

9. Ecology

Introduction

- 9.1 This Chapter reports the outcome of the assessment of likely significant environmental effects in relation to ecology. Likely significant effects on birds are considered separately in **Chapter 10: Ornithology**.
- 9.2 The Chapter describes the scope of the assessment and assessment methodology and a summary of the baseline information that has informed the assessment.
- 9.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered to be significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details).
- 9.4 This Chapter, and its associated **Figures 9.1 – 9.8** and **Technical Appendices 9.1 – 9.5**, is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 5**), as well as **Chapter 10: Ornithology** and **Chapter 14: Hydrology, Hydrogeology and Peat** and the **Biodiversity Net Gain Assessment, Moorland Restoration and Management Plan** and **Habitat Management and Monitoring Plan** submitted alongside the Applications.
- 9.5 In addition, this Chapter should be read in conjunction with **Chapter 16: Assessment of Cumulative Effects**.

Summary of Consultation

2025 ES

- 9.6 The Project Team undertook an EIA Scoping exercise (described further under ‘Scope of Assessment’ below) in support of the 2025 ES, which included consultation with RMBC and RBC and other stakeholders. The outcomes of this process are documented in **Chapter 2: Approach to EIA** and **Appendix 2.1**. No consultation has been undertaken over and above that completed during the EIA Scoping and application processes.

2026 FEI ES

- 9.7 Since the submission of the 2025 ES, the Applicant has been in receipt of a number of statutory and non-statutory consultation comments. The consultation responses have been reviewed by the project team and those that are directly relevant to the ES and its supporting material have been considered, with the outcomes documented in **Appendix 2.4**.

Scope of the Assessment

- 9.8 An EIA Scoping Report was submitted to RMBC and RBC on 16th December 2024, as presented as **Appendix 2.1**. At the time of writing (May 2026), no Scoping Opinion has been received. Therefore, the scope of assessment is the same as that submitted as part of the EIA

Scoping Report with some minor updates to take account of the Project for Assessment and the consultation comments received following the submission of the 2025 ES. Changes within this chapter consist primarily of updates to the amounts of habitat to be lost, including a slight increase in losses to M3 *Eriophorum angustifolium* bog pool.

Effects Unlikely / Not Significant

9.9 The following effects were not considered significant as part of the EIA Scoping Report (**Appendix 2.1**) and are not considered further in this Chapter:

- Pollution to Rochdale Canal Special Area of Conservation (SAC);
- Pollution to Rochdale Canal Site of Special Scientific Interest (SSSI);
- Habitat fragmentation and loss and pollution on the South Pennine Moors SAC;
- Habitat fragmentation and loss and pollution on the South Pennine Moors SSSI; and
- Disturbance to roosting bats.

9.10 Following the EIA Scoping process, the collection of additional baseline data and further technical analysis and evaluations, a ‘re-scoping’ exercise was completed. This has considered the absence of receptors, the absence of impact pathways and lack of likely significant effects. The outputs of this exercise and confirmation on the features ‘scoped out’ from further detailed assessment as part of this Chapter are set out in **Table 9.1** below, along with the reasoning behind their exclusion. Detailed baseline information for these receptors is set out in the relevant **Technical Appendices 9.1 – 9.5** and **Figures 9.1 – 9.6**.

Table 9.1: Features scoped out from further assessment

Feature to be ‘scoped out’	Location (on / off the Assessment Boundary and impact pathway)	Justification
Bats (roosting)	Outside the Project for Assessment, but within the Assessment Boundary	No suitable roosting habitat present within 200m of turbine locations, with the nearest suitable habitat being a woodland assessed as having moderate suitability to support roosting bats situated approximately 0.36km away from turbine T1. Therefore, no impacts on roosting bats from construction, operation or decommissioning are anticipated.
Rochdale Canal SAC / SSSI	Off-site, 6.15km south-east	Designated for supporting floating water-plantain <i>Luronium natans</i> . The distance between the Assessment Boundary and the SAC / SSSI means there will be no impacts on the qualifying habitats. There is no hydrological connectivity between the SAC / SSSI and the Assessment Boundary.

Feature to be 'scoped out'	Location (on / off the Assessment Boundary and impact pathway)	Justification
South Pennine Moors SAC / SSSI	Off-site, 8.24km east	Designated for blanket bog, European dry heaths and sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> . The distance between the Assessment Boundary and the SAC / SSSI means there will be no impacts on the qualifying habitats. There is no hydrological connectivity between the SAC / SSSI and the Assessment Boundary.
Lee Quarry SSSI	Adjacent to the Assessment Boundary	Due to its geological designation, no significant ecological effects anticipated.
Headley Dell Local Nature Reserve (LNR)	Off-site, 0.78km south-east	Designated for clough woodland, habitat mosaics, mosses and liverworts. The distance between the Assessment Boundary and the LNR means there will be no impacts on the qualifying habitats. There is no hydrological connectivity between the LNR and the Assessment Boundary.
Hodge Clough SSSI	Off-site, 1.11km west	Due to its geological designation, no significant ecological effects are anticipated.
Lower Red Lees Pasture SSSI	Off-site, 2.03km south west	Designated for herb rich unimproved neutral to slightly acidic pasture. The distance between the Assessment Boundary and the SSSI means there will be no impacts on the qualifying habitats. There is no hydrological connectivity between the SSSI and the Assessment Boundary.
West Pennine Moors SSSI	Off-site, 2.88km west	Designated for various habitats including blanket bogs, wet and dry heathlands and acid grassland. The Assessment Boundary is well separated from this designation, located over 5km away and is not hydrologically linked to this SSSI.
The following five Sites of Biological Importance (SBI): Fordoe & Naden Woods & Quarry, Doctor Dam & Holt Wood, Old House & Mill	Off-site	The distance between the Assessment Boundary and these SBIs means there will be no impacts on the qualifying features. There is no hydrological connectivity between these SBIs and the Assessment Boundary.

Feature to be 'scoped out'	Location (on / off the Assessment Boundary and impact pathway)	Justification
Croft Brook, Naden Brook and Healey Dell.		
The following nine Biological Heritage Sites (BHS): Fern Isle and Doctors Wood (Danes Wood), Dearden Clough (Plunge Valley), Sow Clough Fields, Lee Quarry, White Jones Fields, New Barn Clough Fields, Kenroy's Pond, Higher Boarsgreave Lodge and Hawks Clough	Off-site	The distance between the Assessment Boundary and these BHSs means there will be no impacts on the qualifying features. There is no hydrological connectivity between these BHSs and the Assessment Boundary.
Cowpe Moss and Brandwood Moor BHS	Adjacent to the Assessment Boundary	Designated due to their ornithological designation (potential impacts discussed in Chapter 10: Ornithology).
Ancient & Semi-Natural Woodland	Off-site, 0.26km south-east	Three areas of Ancient & Semi-Natural Woodland are situated within 1km of the Assessment Boundary. The nearest is a 7.83ha area forming Smallshaw Wood. The distance between the Assessment Boundary and Smallshaw Wood means there will be no impacts on the qualifying habitats. There is no hydrological connectivity between Smallshaw Wood and the Assessment Boundary.
M17 <i>Trichophorum germanicum</i> – <i>Friophorum vaginatum</i> blanket mire	In Assessment Boundary	This mire community is to be retained and not directly and / or indirectly impacted by the Project for Assessment.
H18 <i>Vaccinium myrtillus</i> – <i>Deschampsia flexuosa</i> heath	In Assessment Boundary	This heath community is to be retained and not directly and / or indirectly impacted by the Project for Assessment.
H12 <i>Calluna vulgaris</i> - <i>Vaccinium myrtillus</i> heath	In Assessment Boundary	This heath community is to be retained and not directly and / or indirectly impacted by the Project for Assessment.
M1 <i>Sphagnum auriculatum</i> bog pool	In Assessment Boundary	This mire community is to be retained and not directly and / or indirectly impacted by the Project for Assessment.

Feature to be 'scoped out'	Location (on / off the Assessment Boundary and impact pathway)	Justification
M2 <i>Sphagnum cuspidatum/recurvum</i> bog pool	In Assessment Boundary	This mire community is to be retained and not directly and / or indirectly impacted by the Project for Assessment.
S10 <i>Equisetum fluviatile</i> swamp	In Assessment Boundary	This swamp community is to be retained and not directly and / or indirectly impacted by the Project for Assessment.
U20 <i>Pteridium aquilinum-Galium saxatile</i>	In Assessment Boundary	Areas of bracken will be retained and not directly and / or indirectly impacted by the Project for Assessment.
MG6 <i>Lolium perenne-Cynosurus cristatus</i> grassland	In Assessment Boundary	Areas of this grassland will be retained and not directly and / or indirectly impacted by the Project for Assessment.
MG9 <i>Holcus lanatus-Deschampsia cespitosa</i> grassland	In Assessment Boundary	Areas of this grassland will be retained and not directly and / or indirectly impacted by the Project for Assessment.
MG10 <i>Juncus effusus-Holcus lanatus</i> rush pasture	In Assessment Boundary	Areas of this grassland will be retained and not directly and / or indirectly impacted by the Project for Assessment.
Plantation woodland	In Assessment Boundary	Areas of plantation woodland will be retained and not directly and / or indirectly impacted by the Project for Assessment.
Stones / scree	In Assessment Boundary	This habitat will be retained and not directly and / or indirectly impacted by the Project for Assessment.
Developed land	In Assessment Boundary	Buildings will be retained and not directly and / or indirectly impacted by the Project for Assessment, whilst only 0.05ha of existing hardstanding will be lost and this is of no ecological value.
Other mammals	In Assessment Boundary	The Project for Assessment will not impact other mammal populations and the Assessment Boundary is largely unsuitable for a range of mammal species.
Terrestrial invertebrates	In Assessment Boundary	No notable invertebrates were recorded plus the habitats in the Assessment Boundary that likely support this species group are to be largely retained plus the moorland and acid grassland will be enhanced.

Feature to be 'scoped out'	Location (on / off the Assessment Boundary and impact pathway)	Justification
Aquatic invertebrates	In Assessment Boundary	No suitable habitat is present to support white-clawed crayfish, so these have been scoped out for further consideration.
Fish	In Assessment Boundary	No suitable habitat is present. Fish have been scoped out for further consideration.
Invasive non-native species	In Assessment Boundary	No evidence of any non-native species were recorded during surveys therefore these are considered absent from the Assessment Boundary.

Effects Likely / Significant

- 9.11 Since the preparation of the EIA Scoping Report (**Appendix 2.1**), it has been determined that a 'receptor-led' approach to assessment would allow a holistic consideration of relevant impacts on each ecological feature / receptor. Therefore, this approach has been adopted within this Chapter.
- 9.12 Additional receptors (e.g. Scout Moor BHS) alongside further detail on other receptors (the specific communities within the blanket bog habitat) have also been identified and these are 'scoped into' the assessment reported in this Chapter.
- 9.13 **Table 9.2** outlines the receptors and associated effects that are considered likely / significant and are reported within this Chapter.

Table 9.2: Receptors for which effects are considered likely / significant

Receptor(s)	Likely significant effects	Applicable stage(s)*
Knowl Moor SBI and Scout Moor BHS	Habitat loss Modification of habitats through hydrological change Altered hydrological pathways	Construction / decommissioning
Degraded blanket bog habitat	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire M20 <i>Eriophorum vaginatum</i> blanket and raised mire M3 <i>Eriophorum angustifolium</i> bog pool	Habitat loss Modification of habitats through hydrological change Altered hydrological pathways Construction / decommissioning

Receptor(s)	Likely significant effects	Applicable stage(s)*
M6 <i>Carex echinata</i> - <i>Sphagnum recurva/auriculatum</i> mire		
Acid grassland	Habitat loss	Construction / decommissioning
Species-poor soft rush	Habitat loss Modification of habitats through hydrological change ⁱ	Construction / decommissioning
Watercourses and waterbodies (pond, ditches, streams / brooks)	Habitat loss Modification of habitats through hydrological change Altered hydrological pathways	Construction / decommissioning
Bats (foraging and commuting)	Disturbance (via noise and light) Fragmentation of species ranges or habitats	Construction / decommissioning
	Disturbance (via noise and light) Fragmentation of species ranges or habitats Injury / mortality from collision	Operation
Badger <i>Meles Meles</i>	Disturbance (via noise and light) Fragmentation of species ranges or habitats Injury / mortality from construction activities	Construction / decommissioning
	Disturbance (via noise and light) Fragmentation of species ranges or habitats	Operation
Water vole <i>Arvicola amphibius</i>	Disturbance (via noise and light) Altered hydrological pathways Injury / mortality from construction activities	Construction / decommissioning
	Disturbance (via noise and light)	Operation
Otter <i>Lutra lutra</i>	Disturbance (via noise and light) Fragmentation of species ranges or habitats	Construction / decommissioning

ⁱ Altered hydrological pathways have been removed as this would not impact soft rush as this plant can grow even in drier conditions.

Receptor(s)	Likely significant effects	Applicable stage(s)*
	Altered hydrological pathways Injury / mortality from construction activities	
	Disturbance (via noise and light) Fragmentation of species ranges or habitats	Operation
Reptiles and amphibians	Fragmentation of species ranges or habitats Altered hydrological pathways Injury / mortality from construction activities	Construction / decommissioning
	Fragmentation of species ranges or habitats	Operation

* The construction assessment will be used as a 'proxy' for decommissioning.

Assessment Methodology

Legislative Framework, Policy and Guidance

9.14 The following legislation and policy have informed the assessment of effects within this Chapter:

- The European Commission (EC) Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora)¹;
- The Wildlife and Countryside Act 1981 (as amended)²;
- The Conservation of Habitats and Species Regulations 2017 (as amended)³;
- Countryside and Rights of Way Act 2000⁴;
- The Natural Environmental and Rural Communities (NERC) Act 2006⁵;
- The Hedgerow Regulations 1997⁶;
- National Planning Policy Framework (NPPF) 2025 (NPPF)⁷;
- Environment Act 2021⁸;
- The Invasive Alien Species (Enforcement and Permitting) Order 2019⁹; and
- The Protection of Badgers Act 1992 (as amended)¹⁰.

9.15 The National Planning Policy Framework (NPPF) was first published by the government on 27th March 2012. It provided new guidance for local authorities, replacing the existing planning policy guidance, including that relating to biodiversity in Planning Policy Statement 9 (PPS9): Biological and Geological Conservation. In December 2025, an updated version of the NPPF was published.

- 9.16 Section 15 of the NPPF specifies the requirements for conserving and enhancing the natural environment. While a key aim of the NPPF is to assist plan-makers, it also provides advice for the determination of planning applications, much of which reaffirms the protection previously afforded by PPS9 to designated sites, priority habitats and species and ancient woodland. The NPPF places a greater emphasis on ecological networks and states that the planning system should provide net gains for biodiversity, by *“minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”* (Paragraph 174).
- 9.17 The Environment Act (2021) provides a framework for environmental protection. Measures to halt environmental decline include a requirement for all applicable planning applications to deliver a compulsory minimum of 10% biodiversity net gain from 12th February 2024 in accordance with the published guidelines.
- 9.18 The following guidance has informed the assessment of effects within this Chapter:
- The UK Biodiversity Action Plan List (BAP)¹¹: A list of animals, plants, and habitats listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 that ministers consider to be of principal importance for biodiversity conservation in England;
 - European Commission (2013). Interpretation Manual of European Union Habitats. Natura 2000. EU¹²;
 - Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (Chartered Institute of Ecology and Environmental Management (CIEEM, 2018 and 2024) (the ‘CIEEM Guidelines’)¹³;
 - Greater Manchester BAP and Lancashire BAP¹⁴;
 - Guidelines for the Selection of Local Wildlife Sites in Greater Manchester and Lancashire¹⁵;
 - Joint Nature Conservation Council, (2011). Spreadsheet of UK Biodiversity Action Plan: Priority Habitat Descriptions Joint Nature Conservation Committee. Available at: Spreadsheet of UK Biodiversity Action Plan: Priority Habitat Descriptions | JNCC Resources Hub¹⁶;
 - Scottish Environment Protection Agency (2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems. Scottish Environment Protection Agency Available at: <https://www.sepa.org.uk/media/i2c9r03k/guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx>¹⁷; and
 - Good Practice During Windfarm Construction¹⁸ (Scottish Renewables, SNH, SEPA and Forestry Commission Scotland (FCS), 2024).

Defining the Study Area

- 9.19 The current guidance on ecological impact assessments (EcIA) (CIEEM, 2018¹⁹) recommends that all ecological features that occur within a ‘Zone of Influence’ (Zoi) for a proposed development are investigated. The Zoi is to include:

- Areas directly within the land take for a proposed development and access;
- Areas which will be temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and noise disturbance during construction and / or operation.

9.20 The ZOI is variable depending on the ecological receptors affected. The size of survey areas are determined by considering the likely ZOI for each receptor. **Table 9.3** below summarises the study area used for the desk study and the survey area used for ecological receptors which are reported on in this Chapter.

Table 9.3: Survey / study areas used for this assessment

Ecological receptors	Survey / study area
Sites designated for their county or local importance	Assessment Boundary and within 2km of the Assessment Boundary
Potential habitats of Principal Importance and ancient woodland	Assessment Boundary and within 1km of the Assessment Boundary
Waterbodies	Assessment Boundary and within 250m of the Assessment Boundary
Badger survey and preliminary bat roost assessment	Assessment Boundary and within 30m buffer of the Assessment Boundary
Foraging and commuting bats	Assessment Boundary
Otter survey	Up to 200m from infrastructure within suitable habitat (waterways and riparian vegetation) (as per Chanin, 2003; Purseglove, 1995; Muir and Morris, 2013)
Water vole survey	Up to 50m from infrastructure within suitable habitat (waterways and riparian vegetation) (Strachan, 2011)
UK habitat classification and National Vegetation Classification (NVC) survey	Assessment Boundary
River Condition Assessment Surveys	Assessment Boundary
Desk study records (for protected and notable species)	Assessment Boundary and within 2km buffer of the Assessment Boundary

9.21 A review of ordnance survey (OS) maps and aerial images was undertaken to identify the presence of waterbodies within 250m of the Assessment Boundary. Great crested newts *Triturus cristatus* (GCN), which are protected together with their habitats, can travel relatively large distances between breeding ponds and terrestrial habitat. Following guidance issued by Natural England (English Nature, 2001), land within 250m of a GCN breeding pond should be treated as potential GCN terrestrial habitat and evaluated accordingly.

Background Studies to Inform the ES

9.22 **Table 9.4** summarises all studies / surveys / analysis / evaluations undertaken to inform the assessment presented within this Chapter. Please see **Table 9.3** above for details on survey buffers used.

Table 9.4: Studies / surveys / evaluations / analysis undertaken to inform the ES

Study / survey / analysis / evaluation	Overview	Date of completion
Desk study (Technical Appendix 9.1: Desk Study and Habitats Results)	Review of data from Magic Maps ⁱⁱ , Greater Manchester Ecological Records Centre (GMERC) and Lancashire Ecological Records Network (LERN) completed. Review of designated sites up to 10km, plus 30km for designated sites with bats as a qualifying feature and records of legally protected and notable species within 2km of the Assessment Boundary.	November 2024
Preliminary Bat Roost Assessment (PBRA) (Technical Appendix 9.3: Bat Activity Report)	Completed using Collins (2023) guidance ²⁰ .	April 2023 and July – August 2024
Bat static surveys (Technical Appendix 9.3: Bat Activity Report)	Completed for whole bat season (April – October) for 2022, 2023 and 2024 following changes to Assessment Boundary. Followed guidance for bat surveys on wind farms from NatureScot (2021) ²¹ . Ten days of continuous recording over three periods (spring, summer and autumn).	April – October 2022, 2023, and 2024
GCN eDNA (Technical Appendix 9.4: Great Crested Newt and Amphibians)	eDNA surveys of waterbodies in the Assessment Boundary completed in appropriate seasons across 2023 and 2024. Followed Natural England accepted methodology ²² .	May 2023 and April 2024
GCN population surveys (Technical Appendix 9.4: Great Crested Newt and Amphibians)	GCN population surveys completed of the one pond with a positive eDNA survey result. Followed accepted methodology from Froglife (2001) ²³ and English Nature (2001) ²⁴ .	May – June 2024
National Vegetation Classification (NVC) Survey	NVC survey undertaken of Assessment Boundary in peak season in 2024. The vegetation was surveyed by a suitably qualified (FISC Level 4) and experienced	July – August 2024

ⁱⁱ Using the MAGIC website (www.Magic.gov.uk) which provides authoritative geographic information about the natural environment from across government.

Study / survey / analysis / evaluation	Overview	Date of completion
(Technical Appendix 9.1: Desk Study and Habitats Results)	botanical surveyor in accordance with NVC survey guidelines (Rodwell, 2006) ²⁵ . The NVC scheme provides a standardised system for classifying and mapping semi-natural habitats and ensures that surveys are carried out to a consistent level of detail and accuracy.	
UK Habitats Survey and Condition Assessment (Technical Appendix 9.1: Desk Study and Habitats Results)	UKHab and Condition Assessment undertaken in peak season in 2024. The habitat types were identified and mapped in compliance with the UKHab guidance documents (2023) ²⁶ and a small minimum mapping unit.	July – August 2024
Protected species surveys (badger, water vole and otter) (Technical Appendix 9.2: Protected Species Survey)	Protected species surveys undertaken across Assessment Boundary in 2022 and 2023. Followed methodology from Harris et al. (1989) ²⁷ for badgers, Chanin (2003) ²⁸ for otters and Strachan et al. (2011) ²⁹ for water vole.	July 2022 and August 2023
Biodiversity Net Gain Assessment , submitted as part of the Applications	Habitat loss from turbines and associated infrastructure will be calculated and habitat enhancement and creation provided to offset for this loss and achieve the statutory requirement of 10% BNG.	May 2026
River Condition Assessment Surveys (provided as part of the Biodiversity Net Gain Assessment , submitted as part of the Applications)	As per BNG requirements, all watercourses within the Assessment Boundary are to be assessed by a qualified MoRPH surveyor to input into the BNG calculation.	April 2025
UK Habitats Survey and Condition Assessment For option C Grid Connection Route and Laydown area Technical Appendix 9.5: Grid Connection Ecology Walkover)	UKHab and Condition Assessment undertaken in peak season in 2026. The habitat types were identified and mapped in compliance with the UKHab guidance documents (2023) ³⁰ and a small minimum mapping unit.	April 2026

Assessment Process

- 9.23 The CIEEM Guidelines form the basis of the impact assessment presented in this Chapter. The CIEEM Guidelines set out a process of identifying the value of each ecological receptor and then characterising the ‘impacts’ that are predicted, before discussing the ‘effects’ on

the integrity or conservation status of the receptor, proposed mitigation and residual impacts.

- 9.24 The initial stage for assessment of impacts is to determine which features should be subject to detailed assessment. The ecological receptors to be the subject of more detailed impact assessment should be of sufficient value that impacts upon them may be Significant. This typically means receptors which have a nature conservation value of greater than local, although where receptors have special legal protection (i.e. listed on Schedule 1 of the Wildlife and Countryside Act 1981 as amended (WCA)) then further consideration may also be given to ensure protection is in place to prevent unlawful acts such as disturbance arising from the Project for Assessment. The receptors should also be vulnerable to significant impacts arising from a development.
- 9.25 All designated nature conservation sites, bird species and communities that occur within the 'Zol' of the Project for Assessment are defined as potential ecological features (as described below). The zone of impact is defined for individual receptors based upon the potential effects and if there is published research showing the range of those effects.
- 9.26 The pre-mitigation effects without the delivery of the moorland restoration proposals as part of the Project for Assessment are reported in the 'Assessment of Effects, Secondary Mitigation and Residual Effects' to ensure transparency on the impacts without this mitigation. The delivery of these works, which part of the Project for Assessment, is considered within the residual effect assessment.

Reporting of the Environmental Effect and Significance Criteria

- 9.27 The assessment of likely significant environmental effects as a result of the Project for Assessment has taken into account the construction, operational and decommissioning stages. The following sections define the approach adopted within the assessment for the determination of value, magnitude of impact, the level of effect and significance.

Determining Value of Receptor

- 9.28 The CIEEM Guidelines recommend that the value of ecological features is determined based on a geographic frame of reference. For this project the following geographic frame of reference is used:

- International (nature conservation designation, habitat or populations of species of international importance, e.g. a SAC, Special Protection Area (SPA) or significant numbers of a designated population outside the designated site);
- National (nature conservation designation, habitat or populations of species of English importance, e.g. a SSSI or a National Nature Reserve (NNR), a nationally important population / assemblage of a species listed on Schedules 1 or 5 of the Wildlife and Countryside Act 1981 or Annex 1 of the Birds Directive);
- Regional (a regionally important population which have a high conservation value (e.g. Schedule 1, Annex 1, English Biodiversity List or Birds of Conservation Concern (BoCC) amber or red species));
- County (i.e. Greater Manchester) (a population of high conservation species which represent an important part of the county population of that species);

- Local (i.e. within 5km) (a population of any species which is important at the local level); and
- Less than local (an unremarkable habitat / common species population which has little or no intrinsic nature conservation value).

9.29 Further details on how habitats and species are valued are provided below.

Valuing habitats

- 9.30 The value of habitats, according to the CIEEM Guidelines, is measured against published selection criteria where available. Reference is therefore made to Guidelines for the Selection of Local Wildlife Sites in Greater Manchester and Lancashire and Habitat Action Plans (HAPs) contained within the Greater Manchester BAP and / or the Lancashire BAP, in addition to the UK BAP.
- 9.31 As the CIEEM Guidelines note, the presence of a HAP reflects the fact that the habitat concerned is in a sub-optimal state and hence the action plan is required. Therefore, a HAP does not necessarily imply any specific level of importance for the habitat.
- 9.32 It must be noted that in accordance with the CIEEM Guidelines features may be assigned greater value if there is reasonable chance that they can be restored to a higher value in the future.

Valuing species

- 9.33 When assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Rarity is an important consideration because of its relationship with threat and vulnerability although, because some species are inherently rare, it is necessary to look at rarity in the context of status.
- 9.34 A species that is rare and declining should be assigned a higher level of importance than one that is rare with a stable population.
- 9.35 Reference is made to a number of categorisations of conservation status, including;
- Species Action Plans (SAPs) contained within the Greater Manchester GMBAP and Lancashire (Lancashire BAP); and
 - Species listed within Section 41 of the NERC Act 2006.

Determining the Impact

- 9.36 The magnitude of impact has been considered as the change experienced against the baseline conditions and has been considered on a scale of **large, medium, small or negligible**.
- 9.37 In accordance with the CIEEM Guidelines, when describing impacts, reference is made to the following, where appropriate:
- Confidence in predictions – the level of certainty that an impact will occur as predicted, based on professional judgement and where possible evidence from other

schemes – this is based on a four point scale: certain / near certain; probable; unlikely; and extremely unlikely;

- Magnitude – the size of an impact in quantitative terms where possible;
- Extent – the area over which an impact occurs (see further details under ‘Geographical Scope’ below);
- Duration – the time for which an impact is expected to last (see further details under ‘Temporal Scope’ below);
- Reversibility – a permanent impact is one that is irreversible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A temporary impact is one from which a spontaneous recovery is possible; and
- Timing and frequency – i.e. whether impacts occur during critical life stages or seasons.

9.38 Both direct and indirect impacts are considered. Direct ecological impacts are changes that are directly attributable to a defined action (e.g. the physical loss of habitat occupied by a species during the construction process).

9.39 Indirect ecological impacts are attributable to an action which affect ecological resources through effects on an intermediary ecosystem, process or receptor (e.g. external sourcing of stone for road surfaces may cause growth of plant species not generally found in that area of the Project for Assessment).

Geographical scope

9.40 The geographic scope of the assessment areas can differ according to the nature of the receptor. For designated sites, Natural England determine buffers termed as Zols, where developments within a particular geographical area around a site are considered to have the potential for effects.

9.41 This depends on features including the scale of the proposed development, designated features of the site and their sensitivity to the development, duration of the development, connectivity to the designated site and presence of impact pathways.

9.42 For habitats within the Project for Assessment area, the geographical scope will be the Assessment Boundary and an appropriate buffer, dependent on the connectivity to the receptor. For example, features such as wetlands, watercourses and waterbodies are linked to the wider habitats on which they depend for water and thus effects on these resources could be wider reaching than on drier habitat types.

9.43 The geographical scope of assessment for species can be wider than that for habitats, due to their inherent mobility and potentially use of multiple areas of the Assessment Boundary. The species surveys cover the Assessment Boundary and a wider buffer up to features which represent likely barriers to movement for terrestrial species. For these and more mobile species (such as bats), the ability to utilise several sites and thus to respond to change caused by the Project for Assessment is also to be considered in the assessment.

Temporal scope

9.44 The assessment presented in this Chapter has considered potential effects occurring during the following temporal stages:

- Construction stage: 2 years (24 months); and
- Operational stage: The turbines will have an operational lifetime of 40 years.

Determining the Level of Effect

9.45 The level of effect has been informed by the magnitude of impact due to the Project for Assessment and the evaluation of the value of the affected receptor. The level of effect has been determined using professional judgement and **Table 9.5** has been a tool which has assisted with this process.

9.46 Whilst **Table 9.5** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement.

Table 9.5: Matrix to support determining the level of effect

		Value of receptor			
		International / National	Regional / County	Local	Less than local
Magnitude of impact	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

9.47 The following terms have been used to define the level of the effects identified and these can be 'beneficial', 'adverse' or 'neutral':

- **Major effect:** Where the Project for Assessment is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect:** Where the Project for Assessment is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect:** Where the Project for Assessment is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Project for Assessment is likely to cause a considerable change from the baseline

conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and

- **Negligible:** Where the Project for Assessment is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

9.48 In addition to the above, a CIEEM level of effect has been attributed in the 'Assessment of Effects, Secondary Mitigation and Residual Effects' section below.

9.49 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 2 years, medium-term is considered to be between 2 and 10 years and long-term is considered to be greater than 10 years.

Determining Significance

9.50 For each effect, a statement has been made as to whether the level of effect is '**Significant**' or '**Not Significant**'. This determination has been based on professional judgement and / or relevant guidance / legislation, where applicable.

9.51 For the purposes of the Ecological Impact Assessment (EclA), the CIEEM Guidelines define a significant effect as '*...an effect that either supports or undermines biodiversity conservation objectives for important ecological features or for biodiversity in general*'.

9.52 Significant effects can be either positive (beneficial) or negative (adverse) and are qualified with reference to an appropriate geographic scale, from international to local. However, it should be noted that the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, an effect on a species which appears on a national list of species of principal importance for biodiversity may not have an effect on its national population.

9.53 The assessment of significant impacts in line with the CIEEM Guidelines is presented in the 'Assessment of Effects, Secondary Mitigation and Residual Effects' section for both pre-secondary and residual effects.

Baseline Conditions

Non-statutory Designated Sites

9.54 Knowl Moor, an SBI, is located within the Assessment Boundary itself and comprises an extensive area of moorland which incidentally supports important upland breeding birds (this is discussed within **Chapter 10: Ornithology**). The main habitats are acid grassland and blanket bog, which occur in a mosaic with localised ericaceous heath and wet flushes. The majority of these habitats are listed on Section 41 (S41) of the NERC (2006) as habitats of principal importance (HPIs). The blanket bog, a HPI, is most extensive in the south of the Assessment Boundary. Although the bog is degraded and, in most areas, could not be described as 'active' bog.

9.55 Scout Moor BHS is situated adjacent to the Assessment Boundary and supports modified blanket bog, flushes and acid grassland.

Habitats

9.56 The NVC survey recorded vegetation communities that are considered to be of potential conservation interest or potential Groundwater Dependent Terrestrial Ecosystems (GWDTE). Where these communities were floristically distinct, they were assigned into corresponding sub-communities. The communities recorded during the survey were:

- Mires, flushes and swamp (references: M25, M20, M3 and M6 in **Figure 9.3: NVC Survey Results**);
- Grasslands and tall herb communities (reference: U5a, U6a and U6d in **Figure 9.3: NVC Survey Results**); and
- A map containing all the recorded NVC communities, and their locations, is included in **Figure 9.3: NVC Survey Results** along with full details of the habitats recorded within the Assessment Boundary in **Technical Appendix 9.1: Desk Study and Habitats Results**.

NVC summary

9.57 A number of the recorded communities within the Assessment Boundary are considered to have conservation value at a European level (Annex 1) (European Commission, 2013) or at a national level as HPis in England (Section 41 of the NERC Act 2006). A summary of habitats and their designations are found in **Table 9.6**.

Table 9.6: Annex 1 and HPis

NVC Code	Annex 1	Section 41 of NERC Act
<i>M25 Molinia caerulea – Potentilla erecta mire</i>	7130 Blanket bogs 7120 Degraded raised bogs still capable of natural regeneration	Blanket bog
<i>M20 Eriophorum vaginatum blanket and raised mire</i>	7130 Blanket bogs 7110 Active raised bogs	Blanket bog
<i>M3 Eriophorum angustifolium bog pool</i>	7110 Active raised bogs	Blanket bog
<i>M6 Carex echinata - Sphagnum recurva/auriculatum mire</i>	None	Upland Flushes, Fens and Swamps

GWDTE survey results

9.58 GWDTEs are classified according to SEPA (2017)³¹, defining each NVC community on their potential dependency on groundwater. Groundwater dependency is often linked to wetlands that contain flora dependent upon the chemical composition of the water fed from a groundwater source. SEPA defines the habitats with regard to their potential for groundwater dependency, therefore not all communities listed may be truly groundwater dependent. In total, there is one community listed as high potential for groundwater dependency and one listed as moderate within the Assessment Boundary as shown in **Table 9.7** below.

Table 9.7: Potential groundwater dependence

NVC code	Potential groundwater dependence
<i>M25 Molinia caerulea –Potentilla erecta mire</i>	Moderate (dependent on the hydrogeological setting)
<i>M20 Eriophorum vaginatum blanket and raised mire</i>	None
<i>M3 Eriophorum angustifolium bog pool</i>	None
<i>M6 Carex echinata - Sphagnum recurva/auriculatum mire</i>	High

9.59 In addition to the above mire and heath communities, the following habitat also recorded within the Assessment Boundary are listed as moderate potential for groundwater dependency (dependent on the hydrogeological setting), as defined by SEPA (2017):

- U6 *Juncus squarrosus-Festuca ovina* acid grassland.

9.60 Whilst potential GWDTEs were identified, confirmation of their actual GWDTE status is contingent on hydrogeological risk assessment along with the exclusive remit of the ecological assessment. For further information, refer to **Chapter 14: Hydrology, Hydrogeology and Peatland**.

Waterbodies / watercourses

9.61 A total of 64 ponds were identified within 250m of the Assessment Boundary, with further information including photographs provided in **Appendix 9.4: Great Crested Newt and Amphibians**. Furthermore, Fern Isle Brook, Prickshaw Brook, Grain Brook and Cowpe Brook run through the Assessment Boundary along with numerous ditches and drains.

Species of Conservation Concern

Bats

9.62 The Assessment Boundary largely comprises vast, open grassland, moorland and bog habitats, areas of which are grazed by sheep and cattle. The opportunities for bats within this open habitat are generally limited because most species of bats prefer linear features for commuting such as hedgerows, which are largely absent from the Assessment Boundary.

9.63 Large bats will occasionally forage over moorland habitat but most typically when roosting areas are located nearby. While not assessed, it should be noted that the potential roosting features are largely found within the periphery of the Assessment Boundary, and not in proximity to the Project for Assessment. The closest turbine to an area of suitable roosting habitat is turbine T1, located approximately 0.36km away from the woodland assessed as having moderate suitability to support roosting bats. Connectivity to this area is very limited however, with the surrounding habitats comprising open grassland and moorland.

9.64 Automated full spectrum static detectors were deployed for a minimum of 10 days across three seasons during 2022 – 2024. All detectors were set to commence recording a minimum of 30 minutes before sunset and continue until a minimum of 30 minutes after sunrise. No night-time bat walkover (NBW) surveys were completed. However, this is not considered to be a constraint because NBW surveys are useful to inform which areas bats are utilising

within a site. Since the habitats of value to bats will largely be retained, predominantly trees / woodland for foraging and ditches for commuting, automated surveys provide a general overview of the species composition regularly using the Assessment Boundary and is considered sufficient for the Project for Assessment.

- 9.65 Static survey results found that the Assessment Boundary is predominantly used by common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, with small numbers of Nathusius's pipistrelle *Pipistrellus nathusii*, *Nyctalus* sp., *Myotis* sp. and brown long-eared bats *Plecotus auritus*.
- 9.66 Overall, it is considered that the Assessment Boundary supports low to moderate numbers of commuting and foraging bats based on data collected each season across three years, with most of the activity focused near to habitat features such as reservoirs, watercourses, stone buildings and stone walls. For further information on survey results, including break downs of calls recorded across seasons for each year, refer to **Appendix 9.3: Bat Activity Report**.

Badger

- 9.67 The desk study returned 25 badger sett records within 2km of the Assessment Boundary. Records are primarily in gardens in Rochdale and nature reserves south of the Assessment Boundary. However, there is one record of a field sighting in woodland north-east of the Assessment Boundary.
- 9.68 An active badger sett which exhibited signs of recent excavation was discovered in 2023 located just off-site, with the location provided in **Appendix 9.2: Protected Species Survey**. The entrance had plastic buckets placed into it, but the entrance had been dug out recently. The path leading to it appeared to be disturbed and well-worn, indicating current and regular use. Furthermore, a potential old latrine was noted a short distance from the sett within a shallow excavation. An outlier sett was also recorded in the 2023 survey and is again outside of the Assessment Boundary. This was two holes, one collapsed and had some signs of recent use with a mammal pathway and excavations nearby.
- 9.69 In 2024, an active main sett was found within the Assessment Boundary, with the location provided in **Appendix 9.2: Protected Species Survey** (and not in this Chapter for reasons of confidentiality).

Water vole

- 9.70 No recent records of European water vole were returned from the desk study from within 2km of the Assessment Boundary.
- 9.71 No field signs indicative of this species were identified during the survey and given that many of the ditches are used for drainage, it is possible that banks are breached when rainfall is high; reducing habitat suitability for water vole. Furthermore, water vole prefer steep sided banks whereas the ditches and streams / brooks were typically characterised by shallow sloping banks with rocky banks noted on some watercourses, preventing burrowing. However, banks were dominated by marshy grassland providing suitable feeding opportunities for this species and, whilst the exposed nature of the ditches and low bank height is not ideal, opportunities for this species does exist and their presence cannot be entirely ruled out.

Otter

- 9.72 The desk study returned one otter territory record from 2022 which lies approximately 1.5km south-east of the Assessment Boundary. The territory is noted as long standing and aerial mapping shows the territory is situated along the River Spoddon, which runs north through the Healey Dell LNR (approximately 0.78km east of the Assessment Boundary).
- 9.73 There were no signs of otter such as spraints, prints, or holts recorded on the watercourse during the survey work undertaken. Furthermore, most of the watercourse offer limited potential for foraging as they were shallow with depths varying between 5cm – 15cm and fast flowing on a steep gradient offering limited potential for fish species and other potential food sources. However, it is considered possible that this species may range through the area because they are present in the wider landscape, with watercourses within the Assessment Boundary being well connected to Spring Mill Reservoir, Cown Reservoir and Green booth Reservoir, which offer suitable habitat for foraging and holt creation. Therefore, whilst suitable habitat for foraging, holts or couches within the Assessment Boundary is limited, ditches and streams / brooks may be used for commuting.

Amphibians

- 9.74 A total of 64 ponds were identified within 250m of the Assessment Boundary via aerial and OS mapping, with further information including photographs, HSI and eDNA results provided in **Appendix 9.4: Great Crested Newt and Amphibians**.
- 9.75 A single pond surveyed in 2023, namely pond P1, returned a positive result for GCN presence and therefore further surveys in the form of population size class assessment surveys were undertaken in 2024. No GCN were caught during bottle trapping surveys of P1 with none seen during torchlight surveys across all six visits. However, a single GCN egg was identified on the third survey; which suggests the pond is used by a small breeding population. All other eDNA surveys returned negative results.

Reptiles

- 9.76 The reptile records obtained during the data search relate to common lizard *Zootoca vivipara* dating from 2012 to 2021. These were present in Knowl Moor SBI which lies within the Assessment Boundary, as well as the Naden Valley and Greenbooth Reservoirs which lie adjacent to the west of the Assessment Boundary.
- 9.77 The Assessment Boundary contains dry and wet habitats, varied vegetation structure, open areas and ecotones and the heathland (albeit degraded), tussocky grassland and areas of spoil are potentially suitable for common lizard due to the presence of potential sheltering and hibernation habitat. Whilst no reptiles have been observed during the course of surveys, their presence cannot be entirely ruled out.

Future Baseline

- 9.78 If the current land management practices were to continue, it is likely that the range and condition of habitats currently present would deteriorate further given the grazing, drainage and management pressures as evidenced through the declining condition of many of the bog and heath habitats recorded during surveys.
- 9.79 Other changes over time may occur as a result of climatic change; these are difficult to predict but are likely to involve increased precipitation and gradual increases in average

temperatures. Some change in the vegetation assemblage is likely to occur as a result of these changes.

Primary and Tertiary Mitigation

Construction Stage

- 9.80 The following primary and tertiary mitigation which has been evaluated as part of the construction stage assessment is outlined below.
- 9.81 The design has evolved iteratively to minimise the effect on potential GWDTEs and peat habitats and ecological receptors through taking account of NVC results and hydrological assessments, protected species survey results and the location of watercourses. Discussions included infrastructure maintaining a 30m buffer from the active badger sett identified (**Appendix 9.2: Protected Species Survey**) and remaining 1km away from pond P1, which supports a small population of GCN.
- 9.82 The Project for Assessment has been designed to minimise works in the vicinity of mapped watercourses and to minimise the need for new water crossings, to reduce the risk of pollution and changes to watercourse morphology.
- 9.83 Measures / commitments are outlined below.
- 9.84 Good practice construction measures will be employed during the construction stage via a Construction Environment Management Plan (CEMP). This will include but not be limited to best practice measures for pollution prevention of watercourses/waterbodies, fencing (e.g. Heras or similar) of areas not subject to works in order to protect habitats / species present, daytime working, employment of Reasonable Avoidance Measures (RAMs) for protected species, presence of an Ecological Clerk of Works (ECoW), pre-construction surveys, covering of excavations and / or provision of ramps to avoid trapping wildlife and no use of overnight lighting near habitat features.
- 9.85 Any new roads / tracks will be designed at an appropriate camber with drainage and filters / screens to ensure any leaching or pollutant spill is avoided into adjacent waterbodies via engineering design. A Pollution Risk Assessment would be carried out identifying materials, areas and activities of greatest risk and laying out controls on these. From this a Pollution Prevention Plan (PPP) would be prepared. The PPP would be a sub-plan of the CEMP (although the PPP would also be taken forward and be in place during operation (including maintenance) and decommissioning stages). All works would be carried out in accordance with the CIRIA *Control of water pollution from construction sites: Guidance for consultants and contractors (C532)*³² to protect water quality.
- 9.86 Whilst four new watercourse crossings would be required for the proposed new access tracks surrounding turbines T10, T14 and T16, potentially requiring installation of a culvert, habitat loss on banks and disturbance whilst completing these works will be minimised.
- 9.87 Any security fencing around the Project for Assessment will be designed with regular small gaps at the base to allow the passage of mammals such as hedgehog and badger. This will prevent the Assessment Boundary from becoming inaccessible to them for foraging / commuting.

Non-statutory designated sites

- 9.88 Protective fencing will be installed and appropriate signage implemented to define the working area and avoid encroachment onto Knowl Moor SBI and Scout Moor BHS. The mitigation measures proposed would be developed within the CEMP.
- 9.89 There would also be an emergency plan for the construction stage to deal with accidental spillages included in the CEMP.

Habitats

- 9.90 The loss of plant communities is an unavoidable consequence of the Project for Assessment. However, incidental habitat loss would be avoided by minimising the footprint of construction activities. This would be achieved by:

- Operating machinery and storing materials within the footprint of permanent construction features wherever practicable; and
- Ensuring that vehicles and their operators do not inadvertently stray onto adjacent habitat areas.

- 9.91 Other measures within the CEMP would be:

- Reinstatement of habitats – best practice techniques for vegetation and habitat reinstatement would be adopted and implemented on areas subject to disturbance, such as the temporary construction compound area, as soon as is reasonably practicable;
- Materials and other temporary infrastructure would be removed off-site and all temporary construction areas will be reinstated;
- The surface layer of soil and vegetation would be stripped separately from the lower soil layers, stored separately, and replaced as intact as possible once the construction stage is complete. Turf material will be replaced as far as reasonably practicable in similar locations to where it was removed;
- Soils removed from the excavated area would be stored separately in piles, no greater than 3m in height, directly adjacent to, or near the tracks on ground appropriate for storage of materials (i.e. relatively dry and flat ground, a minimum of 50m away from watercourses);
- Wherever reasonably practicable, reinstatement of ground disturbed to facilitate construction of the track would be carried out as track construction progresses;
- No refuelling would be permitted at works locations within 50m of watercourses (where reasonably practicable);
- There would be no direct dewatering to watercourses during the construction stage. All outflows from drainage associated with construction would be by diffuse overland drainage at appropriate locations;

- The time between excavating and backfilling of individual sections of cable trench would be minimised near GWDTEs. As a rule, these should be backfilled within three days to minimise drying and disturbance;
- Impermeable barriers and / or clay plugs would be used to avoid the trenches acting as preferential conduits of groundwater; and
- Areas of identified sensitivity (GWDTEs and priority peat) would be marked out / fenced to prevent accidental vehicular access.

General fauna safeguards

- As there would be potential for fauna to access the Assessment Boundary, excavations / holes will be covered at the end of each working day, or a wooden plank placed inside to allow faunal species to escape, should they enter the hole. Any temporarily exposed open pipe system would be capped in such a way as to prevent wildlife gaining access;
- Works would be conducted during daylight hours where possible, avoiding the sensitive periods of dawn and dusk when wildlife is most active. Where works cannot be restricted to daylight hours and where lighting is required, hoods should be used and lights directed at works and away from any habitat features potentially used by species;
- No in-channel obstructions (floodlighting, fencing or diversions) would be permitted within watercourses unless specifically authorised in writing by the relevant authority (i.e., Environment Agency and / or a suitably experienced freshwater Ecologist);
- Measures would be implemented to reduce the potential for construction impacts to bats, e.g., downward-directed artificial lighting would be used to shine light to the working area only and reduce 'light leakage' that may temporarily affect bat flightlines;
- Where appropriate and safe to do so, all construction working areas with potentially suitable open habitats for reptiles and amphibians would initially be cut during the active season for reptiles and amphibians (March to October, inclusive);
- The works would be carried out under the supervision of the ECoW. Working areas would then be kept unsuitable for reptiles and amphibians through regular cutting until construction in that location commences;
- In the event that a protected species is discovered on-site, all work in that area would stop immediately and the ECoW would be contacted. Increased buffer areas may be required in these locations. Details of the local police Wildlife Crime Officers, Natural England Area Officer, and Royal Society for the Prevention of Cruelty to Animals (RSPCA)-relevant Officer would be held in the site emergency procedure documents;
- No new ground would be cleared without prior inspection by the ECoW to enable herpetofauna, small mammals and invertebrates, should they be present, to disperse before clearance; and

- A site speed limit of 15 mph would be in place at all times to reduce the risk of collision and protected species mortality associated with construction vehicles.

Badger

- 9.92 One active main sett was found (see **Appendix 9.2: Protected Species Survey**); thus, a 30m buffer will be maintained around the sett location during works which may include boundary fencing.
- 9.93 A pre-construction badger survey will be carried out prior to works commencing to ensure there has been no new additional sett creation within Assessment Boundary.
- 9.94 If any new badger setts are identified within 30m of the Project for Assessment footprint, then they may require closure under licence, dependant on their location and level of likely impact. A licence would be required from Natural England if exclusion of badgers from a sett temporarily / permanent and / or destruction of a sett is unavoidable. If a licence is required, licence conditions for working periods are likely to be included. Closure of a sett cannot take place between December and June (inclusive of when badgers are breeding) as the winter months are when badgers are giving birth to their young or in torpor. Works would not commence until the licence had been awarded and would follow the measures included in the licence Method Statement.

Water vole

- 9.95 A pre-construction water vole survey will be carried out prior to works commencing to ensure no evidence is present within any ditches where a crossing is proposed. A licence to displace water voles may be required from Natural England if water vole presence is confirmed during the surveys and if the works will intentionally damage or destroy burrows or displace water voles from their burrows for the Project for Assessment. This includes:
- Cutting vegetation back to bare earth in the spring;
 - Carrying out a destructive search of water vole burrows following removal of vegetation; and
 - Destroying water vole burrows after a destructive search.
- 9.96 Displacement is recommended under the following circumstances:
- Where there is a working area with a maximum length of 50m (for watercourses this equates to 50m on each bank), although a shorter maximum length will be appropriate in situations where water voles are at a higher density;
 - In England, works are conducted between 15th February and 15th April inclusive; and
 - Where there is sufficient available alternative habitat for water voles to move into.
- 9.97 Works would not commence until the licence had been awarded and would follow the measures included in the licence Method Statement.

Otter

- 9.98 A pre-construction otter survey will be carried out prior to works commencing to ensure no holts have been constructed on the Assessment Boundary. If the Project for Assessment

cannot avoid an offence with respect to otters, a European Protected Species (EPS) licence will be required from Natural England to allow work to proceed. Such a licence can only be issued if it can be demonstrated that:

- The purpose of the licence is to preserve public health or public safety or for other imperative reasons of overriding public interest;
- There is no satisfactory alternative; and
- The proposed action will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

9.99 If the destruction of an otter holt or potential otter holt is necessary, it must be carried out when the otters are not present. Confirming that a holt is inactive requires a period of monitoring by checking activity at the holt with wildlife cameras. The entrances may be lightly blocked with vegetation if they remain undisturbed throughout the monitoring period, the holt may then be destroyed immediately using a mechanical digger, under the supervision of the licence holder. If the holt is used for breeding, then it may be necessary to wait for 10 weeks or more until the cubs are able to leave. Works would not commence until the licence had been awarded and would follow the measures included in the licence Method Statement.

Reptiles and amphibians

9.100 Whilst pond P1 was found to support a small breeding population of GCN, this pond is located over 1km from any infrastructure within the Project for Assessment; therefore, provided that this distance is maintained then no licensing for this pond is required.

9.101 Precautionary working measures should be implemented prior to and during construction to prevent killing or injuring amphibians and reptiles utilising the Assessment Boundary, including the implementation of phased vegetation clearance of suitable habitat such as tussocky grassland and unmown field margins.

9.102 Initially, any vegetation to be removed in these habitats should be cut down to approximately 150mm above ground level by hand under the instruction and supervision of a competent Ecologist. This should persuade amphibians and reptiles to move away from the works areas due to the disturbance and reduced amount of cover. After at least 24 hours, the vegetation should then be cut down to ground level, again under the instruction and supervision of the ECoW. A fingertip search will be undertaken by the ECoW in this vegetation. Any individual amphibians and / or reptiles found during these clearance works at any time will be carefully captured by hand and translocated away from the works by the ECoW.

9.103 The topsoil should then be stripped immediately after the fingertip search under the instruction and supervision of the ECoW and stored on-site to be reused. Again, any amphibians and / or reptiles found at this stage will be carefully captured and translocated away from the works.

9.104 The removal of any potential hibernacula (i.e. stone piles / dead wood) and scrub should be undertaken outside of the hibernation period during the active period for amphibians / common reptiles, typically between March and October (weather dependent). In the long-

term, mitigation for the loss of any suitable habitat should be compensated through creation of refugia in the form of log piles within areas of retained habitat.

9.105 In the unlikely event that any GCN are discovered in proximity to the Project for Assessment, advice should be sought from an Ecologist, and licensing may be required issued by Natural England. Although the law provides strict protection to GCN, it also allows this protection to be set aside (derogated) under Regulation 53 of The Conservation of Habitats and Species Regulations 2017 (as amended) through the issuing of EPS licence for the purpose of preserving public health, public safety, other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment. However, in accordance with the requirements of regulations a licence can only be issued where the following requirements are satisfied that:

- There is no satisfactory alternative; and
- The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

9.106 A licence can take up to 12 weeks to process and once granted, any mitigation specified in the licence application would need to be undertaken prior to works commencing and specified methodologies followed during construction.

Operational Stage

9.107 The following primary and tertiary mitigation which has been evaluated as part of the operational stage assessment is outlined below.

Non-statutory designated sites

9.108 In the unlikely event that a pollution event occurred with the potential to affect Knowl Moor SBI and / or Scout Moor BHS, a Suitably Qualified Ecologist would be sought, with any further mitigation required as a result of their advice installed.

Habitats

9.109 The proposed and upgraded access tracks would be left in place after completion of the construction stage as they will provide access for maintenance, repairs, and the eventual decommissioning stage.

9.110 Hardstanding areas at each turbine location would be retained for use in ongoing maintenance operations, with the edges as far as reasonably practicable blended to the adjacent contours with natural vegetation being allowed to re-establish.

The fauna

9.111 A site speed limit of 15 mph would be in place to reduce the risk of faunal collisions with maintenance vehicles.

9.112 The substation lighting will be bat friendly, directed away from any bat features, including watercourses which will also safeguard otter and water vole, and will be activated by motion sensors to reduce any night-time illumination impacting any foraging or commuting bats. There will be no other new lighting within the Assessment Boundary with the exception of aviation warning lights placed at the height of the turbines.

Assessment of Effects, Secondary Mitigation and Residual Effects

Evaluation of Receptors Brought Forward for Further Assessment

- 9.113 The impact assessment below has focused on the designated sites, habitats and species which have been confirmed (or are likely to be) present in the Assessment Boundary, or where the Assessment Boundary falls within their Zol, based on the surveys, and desk study.
- 9.114 These are termed ecological receptors. The sensitivity of these ecological receptors to effects arising as a result of the Project for Assessment is considered here, with the aim of identifying those which are potentially significant and thus taken forward for assessment. The habitats and species present within the Assessment Boundary are reviewed alongside the priority species and habitats listed within the Greater Manchester LBAP and the Lancashire LBAP.
- 9.115 **Table 9.8** presents an evaluation of the nature conservation value of the sites, habitats and species present on / in proximity to the Assessment Boundary which have then been taken forward to the impact assessment.

Table 9.8: Evaluation of ecological receptors

Receptor	Reason for evaluation	Evaluation
Knowl Moor SBI	Knowl Moor SBI lies within the Assessment Boundary and is designated for blanket bog habitats.	County
Scout Moor BHS	Scout Moor BHS lies adjacent to the Assessment Boundary and is designated for blanket bog habitats.	County
M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	Habitat within the Assessment Boundary to be lost for turbine location and associated infrastructure.	Regional
M20 <i>Eriophorum vaginatum</i> blanket and raised mire	Habitat within the Assessment Boundary to be lost for turbine location and associated infrastructure.	Regional
M3 <i>Eriophorum angustifolium</i> bog pool	Habitat within the Assessment Boundary to be lost for turbine location and associated infrastructure.	Regional
M6 <i>Carex echinata</i> - <i>Sphagnum recurva/auriculatum</i> mire	Habitat within the Assessment Boundary to be lost for turbine location and associated infrastructure.	County
Acid grasslands: U5a <i>Nardus stricta</i> – <i>Galium saxatile</i> grassland,	Habitat within the Assessment Boundary to be lost for turbine location and associated infrastructure.	Local

Receptor	Reason for evaluation	Evaluation
species poor sub-community; U6a <i>Juncus squarrosus</i> - <i>Festuca ovina</i> acid grassland, <i>Sphagnum spp.</i> sub-community; and U6d <i>Juncus squarrosus</i> - <i>Festuca ovina</i> acid grassland, <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub- community		
Species-poor soft rush <i>Juncus effusus</i>	Habitat within the Assessment Boundary to be lost for turbine location and associated infrastructure.	Less than local
Waterbodies and Watercourses (ponds, ditches and streams/brooks)	Ponds and watercourses are considered a HPI for the conservation of biodiversity in England, under Section 41 of the NERC Act 2006. There are multiple ditches, streams / brooks and ponds within the Assessment Boundary which hold water at some parts of the year. Without the implementation of mitigation, works have potential to adversely affect waterbodies in the event of any pollution and / or sedimentation incidents.	Local
Bats (foraging and commuting)	Foraging opportunities for bats presented by the open habitat on the Assessment Boundary are limited. However, survey work found low to moderate levels of activity therefore bats could be impacted during the construction and operational stages in the absence of mitigation.	Local
Badger	One active badger sett was found within the Assessment Boundary and, while this sett will be avoided, there is the potential for sett creation within 30m of the Project for Assessment prior to the commencement of the construction stage (as these are highly mobile species).	Less than local
Water vole	Whilst no records or evidence of water vole was found, the ditches within the Assessment Boundary provide some suitability for water vole to utilise.	Local

Receptor	Reason for evaluation	Evaluation
Otter	Records of otter within 2km and the ditches / streams / brooks within the Assessment Boundary have potential be used for commuting.	Local
Reptiles and amphibians	It is considered that the GCN population is small and limited to the one pond in the south (P1) located 1km from the Project for Assessment; and would therefore not be impacted by direct construction effects. Whilst P1 is well separated from the works and GCN utilising this pond will not be impacted, construction works, in the absence of mitigation, could result in the death or injury of individual reptiles / amphibians, if present. Whilst indirect effects such as dust deposition may impact upon any retained suitable habitat during construction activities. Reptiles and amphibians have been scoped in on a precautionary basis.	Less than local

9.116 The following applies to ecological receptors listed above that were brought forward to the detailed ecological impact assessment stage:

- Their value is assessed as being important at a local or higher level (and / or they are subject to some form of legal protection); or
- They are potentially vulnerable to significant impacts from the Project for Assessment.

9.117 Ecological features meeting those criteria are considered Important Ecological Features (IEFs) and the assessment presented below concerns such features only. Mitigation for other features may be included as best practice due to conservation status as appropriate. In line with **Table 9.2**, IEFs include the following:

- Knowl Moor SBI;
- Scout Moor BHS;
- M25 *Molinia caerulea* – *Potentilla erecta* mire;
- M20 *Eriophorum vaginatum* blanket and raised mire;
- M3 *Eriophorum angustifolium* bog pool;
- M6 *Carex echinata* - *Sphagnum recurva/auriculatum* mire;
- Acid grassland;
- Species-poor soft rush;
- Waterbodies and watercourses;
- Bats (foraging and commuting);
- Badger;

- Water vole;
- Otter; and
- Reptiles / Amphibians.

Construction Stage

Designated sites

Knowl Moor SBI and Scout Moor BHS (habitat loss, modification of habitats through hydrological change and altered hydrological pathways)

9.118 Whilst the Project for Assessment avoids these designations, due to the close proximity there is potential for accidental encroachment and habitat loss within the SBI and BHS during construction. Incidental habitat loss will be avoided by minimising the footprint of construction activities. This will be achieved by:

- Operating machinery and storing materials within the footprint of permanent construction features wherever practicable; and
- By ensuring that vehicles and their operators do not inadvertently stray onto adjacent habitat areas.

9.119 In addition, double silt fences will be installed adjacent to the SBI and BHS to prevent sediment / silt infiltration ingress. An ECoW will be present at their installation.

9.120 Further recommendations to avoid indirect impacts, including run-off, dust deposition, accidental damage and encroachment on this county level important designation will be captured in the CEMP. Provided mitigation as outlined within a CEMP is adhered to, any impact on this SBI and BHS is considered, in line with the CIEEM impact levels, to be **not significant**. Confidence in this prediction is certain.

9.121 The value of Knowl Moor SBI and Scout Moor BHS is of county importance. The magnitude of impact is considered to be negligible. Therefore, there is likely to be an indirect, temporary, short-term, adverse effect which is considered to be **negligible**.

9.122 Application of micro-siting allowance does not change the level of effect reported above.

Habitats

9.123 **Chapter 4: Development Specification** includes proposed dimensions of all turbines, turbine foundations, crane hard-standings, access tracks, substation, control building and construction compounds. The impacts are categorised as follows:

- Permanent habitat loss: This includes habitats present under the footprint of the Project for Assessment including tracks, turbine bases, substation, compounds, and drains;
- Temporary habitat loss: Relating to infrastructure in use only during the construction stage (i.e. temporary scaffolds, storage of construction materials); which may cause damage or loss of habitat but is likely to regenerate after the construction stage has finished; and

- Indirect habitat disturbance: Where temporary infrastructure is proposed and in relation drying out effects on habitat adjacent to that directly lost, based on 10m distance from direct loss.

9.124 These potential impacts have been addressed for each habitat IEF brought forward to assessment.

9.125 **Table 9.9** shows the areas of habitats recorded within the Assessment Boundary which will be lost to construction and the proportion of these lost to the Project for Assessment. Habitats where there are no losses are not included.

9.126 On a precautionary basis, total loss includes habitats within 10m of all proposed infrastructure to account for indirect drying effects. Much of the Assessment Boundary is modified by livestock grazing, vegetation management and drainage. As such, an indirect loss buffer of 10m from all proposed infrastructure is considered appropriate for potential priority peatlands, which also applies to all habitats including GWDTEs.

Table 9.9: Predicted habitat losses within the Assessment Boundary

NVC Code	Total area within Assessment Boundary (ha)	Direct loss (ha)	Indirect loss (ha)	Total loss (ha) ⁱⁱⁱ	Percentage of loss (%)
M25a <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire, <i>Erica tetralix</i> sub-community	361.17	14.31	12.22	26.53	7.35
M25b <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire, <i>Anthoxanthum odoratum</i> sub-communitiy	76.67	0.03	0.06	0.10	0.12
U5a <i>Nardus stricta</i> – <i>Galium saxatile</i> grassland, species poor sub-community	234.19	3.36	2.77	6.13	2.62
U6a <i>Juncus squarrosus</i> – <i>Festuca ovina</i> acid grassland, <i>Sphagnum</i> spp. sub-community	4.83	0.18	0.08	0.26	5.40

ⁱⁱⁱ Discrepancies with total losses is caused by rounding variance.

NVC Code	Total area within Assessment Boundary (ha)	Direct loss (ha)	Indirect loss (ha)	Total loss (ha) ⁱⁱⁱ	Percentage of loss (%)
U6d <i>Juncus squarrosus</i> - <i>Festuca ovina</i> acid grassland, <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community	43.77	2.91	1.73	4.64	10.6
M20 <i>Eriophorum vaginatum</i> blanket and raised mire	4.13	0.00	0.00	0.00	0.00
M3 <i>Eriophorum angustifolium</i> bog pool	3.14	0.39	0.27	0.66	21.02
M6 <i>Carex echinata</i> - <i>Sphagnum recurva/auriculatum</i> mire	18.20	<0.04	<0.02	0.06	0.33
80% M20 <i>Eriophorum vaginatum</i> blanket and raised mire and 20% M3 <i>Eriophorum angustifolium</i> bog pool community	26.70	1.86	2.05	3.91	14.64
40% M20 <i>Eriophorum vaginatum</i> blanket and raised mire and 60% M3 <i>Eriophorum angustifolium</i> bog pool community	92.32	2.23	2.63	4.86	5.26
70% <i>Juncus effusus</i> species-poor and 30% U5a <i>Nardus stricta</i> – <i>Galium saxatile</i> acid grassland, species-poor sub-community	2.99	0.15	0.30	0.45	15.05
Species-poor soft rush	24.26	0.00	0.00	0.00	0.00

M25 *Molinia caerulea* – *Potentilla erecta* mire (habitat loss, modification of habitats through hydrological change and altered hydrological pathways)

- 9.127 Losses to two sub-communities of M25 will occur and this habitat is of Regional value and aligns with the HPI 'Blanket bog' and also meets the criteria for two Annex 1 habitats, namely '7130 Blanket bogs' and '7120 Degraded raised bogs still capable of natural regeneration'.
- 9.128 There will be a total loss of 26.62ha, 14.34ha of which will be a direct loss. Direct and indirect loss equates to 6.08% of the 437.84ha recorded within the Assessment Boundary.
- 9.129 Losses on an HPI/Annex 1 habitat are considered, in line with CIEEM impact levels, to have a **large adverse significant effect** with confidence in this prediction being certain. Mitigation measures are discussed within the **Moorland Restoration and Management Plan** to reduce these impacts.
- 9.130 The value of M25 is considered to be of regional importance. The magnitude of impact on M25 is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be **major**.
- 9.131 Application of microsite allowance does not change the level of effect reported.
- 9.132 M25 habitats have moderate groundwater dependency and measures to protect GWDTE will be included with a CEMP.

M20 *Eriophorum vaginatum* blanket and raised mire (habitat loss, modification of habitats through hydrological change and altered hydrological pathways)

- 9.133 This habitat is of Regional value and aligns with the HPI 'Blanket bog' and also meets the criteria for two Annex 1 habitats, namely '7130 Blanket bogs' and '7110 Active raised bogs'.
- 9.134 There will be no losses to the 4.13ha recorded within the Assessment Boundary. However, losses to this habitat will occur through the habitat mosaics between M20 and M3. Losses to the mosaic supporting 80% M20 and 20% M3 total 3.92ha, 3.14ha of which accounts for M20 (calculated as 80% of the total ha); whilst 1.94ha (calculated as 40% of the total ha) will be lost within the mosaic containing 40% M20 and 60% M3. This equates to a total loss of 5.08ha of M20 across the Assessment Boundary, which is 8.14% of the 62.42ha total of this habitat present (including the mosaics). HPI / Annex 1 habitats are of regional importance and therefore any losses on these habitats are considered, in line with CIEEM impact levels, to have a **large adverse significant effect** with confidence in this prediction being certain. Mitigation measures are discussed within the **Moorland Restoration and Management Plan** to reduce these impacts.
- 9.135 The value of M20 is considered to be of regional importance. The magnitude of impact on M20 is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be **major**.
- 9.136 Application of microsite allowance does not change the level of effect reported.

M3 *Eriophorum angustifolium* bog pool (habitat loss, modification of habitats through hydrological change and altered hydrological pathways)

- 9.137 This habitat is of Regional value and aligns with the HPI 'Blanket bog' and also meets the criteria for one Annex 1 habitat, namely '7130 Blanket bogs'.
- 9.138 Direct and indirect losses on this habitat total 20.86%, with a total of 0.39ha accounting for direct losses. Similar to M20 above, further losses will occur through the habitat mosaics between M20 and M3. Losses to the mosaic supporting 80% M20 and 20% M3 total 3.92ha, 1.18ha of which accounts for M3 (calculated as 20% of the total ha); whilst 2.92ha (calculated as 60% of the total ha) will be lost within the mosaic containing 40% M20 and 60% M3. This equates to a total loss of 4.75ha of M3 across the Assessment Boundary, which is 7.43% of the 63.89ha total of this habitat present (including the mosaics).
- 9.139 HPI / Annex 1 habitats are of regional importance and therefore any losses on these habitats are considered, in line with CIEEM impact levels, to have a **large adverse significant** effect with confidence in this prediction being certain. Mitigation measures are discussed within the **Moorland Restoration and Management Plan** to reduce these impacts.
- 9.140 The value of M3 is considered to be of regional importance. The magnitude of impact on M3 is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be **major**.
- 9.141 Application of micro-siting allowance does not change the level of effect reported.

M6 *Carex echinata* - *Sphagnum recurva/auriculatum* mire (habitat loss, modification of habitats through hydrological change and altered hydrological pathways)

- 9.142 This habitat is of County value and aligns with the HPI 'Upland Flushes, Fens and Swamps'. There will be loss of 0.05ha; 0.04ha of which will be a direct loss.
- 9.143 The loss equates to 0.29% of the 18.20ha recorded within the Assessment Boundary, which is considered, in line with CIEEM impact levels, to be a **small adverse (non-significant) effect** in the medium-term. Confidence in this prediction is near certain.
- 9.144 The value of M6 is considered to be of county importance. The magnitude of impact is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect from habitat loss during construction, which is considered to be **minor**.
- 9.145 Application of micro-siting allowance does not change the level of effect reported.

Acid Grassland (habitat loss)

- 9.146 A total of 2.61%, 5.40% and 9.20% of acid grasslands U5a *Nardus stricta* – *Galium saxatile* grassland, the species poor sub-community; U6a *Juncus squarrosus*-*Festuca ovina* acid grassland, *Sphagnum* spp. sub-community; and U6d *Agrostis capillaris* - *Luzula multiflora* sub-community, respectively, will be lost during construction. However, these habitats are widespread in the local area with little ecological value and do not constitute HPI / Annex 1 habitats. Therefore, the loss of these habitats is considered, in line with CIEEM impact levels, to be **not significant**, with compensation to offset losses proposed in the form of enhancing existing poor condition modified grassland into upland acid grassland in good condition, as outlined within the **Biodiversity Net Gain Assessment**. Confidence in this prediction is near certain.

9.147 The value of acid grassland is considered to be of local importance. The magnitude of impact is considered to be small from habitat loss during construction. Therefore, there is likely to be a direct, temporary, medium-term, adverse effect, which is considered to be **minor**.

9.148 Application of microsinning allowance does not change the level of effect reported.

Species-poor soft rush (habitat loss and modification of habitats through hydrological change)

9.149 Given this habitat is relatively widespread in the wider area, and that it does not comprise an Annex 1 or HPI, potential impacts do not relate to biodiversity but rather groundwater flow. Measures to protect GWDTE will be included with a CEMP; therefore, the loss of 0.31ha of this habitat from the 70% *Juncus effusus* species-poor and 30% U5a is considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is near certain.

9.150 The value of this species-poor soft rush habitat is considered to be of less than local importance. The magnitude of impact is considered to be small from habitat loss during construction. Therefore, there is likely to be a direct, permanent, long-term, adverse effect, which is considered to be **negligible**.

9.151 Application of microsinning allowance does not change the level of effect reported.

Waterbodies and Watercourses (habitat loss, modification of habitats through hydrological change and altered hydrological pathways)

9.152 The ditches / streams / brooks and ponds within the Assessment Boundary are to be largely retained with only small losses to bankside vegetation anticipated as part of the Project for Assessment to facilitate the creation of four new crossings near turbines T10, T14 and T16. Pollution prevention plans will be in place as part of the CEMP and therefore this impact is considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is certain.

9.153 The value of waterbodies and watercourses is considered to be of local importance. The magnitude of impact is considered to be small from pollution events and habitat loss during construction. Therefore, there is likely to be an indirect, permanent, long-term, adverse effect caused by habitat loss, which is considered to be **minor**.

9.154 Application of microsinning allowance does not change the level of effect reported.

Species of Conservation Concern

Bats (foraging and commuting) (disturbance (via noise and light) and fragmentation of species ranges of habitats)

9.155 Night-time working and use of artificial lighting will be minimised and largely restricted to the winter months when bats are undergoing hibernation with minimal activity; reducing impacts. Where works cannot be restricted to daylight hours and where lighting is required, hoods should be used and lights directed at works and away from any linear features potentially used for commuting (such as ditches, watercourses, hedgerows and treelines) and away from any potential foraging habitat (such as woodland). Construction effects on commuting and foraging bats are therefore considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is near certain.

9.156 The value of foraging and commuting bats is considered to be of local importance. The magnitude of impact is considered to be negligible. Therefore, there is likely to be an indirect, temporary, short-term, adverse effect which is considered to be **negligible**.

9.157 Application of microsinning allowance does not change the level of effect reported.

Badger (disturbance (via noise and light), fragmentation of species ranges or habitats and injury / mortality from construction activities)

9.158 One active main sett was found (the location of which is not included here for reasons of confidentiality, see **Appendix 9.2: Protected Species**). A 30m buffer will be maintained between this location during works which may include boundary fencing. However, foraging and commuting badgers could be disturbed by the construction stage via trapping in excavations. The excavations for the on-site electrical cabling and the electrical grid connection infrastructure are only to be temporary and short scale, but in the absence of mitigation, this could be, in line with CIEEM impact levels, a **medium adverse significant** effect on an individual badger.

9.159 Should a badger sett be newly excavated within the vicinity of the works area, construction activities could disturb or destroy the sett if they are close by. In the absence of mitigation, this could be, in line with CIEEM impact levels, a **large adverse significant** effect.

9.160 Providing that the mitigation relating to pre-construction badger checks and licencing is implemented, as outlined in 'Primary and Tertiary Mitigation' above, are adhered to then **no adverse effects are considered likely to remain**. Construction effects on badger are therefore considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is near certain.

9.161 The value of badger is considered to be of less than local importance. The magnitude of impact is considered to be medium to large. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **minor to moderate**, in the absence of mitigation. However, with the implementation of the Primary and Tertiary Mitigation, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **negligible to minor**, with the magnitude of impact considered to be negligible.

9.162 The application of the microsinning allowance does not change the level of effect reported.

Water vole (disturbance (via noise and light), altered hydrological pathways and injury / mortality from construction activities)

9.163 No evidence of water vole was found during surveys and, while the ditches and streams /brooks do not provide overly suitable habitat, opportunities for this species does exist. The infrastructure layout includes the creation of an access track that crosses a series of ditches connecting to Grain Brook south of turbine T14, whilst a small section of ditch will be crossed to facilitate the access track from T10. Furthermore, this proposed track crosses ditches again between the construction compound and T4, with areas of hardstanding surrounding turbines T1, T3 and T4 in close proximity to ditches. Therefore, construction works have the potential to destroy burrows and injure / kill / disturb water vole (if present) and unmitigated. In the absence of mitigation, this could be, in line with CIEEM impact levels, a **large adverse significant** effect.

9.164 Providing that the Primary and Tertiary Mitigation relating to pre-construction water vole checks and licencing is implemented, as outlined in Primary and Tertiary Mitigation above, are adhered to then **no adverse effects are considered likely to remain**. Construction effects on water vole are therefore considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is near certain.

9.165 The value of water vole is considered to be of local importance. The magnitude of impact is considered to be large. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **minor to moderate**, in the absence of mitigation. However, with the implementation of the Primary and Tertiary Mitigation, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **negligible to minor**, with the magnitude of impact considered to be negligible.

9.166 Application of microsinning allowance does not change the level of effect reported above.

Otter (disturbance (via noise and light), fragmentation of species ranges or habitats, altered hydrological pathways and injury / mortality from construction activities)

9.167 No signs of otter holts or field signs were recorded during the surveys, but there are records in the wider area, and it is considered likely that they may range onto the Assessment Boundary via the ditches /streams although suitability for holts and couch creation on the banks is limited. If otter holts are present within the vicinity of the Project for Assessment, particularly within the banks where the four new crossings are proposed, then the works have the potential to destroy and / or damage these. Construction works have the potential to disturb otters within rest sites, if present. In the absence of mitigation, this could be, in line with CIEEM impact levels, a **large adverse significant** effect.

9.168 Commuting and foraging otters could be disturbed by the construction stage via trapping in excavations or by noise and disruption from the construction works. As above, the excavations for the on-site electrical cabling and the electrical grid connection infrastructure are only to be temporary and short scale but in the absence of mitigation, this could be, in line with CIEEM impact levels, a short-term **medium adverse significant** effect on an individual otter.

9.169 Providing that the Primary and Tertiary Mitigation relating to pre-construction otter checks and licencing, outlined above, are adhered to, then **no adverse effects are considered likely to remain**. Construction effects on otter are therefore considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is near certain.

9.170 The value of otter is considered to be of local importance. The magnitude of impact is considered to be large. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **minor to moderate**, in the absence of mitigation. However, with the implementation of the Primary and Tertiary Mitigation, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **negligible to minor**, with the magnitude of impact considered to be negligible.

9.171 Application of microsinning allowance does not change the level of effect reported above.

Reptiles and Amphibians (Fragmentation of species ranges of habitats, altered hydrological pathways and injury / mortality from construction activities)

- 9.172 A small breeding population of GCN were found using pond P1 (see **Appendix 9.4: Great Crested Newt**). This pond is currently situated 1km south of the Project for Assessment, and this 1km distance will be maintained between P1 and any proposed infrastructure to avoid individual GCN using this pond being impacted by direct construction effects. GCN presence was not confirmed within any other waterbodies surveyed.
- 9.173 Suitable habitat for amphibians is present in the form of marshy grassland and wet ditches whilst the heathland, habitat mosaics and open areas for basking provide suitable habitat for reptiles (although no evidence of reptiles were identified during surveys).
- 9.174 Construction works, in the absence of mitigation, could result in the death or injury of individual herpetofauna, if present. In the absence of mitigation, this could be, in line with CIEEM impact levels, a **medium adverse significant** effect.
- 9.175 Providing that the Primary and Tertiary Mitigation relating to pre-construction phased vegetation clearance and licencing, outlined above, are adhered to then **no adverse effects are considered likely to remain**. Construction effects on herpetofauna are therefore considered, in line with CIEEM impact levels, to be **not significant**. Confidence in this prediction is near certain.
- 9.176 The value of reptiles and amphibians is considered to be of less than local importance. The magnitude of impact is considered to be medium, accounting for the microsinning allowance. Therefore, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **minor**, in the absence of mitigation. However, with the implementation of the Primary and Tertiary Mitigation, there is likely to be a direct, temporary, short-term, adverse effect which is considered to be **negligible to minor**, the magnitude of impact is considered to be negligible.
- 9.177 Application of microsinning allowance does not change the level of effect reported above.

Pre-secondary mitigation assessment summary for construction stage

- 9.178 A summary of the effects on the ecological receptors listed below is included in **Table 9.10**, in the absence of secondary mitigation.

Table 9.10: Assessment summary

Stage	Receptor	Effects	CIEEM Impact Level	EIA level of effect
Construction	Knowl Moor SBI and Scout Moor BHS	Indirect impacts including run-off, dust deposition, accidental damage and encroachment.	Not Significant	Negligible adverse
	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	Loss of habitat and indirect	Significant	Major adverse

Stage	Receptor	Effects	CIEEM Impact Level	EIA level of effect
		impacts from pollution event.		
	M20 <i>Eriophorum vaginatum</i> blanket and raised mire	Loss of habitat	Significant	Major adverse
	M3 <i>Eriophorum angustifolium</i> bog pool	Loss of habitat	Significant	Major adverse
	M6 <i>Carex echinata</i> - <i>Sphagnum recurva/auriculatum</i> mire	Loss of habitat	Not Significant	Minor adverse
	Acid grassland	Loss of habitat	Not Significant	Minor adverse
	Species-poor soft rush	Indirect impacts from pollution event.	Not Significant	Negligible adverse
	Waterbodies and Watercourses	Indirect impacts from pollution event and small losses to bankside vegetation during creation of four new crossings.	Not Significant	Minor adverse
	Bats (foraging and commuting)	Disturbance from construction Activities however no nighttime working so no disturbance predicted.	Not Significant	Negligible adverse
	Badger	Trapped in excavations and disturbance / destruction of sett.	Not Significant	Minor to moderate adverse / Negligible to minor adverse (with primary and tertiary mitigation)
	Water vole	Disturbed by construction	Not Significant	Minor to moderate

Stage	Receptor	Effects	CIEEM Impact Level	EIA level of effect
		works, destruction of burrows and potential injury / death.		adverse / Negligible to minor adverse (with primary and tertiary mitigation)
	Otter	Trapped in excavations or disturbed by construction works.	Not Significant	Minor to moderate adverse / Negligible to minor adverse (with primary and tertiary mitigation)
	Reptiles and amphibians	Loss of suitable habitat and risk of death or injury.	Not Significant	Minor adverse / Negligible to minor adverse (with primary and tertiary mitigation)

Secondary mitigation or enhancement

9.179 In addition to the primary and tertiary mitigation measures in the Project for Assessment, this section sets out proposed additional mitigation, compensation and enhancement measures for ecological features for which a significant effect is predicted during the construction stage or where measures are required for good practice and should be read in conjunction with the **Moorland Restoration and Management Plan**.

Annex 1 Habitats / HPI

9.180 Approximately 26.63ha, 5.08ha and 4.75ha are predicted to be lost from the NVC communities M25 *Molinia caerulea* – *Potentilla erecta* mire, M20 *Eriophorum vaginatum* blanket and raised mire and M3 *Eriophorum angustifolium* bog pool, respectively, to facilitate the Project for Assessment. To mitigate for these losses, a **Moorland Restoration and Management Plan** has been created, and submitted as part of the Applications, outlining habitat enhancement to be completed within the Assessment Boundary. While this forms part of the Project for Assessment, it has been considered here to ensure that the pre-mitigation effects are clearly identified (see above).

9.181 To compensate peatland loss in Scotland, NatureScot (2023)³³ guidance states that a 1:10 (lost: restored) ratio of priority peatland (defined as showing ‘evidence of being undisturbed and actively forming peat’) should be undertaken. Following this guidance, total priority peatland loss during construction accounts for 36.46ha; therefore, on a x10 basis, 364.6ha would require restoration under the NatureScot (2023) guidance.

- 9.182 As outlined in the **Moorland Restoration and Management Plan**, 118ha has been identified under the current restoration plan within areas of priority peatland habitat. This is considered a significant enhancement when considered in the context that guidance defines priority peatlands as peatlands which show 'evidence of being undisturbed and actively forming peat'; yet the majority of habitat to be lost is not actively peat forming and is being actively drained. Degradation is also being caused by unmanaged grazing, off-road vehicle damage and historic burning.
- 9.183 The restoration strategy is split into two categories – 'Controlled Restoration' and 'Community Restoration'. The areas selected for the traditional peatland restoration, or the 'Controlled Restoration' have been selected using results from the ecology and hydrology surveys, identifying areas that require intervention to stop further degradation. In order to identify areas of peat suitable for restoration erosion features (drains, fissures) were mapped using hi-resolution aerial imagery, with a 10m buffer applied. A principal aim of restoration will be to restore all peatlands towards M17 *Trichophorum germanicum* – *Eriophorum vaginatum* blanket mire. M25, which dominated the Assessment Boundary, is typically a degraded form of bog which, with the right interventions, can be pushed towards M17. M17 is typically wetter, holds deeper peat and contains a higher diversity of mosses and floral species.
- 9.184 Water levels will be increased within identified locations across the Assessment Boundary, accounting for 71ha, via ditch blocking, gully reprofiling and bog creation. Purple moor grass management utilising flailing will be undertaken in both controlled restoration areas and within community restoration areas to encourage natural regeneration of vegetation. Plug planting of suitable species (indicative list of species provided at Appendix C within the **Moorland Restoration and Management Plan**), spot turfing and patch repair will work to increase the cover and diversity of *Sphagnum* species across 47ha within the Assessment Boundary. Detailed prescriptions are included in the **Moorland Restoration and Management Plan**.
- 9.185 Losses to HPis and habitats that qualify as Annex 1 should be avoided; however, given that these losses are unavoidable under the Project for Assessment, their degraded state which limits their current conservation value, and opportunities provided to restore larger areas than those being lost, it is assessed that the enhancements proposed are sufficient to adequately offset losses to these HPI/Annex 1 habitats with confidence near certain.

Residual effect

- 9.186 For Knowl Moor SBI and Scout Moor BHS, which are considered to be of county importance, in the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.187 The value of M25 *Molinia caerulea* – *Potentilla erecta* mire, M20 *Eriophorum vaginatum* blanket and raised mire and M3 *Eriophorum angustifolium* bog pool is considered to be of regional importance. As a result of secondary mitigation in relation to HPis / Annex 1 habitats, in line with CIEEM impact levels, **no adverse residual effects are considered likely to remain**. The magnitude of impact, following secondary mitigation, is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, neutral to moderate beneficial residual effect which is considered to be **minor to moderate**. The prescriptions detailed within the **Moorland Restoration and Management Plan** will result in a net benefit, particularly in relation to the habitats around the existing wind farm, via

restoration of degraded habitats. These will be subject to restoration measures but no construction activities, and thus recovery can begin at an earlier stage with the potential for biodiversity enhancements in a shorter timescale.

- 9.188 The value of M6 *Carex echinata* - *Sphagnum recurva/auriculatum* mire is considered to be of county importance. In the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.189 The value of acid grassland and species-poor soft rush is considered to be of local importance and less than local importance, respectively. In the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.190 The value of waterbodies and watercourses is considered to be of local importance. In the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.191 For bats (foraging and commuting), which are considered to be of local importance, in the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.192 The value of water vole and otter is considered to be of local importance. In the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.193 The value of badger, reptiles and amphibians is considered to be of less than local importance. In the absence of secondary mitigation, the residual effects are that same as that reported in the pre-mitigation scenario.
- 9.194 Application of microsinning allowance does not change the residual level of effect reported above.

Significance

- 9.195 The residual effects on Knowl Moor SBI and Scout Moor BHS is **Not Significant**.
- 9.196 The residual effect on M25 *Molinia caerulea* – *Potentilla erecta* mire, M20 *Eriophorum vaginatum* blanket and raised mire and M3 *Eriophorum angustifolium* bog pool is **Significant**.
- 9.197 The residual effects on M6 *Carex echinata* - *Sphagnum recurva/auriculatum* mire, acid grassland, species-poor soft rush and waterbodies and watercourses are **Not Significant**.
- 9.198 The residual effects on bats (foraging and commuting), badger, water vole, otter, reptiles and amphibians are **Not Significant**.

Operational Stage

- 9.199 Once the Project for Assessment is constructed and is in operation, there will be no further impacts on the following IEFs, and they are not considered further:
- Knowl Moor SBI;
 - Scout Moor BHS;

- M25 *Molinia caerulea* – *Potentilla erecta* mire;
- M20 *Eriophorum vaginatum* blanket and raised mire;
- M3 *Eriophorum angustifolium* bog pool;
- M6 *Carex echinata* - *Sphagnum recurve* / *auriculatum* mire;
- Acid grassland;
- Species-poor soft rush; and
- Waterbodies and watercourses.

9.200 Whilst effects from construction on hydrologically sensitive habitats may persist into operation, there are no new effects generated by the operational stage. The ECoW will monitor the condition of sensitive habitats, including areas of GWDTE, restored peat and watercourses.

9.201 In order to assess the effectiveness of the habitat restoration post-construction, a programme of fixed-point photography and quadrat monitoring in Years 1, 3 and 5 will be in place. The monitoring will be used to assess the effectiveness of the **Moorland Restoration and Management Plan** and the **Habitat Management and Monitoring Plan**, which can be updated to reflect this survey data should results find that habitats are not recovering and / or regenerating as expected. Overall, **no significant effects** are considered likely.

9.202 In line with **Table 9.2**, IEFs include the following:

- Bats (foraging and commuting);
- Badger;
- Water vole;
- Otter; and
- Reptiles and amphibians.

Species of Conservation Concern

Bats (foraging and commuting) (disturbance (via noise and light), fragmentation of species ranges and habitats and injury / mortality from collision)

9.203 During the operational stage, there is a risk of collision from bat species with the turbine through displacement and direct mortality via collision with the wind turbine blades, or via barotrauma where the pressure differences associated with the movement of turbine blades can cause internal organ damage to bats flying in close proximity to them.

9.204 Static survey results from between 2022 – 2024 found that the Assessment Boundary is predominantly used by common pipistrelle and soprano pipistrelle, with small numbers of Nathusius's pipistrelle, *Nyctalus* sp., *Myotis* sp. and brown long-eared bats. Whilst low to moderate levels of bat activity has been recorded during the surveys, activity was dominated

by common pipistrelle which is listed by Natural England (2014)³⁴ as being at low risk at the population level from wind farms.

- 9.205 Activity levels of high risk species (*Nyctalus* sp. and Nathusius's pipistrelle) were lower with a total of 234 calls, accounting for 1.1% of total calls recorded, across the 2024 season for Nathusius's pipistrelle. Of these Nathusius's pipistrelle calls, 25.21% were recorded at static location 11 (**Figure 9.5: Bat Static Locations**); and turbine T15 will be placed near here. However, Nathusius's pipistrelle prefer large waterbodies, none of which are present directly adjacent to proposed turbine locations, whilst static location 11 is located between Cowpe Reservoir and Scout Moor High Level Reservoir; therefore, it is possible that higher activity levels of Nathusius's pipistrelle at this location was caused by proximity to these reservoirs. *Nyctalus* sp. only accounted for 0.6% of all bat activity recorded in 2024, with 15.25%, 27.97% and 19.49% of this activity concentrated around static locations 1, 2 and 4; respectively (**Figure 9.5: Bat Static Locations**).
- 9.206 The impact on foraging and commuting bat assemblage is considered, in line with CIEEM impact levels, to be a **small adverse (non-significant) effect**. Confidence in this prediction is near certain.
- 9.207 The value of foraging and commuting bats is considered to be of local importance. The magnitude of impact from the additive effects of the Project for Assessment on the bat assemblage is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be **minor**.
- 9.208 The potential effects on bats during the operational phase have been based on the current baseline data obtained across 2022-2024. Due to the MRMP habitat restoration measures, there is potential for the quality of the vegetation and peat resource to improve during the operational phase. This is not, however, considered likely to cause an increase in the use of the area by bats as it will remain an open and exposed moorland with limited roosting habitat, shelter and flightlines for the smaller bat species (such as common and soprano pipistrelles) which were most commonly recorded. Whilst the reduction in grazing density required to facilitate the habitat restoration may serve to slightly reduce the food resource potentially available to bats in the Assessment Boundary due to reduced livestock numbers (and consequently some forms of invertebrate prey), this is likely to be balanced by improved water retention on the moor and restoration of wetland habitats, which is likely to increase the invertebrate populations (albeit of subtly different species); potentially resulting in no net effect. Given the already low numbers of bats recorded within the Assessment Boundary, and the fact that it does not represent an important foraging resource, changes to the quality and composition of the habitat will not be material to the assessment of effects to bats outlined above (i.e. even accounting for maturation of the MRMP measures, the effect on bats will be, in line with CIEEM impact levels, a **non-significant effect** / no greater than of a small magnitude, resulting in a minor effect).
- 9.209 Application of micro-siting allowance does not change the level of effect reported.

Other fauna (badgers, otter, water vole and herpetofauna)

- 9.210 Provided that the Primary and Tertiary mitigation detailed above is followed, once operational, there will be no further works which could disturb badgers, otter, water vole or herpetofauna in the area. Operational effects on other fauna are considered to be **not significant**. Confidence in this prediction is near certain.

9.211 The value of other fauna is considered to be of local to less than local importance. The magnitude of impact from the additive effects of the Project for Assessment on the other fauna is considered to be **small to negligible**. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be **negligible**.

Pre-secondary mitigation assessment summary for operational stage

9.212 A summary of the effects on the ecological receptors listed below is included in **Table 9.11**, in the absence of secondary mitigation.

Table 9.11: Assessment summary

Stage	Receptor	Effects	CIEEM Impact Level	EIA level of effect
Operational	Bats (foraging and commuting)	Disturbance (via noise and light) Fragmentation of species ranges or habitats Injury / mortality from collision	Not Significant	Minor adverse
	Other fauna	Disturbance (via noise and light) Fragmentation of species ranges or habitats Altered hydrological pathways		Negligible adverse

Secondary mitigation or enhancement

9.213 No secondary mitigation or enhancement is required for the operational stage.

Residual effect

9.214 In the absence of secondary mitigation, the residual effects for bats (foraging and commuting) and other fauna are the same as that reported in the pre-mitigation scenario.

Significance

9.215 The residual effects on bats (foraging and commuting), badger, water vole, otter, reptiles and amphibians are **Not Significant**.

Limitations and Assumptions

9.216 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- Some waterbodies just outside of the Assessment Boundary were unable to be surveyed for eDNA due to access issues. This is not considered a limitation as these waterbodies were nearby other pond clusters that were surveyed fully and found to have negative results for eDNA. The waterbodies not surveyed were also over 500m from the positive GCN pond (P1); and

- There are areas of the Assessment Boundary that have not undergone any habitat surveys. However, no turbines or infrastructure are proposed within these areas; thus, this is not considered to be a constraint or influence the assessment presented within this Chapter.

Summary

9.217 **Table 9.12** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter.

9.218 The table only provides a summary of the residual effects identified within the assessment and details of all primary, secondary and tertiary mitigation measures that have been taken into account are set out in detail within the Chapter and summarised in the Environmental Management Plan included in **Volume 3: Environmental Management Plan**.

Table 9.12: Summary of residual effects

Receptor		Effect	Residual level of effect	Is the residual effect Significant?
Construction stage				
Knowl Moor SBI and Scout Moor BHS		Habitat loss Modification of habitats through hydrological change Altered hydrological pathways	Negligible adverse	No
Degraded blanket bog habitat ^{iv}	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	Habitat loss Modification of habitats through hydrological change Altered hydrological pathways	Minor to Moderate beneficial	Yes – long term significant benefit as a result of moorland restoration
	M20 <i>Criophore vaginatum</i> blanket and raised mire		Minor to Moderate beneficial	Yes – long term significant benefit as a result of moorland restoration
	M3 <i>Eriophorum angustifolium</i> bog pool		Minor to Moderate beneficial	Yes – long term significant benefit as a result of

^{iv} Noting that effects on blanket bog habitats would potentially be up to minor adverse (Not Significant) during decommissioning.

Receptor	Effect	Residual level of effect	Is the residual effect Significant?
			moorland restoration
M6 <i>Carex echinata</i> - <i>Sphagnum recurva/auriculatum</i> mire		Minor adverse	No
Acid grasslands (U5a, U6a and U6d)	Habitat loss	Minor adverse	No
Species-poor soft rush	Habitat loss Modification of habitats through hydrological change	Negligible adverse	No
Waterbodies and watercourses (ponds, ditches and streams / brooks)	Habitat loss Modification of habitats through hydrological change Altered hydrological pathways	Minor adverse	No
Bats (foraging and commuting)	Disturbance (via noise and light) Fragmentation of species ranges or habitats	Negligible adverse	No
Badger	Disturbance (via noise and light) Fragmentation of species ranges or habitats Injury / mortality from construction activities	Negligible to Minor adverse	No
Water vole	Disturbance (via noise and light) Altered hydrological pathways Injury / mortality from construction activities	Negligible to Minor adverse	No

Receptor	Effect	Residual level of effect	Is the residual effect Significant?
Otter	Disturbance (via noise and light) Fragmentation of species ranges or habitats Altered hydrological pathways Injury / mortality from construction activities	Negligible to Minor adverse	No
Reptiles and amphibians	Fragmentation of species ranges or habitats Altered hydrological pathways Injury / mortality from construction activities	Negligible to Minor adverse	No
Operational stage			
Bats (foraging and commuting)	Disturbance (via noise and light) Fragmentation of species ranges or habitats Injury / mortality from collision	Minor adverse	No
Other fauna (badgers, otter, water vole and herpetofauna)	Disturbance (via noise and light) Fragmentation of species ranges or habitats Altered hydrological pathways	Negligible adverse	No

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- ³ The Conservation of Habitats and Species Regulations 2017 (as amended).
- ⁴ Countryside and Rights of Way Act 2000.
- ⁵ The Natural Environmental and Rural Communities Act 2006.
- ⁶ The Hedgerow Regulations 1997.
- ⁷ National Planning Policy Framework December 2025.
- ⁸ Environment Act 2021
- ⁹ The Invasive Alien Species (Enforcement and Permitting) Order 2019
- ¹⁰ The Protection of Badgers Act 1992 (as amended).
- ¹¹ The UK Biodiversity Action Plan List (BAP).
- ¹² European Commission (2013). Interpretation Manual of European Union Habitats. Natura 2000. EU.
- ¹³ Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (Chartered Institute of Ecology and Environmental Management (CIEEM, 2018 and 2024.
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- ¹⁵ Guidelines for the Selection of Local Wildlife Sites in Greater Manchester and Lancashire.
- ¹⁶ JNCC, (2011). Spreadsheet of UK Biodiversity Action Plan: Priority Habitat Descriptions. Joint Nature Conservation Committee. Available at: Spreadsheet of UK Biodiversity Action Plan: Priority Habitat Descriptions | JNCC Resources Hub.
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