and manage the impacts of the development to retained habitats and/or connected features of ecological interest off-Site. A comprehensive site-specific Construction Environmental Management Plan (CEMP) for the DCO Scheme will ensure best working practices and standard mitigation measures are adopted during the construction phase. The CEMP will seek to negate impacts on retained habitats, with specific measures employed to avoid harm to protected species which are known to be present on-site or in the vicinity.

CEMP

9.5.127. A CEMP has been provided as **Appendix 3A** (**Document DCO 6.3A**)**.** Further guidance from the Arboricultural Impact Assessment provided as **Appendix 10C** (**Document DCO 6.10C**) will also be adhered to. Phase specific construction environmental management plans (P-CEMP) will be drafted in accordance with the principles set out in the construction environmental management plan and submitted as per draft DCO Requirement 11.

Designated Sites / Habitats

9.5.128. In addition to standard buffers of retained vegetation, specific consideration will be given to the protection of:

- Pond P3 pLWS.hist (11975)
- Donington Park Services Ash Trees cLWS (92034)
- Donington Park Services Grassland and Scrub cLWS (92033)
- Lockington (EMG) Oak 143 cLWS (90888)
- The Diseworth brook tributary
- Retained trees, including veterans
- Newly created mitigation areas

9.5.129. Buffers will be designed to consider both topography and the nature of works in proximity to the receptor. Where buffers alone are not adequate to prevent potential for direct damage, degradation or disturbance additional measures will be adopted. These could include but are not limited to the use of filter strips, swales and cut off ditches, combined with settlement ponds or settlement tanks, boundary screening, and adopting working practices that reduce disturbance through adapting methodology or timing. An emergency response plan to deal with pollution incidents will be provided where necessary.

9.5.130. New hedgerows should be used to screen the edges of the development footprint and provide connectivity throughout. To maximise ecological value, new hedgerow creation should prioritise high distinctiveness compositions using native species-rich (at least 5 native species / 30m) planting with associated ditches and tree standards (1 tree / 20m). Retained hedgerows can be enhanced where feasible to align with these targets.

9.5.131. Where onsite woodland habitats are adjacent to highways, management that promotes dense edge habitats will help to limit the permeability of woodlands to minimise the extent of air quality reduction and associate effects.

9.5.132. The mitigation approach outlined below for saproxylic invertebrate assemblages in mature and overmature trees aligns with mitigation approach for the loss of veteran trees.

Mitigation for Flora / Fauna

Amphibians

9.5.133. As part of the mitigation for the EMG2 Works, the Applicant will enter into a District level Licensing agreement with Natural England to ensure that appropriate compensation is provided for impacts on GCN. BNG requirements will provide compensatory pond habitat for the loss on Ponds P2 and P3.

9.5.134. Additional mitigation specifications focus on tailoring newly created habitats for amphibians, and minimising impacts from construction activities.

9.5.135. The new ponds created on site will have their designs tailored to include stepped shallow areas, as well as deeper central areas to provide suitable amphibian habitat. A mixture of native emergent, submerged and floating plants will be selected to support amphibians. Pond edges with be planted to provide cover and encourage invertebrates. Hibernacula and log pile features will be created in association with new ponds to provide further benefit for amphibians.

9.5.136. The inclusion of topographical ditch features in association with new native hedgerows will provide a seasonally damp habitat network to support amphibians and increase connectivity.

9.5.137. Removal of habitat suitable for supporting amphibians within 50m of ponds should be supervised by an Ecological Clerk of Works (ECoW), with any amphibians discovered relocated to suitable retained habitats.

Badger

9.5.138. Embedded mitigation includes the measures specified in **Appendix 9B** (**Document DCO 6.9B**) and the provision of a range of habitats within the green infrastructure that will providing foraging opportunities. The design of lighting throughout the EMG2 Works will minimise light-spill onto retained or potential foraging or commuting habitats.

9.5.139. Any proposed works within 30m of badger setts will require a specific method statement, and where necessary a Natural England licence will be applied for.

9.5.140. Consideration has been given to badgers within the CEMP. Precautionary working methods will reduce the risk of entrapment and fatalities by covering any large pipes, pits or trenches that are left open overnight, or where appropriate providing an adequate means of escape, such as a sloping profile or means of escape.

9.5.141. Landscaping proposals of areas of retained and created green space will be maximised to increase available foraging resources. This will include planting fruit and nut-bearing species where appropriate. Large areas of grassland will also be created. Grassland with a short sward is known to form a primary foraging habitat for badgers as it supports high worm biomass, easily accessible to badgers. The use of vermicides or fertilisers/ weed killers known to be detrimental to worms will be avoided.

Bats

9.5.142. Embedded mitigation includes the retention and buffering of periphery habitats allowing continued connectivity across the EMG2 Works**,** and the provision of a range of habitats within the green infrastructure that will providing foraging opportunities. The design of lighting throughout the DCO Scheme will minimise light-spill onto retained or potential foraging or commuting habitats.

9.5.143. Additional mitigation measures aim to compensate for impacts to the overall roost resource and minimise impacts from construction activities.

9.5.144. A range of bat boxes should be erected on retained trees across the EMG2 Works to provide provision of roosting opportunities. This provision should be of a comparable level to the number of potential bat roosting features identified as lost within the bat report provided at **Appendix 9C** (**Document DCO 6.9C**). These should be installed as early in the works program as possible, and prior to tree removal works to ensure continuity of resources.

9.5.145. In order to minimise any potential impact to commuting and foraging routes, in the event that any hedgerows are to be broken, such as to incorporate proposed accesses, the retained hedgerows should be reinforced with native species planting to create hop-overs to aid crossing of these breaks for bats.

9.5.146. Several hedgerows, associated trees and areas of scrub will be removed from within the EMG2 Works. These provide connective corridors through the EMG2 Works and, in order to maintain this function, the retained features in the EMG2 Works periphery will be reinforced with native species planting as part of the habitat creation.

Birds

9.5.147. Embedded mitigation includes the retention and buffering of periphery habitats, and the provision of a range of habitats within the green infrastructure that will providing foraging and nesting opportunities. Specific measures for bird species will be limited due to the DCO Scheme's location within proximity to East Midlands Airport, and the associated safeguarding requirements to minimise bird strike risk.

9.5.148. Additional mitigation will include the erection of a mixture of nest box types. Tree mounted boxes should be installed as early in the EMG2 Works program as possible, and prior to tree removal works to ensure continuity of resources. Integral and building mounted boxes can be installed at an appropriate stage within the construction phase. The following provides details of suitable nest box types to be erected at appropriate locations:

- The inclusion of integrated swift boxes on office buildings (at a minimum 1:1 ratio) within the development to encourage these species which are able to take advantage of urban sites to breed. Swift boxes should be installed at least 5m high, with an unobstructed flight path. Swifts are gregarious, so installing several boxes in close proximity is beneficial.
- Where opportunities allow, swallow nest cups should be placed close under eaves, although ideally under cover, such as open bin or bike sheds, with at least a 6cm gap above the nest to provide access;

- A mixture of small hole (26mm and 32mm) boxes (≥10) placed on retained trees will provide nesting opportunities for blue tit *Cyanistes caeruleus* and great tit *Parus major*. These boxes generally have a high uptake rate;
- Small open fronted nest boxes (≥10) placed throughout the DCO Scheme especially on trees which support a climber such as ivy which provides a degree of concealment. These boxes typically attract robin and blackbird;
- Large nest boxes (≥10) with large holes (45-50 mm) placed on suitable mature trees to provide breeding sites for starling.
- Erect large (20 x 20 x 40cm) nest boxes (≥2) with large holes (15 cm) for stock dove and kestrel. These need to be placed at least 3 m high on large trees on the woodland edge in areas of low human disturbance. Ideally erected in close proximity.

9.5.149. To avoid disturbance to nesting birds, site clearance works, including the removal of woody vegetation or habitat suitable for ground-nesting species, will be conducted where possible outside the bird breeding season, which runs March – August inclusive. If clearance is planned for the bird breeding season, then it will be preceded by a nesting bird survey conducted by an experienced ecologist. This will involve observing any vegetation to identify any wild birds exhibiting nesting behaviour and/or searching for active nests. Should active bird nests be identified then an exclusion zone would need to be retained until the chicks had fledged, as determined by the supervising ecologist.

9.5.150. The loss of arable habitat which supports skylark and yellow wagtail cannot be replaced within the EMG2 Works. Mitigation for these species therefore relies on alternative habitat provision and supporting the carrying capacity of surrounding habitats.

9.5.151. Suitable skylark habitat requires open spaces with short vegetation, which allows them to monitor predators and access food sources. Natural skylark habitats include a range of grassland habitats, heathland and moorland, wetlands and coastal areas[xl]. Skylarks are also able to utilise farmland, where management creates appropriate habitat structure. Skylark populations have declined due to habitat loss and degradation, including through changing agricultural practices which result in reduced insect abundance, limited nesting opportunities and damage nests. These practices include the use of pesticides, increased grazing pressure, winter sown cereal crops, loss of winter stubble and early silage cutting. Targeted management of semi-natural grasslands can be used to support skylark populations and other ground nesting birds[xli]. Key factors are promoting sward heterogeneity and supporting a diverse invertebrate assemblage. Advice from the Royal Society for Protection of Birds[xlii] states that skylark benefit from insects and spiders collected from the ground, and from low-growing plants from April until August.

9.5.152. Suitable yellow wagtail habitats include damp marshes, meadows and farmland[xliii]; particular in association with cattle[xliv] which disturb insects. Yellow wagtail decline has been associated with agricultural intensification as set out above. Advice from the Royal Society for Protection of Birds[xlv] states that yellow wagtails benefit from insects and spiders throughout the summer, particularly flying insects in sparse vegetation and open ground. Creation of wet features such as open wet ditches, ponds and scrapes will boost a number of flying insect groups on which yellow wagtails feed. For the greatest benefit to yellow wagtails, these wet areas should be open and free from shading by hedges and trees.

9.5.153. Grassland on site will be managed to support ground nesting birds including skylark and yellow wagtail by including the following provisions:

- The larger open areas of permanent grassland will be left un-cut over the spring and early summer to avoid disturbance and damage to skylark and their nests.
- Creation of a network of insect-rich habitats around adjoining arable farmland (e.g. annually cultivated strips or ruderal habitats). This will include over-wintering habitat for beneficial insects, which can spread into nearby croplands in the spring.
- Allow strips or blocks of grassland to go to seed and leave uncut through the winter in areas away from hedgerows or woodland to allow further over wintering habitat for insects throughout the site.
- Avoid inorganic fertilizer use, which promotes competitive plant species and reduces grassland heterogeneity, resulting in lower insect diversity and, in general, decreased abundance[xlvi].
- Avoid pesticide or herbicide use as part of standard management practices. If considered necessary for specific issues, careful consideration should be given to the extent and quantities used to minimise detrimental effects.
- Promote additional sward heterogeneity through rotational clearance of strips to ground level, within suitable grassland sward areas. This will support ground foraging opportunities for bird assemblages.
- New ponds, attenuation features and ditches within the wider grassland habitat will provide damp habitats. These will be managed to maintain an open characteristic, free of shading vegetation.
- Promote responsible access through signage / interpretation boards to encourage use of the footpath network and avoidance of open grassland areas.

Invertebrates

9.5.154. Embedded mitigation includes the retention and buffering of periphery habitats, and the provision of a range of habitats within the green infrastructure that will support a diverse array of invertebrates.

9.5.155. Additional mitigation will aim to go beyond the standard provision of habitats to further increase the value of the EMG2 Works for invertebrates. Creation of 5m wide belts adjacent to boundaries with offsite arable fields that is annually ploughed will allow a ruderal arable margin flora to develop and provide habitat for associated invertebrate species.

9.5.156. The creation of banks of free-draining sandy soil will further enhance structural complexity and encourage nesting aculeate colonies. These do not necessarily need to be tall, banks of 1-2m can still provide important habitat. These should preferably be south facing and moderately steep so as to maintain open conditions. Creation of banks of a range of substrates, from clay to sand and a range of slopes will provide greatest habitat diversity.

9.5.157. New ponds should be lined with clay to hydrologically separate them from nutrient enriched agricultural soils and allowed to fill with rainwater. New scrapes should be created to provide areas of temporary inundation habitat.

9.5.158. The green infrastructure design will avoid excessive planting of woody vegetation. Care should be taken not to compromise open habitats or excessively shade existing trees or hedges. Open habitats supported the majority of the invertebrate species recorded, including many with a formal conservation status, whilst many of the species associated with existing woody vegetation prefer or require the tree or shrubs to be in open sunny conditions. Planting should use locally appropriate native species such as those listed below:

- Hawthorn (*Crataegus monogyna*);
- Blackthorn (*Prunus spinosa*);
- Field Maple (*Acer campestre*) Elm (*Ulmus spp*.);
- Grey Willow (*Salix cinerea*);
- Elder (*Sambucus nigra*); and
- Wayfaring Tree (*Viburnum lantana*).

9.5.159. Planting of scrub with gentle transitions to surrounding grassland provides a more natural vegetation structure and tends to give better results for invertebrates. These will support species associated with woody vegetation, and if placed close to one another to give a stepping-stone effect still allow movement of these species through the environment without impeding the movement of open habitat species.

9.5.160. Reasonably sized gaps should be maintained in any planted hedges so that they do not act as an impermeable barrier to the movement of open habitat species.

9.5.161. The loss of overmature trees and their extensive associated wood decay habitats supporting saproxylic invertebrate assemblage cannot be entirely mitigated. Where the removal of mature and over-mature trees is unavoidable the aim should be to conserve as much of the dead and decaying wood in a state as close to its prior condition as possible. The features of the greatest importance for invertebrates are heart rot, hollowing trunks and large dead and decaying limbs. Mitigation will involve two main stages, the preservation of as much deadwood as possible and securing long-term habitat continuity. Preservation of deadwood will involve translocation to the EMG2 Works margins or the Enhancement Area. Specific mitigation will include:

- Move any large diameter dead wood to designated mitigation areas and install it in a range of conditions, e.g. standing trunks, propped/attached aerial large-diameter dead wood, scattered and piled dead wood at tree bases etc. aiming to provide a good approximation of the conditions found on the development site.
- Conserve heart rot features through the development by keeping the main trunks of the large trees intact through removal, or where this is impossible, in as large a pieces as possible. Any opening up of or cutting into heart rot or decay cavities should be avoided as this will seriously compromise the habitat value of the feature.
- The trunks should be moved to the mitigation areas as quickly as possible. The main trunks should be installed as standing deadwood within or immediately adjacent to hedgerows and in semi-shaded conditions to replicate their current environmental conditions as closely as possible.

- Large attached limbs will need to be removed for translocation purposes but should ideally be placed above ground level at the mitigation site, e.g. propped or attached to the standing trunks to maintain similar environmental conditions as fallen dead wood provides a very different habitat for a different assemblage of species to attached dead wood.
- Other dead wood needing to be removed from the development site should be placed around the base of the translocated tree trunks in semi-shaded conditions. Translocation of dead wood should take place in the winter when saproxylic invertebrates are dormant.
- Avoid planting woody vegetation close to the translocated dead wood. Partial shading by existing trees or hedges will be beneficial but heavy shading by planted scrub will lead to a rapid loss of invertebrate interest.
- Translocated dead wood should be situated close to mature Ash trees where possible to provide greater potential for habitat continuity and allow species moving from translocated dead wood to colonise suitable wood decay habitats in living mature Ash trees.
- Veteranisation methods could accelerate the provision of decaying wood habitat features on existing trees through actions such as breaking branches, damaging trunks or using jagged or coronet cuts of limbs to encourage wood decay.
- Planting of Oak or Ash at low density along hedgerows to create future hedgerow standards and in the centre of fields with the aim of creating high-quality open-grown parkland trees would be beneficial in the long term by providing continuity of arboreal and dead wood habitats.

Other species

9.5.162. As part of the embedded mitigation a range of habitats will be created suitable for supporting local flora and fauna. Site design includes green corridors to allow the mobile mammals continued commuting routes and reduce the potential for habitat fragmentation.

9.5.163. Mitigation for specific licensable activities will be designed to meet Natural England requirements. The provision of green space ensures that there is the scope to deliver any foreseeable requirements as part of this process.

9.5.164. Consideration has been given to mammals within the CEMP. Precautionary working methods will reduce the risk of entrapment and fatalities by covering any large pipes, pits or trenches that are left open overnight, or where appropriate providing an adequate means of escape, such as a sloping profile or means of escape.

Mitigation of Operational Effects of Development

9.5.165. A framework Landscape and Ecological Management Plan (LEMP) (**Document DCO 6.9J**) has been produced for all habitats retained and created for nature conservation purposes within the wider Green Infrastructure where necessary. The LEMP also relates to the long-term management objectives identified within the BNG assessment. This provides a framework of specific habitat condition outcomes with expected time frames to obtain these. Full details of this are provided in the Biodiversity Net Gain Assessment provided at

Appendix 6.9l (**Document DCO 6.9l**). Management prescriptions will aim to be adaptive rather than prescriptive. Provision should be made to respond to pressures of climate change. Where possible the long-term management of the DCO Scheme will be carried out by or in consultation with an organisation with a proven track record of managing areas to maximise their nature conservation potential, such as through a steering group or other mechanism.

9.5.166. Additional mitigation will aim to address where possible the potential effects identified above.

Designated Sites / Habitats

9.5.167. The on-Site pLWS.hist (11975) (Pond P3) and newly created waterbodies, as well as the Diseworth brook tributary support aquatic habitats vulnerable to incidental contamination. Site operators should hold a pollution incident response plan (PIRP) with specific regard to these locations. In addition, management works in proximity to these features should:

- Use buffer strips along the edge of watercourses to avoid run-off containing pesticides or soil;
- Where possible work across slopes, rather than down them to help to minimise the risk of soil erosion;
- Plan ahead and carry out operations leading to bare or disturbed soil in periods of dry weather; and
- Ensure that grass cuttings and other cut vegetation do not enter the water environment.

9.5.168. The figures presented as part of the air quality assessment are considered to be a worst-case scenario, and account for trends in vehicle usage until 2028. With this in mind a Sustainable Transport Strategy (**Document DCO 6.6B / MCO 6.6B**) and Framework Travel Plan (**Document DCO 6.6C / MCO 6.6C**) have been produced for the DCO Scheme, and include a number of measures to encourage travel by a range of modes other than the private car, which aligns with the NWLDC (2023) guidance and EPUK & IAQM (2017) guidance documents. On-going trends beyond 2028 are expected to see an uptake in renewable technologies and a decreased reliance of fossil fuels, and so a longer-term decrease in operational pollutant levels can be reasonably expected.

9.5.169. Where onsite woodland habitats are adjacent to highways, management that promotes dense edge habitats will help to limit the permeability of woodlands to minimise the extent of air quality reduction and associate effects. Woodland management will include the creation and maintenance of rides and glades, as well as targeted coppicing. New woodland planting should reflect local species compositions, particular with reference to designated sites. The following should be included within planning mixes:

- Ash *Fraxinus excelsior*;
- Pedunculate oak *Quercus robur*;
- Silver birch *Betula pendula*;
- Wych elm *Ulmus glabra*;

- Hazel *Corylus avellana*;
- Field maple *Acer campestre*;
- Dogwood *Cornus sanguinea*; and,
- Small-leaved lime *Tilia cordata*.

9.5.170. Management of woodland habitats and individual trees; in particular mature and veteran trees, should have particular regard to protecting and retaining decay features and dead wood resources. Whilst removal may be sought for health and safety reasons, consideration should be given to alternatives such as limiting access through exclusion fencing which would allow retention of these features. Where these features must ultimately be removed, an ecologically sensitive approach should be adopted, with reference to the mitigation outlined for invertebrate assemblages associated with decay features. Individual trees should be managed to primarily promote their ecological value, with all management prescriptions undertaken within this framework.

Mitigation for Flora / Fauna

General measures

9.5.171. A range of fauna have potential to be moving across the DCO Scheme and be exposed to harm from traffic. The use of targeted control measures such as signage and speed limitations can be used to reduce the risks.

Amphibians

9.5.172. Management within the EMG2 Works will include appropriate maintenance of newly created hibernacula. Grassland habitat in proximity to ponds will be managed to create a tussocky sward. Any management of these grasslands should be staggered to retain undisturbed sections in any given year.

9.5.173. Management works undertaken in proximity to aquatic habitats including hedgerow ditches, and in proximity to the adjoining Donington Park Services Grassland and Scrub cLWS (92033) should be undertaken following methodologies which consider the potential for amphibians to be utilising these areas.

9.5.174. Arisings from any woody vegetation clearance will be used to create log piles at transitional zones around wetland areas and within woodlands.

Bats

9.5.175. Management will include appropriate maintenance of bat boxes and bat hop-overs.

9.5.176. Any arboricultural works will first require an assessment of potential bat roost features. Where present additional survey work will be undertaken to identify any constraints that these may present.

Birds

9.5.177. Management will include appropriate maintenance of bird boxes.

9.5.178. To avoid disturbance to nesting birds, any removal of woody vegetation or habitat suitable for ground-nesting species, will be conducted where possible outside the bird breeding season, which runs March – August inclusive. If clearance is planned for the bird breeding season, then it will be preceded by a nesting bird survey conducted by an experienced ecologist. Should active bird nests be identified then an exclusion zone would need to be retained until the chicks had fledged, as determined by the supervising ecologist.

Invertebrates

9.5.179. The use of insecticides should be avoided.

9.5.180. Management activities of each habitat type should be undertaken on rotation to ensure there are always areas of undisturbed habitats in any given year.

9.5.181. As discussed for the construction phase, where removal of dead wood or decay features is necessary, works should be undertaken sensitively, and removed features should be incorporated into the green infrastructure.

Residual Effects

9.5.182. The residual effects, set out below within **Table 9.18**, consider the potential impacts after the incorporation of additional mitigation measures, beyond those that were considered embedded.

Table 9.18: Summary of Residual Impacts (DCO Scheme)

Ecological feature	Sensitivity	Additional Mitigation Summary	Residual Construction Impacts Magnitude	Residual Operational Impacts Magnitude	Overall Significance
Lount Meadows SSSI	National (High)	n/a	Negligible	Low Adverse	Moderate - Minor Adverse (Reversable)
Oakley Wood SSSI	National (High)	n/a	Negligible	Low Adverse	Moderate - Minor Adverse (Reversable)
Pond P3 pLWS.hist (11975)	County (Moderate)	Specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible
Donington Park Services Ash Trees cLWS (92034)	County (Moderate)	Specific prescriptions within CEMP	Negligible	Negligible	Negligible
Donington Park Services Grassland and Scrub cLWS (92033)	County (Moderate)	Specific prescriptions within CEMP	Negligible	Negligible	Negligible
Castle Donington, Charnock Hill grassland pLWS.hist (11840)	County (Moderate)	Specific prescriptions within CEMP	Negligible	Negligible	Negligible

Ecological feature	Sensitivity	Additional Mitigation Summary	Residual Construction Impacts Magnitude	Residual Operational Impacts Magnitude	Overall Significance
Lockington (EMG) Oak 143 cLWS (90888)	County (Moderate)	Specific prescriptions within CEMP	Negligible	Negligible	Negligible
Tonge Gorse Ancient & Semi Neutral Woodland	Local / County importance (Low/Moderate)	n/a	Negligible	Low Adverse	Minor Adverse (Reversable)
Individual Trees (excluding veterans)	Local importance (Low)	Specific prescriptions within CEMP / LEMP	Low Adverse	Low Beneficial	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Veteran Trees	Local (Low)	Specific prescriptions within CEMP / LEMP	Moderate Adverse	Negligible	Minor Adverse
Broadleaved woodland	Local (Low)	Specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible
Ponds (excluding pond P3).	Local (Low)	Specific prescriptions within CEMP / LEMP	Moderate Adverse	Low Beneficial	Minor Adverse (Short-term) / Minor-Negligible Beneficial (Long-term)
Hedgerows	Local (Low)	Habitat creation objectives, specific prescriptions within LEMP.	Moderate Adverse	Negligible	Minor Adverse (Short-term) / Negligible (Long-term)
Diseworth brook tributary	Local (Low)	Specific prescriptions within CEMP / LEMP	Negligible	Low Beneficial	Minor-Negligible Beneficial
Amphibians (including GCN)	Local (Low)	Habitat creation objectives, specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible
Bats	Local (Low)	Habitat creation objectives, specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible
Birds (excluding skylark and yellow wagtail)	Local (Low)	Habitat creation objectives, specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible
Skylark and yellow wagtail	Local (Low)	Habitat creation objectives, specific prescriptions within CEMP/LEMP	Moderate Adverse	Negligible	Minor Adverse

Ecological feature	Sensitivity	Additional Mitigation Summary	Residual Construction Impacts Magnitude	Residual Operational Impacts Magnitude	Overall Significance
Invertebrates	Local (Low)	Habitat creation objectives, specific prescriptions within CEMP / LEMP	Moderate Adverse	Negligible	Minor Adverse
Otter	Local (Low)	Specific prescriptions within CEMP	Negligible	Negligible	Negligible
Plants	Local (Low)	N/A	Low Adverse /beneficial	Negligible	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Other species: black rat, brown hare, hedgehog and polecat.	Local (Low)	Specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible

9.6. Assessment of MCO Application

9.6.1. As set out in Section 1 of this Chapter, and at **Table 9.1,** the MCO Scheme comprises of the EMG1 Works which in summary provide for additional warehousing development within Plot 16 of the EMG1 site together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.

Baseline Conditions

Desk Study

Statutory Designated Sites

9.6.2. A single statutory site of international conservation importance was located within 30km of the Order Limits. This was the River Mease SAC located approximately 16.5km at its closest point. As a relatively un-modified lowland river, the River Mease contains a diverse range of physical in-channel features and is designated for the following features[xlvii]:

- H3260 Water courses of plain to montane levels with *R. fluitantis*;
- S1092 Freshwater crayfish, *Austropotamobius pallipes*;
- S1149 Spined loach, *Cobitis taenia*;
- S1163 Bullhead, *Cottus gobio*; and
- S1355 Otter, *Lutra lutra*.

9.6.3. The River Mease SAC is listed as unfavourable for nutrient pressure from phosphorus[xlviii].

9.6.4. No nationally designated sites of nature conservation interest were identified within 2km of the Order Limits.

9.6.5. During the consultation process Natural England requested that Lockington Marshes SSSI and Attenborough Gravel Pits SSSI were considered due to potential for hydrological connection.

9.6.6. Lockington Marshes SSSI is located approximately 2.05km at its closest point. The site comprises one of the largest remaining areas of willow carr woodland in Leicestershire and a diverse complex of wetland habitat supporting an important invertebrate fauna with many nationally scarce species. Lockington Marshes SSSI is a designated for:

- Invertebrate assemblage of W3 permanent wet mire (unfavourable- recovering);
- Lowland fens, including basin, flood-plain, open water transition and valley fens (unfavourable- recovering); and
- Lowland mixed deciduous woodland (unfavourable- recovering).

9.6.7. Undergrazing is the only pressure listed on the Lockington Marshes SSSI.

9.6.8. Attenborough Gravel Pits SSSI is located approximately 6.7km at its closest point. It is a nationally important site for:

- eutrophic lakes (unfavourable – no change);
- wet woodland (favourable);
- lowland neutral grassland (unfavourable- recovering);
- breeding bird assemblages associated with lowland open waters and their margins (no details);
- wintering shoveler *Anas clypeata* (favourable); and
- wintering bittern *Botaurus stellaris* (favourable).

9.6.9. Pressures on the Attenborough Gravel Pits SSSI are listed as land use change, agricultural sources of water pollution and other/unknown sources of water pollution.

9.6.10. The traffic associated with the MCO Scheme is negligible as set out in **Chapter 6: Traffic and Transport (Document DCO 6.6 / MCO 6.6**) and so the potential for air quality impacts has been scoped out for the MCO Scheme in isolation.

9.6.11. Natural England were consulted regarding SSSI Impact Risk Zones (IRZs) to identify relevant triggers and sensitive sites. Potential impacts on Lockington Marshes SSSI and Attenborough Gravel Pits SSSI will both be considered, with the relevant triggers outlined below.

9.6.12. The Lockington Marshes SSSI 5km IRZ covers the MCO Scheme. The relevant trigger for further consideration is:

- Discharge: Any discharge of water or liquid waste of more than 5m³/day that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

9.6.13. The Attenborough Gravel Pits SSSI 7km IRZ covers part of the MCO Scheme. The relevant trigger for further consideration is:

- Discharge: Any discharge of water or liquid waste of more than 20m³/day that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream.

9.6.14. The Attenborough Gravel Pits SSSI 10km IRZ covers the MCO Scheme. The relevant trigger for further consideration is:

- Discharge: Any discharge of water or liquid waste of more than 20m³/day that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream.

9.6.15. The identified SSSIs and SAC are of national/international importance and of high sensitivity.

Non-Statutory Designated Sites

9.6.16. Consultation with the local record centres identified nine sites of local conservation importance within 1km. These are detailed in **Appendix 9A** (**Document DCO 6.9A**) and summarised below.

9.6.17. Three local designations were reported within 1km. In brief, these consisted of:

- There were 8 candidate LWSs (cLWS). These are sites that meet the criteria for designation. Their status has not been formally agreed with landowner.
- There was 1 potential LWSs (pLWS). These are sites where there is recent evidence that they are likely to meet the LWS criteria, but further survey would be required to confirm this.
- There were 3 potential-historic LWSs (pLWS.hist). These are sites that have not been recently surveyed to check their modern status. These sites were designated during the late 1980s/early 1990s, based on comprehensive habitat surveys.

9.6.18. Of the above sites, King Street plantation pLWS.hist and Lockington Park pLWS.hist are located adjacent to the MCO order limits.

9.6.19. The identified locally designated sites are of county importance and of medium sensitivity. The latter two designations have been assigned this value on a precautionary basis given the lack of available data.

Protected and notable species records

9.6.20. Records of protected and/or notable species have been received from those consultees highlighted above. Records were filtered to provide data from the last twenty years (2004 onwards), with either 2km for European protected species, or 1km for other notable and protected species. Records of provided in **Appendix 9A** (**Document DCO 6.9A**) and summarised below in **Table 9.19.**

Table 9.19: Summary of Relevant Protected and Notable Species Records (MCO Scheme)

Species	Status	Summary
European Protected Species – 2km		
Great crested newt *Triturus cristatus*	WCA, NERC, CHSR, BAP, Bern, HDir	Six locations recorded. No records within 500m of MCO Application.
Bats- *Chiroptera* – unidentified bat Brown long-eared *Plecotus auritus* *Pipistrelle* Sp. Common pipistrelle *Pipistrellus pipistrellus*	WCA, NERC; CHSR	Various records in 2km of the Order Limits.

Species	Status	Summary
Nathusius's Pipistrelle *Pipistrellus nathusii* Soprano pipistrelle *Pipistrellus pygmaeus* *Myotis* sp. Daubenton's *Myotis daubentonii* Natterer's *Myotis nattereri* Whiskered *Myotis mystacinus* *Nyctalus* sp. Leisler's *Nyctalus leisleri* Noctule *Nyctalus noctula* Serotine *Eptesicus serotinus*		
Other Protected and Notable Species		
Mammals – Badger *Meles meles* Brown hare *Lepus europaeus* Hedgehog *Erinaceus europaeus*	PBA, BAP, Bern, CHSR, HDir, NERC	For badger records see confidential **Appendix 9B**. Four records of hare including one low accuracy record which overlaps the MCO limits. Three records of hedgehog, outside the MCO limits.
Herpetofauna- Common frog *Rana temporaria* Common toad *Bufo bufo* Smooth newt *Lissotriton vulgaris*	BAP, Bern, NERC, WCA.	Three records of common frog outside the MCO limits. Two records of common toad outside the MCO limits. Seven records of smooth newt outside the MCO limits.
Invertebrates– Cinnabar *Tyria jacobaeae*	BAP, NERC, WCA.	A single record outside the MCO limits.
Plants – Various records of notable plants within 1km of the EMG2 Project.	CITES, LRPR	A single low accuracy record of locally rare Bee orchid *Ophrys apifera* overlapped the MCO limits.
Birds- Thirty-one notable bird species including eight WCA Schedule 1 species.	BoCC Red List, BoCC Amber List, NERC, WCA, BAP, Bern, Bonn, BDir, CITES.	Bird records were clustered offsite around apparent targeted recording locations. Low accuracy records which overlapped the MCO limits included - Barn Owl *Tyto alba,* Bullfinch *Pyrrhula pyrrhula*, Dunnock *Prunella modularis*, Fieldfare *Turdus pilaris*, Herring Gull *Larus argentatus*, Lapwing *Vanellus vanellus*, Linnet *Linaria cannabina*, Redwing *Turdus*

Species	Status	Summary
		iliacus, Reed Bunting *Emberiza schoeniclus*, Skylark *Alauda arvensis*, Starling *Sturnus vulgaris*, Swallow *Hirundo rustica*, Swift *Apus apus*, and Yellowhammer *Emberiza citronella*.

Key to Conservation Status: CHSR – The Conservation of Habitats and Species Regulations 2017 (as amended), NERC – Natural Environment and Rural Communities Act 2006, WCA – Wildlife and Countryside Act 1981 (as amended), PBA - Protection of Badgers Act 1992, BoCC Amber – Amber Listed under Birds of Conservation Concern, BoCC Red – Red Listed under Birds of Conservation Concern, BAP – UK Biodiversity Action Plan Priority Species, RedList– Red lists based on IUCN guidelines, Bern - Bern Convention on the Conservation of European Wildlife and Natural Habitats, HDir - Habitats Directive, CITES- Convention on International Trade in Endangered Species, Bonn- Bonn Convention on the Conservation of Migratory Species of Wild Animals, BDir- EU Birds Directive Annex, LRPR - VC55 Rare Plant Register 2022

9.6.21. A search on MAGIC indicated four European Protected Species Licences (EPSL) within 2km of the MCO Scheme. The details for the ESPL are as follows:

- Natural England reference 2016-25575-EPS-MIT – brown long-eared bat, common pipistrelle, Natterer's bat, and whiskered bat resting site. License valid 21/09/2016 – 19/09/2021.
- Natural England reference EPSM2010-2454 – common pipistrelle and brown long-eared bat breeding and resting site. License valid 01/11/2010 – 31/10/2012.
- Natural England reference EPSM2011-3211 – common pipistrelle and brown long-eared bat resting place. License valid 21/07/2011 – 31/08/2013.
- Natural England reference EPSM2012-4876 – common pipistrelle and brown long-eared bat breeding and resting site. License valid 17/12/2012 – 31/08/2014.

Field Surveys - Habitats

9.6.22. As set out in **Chapter 3: Project Description**, **(Document MCO 6.3)** the MCO Scheme includes associated works on the existing EMG1 site, specifically around the EMG1 site entrance and within and adjacent to the rail freight terminal. A detailed description of each habitat type is described provided in **Appendix 9A** (**Document MCO 6.9A**) and summarised below in **Table 9.20** below.

Table 9.20: Summary of habitats at the MCO Scheme

Habitat Type	Description	Evaluation
Individual Trees	Mature and semi-mature trees were present throughout the MCO Scheme area, mainly in association with hedgerows and lines of trees. Nine small individual trees are located by the management suite.	No veteran trees have been recorded within this area of the MCO Scheme area. The trees are considered to be typical of the wider landscape and of Local importance.

Habitat Type	Description	Evaluation
Mixed Scrub	Newly planted mixed scrub, still encased in tree guards, had been planted along the access road to EMG1.	Scrub is common and widespread within the local area and is considered to be of Negligible importance.
Other Neutral grassland	Large areas of other neutral grassland were recorded surrounding the rail freight to the east of the MCO Scheme area and around the SuDS to the north of the MCO Scheme area. Compositions which were typical of commercial seeding mixes. Management appeared to being undertaken sensitively allowing a longer sward to develop in summer months.	The grasslands provided areas of natural habitats, but its value was constrained due to the constricted areas adjacent to areas of high disturbance. Accordingly, the other neutral grassland is considered to be of Negligible importance.
Modified Grassland	Modified grassland was recorded in small pockets across the MCO Scheme area and more extensively along bunds. This included areas of recent whip planting where the woody species were yet to establish.	The grassland is relatively species-poor and heavily managed. Such grassland habitats are frequent and widespread. Accordingly, the modified grassland is considered to be of Negligible importance.
Broadleaved woodland	King Street Plantation is a block of woodland adjoining the MCO Scheme area. A review of historical mapping suggest this was planted between 1883 and 1895. This broadleaved woodland was listed as HPIs on Defra's Priority Habitats Inventory (England) and is listed as a potential historical LWS.	As a potential historical LWS, the woodland is considered under the assessment of designated sites.
Sustainable drainage systems (SuDS) basins and ditches.	Three drainage features were present toward the north of the MCO Scheme area. A range of wetland floral species were present.	SuDS basins have been designed to provide a degree of wetland habitat, however they do not hold permanent water, and are expected to be periodically managed to remove silt build up, limiting their naturalness. These areas were considered to be of Negligible importance.
Artificial Unvegetated-Unsealed Surface	A large area of artificial unvegetated-unsealed surface (AU1) was present to the south of the EMG1 boundary. Less than 10% vegetation was present in this area and comprised soil disturbed by earth works.	This area considered to be of Negligible importance.
Ephemeral vegetation	An area previously cleared ground supported early successional ephemeral vegetation in the south of	This area considered to be of Negligible importance.

Habitat Type	Description	Evaluation
	EMG1 works. Approximately 40-50% of the ground was free of vegetation.	
Hedgerows	There were 7 native hedgerows present on MCO Scheme area. All comprised at least 80% native woody species and therefore qualify as Habitats of Principal Importance (HPI) under S41 of the NERC Act.	The hedgerows provide habitat connectivity for a range of wildlife. They are considered to be of Local importance.

Field Survey - Fauna

9.6.23. A suite of field surveys for fauna were undertaken during 2022 and 2024. Survey findings for are summarised below in **Table 9.21** below and are included in **Appendices 9B to 9G**.(**Documents DCO 6.9B - 6.9G**).

Table 9.21: Summary of Relevant Protected and Notable Species Records (MCO Scheme)

Species	Description	Evaluation
Amphibians (including GCN)	Local records of smooth newts (including on-site), common frog and common toad. No permanent aquatic habitats identified although SuDS feature may provide a seasonal resource. Areas of suitable terrestrial habitat along hedgerows, scrub and some restricted areas of tussocky grassland within wider managed areas.	It is considered that the existing habitats on-site could, at best, support amphibian populations of Local importance.
Badgers	A badger survey of accessible areas was conducted in 2024 with results detailed in the confidential report provided in **Appendix 9B**. Areas of grassland provided the main potential foraging habitat, with hedgerows, woodland and scrub habitats being restrictive in scale, generally isolated by the road network and prone to associated disturbance.	While badger welfare is protected under legislation (The Protection of Badgers Act 1992), they are common and widespread, and for planning purposes are not ascribed a particular conservation value and are considered to be of Negligible importance.
Bats	A habitat suitability assessment was carried out in 2024. Due to the nature of the MCO Scheme, the likelihood of significant bat assemblages occurring were considered unlikely, with habitats most able to support bats species tolerant of urban environments. No potential bat roosting habitats were identified.	Any bat assemblage utilising these areas is considered to likely be of Negligible importance.

Species	Description	Evaluation
Birds	The MCO Scheme area largely comprises previously cleared areas and areas of active operational usage unsuitable for significant populations of birds and thus the requirement for bird surveys was scoped out.	Hedgerows and grasslands provided breeding and/or foraging habitat for a variety of common and widespread generalist species. The MCO Scheme area is considered at most of Local importance for breeding generalist bird assemblage.
Invertebrates	The MCO Scheme area largely comprises previously cleared areas and areas of active operational usage unsuitable for significant populations of invertebrates and thus the requirement for surveys was scoped out.	Any invertebrate assemblage utilising these areas is considered to likely be of Negligible importance.
Plants	Common and widespread species recorded during field survey.	The botanical assemblage is considered to be of Negligible importance.
Reptiles	The MCO Scheme area largely comprises previously cleared areas and areas of active operational usage unsuitable for significant populations of reptiles and thus the requirement for surveys was scoped out.	Any assemblage present in the MCO Scheme is likely to be limited in scale and not dependent on the habitats therein, and is considered to likely be of Negligible importance.
Other Species	No additional incidental species were recorded during the above species surveys. Desk study results included brown hare and hedgehog. The MCO Scheme offer limited suitable foraging and sheltering habitat for these species.	Considering the number and distribution of records for these species, and the availability of suitable habitats in the local area, any population present in the MCO Scheme is likely to be limited in scale and not dependent on the habitats therein, and is considered to likely be of Negligible importance.

Future Baseline

9.6.24. Giving consideration to the existing pressures identified on international/national statutory sites, positive interventions are expected to combat any deterioration in condition. These are expected to be delivered as part of landowner obligations.

- The River Mease SAC is reported to be under pressure from excessive phosphorus concentrations [xlix]. The condition of the waterbody, and the habitats which support the designated features, are in part dependent on the water quality. Should additional nutrients continue to enter the catchment upstream, they will add further pressure to the condition of the SAC.

- Lockington Marshes SSSI is noted on the Natural England webpage [I] to be under pressure from undergrazing. The notifiable features are all listed as recovering with recorded notes for specific units seeking grazing management to improve conditions.
- Attenborough Gravel Pits SSSI is noted on the Natural England webpage [Ii] to be under pressure from land use change, agricultural sources of water pollution and other/unknown sources of water pollution. Notifiable features which were not in favourable condition were either stable or recovering, with interventions listed including a new water outfall to improve water quality and adjustments to grazing management to benefit grassland habitat.

9.6.25. Designated sites in the local area are unlikely to be directly affected by the continuance of the existing land uses without the MCO Scheme.

9.6.26. In the absence of the MCO Scheme**,** the habitats affected by the MCO Scheme would be expected to continue to be managed to maintain their condition. The areas of woodland whip planting would mature succeeding the grassland habitat in which it is sited.

Potential Impacts

Assessment of Likely Significant Effects

9.6.27. The likely significant ecological effects arising as a result of the MCO Scheme have been assessed with regard to the works set out in **Chapter 3: Project Description** (**Document MCO 6.3**).

9.6.28. Likely significant effects are considered below for IEFs classified to have local or greater sensitivity as detailed in the above section. These include:

- Direct or indirect effects;
- Short or long-term effects;
- Intermittent, periodic or permanent effects; and
- Cumulative effects (covered in Section 9.8).

9.6.29. Potential effects prior to mitigation include:

- Direct loss of habitats and associated flora and fauna, interruption of wildlife corridors, decrease in value to wildlife through reduction in species and / or habitats;
- Indirect effects on retained vegetation within and bordering the MCO Scheme, through increase disturbance and through local changes in soils, drainage and hydrology;
- Potential effects upon protected and scarce species through disturbance;
- Operational effects such as pollution incidents from chemical spills, pollution of streams and fragile habitats from runoff, and damage through incorrect storage of materials; and

- Long-term beneficial effects arising as a result of the favourable enhancement of parts of the MCO Scheme to beneficial after-use.

9.6.30. Throughout, the potential effects below are initially based on the scenario of the MCO Scheme taking place in the absence of additional mitigation. However the embedded mitigation is included as explained below. That is followed by an assessment of residual impact having regard to all the proposed mitigation.

Embedded Mitigation

9.6.31. From the outset and following review of the ecological baseline the likely significant effects arising as a result of the design of the MCO Scheme have been reviewed in order that, where possible, potential adverse effects can be avoided through an alteration in design.

9.6.32. The NPS-NN sets out expectation regarding project approaches to biodiversity.

> *The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity (paragraph 5.47)*
>
> *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. (paragraph 5.51)*
>
> *Wider ecosystem services and benefits of natural capital should also be considered when designing enhancement measures in order to maximise multifunctional benefits whilst minimising land take (paragraph 5.52).*

9.6.33. The North West Leicestershire Local Plan (2011-2031) Policy EN1 states that:

> *Proposals for development will be supported which conserve, restore or enhance the biodiversity in the district.*
>
> and that
>
> *New development will be expected to maintain existing ecological networks, hotspots and landscape features (such as water courses and waterways, disused railway lines, trees and hedgerows) for biodiversity, as well as for other green infrastructure and recreational uses.*

9.6.34. The MCO Scheme is more restricted in scale relative to the DCO Scheme, with the scope of embedded mitigation proportionate to this. Embedded mitigation is identified on the Parameters Plan (**Document MCO 2.5**) and includes:

- the retention of habitats such as trees, hedgerows, and grassland;

- new green spaces including grassland, hedgerows and trees;
- provision of habitat connectivity linking offsite woodland; and
- strategic drainage infrastructure.

Site Design

9.6.35. The MCO Scheme layout has been designed to include an east-west green corridor connecting King Street Plantation to offsite woodland planting, to provide long-term betterment for wildlife.

Habitat Retention

9.6.36. The following habitats have been retained within the MCO Scheme:

- SuDS features
- Established grassland habitats.
- Hedgerows and associated trees

Habitat Creation

9.6.37. Habitat creation has focussed on locally appropriate habitats, prioritising a mixture of grassland, scrub and woodland. Targeted creation and management prescriptions based on the criteria required to achieve a net gain in biodiversity will ensure that the condition of habitats meets those defined within the Biodiversity Net Gain Assessment contained within **Appendix 9I** (**Document DCO 6.9I**) in the short medium and long term (30 years) with monitoring and remediation mechanisms incorporated, ensuring that the biodiversity gains are achieved.

9.6.38. The proposals will enable the delivery of both areas of species-rich and biodiverse grassland in open areas and more formal urbanised flowering lawn mixes within amenity areas.

9.6.39. New native woodland and scrub habitat will be created within the GI in the form of small blocks and linear belts to enhance habitat connectivity. The planting mix will be representative of local native woodlands. Management will encourage the development of structurally diverse woodland.

9.6.40. New native hedgerows will be created along selected unit boundaries and roads and softening the transition between developed areas and the wider GI, as well as providing inherent habitat value. Together with retained hedgerows they will provide sheltered corridors for wildlife to move along, encouraging dispersal. Retained hedgerows will include be subject to a more sympathetic management regime to add additional biodiversity value, increasing species and structural diversity.

9.6.41. The design of lighting will minimise light-spill onto retained habitats, following the same guidance as detailed above for the DCO Scheme at Section 9.5.

Construction Impacts

Introduction

9.6.42. Effects during construction may include:

- direct habitat loss and degradation including damage such as root compaction and physical damage to branches;
- harm or disturbance to species including through fragmentation and isolation, and disruption during sensitive periods such as breeding or hibernation seasons;
- pollution events which may result in localised damage or more diffuse effects through spillages into wetland features, including potential for silt-laden construction Site run-off; and
- dust deposition as a result of an increase in airborne dust, particularly during periods of dry weather, when soil-stripping or earth moving is being undertaken (The Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction[lii] identifies a maximum 50m zone from the MCO Scheme and vehicle routes, and a 250m zone from site entrances should be considered for ecological Impacts).

9.6.43. Locations discussed below are provided in **Appendix 9A (Document MCO 6.9A)**.

Statutory Designated Sites

9.6.44. The River Mease SAC located approximately 16.5km from the MCO Scheme at its closest point. The River Mease rises in the Coal Measures of north-west Leicestershire and flows approximately 25 kilometres westwards across a largely rural and agricultural landscape to its confluence with the River Trent at Croxall. As a relatively un-modified lowland river, the River Mease contains a diverse range of physical in-channel features, including riffles, pools, slacks, vegetated channel margins and bankside tree cover, which provide the conditions necessary to sustain populations of spined loach *Cobitis taenia*, bullhead *Cottus gobio*, freshwater white-clawed crayfish *ustropotamobius pallipes* and otter *Lutra lutra*. An assessment of potential impact pathways is provided in **Appendix 9H (Document MCO 6.9H)**. No significant direct or indirect effects are anticipated due to the distance from MCO Scheme and the lack of potential impact pathways in relation to the following topics:

- direct habitat loss;
- thermal effects;
- biological connectivity and vegetation structure;
- reduction in water quality (pollutants);
- reduction in water quality (nutrients);
- water abstraction;
- increased risk of invasive plant species entering the watercourse;
- increased risk of siltation entering the watercourse; and,

- inappropriate weirs, dams and other structures.

9.6.45. Lockington Marshes SSSI is located just over 2km from the closest part of the MCO Scheme**.** Both the Lockington Marshes and the MCO Scheme are located within the Hemington Brook Catchment (Soar Management Catchment). With the exception of the development of Plot 16, the proposed works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level and any effects on the SSSI are considered negligible.

9.6.46. Attenborough Gravel Pits SSSI is located approximately 6.7km from the MCO Scheme at its closest point, and is approximately 4.8km further downstream of the Lockington Marshes SSSI discussed above. The Attenborough Gravel Pits are located within the Trent Lower and Erewash Management Catchment, downstream of the confluence between the River Trent and the Soar Management Catchment. As such there is hydrological link, however there is an additional dilution effect from the upstream catchment. Any potential effects on the SSSI are considered negligible.

Non Statutory Designated Sites

9.6.47. King Street Plantation potential-historic LWS (11950) is located adjacent to the MCO Scheme**,** within the existing EMG1 development. It is listed as woodland last surveyed approximately between 1980 and 1990 and as an area as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. There is a potential direct adverse impact from vehicle tracking and material storage outside in proximity to the trees resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated runoff and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage of the trees, the watercourse and ponds which constitutes a moderate magnitude of adverse impact.

9.6.48. Lockington Park potential-historic LWS (11952) is found approximately 20m north of the MCO Scheme. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and is partially recorded as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. Given the separation, direct impacts are considered unlikely, however indirect temporary impacts include dust and littering arising from construction activities. In the absence of mitigation, there is a risk of a temporary, short-term change in the quality or vulnerability of the site which constitutes a negligible magnitude of adverse impact.

Other Sites

9.6.49. The remaining local sites identified above are more than 50m from the construction activities and no additional sites were identified within 250m from works access. Any detrimental impacts on these more distant sites, for example as a temporary bi-product of site traffic, would be very minor and constitute a negligible magnitude of adverse impact.

Semi-natural Habitats

9.6.50. Semi-natural habitats of significant nature conservation value are rare within the MCO Scheme. The MCO Scheme is primarily on land that has previously been developed or subject to clearance.

9.6.51. In the context of the MCO Scheme, the following habitats were considered of below local importance and have not been considered further:

- Mixed Scrub
- Other neutral grassland
- Modified Grassland
- Artificial Unvegetated-Unsealed Surface
- SuDS and Ditches
- Ephemeral

9.6.52. Woodland adjacent to the MCO is considered above in relation to King Street Plantation potential-historic LWS.

9.6.53. Construction phase effects from the MCO Scheme on habitats with at least a local level of sensitivity are summarised and discussed in **Table 9.22.**

Table 9.22: Potential construction effects on habitats (MCO Scheme)

Habitat Type	Sensitivity	Evaluation
Individual Trees	Local importance (Low)	No tree loss is envisaged in association with these works. Retained trees are located within an area of managed GI adjacent to the management suite and so the potential for indirect effects is considered negligible.
Hedgerows	Local importance (Low)	No hedgerow loss is anticipated in this area. Impacts include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

Construction Phase - Species Level

9.6.54. Construction phase effects on species with at least a local level of sensitivity from MCO Scheme are summarised and discussed in have been discussed in **Table 9.23** below.

Table 9.23: Potential construction effects on species (MCO Scheme)

Species	Sensitivity	Evaluation
Amphibians (including GCN)	Local importance	No impacts are anticipated.
Birds	Local importance	Construction operations have the potential to disturb birds using the development area of the MCO Scheme for foraging and breeding. Operations likely to disturb breeding birds include noise and displacement during vegetation clearance, initial ground works and some construction activities. During the breeding season (March to August, inclusive) disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as the retained hedgerows and trees, and the offsite woodland edge. There is some potential for direct harm to nesting birds and their young, and for breeding success to be reduced, this is expected to have a minor impact on the local conservation status of most of the bird species using the survey area for breeding.

Operational Impacts

9.6.55. On completion of the MCO Scheme, the following operations will occur which will potentially affect designated sites, habitats and species as set out below:

- Use of proposed buildings and infrastructure by personnel; and
- Recreational use of the surrounding area.

Statutory Designated Sites

9.6.56. The River Mease SAC is located approximately 16.5km from the MCO Scheme at its closest point. An assessment of potential impact pathways is provided in **Appendix 9H** (**Document MCO 6.9H**). No significant direct or indirect effects are anticipated due to the distance from MCO Scheme and the lack of potential impact pathways.

9.6.57. Lockington Marshes SSSI is located just over 2km from the closest part of the MCO Scheme**.** Both the Lockington Marshes and the MCO Scheme are located within the Hemington Brook Catchment (Soar Management Catchment). With the exception of the development of Plot 16, the proposed works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level and any effects on the SSSI are considered negligible.

9.6.58. Attenborough Gravel Pits SSSI is located approximately 6.7km from the MCO Scheme at its closest point, and is approximately 4.8km further downstream of the Lockington Marshes SSSI discussed above. The Attenborough Gravel Pits are located within the Trent Lower and Erewash Management Catchment, downstream of the confluence between the River Trent and the Soar Management Catchment. As such there is hydrological link, however there is an additional dilution effect from the upstream catchment. Any potential effects on the SSSI are considered negligible.

Non-statutory sites

9.6.59. King Street Plantation potential-historic LWS (11950) is located adjacent to the MCO Scheme. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and as an area as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. There is a likelihood of increase numbers of pedestrians in proximity to this site. Increased pedestrian traffic passing in proximity to these trees can cause an increase in littering and potential disturbance to wildlife using the site. Given the sites existing proximity to already built elements of the EMG1 scheme, the combined effects identified are considered a negligible impact. The provision of new woodland and scrub planting connecting the plantation to wider offsite woodland has the potential to provide long term benefits, opening up pathways for usage by a range of faunal species, and supporting colonisation and successional opportunities for botanical assemblages. The increased habitat connectivity is thought to represent a low magnitude beneficial impact in the long term as habitats establish.

9.6.60. Lockington Park potential-historic LWS (11952) is found approximately 20m north of the MCO Scheme. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and is partially recorded as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. Given the nature of the woodland and its location close to existing roads, sensitive features are unlikely to be present and, as a result, any potential effect arising from disturbance would be of negligible significance.

Other Sites

9.6.61. The remaining local sites are considered to be adequately removed from the MCO Scheme so that any detrimental effect would be only constitute a negligible magnitude of impact.

Semi-natural Habitats

9.6.62. Operational phase effects on habitats with at least a local level of sensitivity from the MCO Scheme are summarised and discussed in **Table 9.24** below**.**

9.6.63. The new green infrastructure will create a larger and more diverse extent of semi-natural habitats than currently present at the MCO Scheme, leading to an overall increase in biodiversity (see **Appendix 9I** for full details of the biodiversity net gain assessment, **Document MCO 6.9I**). New habitats are considered likely to be of local importance, at most.

Table 9.24: Potential operational effects of habitats (MCO Scheme)

Habitat Type	Sensitivity	Evaluation
Individual Trees	Local importance (Low)	Retained and newly planted individual trees could be degraded by increased pressures from site users such as littering and damage, and inappropriate management.
Hedgerows	Local importance (Low)	Retained and newly created hedgerows could be degraded by increased pressures from site users such as littering and damage, and inappropriate management.

Operational Phase - Species Level

9.6.64. Operational phase effects on species with at least a local level of sensitivity from the MCO Scheme are summarised and discussed in **Table 9.25** below.

Table 9.25: Potential operational effects of species (MCO Scheme)

Species	Sensitivity	Evaluation
Amphibians (including GCN)	Local importance	No impacts are anticipated.
Birds	Local importance	Site maintenance activities involving vegetation clearance have the potential to disturb nesting birds and damage their nests, or kill dependent young. An increase in pedestrian access across the MCO Scheme can be expected. While there is potential for disturbance, the type of activity is predominantly transient, following footpaths/cycle way networks as opposed to creating hubs of increased disturbance.

Summary of Impacts

9.6.65. **Table 9.26** summarises the IEFs, their sensitivity and the assessed impact at construction and operational phases. The Significance of the effect, taking into account embedded mitigation, is given based on the greatest impact. **Table 9.26** below demonstrates that there will be no significant impacts in EIA terms.

Table 9.26: Summary of Impacts (MCO Scheme)

Ecological feature	Sensitivity	Construction Impacts Magnitude	Operational Impacts Magnitude	Significance
River Mease SAC	International (High)	Negligible	Negligible	Negligible
Lockington Marshes SSSI	National (High)	Negligible	Negligible	Negligible
Attenborough Gravel Pits SSSI	National (High)	Negligible	Negligible	Negligible
King Street Plantation	County (Moderate)	Moderate Adverse	Low Beneficial	Moderate - Minor

Ecological feature	Sensitivity	Construction Impacts Magnitude	Operational Impacts Magnitude	Significance
pLWS.hist (11950)				Adverse
Lockington Park pLWS.hist (11952)	County (Moderate)	Negligible	Negligible	Negligible
Individual Trees	Local importance (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Hedgerows	Local (Low)	Moderate Adverse	Low Adverse	Minor Adverse
Amphibians (including GCN)	Local (Low)	Negligible	Negligible	Negligible
Birds	Local (Low)	Low Adverse	Negligible	Minor-Negligible Adverse

Mitigation Measures

General Principles

9.6.66. The MCO Scheme has been carefully designed to avoid significant ecological effects by applying the mitigation hierarchy:

- Avoidance – adopt options that avoid harm to ecological features, e.g. selecting a site of relatively low ecological value, review and realignment to avoid significant ecological receptors.
- Mitigation – where effects cannot be avoided, adopt options that reduce and minimise them, e.g. reduction of noise, dust etc. through good construction practice.
- Translocation – where effects on certain IEFs (not all) cannot be avoided in a particular location it may sometimes be possible to move the IEF to a new and safe location (this approach is only possible in specific circumstances).
- Compensation – where ecological effects cannot be avoided or fully mitigated and therefore give rise to significant residual adverse effects, appropriate compensatory provisions can be made, such as in the creation of alternative foraging habitat for bats.
- Enhancements – encouraged in various planning policies are measures to provide benefits to biodiversity or ecosystem functioning over and above what is required for avoidance, mitigation or compensation of effects. Opportunities to provide nature conservation enhancement have Mitigation by Design.

9.6.67. The proposed application includes a range of intrinsic (embedded) ecological avoidance, mitigation and enhancement measures. The provision of the green infrastructure is a primary mitigation measure (i.e. actions undertaken by the EIA process to influence the design and layout of the MCO Scheme).

Additional Mitigation

9.6.68. In addition to the above embedded mitigation, the following measures will be adopted to mitigate the identified significant effects. Detailed measures to ensure legal compliance are also provided.

Mitigation of Construction Effects of Development

9.6.69. Measures will be undertaken during the construction phase in-line with industry guidelines to minimise disruption and manage the impacts of the development to retained habitats and/or connected features of ecological interest off-Site. The MCO Scheme will abide by the Construction Management Framework Plan approved as part of the original EMG1 DCO and will require the submission of a phase specific Construction Environmental Management Plan (CEMP) thereafter (Requirement 11 of the original EMG1 DCO). The CEMP will seek to negate impacts on retained habitats, with specific measures employed to avoid harm to protected species which are known to be present on-site or in the vicinity.

Designated Sites / Habitats

9.6.70. In addition to standard buffers of retained vegetation, specific consideration will be given to the protection of:

- King Street Plantation pLWS.hist (11950);
- Retained trees; and
- Newly created mitigation areas.

9.6.71. Buffers will be designed to consider both topography and the nature of works in proximity to the receptor. Where buffers alone are not adequate to prevent potential for direct damage, degradation or disturbance additional measures will be adopted. These could include but are not limited to the use of filter strips, swales and cut off ditches, combined with settlement ponds or settlement tanks, boundary screening, and adopting working practices that reduce disturbance through adapting methodology or timing. An emergency response plan to deal with pollution incidents will be provided where necessary.

9.6.72. To maximise ecological value, new hedgerow creation should prioritise high distinctiveness compositions using native species-rich (at least 5 native species / 30m) planting, and where conditions allow, designed to include ditches and tree standards (1 tree / 20m).

9.6.73. The site boundary adjacent to King Street plantation will be supported with supplementary planting and management promoting dense edge habitats, improving resilience to any disturbance and pollution incidents.

Mitigation for Flora / Fauna

Amphibians

9.6.74. As part of the mitigation for the EMG2 Project (covering both DCO and MCO schemes) the Applicant will enter into a District level Licensing agreement with Natural England to ensure that appropriate compensation is provided for impacts on GCN.

9.6.75. Additional mitigation specifications focus on tailoring newly created habitats for amphibians, and minimising impacts from construction activities.

9.6.76. Hibernacula and log pile features will be created in association with new ponds to provide further benefit for amphibians.

9.6.77. The inclusion of topographical ditch features in association with new native hedgerows will provide a seasonally inundated habitat network to support amphibians and increase connectivity.

Badger

9.6.78. The design of lighting throughout the MCO Scheme will minimise light-spill onto retained or potential foraging or commuting habitats.

9.6.79. Consideration has been given to badgers within the Construction Management Framework Plan. Precautionary working methods will reduce the risk of entrapment and fatalities by covering any large pipes, pits or trenches that are left open overnight, or where appropriate providing an adequate means of escape, such as a sloping profile or means of escape.

Bats

9.6.80. Embedded mitigation includes the retention and buffering of periphery habitats**,** and the provision of new habitats within the green infrastructure that will providing foraging opportunities. The design of lighting throughout the MCO Scheme will minimise light-spill onto retained or potential foraging or commuting habitats.

Birds

9.6.81. Embedded mitigation includes the retention and buffering of periphery habitats, and the provision of new habitats within the green infrastructure that will providing foraging and nesting opportunities. Specific measures for bird species will be limited due to the MCO Scheme's location within proximity to East Midlands Airport, and the associated safeguarding requirements to minimise bird strike risk.

9.6.82. Additional mitigation will include the erection of integral and building mounted nest boxes. These can be installed at an appropriate stage within the construction phase. The following provides details of suitable nest box types to be erected at appropriate locations:

- The inclusion of integrated swift boxes on office buildings (at a minimum 1:1 ratio) within the development to encourage these species which are able to take advantage of urban sites to breed. Swift boxes should be installed at least 5m high, with an unobstructed flight path. Swifts are gregarious, so installing several boxes in close proximity is beneficial.
- Where opportunities allow, swallow nest cups should be placed close under eaves, although ideally under cover, such as open bin or bike sheds, with at least a 6cm gap above the nest to provide access.

9.6.83. To avoid disturbance to nesting birds, site clearance works, including the removal of woody vegetation or habitat suitable for ground-nesting species, will be conducted where possible outside the bird breeding season, which runs March – August inclusive. If clearance is planned for the bird breeding season then it will be preceded by a nesting bird survey conducted by an experienced ecologist. This will involve observing any vegetation to identify any wild birds exhibiting nesting behaviour and/or searching for active nests. Should active bird nests be identified then an exclusion zone would need to be retained until the chicks had fledged, as determined by the supervising ecologist.

Invertebrates

9.6.84. Embedded mitigation includes the retention and buffering of periphery habitats, and the provision of new habitats within the green infrastructure that will support an array of invertebrates.

9.6.85. Additional mitigation will be provided by the creation of banks of free-draining sandy soil to further enhance structural complexity and encourage nesting aculeate colonies. These do not necessarily need to be tall, banks of 1-2m can still provide important habitat. These should preferably be south facing and moderately steep so as to maintain open conditions. Creation of banks of a range of substrates, from clay to sand and a range of slopes will provide greatest habitat diversity.

Other species

9.6.86. As part of the embedded mitigation a range of habitats will be created suitable for supporting local flora and fauna. Site design includes green corridors to allow the mobile mammals continued commuting routes and reduce the potential for habitat fragmentation.

9.6.87. Consideration has been given to mammals within the Construction Management Framework Plan. Precautionary working methods will reduce the risk of entrapment and fatalities by covering any large pipes, pits or trenches that are left open overnight, or where appropriate providing an adequate means of escape, such as a sloping profile or means of escape.

Mitigation of Operational Effects of Development

9.6.88. The management principles of the MCO scheme will be guided by a phase specific Landscape and Ecological Management Plan to be provided through the existing EMG1 DCO requirements.

9.6.89. This phase specific LEMP will cover all habitats retained and created for nature conservation purposes within the wider Green Infrastructure where necessary. The pLEMP also relates to the long-term management objectives identified within the BNG assessment. This provides a framework of specific habitat condition outcomes with expected time frames to obtain these. Full details of this are provided in the Biodiversity Net Gain Assessment provided at **Appendix 6.9I** (**Document MCO 6.9I**). Management prescriptions will aim to be adaptive rather than prescriptive. Provision should be made to respond to pressures of climate change. Where possible the long-term management of the MCO Scheme will be carried out by or in consultation with an organisation with a proven track record of managing areas to maximise their nature conservation potential, such as through a steering group or other mechanism.

9.6.90. Additional mitigation will aim to address where possible the potential effects identified above.

Designated Sites / Habitats

9.6.91. Management of new woodland planting adjacent to King Street plantation pLWS.hist will promote dense edge habitats will help to limit the permeability of woodlands to any disturbance and pollution effects.

Mitigation for Flora / Fauna

General measures

9.6.92. A range of fauna have potential to be moving across the MCO Scheme and be exposed to harm from traffic. The use of targeted control measures such as signage and speed limitations can be used to reduce the risks.

Amphibians

9.6.93. Management within the MCO Scheme will include appropriate maintenance of newly created hibernacula. Grassland habitat in proximity to SuDS will be managed to create a tussocky sward. Management of these grasslands should be staggered to retain undisturbed sections in any given year.

9.6.94. Arisings from any woody vegetation clearance will be used to create log and brash piles at transitional zones around wetland areas and within woodlands.

Bats

9.6.95. Any future arboricultural works will first require an assessment of potential bat roost features. Where present additional survey work will be undertaken to identify any constraints that these may present.

Birds

9.6.96. Management will include appropriate maintenance of bird boxes.

9.6.97. To avoid disturbance to nesting birds, any removal of woody vegetation or habitat suitable for ground-nesting species, will be conducted where possible outside the bird breeding season, which runs March – August inclusive. If clearance is planned for the bird breeding season, then it will be preceded by a nesting bird survey conducted by an experienced ecologist. Should active bird nests be identified then an exclusion zone would need to be retained until the chicks had fledged, as determined by the supervising ecologist.

Invertebrates

9.6.98. The use of insecticides should be avoided.

9.6.99. Management activities of each habitat type should be undertaken on rotation to ensure there are always areas of undisturbed habitats in any given year.

Residual Effects

9.6.100. The residual effects, set out below within **Table 9.27**, consider the potential impacts after the incorporation of additional mitigation measures, beyond those that were considered embedded.

Table 9.27: Summary of Residual Impacts (MCO Scheme)

Ecological feature	Sensitivity	Additional Mitigation Summary	Residual Construction Impacts Magnitude	Residual Operational Impacts Magnitude	Overall Significance
King Street Plantation pLWS.hist (11950)	County (Moderate)	Specific prescriptions within CEMP / LEMP	Negligible	Low Beneficial	Minor Beneficial
Individual Trees	Local importance (Low)	Specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible
Hedgerows	Local (Low)	Habitat creation objectives, specific prescriptions within LEMP.	Negligible	Negligible	Negligible
Birds	Local (Low)	Habitat creation objectives, specific prescriptions within CEMP / LEMP	Negligible	Negligible	Negligible

9.7. Assessment of EMG2 Project

9.7.1. As set out in Section 1 of this Chapter, and at **Table 9.1,** the EMG2 Project as a whole is the combination of the DCO Scheme and the MCO Scheme which have been assessed in Sections 9.5 and 9.6 of this Chapter.

Baseline Conditions

9.7.2. The baseline conditions have been described at Section 9.5 in respect of the DCO Scheme and at Section 9.6 for the MCO Scheme, however an overview of the relevant protected and notable species records is summarised below in **Table 9.28**

Table 9.28: Summary of Relevant Protected and Notable Species Records (EMG2 Project)

Species	Description	Evaluation
Amphibians (including GCN)	Records of GCN, smooth newts, common frogs and common toads were returned as part of the desk study. GCN and smooth newts recorded within the EMG2 Project boundaries.	It is considered that the existing habitats on-site could, at best, support amphibian populations of Local importance.
Badgers	Badger are known to be active in the area with the EMG2 Project providing suitable foraging and sheltering habitat. Most of the EMG2 Project is exposed to disturbance through farming and operational activities, on-going construction works, and traffic.	While badger welfare is protected under legislation (The Protection of Badgers Act 1992), they are common and widespread, and for planning purposes are not ascribed a particular conservation value and are considered to be of Negligible importance.
Bats	The EMG2 Project is not considered exceptional for bat activity.	Overall the EMG2 Project is considered to be of Local importance for roosting and foraging bats.
Birds	The EMG2 Project provides common foraging and nesting habitats throughout, and while the area of the EMG2 Works supported only low numbers of birds for a site of this size, this did include notable farmland species.	Overall the EMG2 Project is considered to be of Local importance for breeding and wintering birds.
Invertebrates	The most significant invertebrate assemblages are those associated with dead and decaying wood.	Invertebrate assemblages identified are considered of local importance.
Otter and Water vole	Suitable habitat was restricted to the EMG2 Works.	Overall the EMG2 Project is considered to be of Local importance for otter.

Species	Description	Evaluation
		Watervole are likely absent from the EMG2 Project and are not considered further.
Plants	Several locally notable species records were returned within the search area, however the EMG2 Project itself was considered to generally support an assemblage of low botanical interest.	Whilst the recorded on-site botanical assemblage is limited, the species records within the search area are considered to have Local importance.
Reptiles	On-site habitats, including long-swarded areas of poor semi-improved grassland, hedgerows, tall ruderal and dense/scattered scrub, were all considered to offer suitable commuting, foraging and refuge habitats for reptiles. The presence of narrow grass verges also had the potential to provide basking areas. Targeted surveys (**Appendix 9G**) have been undertaken on the EMG2 Works, with reduced survey effort in the Highway Works and EMG1 Works areas. The scope of impact within the Highway Works zone is generally limited to in nature and unlikely to affect any significant area of suitable reptile habitat. The EMG1 Works area consists of a previously cleared plot of the previous phase of development.	Any reptile assemblage utilising these areas of EMG2 Project is considered to be of Negligible importance.
Other Species	No additional incidental species were recorded during the above species surveys. Desk study results included black rat, brown hare, hedgehog and polecat. Both the DCO and MCO Applications offer suitable foraging and sheltering habitat for these species.	Considering the number and distribution of records for these species, and the availability of suitable habitats in the local area, any populations of these species utilising the EMG2 Project in part (DCO and MCO Applications), or as a whole, are considered to be at most of Local importance.

Future Baseline

9.7.3. Giving consideration to the existing pressures identified on international/national statutory sites, positive interventions are expected to combat any deterioration in condition. These are expected to be delivered as part of landowner obligations.

- The River Mease SAC is reported to be under pressure from excessive phosphorus concentrations[liii]. The condition of the waterbody, and the habitats which support the designated features, are in part dependent on the water quality. Should additional

nutrients continue to enter the catchment upstream, they will add further pressure to the condition of the SAC.

- Lockington Marshes SSSI is noted on the Natural England webpage [liv] to be under pressure from undergrazing. The notifiable features are all listed as recovering with recorded notes for specific units seeking grazing management to improve conditions.
- Attenborough Gravel Pits SSSI is noted on the Natural England webpage [lv] to be under pressure from land use change, agricultural sources of water pollution and other/unknown sources of water pollution. Notifiable features which were not in favourable condition were either stable or recovering, with interventions listed including a new water outfall to improve water quality and adjustments to grazing management to benefit grassland habitat.
- Lount Meadows SSSI is noted on the Natural England webpage[lvi] to be under pressure from undergrazing. The recorded notes for specific units include landowner discussions around management to improve conditions.
- Oakley Wood SSSI is noted on the Natural England webpage[lvii] to be under pressure from disease. Records highlight ash dieback and acute oak decline, however state that the site is under management which is looking to address these issues.
- Breedon Cloud Wood and Quarry SSSI is noted on the Natural England webpage [lviii] to be in favourable or recovering condition, and noted to be well managed.

9.7.4. The identified locally designated sites are unlikely to be directly affected by the continuance of the existing land uses without the EMG2 Project.

Potential Impacts

Assessment of Likely Significant Effects

9.7.5. The likely significant ecological effects arising as a result of the EMG2 Project have been assessed with regard to the works set out in **Chapter 3: Project Description** (**Document DCO 6.3/MCO 6.3**).

9.7.6. Likely significant effects are considered below for IEFs classified to have local or greater sensitivity as detailed in the above section. These include:

- Direct or indirect effects;
- Short or long-term effects;
- Intermittent, periodic or permanent effects; and
- Cumulative effects (covered in Section 9.8).

9.7.7. Potential effects prior to mitigation include:

- Direct loss of habitats and associated flora and fauna, interruption of wildlife corridors, decrease in value to wildlife through reduction in species and / or habitats;

- Indirect effects on retained vegetation within and bordering the EMG2 Project, through increase disturbance and through local changes in soils, drainage and hydrology;
- Potential effects upon protected and scarce species through disturbance;
- Operational effects such as air quality changes, pollution incidents from chemical spills, pollution of streams and fragile habitats from runoff, and damage through incorrect storage of materials; and
- Long-term beneficial effects arising as a result of the favourable enhancement of parts of the EMG2 Project to beneficial after-use.

9.7.8. Throughout, the potential effects below are initially based on the scenario of the EMG2 Project taking place in the absence of additional mitigation. However, the embedded mitigation is included as explained below. That is followed by an assessment of residual impact having regard to all the proposed mitigation.

Embedded Mitigation

9.7.9. The embedded mitigation for the EMG2 Project is set out in Section 9.5 for the DCO Scheme and Section 9.6 for the MCO Scheme.

Construction Impacts

Introduction

9.7.10. Effects during construction may include:

- direct habitat loss and degradation including damage such as root compaction and physical damage to branches;
- harm or disturbance to species including through fragmentation and isolation, and disruption during sensitive periods such as breeding or hibernation seasons;
- pollution events which may result in localised damage or more diffuse effects through spillages into wetland features, including potential for silt-laden construction Site run-off; and
- dust deposition as a result of an increase in airborne dust, particularly during periods of dry weather, when soil-stripping or earth moving is being undertaken (The Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction[lix] identifies a maximum 50m zone from the EMG2 Project and vehicle routes, and a 250m zone from site entrances should be considered for ecological Impacts).

9.7.11. Locations discussed below are provided in **Appendix 9A (Document DCO 6.9A/)**.

Statutory Designated Sites

9.7.12. The River Mease SAC located approximately 13.5km from the EMG2 Project at its closest point. The River Mease rises in the Coal Measures of north-west Leicestershire and flows

approximately 25 kilometres westwards across a largely rural and agricultural landscape to its confluence with the River Trent at Croxall. As a relatively un-modified lowland river, the River Mease contains a diverse range of physical in-channel features, including riffles, pools, slacks, vegetated channel margins and bankside tree cover, which provide the conditions necessary to sustain populations of spined loach *Cobitis taenia*, bullhead *Cottus gobio*, freshwater white-clawed crayfish *ustropotamobius pallipes* and otter *Lutra lutra*. An assessment of potential impact pathways is provided in **Appendix 9H (Document DCO 6.9H)**. No significant direct or indirect effects are anticipated due to the distance from Site and the lack of potential impact pathways in relation to the following topics:

- direct habitat loss;
- thermal effects;
- biological connectivity and vegetation structure;
- reduction in water quality (pollutants);
- reduction in water quality (nutrients);
- water abstraction;
- increased risk of invasive plant species entering the watercourse;
- increased risk of siltation entering the watercourse; and,
- inappropriate weirs, dams and other structures.

9.7.13. Lockington Marshes SSSI is located approximately 1km from the closest part of the EMG2 Project (the Highways Works component). The Lockington Marshes are located within the Hemington Brook Catchment (Soar Management Catchment). The EMG2 Works also sit within Soar Management Catchment.

9.7.14. The EMG2 Works to the north of Hyam's Lane drains predominantly into the Hall Brook, which flows west and south to join the Diseworth Brook in the village of Diseworth. Land to the south of Hyam's Lane drains toward a minor watercourse in the southeast corner, which enters the Diseworth Brook via a culverted connection beneath the A42. Potential indirect temporary, reversable adverse effects are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

9.7.15. The existing highways within the Order Limits (including the A453, M1 J24, and A50 links) are drained via the Strategic Road Network drainage system, which outfalls to the Hemington Brook, Lockington Brook, and a minor tributary of the River Soar. The proposed Highways Works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level.

9.7.16. The confluence of the above mentioned waterbodies is approximately 30m downstream of The Lockington Marshes SSSI where it feeds into the River Soar. Any hydrological link for

aquatic pollution would therefore be limited to potential flood events large enough to extend back upstream into the SSSI from the river Soar. Due to the significant distance and dilution effects from the upstream catchment area of 1370km^2, any effects on the SSSI are considered negligible.

9.7.17. Both the Lockington Marshes and the MCO Scheme are located within the Hemington Brook Catchment (Soar Management Catchment). With the exception of the development of Plot 16, the proposed works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level and any effects on the SSSI are considered negligible.

9.7.18. Attenborough Gravel Pits SSSI is located approximately 5.5km from the DCO Scheme at its closest point, and is approximately 4.8km further downstream of the Lockington Marshes SSSI discussed above. The Attenborough Gravel Pits are located within the Trent Lower and Erewash Management Catchment, downstream of the confluence between the River Trent and the Soar Management Catchment in which the DCO Scheme sits. As such there is a hydrological link, however as detailed above, the potential dilution from the upstream catchment any potential effects on the SSSI are considered negligible.

9.7.19. Oakley woods SSSI is predicted to be exposed to an increase in the Process Contribution (PC) from airborne pollutants exceeding 1% of critical levels. Specifically, a maximum annual mean increase above 1% NH_3 PC (Table 8H.63 & Table 8H.88 in **Appendix 8H**, (**Document DCO 6.8H**) up to c.0-2m from the start of the modelled transect (taken from the edge of the designated feature). Levels are anticipated to reach 4.12 µg m^{-3} which exceed the critical loads for higher plants (3 µg m^{-3})[lx].

9.7.20. Oakley Wood SSSI is recorded to be unfavourable condition (recovering) with ash dieback and acute oak decline recorded. Both these diseases may be exacerbated by stress from air pollution. The SSSI citation and features listing do not include lichens or bryophytes, and so while these assemblages may be affected by predicted changes, they do not form the basis of the SSSI notification. Increased nitrogen levels can also lead to a greater abundance of nitrogen tolerant plant species at the expense of other woodland floral species, and can have knock on effects on invertebrate assemblages. The woodland sits over 15m from the M1 carriageway at its closest point and is buffered by an established woodland belt (c.=/>10m) along the M1 motorway verges. The modelled effect does not account for established trees, which act as a physical barrier and absorb pollutants, and so the ultimate spread and levels of pollutants can reasonably be expected to be lower than those reported above. Given the limited spatial extent of significant reductions in air quality (up to 2m), and the expected buffering effect of the existing woodland belt, it is considered unlikely that the predicted decrease in air quality would not result in a detectable alteration to the overall woodland composition and condition, and so the potential impacts are considered negligible.

9.7.21. Breedon Cloud Wood and Quarry SSSI is predicted to be exposed to increased Process Contribution (PC) of airborne pollutants exceeding 1% of critical levels. Specifically, a

maximum annual mean increase above 1% PC acid deposition (Table 8H.79 & Table 8H.104 in **Appendix 8H** (**Document DCO 6.8H**) up to c.30-40m from the start of the modelled transect. The peak predicted level is 2.21 kgN/ha/yr which falls within the critical levels (MaxCLminN 2.731kgN/ha/yr) and so the potential impacts are considered negligible.

Non-statutory sites

9.7.22. Pond P3 which is the on-site potential-historic LWS (11975) within the EMG2 Works area is to be retained along with the majority of surrounding vegetation. Based on the phase 1 survey data, this pond did not meet the requirements to be selected as a LWS published in Leicester, Leicestershire and Rutland Guidance. To the north, earthworks will create a plateau for a HGV parking, with the EMG2 Main Site spine road also running to the north-west. A footpath/cycle way passing in proximity to the south of the pond, connecting Hyam's Lane to the bus terminal and wider pedestrian/cycle network. There is a potential direct adverse impact from vehicle tracking and material storage outside the construction footprint. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of degradation to the quality of the pond which constitutes a moderate magnitude of adverse impact.

9.7.23. The Donington Park Services Ash Trees (92034) candidate LWS, form part of hedgerow H6, and are referred to as trees T4 and T5. The arboricultural assessment as detailed in the Tree Schedule (FPCR 2022) **Appendix 9J** (**Document DCO 6.9J**) lists these trees as being of low quality with an estimated remaining life expectancy of at least 10 years. This boundary habitat to the adjoining service station is to be retained. Earthworks to the south will ultimately form part of the green infrastructure which will also include the provision of a new footpath. Beyond this will be new commercial buildings with associated infrastructure. There is a potential direct adverse impact from vehicle tracking and material storage outside the construction footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage of the trees which constitutes a moderate magnitude of adverse impact.

9.7.24. The Donington Park Services Grassland and Scrub (92033) candidate LWS is listed as an area of mesotrophic grassland (5ha) and scrub (2.5ha), meeting LWS criteria for grassland and offering suitability for leaf mines and galls. A ground-mounted solar farm (Application Reference. 23/01712/FULM) has been approved which will extend across much of this sit, with central areas of woodland and scrub habitat are to be cleared in favour of expansion of grassland habitat. Boundary corridors of trees and scrub are to be maintained at the eastern, western and southern boundaries. The earthworks required for the EMG2 Main Site to the immediate west and south will ultimately form part of the green infrastructure which will also include the provision of a new footpath. Beyond this will be new commercial buildings with associated infrastructure. There is a potential direct adverse impact from vehicle tracking and material storage outside the construction footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage to the condition of the periphery habitat which constitutes a low magnitude of adverse impact.

9.7.25. The Paddock (11965) potential-historic LWS is found approximately 50m south-west of the EMG2 Works on the far side of Long Holden. Defra's Priority Habitats Inventory (England) lists the area as mainly traditional orchard, with some deciduous woodland. No recent survey data was available, however from aerial imagery the site appears to be a largely managed grassland area. Given the separation, direct impacts are considered unlikely, however indirect temporary impacts include dust and littering arising from construction activities. In the absence of mitigation, there is a risk of a temporary, short-term change in the quality or vulnerability of the site which constitutes a negligible magnitude of adverse impact.

9.7.26. Lockington (EMG) Oak 143 candidate LWS (90888) is recorded as a mature oak of 1370mm DBH in poor condition. The tree sits within a hedgerow that bounds the A50 and would be retained within the A50 West Bound Merge component of the Highway Works. There is a potential direct adverse impact from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage of the trees which constitutes a moderate magnitude of adverse impact.

9.7.27. Lockington Park potential-historic LWS (11952) is found approximately 20m north of the EMG1 Works and approximately 40m west of the A50 West Bound Merge component of the Highway Works. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and is partially recorded as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. Given the separation, direct impacts are considered unlikely, however indirect temporary impacts include dust and littering arising from construction activities. In the absence of mitigation, there is a risk of a temporary, short-term change in the quality or vulnerability of the site which constitutes a negligible magnitude of adverse impact.

9.7.28. King Street Plantation potential-historic LWS (11950) is located adjacent to the EMG1 Works**,** within the existing EMG1 development. It is listed as woodland last surveyed approximately between 1980 and 1990 and as an area as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. There is a potential direct adverse impact from vehicle tracking and material storage outside in proximity to the trees resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated runoff and chemical spills, as well as dust and littering arising from construction activities. In the absence of mitigation, there is a risk of damage of the trees, the watercourse and ponds which constitutes a moderate magnitude of adverse impact.

Semi-natural Habitats

9.7.29. Semi-natural habitats of significant nature conservation value are rare within the EMG2 Project due to the past predominance of intensive agriculture, and existing highways.

9.7.30. The vast majority of the built development within the DCO Application is associated with the EMG2 Works and will occur on former arable or species-poor grassland of negligible nature conservation value. The Highway Works are primarily on land that has previously been developed or subject to clearance.

9.7.31. The MCO Scheme is primarily on land that has previously been developed or subject to clearance.

9.7.32. In the context of the EMG2 Project, the following habitats were considered of below local importance and have not been considered further:

- Mixed Scrub
- Other neutral grassland
- Modified Grassland
- Bare ground
- Derelict land
- Artificial Unvegetated-Unsealed Surface
- Cereal crops
- SuDS
- Tall forbs
- Ephemeral
- Ditches

9.7.33. Construction phase effects from the EMG2 Project on habitats with at least a local level of sensitivity are summarised and discussed in **Table 9.29**.

Table 9.29: Potential construction effects on habitats (EMG2 Project)

Habitat Type	Sensitivity	Evaluation
Individual Trees (excluding veterans)	Local importance (Low)	The biodiversity net gain provision will require compensatory tree planting. A mixture of new individual tree planting and orchard planting will compensate for losses in terms of biodiversity units. However, there will be a delay in equivalent provision as new planting establishes. As such losses to the overall tree resource are considered a temporary adverse effect in the medium-term, and reversable in the long-term. In the absence of mitigation, there is a risk of damage and/or loss of retained trees which constitutes a moderate magnitude of adverse impact.
Veteran Trees	Local importance (Low)	In the absence of mitigation, there is a partial loss of veteran tree resources and a risk of damage/loss of retained trees which constitutes a moderate magnitude of adverse impact to the DCO Application veteran tree resource.
Broadleaved woodland	Local importance (Low)	The biodiversity net gain provision will require compensatory woodland planting. However, there will be a delay in equivalent provision as new planting establishes. As such losses to the overall tree resource

Habitat Type	Sensitivity	Evaluation
		are considered a temporary adverse effect in the medium-term, and reversable in the long-term. In the absence of mitigation, there is a risk of damage to woodlands which constitutes a low magnitude of adverse impact.
Ponds (excluding pond P3).	Local importance (Low)	The biodiversity net gain provision will require compensatory pond creation. However, there will be a delay in equivalent provision as new planting establishes. As such losses to the overall pond resource are considered a temporary adverse effect in the short-term, and reversable in the long-term. In the absence of mitigation, this constitutes a moderate magnitude of adverse impact to the EMG2 Project wide pond resource.
Hedgerows	Local importance (Low)	The biodiversity net gain provision will require compensatory hedgerow planting. However, there will be a delay in equivalent provision as new planting establishes. As such losses to the overall hedgerow resource are considered a temporary adverse effect in the short-term, and reversable in the long-term. In the absence of mitigation, this constitutes a moderate magnitude of adverse impact.
Diseworth brook tributary	Local importance (low)	In the absence of mitigation, this constitutes a low magnitude of adverse impact to the Diseworth brook tributary.

Construction Phase - Species Level

9.7.34. Construction phase effects on species with at least a local level of sensitivity from the EMG2 Project are summarised and discussed in have been discussed in **Table 9.30** below.

Table 9.30: Potential construction effects on species (EMG2 Project)

Species	Sensitivity	Evaluation
Amphibians (including GCN)	Local importance	In the absence of mitigation, there is a risk of habitat loss and degradation, combined with direct harm to amphibians. Impacts to the amphibian populations are considered a temporary adverse effect in the short-term, and reversable in the long-term. The effects are at a scale unlikely to affect the overall FCS of the wider population of GCN. Given the degree of embedded mitigation identified, the cumulative effects discussed above constitute a low magnitude of adverse impact.
Bats	Local importance	In the absence of mitigation, the magnitude of habitat loss is unlikely to significantly impact the favourable conservation status (FCS) of local bat populations. The cumulative effects of partial loss of roosting and foraging

Species	Sensitivity	Evaluation
		resources and the potential for disturbance constitutes a moderate magnitude of adverse impact.
Birds	Local importance	The displacement of farmland assemblages including; skylark and yellow wagtails, relies on the potential carrying capacity of surrounding habitats, which without detailed survey effort can only be surmised. While arable land is widespread in the local area, the existing population levels and quality of foraging and breeding habitat is unknown. In the absence of mitigation, the loss of foraging and breeding habitat for skylark and yellow wagtail constitutes a moderate magnitude of adverse impact. Considering the wider bird assemblages, the development is unlikely to lead to a significant reduction in the overall local species richness. In the absence of mitigation, the temporary loss of foraging resources and potential for disturbance constitutes a low magnitude of adverse impact.
Invertebrates	Local importance	In the absence of mitigation, the loss of habitat and potential for degradation to retained habitats constitutes a moderate magnitude of adverse impact.
Otter	Local importance	In the absence of mitigation, there is a risk of habitat loss and degradation, combined with direct harm to otters. Impacts are considered a temporary adverse effect in the short-term, and reversable in the long-term. The effects are at a scale unlikely to affect the overall FCS of the wider population of otter. Given the degree of embedded mitigation identified, the cumulative effects discussed above constitute a low magnitude of adverse impact.
Plants	Local importance	In the absence of mitigation the combined effects are unlikely to lead to a significant reduction in the local population, although a temporary, reversible loss to the on-site populations is expected. The temporary loss of habitats and botanical interest constitutes a low magnitude of adverse impact, with a long-term beneficial effect as a result of new habitat creation.
Other species: black rat, brown hare, hedgehog and polecat.	Local importance	Given the local records of these species, habitat losses may have a temporary impact on populations of these species prior to the green infrastructure establishing. The habitats on Site are characteristic of the area with comparable habitats adjoining and surrounding the EMG2 Project in the wider landscape. Impacts to retained habitats include the potential for direct, irreversible, permanent adverse effects from vehicle tracking and material storage outside the works footprint resulting in soil compaction and accidental damage. Indirect temporary adverse impacts are considered to include contaminated run off and chemical spills, as well as dust and littering arising from construction activities.

Species	Sensitivity	Evaluation
		There is a risk of direct harm and disturbance resulting from construction activity. Impacts are considered a temporary adverse effect in the short-term, and reversable in the long-term. In the absence of mitigation, the above effects constitute a low magnitude of adverse impact.

Operational Impacts

9.7.35. On completion of the EMG2 Project, the following operations will occur which will potentially affect designated sites, habitats and species as set out below:

- Use of proposed buildings and infrastructure by personnel;
- Increased traffic; and
- Recreational use of the surrounding area.

Statutory Designated Sites

9.7.36. The River Mease SAC is located approximately 13.5km from the EMG2 Project at its closest point. An assessment of potential impact pathways is provided in **Appendix 9H** (**Document DCO 6.9H/MCO 6.9H**). No significant direct or indirect effects are anticipated due to the distance from DCO Scheme and the lack of potential impact pathways.

9.7.37. Lockington Marshes SSSI is located approximately 1km from the closest part of the EMG2 Project (the Highways Works component), with the EMG2 Works being over 4km away. The Lockington Marshes are located within the Hemington Brook Catchment (Soar Management Catchment). The EMG2 Works also sit within Soar Management Catchment.

9.7.38. Post development surface water from the EMG2 Works will be managed through a series of SuDS basins, swales and below ground attenuation tanks, attenuating flows and discharging under controlled conditions into the A42 culvert system, bypassing the village of Diseworth, and onward to the Diseworth Brook and Long Whatton Brook. The "Long Whatton Brook Catchment (trib of Soar) Water Body" is identified to have a "poor status". This is partially due to diffuse pollution from agriculture and rural land management, which the development will reduce. It is noted that transport drainage is also a contributing factor to the poor status of the water body, this is likely associated with historical infrastructure that was built before water quality was given sufficient consideration. The proposed development at the EMG2 Works will include SuDS designed in accordance with the latest CIRIA SuDS manual and water treatment index to ensure that water quality as well as the water quantity leaving the EMG2 Works is given appropriate consideration. Therefore, this is expected to represent a minor improvement over the current conditions. The maximum discharge rate from the development has been limited to greenfield rates based on the existing natural catchment to the south of Hyam's Lane; thus providing a betterment to the maximum rate of discharge into Diseworth Brook.

9.7.39. The confluence of the above mentioned waterbodies is approximately 30m downstream of the Lockington Marshes SSSI where it feeds into the River Soar. Any hydrological link for

aquatic pollution would therefore be limited to potential flood events large enough to extend back upstream into the SSSI from the River Soar. Due to the embedded SuDS design, significant distance and dilution effects from the upstream catchment area of 1370km^2, any effects on the SSSI are considered negligible.

9.7.40. The existing highways within the Order Limits (including the A453, M1 J24, and A50 links) are drained via the Strategic Road Network drainage system, which outfalls to the Hemington Brook, Lockington Brook, and a minor tributary of the River Soar. The proposed Highways works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level.

9.7.41. Lockington Marshes SSSI is located just over 2km from the closest part of the MCO Scheme**.** Both the Lockington Marshes and the MCO Scheme are located within the Hemington Brook Catchment (Soar Management Catchment). With the exception of the development of Plot 16, the proposed works are largely associated with improvements to existing highways, junctions, rail freight terminal and footpaths, rather than entirely new infrastructure. Therefore, the principle of their location has already been established. Any new impermeable surfacing that is required will be directed to the existing drainage infrastructure and SuDS that will be enhanced with additional capacity where required, or into new drainage infrastructure and SuDS that will be designed to manage the quantity and quality of the surface water runoff to an appropriate level and any effects on the SSSI are considered negligible.

9.7.42. The potential for air quality impacts has been discounted as there are no affected highways within 700m. Any impacts the Lockington Marshes SSSI are considered negligible.

9.7.43. Attenborough Gravel Pits SSSI is located approximately 5.5km from the EMG2 Project at its closest point and is approximately 4.8km further downstream of the Lockington Marshes SSSI discussed above. The Attenborough Gravel Pits are located within the Trent Lower and Erewash Management Catchment, downstream of the confluence between the River Trent and the Soar Management Catchment in which the EMG2 Project sits. As such there is hydrological link, however as detailed above, the potential dilution from the upstream catchment any potential effects on the SSSI are considered negligible. This site lies beyond the extent of the strategic transport model, and so it is deemed any air quality impacts could reasonably be discounted as negligible. Any impacts the Attenborough Gravel Pits SSSI are considered negligible.

9.7.44. Oakley Woods SSSI is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically:

- There is a maximum annual mean increase above 1% NOx PC (Table 8H.1 & Table 8H.31 in **Appendix 8H, (Document DCO 6.8H)**) up to c.10-20m from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded up to c.5-10m, with levels at and beyond 10m predicted to be within the critical load.

- There is a maximum annual mean increase above 1% NH_3 PC (Table 8H.3 & Table 8H.33 in **Appendix 8H (Document DCO 6.8H)**) up to c.180-190m from the start of the modelled transect. Levels are anticipated to exceed the critical loads for higher plants (3 µg m-3) at up to 30m.
- There is a maximum annual mean increase above 1% acid deposition PC (Table 8H.4 & Table 8H.34 in **Appendix 8H (Document DCO 6.8H)**), for c.50-60m from the start of the modelled transect. The peak predicted level is 2.39kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 2.731kgN/ha/yr), and so the potential impacts are considered negligible.
- There is a maximum annual mean increase above 1% nitrogen deposition PC (Table 8H.5 & Table 8H.35 in **Appendix 8H (Document DCO 6.8H)**) for 90-100m from the start of the modelled transect. Background levels of nitrogen deposition already exceed the critical load (15-20kg N/ha/yr), and so the significant process contribution above the critical load covers the full and 90-100m zone identified above.

9.7.45. Oakley Wood SSSI is recorded to be unfavourable condition (recovering) with ash dieback and acute oak decline recorded. Both these diseases can be exacerbated by stress from air pollution. The SSSI citation and features listing do not include lichens or bryophytes, and so while these assemblages may be affected by predicted changes, they do not form the basis of the SSSI notification. Increased nitrogen levels can also lead to a greater abundance of nitrogen tolerant plant species at the expense of other woodland floral species, and can have knock on effects on invertebrate assemblages. The woodland sits over 15m from the M1 carriageway at its closest point and is buffered by an established woodland belt (c.=/>10m) along the M1 motorway verges. The model of air pollution spread does not account for established trees which act as a physical barrier and absorb pollutants, and so the ultimate spread and levels of pollutants can reasonably be expected to be lower than those reported above.

9.7.46. Given the limited spatial extent of significant reductions in air quality from NOx (up to 10m into the SSSI), and the expected buffering effect of the existing woodland belt, it is considered unlikely that the predicted decrease in air quality would result in a detectable alteration to the overall woodland composition and condition, and so the potential impacts are considered negligible.

9.7.47. Considering NH_3,the critical loads are exceeded for higher plants at up to 30m into the SSSI (1.7% SSSI extent). Given the limited spatial extent of significant reductions in air quality in relation to higher plants, which are likely to be further reduced by both the buffering effect of the existing woodland belt, and the dampening effect that woodland itself has on air pollutant spread, it is considered that the impact would not affect the condition of the SSSI features, or their future management and so the potential impacts are considered negligible.

9.7.48. Nitrogen deposition is shown to have significant increases above the critical load at up to 100m into the SSSI (c.6.6% SSSI extent). This change could exacerbate existing deleterious effects within this zone, resulting in minor detrimental alteration to the woodland condition and ground flora composition, and impacting on the effectiveness of future management. The buffering effect of the existing woodland belt along the motorway and the expected dampening effect that woodland itself has on air pollutant spread can reasonably be expected to provide some degree of amelioration. Given the spatial coverage of the SSSI,

there could be a minor measurable adverse change in the attributes, quality and vulnerability of the woodland which constitutes a low magnitude of adverse impact, which is expected to be reversible in the long-term as vehicles transition to cleaner fuels.

9.7.49. Lount Meadows SSSI is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.11 & Table 8H.41 in **Appendix 8H, (Document DCO 6.8H)**) up to c.100-110m from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded up to c.10-20m.
- A maximum annual mean increase above 1% NH_3 PC (Table 8H.13 & Table 8H.43 in **Appendix 8H, (Document DCO 6.8H)**) up to c.10-20m from the start of the modelled transect. Levels are anticipated to exceed the critical loads for higher plants (3 µg m-3) at up to 2m.
- Nitrogen deposition (Table 8H.15 & Table 8H.45 in **Appendix 8H (Document DCO 6.8H)**) exceeds the 1% PC for c.50-60m from the start of the modelled transect respectively. Background levels of nitrogen deposition already exceed the critical load (10-20kg N/ha/yr), and so the significant process contribution above the critical load covers the full and 50-60m zone identified above.

9.7.50. Lount meadows SSSI is recorded to be unfavourable condition with undergrazing listed as the sole pressure, however the description of individual site units also list overgrazing as in issue in the southern extent of the site. Impacts on grasslands from reductions in air quality resulting in nitrogen deposition (including ammonia), can alter species compositions and reduce overall species richness. Lount meadows SSSI extends to within 20m of the A42 carriageway at its closest point. The A42 is buffered by a woodland belt (c.15m wide) along the length in proximity to Lount meadows, which, as set out above, will serve to reduce the ultimate spread and levels of pollutants, thus significant changes to air quality at Lount meadows are considered to be limited to the eastern extent.

9.7.51. Given the limited spatial extent of significant reductions in air quality from NOx (up to 20m into the SSSI), and NH_3 (up to 2m into the SSSI), and the expected buffering effect of the existing woodland belt, it is considered unlikely that the predicted decrease in air quality would result in a detectable alteration to the grassland composition and condition, and so the potential impacts are considered negligible.

9.7.52. Nitrogen deposition is shown to have significant increases above the critical load at up to 60m (c.8.7% SSSI extent). The predicted decrease in air quality could exacerbate existing deleterious effects within this zone. Within a managed grassland context, nitrogen deposition from air pollution interacts with grazing and mowing regimes which can serve to reduce nutrient levels. Under-grazing is listed as a current management issue which will exacerbate effects of nutrient enrichment promoting productive grasses. Natural England are seeking positive management of this SSSI, which must ultimately account for levels of nutrient deposition, and so management will have a significant role in determining ultimate nutrient loads. The identified nitrogen deposition from air pollution is unlikely to impact the success of any such future management. However, there is a risk that the changes in air quality, could impact the vulnerability of the SSSI to some detrimental changes. There will be some

reduction in the spatial scale of impact as a result of the buffering effect from the existing woodland belt. It is therefore considered that there remains the possibility of minor measurable adverse change in the attributes, quality and vulnerability of the grassland which constitutes a low magnitude of adverse impact, which is expected to be reversible in the long-term as vehicles transition to cleaner fuels.

9.7.53. Traffic increases along the boundary roads of Breedon Cloud Wood and Quarry SSSI are below the significant levels (>1000AADT) which would trigger an air quality assessment. However, the road northwards from the junction (located at the north-east corner of the SSSI) of these two lanes (Top Brand with Stocking Lane) is predicted to have an AADT of 1082 and therefore triggers the requirement for assessment.

9.7.54. An air quality transect from the junction identified Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- An annual mean increase above 1% NOx PC (Table 8H.16 & Table 8H.46 in **Appendix 8H, (Document DCO 6.8H)**) up to c.30-40m from the start of the modelled transect. The peak predicted level is 17.51 µg/m3, which falls below the critical level (30µg/m^3), and so the potential impacts are considered negligible.
- An annual mean increase above 1% NH_3 PC (Table 8H.18 & Table 8H.48 in **Appendix 8H, (Document DCO 6.8H)**) up to c.50-60m from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg m-3), and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.19 & Table 8H.49 in **Appendix 8H (Document DCO 6.8H**)), exceed the 1% PC critical load threshold for c.110-120m. The peak predicted level is 2.21kgN/ha/yr which falls within the acceptable critical acceptable critical levels (MaxCLminN 2.731kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.20 & Table 8H.50 in **Appendix 8H (Document DCO 6.8H)**) exceed the 1% PC critical load threshold for c.30-40m from the start of the modelled transect respectively. Background levels already exceed the critical load (15-20kg N/ha/yr), and so the significant process contribution above the critical load for this group covers the full 30-40m zone identified above.

9.7.55. Breedon Cloud Wood and Quarry SSSI is recorded to be predominantly in favourable condition with the exception an area of spoil heap that does not yet support and is woodland listed as unfavourable but recovering. Management is listed as the sole potential pressure, however the woodland is currently recorded as well-managed. Increased air pollutants may increase the sensitivity of trees to biotic and abiotic stress, ultimately impacting tree health, as well as potentially reducing species diversity of ground flora and epiphytes. The SSSI citation and features listing do not include lichens or bryophytes, and so while these assemblages may be affected by predicted changes, they do not form the basis of the SSSI notification.

9.7.56. Nutrient nitrogen deposition already exceeds stated thresholds and so further increases have potential exacerbate existing effects up to 40m into the SSSI (c.0.28% of the total SSSI area). The road junction (Top Brand and Stockings Lane) where the modelled transact commences, lies immediately adjacent to the Breedon Cloud Wood, and so there is a lack

of spatial separation and buffering from the source of pollutants. The woodland itself will, to some extent, ameliorate the impacts by dampening the spread of pollutants resulting in any impacts being greatest at woodland edge habitats adjacent to existing carriageways. While there is a risk to the condition of part woodland identified above, the very minor spatial scale of detrimental alteration, means that consequently any impact is considered negligible.

Non-statutory sites

9.7.57. Pond P3 which is within the EMG2 Works and is a potential-historic LWS (11975) is to be the retained along with the majority of surrounding vegetation. Based on the phase 1 survey data, this pond did not meet the requirements to be selected as a LWS published in Leicester, Leicestershire and Rutland Guidance. To the north, there will be HGV parking, with an access road running to the north-west. A footpath/cycle way will pass in proximity to the south of the pond, connecting Hyam's Lane to the bus terminal and wider pedestrian/cycle network. Given the sites existing proximity to intensely managed arable land and the Donington Park services, the current adjacent footpath and the existing evidence of fly-tipping within the surrounding habitats, the increased pedestrian/cyclist traffic along formally managed routes is expected to lead to, at most, a low magnitude of adverse impact. The proximity to the HGV parking also carries a risk of contaminated surface water runoff and chemical spills. In the absence of mitigation, there is a risk of temporary degradation to the quality of the pond which constitutes a low magnitude of adverse impact.

9.7.58. The Donington Park Services Ash Trees (92034) candidate LWS, form part of hedgerow H6, and are referred to as trees T4 and T5. A new footpath will run adjacent to hedge H6. The footpath follows the EMG2 Main Site boundary and will not provide the most direct route for pedestrian commuters traveling to various parts of the proposed development. Its use is therefor likely to be primarily recreational, with users from the proposed development and local area. Increased pedestrian traffic passing in proximity to these trees can cause an increase in littering and potential disturbance to wildlife using the site. Given the sites existing proximity to intensely managed arable land and the Donington Park services, any impacts from the increased pedestrian/cyclist traffic along formally managed routes are considered negligible.

9.7.59. The area of Donington Park Services Grassland and Scrub (92033) candidate LWS - (92034) adjacent to the EMG2 Main Site is approved to be utilised as a ground mounted solar farm (Application Reference. 23/01712/FULM). A new footpath will follow the EMG2 Main Site boundary and will not provide the most direct route for pedestrian commuters traveling to various parts of the proposed development. Its use is therefore likely to be primarily recreational, with users from the proposed development and local area. Increased pedestrian traffic passing in proximity to the CLWS can cause an increase in littering and potential disturbance to wildlife on the periphery of the site. Given the sites existing proximity to intensely managed arable land, the Donnington Park services, and expected future management as a solar farm, any impacts from the increased pedestrian/cyclist traffic along formally managed routes are considered negligible.

9.7.60. Castle Donington, Charnock Hill Grassland potential-historic LWS (11840) sits just south of the A453. This road will serve as the main access to the proposed development site and is expected that there will be a measurable increase in traffic as a result of the development. The A453 currently serves as the access route for East Midlands Airport and so there is a

significant existing level of disturbance from traffic in terms of noise. The site is not considered to be vulnerable to impacts on air quality, nor is there expected to be increased public access. As such, any operations effects are considered negligible.

9.7.61. Lockington (EMG) Oak 143 candidate LWS (90888) is recorded as a mature oak of 1370mm DBH in poor condition. The tree sits within a hedgerow that bounds the A50 and would be retained within the A50 West Bound Merge component of the Highway Works. There is a potential adverse impact from decreased air quality as a result of increased traffic, which could impact the trees health. Given that the existing level of traffic the additional impact would not be considered significant.

9.7.62. Lockington Park potential-historic LWS (11952) is found approximately 20m north of the Plot 16 and 40m west of the A50 element of the Highway Works. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and is partially recorded as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. Adverse impacts from decreased air quality as a result of increased traffic can arise on some woodland types, particularly where they are known to support sensitive features, such as important lower plant communities. However, given the nature of the woodland and its location close to existing roads, sensitive features are unlikely to be present and, as a result, any potential effect arising from a decrease in air quality would be of negligible significance.

9.7.63. King Street Plantation potential-historic LWS (11950) is located adjacent to Plot 16. It is listed as woodland last surveyed approximately sometime between 1980 and 1990 and as an area as deciduous woodland on Defra's Priority Habitats Inventory (England) lists. There is a likelihood of increase numbers of pedestrians in proximity to this site. Increased pedestrian traffic passing in proximity to these trees can cause an increase in littering and potential disturbance to wildlife using the site. Given the sites existing proximity to already built elements of the EMG1 scheme, the combined effects identified are considered a negligible impact. The provision of new woodland and scrub planting connecting the plantation to wider offsite woodland has the potential to provide long term benefits, opening up pathways for usage by a range of faunal species, and supporting colonisation and successional opportunities for botanical assemblages. The increased habitat connectivity is thought to represent a low magnitude beneficial impact in the long term as habitats establish.

Other Sites

9.7.64. Based on the current strategic transport model, Tonge Gorse Ancient & Semi Natural Woodland was identified to be within proximity of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) on highways and was scoped into the air quality assessment for further scrutiny.

9.7.65. Tonge Gorse Ancient & Semi Natural Woodland was modelled from two separate transects relating to the northern and southern compartments which are separated by Gelscoe Lane.

9.7.66. The northern parcel is predicted to be exposed to an increased Process Contribution (PC) of airborne pollutants exceeding 1% of critical levels. The northern modelled transect is limited to 60m as this encompasses the whole woodland parcel. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.6 & Table 8H.36 in **Appendix 8H (Document DCO 6.8H)**) to the 60m maximum from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded for up to c.30-40m into the woodland.
- A maximum annual mean increase above 1% NH_3 PC (Table 8H.8 & Table 8H.38 in **Appendix 8H, (Document DCO 6.8H)**) to the 60m maximum from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg m-3) and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.9 & Table 8H.39 in **Appendix 8H (Document DCO 6.8H)**) exceeds the 1% PC critical load threshold to the 60m maximum from the start of the modelled transect. The peak predicted level is 2.37 kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 4.928kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.10 & Table 8H.40 in **Appendix 8H (Document DCO 6.8H)**) exceeds the 1% PC critical load threshold to the 60m maximum from the start of the modelled transect. Background levels already exceed the critical load (10kg N/ha/yr) and so the significant process contribution above the critical load for this group covers the full 60m zone of woodland identified above.

9.7.67. The southern parcel is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.6 & Table 8H.36 in **Appendix 8H, (Document DCO 6.8H)**) up to c.100-110m from the start of the modelled transect. The peak predicted level is 24.61 µg/m3, which falls below the critical level (30µg/m^3), and so the potential impacts are considered negligible.
- A maximum annual mean increase above 1% NH_3 PC (Table 8H.8 & Table 8H.38 in **Appendix 8H, Document DCO 6.8H)**) up to c.130-140m from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg m-3), and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.9 & Table 8H.39 in **Appendix 8H (Document DCO 6.8H)**), exceeds the 1% PC critical load threshold up to c.170-180m. The peak predicted level is 2.25 kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 4.928kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.10 & Table 8H.40 in **Appendix 8H (Document DCO 6.8H)**) exceed the 1% PC critical load threshold up to c c.150-160m from the start of the modelled transect. Background levels already exceed the critical load (10kg N/ha/yr) and so the significant process contribution above the critical load covers the full 150-160m zone of woodland identified above.

9.7.68. Tonge Gorse Ancient & Semi Natural Woodland is listed within the Ancient Woodland inventory published by Natural England. No information regarding its current condition is held in association with this listing. Increased air pollutants can increase the sensitivity of trees to biotic and abiotic stress, ultimately negatively impacting tree health, as well as reducing species diversity of ground flora and epiphytes. In the UK lichen and bryophyte

distribution is focussed in Atlantic regions, which have high rainfall and humidity. For EIA purposes, the assemblages with the East Midlands in small open woodlands is likely to represent at most local importance and impacts any potential effects of air quality reductions are not considered to be significant. The road network (A42, Gelscoe Road and unnamed road) where the modelled transacts commence, lie immediately adjacent to the woodland, and so there is a lack of spatial separation or buffering from the source of pollutants. The woodland itself will, to some extent, dampen the spread of pollutants, resulting in any impacts being greatest at woodland edge habitats adjacent to existing carriageways.

9.7.69. The levels of air pollution reported at Tonge Gorse Ancient & Semi Natural Woodland are greatest in the northern parcel closest to the A42. Nitrogen oxides are predicted to exceed critical loads in the northern area to 30-40m (c.11.30 % designation extent), and will remain within critical loads in the southern parcel. Nitrogen deposition exceeds critical levels across the whole of the northern parcel, and up to 150-160m into the southern parcel (c.70.62% designation extent). These changes have the potential to exacerbate existing air quality impacts. In the absence of mitigation, there is a risk of damage to the condition of some areas of habitat within the woodland which constitutes a low magnitude of adverse impact.

9.7.70. Based on the current strategic transport model, March Covert Ancient Woodland was identified to be within proximity of highways with increases of more than 1000 Annual Average Daily Traffic (AADT) and/or 200 Heavy Duty Vehicle (HDV) on highways and was scoped into the air quality assessment for further scrutiny. March Covert Ancient Woodland is predicted to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically,

- A maximum annual mean increase above 1% NOx PC (Table 8H.21 & Table 8H.51 in **Appendix 8H, (Document DCO 6.8H)**) up to c.20-30m from the start of the modelled transect. The critical load (30µg/m^3) is predicted to be exceeded for up to c.20-30m into the woodland (c.5.41% designation extent).
- A maximum annual mean increase above 1% NH3 PC (Table 8H.23 & Table 8H.53 in **Appendix 8H, (Document DCO 6.8H)** up to c.20-30m from the start of the modelled transect. Levels are not anticipated to exceed the critical loads for higher plants (3 µg/m^3), and so the potential impacts are considered negligible.
- Predicted acid deposition (Table 8H.24 & Table 8H.54 in Appendix 8H (Document DCO 6.8H)), exceeds the 1% PC critical load threshold up to c.40-50m from the start of the modelled transect. The peak predicted level is 2.39 kgN/ha/yr which falls within the acceptable critical levels (MaxCLminN 4.928kgN/ha/yr), and so the potential impacts are considered negligible.
- Predicted nitrogen deposition (Table 8H.25 & Table 8H.55 in Appendix 8H (Document DCO 6.8H)) also both exceed the 1% critical load threshold up to c.30-40m from the start of the modelled transect. Background levels already exceed the critical load (10kg N/ha/yr) and so the significant process contribution above the critical load for this group covers the full 30-40m zone of woodland identified above (c.8.30% designation extent).

9.7.71. March Covert is listed as an area of ancient woodland on the Natural England managed Ancient Woodland inventory. The site is utilised by a commercial paintball provider, with a broad range of photographic imagery and videos publicly available. A review of these

materials gives an indication of the degree that human activity has impacted the naturalness of the woodland. Ground flora and shrub layers appear to have been particularly impacted and it is considered that March Covert is in poor condition. Increased air pollutants can increase the sensitivity of trees to biotic and abiotic stress, ultimately negatively impacting tree health, as well as reducing species diversity of ground flora and epiphytes. In the UK lichen and bryophyte distribution is focussed in Atlantic regions, which have high rainfall and humidity. For EIA purposes, the assemblages with the East Midlands in small open woodlands is likely to represent at most local importance and impacts any potential effects of air quality reductions are not considered to be significant. The road network (A453) where the modelled transact commences, lies immediately adjacent to the woodland, and so there is a lack of spatial separation or buffering from the source of pollutants. The woodland itself will, to some extent, dampen the spread of pollutants, resulting in any impacts being greatest at woodland edge habitats adjacent to existing carriageways.

9.7.72. While there is a risk to the condition of a part of woodland identified above, the restricted spatial scale of this is considered to class as a very minor detrimental alteration, and any impact is therefore considered negligible.

9.7.73. The remaining local sites are considered to be adequately removed from the EMG2 Project so that any detrimental effect would be only constitute a negligible magnitude of impact.

Semi-natural Habitats

9.7.74. Operational phase effects on habitats with at least a local level of sensitivity from the EMG2 Project are summarised and discussed in **Table 9.31** below**.**

9.7.75. The new green infrastructure will create a larger and more diverse extent of semi-natural habitats than currently present at the EMG2 Project, leading to an overall increase in biodiversity (see **Appendix 9I** for full details of the biodiversity net gain assessment, **Document DCO 6.9I/MCO 6.9I**). New habitats are considered likely to be of local importance, at most.

Table 9.31: Potential operational effects of habitats (EMG2 Project)

Habitat Type	Sensitivity	Evaluation
Individual Trees (excluding veterans)	Local importance (Low)	Operation effects have the potential to be a permanent adverse effect, although reversible in the long term. In the absence of any additional mitigation outside of those set out within this section, there is a risk of degradation of the condition of individual trees which constitutes a low magnitude of adverse impact.
Veteran Trees	Local importance (Low)	Retained veteran trees could be degraded by increased pressures from site users such as littering and damage, and management activities (either necessary for health and safety reasons, or inappropriate). Retained veteran trees could be degraded by increased pressures from site users such as littering and damage, and management activities (either necessary for health and safety reasons, or inappropriate).

Habitat Type	Sensitivity	Evaluation
		A single onsite veteran tree T55 (Receptor ID: 20002) is modelled to be exposed to increased levels of airborne pollutants exceeding 1% PC of critical levels. Specifically, • An annual mean increase above 1% NOx PC, (Table 8H.26 & Table 8H.56 in **Appendix 8H, (Document DCO 6.8H**)) with levels not anticipated to exceed the critical load (30µg/m^3). • An annual mean increase above 1% NH_3 PC (Table 8H.28 & Table 8H.58 in **Appendix 8H, (Document DCO 6.8H**)), with levels not anticipated to exceed the critical loads for higher plants (3 µg/m^3). • Predicted acid deposition exceeding the 1% PC critical load (Table 8H.29 & Table 8H.59 in **Appendix 8H, (Document DCO 6.8H**)), with levels not anticipated to exceed the critical levels (MaxCLminN 4.928kgN/ha/yr). • Predicted nitrogen deposition exceeding the 1% PC critical load (Table 8H.30 & Table 8H.60 in **Appendix 8H, (Document DCO 6.8H**)), with levels exceeding the critical load (10kg N/ha/yr). Seven offsite veteran trees are modelled to be exposed to increased Process Contribution (PC) levels of airborne pollutants exceeding 1% of critical levels. Specifically, • 7 trees (Receptor IDs: 20008, 20009, 2000A, 2000B, 2000C, 2000D and 20012) are predicted to be exposed to a maximum annual mean increase above 1% NH3 PC (Table 8H.28 & Table 8H.58 in **Appendix 8H, (Document DCO 6.8H**)). Levels are not anticipated to exceed the critical loads (3 µg/m^3) for higher plants. • One tree (Receptor ID: 2000A) is predicted to be exposed to a maximum annual mean increase above 1% acid deposition (Table 8H.29 & Table 8H.59 in **Appendix 8H, (Document DCO 6.8H**))). Levels not anticipated to exceed the critical levels (MaxCLminN 4.928kgN/ha/yr). • Six trees (Receptor IDs: 20008, 20009, 2000A, 2000C, 2000D and 20012) are predicted to be exposed to a maximum annual mean increase above 1% nitrogen deposition (Table 8H.30 & Table 8H.60 in **Appendix 8H, (Document DCO 6.8H**))). Levels are expected to exceed the critical load (10kg N/ha/yr). Increased air pollutants can increase the sensitivity of trees to biotic and abiotic stress, ultimately negatively impacting tree health. Given the onsite tree (T55) location in a cropland field boundary, it has been regularly exposed to fertilizers, and was assessed as

Habitat Type	Sensitivity	Evaluation
		category C (low quality) in the arboricultural assessment (**Appendix 10C: Arboricultural Assessment (Document 6.10C**). While there is an increase in nitrogen deposition from the reduction in air quality, this is considered likely to be significantly offset from the cessation of agricultural inputs. As such the potential scale of impacts from reduced air quality are unlikely to be detectable, with the potential for only very minor detrimental alteration to tree condition, and any impact is therefore considered negligible. The offsite veteran trees are located within a grazed parkland setting. Within a managed grassland context, nitrogen deposition from air pollution interacts with grazing and mowing regimes which can serve to reduce nutrient levels. The identified nitrogen deposition from air pollution is unlikely to impact the success of any such future management. The area is bounded by woodland clusters and belts which will serve to reduce air pollution spatial spread and levels at the identified veteran trees. Given the above, the potential impacts are only very minor detrimental alteration to tree condition, and are therefore considered negligible.
Broadleaved woodland (boundaries)	Local importance (Low)	The above have potential to be a permanent adverse effect, although reversible in the long term. In the absence of any additional mitigation outside of those set out within this section, there is a risk of degradation to the condition of woodlands which constitutes a low magnitude of adverse impact.
Ponds (excluding pond P3).	Local importance (Low)	The above have potential to be a permanent adverse effect, although reversible in the long term. In the absence of any additional mitigation outside of those set out within this section, there is a risk of degradation to the condition of ponds which constitutes a low magnitude of adverse impact.
Hedgerows	Local importance (Low)	The above have potential to be a permanent adverse effect, although reversible in the long term. In the absence of any additional mitigation outside of those set out within this section, there is a risk of degradation to the condition of hedgerows which constitutes a low magnitude of adverse impact.
Diseworth brook tributary	Local importance (low)	The combined effects are considered to constitutes a low magnitude of beneficial impact.

Operational Phase - Species Level

9.7.76. Operational phase effects on species with at least a local level of sensitivity from the EMG2 Project are summarised and discussed in **Table 9.32** below.

Table 9.32: Potential operational effects of species (EMG2 Project)

Species	Sensitivity	Evaluation
Amphibians (including GCN)	Local importance	In the absence of any additional mitigation outside of those set out within this section, the combination of the above effects could have a measurable impact to local populations which constitutes a low magnitude of adverse impact.
Bats	Local importance	In the absence of any additional mitigation outside of those set out within this section, the combination of the above effects could have a measurable impact to local populations which constitutes a low magnitude of adverse impact.
Birds	Local importance	In the absence of mitigation, the combination of the above effects could have a measurable impact to local populations which constitutes a low magnitude of adverse impact.
Invertebrates	Local importance	This has potential to be a permanent adverse effect. In the absence of mitigation, there is a risk of degradation of the condition of wood decay habitats, and the loss of key features which constitutes a moderate magnitude of adverse impact.
Otter	Local importance	The overall balance of habitat improvement weighed against some increased risk of injury or mortality from traffic is unlikely to have a significant impact on the local populations, and constitutes a negligible magnitude of adverse impact.
Plants	Local importance	This access is unlikely to lead to a significant impact on the local populations, and constitutes a negligible magnitude of adverse impact.
Other species: black rat, brown hare, hedgehog and polecat.	Local importance	As set out above there is potential for habitat degradation from site users which could have a detrimental effect of associated species assemblages. There is the potential for direct harm from site traffic, and temporary disturbance from site users. In the absence of any additional mitigation outside of those set out within this section, the combination of the above effects could have a measurable impact to local populations which constitutes a low magnitude of adverse impact.

Residual Effects

9.7.77. **Table 9.33** summarises the IEFs for the EMG2 Project, their sensitivity and the assessed impact at construction and operational phases taking into account embedded and additional mitigation set out in Section 9.5 for the DCO Scheme and Section 9.6 for the MCO Scheme. The Significance of the effect is given based on the greatest impact. Where potential impacts are attributed to only part of the EMG2 Project, the relevant component or components are indicated. **Table 9.33** below demonstrates that there will be no significant impacts in EIA terms.

Table 9.33: Summary of Residual Effects (EMG2 Project)

Ecological feature	Sensitivity	EMG2 Project Component	Residual Construction Impacts Magnitude	Residual Operational Impacts Magnitude	Overall Significance
River Mease SAC	International (High)	EMG2 Project	Negligible	Negligible	Negligible
Lockington Marshes SSSI	National (High)	EMG2 Project	Negligible	Negligible	Negligible
Attenborough Gravel Pits SSSI	National (High)	EMG2 Project	Negligible	Negligible	Negligible
Lount Meadows SSSI	National (High)	DCO Scheme	Negligible	Low Adverse	Moderate - Minor Adverse (Reversable)
Breedon Cloud Wood and Quarry SSSI	National (High)	DCO Scheme	Negligible	Negligible	Negligible
Oakley Wood SSSI	National (High)	DCO Scheme	Negligible	Low Adverse	Moderate - Minor Adverse (Reversable)
Pond P3 pLWS.hist (11975)	County (Moderate)	DCO Scheme	Negligible	Negligible	Negligible
Donington Park Services Ash Trees cLWS (92034)	County (Moderate)	DCO Scheme	Negligible	Negligible	Negligible
Donington Park Services Grassland and Scrub cLWS (92033)	County (Moderate)	DCO Scheme	Negligible	Negligible	Negligible
The Paddock pLWS.hist (11965)	County (Moderate)	DCO Scheme	Negligible	Negligible	Negligible
Castle Donington, Charnock Hill grassland pLWS.hist (11840)	County (Moderate)	DCO Scheme	Negligible	Negligible	Negligible
Lockington (EMG) Oak 143 cLWS (90888)	County (Moderate)	DCO Scheme	Negligible	Negligible	Negligible
King Street Plantation pLWS.hist (11950)	County (Moderate)	MCO Scheme	Negligible	Low Beneficial	Minor Beneficial
Lockington Park pLWS.hist (11952)	County (Moderate)	EMG2 Project	Negligible	Negligible	Negligible
Tonge Gorse Ancient & Semi Neutral Woodland	Local / County importance (Low / Moderate)	DCO Scheme	Negligible	Low Adverse	Minor Adverse (Reversable)

Ecological feature	Sensitivity	EMG2 Project Component	Residual Construction Impacts Magnitude	Residual Operational Impacts Magnitude	Overall Significance
March Covert Ancient Woodland	Local / County importance (Low / Moderate)	DCO Scheme	Negligible	Negligible	Negligible
Individual Trees (excluding veterans)	Local importance (Low)	EMG2 Project	Low Adverse	Low Beneficial	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Veteran Trees	Local (Low)	DCO Scheme	Moderate Adverse	Negligible	Minor Adverse
Broadleaved woodland	Local (Low)	DCO Scheme	Negligible	Negligible	Negligible
Ponds (excluding pond P3).	Local (Low)	DCO Scheme	Moderate Adverse	Low Beneficial	Minor Adverse (Short-term) / Minor-Negligible Beneficial (Long-term)
Hedgerows	Local (Low)	EMG2 Project	Moderate Adverse	Negligible	Minor Adverse (Short-term) / Negligible (Long-term)
Diseworth brook tributary	Local (Low)	DCO Scheme	Negligible	Low Beneficial	Minor-Negligible Beneficial
Amphibians (including GCN)	Local (Low)	EMG2 Project	Negligible	Negligible	Negligible
Bats	Local (Low)	DCO Scheme	Negligible	Negligible	Negligible
Birds (excluding skylark and yellow wagtail)	Local (Low)	EMG2 Project	Negligible	Negligible	Negligible
Skylark and yellow wagtail	Local (Low)	DCO Scheme	Moderate Adverse	Negligible	Minor Adverse
Invertebrates	Local (Low)	DCO Scheme	Moderate Adverse	Negligible	Minor Adverse
Otter	Local (Low)	DCO Scheme	Negligible	Negligible	Negligible
Plants	Local (Low)	DCO Scheme	Low Adverse /beneficial	Negligible	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Other species: black rat, brown hare, hedgehog and polecat.	Local (Low)	EMG2 Project	Negligible	Negligible	Negligible

9.8. Cumulative Impacts

Intra-project cumulative effects

9.8.1. The traffic modelling used to prepare the traffic data which forms the basis of the air quality assessments, as set out in **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6.),** intrinsically assesses the impact of air quality from the EMG2 Project, and its component parts, on ecological receptors and therefore already considered the cumulative effects.

9.8.2. In the absence of mitigation, there is potential for disturbance effects to stem from separate sources such as noise, lighting, and proximity to physical works. However, these have been considered in relation to the IEFs identified. Measures will be adopted through design and also within the CEMP and LEMP to reduce these pressures wherever practical. As such the combined residual effects remain of negligible significance.

Inter-project cumulative effects

9.8.3. A list of schemes with potential to contribute to cumulative effects and as derived from the full list identified in **Chapter 21: Cumulative Impacts** (**Document DCO 6.21/MCO 6.21**) is provided in **Table 9.34** below. Cumulative impacts are considered in relation to any residual effects of identified schemes after mitigation where applicable and taking into account the embedded mitigation measures for the EMG2 Project.

9.8.4. The traffic modelling used to prepare the traffic data which forms the basis of the air quality assessments, as set out in **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6.),** considers scenarios with and without Freeport and Local Plan sites. Therefore, in using the projected future traffic levels from the model, this element of the assessment has already considered the cumulative effects of the EMG2 Project and other developments likely to come forward. The cumulative assessment confirmed that there were no changes to the conclusions of the core assessment.

Table 9.34: Schemes with potential for inter-project cumulative effects

Chapter 21 ID	Scheme	Summary	Distance from EMG2 Project	Potential Impact Pathways
1b	Land at Sawley Interchange, adj to Aldi Distribution Centre, Tamworth Road (24/01200/FULM)	Employment building (Use Class B2/B8) with total floorspace of 59,910 sq.m.	2.5km north of MCO Scheme	Outside of Ecology ZOI
3	Land at Netherfields Lane, Sawley (20/00316/OUTM, 22/00954/REMM and 24/00575/VCIM)	4no. Logistics buildings with a total floorspace of 77,480sq.m.	2.5km north of MCO Scheme	Outside of Ecology ZOI
4	Land south of Junction 1 of the A50, Castle Donington (19/01496/OUT /	Employment development of up to 92,500sq.m. (E(g), B2, B8).	2km north of MCO Scheme	Outside of Ecology ZOI

Chapter 21 ID	Scheme	Summary	Distance from EMG2 Project	Potential Impact Pathways
	APP/G2435/W22/3292404 and 24/00074/REMM)			
7	Land North and South of Park Lane, Castle Donington	Residential development of approx. 1,076 dwellings	2.5km north-west of EMG2 Works	Outside of Ecology ZOI
10	Donington Park Service Area, Jct 23A (Moto Services Solar Farm) 23/01712/FULM	Ground-mounted solar farm with a generation capacity of 7.15MW	Adjacent to EMG2 Works	Direct Habitat loss and degradation. Habitat Fragmentation. Lighting on sensitive species
12	Isley Woodhouse site allocation (North-West Leicestershire emerging Local Plan IW1/EMP70)	The site comprises a large tract of agricultural land of some 316Ha. The A453 runs along the northern edge of the site but then cuts across the western extent of the land parcel in a broadly north-south direction. The site is being promoted for some 4,500 homes and approxy 23,000sqm of employment floorspace, local centres and primary and secondary schools.	2km west of EMG2 Works	Outside of Ecology ZOI
13	Land West of Hilltop Farm, Castle Donnington	Circa 6,000sq.m. of offices and 11,850sq.m. of B2/small scale B8	2km north-west of EMG2 Works	Outside of Ecology ZOI
14	Land north of Derby Road (A6), Kegworth	Circa 30,000sq.m. of B2/small scale B8	Adjacent to order limits for Highway Works	Direct Habitat loss and degradation. Habitat Fragmentation Farmland Birds
15	Land North of Remembrance Way (A453)	Circa 40,000sq.m. of B2/small scale B8	Adjacent to order limits for Highway Works	Direct Habitat loss and degradation. Habitat Fragmentation Farmland Birds

Chapter 21 ID	Scheme	Summary	Distance from EMG2 Project	Potential Impact Pathways
16	The East Midlands Airport and Gateway Industrial Cluster (EMAGIC) – excluding EMG1 and EMG2	Freeport designation for logistics and advanced manufacturing space.	1-2km west of EMG2 Works	Direct habitat loss and degradation. Habitat fragmentation Increase disturbance Water quality impacts
17	Ratcliffe-on-Soar Power Station (Freeport Designation) (22/01339/LDO)	With regards the Ratcliffe-on-Soar site, the principal cumulative impacts would relate to traffic, and therefore this site is to be included as part of the analysis in the Transport Assessment.	3km north-east of MCO Scheme and Highway Works at Jct 24 M1	Water quality impacts
20	Garendon Park Developments P/14/1833/2 and various RM approvals for both housing and employment	Sustainable Urban Extension to Loughborough comprising 3,200 homes and 16ha of employment land	5k south-east of EMG2 Works	Outside of Ecology ZOI

Designated Sites

9.8.5. With regard to locally designated sites the principal cumulative impacts would relate to traffic and increases in pollution. The Transport Model used to prepare the traffic data which forms the basis of the air quality assessments considers scenarios with and without Freeport and Local Plan sites. Therefore, in using the projected future traffic levels from the model, this assessment has already considered the cumulative effects of the EMG2 Project and other developments likely to come forward.

Habitats and Species

9.8.6. The new bus terminal will be connected into the existing local footpath/cycle networks. As such it is expected to attract users from the surrounding area, including those proposed developments identified under the cumulative impacts assessment. There is therefore an expectation of increased pedestrian/cycle traffic passing in proximity to this site, beyond direct users of the EMG2 Project. This will increase the expected levels of littering and potential disturbance to wildlife. Given the existing proximity to intensely manage arable land and the Donington Park services, the current adjacent footpath and the existing evidence of fly tipping within the surrounding habitats, the increased pedestrian/cyclist traffic was assessed to lead to, at most, a low magnitude of adverse impact to surrounding habitats. The cumulative effects from further pedestrians and cyclists accessing the bus terminal are not expected to significantly alter this assessment.

9.8.7. The cumulative losses of arable land across the local area will remove potential habitat for farmland birds including skylark and yellow wagtail. Given the abundance of farmland within the locality, the scale of the additional habitat loss is not expected to increase the impact on bird assemblages beyond the minor adverse effect already acknowledged.

9.9. Summary of Effects and Conclusions

9.9.1. A description of residual effects across the EMG2 Project is provided below in **Table 9.35** below.

Table 9.35: Summary Description of Residual Impacts

Ecological feature	Sensitivity	EMG2 Project Component	Description	Significance
Lount Meadows SSSI	National (High)	DCO Scheme	Air quality reductions have the potential to negatively impact floristic diversity and quality of the grassland.	Moderate - Minor Adverse (Reversable)
Oakley Wood SSSI	National (High)	DCO Scheme	Air quality reductions have the potential to negatively impact ground flora diversity and composition, and tree health within the woodland.	Moderate - Minor Adverse (Reversable)
King Street Plantation pLWS.hist (11950)	County (Moderate)	MCO Scheme	New supporting habitat creation will buffer the woodland edges and create connectivity to offsite woodland areas.	Minor Beneficial
Tonge Gorse Ancient & Semi Neutral Woodland	Local / County importance (Low / Moderate)	DCO Scheme	Air quality reductions have the potential to negatively impact ground flora diversity and composition, and tree health within the woodland.	Minor Adverse (Reversable)
Individual Trees (excluding veterans)	Local (Low)	EMG2 Project	There will be a temporary loss in resources while new planting establishes. In the long-term sensitive management and increased provision will provide a beneficial effect.	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)
Veteran Trees	Local (Low)	DCO Scheme	There will be a partial loss of this habitat that cannot be mitigated. Impacts have been reduced through incorporating felled wood with decay features into the GI and	Minor Adverse

Ecological feature	Sensitivity	EMG2 Project Component	Description	Significance
			sensitive management of retained veteran trees.	
Ponds (excluding pond P3).	Local (Low)	DCO Scheme	There will be a temporary loss in resources before new ponds are created and planting establishes. In the long-term sensitive management and removal of agricultural run-off will provide a beneficial effect.	Minor Adverse (Short-term) / Minor-Negligible Beneficial (Long-term)
Hedgerows	Local (Low)	EMG2 Project	There will be a temporary loss in resources before new planting establishes.	Minor Adverse (Short-term) / Negligible (Long-term)
Diseworth brook tributary	Local (Low)	DCO Scheme	Removal of agricultural run-off will provide a beneficial effect.	Minor-Negligible Beneficial
Skylark and yellow wagtail	Local (Low)	DCO Scheme (EMG2 Works)	There will be a loss of arable habitat. Impacts have been reduced through grassland management aimed to bolster foraging resources and provide some opportunities for breeding habitat.	Minor Adverse
Invertebrates	Local (Low)	DCO Scheme	There will be a loss of habitat that cannot be mitigated. Impacts have been reduced through incorporating felled wood with decay features into the GI and sensitive management of retained veteran trees.	Minor Adverse
Plants	Local (Low)	EMG2 Project	There will be a temporary loss in resources while new planting establishes. In the long-term sensitive management and increased provision will provide a beneficial effect.	Minor-Negligible Adverse (Short-term) / Beneficial (Long-term)

9.9.2. As shown above, there are no expected adverse residual impacts specific to the MCO Scheme.

9.9.3. Residual effects specific to the DCO Scheme are limited due to the general dominance by habitats of negligible intrinsic nature conservation value. Some limited degree of air quality impacts are predicted on surrounding habitats, including Lount Meadows SSSI and Oakley Wood SSSI. It is envisaged that air quality effects will be reversible in the longer term as vehicles shift to cleaner technologies. Other than these effects, the compensation for habitat losses within the Green Infrastructure results in the majority of other residual effects being categorised as short-term minor adverse, with long-term effects either negligible or beneficial. The exception to this relates to species associated with specific habitats that cannot be compensated for within the EMG2 Project. Specifically, bird species associated with arable land, and veteran tree loss with their associated invertebrate assemblages. Impacts have been reduced through land management and tailored habitat creation, however these effects cannot be fully mitigated and this is reflected in the assessment of likely residual effects summarised in **Table 9.35** above.

9.9.4. EMG2 Project wide residual impacts are either short-term reversible, or long-term beneficial. While there will be an initial loss of hedgerows and trees, these will be compensated for, and in the case of trees, provision will be increased. Likewise considering floristic diversity, while there are expected to be short-term declines during earthworks, the overall delivery of a range of habitats will allow for a greater range of species to utilise the EMG2 Project.

9.9.5. Key benefits of the scheme include removing agricultural run off to aquatic habitats, notably the Diseworth Brook; and connecting Kings Wood Plantation pLWS.hist to the woodland in the surrounding landscape. Both of these outcomes will function to bolster functionality and resilience of aquatic and woodland habitats in the local area.

9.9.6. Habitat provision has been developed with consideration to local species assemblages, compliance with Biodiversity Net Gain requirements, and site-specific constraints and opportunities. The EMG2 Project will deliver a gain in biodiversity units that exceeds minimum standards, provide an uplift in woodland cover, increase botanical species diversity, enhance the riparian zone along the Diseworth Brook, and offer a wider range of ecological niches for local faunal species.

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