Frodsham Solar

Environmental Statement: Volume 1
Chapter 7: Terrestrial Ecology

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7.0 TERRESTRIAL ECOLOGY

7.1 Introduction

7.1.1 This chapter of the Environmental Statement (ES) presents the findings of an assessment of the likely significant effects on terrestrial ecological features (including aquatic features) as a result of the Proposed Development.

7.1.2 For a detailed description of the Proposed Development, refer to **ES Volume 1 Chapter 2.0: The Proposed Development [EN010153/DR/6.1].**

7.1.3 This chapter is accompanied by the following appendices:

i) **ES Volume 2 Appendix 7-1: Habitats Baseline Report [EN010153/DR/6.2];**
ii) **ES Volume 2 Appendix 7-2: Protected Ecological Species Baseline Report** (including a Confidential Annex) **[EN010153/DR/6.2];**
iii) **ES Volume 2 Appendix 7-3: Bat Activity Survey Report [EN010153/DR/6.2];**
iv) **ES Volume 2 Appendix 7-4: Consultation and Engagement [EN010153/DR/6.2]; and**
v) **ES Volume 2 Appendix 7-5 Assessment of Frodsham Helsby Ince Local Wildlife Site [EN010153/DR/6.2].**

7.1.4 This chapter is also accompanied by the following figures:

i) **ES Volume 3 Figure 7-1: Zones of Influence [EN010153/DR/6.3.]**

7.1.5 Additional figures, which are referenced within this chapter, are found within the technical appendices listed above.

7.1.6 This chapter should be read in conjunction with ES Vol 1 Chapter 8: **Ornithology [EN010153/DR/6.1]** and the **Biodiversity Net Gain Report [EN010153/DR/7.12]**

7.1.7 The DCO application is supported by the following outline management plans which all contain measures for the protection of ecology and biodiversity. In addition, the oLEMP details the measures that would be adopted to the management and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site throughout its lifetime.

i) Outline Construction Environmental Management Plan [EN010153/DR/7.5]
ii) Outline Operational Environmental Management Plan [EN010153/DR/7.6]
iii) Outline Decommissioning Environmental Management Plan [EN010153/DR/7.7]
iv) Outline Landscape and Ecology Management Plan [EN010153/DR/7.13]

7.1.8 Post-consent, the outline plans will be developed into full plans which must be in substantial accordance with the outline and will require approval by CWaCC. The Proposed Development must be undertaken in accordance with the approved plan. This is secured via a Requirement in Schedule 2 of the **draft DCO [EN010153/DR/3.1].**

7.1.9 The following sections of this chapter include:

i) a description of relevant legislation, planning policy and guidance which has informed the assessment;
ii) a summary of consultation with stakeholders;
iii) a description of the methodology for the assessment, including details of the study area and the approach to the assessment of effects;
iv) a review of baseline conditions;
v) details of the measures to avoid or reduce environmental effects, including mitigation and design measures that form part of the Proposed Development;
vi) an assessment of the likely significant effects on terrestrial ecology during the construction, operation and decommissioning phases of the Proposed

Development, taking into account the measures proposed to avoid or reduce effects;

vii) identification of any additional mitigation measures or monitoring required in relation to likely significant effects;

viii) a summary of the residual effects of the Proposed Development from the implementation of any additional mitigation; and

ix) assessment of any cumulative effects with other proposed developments.

7.1.10 Only common species names are referred to throughout this Chapter. Full biological nomenclature is provided within the relevant appendices submitted with this ES, including common and scientific species names, together with species conservation status and legislative protection where relevant.

7.1.11 For the avoidance of doubt, the following areas are defined, as shown in **ES Volume 3 Figure 1-2 [EN010153/DR/6.3]**:

i) the 'Solar Array Development Area (SADA)' comprising the area that would include solar photovoltaic (PV) modules and support frames, internal access tracks, cabling, inverters, transformers, the solar array substation (known as the 'Frodsham Solar Substation) and the BESS;

ii) the 'Non-Breeding Bird Mitigation Area (NBBMA)' comprising land primarily within Cell 3, which currently forms part of the Frodsham Wind Farm mitigation. This area of land would be used as a mitigation area for the anticipated displacement of wetland birds associated with the Mersey Estuary;

i) the 'SPEN/National Grid Substation and Access' comprising the existing SPEN/National Grid Substation and access road to the substation compound;

ii) the 'Skylark Mitigation Area' comprising land where neutral grassland would be created during the operational lifetime of the Proposed Development for the benefit of skylarks;

iii) the ‘Main Site Access with Private Wire Connection’ comprising the access road with Protos private wire connection to the west of the SADA; and,

iv) the ‘Main Site Access without Private Wire Connection’ comprising the access road without private wire connection to the west of the SADA.

7.1.12 For the purpose of this Chapter, the SADA, the NBBMA and the SPEN/National Grid Substation and Access are collectively termed ‘the Main Development Area’, as shown in **Figure 2** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2]**.

Summary of Competency

7.1.13 The assessment has been carried out by Avian Ecology Ltd. Lead author Ms Catrin Scott MRes BSc (Hons) ACIEEM Senior Ecologist, with support from Ms Bethany Gray BSc (Hons) MCIEEM Senior Ecologist and Mr Howard Fearn MSc MCIEEM Director. Ms Scott, Ms Gray and Mr Fearn have over six, eight and 20 years of experience respectively as ecological consultants. Ms Scott and Mr Fearn specialise in renewable energy developments, whereas Ms Gray has extensive experience on a variety of infrastructure projects. During this time they have all written and/or contributed to numerous PEIR/ES report chapters for ecological or ornithological interest, including at several solar PV array and other renewable energy developments. Mr Fearn has acted as an Expert Witness on ecological matters at a number of Public Inquiries and Hearings for planning appeals and DCO solar schemes.

7.2 Legislation, Policy and Guidance

Legislation

7.2.1 This ES chapter has been prepared with reference to the following legislation which relates to terrestrial ecology:

i) Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 ('the Ramsar Convention');
ii) The Conservation of Habitats and Species Regulations 2017;
iii) The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
iv) The Environment Act 2021;
v) The Wildlife and Countryside Act 1981;
vi) Natural Environment and Rural Communities (NERC) Act (2006);
vii) Countryside and Rights of Way Act 2000;
viii) The Invasive Alien Species (Enforcement and Permitting) Order 2019;
ix) Protection of Badgers Act 1992;
x) Hedgerow Regulations 1997;
xi) Management of Hedgerow Regulations 2024;
xii) The Eels (England and Wales) Regulations 2009;
xiii) The Salmon and Freshwater Fisheries Act 1975; and,
xiv) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

7.2.2 The Conservation of Habitats and Species Regulations 2017 remains in place following the United Kingdom's (UK's) withdrawal from the European Union (EU) with only relatively minor changes made by the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 which came into force on 31st December 2020. These are collectively referred to as the 'Habitats Regulations'.

National Planning Policy

7.2.3 National level planning policy for NSIPs is set out in a series of National Policy Statements (NPSs). The 2023 revised NPSs (EN-1 to EN-5) were designated on 17 January 2024. Those of relevance to the Proposed Development are:

i) Overarching NPS for Energy EN-1 (NPS EN-1[i]);
ii) NPS for Renewable Energy Infrastructure (NPS EN-3[ii]); and
iii) NPS for Electricity Networks Infrastructure (NPS EN-5[iii]).

7.2.4 The National Planning Policy Framework (NPPF[iv]), and the accompanying online Planning Practice Guidance (PPG[v]) are also important and relevant considerations.

7.2.5 Relevant policies from the above documents are summarised in **Table 7-1**.

Table 7-1 - Summary of National Planning Policy

Document	Policy	Summary of Policy	Where addressed in the ES
NPS EN-1	Paragraph 5.4.42	"In line with the mitigation hierarchy, aim to avoid significant harm to biodiversity and geological conservation interests, including through consideration of reasonable alternatives... Where significant harm cannot be avoided, impacts should be mitigated and as a last resort, appropriate compensation measures should be sought."	At the outset of the design process, the results of the Preliminary Ecological Appraisal were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these were excluded from potential development areas, as detailed in **Section 7.7.** Alternatives to the Proposed Development are provided in **ES Vol 1 Chapter 3: Alternatives and Design Evolution [EN010153/DR/6.1].** Incorporated mitigation is provided in **Section 7.7** which describes how impacts have been mitigated**.** The **Outline Construction Environmental Management Plan [EN010153/DR/7.5]** describes how impacts on ecology and biodiversity would be managed during the construction phase. The oLEMP **[EN010153/DR/7.13]** details the measures that would be adopted to the management and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site.

Document	Policy	Summary of Policy	Where addressed in the ES
	Paragraph 5.4.48	"In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national, and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity... interests within the wider environment."	Effects on relevant designated sites with qualifying terrestrial ecology interest is considered within **Section 7.8.** Effects on other important ecological features (species and habitats) are considered in **Section 7.8.**
	Paragraph 4.6.7	"In England applicants for onshore elements of any development are encouraged to use the latest version of the biodiversity metric to calculate their biodiversity baseline and present planned biodiversity net gain outcomes."	Methodologies and results of the Biodiversity Net Gain (BNG) Assessment, using DEFRA's Statutory Biodiversity Metric Calculator, are included in **Section 7.7** and the **BNG Report [EN010153/DR/7.12].**
	Paragraph 5.4.17	"Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance..., on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats."	Effects on relevant designated sites with qualifying terrestrial ecology interest is considered within **Section 7.8.** Effects on other important ecological features (species and habitats) are considered in **Section 7.8.**
	Paragraph 5.4.19	"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests."	Enhancement measures are included. These are summarised in **Section 7.7**. The oLEMP **[EN010153/DR/7.13]** details the measures that would be adopted to the management and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site.

Document	Policy	Summary of Policy	Where addressed in the ES
	Paragraph 5.4.21	"The design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains."	Enhancements for terrestrial ecology are embedded within the design (see **Section 7.7)**. **Section 7.7** and **the BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development, when including the NBBMA, would achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units.
NPS EN-3	Paragraph 2.10.78	"The applicant should .... ensure that adverse impacts are avoided, minimised or mitigated in line with the mitigation hierarchy, and biodiversity enhancements are maximised."	At the outset of the design process, the results of the Preliminary Ecological Appraisal were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these were excluded from potential development areas, as detailed in **Section 7.7.** Enhancements for terrestrial ecology are embedded within the design (see **Section 7.7)**. **Section 7.7** and **the BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units.
	Paragraph 2.10.89	"Solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed. In some instances, this can result in significant benefits and enhancements beyond Biodiversity	Enhancement measures, including creation of species-rich grassland, additional areas of reedbed, open water, and enhancing riparian habitat along the ditch network will provide enhanced opportunities for

Document	Policy	Summary of Policy	Where addressed in the ES
		Net Gain, which result in wider environmental gains which is encouraged."	biodiversity, including bats, invertebrates, otter and water vole. See **Section 7.7.**
	Paragraph 2.10.128	"In England, proposed enhancements should ... aim to achieve environmental and biodiversity net gain in line with the ambition set out in the Environmental Improvement Plan and any relevant measures and targets, including statutory targets set under the Environment Act or elsewhere."	**Section 7.7** and **the BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units.
NPS EN-5	Paragraph 2.1.5	"When planning and evaluating the proposed development's contribution to environmental and biodiversity net gain, it will be important – for both the applicant and the Secretary of State – to supplement the generic guidance set out in EN-1 (Section 4.5) with recognition that the linear nature of electricity networks infrastructure can allow for excellent opportunities to: i. reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or ii. connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements. "	**Section 7.7** and **BNG Report [EN010153/DR/7.12]** demonstrates that the Proposed Development would, ,when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. The enhancement measures as summarised in **Section 7.7** would contribute to the reconnection of habitats via green corridors. New permissive paths are proposed (see **ES Vol 2 Figure 2-3: Illustrative Environmental Masterplan Key Plan [EN010153/DR/6.2]**), where these will not lead to increased disturbance of biodiversity, as well as the inclusion of information boards and improved viewing opportunities which will connect people to the environment.

Document	Policy	Summary of Policy	Where addressed in the ES
NPPF	2	"Achieving sustainable development means that the planning system has… overarching objectives…: • an environmental objective – to protect and enhance our natural … environment; improving biodiversity, minimising waste and pollution…"	Enhancements for terrestrial ecology are embedded within the design (see **Section 7.7)**. **Section 7.7** and the **BNG Report [EN010153/DR/7.12]** demonstrate that, when including the NBBMA, the Proposed Development would achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. Minimising pollution and waste is fundamental and measures are included in **Section 7.7**, and within the oCEMP [**EN010153/DR/7.5**], to be secured through provisions of the DCO.
	180	"Planning policies and decisions should contribute to and enhance the natural and local environment by: • Protecting and enhancing …sites of biodiversity interest…value; • …minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;	Enhancements for terrestrial ecology are embedded within the design (see **Section 7.7)**. **Section 7.7** and **the BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. Minimising pollution and waste is fundamental and measures are included in **Section 7.7**, and within the oCEMP [**EN010153/DR/7.5**], to be secured through provisions of the DCO. The assessment in **Section 7.8** considers potential effects on sites of biodiversity interest, to ensure these sites are appropriately considered and protected, and appropriate mitigation would be adopted.

Document	Policy	Summary of Policy	Where addressed in the ES
			The enhancement measures as summarised in **Section 7.7** would contribute to establishing coherent ecological networks through hedgerow creation.
	181	"Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework	Alternatives to the Proposed Development are provided in **ES Vol 1 Chapter 3: Alternatives and Design Evolution [EN010153/DR/6.1].** International, national and local designated sites are considered (see **Section 7.6**) and effects on those relevant designated sites are assessed in **Section 7.8.** At the outset of the design process, the results of the Preliminary Ecological Appraisal were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these were excluded from potential development areas, as detailed in **Section 7.7.**
	185	To protect and enhance biodiversity …, plans should: • Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity…; and, • promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority	At the outset of the design process, the results of the Preliminary Ecological Appraisal were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these were excluded from potential development areas, as detailed in **Section 7.7.** Table 7-2 discusses how the Proposed Development has accounted for the ecological sites identified in the local and neighbourhood plans.

Document	Policy	Summary of Policy	Where addressed in the ES
		species; and identify and pursue opportunities for securing measurable net gains for biodiversity."	Effects on relevant designated sites are assessed in **Section 7.8.** Enhancements for terrestrial ecology are embedded within the design (see **Section 7.7)**. **Section 7.7** and **the BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units.
	186	When determining planning applications, local planning authorities should apply the following principles: • …development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the Site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest…"	Effects on the Mersey Estuary SSSI are addressed in **Section 7.8.**
	191	"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on … the natural environment… In doing so they should:	Embedded mitigation and standard good practice protocols (such as implementation of a sensitive lighting strategy) are included in **Section 7.7** and the oCEMP [**EN010153/DR/7.5**], to be secured through provisions of the DCO.

Document	Policy	Summary of Policy	Where addressed in the ES
		limit the impact of light pollution from artificial light on … nature conservation."	

Local Planning Policy

7.2.6 Consideration has been given to the following Local Planning Policy Documents from Cheshire West and Chester Council.

Table 7-2 Summary of Local Planning Policy

Document	Policy	Summary of Policy	Where addressed in the ES
Cheshire West and Chester Council Local Plan (Part One) Strategic Policies (January 2015)	ENV4 Biodiversity and Geodiversity.	"Sites will be protected from loss or damage taking account of: • The hierarchy of designations of international, national and local importance; • The irreplaceability of habitats, sites and/or features and contribution to the borough's ecological network of sites and features; and, • Impact on priority habitats and protected/priority species. Development should not result in any net loss of natural assets, and should seek to provide net gains. Where there is unavoidable loss or damage to habitats, sites or features because of exceptional overriding circumstances, mitigation and	Effects on relevant designated sites with qualifying terrestrial ecology interest is considered within **Section 7.8.** Effects on other important ecological features (species and habitats) are considered in **Section 7.8.** At the outset of the design process, the results of the Preliminary Ecological Appraisal were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these were excluded from potential development areas, as detailed in **Section 7.7**.

		compensation will be required to ensure there is no net loss of environmental value."	**Section 7.7** and **the BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units.
	ENV7 Alternative energy supplies	"The Local Plan will support renewable and low carbon energy proposals where there are no unacceptable impacts on: • Landscape, visual or residential amenity; • Noise, air, water, highways or health; • Biodiversity, the natural or historic environment; and, • Radar, telecommunications or the safety of aircraft operations Proposals should be accompanied by appropriate arrangements for decommissioning and reinstatement of the Site when its operational lifespan has ended.''	**ES Vol 1 Chapter 7: Terrestrial Ecology [EN010153/DR/6.1]** and **ES Vol 1 Chapter 8: Ornithology [EN010153/DR/6.1]** provide an assessment of effects on biodiversity and the natural environment. The Proposed Development is for a 40 year period. An **Outline Decommissioning Environmental Management Plan [EN010153/DR/7.7]** has been provided with the DCO application.
Cheshire West and Chester Council Local Plan (Part Two) Land Allocations and Detailed Policies (January 2015)	DM 44 Natural Environment	"In line with Local Plan (Part One) policy ENV 4, development will be supported where there is no net loss of natural assets and, wherever possible, it delivers net gains within the borough. Development likely to have an impact on protected sites (statutory and non-statutory), protected/priority species, priority habitats or geological sites must be accompanied by an Ecological Assessment that complies with industry best practice and guidance, and:	Effects on relevant designated sites with qualifying terrestrial ecology interest is considered within **Section 7.8.** Effects on other important ecological features (species and habitats) are considered in **Section 7.8.** At the outset of the design process, the results of the Preliminary Ecological Appraisal were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these

		• identifies the assets of biodiversity/geodiversity value on and within the vicinity of the Site; • evaluates the value and extent of the assets; • assesses the likely expected impact of the development on assets of biodiversity/geodiversity value taking into account the mitigation hierarchy; • identifies the net losses and gains for biodiversity/geodiversity, using a biodiversity metric calculation; • identifies the options to enhance the value of the assets and contribute towards the borough's ecological network; and, • provides sufficient information to inform a Habitats Regulations Assessment (HRA), where development could have an individual or in combination significant effect on a European Site or its supporting habitat. Commensurate with the size and scale of potential impact, proposals must: • be designed in line with the mitigation hierarchy, with compensatory measures only considered as a last resort; • include a long-term habitat and species management plan, if applicable; • include a management plan for invasive species, if applicable; and • utilise native species in landscaping schemes, where appropriate.	were excluded from potential development areas, as detailed in **Section 7.7**. Section 7.7 and the **BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. An Outline Soils Resource Management Plan is presented in **[EN010153/DR/7.10]** **A Habitat Regulations Assessment [EN010153/DR/5.3]** has been submitted with the DCO application. The oLEMP **[EN010153/DR/7.13]** details the measures that would be adopted to the management and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site. The landscape design has been developed to deliver biodiversity benefit and Design Principle 3 is “Biodiversity and Green Infrastructure - Protect and enhance green infrastructure within the Order Limits and in doing so create the conditions for enhanced biodiversity locally”. The approach to the design and how this delivers on this Design Principle is described in the **Design Approach Document (DAD) [EN010153/DR/5.8].**

		Development that makes a positive contribution towards the borough's ecological network will be supported. Within the components of the ecological network, as identified on the policies map, proposals should: • increase the size, quality or quantity of priority habitat within core areas, corridors or stepping stones; • within corridors and stepping stones, improve the connectivity of habitats for the movement of mobile species; • in restoration areas, improve the structural connectivity, resilience and function of the network; • in buffer zones within core areas and around protected meres and mosses, minimise adverse impacts from pollution or disturbance; and, • contribute towards the integration and creation of green infrastructure and habitats in line with Local Plan (Part One) policy ENV 3. Soil resources must be protected and used sustainably to retain ecosystem services, in line with accepted best practice."	
	DM 45 Trees, woodland and hedgerows	"In line with Local Plan (Part One) policies ENV 3 and ENV 4, development will be supported where it conserves, manages and, wherever possible, enhances existing trees, woodlands, traditional orchards, and hedgerows. All significant healthy trees, woodlands, traditional orchards, and hedgerows should be integrated into the	Section 7.7 and the **BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. The oLEMP **[EN010153/DR/7.13]** details the measures that would be adopted to the management

		development scheme. Where possible, existing significant trees should be incorporated within public open space. Where it is demonstrated to the satisfaction of the Council that integration is not possible and the above assets would be lost, development proposals must: • include replacement trees, woodlands and hedgerows within the Site, or where this can be demonstrated to not be practical, contribute to off-site provision, prioritised within the locality of the development; • include replacement planting at a ratio of at least two new trees for each tree lost. Replacement trees should be of heavy or extra heavy standard, and where prominent trees are to be removed, large specimen trees may be required; and • use locally native species, where appropriate. Development affecting all existing and new woodlands should: • support proposals which assist in the positive use of woodlands; • promote sustainable management to deliver multiple benefits; and • support the aims and policies of the Mersey Forest Plan, where relevant. • A tree survey and arboricultural impact assessment to BS5837:2012 standard (or subsequent revisions) will be expected to be submitted with planning applications where	and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site. The proposed landscaping scheme, described in the oLEMP exceeds the ratio stated in the policy. The arboricultural assessment is presented in **[EN010153/DR/7.17]**

		existing significant trees are likely to be affected by the proposed development."	
Ince Neighbourhood Plan (Adopted 2023);	NAT1	• "Where development is proposed which would adversely affect local wildlife sites, areas of high distinctiveness and the indicative wildlife corridor, (it will only be supported where the balance of the benefits of the proposal would outweigh the impact it is likely to have on the site and the wider network of sites. The enhancement of local wildlife sites, wildlife corridors and areas of high distinctiveness will be supported. • Areas identified as supporting high distinctiveness habitat, which are not covered by strategic land allocations in the Cheshire West and Chester Local Plan shall be protected by at least a 15m buffer zone. • Development likely to have an impact on protected sites (statutory and non-statutory), protected/priority species, priority habitats or geological sites must be accompanied by an Ecological Assessment. • The indicative wildlife corridor network which lies out of the strategic land allocations in the Cheshire West and Chester Local Plan (policies ENV8/ STRAT4/ ECON1/ EP6 and EP2) shall be protected by a 15m buffer zone. New developments must, where possible, not create divisions between existing indicative wildlife corridors (Figure I) and where possible should contribute to the creation of new or improved links.	**ES Vol 2 Appendix 7.5 Assessment of Frodsham Helsby Ince Local Wildlife Site (LWS) [EN010153/DR/6.2]** includes an assessment of Frodsham Helsby Ince LWS against the current LWS selection criteria. Section 7.7 and **BNG Report [EN010153/DR/7.12**] discusses the loss of isolated areas of high distinctiveness habitat, reedbed. It should be noted that these clumps, of reeds, are considered unlikely to function in the same way as larger and ecologically connected areas of the reedbed and are further discussed in Section 7.7. Section 7.7 and Report **[EN010153/DR/7.12**] demonstrates that the Proposed Development would when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. No loss of habitat is proposed highlighted within the indicative wildlife corridor network, set out in Figure I. Effects on relevant designated sites with qualifying terrestrial ecology interest is considered within **Section 7.8.**

		• New developments shall demonstrate a net gain in biodiversity using a biodiversity metric calculation and avoidance/ mitigation strategies. Compensatory measures (for example biodiversity offsetting) will be required if a net loss of biodiversity is required.''	
	NAT3	''In order to protect and enhance the local wildlife, all development should, where possible: • Incorporate measures to improve wetland bird habitat into any scheme that could impact the wetland bird population within the parish. • Embed out of bounds areas and dark corridors along watercourses, woodland edges and hedgerows into the environmental design of a scheme. • Incorporate directional, low spillage (bat sensitive) lighting on the outside of buildings or in carparks and along pathways and watercourses. • Install hedgehog-friendly fencing as standard, purposely designed to allow the passage of hedgehogs from one area to another. • Create south facing banks or bunds for reptiles, butterflies and other invertebrates and incorporate bee bricks and bat/bird boxes into the design of buildings, ideally made of highly durable material such as woodcrete.	Section 7.7 and the **BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. Embedded mitigation and standard good practice protocols (such as implementation of a sensitive lighting strategy) are included in **Section 7.7** and the oCEMP [**EN010153/DR/7.5**], to be secured through provisions of the DCO. Specification for mammal fencing is detailed in **Section 7.7**. The habitat enhancement provisions, as detailed in, **Section 7.7** and **BNG Report [EN010153/DR/7.12]** would provide new and enhanced features that can be used for breeding, foraging, overwintering and refuge by a range of species, including bats, badgers, water vole, otter, amphibians and invertebrates. This includes the NBBMA, which is specifically designed to improve wetland bird habitat,

		• Ensure that any surface water discharge to a sensitive habitat location is supported by a drainage design which incorporates a treatment train that secures no unacceptable detriment to the receiving habitat. • Incorporate sustainable drainage schemes (SuDS) which incorporate an appropriate treatment train that secures no unacceptable detriment to the receiving habitat.''	described in **ES Vol 1 Chapter 8: Ornithology [EN010153/DR/6.1].** Surface water is discussed in **ES Vol 1 Chapter 9: Flood Risk, Drainage and Surface Water [EN010153/DR/6.1].** The chapter describes how the water environment would be protected from pollution, including use of SuDS.
	NAT5	''Proposals must be designed in line with the mitigation hierarchy detailed in Cheshire West and Chester Local Plan Policy DM44, with compensatory measures only considered as a last resort. The retention of trees and hedgerows in situ will always be preferable. Where the loss of such features is unavoidable, replacement provision must be at a ratio of at least two new trees for each tree which is lost, with hedgerows requiring a 3:1 replacement ratio. New tree planting will be supported within new developments, and throughout the Parish in line with The Mersey Forest Plan.''	Section 7.7 and **BNG Report [EN010153/DR/7.12]** demonstrates that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. The scheme has been designed to protect from the loss of trees where possible by providing a 6m buffer from hedgerows and other substantial vegetation. An **Arboricultural Assessment [EN010153/DR/7.17]** has been submitted with the DCO application.
Frodsham Neighbourhood Plan 2024 – 2030.	Policy GSRL3	To support developments that retain, maintain and protect existing green and open spaces for communal and social use.	Section 7.7 and the **BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. The oLEMP **[EN010153/DR/7.13]** details the measures that would be adopted to the management and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site,

			including greenspace that can be used for communal and social benefit.
	Policy GSRL4	To encourage developments that create or develop additional green community/recreational spaces.	Section 7.7 and the **BNG Report [EN010153/DR/7.12]** demonstrate that the Proposed Development would, when including the NBBMA, achieve a measurable increase of at least 10 % in habitat, hedgerow and watercourse units. The oLEMP **[EN010153/DR/7.13]** details the measures that would be adopted to the management and maintenance of the habitats at the SIte to protect and enhance the biodiversity value of the Site, including greenspace that can be used for communal and social benefit.

Guidance

7.2.7 Consideration has been given to the following best practice guidelines/guidance:

i) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018)[vi];
ii) The 25-year Environment Plan[vii];
iii) Natural England and Department for Environment, Food and Rural Affairs (DEFRA) Protected Species and Development: advice for local planning authorities)[viii];
i) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition) (Collins, 2016)[ix];
ii) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition) (Collins, 2023)[x].
iii) Biodiversity Net Gain. Good practice principles for development (CIEEM, CIRIA, IEMA, 2016)[xi];
iv) The Statutory Biodiversity Metric User Guide (DEFRA, 2024[xii]);
v) Planning Practice Guidance (Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities, 2024)[xiii];
vi) BS 42020:2013 'Biodiversity – Code of Practice for Planning and Development (British Standard)';
vii) BS 8683:2021 'Process for designing and implementing Biodiversity Net Gain. Specification (British Standard)';
viii) Cheshire Region Biodiversity Action Plan (2011)[xiv]; and,
ix) Biodiversity and geological conservation: circular 06/2005 (2005)[xv].

7.3 Assumptions and Limitations

Habitat Survey

7.3.1 Access to the Skylark Mitigation Area was limited to public right of ways located within and surrounding this area. As such, the habitats within this area were surveyed from available vantage points. Habitats within this area comprise other cereal crops, modified grassland and ditches; both other cereal crops and modified grassland are of low ecological value. Furthermore, the Skylark Mitigation Area would not be directly impacted by the Proposed Development The Skylark Mitigation Area would be managed for meadow grassland with a diverse range of species for the benefit of skylark , as such, this is not considered a significant limitation to the assessment.

Water vole preliminary habitat suitability assessments

7.3.2 The Water Vole Preliminary Habitat Suitability Assessment was undertaken to determine the feasibility of conventional water vole survey; both the 2023 and 2024/2025 visits found that the relevant ditches were generally steep sided, with heavily vegetated banks and dense reed coverage, and which precludes safe access. As such, where access was not possible, further surveys, including relative population size surveys, were not undertaken. These limitations have been discussed with CWaCC Biodiversity Officer. Furthermore, a Site visit attended by representatives from Avian Ecology, Axis and CWaCC on the 4th September 2024 demonstrated to CWaCC the Health and Safety restrictions related to water vole surveys.

Otter and water vole survey

7.3.3 The first otter and water vole survey visit (13th September 2024) was undertaken following a period of prolonged rainfall. As such, some evidence pertaining to the presence of otter and/or water vole may have been washed away during recent rainfall.

7.3.4 A second otter and water vole survey was undertaken on 18th March, 2025, this survey was undertaken prior to the typical survey season for the species (mid-April to September), however given generally favourable (dry and warm) weather conditions in the preceding weeks and given confirmatory evidence was found the earlier date is considered sufficient to confirm presence.

Great crested newt and reptile survey data

7.3.5 It is recognised that the great crested newt and reptile survey data is classified as invalid in accordance with CIEEM advice. However, based on lack of historical records, surveys undertaken to date and significant barriers to dispersal (M56, industrialised areas and the River Mersey) the age of the survey data is deemed to not be a significant constraint to the assessment for GCN and reptiles, as it is extremely unlikely that GCN and reptiles would colonise the Proposed Development due to the barriers to movement.

Bat Survey Design

7.3.6 At the time of the survey design for bats, the Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2016) were the most up to date and industry best practice guidelines for bat surveys. During the scheduled survey effort BCT Survey Guidelines (Collins, 2023) was published. Due to the fact that the bat survey effort had begun using the BCT 2016 guidelines it was assessed as not proportionate to re-design surveys to comply with the 2023 guidance. This is not deemed to be a significant constraint as principles for survey design and effort have been undertaken with reference to BCT guidance.

Bat Activity Surveys

7.3.7 The BCT Survey Guidelines (Collins, 2016) state that, one static detector should be placed per transect on low suitability habitats for bats, and two statics should be placed per transect on moderate suitability habitats. Habitats within the Main Development Area have predominantly been assigned low suitability habitats (e.g. the fields), whereas the remainder of the habitats have been assigned moderate suitability (e.g. hedgerows, tree lines, field margins,

ditches and watercourses). As such, this is not deemed to be a significant constraint as three static detectors are considered appropriate considering the presence of both low and moderate suitability habitats. Additionally, impacts i.e. direct loss, is almost all located within habitats assessed as low suitability for foraging/commuting bats with habitats of moderate suitability being largely retained.

7.3.8 Due to a technical failure, both MS2 and MS3 did not manage to record five consecutive nights of bat activity during the July recording period.

7.3.9 During the July manual activity survey of Transect 2, access constraints resulted in several LPs (i.e., LP8 – LP11) going un-surveyed, and which also resulted in specific transect sections being subsequently re-traced, so as to adhere to the recommended survey effort (i.e., time and length).

7.3.10 Unsuitable weather conditions during the October period also resulted in the final manual activity surveys at Transect 2 being delayed until the 1st of November, falling just outside the arbitrary October recording period, as defined by guidance. Furthermore, the scheduled dawn survey programmed for the October period was cancelled due to safety concern (flooding).

7.3.11 Sub-optimal weather conditions experienced during the October manual activity survey at Transect 1 and during 5 out of the 28 nights of automatic activity surveys. Although the aim is to carry out surveys in conditions as close to optimal as possible, the guidance recognises that in spring and autumn, these conditions may be rarer and some of the surveys may need to carried out at lower temperatures.

7.3.12 The limitations outlined above do not prevent an informed view of the likely significant environmental effects of the Proposed Development from being provided in the ES.

Proposed Development Parameters

7.3.13 This assessment has been based on indicative proposals for the NBBMA, which are detailed in **ES Volume 1 Chapter 2.0: Proposed Development [EN010153/DR/6.1]** and Appendix B of the **Outline Landscape and Ecology Management Plan [EN010153/DR/7.13]**. It has been assumed that the existing ponds and scrapes currently present within the NBBMA would all be temporarily removed, prior to the creation of new ponds and scrapes as detailed within the indicative proposals. This has been assumed for the purpose of providing a likely worse-case assessment, in line with the precautionary approach used throughout this chapter.

7.3.14 The creation of 16 new permanent watercourse/ditch crossings and the upgrading of eight existing crossings are proposed, as detailed in **ES Volume 1 Chapter 2.0: Proposed Development [EN010153/DR/6.1].** New ditch crossings may be constructed using a 'dry crossing technique'. This involves temporarily damming the ditch upstream and downstream of the crossing. In many instances the drainage ditches across the Site do not have any noticeable flow within them. As such, where the is no discernible direction of flow, over pumping of water from the upstream side to the downstream side would not be required. However, where there is flow this would be undertaken. Any sections of water subject to over pumping, together with the section of water between the dams, would be inspected for fish; and where appropriate a fish rescue plan would be executed. Whilst very unlikely, for the purpose of providing a likely worse-case assessment, it has been assumed that all 16 new and eight upgraded crossings would be constructed using a 'dry crossing technique'. The measures to protect fish during any crossing works is set out within the **Outline Construction Environmental Management Plan [EN010153/DR/7.5].**

7.4 Consultation and Engagement

7.4.1 A scoping exercise was undertaken to establish the content of the assessment and the approach and methods to be followed within this ES.

7.4.2 A Scoping Report (**ES Volume 2 Appendix 1-1 [EN010153/DR/6.2]**) was submitted to PINS on 30 May 2023. The report sets out the findings of the scoping exercise and details the technical guidance, standards, best practice and criteria to be applied in the assessment to identify and evaluate the likely significant effects of the Proposed Development on terrestrial ecology.

7.4.3 A Scoping Opinion was received on 10 July 2023 (**ES Volume 2 Appendix 1-2 [EN010153/DR/6.2]**). The feedback received from PINS and stakeholders within the Scoping Opinion relating to terrestrial ecology, and the Applicant's responses, are presented in **ES Volume 2 Appendix 7-4 [EN010153/DR/6.2].**

7.4.4 Other engagement and consultation undertaken in relation to the terrestrial ecology is also summarised in **ES Volume 2 Appendix 7-4 [EN010153/DR/6.2]** including consultation comments to the PEIR.

7.5 Assessment Methodology

Study Area

7.5.1 The 'Zone of Influence' for a development is the area over which ecological features may be affected by biophysical changes as a result of the Proposed Development and associated activities.

7.5.2 The zones of influence for the Proposed Development are acknowledged to extend beyond direct land-take required and have been identified in view of the nature of the Proposed Development as described in **ES Volume 1 Chapter 2.0: The Proposed Development [EN010153/DR/6.1]** (including the construction, operation and decommissioning activities to be undertaken), informed by the consultation and scoping process, CIEEM (2018) and Natural England (NE) species-specific guidance, as applicable and as available[1].

7.5.3 The Zone of Influence will therefore vary for different ecological features depending on their sensitivity to environmental change.

7.5.4 Zones of influence for the Proposed Development, and within which baseline information has been established, have therefore been identified on the basis of proximity to the Main Development Area, as follows, as shown in **ES Volume 3 Figure 7-1: Zones of Influence [EN010153/DR/6.3]**):

i) Statutory designated sites – statutory designated sites for nature conservation (excluding geological sites) with cited terrestrial ecological interests within 2 km of the Main Development Area, extending to 10 km for internationally protected sites (comprising Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites (and candidate/potential sites for all these designations)) and to 30km for internationally designated sites with bats as a qualifying feature;

[1] Where specific guidance documents do not stipulate specific required zones of influence from a proposed Site, professional judgement has been applied based on the understanding of the Site and developments similar in nature, size, and scale to the Proposed Development.

ii) Non-statutory designated sites – non-statutory designated sites for nature conservation with cited ecological interests within 2 km of the Main Development Area;
iii) Habitats (Including Habitats of Principal Importance)- within the Site and immediately adjacent habitat;
iv) Bats - within the Main Development Area;
v) Otter and water vole – ditches, watercourses and ponds within the Main Development Area, extended to suitable aquatic and terrestrial habitat within 200 m up/downstream for otter;
vi) Badger – within and immediately adjacent to the Main Development Area;
vii) Great Crested Newts ('GCN') - within the Main Development Area, and ponds/waterbodies within 0.5 km of the Main Development Area (where access allowed);
viii) Reptiles – within the Main Development Area;
ix) Other notable mammals (including Species of Principal Importance) - within the Main Development Area;
x) Fish - within the Main Development Area;
xi) Invertebrates - within the Main Development Area;
xii) Notable flora - within the Main Development Area; and,
xiii) Non-native invasive species - within the Main Development Area.

7.5.5 No works are currently proposed within the Access Road without Private Wire Connection with the exception of isolated surface repair / infilling of potholes, whilst works along the Main Site Access with Private Wire Connection would be restricted to laying the 132 kV cable along the existing road and aforementioned repair work. No road widening works are proposed along the Access Road with Wire Connection or the Access Road without Wire Connection. Due to the absence of works beyond the footprint of the existing road, there are no identified pathways for significant effects within these areas, as such neither access roads have been included within the Zones of Influence.

7.5.6 The Skylark Mitigation Area has also not been included within the Zones of Influence for any other species, as no development works are proposed within this area. This area would either continue to be used as agricultural land for the duration of the construction and operational phases of the Proposed Development, The Skylark Mitigation Area would be managed for meadow grassland with a diverse range of species for the benefit of skylark. As such, there are no identified pathways for adverse effects within this area.

Scope of Assessment

7.5.7 In accordance with the CIEEM guidance (2018), the assessment only assesses in detail, impacts upon important ecological features i.e., those that are considered important and potentially affected. It is not considered necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened, and resilient to project impacts and will remain viable and sustainable, unless there is potential for a significant positive effect as a consequence of the Proposed Development.

7.5.8 Where ecological features are not considered important enough to warrant further consideration, or where they will not be significantly affected, these can be scoped out of the assessment process, and justification for exclusion is provided.

7.5.9 Where a feature has been scoped out of the detailed assessment due to a lack of significant effects, measures for such features may, however, still be outlined as appropriate to reduce and/or avoid any potentially adverse effects or to ensure legislative compliance.

7.5.10 **Table 7-3** presents the evaluation of identified ecological features and provides the rationale as to why individual features have been included or 'scoped out' of the detailed assessment, with reference to comments received during the EIA Scoping presented in **ES Volume 2 Appendix 7-4 [EN010153/DR/6.2]**.

Table 7-3: Scoping of Ecological Features

Receptor	Geographic Scale of Importance	Potential Effect Pathway and Rationale for Selection of Features for Detailed Assessment
International statutory designated sites for nature conservation	International	There are internationally designated sites with mobile qualifying features of terrestrial ecological interest within the ZoI. Incorporated mitigation (as detailed in **Section 7.7**), including implementation of standard construction methods, to include pollution and dust control, would prevent any indirect impacts occurring to these designated sites. These measures are controlled via the **Outline Construction Environmental Management Plan [EN010153/DR/7.5].** Due to the spatial separation (see **Table 7-8**), the static nature of the qualifying terrestrial ecology features and the lack of hydrological connectivity, no direct and indirect effects upon Midland Meres & Mosses Phase 1 Ramsar and Midland Meres & Moses Phase 2 Ramsar are anticipated to occur as a result of the Proposed Development. These designations are therefore **Scoped out** of detailed assessment. Ornithological qualifying interests of internationally designated sites are discussed within **ES Volume 1 Chapter 8.0: Ornithology [EN010153/DR/6.1]** (including Mersey Estuary SPA and Ramsar).
National statutory designated sites for nature conservation	National	There are no nationally designated sites with mobile qualifying features of terrestrial ecological interest within the ZoI. Due to proximity to the Main Development Area, Mersey Estuary SSSI, is **scoped in** to detailed assessment. Due to the spatial separation (see **Table 7-8**) between the Development Area and Flood Brook Clough SSSI (located 0.56 km northeast, cited for deep wooded valley), Dunsdale Hollow SSSI (located 1.58 km south, cited for the presence of woodland) and Runcorn Hill LNR (located 1.65 km north, cited for the presence of lowland heath), the static nature of the qualifying terrestrial ecology features and the lack of hydrological connectivity, no direct effects upon these designated sites are likely to occur as a result of the Proposed Development. Incorporated mitigation (as detailed in **Section 7.7**), including implementation of standard construction

Receptor	Geographic Scale of Importance	Potential Effect Pathway and Rationale for Selection of Features for Detailed Assessment
		methods, to include pollution and dust control, would prevent any indirect impacts occurring to other nationally designated sites. These measures are controlled via the **Outline Construction Environmental Management Plan [EN010153/DR/7.5].** Flood Brook Clough SSSI, Dunsdale Hollow SSSI and Runcorn Hill LNR are therefore **scoped out** of detailed assessment. Ornithological qualifying interests of nationally designated sites are discussed within **ES Volume 1 Chapter 8.0: Ornithology [EN010153/DR/6.1]**.
Non-statutory designated sites for nature conservation	County	Non-Statutory Designated Sites with ecological qualifying interests are located within the Main Development Area, and also within the Zone of Influence. Due to proximity to the Main Development Area, Frodsham, Helsby and Ince Marshes LWS, Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS are **scoped in** to detailed assessment. **ES Vol 2 Appendix 7.5 Assessment of Frodsham Helsby Ince Local Wildlife Site [EN010153/DR/6.2]** includes an assessment of Frodsham, Helsby and Ince Marshes LWS against the current LWS selection criteria. In order to avoid repetition, where a criteria of the LWS is met, and the receptor is scoped in separately (including HPIs,, other habitats, otter, water vole, fish and invertebrates), these are not assessed under non-statutory designated sites. Due to the spatial separation (see **Table 7-9**) between the Development Area and all other non-statutory designated sites and the static nature of their qualifying features, incorporated mitigation (including pollution control) as detailed in **Section 7.7 Incorporated Mitigation**, would prevent any impacts from occurring to these designated sites and as such they are **Scoped out** of detailed assessment.
Habitats of Principal Importance (HPIs) and irreplaceable habitats	Up to county	HPIs are located within the Main Development Area. The extent and distribution of HPIs across the Main Development Area would be affected through direct and indirect construction impacts and through the implementation of the landscaping proposed in the Indicative Environmental Masterplan HPIs are **scoped in** to detailed assessment.

Receptor	Geographic Scale of Importance	Potential Effect Pathway and Rationale for Selection of Features for Detailed Assessment
		There are no peat dependant ecological habitats or species within the Main Development Area. Furthermore, ground investigation surveys undertaken of the SADA identified no peat to a depth of 5.0 m. As such, the Proposed Development would not impact any peat that may be present (see **ES Volume 1 Chapter 10.0: Ground Conditions [EN010153/DR/6.1]**). No other irreplaceable habitats are present within the Main Development Area, as identified during the habitat survey. Impacts on irreplaceable habitats are therefore not anticipated to be significant. Irreplaceable habitats are **scoped out** of detailed assessment.
Other habitats	Site	Other habitats located within the Main Development Area which would be impacted by the Proposed Development are all common and widespread locally and regionally. The extent and distribution of habitats across the Main Development Area could be affected by direct and indirect construction impacts and through the Indicative Environmental Masterplan. These habitats may support other receptors of greater importance. Other habitats are **Scoped in** to detailed assessment.
Roosting bats	Up to county Valued following UK Bat Mitigation Guidelines (2023)[16]	Trees which may offer bat roosting potential would be retained and protected during construction, operation and decommissioning in line with design and measures set out in the oCEMP. No buildings or structures are anticipated to be directly impacted by the Proposed Development. Some tree felling/limb removal may be required during construction; in such instances, the design would seek to avoid impacts. Indirect impacts for roosting bats during operation and decommissioning are anticipated to be no greater than those that currently apply as a result of agricultural practices and the operation and management of the existing wind farm. Similarly, direct impacts to roosting bats during operation and decommission resulting from tree/limbs due to Health and Safety considerations are anticipated to be no greater than those that currently apply as a result of agricultural practices and the operation and management of the existing wind farm. A 10m exclusion should be implemented around buildings and structures (including the Manchester Ship Canal ventilation shafts). If works cannot be re-designed or micro sited to avoid this exclusion zone then appropriate surveys, as advised by an ecologist, depending on anticipated level of impact, would be undertaken. This may include endoscope inspections and/or emergence surveys. The results of these surveys will inform any required mitigation requirements. The protection of roosting bats during construction, operation and decommissioning would be secured via the **oCEMP [EN010153/DR/7.5], oOEMP [EN010153/DR/7.6]** and **oDEMP [EN010153/DR/7.7]**, respectively. To

Receptor	Geographic Scale of Importance	Potential Effect Pathway and Rationale for Selection of Features for Detailed Assessment
		include pre-works survey, appropriate mitigation, and where necessary, subject to a European Protected Species Mitigation Licence (EPSML), which will ensure that the favourable conservation status of roosting bat species would be maintained. Roosting bats are therefore **Scoped out** of detailed assessment.
Foraging and commuting bats	Up to county Valued following UK Bat Mitigation Guidelines (2023)	Bats may be disturbed during construction, and behaviourally affected by the presence of solar panels and by habitat changes. Foraging and commuting bats are **Scoped in** to detailed assessment.
Otter	County	Otter may be present within the Main Development Area and may be subject to disturbance during construction. The Proposed Development will result in the cessation of access to otter within the NBBMA during both construction and operation. Otters are **Scoped in** to detailed assessment.
Water vole	County	Water vole are established to be present within the Main Development Area, and may be impacted by new watercourse crossings and habitat changes. Water voles are **Scoped in** to detailed assessment.
Badger	Site	Badger is a common and widespread species both locally and nationally, and therefore any effects are unlikely to be assessed as significant. Badgers are **Scoped out** of detailed assessment, an impact assessment for badgers is detailed with Technical Appendix 7.2 Annex 8. Considered with regards to legislative compliance and best practice mitigation measures only.
Amphibians	Site	GCN are considered reasonably likely to be absent from the Main Development Area (see **Section 7-6 Baseline Conditions**). Any impact is unlikely to be significant on GCN or any other amphibian species. Amphibian species, including GCN, are therefore **Scoped out** of detailed assessment. Considered with regards to legislative compliance and best practice mitigation measures only.

Receptor	Geographic Scale of Importance	Potential Effect Pathway and Rationale for Selection of Features for Detailed Assessment
Reptiles	Site	Reptiles are considered reasonably likely to be absent from the Main Development Area (see **Section 7-6 Baseline Conditions**). Any impact is unlikely to be significant. **Reptiles are Scoped out** of detailed assessment. Considered with regards to legislative compliance and best practice mitigation measures only.
Other notable mammals	Local	Brown hare, hedgehog, polecat and harvest mouse may be affected by changes to habitats during construction and operation. While impacts to a local value receptor are unlikely to be significant, given the scale of the Site and the potential for benefits to increase the receptor value, other notable mammals are **Scoped in** to detailed assessment.
Fish	Up to County	Ditches and watercourses are likely to support a typical assemblage of fish species, and eels are assumed to be present within any permanently wet water bodies (including ditches), that are hydrologically connected to any main watercourse. Fish, including eels, may be impacted through noise and vibration impacts, during construction, operation and decommissioning phases. Fish are **Scoped in** to detailed assessment on the basis of presence.
Invertebrates	Up to County	An invertebrate assessment undertaken in 2023, largely comprising the Preliminary Site Boundary (see **ES Volume 2 Appendix 7-2: Protected Ecological Species Survey Baseline Report [EN010153/DR/6.2]), to**gether with an assessment of habitat value within the remainder of the Main Development Area, indicate that the large majority of the Site is not important for invertebrates. Invertebrate assemblages may, however, be affected by changes to habitats during construction and operation. While impacts are unlikely to be significant, given the scale of the Main Development Area and potential for benefits to increase the receptor value, invertebrates are **Scoped in** to detailed assessment on the basis of presence
Notable flora	Local	The Main Development Area is likely to support an assemblage of common flora typical of lowland agricultural landscapes (see **Section 7-6 Baseline Conditions**) which may be affected by changes to habitats during construction and operation.

Receptor	Geographic Scale of Importance	Potential Effect Pathway and Rationale for Selection of Features for Detailed Assessment
		Although bluebell (identification to species level not possible due to timing of survey) was recorded within an area of other lowland mixed deciduous woodland within the SADA, this habitat would be retained and protected as part of the Proposed Development, thereby protected any English bluebell plants (if present). Any impacts on flora are considered unlikely to be significant. **Scoped out** of detailed assessment.
Non-native invasive Species	Local	Himalayan balsam, variegated yellow archangel, New Zealand pigmyweed and cotoneaster species have been recorded within the Main Development Area. While impacts to a local value receptors are unlikely to be significant, given the scale of the Main Development Area and potential for benefits from the eradication of these species, non-native invasive species are **Scoped in** to detailed assessment.

Assessment Methodology

7.5.11 The assessment presented within this Chapter has been undertaken with reference to applicable wildlife and countryside legislation, national and local planning policy and the CIEEM (2018) guidance. The assessment methodology also reflects the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') and focuses on those activities that could potentially generate significant effects on ecological features.

7.5.12 Ecological Impact Assessment (EcIA) is defined within the CIEEM (2018) guidelines as:

"…a process of identifying, quantifying and evaluating the potential effects of development-related or other proposed actions on habitats, species and ecosystems".

7.5.13 The assessment presented within this chapter and associated appendices therefore includes:

i) A description of baseline ecological conditions;
ii) An evaluation of identified important ecological features;
iii) A description and evaluation of the potential effects of the Proposed Development inclusive of Incorporated Mitigation;
iv) Mitigation measures implemented to address any identified significant adverse effects;
v) An initial assessment of cumulative effects;
vi) Identification of any residual effects after mitigation; and
vii) Identification of opportunities for biodiversity enhancement.

7.5.14 For the purpose of the assessment, the terms 'impacts' and 'effects' are referred to in accordance with the definitions set out in CIEEM (2018) guidance as follows:

"Impact: Actions resulting in changes to an ecological feature, for example, removing a hedgerow; and

Effect: Outcome to an ecological feature from an impact, for example, the changes experienced by the local population of a species arising from the loss of the hedgerow".

7.5.15 Where ecological features are not considered so important as to warrant a detailed assessment, or where they will not be significantly affected on the basis of baseline information these are 'scoped out' of detailed assessment, as set out in **Table 7-3** above. Mitigation measures for such features may, however, still be outlined as appropriate to reduce and/or avoid any potentially non-significant adverse effects or to ensure legislative compliance. Where relevant, these ecological features may also be discussed qualitatively within the ES and given consideration in site-wide recommendations for habitat enhancement.

Assessment of Significance

7.5.16 To determine the overall significance of each ecological effect, judgments on the sensitivity of the receptor(s) and the magnitude of impact from the Proposed Development are considered together in order to determine whether or not an effect is likely to be significant. This involves a combination of quantitative and qualitative assessment and the application of professional judgement.

7.5.17 For the purposes of the ES, effects will be categorised as 'significant' or 'not significant', in line with the EIA Regulations. The assessment considers effects at different geographic scales i.e. where effects may be discernible at a local scale but are not considered significant in the context of the EIA Regulations. For the purpose of the assessment, moderate and major effects are deemed to be 'significant' in EIA terms unless stated otherwise, and supported by reasoned justification.

7.5.18 A 'significant effect' is considered to be one that either supports or undermines biodiversity conservation objectives for 'important ecological features', or for biodiversity in general. It may be that the effect is substantial in magnitude or scale, irreversible, has a long-term effect, or coincides with a critical period in a species' lifecycle. Where uncertainty or limitations exist, this is acknowledged.

7.5.19 CIEEM guidelines on ecological impact assessment note that:

"A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures."

7.5.20 For ease of reference, **Table 7-4** sets out the adapted CIEEM (2018) terminology, which also shows the equivalent EIA terms to be used in this Terrestrial Ecology Chapter.

Table 7-4 - Summary of Significance Levels

Effect (Standard EIA-related terminology and associated assigned significance)		Equivalent CIEEM terminology adapted for Ecological Assessment
Negligible Effects	Neutral	No discernible or significant effects on ecological integrity or conservation status (e.g. species or habitat).
Minor Effects	Not Significant	Adverse or beneficial effects on ecological integrity or conservation status, discernible/significant in ecological terms at a Local geographic scale only.
Moderate and Major Effects	Significant	Adverse or beneficial effects on ecological integrity or conservation status at a County, National or International geographic scale.

7.5.21 The Proposed Development has been assessed as having an operational lifespan of up to 40 years for the purpose of the assessment. Ecological effects will be described in terms of their duration as short, medium term and long-term as follows:

i) Short term effects are defined as 0 - 3 years;
ii) Medium term effects are defined as 3 - 15 years; and

iii) Long term effects are defined as > 15 years.

7.5.22 For the purposes of the assessment the importance or sensitivity of an ecological feature will be considered within the context of a defined geographical area, ranging from International (high value) to Site (low/negligible), as detailed in **Table 7-5**.

Table 7-5 - Value/Sensitivity Assessment

Value or Sensitivity of Receptor / Geographic Scale of Importance	Definition Examples
High - International / European	Greater than a UK scale, typically valued at a European level such as internationally designated sites (SPA, SAC and/or Ramsar sites) or proposed/candidate site (pSPA or cSAC), a large area of habitat(s) listed in Annex I of the Habitats Directive[xvii] or smaller areas of such habitat which are essential to maintain the viability of the larger whole, large population of an internationally important species or site supporting such a species (or supplying a critical element of their habitat requirement) or species listed in Annex IV of the Habitats Directive.
High - National (England/UK)	England/UK: A nationally designated site (e.g., SSSI) or a discrete area which meets the selection criteria for national designation. An area of Habitat of Principal Importance (HPI) listed under Section 41 of the NERC Act 2006 which constitutes a significant proportion of the resource of that habitat in England or the UK as a whole. A regularly occurring, regionally significant population of any nationally important species listed as a UK BAP/Biodiversity List and Species of Principal Importance (SPI) listed under Section 41 of the NERC Act 2006, and Species listed under Schedule 1 or Schedule 5 of the Wildlife and Countryside Act 1981 or Annex II or Annex IV of the Habitats Directive.
Medium Regional/County (Cheshire)	Locally designated sites (Local Nature Reserves, County or Local Wildlife Sites). Areas of HPI/Priority Habitats which constitute a significant proportion of the County's resource of that habitat. A regularly occurring, locally significant population of any nationally important species listed as a UK BAP/priority species and SPI listed under Section 41 of the NERC Act 2006, and Species listed under Schedule 5 of the Wildlife and Countryside Act 1981 or Annex II or Annex IV of the Habitats Directive.
Low - Local	Local area around the Site. For example, areas of HPI/Priority Habitats which are not large enough to meet the criteria for County value, or small but sustainable populations of protected or notable species.
Low/Negligible - Site	Within the Site. Features present but of value in relation to the Site only.

7.5.23 Relevant European, national and local guidance from governments and specialist organisations will be referred to in order to determine the importance (or 'sensitivity') of ecological features. Importance will also be determined using professional judgement and taking account of the results of

baseline surveys and the functional role of features within the context of the geographical area.

7.5.24 Importance does not necessarily relate solely to the level of legal protection that a feature receives, and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

7.5.25 Once identified, potential impacts are described making reference to the following characteristics as appropriate: positive or negative, extent, magnitude, duration, timing, frequency and reversibility. The judgements on magnitude may need to be adjusted (either up or down) to reflect the duration of the change (i.e. short, medium or long term) and whether it is potentially reversible. The assessment also identifies areas where no change is anticipated, and the resulting effect is described as 'not discernible' or 'none'.

7.5.26 Ecological effects are described, as far as possible, in terms of the parameters detailed in **Table 7-6,** where available information allows.

7.5.27 Magnitude of effect, based on the effects that the Proposed Development would have upon the resource/receptor, is considered within the range of high, medium, low, negligible. Consideration is given to scale, duration of impact (and extent of Proposed Development with reference to the definitions in **Table 7-6**). The assessment will consider how existing baseline conditions may change over time, as for example the baseline conditions could alter through operational land use, in the form of differing management and natural growth or succession of habitats.

Table 7-6 - Characterising Ecological Impacts

Environmental Parameters	Description
Magnitude	The 'size' or amount of the effect is referred to as the magnitude and is determined on a quantitative basis where possible supported by professional judgement.
Extent	The area over which an effect occurs. The magnitude and extent of an effect may be synonymous
Duration	The time over which an effect is expected to last prior to the recovery or replacement of the ecological receptor. This can be considered in terms of life cycles of species or regeneration of habitats. The duration may be longer than the duration of an activity.
Reversibility	Reversible (or temporary) effects are those that occur during the lifetime of the development and where spontaneous recovery, or mitigation allows recovery within a reasonable timescale. Permanent effects are those which cannot be recreated within the proposed development or there is no reasonable chance that actions can be undertaken to reverse it.
Timing and Frequency	The timing of effects in relation to important seasonal and/or life cycle constraints. The frequency with which activities and simultaneous effects would take place can be an important determinant.

7.5.28 The assessment of effects is based upon the assessments of magnitude of effects and sensitivity of the resource/receptor to come to a professional judgement of how important this effect is. The magnitude of change effected on ecological receptors is described as set out in **Table 7-7**. The likelihood or probability that an effect will occur is addressed as far as possible based on available information. Whilst it is reasonably straightforward to identify effects that are certain to occur, or conversely will not occur, it is generally more difficult to assign a quantified level to occurrences defined as likely, unlikely or highly unlikely. In these circumstances, professional judgement has been used, with reasoning supported by available evidence.

Table 7-7 - Magnitude of Effect

Magnitude	Criteria
High	The change may negatively or positively affect the conservation status of a site or species population, in terms of the coherence of its ecological structure and function, that sustains the habitat, complex of habitats and/or the population levels of species of interest.
Moderate	Conservation status of a site or species population will not be negatively or positively affected, but some element of the functioning of the Site or population might be affected and the change to the Site/population is likely to be significant in terms of its ability to sustain some part of itself in the long term.
Low	Neither of the above applies, but some minor negative or positive change is evident on a temporary basis, or the change affects extent of habitat or individuals of a species abundant in the local area.
Negligible	No observable effect in either direction.

7.5.29 It is recognised that discernible effects can also occur at a local geographic scale which are not sufficiently severe to be assessed as 'significant', and do not require specific mitigation, but nonetheless merit discussion. In the interest of completeness, these effects have been discussed within this chapter in relation to general construction good practices to be adopted to avoid or minimise low-level or minor disruption to local features, including for example standard pollution prevention and control measures.

Baseline Data Gathering

7.5.30 Detailed survey methodologies and limitations are presented in the following appendices:

i) **ES Volume 2 Appendix 7-1 Habitats Baseline Report [EN010153/DR/6.2]; and**,

ii) **ES Volume 2 Appendix 7-2 Protected Species Baseline Report [EN010153/DR/6.2] (inc**luding a Confidential Annex and a partially redacted Annex); and,

iii) ES Volume 2 Appendix 7-3: Bat Activity Survey Report [EN010153/DR/6.2].

Desk Study

7.5.31 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation cited for ecological interest, and protected and notable species and habitats within proximity to the Main Development Area as follows:

i) Statutory designated sites for nature conservation cited for ecological interest, within 2 km of the of the Main Development Area, extending to 10 km for internationally protected sites and to 30km for internationally designated sites with bats as a qualifying feature;
ii) Non-statutory designated sites for nature conservation cited for ecological interest within 2 km of the Main Development Area; and,
iii) Existing records of HPIs, SPIs and protected and notable faunal species (dated 2013 or later), within 2 km of the Main Development Area.

7.5.32 The following key sources were consulted:

i) Natural England and Joint Nature Conservation Committee (JNCC) websites;
ii) The Multi Agency Geographic Information for the Countryside (MAGIC) website;
iii) District Level Licencing Data;
iv) The Natural England Open Data Geoportal;
v) RECORD (Local Environmental Records Centre for Cheshire, Halton, Warrington and Wirral);
vi) Frodsham Renewable Energy Development – Preliminary Ecological Appraisal (PEA) and further baseline survey reports (RSK Biocensus [xviii, xixxx, xxi &xxii]); and,
vii) HyNet North West Hydrogen Pipeline - baseline survey reports (WSP UK Limited for Cadent Gas Limited[xxiii, xxiv, xxv & xxvi]).

7.5.33 Full details of the desk study methodology are provided in **ES Volume 2 Appendix 7-1 to 7-3 [EN010153/DR/6.2].**

7.5.34 A PEA was initially undertaken of the Preliminary Site Boundary (as shown in **Figure 2** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2]) by** RSK Biocensus in line with guidance from the CIEEM (2017)[xxvii], and included:

i) a desk study, undertaken in March 2022, to identify existing records of designated sites, and protected and notable species; and
ii) a Phase 1 habitat survey, extended to include an assessment of the possible presence of protected or priority species, and the likely importance of habitat features.

7.5.35 Further baseline ecological surveys, comprising bat activity, GCN and reptile surveys, together with water vole habitat suitability assessment, were also undertaken within the Preliminary Site Boundary. The RSK Biocensus PEA and further baseline survey reports are included in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2]. The**se reports include an ecological description of the Preliminary Site Boundary, and results of further baseline surveys. These formed the basis for further surveys and data gathering exercises, where required.

7.5.36 The desk study for this ES included a review of data in RSK Biocensus's PEA and further baseline survey reports for the Proposed Development. Relevant information regarding the Main Development Area, including habitat plans, and presence, or likely presence, of protected species, habitats, invasive species and other features of conservation significance were reviewed, and are referenced in this chapter, or associated appendices, within the relevant sections.

7.5.37 The desk study for this ES also included a review of data in WSP UK Limited for Cadent Gas Limited's HyNet North West Hydrogen Pipeline baseline survey reports for a proposed a hydrogen pipeline[2] that would run through the Site. Relevant information regarding the Main Development Area including

[2] *This project is an NSIP and is at the pre-application stage (ref. EN060006)*

the presence, or likely presence, of protected species, habitats, invasive species and other features of conservation significance were reviewed, and are referenced in this chapter, or associated appendices, within the relevant sections.

Habitat Survey

7.5.38 Habitat surveys of the Site have been undertaken between February 2023 and September 2024. The survey followed UK industry standard UKHab Methodology. The surveys were extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance. The survey was undertaken across the whole Site and therefore covered areas of the Draft Order Limits not surveyed as part of RSK Biocensus' Phase 1 habitat survey (undertaken of the Preliminary Site Boundary at that time).

7.5.39 All surveys have been undertaken by suitably competent and qualified ecologists in accordance with industry standard guidance.

7.5.40 Full details of the habitat survey methodology are provided in **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2].**

Pr*otected Species Surveys*

7.5.41 The following detailed field surveys have been undertaken, to establish the protected species baseline within the Main Development Area:

i) Bat activity surveys (July – November 2023);
ii) Invertebrate assessment (May 2023);
iii) Water vole preliminary habitat suitability assessments (September 2023, June 2024 and January 2025);
iv) Otter and water vole survey (September 2024 and March 2025); and,
v) Badger walkover (March 2025).

Limitations

7.5.42 Details of specific limitations relating to the baseline ecological surveys are included within **ES Volume 2 Appendix 7-1 to Appendix 7-3 [EN010153/DR/6.2],** as applicable.

Assumptions and Limitations

7.5.43 Water vole field sign surveys, required to inform population density estimates, have not been undertaken due to access constraints to the ditch networks within and adjacent to the Main Development Area. However, water voles are known to be present and are therefore included in the assessment on a precautionary basis.

7.5.44 Access to the Skylark Mitigation Area was limited to public right of ways located within and surrounding this area. As such, the habitats within this area were surveyed from available vantage points. Habitats within this area comprise modified grassland and associated neutral grassland field margins, together with boundary ditches; the modified grassland is of low ecological value. Furthermore, the Skylark Mitigation Area would not be directly impacted by the Proposed Development, with the exception of the creation of neutral grassland, as such, this is not considered a significant limitation to the assessment.

7.5.45 The RSK Biocensus reptile survey undertaken in 2022 recorded no reptiles; however, this survey covered the Preliminary Survey Site Boundary only, and did not include the NBBMA or SPEN/National Grid Substation and Access. No records of reptiles were returned from within 2 km of the Main Development Area during the data search. As such, reptiles are considered reasonably likely to be absent from the Main Development Area. Due to the close proximity of the Main Development Area to the NBBMA, and the lack of connectivity from the Site to the wider landscape (due to the River Weaver, the M56 and industrialisation at Elton/Stanlow), it is reasonably likely that the lack of reptiles and GCN can be extrapolated to the NBBMA. As detailed in

Appendix 7.2 Protected Ecological Species Baseline Report [EN010153/DR/6.2], a reptile survey was undertaken for the HyNet North West Hydrogen Pipeline project between 2022 and 2023. Two survey areas overlaps with the Main Development Area boundary; Sutton Causeway and East Clifton Tip, both of which overlap the access road to the SPEN/National Grid Substation and Access. No reptiles were recorded wither either the Sutton Causeway or East Clifton Tip survey areas. The closest reptile was recorded at Sandiway Golf Course and LWS, approximately 13 km southeast of the Main Development Area. As such, reptiles are considered reasonably likely to be absent from the SPEN/National Grid Substation and Access.

7.5.46 There are no further substantive limitations to the ecological assessment process recorded at this stage and there should be no identified substantive limitations to the final ES Ecology Chapter. The limitations outlined above do not prevent an informed view of the likely significant environmental effects of the Proposed Development from being provided in the ES.

7.6 Baseline Conditions

7.6.1 Baseline conditions are summarised in the following sections with full details provided in **ES Volume 2 Appendix 7-1** to **7-3 [EN010153/DR/6.2].**

Des*k Study*

Statutory Designated Sites for Nature Conservation

7.6.2 There are six statutory designated sites with qualifying terrestrial ecology interest located within 2 km of the Main Development Area (extending to 10 km for internationally protected sites and to 30km for internationally designated sites with bats as a qualifying feature). These sites are summarised in **Table 7-8** and are shown in **Figure 3** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2].** Designated sites with geological or ornithological interest only are omitted.

7.6.3 The Main Development Area is also located within several Natural England (NE) defined SSSI Impact Risk Zones (IRZ).

Table 7-8 - Statutory Designated Sites for Nature Conservation (SSSI: Site of Special Scientific Interest; SPA: Special Protection Area; LNR: Local Nature Reserve)

Site Name	Approximate Distance and Direction from the Main Development Area	Qualifying Features
Mersey Estuary SSSI	Within the Main Development Area (NBBMA and SADA)	Saltmarsh and boulder clay cliffs.
Flood Brook Clough SSSI	0.56 km northeast	A deep wooded valley cutting with an ash and wych elm woodland. Many of the plants present are characteristic of ancient woodland on base-rich soils, and are comparatively rare in Cheshire
Dunsdale Hollow SSSI	1.58 km south	Acidic lowland birch and sessile oak woodland.
Runcorn Hill LNR	1.65 km north	The largest area of lowland heath in North Cheshire; comprising dry heath/acid grassland, woodland, scrub and two ponds.

Site Name	Approximate Distance and Direction from the Main Development Area	Qualifying Features
Midland Meres & Mosses Phase 1 Ramsar	6.59 km southeast	Ramsar criterion 1: The site comprises a diverse range of habitats from open water to raised bog. Ramsar criterion 2: Supports a number of rare species of plants associated with wetlands including five nationally scarce species (six-stamened waterwort, hair grass, cowbane, marsh fern and elongated segde). Ramsar criterion 2: Assemblage of rare wetland invertebrates (three endangered insects and five other British Red Data Book species of invertebrates.
Midland Meres & Moses Phase 2 Ramsar	8.05 km southeast	Ramsar criterion 1: The site comprises a diverse range of habitats from open water to raised bog. Ramsar criterion 2: Number of rare species of plants associated with wetlands, including the nationally scarce cowbane and elongated sedge. Also present are the nationally scarce bryophytes *Dicranum affine* and *Sphagnum pulchrum*. Ramsar criterion 2: Assemblage of invertebrates including several rare species. There are 16 species of British Red Data Book insects listed for this site including the following endangered species: the moth *Glyphipteryx lathamella*, the caddisfly *Hagenella clathrata* and the sawfly *Trichiosoma vitellinae.*

Non-Statutory Designated Sites for Nature Conservation

7.6.4 The Main Development Area is located within three non-statutory designated sites for nature conservation; Frodsham, Helsby and Ince Marshes Local Wildlife Site (LWS), Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS. A further eighteen LWSs are located within 2 km of the Main Development Area. These sites are summarised in **Table 7-9** and are shown in **Figure 4** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2].**

7.6.5 The request to assess the current status of Frodsham Helsby and Ince LWS against the current LWS criteria arose during consultation with CWaCC. CWaCC requested the following: *The ES should include a LWS Assessment to assess the site against current criteria, to determine its quality in relation to its current qualifying features and to identify any further unlisted LWS features*

present. A mitigation and compensation plan should be formulated from this information. Therefore, **ES Vol 2 Appendix 7.5 Assessment of Frodsham Helsby Ince Local Wildlife Site [EN010153/DR/6.2]** includes an assessment of Frodsham Helsby Ince LWS against the current LWS selection criteria. The assessment of impacts on the LWS as a result of the Proposed Development are discussed in Section 7.8 and habitat creation/enhancement measures proposed within the Frodsham Helsby Ince LWS are detailed within the **Outline Landscape Environment Management Plan [EN010153/DR/7.13].**

Table 7-9 - Non-Statutory Designated Sites for Nature Conservation (LWS: Local Wildlife Site)

Site Name	Approximate Distance and Direction from the Main Development Area	Description
Frodsham, Helsby and Ince Marshes LWS	Within the Main Development Area	Neutral grassland, floodplain, wetlands, wildlife corridors, other qualifiers, saltmarsh, invertebrates, vascular plants.
Frodsham Field Studies Centre LWS	Within the Main Development Area	Undetermined species-rich grassland, wetlands, ponds, wildlife corridors, invertebrates, vascular plants.
Easton Clifton Tip LWS	Within the Main Development Area	Calcareous grassland, wetland, open mosaic, vascular plants.
Clifton Lagoon LWS	0.07 km east of the Main Development Area	Grassland of industrial origin, invertebrates.
Sutton Bridge Unused Lagoon	0.11 km southeast of the Main Development Area	Restorable grassland, wetlands, other qualifiers.
Weston Marsh Lagoon LWS	0.12 km north of the Main Development Area	Grassland of industrial origin.
Clifton Cloughs	0.29 km northeast of the Main Development Area	Ancient woodland.
Upper Mersey Estuary LWS	0.30 km north of the Main Development Area	Intertidal sand and mudflats, saltmarsh.
Lowes Wood LWS	0.66 km east of the Main Development Area	Deciduous woodland, wildlife corridor.

Site Name	Approximate Distance and Direction from the Main Development Area	Description
First Pit, Ellis Lane LWS	0.84 km southeast of the Main Development Area	Ponds.
Lower Weaver Valley Woods LWS	0.86 km southeast of the Main Development Area	Deciduous woodland, wildlife corridor, other qualifiers.
Hob Hey Wood LWS	0.87 km south of the Main Development Area	Deciduous woodland, wildlife corridor, other qualifiers.
Beechwood LWS	0.99 km east of the Main Development Area	No citation provided.
Lower Weaver Valley Floodplain LWS	1.04 km southeast of the Main Development Area	Wetlands, wildlife corridors.
Frodsham and Overton Woods	1.06 km south of the Main Development Area	Deciduous woodland, heathland, wildlife corridors, other qualifiers.
Clough Wood LWS	1.06 km east of the Main Development Area	No citation provided.
The Glen LWS	1.30 km northeast of the Main Development Area	No citation provided.
South Verge Embankment LWS	1.41 km east of the Main Development Area	No citation provided.
Land North of Hallwood Park LWS	1.56 km northeast of the Main Development Area	No citation provided.
Runcorn Hill LWS	1.65 km north of the Main Development Area	No citation provided.
Blackamoor Wood and Coppice LWS	1.99 km southeast of the Main Development Area	Deciduous woodland.

Habitats of Principal Importance: Desk Based Records

7.6.6 Existing records of HPI, as listed under Section 41 of the NERC Act, or Priority Habitats, as listed on the Cheshire Region Biodiversity Action Plan (Local Biodiversity Action Plan; LBAP), within 2 km of the Main Development Area include records of reedbeds, deciduous woodland, coastal saltmarsh, coastal and floodplain grazing marsh, lowland calcareous grassland, traditional orchard, mudflats, wood-pasture and parkland, lowland fens, lowland meadows, purple moor grass and rush pastures and lowland heathland. These HPIs are shown in **Figure 5** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2].**

Ancient and Irreplaceable Habitats: Desk Based Records

7.6.7 Three areas of ancient woodland habitat listed on Natural England's Open Data Geoportal ancient woodland inventory[xxviii] are present within 1 km of the Main Development Area; located 0.58 km, 0.66 and 0.86 km east.

7.6.8 The majority of the Main Development Area is located within an area identified as 'deep peaty soils' on Natural England's Open Data Geoportal peaty soils location[xxix].

Habitats

7.6.9 A summary of the baseline habitats recorded within the Site during the 2023 and 2024 UKHab surveys is included below. Detailed habitat descriptions and target notes, and associated photographic plates, are provided in **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2]**. Baseline habitats recorded within the Main Development Area during the 2023 and 2024 extended UKHab surveys are illustrated in **Figures 7-6 (a-e)** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2]**.

Solar Array Development Area

7.6.10 The SADA comprises a number of fields separated by ditches, watercourses, hedgerows and tree lines. The fields primarily comprise other neutral grassland, arable land and modified grassland, some of which are grazed. Also present are areas of reedbeds, bramble scrub, ponds, tracks and roads.

Non-Breeding Bird Mitigation Area

7.6.11 The NBBMA predominantly comprises neutral grassland; areas of neutral grassland located towards the south and west of this area also contain scattered scrub and tall forbs. Also present are a number of ponds, reedbeds, broadleaved woodland, unsealed tracks, and farm buildings and associated built-up areas and gardens. Ditches are also present within the NBBMA. New Zealand pigmyweed, which is listed under Part II of Schedule 9 of The Wildlife & Countryside Act 1981, is present within a number of the ponds within the NBBMA.

SPEN/National Grid Substation

7.6.12 The SPEN/National Grid Substation and access to the substation compound predominantly comprises developed land (buildings and hardstanding/roads), also present are mixed scrub, reedbeds, broadleaved woodland and neutral grassland. The River Weaver is located between the SPEN/National Grid Substation and the SADA.

Main Site Access with/without Private Wire Connection

7.6.13 The Main Site Access roads comprise existing hardstanding roads (developed land; sealed surface) and tracks (artificial unvegetated, unsealed surface). Habitats preset directly adjacent to the roads include reedbeds with scattered scrub, wet woodland, sparsely vegetated land and neutral grassland including some areas with scattered scrub and tall forbs. A number of ditches and watercourses cross and/or run parallel to the access roads in places.

Bats

7.6.14 Detailed results are provided in **ES Volume 2 Appendix 7-3 [EN010153/DR/6.2].**

Desk Study

7.6.15 The desk study returned three records of bats within 2 km of the Main Development Area, comprising noctule bat, common pipistrelle and pipistrelle sp. The closest record was of a single noctule bat casualty recorded approximately 0.80 km southeast of the Main Development Area. A review of MAGIC identified four records granted EPSML relating to bats within 2 km of the Main Development Area; the closest of which related to the damage to and destruction of a common pipistrelle resting place, located adjacent to the SPEN/National Grid Substation.

Roosting

7.6.16 No trees with features suitable to support roosting bats were identified during the PEA or during either the 2023 or 2024 extended UKHab surveys. A number of buildings were assessed as having low suitability to support roosting bats during the PEA, in accordance with Collins (2023). No buildings will be directly impacted by the Proposed Development. Detailed design will confirm if structures, (Manchester Ship Canal ventilation shafts), are required to be removed to facilitate the Proposed Development.

Field Surveys: Foraging and Commuting Bats

7.6.17 Due to the large size of the Main Development Area and the variety of habitats present, the Main Development Area has been separated by habitats of ‘high’, ‘moderate’ and ‘low’ suitability for foraging and commuting bats. Linear features within the Main Development Area, such as hedgerows, tree lines, field margins, ditches and watercourses offer the most favourable habitats for foraging/commuting bats; these habitats fit the description most closely for land of ‘moderate’ interest for foraging and commuting bats in accordance

with BCT Guidance (2023), with continuous habitat connected to the wider landscape that bats could use for foraging and commuting.

7.6.18 Whereas the fields, comprising mostly arable and grazed pasture, which the Main Development Area is dominated by, offer poor quality habitats for foraging and commuting bats. The western section of the SADA, partially below the Frodsham Wind Farm, is considered to have very low potential to support foraging and commuting bats as it comprises predominantly large, improved fields which are intensively grazed by cattle and sheep. These habitats fit the description most closely for land of 'low' interest for foraging and commuting bats, with habitats that could be used by small numbers of foraging/commuting bats.

7.6.19 Linear features surrounding the Main Development Area, such as hedgerows, tree lines, ditches and watercourses also offer favourable habitats for foraging/commuting bats, including the River Weaver, Weaver Navigation and Manchester Ship Canal.

7.6.20 A minimum of five species were recorded within the Main Development Area during the manual bat activity survey (transect survey) undertaken in 2023, including common pipistrelle, soprano pipistrelle, noctule, brown long-eared and *Myotis* sp. Observed activity was limited to common and soprano pipistrelle, and noctule bat; of these, activity levels were primarily associated with linear features (i.e., hedgerows and/or wet ditches) or riparian edge habitats.

7.6.21 A minimum of six species/genera were detected during the automatic activity survey (static survey), including the same five species as those recorded during the manual bat activity survey undertaken in 2023, with the addition of Nathusius' pipistrelle. Common pipistrelle accounted for the highest number of passes detected within the Main Development Area throughout the overall survey period (over half of the total bat passes). Three automated monitoring stations (MSs) were deployed; spatially, bat activity was notably higher at MS1, and relatively comparable between MS2 and MS3. MS1 located within

other neutral grassland pasture featuring scattered rushes, and in association with mature native hedge lines, and in relative proximity to standing open water (i.e., wet ditch), whereas MS2 was located within a mosaic area of neutral grassland with scattered scrub, trees and rushes, and MS3 was placed along a native hedgerow and associated ditch, located centrally within an area of arable land.

7.6.22 Locations sampled during both the manual bat activity and automatic activity surveys are primarily indicative of linear features (e.g. treelines, hedgerows and ditches); bat activity recorded indicates that these habitats function as both foraging and commuting opportunities for bats.

7.6.23 In addition to those species mentioned above recorded in 2023, transect and static surveys undertaken by RSK Biocensus in 2022 also recorded the presence of serotine and Leisler's bat within the Preliminary Site Boundary.

Otter

7.6.24 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].**

7.6.25 RECORD returned a single record of otter within 2 km of the Main Development Area; detailing two otters sighted approximately 1.6 km southwest of the Main Development Area. A review of MAGIC identified no granted EPSML for otter within 2 km of the Main Development Area. No evidence for the presence of otter was recorded on or within 2 km of the Main Development Area during WSP UK Limited's baseline surveys for the proposed for HyNet North West Hydrogen Pipeline.

7.6.26 The majority of the ditches and waterbodies present within Main Development Area are considered sub-optimal for resting, foraging or commuting otter as they are densely vegetated in many places. However, the larger ditches located along the southeastern boundary of the SADA, together with the series of ponds and ditches located within the NBBMA, may be suitable for

resting, foraging or commuting otter. No evidence of otter was recorded during RSK Biocensus's PEA or further baseline surveys, or during AEL's UKHab survey, water vole habitat suitability assessment or ornithological surveys.

7.6.27 During the first visit of the combined otter and water vole survey undertaken in September 2024, three undetermined mustelid scats were recorded within the NBBMA; taking into account the consistency, contents and smell, all three scats may be that of otter, however this could not be confirmed. During the second visit of the combined otter and water vole survey undertaken in March 2025, no definitive evidence pertaining to the presence of otter was recorded within the survey area. However, four unidentified mammal holes were recorded within the NBBMA. All four holes were located adjacent to either a ditch, a waterbody or reedbed; due to their locations, shape and size, these holes may be those of otter. However, due to the lack of definitive evidence, this could not be confirmed.

7.6.28 Watercourses, including the River Weaver, Weaver Navigation and Manchester Ship Canal, as well as the extensive ditch network neighbouring the Main Development Area, offer suitable habitat to support foraging and commuting otters; their associated terrestrial habitats may also be used as sleeping and resting places. Taking into account the desk study records, the presence of suitable habitat within and adjacent to the Main Development Area and the extensive home range of otters, it is considered likely that otters are utilising watercourses located within the Main Development Area and may occasionally utilise the ditch network.

Water vole

7.6.29 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2]**.

7.6.30 RECORD returned eight records of water vole within 2 km of the Main Development Area. Of these, four were recorded within or directly adjacent to

the SADA, comprising feeding stations and latrines. The remaining four records were of water vole sightings, approximately 1.6 km southwest of the Main Development Area.

7.6.31 No evidence, or potential evidence, for the presence of water vole was recorded within the Main Development Area during WSP UK Limited's baseline surveys for the proposed for HyNet North West Hydrogen Pipeline. However, evidence, or potential evidence, was recorded at 11 locations within 2 km of the Main Development Area. The closest evidence, or potential evidence, was of potential latrines and burrows located along two ditches immediately south of the SADA (one of these ditches forms the eastern boundary of the Skylark Mitigation Area, the second is approximately 125 m west of the Skylark Mitigation Area). Water vole population density estimates calculated for both lengths of ditches was low.

7.6.32 The water vole preliminary habitat suitability assessments undertaken in September 2023, June 2024 and March 2025 assessed five out of the 25 crossing points as being suitable for use by water vole, 17 as potentially suitable for use by water vole (limited due to visibility constraints due to dense vegetation), one as unsuitable, and two as sub-optimal for use by water vole.

7.6.33 No evidence of water vole was recorded during the September 2024 water vole survey (see **Figure 2** of **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2]** for the survey area). However, during the March 2025 water vole survey, four water vole latrines and feeding remains were recorded along a ditch located within the NBBMA, together with a single potential water vole burrow.

7.6.34 Several potential water vole burrows were recorded along the southern boundary of the Main Development Area in March 2025 during the badger walkover survey. Several small mammal burrows were recorded at two separate locations immediately north of the Skylark Mitigation Area and a further potential burrow was recorded east of the Skylark Mitigation Area (locations illustrated on **Figure 3** of **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2]**). These burrows were not accessible and as such a close

inspection for the presence of additional water vole field signs was not possible. However, the shape and size are consistent with those of water vole burrows. Water vole has also been incidentally observed within the Main Development Area during ornithology surveys.

7.6.35 Taking into account the results of the desk study, preliminary habitat suitability assessments of the proposed crossing points, the March 2025 water vole survey results, and incidental water vole/burrow sightings recorded during ornithological/badger surveys, the presence of water vole within the Main Development Area is recognised. The preliminary habitat suitability assessments of the proposed crossing points identified the majority of watercourses and ditches present within and adjacent to the Main Development Area are suitable habitat for water vole. As such, the presence of water vole throughout the Main Development Area is possible.

Badger

7.6.36 Baseline information relating to badgers is provided within **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2]**.

Amphibians

7.6.37 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].**

7.6.38 RECORD returned eight records of amphibians within 2 km of the Main Development Area. In summary, a single record of common toad was returned, located directly adjacent to the SPEN/National Grid Substation; two records of common frog were returned, located 1.22 km northeast and 1.64 km south. No records of GCN were recorded within 2 km of the Main Development Area, however, five locations within 2 km of the Main Development Area were noted to be absent for the presence of GCN. A review of MAGIC returned no granted EPSML for GCN within 2 km of the Main Development Area.

7.6.39 Full methodologies and results of the RSK Biocensus GCN surveys undertaken of the Preliminary Site Boundary are included in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].** The PEA study identified 36 ditches and nine waterbodies within the Preliminary Site Boundary that provide potentially suitable breeding habitat for GCN and other amphibians. Furthermore, there are an additional 14 waterbodies identified within 500 m of the Preliminary Site Boundary. The Main Development Area is bordered by the Manchester Ship Canal and River Weaver to the north and east, and the M56 motorway and Frodsham to the south and as such is relatively isolated.

7.6.40 All ditches and waterbodies on and within 500 m of the Preliminary Site Boundary, where accessible, were subject to an HSI survey and water samples were collected from 21 of the most suitable and safely accessible waterbodies/ditches and analysed for the presence of GCN eDNA, in 2022.

7.6.41 No positive eDNA results were recorded. Furthermore, reptile surveys were undertaken on the Preliminary Site Boundary between March and June 2022 and no GCN were recorded using the refugia traps. Therefore, it is considered that GCN are reasonably unlikely to be present within the Main Development Area. These results are consistent with surveys undertaken in 2010 to inform the Frodsham Wind Farm planning application, where 27 water bodies were surveyed[xxx]; all results were negative.

7.6.42 A small number of common toad were recorded within the Preliminary Site Boundary during the RSK Biocensus PEA and reptile surveys.

Reptiles

7.6.43 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].**

7.6.44 RECORD returned no records of reptiles within 2 km of the Main Development Area. No reptiles were recorded within either the Sutton Causeway or East

Clifton Tip survey areas during WSP UK Limited's baseline surveys for the proposed HyNet North West Hydrogen Pipeline.

7.6.45 The Main Development Area is considered to provide suitable terrestrial habitat for reptiles as it contains areas of marshy and rough grassland, together with arable land with a grid of interconnected ditches forming the field boundaries.

7.6.46 Full methodologies and results of the RSK Biocensus reptile survey undertaken within the Preliminary Site Boundary are included in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].** In summary, a reptile survey was undertaken of the Preliminary Site Boundary in 2022 during which no reptiles were recorded. On balance, reptiles are considered reasonably likely to be absent from the Main Development Area or present only in very low numbers.

Other Notable Species

Other Notable Mammals

7.6.47 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].**

7.6.48 RECORD returned records of other notable mammal species including brown hare (12 records), hedgehog (11 records), polecat (one record) and harvest mouse (one record) within 2 km of the Main Development Area. Of these, four brown hare records were within the Main Development Area.

7.6.49 Habitats within the Main Development Area, including hedgerows, tree lines, grassland and reedbed, provide suitable habitats for breeding, foraging and sheltering brown hare, hedgehog, Western polecat and harvest mouse.

Fish

7.6.50 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].**

7.6.51 RECORD returned no records of protected or notable fish species within 2 km of the Main Development Area.

7.6.52 Environmental DNA (eDNA) surveys were undertaken for the HyNet North West Hydrogen Pipeline project between 2022 and 2023. Positive eDNA results for the presence of European eel was returned from two sample points within 2 km of the Main Development Area, including along the River Weaver which flows through the Main Development Area, and along a ditch located approximately 1 km south of the Main Development Area (NBBMA). Positive results for the presence of European eel were also returned from a single sample point located beyond 2 km but along a watercourse which flows into the 2 km buffer (Hornsmill Brook).

7.6.53 Watercourses and ditches located within and immediately adjacent to the Main Development Area may support notable fish species. Eels are likely to be present within permanently wet waterbodies (including ditches) that are hydrologically connected to any main watercourse. Targeted fish surveys have not been undertaken and are not proposed due to measures embedded in the project to avoid impacts on watercourses and associated fish species, such as pollution control and a species protection plan, to include a fish rescue plan where appropriate, as detailed under **Section 7-7 Incorporated Mitigation and Enhancement Measures,** below.

Notable Invertebrates

7.6.54 Detailed results are provided in **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2].**

7.6.55 RECORD returned 2,128 records of invertebrates within 2 km of the Main Development Area; of these, one species is listed under Schedule 5 of the Wildlife and Countryside Act; comprising a single record of white-letter hairstreak located approximately 1 km east of the Main Development Area. An additional 10 species are listed as LBAP species and/or SPIs; of these,

one record of cinnabar and nine records of ringlet were returned from the Main Development Area.

7.6.56 The network of boundary hedgerows, field margins and ditches are only likely to support common invertebrate assemblages typical of lowland arable and pasture farming landscapes. However, the ponds and ungrazed areas of neutral grassland may support a more diverse assemblage of invertebrates, including SPI's.

7.6.57 An invertebrate assessment was undertaken in May 2023, largely comprising the Preliminary Site Boundary (see **Figure 2 Survey Area** of **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2]**); during which 386 invertebrate species were recorded. Of these, two species are listed as SPIs (cinnabar and blood-vein moths), two are listed as Nationally rare (a pill beetle *Curimopsis setigera* and alder leaf beetle), one is listed as Nationally Notable category A (a weevil *Rhinocyllus conicus*) and three are listed as Nationally Notable category B (a weevil *Oxystoma cerdo*, a weevil *Sitona waterhousei* and bull's-horn stem-moth). None of the invertebrate assemblages recorded within the survey area were found to be in favourable condition in accordance with Pantheon assemblage scores (see **ES Volume 2 Appendix 7-2 [EN010153/DR/6.2]** for further detail), although two assemblages came close; 'rich flower resource' (based on bee species) had 14 of the 15 qualifying species, whilst 'scrub edge' had nine of 11 qualifying species.

7.6.58 Additional invertebrate assessments of the remaining areas now included within the Main Development Area (the NBBMA and the SPEN/National Grid Substation) have not been undertaken. Additional assessments of the NBBMA have not been undertaken as this area is not considered to be of high value for invertebrate due to the nature of the habitats, comprising grazed grassland and ponds with limited marginal vegetation. Additional assessments of the SPEN/National Gid Substation have not been undertaken as habitat removal within this area would be limited, with ditches and field margin/hedgerow habitats largely retained and enhanced.

Notable Flora

7.6.59 Detailed results are provided in **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2].**

7.6.60 RECORD returned five records of English bluebell within 2 km of the Main Development Area, located between 1 km and 1.2 km away.

7.6.61 Habitats within the Main Development Area are typical of lowland agricultural landscapes which are common and widespread both locally and nationally; it is therefore considered likely that the Main Development Area largely supports similarly common and widespread flora, although it is acknowledged this may include some locally noteworthy species.

7.6.62 Bluebell (identification to species level not possible due to timing of survey) was recorded within an area of other lowland mixed deciduous woodland within the SADA.

Invasive Species

7.6.63 Detailed results are provided in **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2].**

7.6.64 RECORD returned records of the following species listed under Schedule 9 of The Wildlife & Countryside Act 1981 within 2 km of the Main Development Area; rhododendron, montbretia, Himalayan balsam, Japanese knotweed and Chinese muntjac.

7.6.65 Himalayan balsam, variegated yellow archangel, New Zealand pigmyweed and cotoneaster species have been recorded within the Main Development Area.

7.6.66 American Mink may also be presence within the local area, and historic records of the species were returned from within the Preliminary Site Boundary (see Frodsham Renewable Energy Development Preliminary

Ecological Appraisal Repot (RSK Biocensus, 2023), included in **ES Volume 2 Appendix 7-1 [EN010153/DR/6.2]**).

Future Baseline

7.6.67 In the absence of the Proposed Development, it is likely that the Main Development Area would continue to be in similar agricultural use and would remain relatively static in terms of the baseline habitat characteristics that are observed presently. Based on available information, in the absence of the Proposed Development being developed, no substantive changes to the management of habitats within the Main Development Area, or the distribution of ecological features (with the exception of non-native species), are expected within the Main Development Area over the 40-year lifespan of the Proposed Development.

7.6.68 Himalayan balsam, variegated yellow archangel, New Zealand pigmyweed and cotoneaster species have been recorded within the Main Development Area. In the absence of the Proposed Development, it is likely that these non-native invasive species would continue to spread throughout the Main Development Area. This would likely be to the detriment of native habitats and species.

7.6.69 A degree of natural variation in the distribution and size of species populations is likely to occur as a result of natural processes (e.g. succession and habitat maturity) and is to be expected regardless of the Proposed Development; however, these habitats are likely to support a broadly similar assemblage.

7.6.70 It is possible that anthropogenic climate change may result in the recording of species previously unrecorded as species from continental Europe migrate northwards. Further, the spread of invasive non-native species (e.g., Asian hornet) could result in changes to native species distributions within the Main Development Area. Furthermore, anthropogenic climate change may influence the resilience of some habitats and species. Such variations over time would occur independently of the Proposed Development.

7.6.71 As such, the ecological baseline as outlined above are considered to represent a realistic ecological baseline for the 40-year lifetime of the project.

7.7 Incorporated Mitigation and Enhancement Measures

Incorporated Mitigation

Indicative Environmental Masterplan

7.7.1 At the outset of the design process, the results of the PEA were reviewed to identify the areas of the Main Development Area which contained the highest value habitats and these were excluded from potential development areas. For example, the area of reedbed east Marsh Farm and the areas of woodland and scrub separating the windfarm from the arable land to the west of the SADA. Furthermore, where new and upgraded watercourse/ditch crossings are proposed, these would be open span bridge crossings, as detailed in **ES Volume 1 Chapter 2.0: Proposed Development [EN010153/DR/6.1],** thereby minimising impacts to valuable habitats, such as ditches and marginal vegetation.

7.7.2 An Indicative Environmental Masterplan is provided as **ES Volume 3 Figure 2-3 [EN010153/DR/6.3]**. The masterplan sets out works associated with the retention of existing green infrastructure and the creation of new green infrastructure across the Proposed Development. In summary, proposals include:

i) Approximately 36.1 ha of public access/biodiversity enhancement zones, comprising enhancement of existing vegetation and provision of new vegetation.
ii) Creation/enhancement of approximately 132 ha of other neutral grassland.
iii) Creation of approximately 75.7 ha of modified grassland.
iv) Specific habitat creation and enhancement measures within Items i-iii above including:
v) Approximately 2.2 ha of new native woodland.
vi) Approximately 0.87 ha of new native mixed scrub, and enhanced management of approximately 1.43 ha of existing scrub.

vii) Enhancement of approximately 6.4km of existing hedgerows and hedgerow with trees.

viii) Approximately 2.5km of new native hedgerow, and approximately 5km of new belts of native trees and shrubs.

ix) Approximately 1 ha of new ponds, approximately 335m of new ditches, and approximately 2.1 ha of new reedbed.

x) Enhanced management of approximately 0.9 ha of existing ponds, approximately 10.9km of existing ditches and approximately 12.1 ha of existing reedbed.

xi) The NBBMA boundary is approximately 66.7ha in size, of which approximately 53.31ha is suitable for new and enhanced habitats (wetland and other neutral grassland) to benefit wetland birds.

xii) Skylark Mitigation Plot, comprising 5.58 ha of other neutral grassland creation.

7.7.3 Site reinstatement and landscaping would commence following completion of the construction works. Advance planting and habitat creation, prior to the commencement of construction, would be undertaken in some locations e.g. NBBMA and hedgerow screen planting along the southern boundary of the Site.

7.7.4 The NBBMA covers an area of 64 ha and includes land which currently forms part of the Frodsham Wind Farm mitigation area, it is located in the area of Cell 3 of the former Manchester Ship Canal Dredging Deposit Grounds. Details of the NBBMA are provided in **ES Volume 1 Chapter 8: Ornithology [EN010153/DR/6.1]; Outline Landscape and Ecology Management Plan and Appendix B: Outline Non Breeding Bird Mitigation Strategy [EN010153/DR/7.13]**. In summary Cell 3 would be re-engineered to deliver the following components:

i) Existing scrapes which have been created as part of the Frodsham Windfarm mitigation works would be temporarily removed and then re-instated as part of a wider network of wetland features;

ii) Additional scrapes would be created;

iii) Islands would be created;

iv) The entire area of Cell 3 would be managed as grassland, with approximately 9.5 ha of managed wet grassland created in the centre of the cell by lowering ground levels; and,

v) The entire mitigation area would be predator fenced.

7.7.5 To create the NBBMA it would be necessary to undertake an earthworks operation on Cell 3. This would involve excavating soils within the central area of Cell 3. These soils would either be placed within the ponds to the north of Cell 3, creating an additional area of grassland, or the soils would be reprofiled across the remaining area of Cell 3, directing surface water towards the central area and thereby helping to maintain a wet grassland habitat. Further details on the approach to construction of the NBBMA is provided in **ES Vol 1 Chapter 2: The Proposed Development [EN010153/DR/6.1].**

7.7.6 If the ponds to the north of Cell 3 are infilled, a new pond would be created in this area that would act as a water storage area to help manage water levels within the NBBMA. If soils are not placed in the ponds, the existing ponds would be treated to remove New Zealand pigmyweed[3], and then used to manage water levels in the NBBMA. A network of pipes and sluices would direct water from the ponds into the NBBMA.

7.7.7 For both options it would be necessary to put in place a New Zealand pigmyweed removal and control strategy, which would be implemented as part of the CEMP. The requirement for this is documented within the oCEMP described below.

7.7.8 The NBBMA will provide direct mitigation for non-breeding birds, but will also provide enhanced opportunities for invertebrates, water vole and bats.

[3] New Zealand pigmyweed is an invasive species listed under Schedule 9 to the Wildlife and Countryside Act 1981 As such, it is an offence to plant or otherwise cause this species to grow in the wild.

Construction Phase

7.7.9 An oCEMP has been prepared (**ES Volume 2 Appendix 2-3 [EN010153/DR/7.5]**) which outlines the principles, controls, and measures to be implemented during construction to reduce potential significant environmental effects from occurring. A detailedAs set out in Section 1.0 the outline plan will be developed into a full plan which must be in substantial accordance with the outline and will require approval by CWaCC.. This is secured via a Requirement in Schedule 2 of the **draft DCO [EN010153/DR/3.1]**.

7.7.10 The oCEMP includes the following measures:

i) The phasing of works across the Main Development Area, e.g. NBMMA to be created and functional in advance of construction of the western Solar PV Array Areas;
ii) Designated site protection measures (fencing/soil management plan);
iii) Pollution control, including runoff and dust;
iv) Noise and vibration management measures;
v) Implementation of habitat protection buffers;
vi) Implementation of root protection areas in line with BS:3857;
vii) Sensitive lighting strategy;
viii) Mammal gaps/gates in perimeter fencing;
ix) Requirement for Species and Habitat Protection Plans;
x) Protected species derogation licenses (if required);
xi) Pre-construction surveys;
xii) Implementation of a fish rescue plan;
xiii) Provision of an Ecological Clerk of Works (ECoW)
xiv) Reasonable Avoidance Measures (RAMs); and,
xv) Requirement for Invasive Non-Native Species Management Plans.

7.7.11 The phases of works across the Site would be carefully managed to consider:

i) whether effects from multiple work areas could have a significant impact on a receptor;
ii) sensitive periods of the year for certain species and whether this could influence the type of construction works undertaken, timing of works or use of alternative working methods; and
iii) full or partial completion of the NBBMA in advance of construction commencing in other areas of the Site used by SPA species.

7.7.12 It is also noted that the construction works for the SADA in Cell 1, 2 and 5 would be prevented from being undertaken until the NBBMA has been created and is functional, as secured in the oCEMP.

Protection of Designated Sites and Habitats

7.7.13 Heras fencing, or similar, would be used to demarcate the working area in order to protect sensitive ecological or hydrological features during the enabling works, earthworks and construction stages of the project.

7.7.14 A soil resources management plan would be implemented during any works, ensuring that soil types are returned in the order of removal; to include removing, storing and reinstating the turf layer. Track mats would also be installed within any areas of vehicle/plant tracking and equipment placement where sensitive habitats are present, to ensure that soil and vegetation are protected appropriately.

7.7.15 Best practice measures to control both runoff and dust pollution would be implemented during construction across the Site, but particularly in proximity to sensitive habitats, together with noise and vibration management measures.

7.7.16 Standard measures to ensure runoff control and pollution prevention would be implemented via the CEMP. The proposed works will adhere to 'British Standards BS5837:2012 Trees in relation to design, demolition and construction'[xxxi].

7.7.17 The following habitat protection buffers would be implemented during construction:

i) A 10 m buffer between fencing surrounding solar PV modules and non-tidal watercourses (with the exception of new/upgraded crossing points);
ii) A 16 m buffer between fencing surrounding solar PV modules and tidal watercourse defence structures;
iii) A 6 m buffer between fencing surrounding solar PV modules and hedgerows / areas of substantial vegetation (with the exception of minor removal required for access); and
iv) An 8 m buffer surrounding retained ponds and reedbeds.

Sensitive Lighting Strategy

7.7.18 Construction works would take place 08.00 to 18.00 hrs Monday to Friday and 08:00 to 13:00 hrs Saturday. The compounds would be lit during periods of low light during construction working hours. Outside working hours, lighting would only be switched on for security breaches or temporary mobile task lighting.

7.7.19 A sensitive lighting strategy would be put in place to manage temporary lighting used during the construction phase. Any lighting that is required would be directed away from existing or created linear habitats and woodland. This would be achieved by the use of low-level lighting and lighting hoods to prevent the spillage of light from its intended source. Any lighting would be directed away from the ditches, watercourses and ponds, and associated terrestrial habitats.

7.7.20 The sensitive lighting strategy would be informed by current guidance 'Guidance Note 08/23: Bats and artificial lighting at night' (2023)[xxxii].

Mammal Gaps/Gates in Perimeter Fencing

7.7.21 Suitably sized (approximately 20 cm x 25 cm) gaps or mammal gates would be installed at suitable intervals and locations along the perimeter fence line

to allow small mammals, including badgers, free movement into and out of the SADA, providing enhanced opportunities for foraging and refuge within what would be a relatively protected and undisturbed area during operation of the Proposed Development. The locations of the gaps/gates would be determined during the pre-commencement survey; this approach would allow for any changes in populations, sett locations and mammal paths which may change prior to the commencement of construction to be taken into account. Temporary Heras fencing, or similar, installed within the SADA during construction would also have gaps at suitable intervals and locations to allow free movement.

Protection of Protected and Notable Species

Bats – Roosting

7.7.22 Trees present within the Main Development Area would be retained and protected during construction. If plans change and trees require removal/felling as part of the Proposed Development (for instance to aid access requirements or for health and safety purposes), prior to removal, in accordance with current BCT guidance, any trees would be subject to a ground level tree assessment (GLTA) in order to assess the tree's potential to support roosting bat species. Trees with Potential Roost Feature-Multiple (PRF-M) would be subject to a detailed aerial inspection and/or emergence/re-entry surveys in the appropriate season. If bats are confirmed roosting within the tree(s), no removal would take place until an EPSML has been issued by NE and necessary mitigation measures set in place under the supervision of a licensed ecologist. This would ensure there are no adverse impacts on roosting bats and the favourable conservation status of the roosting bat species in the wider environment would be retained.

7.7.23 A 10m exclusion should be implemented around buildings and structures (including the Manchester Ship Canal ventilation shafts). If works cannot be re-designed or micro sited to avoid this exclusion zone then appropriate surveys, as advised by an ecologist, depending on anticipated level of impact,

would be undertaken. This may include endoscope inspections and/or emergence surveys. The results of these surveys will inform any mitigation requirements.

7.7.24 If works on trees with Potential Roost Feature-Individual (PRF-I) are necessary, these would be felled under RAMS and Precautionary Working Method Statement, in line with BCT Guidance (2023) and UK Bat Mitigation Guidelines (2023); the trees would be soft felled in sections which are lowered to the ground and left on Site overnight (not stacked) before removal. Should a bat (or nesting bird) be found during this process then works would cease immediately and an ecologist contacted immediately for advice.

7.7.25 Works would generally take place 08.00 to 18.00 hrs Monday to Friday and 08:00 to 13:00 hrs Saturday; therefore, other than during winter when day length is short, works are not expected to occur in the hours of darkness. The sensitive lighting strategy, as detailed above, would be informed by current guidance 'Guidance Note 08/23: Bats and artificial lighting at night' (2023)[xxxiii]. As such, lighting would be managed so that light spillage into key habitat features, such as tree lines, hedgerows, woodland, ponds and ditches does not occur.

7.7.26 These above measures will ensure there are no adverse impacts on roosting bats and will maintain the favourable conservation status of the roosting bat species in the wider environment.

Otter and Water Vole

7.7.27 The Proposed Development has been designed to avoid impacting linear ditch habitats with potential suitability to support these species as far as reasonably practicable.

7.7.28 Where construction works are required within 5 m of a ditch, watercourse or pond, e.g. creation of new or improved crossing points, these would be preceded by a pre-construction water vole/otter survey of both aquatic and

terrestrial habitats, which would be completed by a suitably qualified ecologist immediately prior to the commencement of construction works to determine the presence of water vole burrows/otter resting places within proximity to the working area.

7.7.29 Should signs of water vole presence, or an active otter holt/resting place be confirmed, works in or adjacent to the feature would only proceed under suitable mitigation measures as advised by the project ecologist and, if necessary, under a Mitigation Licence issued by NE.

7.7.30 RAMs will be implemented during the construction phase to safeguard any otters within terrestrial habitat during works. The RAMS will include measures to ensure that no trenches/excavations will be left open overnight without the creation of sloping escape ramps for otter, which may be achieved by edge profiling of trenches/excavations or by using planks placed into them at the end of each working day. Ramps will be no greater than 45 degrees in angle. Alternatively, all open trenches/excavations will be covered overnight

7.7.31 Works will take place 08.00 to 18.00 hrs Monday to Friday and 08:00 to 13:00 hrs Saturday; therefore, other than during winter when day length is short, works are not expected to occur in the hours of darkness. A sensitive lighting strategy would be implemented, as detailed above. Any lighting (construction or operational) would be directed away from the ditches, watercourses and ponds, and associated terrestrial habitats.

Badger

7.7.32 The Proposed Development's layout has been designed to avoid impacting habitats most likely to be used by badgers for both sett building and foraging and commuting (field boundary features). These habitats will be largely retained and protected during the construction process.

7.7.33 A 20 m buffer (30m for large, tracked machinery) would be maintained from active badger setts set out with Heras fencing or similar, with no works to be

undertaken within this area unless covered under a specific method statement and agreed by the ECoW. Where avoidance measures cannot reasonably be implemented and setts are likely to be impacted, these would be closed under a Natural England licence during the appropriate season (July to November inclusive).

7.7.34 A pre-construction badger survey (including land within 30 m of the Site, where access allows) would be completed by a suitably qualified ecologist immediately prior to the commencement of construction/site clearance works to determine levels of badger activity and to check for any newly constructed setts in and surrounding the Main Development Area.

7.7.35 If baseline conditions have altered and significant disturbance to badgers or their setts cannot be avoided, one or both of the following options would be incorporated:

i) The Proposed Development's design will be further amended to avoid works which may impacts on the sett; and/or
ii) A disturbance/mitigation licence will be obtained from NE before construction commences.

Amphibians

7.7.36 As a precaution, RAMs would be implemented to avoid significant impacts on amphibian populations, if present. The RAMs would include a 'toolbox talk', a two-stage cut of suitable vegetation, and watching brief by an appropriately qualified ECoW to minimise risk of accidental harm.

Reptiles

7.7.37 As a precaution, RAMs would be implemented to avoid significant impacts on reptile populations, if present. The RAMs would include a 'toolbox talk', a two-stage cut of suitable vegetation, and watching brief by an appropriately qualified ECoW to minimise risk of accidental harm.

Other Notable Mammals

7.7.38 RAMs would be implemented to avoid significant impacts on other notable mammal populations, if present. The RAMs would include a 'toolbox talk' and watching brief by an appropriately qualified ECoW to minimise risk of accidental harm.

Fish

7.7.39 Where a 'dry crossing technique' is required for the construction of a new or improved crossing point, the section of water between the dams would be inspected for fish and other aquatic life such as eels. Where considered appropriate, a fish rescue plan would be executed. Furthermore, if the ponds to the north of Cell 3 are infilled, a fish rescue plan would also be implemented. A fish rescue plan would include details of the relevant permissions required from the Environment Agency, dewatering methods to include the use of fish-safe meshes (default screen aperture size would be 2mm) to be installed over any pumps, monitoring of water pH and the siltation and fish rescue by a suitable experienced ecologist. Dependent on the nature of the ditch and health and safety concerns, different methods may be employed to remove the fish, or a combination of methods, including static netting, hand netting and/or electrofishing. Where netting is used, fine mesh seine netting would be used. The dammed areas/ponds would also be visually inspection to check for the presence of small fish (such as juvenile eel, lamprey, fish fry). Upon capture, fish would be held in suitable sized and leaching-safe capture containers (which will be aerated to maintain welfare considerations) and released downstream of the dam as soon as possible, with the exception of non-native invasive species, which would be humanely dispatched. If the presence of burrowing eels in the banks of the ditches are suspected, the section of bank would be carefully excavated in small sections with soil then placed nearby to water with a means of escape and inspected for the presence of eels.

7.7.40 Standard measures to ensure runoff control and pollution prevention to be implemented via the **oCEMP [EN010153/DR/7.5]** would also avoid significant impacts on fish populations, if present. The use of Silt Busters/sedimats/straw bales will also be used to protect downstream watercourses from silt inputs during prolonged dewatering.

7.7.41 Where a 'dry crossing technique' is required for the construction of a new or improved crossing point, sheet piling installed by vibro-piling would be the default method of creating the dam.

Ecological Clerk of Works

7.7.42 A suitably qualified and experienced ECoW (or team of ECoWs) would be appointed prior to the commencement of construction activities and through whom appropriate ecological advice will be provided throughout. The ECoW(s) will be responsible for undertaking and/or co-ordinating checks for protected species before providing confirmation that construction activities can commence. The ECoW(s) will also maintain a watching brief as necessary throughout the construction phase to ensure compliance with relevant legislation, including adhering to any protected species mitigation measures, if required.

Invasive Non-Native Species Management Plans

7.7.43 Himalayan balsam, variegated yellow archangel, New Zealand Pigmyweed and several cotoneaster species are listed under Part II of Schedule 9 of The Wildlife & Countryside Act 1981. It is an offence to plant or otherwise cause such species to grow in the wild. This includes allowing the species to grow/spread and spreading the species or transferring polluted ground material from one area to another. Himalayan balsam is also listed under Part II of Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019; regulating the transportation and release of this invasive species.

7.7.44 Soil containing these species or traces of them is classified as non-hazardous waste according to the Environmental Protection Act (Duty of Care) Regulations 1991. Therefore, a permit issued by the Environment Agency is required to transfer polluted material off-site.

7.7.45 Section 23 of the Infrastructure Act 2015 amended the Wildlife and Countryside Act 1981 by inserting Schedule 9A to introduce a statutory regime of species control agreements and orders. This schedule ensures that landowners act on Schedule 9 invasive species, or permit others to enter the land and carry out those operations, to prevent their establishment and spread

7.7.46 Prior to the commencement of construction, a botanical invasive species walkover survey will be undertaken during an appropriate time of year (May – October) in order to assess the spread of invasive species within the Main Development Area.

7.7.47 An appropriate invasive botanical species treatment program would be implemented by a licensed and experienced invasive species contractor; a detailed control and removal strategy method statement would be produced to inform these actions and prevent further spread within the Site during the construction process, detailing the commitment to control or undertake long-term removal (or on-going treatment) of the species' from within the Main Development Area.

7.7.48 American mink is listed under Part I of Schedule 9 of The Wildlife & Countryside Act 1981. It is an offence to release into the wild or allow the spread of this species. Due to the potential presence of American mink within/along ditches, watercourses and waterbodies within the Main Development Area, checks for the presence of American mink within equipment/plant would be undertaken prior to the movement of any plant/equipment within and out of the Site. If, at any time, an American mink has been caught, it will not be released back into the wild but would be humanely dispatched.

7.7.49 If, during the construction phase, invasive non-native fish species are identified within the existing ponds within the NBBMA, or within the network of ditches in the SADA, any non-native invasive species caught during the works would be humanely dispatched, and not re-released into the retained/new ponds, or the network of ditch downstream of a dry crossing.

7.7.50 The appointed ECoW will include information regarding invasive non-native species within the toolbox talk, including providing informing contractors on avoidance / good practice measures required to avoid facilitating the spread of these species. Should further areas of spread/ other invasive species be encountered on-Site prior to or during construction, the advice of the appointed EcoW will be sought, and appropriate measures taken in order to achieve legislative compliance.

Operational Phase

7.7.51 An **Outline Operational Environmental Management Plan (oOEMP) [EN010153/DR/7.6]** been has been prepared which outlines the principles, controls, and measures to be implemented during the operational phase to reduce potential significant environmental effects from occurring, including pollution control measures and a sensitive lighting strategy. The oOEMP also includes specific measures that will need to be adopted during the replacement and maintenance of any equipment, plant or machinery during the lifetime of the Proposed Development, including the management of noise.

7.7.52 A full OEMP would be produced by the Applicant prior to it being commissioned. This would be a Requirement of the DCO. The OEMP would be in substantial accordance with the oOEMP.

7.7.53 The Outline Landscape and Ecology Management Plan (oLEMP) includes specific details for the management for the NBBMA **[EN010153/DR/7.13] at Appendix B**. The oLEMP sets out the management prescriptions and target habitat conditions for the various landscape features identified in the

Indicative Environmental Masterplan (**ES Volume 3 Figure 2-3 [EN010153/DR/6.3]**) to ensure measurable gains in biodiversity units are achieved (see below).

7.7.54 The Proposed Development will deliver a measurable gain in biodiversity units in accordance with the relevant requirements of the updated National Policy Statements EN-1 and EN-3 (see *Enhancement Measures*, below). Commitment to delivering the BNG target will include the requirement for long-term ecological monitoring through the lifespan of the Proposed Development. These ecological monitoring surveys would assess the success of mitigation and enhancement measures detailed within the LEMP, and if necessary, provide recommendations for remedial actions required to achieve the biodiversity objectives detailed within the LEMP and/or adhere to relevant wildlife conservation legislation at that time.

7.7.55 Additional post-construction species-specific monitoring may be required as stipulated, as a legal requirement within an EPSML (or other species-specific mitigation licence) (see the oCEMP section above). Any such monitoring would be in addition to the ecological monitoring discussed above, to ensure compliance with the licence conditions.

7.7.56 Ecological monitoring will also assess the success of the invasive non-native species removal measures discussed in the oCEMP section above. If necessary, continued management of New Zealand pigmyweed will be undertaken during operation. If further infestations of a species listed on Schedule 9 of the Wildlife and Countryside Act 1981 are recorded, an appropriate invasive species treatment program will be implemented by a licensed and experienced invasive species contractor.

7.7.57 The oLEMP would be implemented for the lifetime of the Proposed Development. Monitoring will be undertaken in years 1, 2 and 5, then every five years thereafter until at least year 40 following implementation of the landscape design, in line BNG requirements.

7.7.58 Management and monitoring of the NBBMA will be undertaken separately from that of the SADA; this is anticipated to be 'dynamic' (i.e., regular and adaptive for optimal results), and to be implemented by an independent body of behalf of any owner of the Proposed Development over the entire operational lifetime of the Proposed Development (see **Chapter 10: Ornithology** and Appendix B within oLEMP **[EN010153/DR/7.13]**).

7.7.59 Monitoring of the SADA (and possibly NBBMA) would involve a habitat survey (between May and September) following the industry standard UK Habitat Survey (UKHab) methodology[xxxiv] as used for the BNG Assessment, and also including a condition assessment using the relevant condition criteria contained within the Statutory Biodiversity Metric Condition Assessment Guide to ensure created habitats are achieving the stated habitat type and condition. This monitoring would inform any adjustments or remedial measures to be implemented, if required.

7.7.60 Monitoring would also include an assessment of species enhancement measures (as outlined under Incorporated Enhancement Measures, below), including an assessment of the integrity of such features. Where appropriate usage of such features will also be assessed. Monitoring will inform the requirement for repair or replacement, as required.

Decommissioning Phase

7.7.61 An **Outline Decommissioning Environmental Management Plan (oDEMP) [EN010153/DR/7.7]** has been prepared which provides a framework for the management of environmental impacts during the decommissioning phase of the Proposed Development. The oDEMP sets out monitoring and auditing activities which would be used to ensure mitigation measures are carried out, recorded and effective.

7.7.62 On decommissioning the landscaping works undertaken across the Site would be left in place and the land handed back to the landowner, the only exception being the potential requirement by the landowner to revert the

areas currently used for arable farming to be returned to this condition. Areas which are currently used for arable farming and cereal crop are largely proposed to be converted into grassland habitats, with the exception of a parcel of land between the tributary of the River Weaver and the M56, which is proposed to be converted into a woodland strip. It is considered likely that and tree and scrub planting, together with created pond and wetland habitats would be retained, together with habitats created within the NBBMA.. However, as the land would be handed back to the landowners on completion of decommissioning, the long term retention of the landscaping improvement works cannot be guaranteed. Similarly, following decommissioning the landowner may or may not retain the permissive footpaths created across the Site. Land within the solar PV array areas would be likely be returned to agriculture.

7.7.63 The Main Development Area's baseline conditions are likely to change significantly over the Proposed Development's operational 40-year lifespan, in line with the Indicative Environmental Masterplan, resulting in large-scale habitat creation. Prediction of these conditions and likely future decommissioning effects on biodiversity is considered unreliable. However, potential impacts from decommissioning are considered likely to be similar to those already described in relation to the construction phase.

7.7.64 Updated ecological surveys would be undertaken prior to the commencement of the Proposed Development's decommissioning to record the presence of protected and notable species and habitats and identify potential effects of any necessary protection and mitigation measures to comply with planning policy and wildlife legislation applicable at the time.

7.7.65 A suitably qualified and experienced ECoW (or team of ECoWs) would be appointed prior to the commencement of decommissioning activities and through whom appropriate ecological advice will be provided throughout. The ECoW would be responsible for undertaking and/or co-ordinating checks for protected species before providing confirmation that decommissioning

activities can commence. The ECoW would also maintain a watching brief as necessary throughout the decommissioning phase to ensure compliance with relevant legislation, including adhering to any protected species mitigation measures required, such as mitigation requirements associated with a EPSML or DLL application, if required.

Enhancement Measures

Biodiversity Net Gain

7.7.66 The Proposed Development will deliver a measurable gain in biodiversity units. The project design committed to achieving a minimum increase of 10 % in habitat and hedgerow units and no net loss in watercourse units.

7.7.67 The Proposed Development has been designed to largely retain important ecological features within the Site. This includes the retention of woodland, hedgerows, tree lines and ditches, with the exception of minor woodland (within the NBBMA) and hedgerow removal and the creation of new ditch crossings/upgrading of existing crossings; thereby maintaining effective nature connectivity networks within the wider environment.

7.7.68 The Proposed Development also includes significant habitat enhancement provisions; these would be managed for the benefit of wildlife over the long term and provide biodiversity gains for a wide variety of species. Additionally, the proposed creation of botanically diverse grasslands, reedbeds and open water, together with scrub, hedgerow and tree planting, would deliver a quantifiable increase in biodiversity units (habitat, hedgerow and watercourse units). The habitat enhancement provisions are detailed within **ES Volume 3 Figure 2-3 Illustrative Environmental Masterplan [EN010153/DR/6.3]**, to be secured in the **Outline Landscape and Ecology Management Plan [EN010153/DR/7.13]** via the requirements in Schedule 2 of the draft DCO.

7.7.69 The habitat enhancement provisions would provide new and enhanced features that can be used for breeding, foraging, overwintering and refuge by

a range of species, including bats, badgers, water vole, otter, amphibians and invertebrates.

7.7.70 The BNG Assessment, included as **BNG Report [EN010153/DR/7.12]** considers land take, habitat creation and biodiversity enhancements that will accompany the Proposed Development. The **BNG Report [EN010153/DR/7.12]** provides an assessment undertaken utilising DEFRA's Statutory Biodiversity Metric Calculator[xxxv] to provide evidence of achievable on-site gain in biodiversity units (at least 10% gain in habitats, hedgerows and watercourse units) associated with the Proposed Development, when including the NBBMA.

7.7.71 Habitat creation/enhancement measures shown on **ES Volume 3 Figure 2-3 Illustrative Environmental Masterplan [EN010153/DR/6.3],** together with the following measures (as detailed within **BNG Report [EN010153/DR/7.12]**, are considered achievable, and have therefore been considered within the BNG assessment:

i) Enhancement of 'modified grassland' to 'other neutral grassland' in moderate condition within the principal public access / biodiversity enhancement zones;
ii) Enhancement of retained areas of 'bramble scrub' to 'mixed scrub' in good condition;
iii) Retention of 'other neutral grassland' within the fenced areas containing solar PV modules within the SADA;
iv) Creation of 'other neutral grassland' within the fenced areas not containing solar PV modules within the SADA; and,
v) Enhancement of some ditches through the reduction of riparian zone encroachment.

7.7.72 Based on the above habitat creation/enhancement measures, an increase of +191.86 (11.52 %) habitat units, +48.25 (88.92 %) hedgerow units and +14.65 (13.35%) watercourse units.

7.7.73 The Proposed Development meets all trading principles, with the exception of the loss of reedbed. Reedbeds have been classified in strict accordance with UKHab Classification; however, due to the small and isolated nature of the majority of the areas of reedbed within the Main Development Area (i.e., small 'clumps' of reeds which would not logically constitute a reedbed). These clumps, of reeds, are considered unlikely to function in the same way as larger and ecologically connected areas of the reedbed. Furthermore, the areas of reedbed subject to loss are either dry, encroached with scrub/trees or are not located adjacent to/connected to open water. These areas are therefore considered transient in nature and would likely be subject to continued drying and therefore change in the future. As such, in the absence of the Proposed Development, it is considered likely that these areas would be lost in the short to medium term.

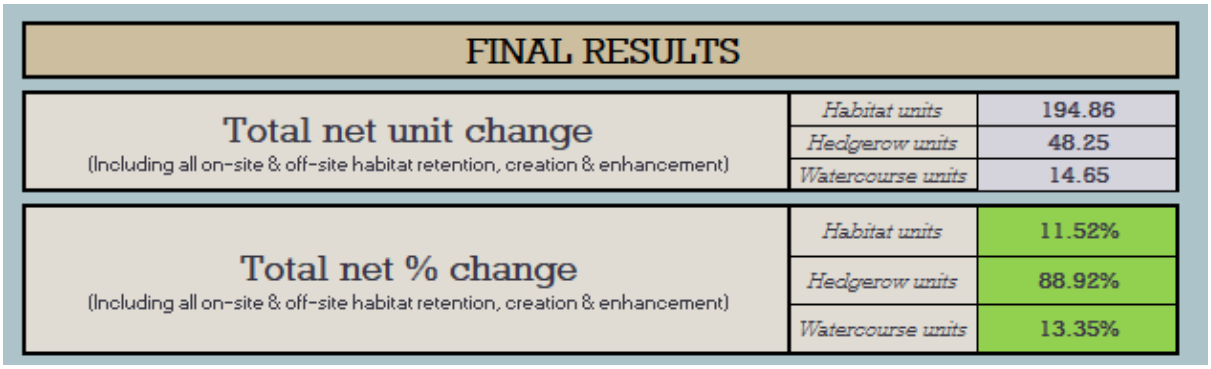
7.7.74 As the NBBMA will provide mitigation for impacts upon the Mersey Estuary, in accordance with DEFRA Guidance 'What you can count towards a development's biodiversity net gain' (DEFRA, 2023), mitigation or compensation to a special area of conservation, special protection area, or protected species can only count 'in part' towards BNG. For mitigation and compensation actions, at least 10% of the developer's biodiversity units must come from additional activities other than mitigation and compensation.

7.7.75 When taking into account the NBBMA and the remainder of the Site the Proposed Development achieves at least 10% increase in biodiversity units (habitats, hedgerows and watercourses). When excluding the NBBMA 10% is not achieved, however a measurable increase in biodiversity units (habitats and hedgerows) are recorded and the project design commitments (a minimum increase of 10 % in habitat and hedgerow units and no net loss in watercourse units) are met.

7.7.76 Overall, it is considered that the increase in units generated as part of the Proposed Development are proportionate to the levels of impact, with the

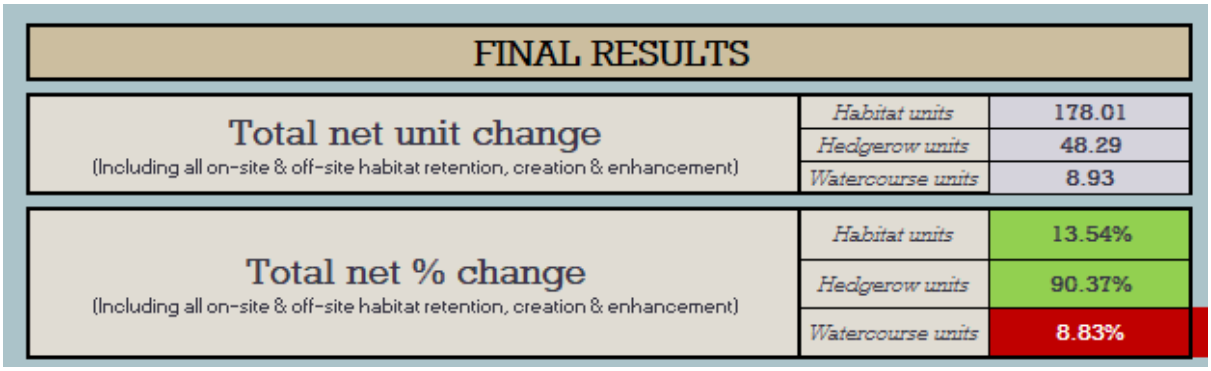
Proposed Development providing other qualitative measures to enhance biodiversity.

Image 1: Statutory Biodiversity Calculation Tool Headline Results (Proposed Development when including the NBBMA)



FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	194.86
	Hedgerow units	48.25
	Watercourse units	14.65
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	11.52%
	Hedgerow units	88.92%
	Watercourse units	13.35%

Image 2: Statutory Biodiversity Calculation Tool Headline Results (Proposed Development when excluding the NBBMA)



FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	178.01
	Hedgerow units	48.29
	Watercourse units	8.93
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	13.54%
	Hedgerow units	90.37%
	Watercourse units	8.83%

Species Enhancement Measures

7.7.77 In addition to the embedded habitat creation and enhancement measures which would be provided through the delivery of the landscaping on **ES Vol 3 Figure 2-3: (a-e) Illustrative Environmental Masterplan [EN010153/DR/6.3]**, the following measures, to be secured via the oLEMP, would be included as part of the Proposed Development to provide ecological enhancement:

i) Installation of 60 no. bat boxes, including minimum;
    a. 5 no. hibernation boxes;

b. 5 no. maternity boxes;

ii) Installation of 10 no. reptile/ amphibian refugia;

iii) Installation of 20 no. hedgehog boxes; and,

iv) Installation of 10 no. Insect Hotels.

7.7.78 Further, the removal of land from arable production would lead to a reduction (or complete removal) of agricultural chemical overspray and drift where this currently occurs on the Main Development Area. This would lead to improved conditions for terrestrial and aquatic invertebrates, which in turn would benefit dependent species, such as foraging bats or some farmland birds. Water quality and soil health would also likely improve as a result of less intensive farming practices.

7.7.79 This ES Chapter therefore also includes consideration of the potential benefits of the Proposed Development.

7.8 Assessment of Likely Impacts and Effects

7.8.1 The assessment of likely impacts and effects has taken into account all of the incorporated mitigation measures set out above, such as the oCEMP, oOEMP, oDEMP and species enhancement measures set out on the **ES Vol 3 Figure 2-3: (a-e) Illustrative Environmental Masterplan [EN010153/DR/6.3]** and described in detail within the **Outline Landscape and Ecology Management Plan [EN010153/DR/7.13]**. Implementation of the landscape proposals, and therefore the project design commitment to delivering the minimum increase of 10 % in habitat and hedgerow units and no net loss in watercourse units , are discussed in relation to operational effects.

7.8.2 The potential mobilisation of contaminants resulting from the construction of the Proposed Development, including the habitat creation measures proposed for the NBBMA, are addressed in **ES Volume 1 Chapter 10.0: Ground Conditions [EN010153/DR/6.1].**

Construction Phase

7.8.3 Potential construction phase ecological effects associated with the Proposed Development are considered to relate to:

i) Direct land take (habitat loss) to accommodate the Proposed Development;
ii) Temporary disturbance and land take for construction, laydown areas and construction compounds (land restored thereafter);
iii) Disturbance to, fragmentation or severance of connecting habitat or potential commuting routes within and adjacent to the Main Development Area;
iv) Potential to cause the spread of invasive non-native species; and,
v) Disturbance and pollution (indirect effects such as noise and vibration, dust, pollution from surface water run-off) resulting from site clearance and construction, plant and vehicles movements and site workers' activities.

National Statutory Designated Sites for Nature Conservation

7.8.4 Terrestrial ecological features for which the Mersey Estuary SSSI is designated for comprise saltmarsh and boulder clay cliffs; however, neither of these habitats are present within the Main Development Area. As these features are static, and with reference to embedded measures within the **oCEMP [EN010153/DR/7.5]** (e.g., fencing), no direct impacts to these qualifying features are likely to occur as a result of the Proposed Development. The Mersey Estuary SSSI overlaps with the NBBMA and a small section of the SADA (~0.003 ha; where habitats would be retained). Within the NBBMA works would be undertaken for the sole purpose of providing mitigation for wetland birds associated with the Mersey Estuary Special Protection Area (SPA), Ramsar and SSSI and for other beneficial ecological / conservation purposes. Permanent land take within Mersey Estuary SSSI would potentially impact upon ponds and other neutral grassland, to be replaced with a water storage area, raised bank with grassland and wet grassland areas, and so would not affect qualifying habitat features.

7.8.5 Potential indirect impacts relate to disturbance associated with construction noise and vibration, lighting, and pollution resulting from the deposition of dust or runoff. Standard best practice measures to control pollution would be implemented during construction, together with noise management measures and a sensitive lighting strategy, which would be secured via the **oCEMP [EN010153/DR/7.5].**

7.8.6 Given the absence of terrestrial ecological features for which the Mersey Estuary SSSI is designated within the Main Development Area, and the implementation of standard best practice measures to control pollution, noise and vibration management measures and a sensitive lighting strategy, which are described within the **oCEMP [EN010153/DR/7.5],** impacts on national terrestrial ecology features of statutory designated sites during construction of the Proposed Development are not anticipated to undermine the SSSI as

a whole, and effects would be felt at a local geographic scale only. As such, construction of the Proposed Development is anticipated to result in temporary **minor adverse effects** upon national statutory designated sites for nature conservation, which are of national sensitivity, which is **not significant**.

7.8.7 Ornithological qualifying interests of the Mersey Estuary SSSI are discussed within **ES Volume 1 Chapter 8.0: Ornithology [EN010153/DR/6.1]**.

Non-Statutory Designated Sites for Nature Conservation

7.8.8 The Main Development Area is located within Frodsham, Helsby and Ince Marshes LWS, Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS. The terrestrial ecology features for which all three LWSs are designated for comprise static habitat features, with the exception of invertebrates for which Frodsham, Helsby and Ince Marshes LWS and Frodsham Field Studies Centre LWS are also cited.

7.8.9 Direct impacts to these designated sites would include temporary and permanent land take. Habitats for which Frodsham, Helsby and Ince Marshes LWS are cited, and which would be impacted by land take, include neutral grassland and wetland (including reedbed). Works within Frodsham Field Studies Centre LWS would not include works within any habitats for which this LWS is cited. Works within Easton Clifton Tip LWS would be restricted to the use of the existing access track for vehicular access into the SPEN/National Grid Substation.

7.8.10 Potential indirect impacts to Frodsham, Helsby and Ince Marshes LWS, Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS also relate to disturbance associated with construction noise and vibration, lighting, and pollution resulting from the deposition of dust or runoff. Standard best practice measures to control pollution would be implemented during construction, together with noise management measures and a sensitive lighting strategy, which would be secured via the **oCEMP [EN010153/DR/7.5].**

7.8.11 As outlined within the **oCEMP [EN010153/DR/7.5],** prior to the commencement of construction, Heras fencing, or similar, will be used to demarcate the working area in order to protect sensitive ecological or hydrological features during the enabling works, earthworks and construction stages of the project. A soil management plan would be implemented during any works, ensuring that soil types are returned in the order of removal; to include removing, storing and reinstating the turf layer. Track mats would also be installed within any areas of vehicle/plant tracking and equipment placement, to ensure that soil and vegetation are protected appropriately.

7.8.12 Both Frodsham, Helsby and Ince Marshes LWS and Frodsham Field Studies Centre LWS are also cited for invertebrates, wildlife corridors and vascular plants. Direct impacts on invertebrates are discussed below, under 'invertebrates'. The presence of protected or notable vascular plants was not recorded within either LWS during UKHab surveys.

7.8.13 Human disturbance during construction may temporarily impact Frodsham, Helsby and Ince Marshes LWS's function as a wildlife corridor; however, works would be phased, and therefore works in any one location would likely be relatively short in duration; as such, due to the large size of the LWS combined with the phased work, it is anticipated that areas of the LWS would remain open and undisturbed during each phase.

7.8.14 Furthermore, the presence of mammal gaps or gates along the perimeter fence line and within temporary Heras fencing within Frodsham, Helsby and Ince Marshes LWS would allow free movement of fauna into and out of the Main Development Area during construction, allowing its continued functionality as a wildlife corridor. The presence of perimeter fencing surrounding the SADA would likely benefit otter, badger and other species (if present) by providing undisturbed areas of high value and well managed habitat.

7.8.15 The installation of predator fencing surrounding the NBBMA will result in the cessation of access to otter and badger, together with other larger mammals

if present, to the NBBMA. However, considering the presence of high value habitat within the surrounding landscape, such as the River Weaver, extensive network of ditches, and an area of large undeveloped land to the south of the NBBMA, the cessation of access to the NBBMA is unlikely to adversely affect free movement of species throughout the landscape, or the availability of food or shelter resources. Furthermore, incorporated mitigation includes the creation of new ponds and wetland habitats, together with enhanced management of habitats (including ditches) across the SADA, which would provide additional foraging, sheltering and breeding habitat for these species.

7.8.16 Works within Frodsham Field Studies Centre LWS would be minimal in duration and scale, as such, it is anticipated that the LWS's function as a wildlife corridor would remain during construction. No new fencing is proposed within Frodsham Field Studies Centre LWS.

7.8.17 As the Proposed Development includes the installation of solar panels, construction of the BESS and Frodsham Solar Substation and the creation of the NBBMA within Frodsham, Helsby and Ince Marshes LWS, and the associated land take required, the construction of the Proposed Development is anticipated to result in temporary **moderate adverse effects** on Frodsham, Helsby and Ince Marshes LWS during the construction phase, which is of county sensitivity, which is **significant.**

7.8.18 The construction of the Proposed Development is anticipated to result in in temporary **minor adverse effects** on Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS, which are of county sensitivity, which is **not significant**.

7.8.19 Impacts relating to ornithological interest of these LWSs are discussed within **ES Volume 1 Chapter 8.0: Ornithology [EN010153/DR/6.1]**.

Habitats

Habitats of Principal Importance

7.8.20 Hedgerow HPIs within the Main Development Area would be retained and protected with habitat protection buffers of at least 6 m, with the exception of small-scale removal/widening of existing access required at 11 locations (totalling approximately 180 m with no individual length of removal greater than 23 m).

7.8.21 Existing ponds and scrapes currently present within the NBBMA, some of which have been classified as HPIs, would be removed, prior to the creation of new ponds and scrapes within this area. Furthermore, some areas of reedbed, both within and outside of the NBBMA, would be subject to loss. Option 2 of the BESS and Frodsham Solar Substation would also result in the loss of some reedbed habitat.

7.8.22 Direct impacts to retained HPIs relate to disturbance associated with construction pollution resulting from the deposition of dust or runoff. Standard best practice measures to control pollution would be implemented during construction, which would be secured via the **oCEMP [EN010153/DR/7.5].**

7.8.23 The Proposed Development would result in a net loss of reedbed habitat. Reedbeds have been classified in strict accordance with UKHab Classification; however, due to the small and isolated nature of the majority of the areas of reedbed within the Main Development Area, these areas are considered unlikely to function in the same way as larger and ecologically connected areas of reedbed. Furthermore, the majority of the areas of reedbed subject to loss are either dry, encroached with scrub/trees or are not located adjacent to/connected to open water. As such, these areas are likely transient in nature and would likely be subject to drying and therefore change in the future. As such, in the absence of the Proposed Development, it is considered likely that these areas would be lost/subject to movement.

7.8.24 The construction of the Proposed Development is anticipated to result in temporary **minor adverse effects** on HPIs, which are of up to county sensitivity, which is **not significant.**

7.8.25 Implementation of the landscape proposals is discussed in relation to operational effects.

Other Habitats

7.8.26 The Proposed Development has been designed so that the majority of land take resulting from the Proposed Development are to low value habitats, such as arable land and intensively grazed pasture. Higher value habitats, such as woodland, scrub, tree lines, field margin habitats and ditches would largely be retained and protected throughout construction.

7.8.27 The majority of the crop and modified grassland habitats would be subject to permanent loss and/or subject to temporary disturbance during construction. Existing neutral grassland would also be subject to some permanent loss and/or subject to temporary disturbance during construction. Existing non-priority ponds and scrapes currently present within the NBBMA would also be removed, prior to the creation of new ponds and scrapes within this area.

7.8.28 A total of 17 proposed new permanent watercourse/ditch crossings would be required, together with upgrading eight existing crossings. This would likely result in the loss of reedbed, other neutral grassland, modified grassland, bramble scrub and mixed scrub, together with encroachment and shading of ditches and watercourses.

7.8.29 The construction of the Proposed Development is anticipated to result in temporary **minor adverse effects on other habitats,** which are of site sensitivity, which is **not significant.**

7.8.30 Implementation of the landscape proposals, and the beneficial effects associated with this, is discussed in relation to operational effects.

Bats (foraging and commuting)

7.8.31 The most valuable habitats within the Main Development Area for foraging and commuting bats, including hedgerows, tree lines, ditches and watercourses would be retained and protected with habitat protection buffers of at least 6 m, with the exception of small-scale removal/widening of existing access (totalling approximately 180 m cumulatively with no individual length of removal greater than 23 m) required for access. Works within the NBBMA would include engineering works within the existing ditch. Furthermore, existing ponds and scrapes currently present within the NBBMA would all be removed prior to the creation of new ponds and scrapes within this area.

7.8.32 As any individual length of hedgerow removal would likely be no greater than 6 m, the hedgerow removal proposed would not result in the loss of linear foraging habitat or potential commuting routes. Habitat loss, or works to, the ponds and ditches within the NBBMA may result in temporary impacts to commuting and foraging bats within this area; however, considering the habitat creation measures which are proposed within this area, the proposed habitat loss is not considered to be of a sufficient scale to permanently disrupt or fragment bat flight patterns.

7.8.33 Construction works would take place 08.00 to 18.00 hrs Monday to Friday and 08:00 to 13:00 hrs Saturday; as such, during the main active season (predominantly from April to October), works would not be undertaken during times when bats are typically commuting/foraging. Works during periods of low light during construction working hours would be throughout the winter months, during which bats would be hibernating. As such, indirect impacts from noise and lighting are anticipated to be minimal.

7.8.34 The Noise Impact Assessment (**ES Volume 2 Appendix 4-1**) reveals that all anticipated activities that have potential to cause higher levels of noise associated with the construction of the Proposed Development (including CFA piling and movement and activity of HGVs associated with the BESS, works within the NBBMA such as activity of dump trucks, excavators and

dozer, and plant installing the solar arrays) would result in sample highest likely noise levels during the Solar installation of up to 52-55dB LAeq (1 hour) and a LAmax range at the highest noise events of 60-63dB. Based on these predictions, and considering the presence of the M56 and existing industrial activities within the wider area, additional disturbance on foraging and commuting bats resulting from construction of the Proposed Development is considered to be nugatory.

7.8.35 The locations of both the BESS/Substation Compound options are of similar value to foraging and commuting bats. Although Option 2 is partially located within an area of reedbed, this area of reedbed is not directly located to linear features or habitats of high foraging/commuting suitability.

7.8.36 The **oCEMP [EN010153/DR/7.5]** will include a sensitive lighting strategy, which would ensure that features of value for foraging and commuting bats would not be subject to additional lighting during construction of the Proposed Development.

7.8.37 As such, the construction of the Proposed Development is anticipated to result in temporary **minor adverse effects,** on bats (foraging and commuting), which are of up to regional sensitivity, which is **not significant.**

Otter

7.8.38 As described under **Section 7-6 Baseline Conditions**, the majority of the ditches and waterbodies present within Main Development Area are considered sub-optimal for resting, foraging or commuting otter as they are shallow and densely vegetated in many places. However, the larger ditches located along the southeastern boundary of the SADA, together with the series of ponds and ditches located within the NBBMA, may be suitable for resting, foraging or commuting otter. The NBBMA is considered to offer higher value habitat for otter, with potential evidence of otter recorded within this area during baseline surveys.

7.8.39 Construction of the Proposed Development has the potential to impact upon otter through habitat loss/fragmentation, direct mortality and indirect disturbance.

7.8.40 Incorporated mitigation includes buffers of at least 10 m from all ditches and watercourses, with the exception of 16 new permanent crossings and upgrading eight existing crossings. The ditch crossings would be created within ditches which have been assessed as being sub-optimal for use by otter. While detailed design has not been undertaken, any new crossings would be clear span and limited in width (maximum width of new crossings would be 6 m, extensions of existing crossings would be no greater than 2 m). Where existing crossings are to be upgraded culverts would be replaced with open span crossings. It is anticipated that otter would readily pass through proposed new or upgraded structures, noting that the Proposed Development would provide open span bridge crossings, not culverted crossings; as such, it is not anticipated that the new or upgraded ditch crossings would result in the fragmentation of otter foraging and commuting habitat. Works would be phased, and therefore not all ditch crossings would be created at the same time. As such, not all ditches will be subject to construction work (potentially inhibiting the free movement of otters) at any one time. Furthermore, works in at one crossing location would likely be relatively short in duration.

7.8.41 If present, otters within the SADA may be temporarily displaced as a result of disturbance due to construction activity and noise. However, works will be phased, and as such, areas of the SADA will remain free of construction activities at any one time, ensuring free movement and access to commuting, foraging and resting areas throughout the construction phase. Furthermore, as otters have large home ranges, it is considered likely that otters would utilise the extensive network of ditches surrounding the Main Development Area during construction works. As otter utilise a network of several holts and above ground resting sites within a large home range, it is considered likely

that otter would relocate elsewhere within their territory for the duration of works in one area.

7.8.42 Installation of the proposed 132 kV overhead line to SPEN/National Grid Substation would not entail any works within 5 m of the River Weaver, as such, direct impacts at this location are not anticipated.

7.8.43 Any indirect impacts, for example from construction noise or vibration, would be relatively short in duration. While otters are reclusive, they can be relatively tolerant to human presence[xxxvi], as indicated by their presence within urban areas, and so are likely to habituate rapidly to increased human activity associated with construction of the Proposed Development, including regular vehicle movements. Sudden startling noises and vibrations may however result in disturbance.

7.8.44 Construction works would take place 08.00 to 18.00 hrs Monday to Friday and 08:00 to 13:00 hrs Saturday. The compounds would be lit during periods of low light during construction working hours. Outside working hours, lighting would only be switched on for security breaches or temporary mobile task lighting. A sensitive lightning strategy would be implemented during the construction phase, as detailed within the **oCEMP [EN010153/DR/7.5];** no works will take place between sunset and sunrise (i.e. no nighttime working) within 50 m of any ditches, watercourses of ponds and any lighting will be directed away from the ditches, watercourses and ponds, and associated terrestrial habitats.

7.8.45 The Proposed Development will, however, result in the cessation of access to otter within the NBBMA. If present, foraging, commuting or resting otters within the NBBMA will be displaced as a result of the installation of predator fencing surrounding the NBBMA. As detailed above, otters have large home ranges; as such, it is considered likely that otters utilise the extensive network of ditches surrounding the Main Development Area. Although the Proposed Development will result in the cessation of access to otter within the NBBMA, considering the presence of suitable habitat within the surrounding landscape,

such as the River Weaver, extensive network of ditches remaining available to otter within the SADA and within surrounding the Site, and large open waterbody directly south of the Main Development Area (in Cell 6), the cessation of access to the NBBMA is unlikely to adversely affect free movement of otter throughout the landscape, or the availability of food or shelter resources.

7.8.46 Where construction works are required within 5 m of a ditch, watercourse or pond, these would be preceded by a pre-construction otter survey, which will be completed by a suitably qualified ecologist immediately prior to the commencement of construction works to determine the presence of the species within the working areas, which would inform any protection and/or mitigation requirements, as detailed within the **oCEMP [EN010153/DR/7.5].** Furthermore, works would be undertaken following RAMS, as outlined within the **oCEMP [EN010153/DR/7.5].** There measures would ensure no direct impacts to otter.

7.8.47 The construction of the Proposed Development is anticipated to result in temporary **minor adverse effects** on otter, which is of county sensitivity, which is **not significant.**

Water Vole

7.8.48 Incorporated mitigation includes buffers of at least 10 m from all ditches and watercourses, with the exception of 17 new permanent crossings and upgrading eight existing crossings. Works within the NBBMA would include engineering works within the existing ditch, furthermore, existing ponds and scrapes currently present within the NBBMA would all be removed, prior to the creation of new ponds and scrapes within this area.

7.8.49 Any new or replaced ditch crossings would be open span, however, these would in some instances necessitate construction using a ‘dry crossing technique’, as described in **ES Volume 1 Chapter 2.0 [EN010153/DR/6.1]**.

This would result in the very short term, temporary loss of habitat during the construction works.

7.8.50 Construction of the Proposed Development has the potential to impact upon water vole through temporary habitat loss, direct mortality and indirect disturbance.

7.8.51 Where construction works are required within 5 m of a ditch, watercourse or pond, these would be preceded by a pre-construction water vole survey, which would be completed by a suitably qualified ecologist immediately prior to the commencement of construction works to determine the presence of the species within the working areas, which would inform any protection and/or mitigation requirements, as detailed within the **oCEMP [EN010153/DR/7.5].** Furthermore, works would be undertaken following RAMS, as outlined within the **oCEMP [EN010153/DR/7.5].** There measures would ensure no direct impacts to water vole.

7.8.52 Should signs of water vole presence be confirmed, works in or adjacent to the ditch, watercourse or pond will only proceed under suitable mitigation measures as advised by the project ecologist and, if necessary, under a Mitigation Licence issued by NE.

7.8.53 It is anticipated that water vole would readily pass through proposed new or upgraded structures; as such, it is not anticipated that the new or upgraded ditch crossings would result in the fragmentation of water vole foraging and commuting habitat.

7.8.54 Indirect impacts, for example from construction noise or vibration, may result in disturbance; however, these are anticipated to be short in duration.

7.8.55 The construction of the Proposed Development is anticipated to result in temporary **minor adverse effects** on water vole, which is of county sensitivity, which is **not significant.**

Other Notable Mammals

7.8.56 Construction of the Proposed Development has the potential to impact upon other notable mammals through habitat loss, direct mortality and indirect disturbance.

7.8.57 Habitats within the Main Development Area, including hedgerows, tree lines, grassland and reedbed, provide suitable habitats for breeding, foraging and sheltering brown hare, hedgehog, Western polecat and harvest mouse. Hedgerows, tree lines and reedbed will largely be retained and protected by 6 m buffers during the operational phase. However, the Proposed Development would result in the minor habitat loss of these habitats, together with grassland.

7.8.58 Works would be undertaken following RAMS, as outlined within the **oCEMP [EN010153/DR/7.5]**. There measures would ensure no direct impacts to other notable mammals.

7.8.59 Any indirect impacts, for example from construction noise or vibration, would be relatively short in duration.

7.8.60 The presence of mammal gaps or gates along the perimeter fence line and within temporary Heras fencing would allow free movement of other notable mammals into and out of the Main Development Area during construction.

7.8.61 Given the minor loss of suitable habitats, the Proposed Development is anticipated to result in temporary **minor negative effects on other notable mammals,** which are of local sensitivity, which is **not significant.**

Fish

7.8.62 Incorporated mitigation includes buffers of at least 10 m from all ditches and watercourses, with the exception of 17 new permanent crossings and upgrading eight existing crossings. Works within the NBBMA would include engineering works within the existing ditch.

7.8.63 Construction of the Proposed Development has the potential to impact upon fish through habitat loss, direct mortality and indirect disturbance.

7.8.64 Where the 'dry crossing technique' is required for the creation of a new access crossing, the section of water between the dams would be inspected for fish and other aquatic life such as eels; where appropriate a fish rescue plan would be executed where appropriate. Significant impacts on fish populations, if present, would be avoided through the implementation of water quality monitoring, and methods to remove fish from the upstream side of a dam to the downstream side. Furthermore, if the presence of burrowing eels in the banks of the ditches are suspected, the section of bank would be carefully excavated in small sections with soil then placed nearby to water with a means of escape, and inspected for the presence of eels.

7.8.65 Standard measures to ensure runoff control and pollution prevention to be implemented via the **oCEMP [EN010153/DR/7.5]** would also avoid significant impacts on fish populations, if present.

7.8.66 Indirect impacts, for example from construction noise or vibration, may result in disturbance; however, these are anticipated to be short in duration.

7.8.67 It is anticipated that fish would readily pass through proposed new or upgraded structures; as such, it is not anticipated that the new or upgraded ditch crossings would result in the fragmentation of fish habitat.

7.8.68 The construction of the Proposed Development is anticipated to result in temporary **minor adverse effects** on fish, which are of up to county sensitivity, which is **not significant.**

Notable Invertebrates

7.8.69 Construction of the Proposed Development has the potential to impact upon invertebrates through habitat loss.

7.8.70 The Proposed Development has been designed so that habitat loss would be largely contained within areas of other neutral grassland, modified grassland and arable land. Minor removal of hedgerow and ditch top habitat would be required to accommodate the construction of access routes. Furthermore, the removal of ponds and reedbed would be required to facilitate the habitat creation proposals.

7.8.71 Given the minor loss of suitable habitats, the Proposed Development is anticipated to result in temporary **minor negative effects** on invertebrates, which are of up to county sensitivity, which is **not significant.**

Non-native invasive Species

7.8.72 Construction of the Proposed Development has the potential to cause the spread of non-native invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981, including Himalayan balsam, variegated yellow archangel, New Zealand pigmyweed and cotoneaster sp.

7.8.73 Incorporated mitigation includes the provision of Invasive Non-Native Species Management Plans which detail the commitment to control or undertake long-term eradication of the species listed under Schedule 9 of the Wildlife and Countryside Act 1981 from within the Main Development Area. Furthermore, good practice measures would be implemented to avoid the spread of these species.

7.8.74 The Proposed Development is anticipated to result in medium to long-term **minor positive effects** on non-native invasive species, which is of local sensitivity, which is **not significant.**

Operational Phase

7.8.75 Operational effects are defined as effects following the construction of the Proposed Development and prior to the start of decommissioning. Effects may be for the entire duration of the operational lifetime or be temporary and

short-term in nature. Some effects may reduce with habituation or remain for the lifetime of the Proposed Development.

7.8.76 Potential operational phase effects associated with the Proposed Development are considered to relate to:

i) Implementation of the Indicative Environmental Masterplan;
ii) Behavioural changes/disturbance of adjacent habitats or species associated with the presence of panels and inverter/transformer stations;
iii) Disturbance and incidental impacts associated with routine maintenance (e.g., grass and hedgerow cutting, cleaning of panels, inspection of equipment, the replacement of panels, inverter/transformer stations and other pant and machinery); and,
iv) Noise and lighting emissions from the BESS and Frodsham Solar Substation.

7.8.77 There are no additional operational effects relating to land take other than those already addressed under Construction.

7.8.78 Maintenance of a solar farm is generally limited to routine cleaning using a soft brush and water and ongoing maintenance of green infrastructure. Occasional repairs and/ or replacements may also be required in the event of faulty or damaged equipment. Periodically there would also be more significant replacement campaigns, for equipment such as solar panels and battery units and/ or power conversion units (transformers and inverters), although such activity would be infrequent. Significant effects are very unlikely to arise from these activities as all the habitat removal/creation measures, including new ditch crossings, would already have been undertaken as part of the original construction works. Impacts which could arise due to temporary works, e.g. associated with increased use of vehicles/machinery, would be capable of being managed via standard best practice methods, which are outlined within the **oOEMP [EN010153/DR/7.6].**

National Statutory Designated Sites for Nature Conservation

7.8.79 As detailed under construction, no terrestrial ecology features for which Mersey Estuary SSSI is cited are located within the Main Development Area.

7.8.80 Created habitats, together with any retained habitats within the NBBMA boundary, would be subject to long-term management by suitably qualified/experienced professionals, informed by a regular ecological monitoring program and biodiversity objectives during the Proposed Development's operational lifespan. The management of these semi-natural habitats will be informed by the **oLEMP [EN010153/DR/7.13].** The habitat creation would increase the intrinsic biodiversity value of the NBBMA within Cell 3.

7.8.81 Potential indirect impacts relate to disturbance associated with routine maintenance including from lighting, noise and pollution (runoff and dust). Standard best practice measures to control pollution would be implemented during any routine maintenance, together with the implementation of a sensitive lighting strategy, which would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.82 Due to the limited number of staff required during operation, human disturbance is unlikely to be sufficiently greater than currently experienced and subsequently, unlikely to result in likely significant effects on Mersey Estuary SSSI.

7.8.83 The operation of the Proposed Development is considered to have **negligible** impacts upon national statutory designated sites with regards to terrestrial ecology, which are of national sensitivity, which is **not significant**.

Non-Statutory Designated Sites for Nature Conservation

7.8.84 Incorporated mitigation includes the creation and retention of a range of habitats within Frodsham, Helsby and Ince Marshes LWS, as detailed in the Indicative Environmental Masterplan shown in **ES Volume 3 Figure 2-3**

[EN010153/DR/6.3], including: the retention of existing/woodland, hedgerows, tree lines, waterbodies, reedbeds, ditches and watercourses, as far as practicable; the creation of 3.6 km of new native hedgerows and 4.7 km of tree and shrub belts; the enhancement of existing hedgerow; the creation of 2.2 ha of native woodland and shrub; the creation of botanically diverse grassland, enhancement of open water and reedbeds and extensive habitat enhancement and creation within the principal public access / biodiversity enhancement zones. Enhancement measures will include a commitment to achieve an increase of at least 10 % in both habitat and hedgerow units across the Site. These enhancements would not be undertaken in the absence of the Proposed Development, and would result in positive impacts on habitats, which in turn would also benefit Frodsham, Helsby and Ince Marshes LWS. Commitment to delivering the BNG target will include the requirement for long-term ecological monitoring through the lifespan of the Proposed Development, to be secured in the **oLEMP [EN010153/DR/7.13]** via the provision of the DCO. Management of the created and enhanced habitats would be informed by a regular ecological monitoring program and biodiversity objectives during the Proposed Development's operational lifespan. The creation and enhancement of high value habitats, such as hedgerows and woodland would also strengthen the LWS's wildlife corridor, for which it is also cited for.

7.8.85 Once operational, no additional habitat creation, enhancement and therefore management would be undertaken within either Frodsham Field Studies Centre LWS and Easton Clifton Tip LWS. Due to the limited number of staff required during operation, human disturbance is unlikely to be significantly greater than currently experienced and subsequently, unlikely to result in adverse effects on these LWSs.

7.8.86 Potential indirect impacts relate to disturbance associated with routine maintenance including from lighting, noise and pollution (runoff and dust). Standard best practice measures to control pollution would be implemented during any routine maintenance, together with the implementation of a

sensitive lighting strategy, which would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.87 Potential indirect impacts also relate to human disturbance due to the proposed new permissive footpaths, formalisation of access, car parking and enhancement of the existing PROW network. New permissive paths have been designed to be sensitive to key areas for biodiversity, particularly the NBBMA and also along the River Weaver. It is considered that these measures will ensure that disturbance to qualifying features of the LWS using these key areas is minimised to a level where no increased disturbance effects are predicted. The expected types of use would be expected to be comparable with current usage of paths (by walkers). Furthermore, the operation of the Proposed Development will not require the application of herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development. The cessation of herbicide and pesticide treatments, together with ploughing, would improve soil conditions, reduce sediment and nutrient runoff into the ditch and watercourse network and result in a diversification of habitats present across the Frodsham, Helsby and Ince Marshes LWS.

7.8.88 The Proposed Development is anticipated to result in medium to long term **moderate positive effects** for the lifetime of the Proposed Development on non-statutory designated sites for nature conservation, which are of up to county sensitivity, which is **significant.**

Habitats

Habitats of Principal Importance

7.8.89 Incorporated mitigation includes the creation of new HPIs together with the enhancement of existing HPIs, as detailed in the Indicative Environmental Masterplan provided in **ES Volume 3 Figure 2-3 [EN010153/DR/6.3]**, including the creation of 3.6 km of new native hedgerows, the enhancement

of 6.4 km of existing hedgerow, and the enhancement of 4.5 ha of open water and reedbed mosaic.

7.8.90 Created and enhanced HPIs would be managed for the lifetime of the Proposed Development by suitably qualified/experienced professionals, informed by a regular ecological monitoring program and biodiversity objectives during the Proposed Development's operational lifespan. The management of these semi-natural habitats is set out in the **oLEMP [EN010153/DR/7.13].**

7.8.91 Potential indirect impacts relate to disturbance associated with routine maintenance including from lighting, noise and pollution (runoff and dust). Standard best practice measures to control pollution would be implemented during any routine maintenance, together with the implementation of a sensitive lighting strategy, which would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.92 Furthermore, the operation of the Proposed Development will not require the application of herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, and so benefit HPIs.

7.8.93 Due to the limited number of staff required during operation, human disturbance is unlikely to be sufficiently greater than currently experienced and subsequently, unlikely to result in likely significant effects on other habitats.

7.8.94 The Proposed Development is anticipated to result in medium to long term **minor positive effects** impacts on HPIs, which are of up to county sensitivity, which is **not significant.**

Other Habitats

7.8.95 The footprint of a solar development is small, with infrastructure (e.g., frames) typically taking up less than 5% of the Site area, with the land surrounding

and underneath panels available for habitat creation, and therefore habitat loss through operation will be negligible, particularly in the context of baseline low ecological value agricultural habitats.

7.8.96 Incorporated mitigation includes the creation of new habitats, as detailed in the Indicative Environmental Masterplan shown in **ES Volume 3 Figure 2-3 [EN010153/DR/6.3]**. Such habitats would increase the intrinsic biodiversity value of the Main Development Area.

7.8.97 Created habitats, together with any retained habitats within the Site boundary, would be subject to long-term management by suitably qualified/experienced professionals, informed by a regular ecological monitoring program and biodiversity objectives during the Proposed Development's operational lifespan. The management of these semi-natural habitats is set out within the **oLEMP [EN010153/DR/7.13].**

7.8.98 Furthermore, the operation of the Proposed Development will not require the application of herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, and so benefit the other habitats.

7.8.99 Due to the limited number of staff required during operation, human disturbance is unlikely to be sufficiently greater than currently experienced and subsequently, unlikely to result in likely significant effects on other habitats.

7.8.100 The Proposed Development is anticipated to result in medium to long term **minor positive effects** impacts on other habitats for the lifetime of the Proposed Development, which are of site sensitivity, which is **not significant.**

Bats (Foraging and Commuting)

7.8.101 A study by Tinsley *et al*. (2023[xxxvii]) concluded that some bat species could be negatively affected by solar photovoltaic (PV) panels, suggesting that loss

and/or fragmentation of foraging/commuting habitat is caused by ground-mounted solar PV panels. It should be noted that no baseline/pre-construction survey information was presented in the study, as such it is not possible to confirm if the habitats sampled were subject to enhancement measures for bats compared to pre-construction baseline, or if any of the Sites included habitat enhancement measures and to what stage these measures where at. Caution should therefore be advised when considering the conclusions of the study.

7.8.102 Nevertheless, it is acknowledged that the Proposed Development could have the potential to affect bat distribution. However, the Proposed Development does adopt the measures recommended within the aforementioned paper (i.e. maintaining boundaries and planting vegetation to improve the network with surrounding foraging habitat). Boundary habitats will be largely retained, with the exception of minor removal/widening required for access (totalling approximately 180 m of hedgerow loss, with no individual length of removal greater than 23 m). The minor removal of hedgerow/scrub habitat is not considered to present a barrier that would obstruct existing bat foraging and commuting routes. Bat foraging and commuting habitat would be retained and protected during the operational lifetime through the provision of 10 m buffer surrounding watercourses/ditches (with the exception of new/upgraded crossing points); 8 m buffers surrounding retained ponds; and, 6 m buffers surrounding hedgerows/tree lines (with the exception of minor removal required for access), where no development would be located, which was given as a key mitigation consideration within Tinsley *et al.* (2023).

7.8.103 It is considered that the landscaping proposals, shown on **ES Vol 3 Figure 2-3: (a-e) Illustrative Environmental Masterplan [EN010153/DR/6.3]**, including the creation of species diverse grassland, together with hedgerow and woodland planting, would enhance the landscape for both foraging and commuting bats. This will be achieved by providing greater connectivity at a landscape scale through linear features and increasing the invertebrate prey resource through increased habitat quality and diversity.

7.8.104 As detailed within **ES Volume 1 Chapter 2.0: The Proposed Development [EN010153/DR/6.1]**, no permanent lighting would be required across the SADA; temporary mobile task lighting may be required for maintenance during periods of low light, however, this would be brought onto Site for short periods of time and would not be used routinely. The Frodsham Solar Substation and the BESS Compound would have inward facing security lighting installed. This would be operated with PIR detectors or would be turned on manually for maintenance in low light conditions or in the event of an emergency. A sensitive lighting strategy would be secured via the oOEMP, ensuring that features of value for foraging and commuting bats are not subject to additional lighting during the operational lifetime.

7.8.105 Furthermore, the operation of the Proposed Development will not require the application of herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, and so benefit invertebrates and in turn benefit foraging bats.

7.8.106 The Proposed Development has been designed so that no key habitat types (such as native hedgerows/hedgerow with trees, woodland or scrub) which would provide high suitability habitats for use by commuting and/or foraging bats will be created within 50 m of the existing wind turbines (see **ES Volume 3 Figure 2-3 Illustrative Environmental Masterplan [EN010153/DR/6.3]).** As such, the habitat creation measures will not encourage the movement of commuting and/or foraging bats to within 50 m of the turbines, and therefore reducing the likelihood of increased collision mortality to bats. The Proposed Development is anticipated to result in medium to long term **minor positive effects** impacts on bats (foraging and commuting) for the lifetime of the Proposed Development, which are of up to regional sensitivity, which is **not significant.**

Otter

7.8.107 Routine management of the Proposed Development will result in minimal disturbance, with only routine cleaning, maintenance (e.g., in case of equipment failure) and landscaping required. Potential indirect impacts relate to disturbance associated with routine maintenance with lighting and pollution (runoff and dust). Standard best practice measures to control pollution would be implemented during any routine maintenance, together with the implementation of a sensitive lighting strategy, which would be secured via the **oOEMP [EN010153/DR/7.6].** It is considered that routine cleaning, maintenance and landscaping are comparable with existing agricultural practices and would not result in additional disturbance to otter.

7.8.108 Sixteen new and eight upgraded culverts will remain in place for the lifetime of the Proposed Development, all likely to be used only infrequently. While detailed design has not been undertaken, any new crossings would be clear span and limited in width (maximum width of new crossings would be 6 m); upgraded culverts would be replaced with open span crossings. It is anticipated that otter would readily pass through proposed new or upgraded structures, noting that the Proposed Development would provide open span bridge crossings, not culverted crossings; as such, it is not anticipated that the new or upgraded ditch crossings would result in the fragmentation of otter foraging and commuting habitat

7.8.109 The presence of mammal gaps or gates along the perimeter fence line would allow the continued free movement of otter into and out of the SADA. The presence of perimeter fencing surrounding the SADA would likely benefit otter by providing undisturbed areas of high value and well managed habitat.

7.8.110 The Proposed Development will result in the cessation of access to otter within the NBBMA for the duration of the operational period. If present, foraging, commuting or resting otters within the NBBMA will be displaced as a result of the installation of predator fencing surrounding the NBBMA. As detailed above, otters have large home ranges; as such, it is considered likely

that otters utilise the extensive network of ditches surrounding the Main Development Area. Although the Proposed Development will result in the cessation of access to otter within the NBBMA, considering the presence of suitable habitat within the surrounding landscape, such as the River Weaver, extensive network of ditches remaining available to otter within the SADA and within surrounding the Site, and large open waterbody directly south of the Main Development Area (in Cell 6), the cessation of access to the NBBMA is unlikely to adversely affect free movement of otter throughout the landscape, or the availability of food or shelter resources. Furthermore, incorporated mitigation includes the creation of new ponds and wetland habitats, together with enhanced management of habitats (including ditches) across the SADA, which would provide additional foraging, sheltering and breeding habitat for this species.

7.8.111 The operation of the Proposed Development will not require the application of fertiliser, herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, therefore likely resulting in the improvement of water quality across the Main Development Area.

7.8.112 Where habitat management works, or other maintenance works, are required within 5 m of a ditch, watercourse or pond, these would be preceded by an otter survey, which would be completed by a suitably qualified ecologist immediately prior to the commencement of habitat management works to determine the presence of the species within the working areas, which would inform any protection and/or mitigation requirements. Furthermore, works would be undertaken following RAMS. Pre-works otter survey and RAMS would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.113 The Proposed Development is anticipated to result in medium to long term **minor positive effects** impacts on otter for the lifetime of the Proposed Development, which is of county sensitivity, which is **not significant.**

Water Vole

7.8.114 Sixteen new and eight upgraded culverts will remain in place for the lifetime of the Proposed Development, all likely to be used only infrequently. While detailed design has not been undertaken, any new crossing would be open span and limited in width (maximum width of new crossings would be 6 m); upgraded culverts would be replaced with open span crossings.

7.8.115 Potential indirect impacts relate to disturbance associated with routine maintenance including from lighting, noise and pollution (runoff and dust). Standard best practice measures to control pollution would be implemented during any routine maintenance, together with the implementation of a sensitive lighting strategy, which would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.116 Incorporated mitigation includes the creation of new ponds and wetland habitats across the Main Development Area, which would provide additional foraging, sheltering and breeding habitat for this species. Furthermore, retained ditch top habitats would be managed for the benefit of water vole for the duration of the operational phase, for example by removing some dense scrub to open up the ditch and bank top habitat to improve foraging opportunities, offering continued foraging and sheltering habitat for this species. These measures are set out within the **Outline Landscape and Ecology Management Plan [EN010153/DR/7.13]**.

7.8.117 Where habitat management works, or other maintenance works, are required within 5 m of a ditch, watercourse or pond, these would be preceded by a water vole survey. The survey would be completed by a suitably qualified ecologist immediately prior to the commencement of habitat management works to determine the presence of the species within the working areas, which would inform any protection and/or mitigation requirements. Furthermore, works would be undertaken following RAMS. Pre-works water vole survey and RAMS would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.118 The operation of the Proposed Development would not require the application of fertiliser, herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, therefore likely resulting in the improvement of water quality across the Main Development Area.

7.8.119 The Proposed Development is anticipated to result in medium to long term **minor positive effects** impacts on water vole for the lifetime of the Proposed Development, which is of county sensitivity, which is **not significant.**

Other Notable Mammals

7.8.120 Incorporated mitigation includes the creation of new habitats of high ecological value, as detailed in the Indicative Environmental Masterplan shown in **ES Volume 3 Figure 2-3 [EN010153/DR/6.3].** Such habitat creation, together with the ongoing management of retained habitats, would offer enhanced foraging and refuge opportunities for other notable mammals through increased habitat diversity and quality.

7.8.121 Further, the presence of mammal gaps or gates along the perimeter fence line would allow free movement of other notable mammals into and out of the Main Development Area. The presence of perimeter fencing would likely benefit other notable mammals by providing undisturbed areas of high value and well managed habitat.

7.8.122 Given the implementation and management of the landscape proposals and the continued access, the Proposed Development is anticipated to result in medium to long term **minor positive effects** on other notable mammals for the lifetime of the Proposed Development, which are of local sensitivity, which is **not significant.**

Fish

7.8.123 Sixteen new and eight upgraded culverts will remain in place for the lifetime of the Proposed Development, all likely to be used only infrequently. While

detailed design has not been undertaken, any new crossing would be open span and limited in width (maximum width of new crossings would be 6 m); upgraded culverts would be replaced by open span crossings. As such new and upgraded crossings are unlikely to present a barrier to fish, including eel.

7.8.124 Potential indirect impacts relate to disturbance associated with routine maintenance including from lighting, noise and pollution (runoff and dust). Standard best practice measures to control pollution would be implemented during any routine maintenance, together with the implementation of a sensitive lighting strategy, which would be secured via the **oOEMP [EN010153/DR/7.6].**

7.8.125 The operation of the Proposed Development will not require the application of fertiliser, herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, therefore likely resulting in the improvement of water quality across the Main Development Area.

7.8.126 The Proposed Development is anticipated to result in medium to long term **minor positive** impacts on fish for the lifetime of the Proposed Development, which are of up to county sensitivity, which is **not significant.**

Notable Invertebrates

7.8.127 The Proposed Development will use solar PV modules with anti-reflective coating, which is a common approach taken to reduce the potential for reflections (see ES **Vol 1 Chapter 2: Proposed Development [EN010153/DR/6.1]** and **Design Parameters [EN010153/DR/7.1]**). Anti-reflective coatings have been found to decrease attraction of some invert species to solar panels. As such, the solar PV modules are not expected to attract invertebrates, and adverse impacts on invertebrates are not anticipated.

7.8.128 Incorporated mitigation includes the creation of new habitats of high ecological value, as detailed in the Indicative Environmental Masterplan shown in **ES Volume 3 Figure 2-3 [EN010153/DR/6.3].** Such habitat creation, together with the ongoing management of retained habitats, would offer enhanced opportunities for invertebrates through increased habitat diversity and quality.

7.8.129 Furthermore, the operation of the Proposed Development would not require the application of herbicide and pesticide treatments as are frequently used as part of agricultural farmland systems, and that would likely continue to be used in the absence of the Proposed Development, and so benefit the floristic and invertebrate diversity on Main Development Area.

7.8.130 Given the implementation and management of the landscape proposals, as well as the reduction in chemical insecticide use, the Proposed Development is anticipated to result in **minor positive** effects on other invertebrates for the lifetime of the Proposed Development, which are of up to county sensitivity, which is **not significant.**

Non-native Invasive species

7.8.131 Incorporated mitigation includes ecological monitoring to assess the success of the invasive non-native species eradication measures to be undertaken during construction. If further infestations of any species listed on Schedule 9 of the Wildlife and Countryside Act 1981 are recorded during operation, an appropriate invasive species treatment program would be implemented by a licensed and experienced invasive species contractor. The **oOEMP [EN010153/DR/7.6]** includes for the provision of an Invasive Non-Native Species Management Plan (INNSMP) during the operational period.

7.8.132 The Proposed Development is anticipated to result in no discernible effect non-native invasive species. As such, there would be medium to long term **minor positive** effects upon non-native invasive species, a receptor of local sensitivity, which **is not significant**.

Decommissioning Phase

7.8.133 The application for development consent is for a maximum operational period of 40 years, after it has been commissioned, after which it would be decommissioned. On decommissioning, the landscaping works undertaken across the Site would be left in place and the land handed back to the landowner, the only exception being the potential requirement by the landowner to revert the areas currently used for arable farming to this condition. Areas which are currently used for arable farming and cereal crop are largely proposed to be converted into grassland habitats, with the exception of a parcel of land between the tributary of the River Weaver and the M56, which is proposed to be converted into a woodland strip. It is considered likely that tree and scrub planting, together with created pond and wetland habitats, would be retained, including the habitats created within the NBBMA. However, as the land would be handed back to the landowners on completion of decommissioning the long term retention of the landscaping improvement works cannot be guaranteed. Similarly, following decommissioning the landowner may or may not retain the permissive footpaths created across the Site. Land within the solar PV array areas would be likely be returned to agriculture.

7.8.134 Impacts arising from decommissioning are considered to be commensurate with those experienced during construction, and are therefore not assessed in detail. Any impacts arising from decommissioning are likely to be considered capable of being reversed within a very short period of time following cessation of decommissioning activities.

7.8.135 The oDEMP **[EN010153/DR/7.7]** outlines the principles, controls, and measures to be implemented during decommissioning to reduce potential significant environmental effects from occurring. Post-consent, this outline plan will be developed into a full plan which must be in substantial accordance with the outline and will require approval by CWaCC. The decommissioning

must be undertaken in accordance with the approved plan. This is secured via a Requirement in Schedule 2 of the **draft DCO [EN010153/DR/3.1]**.

7.9 Additional Mitigation, Enhancement and Monitoring

Additional Mitigation and Enhancement

7.9.1 Additional mitigation and enhancement measures are not required to reduce potentially significant adverse effects resulting from the Proposed Development

Construction Mitigation and Enhancement

7.9.2 No additional mitigation or enhancement is considered necessary during the construction of the Proposed Development to mitigate for any impacts (either significant or non-significant) on ecological receptors. Impacts have been addressed as far as reasonably practicable through avoidance and the incorporated mitigation of the Proposed Development.

Operational Mitigation and Enhancement

7.9.3 No additional mitigation or enhancement is considered necessary during the operation of the Proposed Development to mitigate for any impacts (either significant or non-significant) on ecological receptors. Impacts have been addressed as far as reasonably practicable through avoidance and the Incorporated Mitigation of the Proposed Development.

Monitoring

7.9.4 Commitment to delivering a measurable increase of at least 10 % in habitat, hedgerow and watercourse units will include the requirement for long-term ecological monitoring through the lifespan of the Proposed Development. These ecological monitoring surveys would assess the success of mitigation and enhancement measures detailed within the **oLEMP [EN010153/DR/7.13]**, and if necessary, provide recommendations for remedial actions required to achieve the biodiversity objectives detailed within the **oLEMP [EN010153/DR/7.13]** and/or adhere to relevant wildlife conservation legislation at that time.

7.9.5 A management and monitoring plan to mitigate any adverse effects to protected and notable habitats and species would be prepared for the NBBMA and SADA areas and this would be a requirement of the LEMP, this is detailed within the **oLEMP [EN010153/DR/7.13]**. It is expected this work would entail a watching brief by a suitably qualified ecologist/ornithologist during creation of the NMMBA, monitoring of water quality within surrounding surface watercourses and surveying such as invertebrate abundance monitoring both during and post construction (see **ES Volume 1 Chapter 10.0: Ground Conditions [EN010153/DR/6.1]**, for further details on monitoring associated with water quality).

7.9.6 Ecological monitoring would also assess the success of the invasive non-native species control measures. If further infestations of a species listed on Schedule 9 of the Wildlife and Countryside Act 1981 are recorded, an appropriate invasive species treatment program would be implemented by a licensed and experienced invasive species contractor.

7.9.7 The oLEMP would be implemented for the lifetime of the Proposed Development. Monitoring would be undertaken in years 1, 2 and 5, then every 5 years thereafter until at least year 40 following implementation of the landscape design, in line BNG requirements.

7.9.8 Monitoring would involve a habitat survey (between May and September) following the industry standard UK Habitat Survey (UKHab) methodology[xxxviii] as used for BNG, and also including a condition assessment using the relevant condition criteria contained within Defra Statutory Metric. This monitoring would inform any adjustments or remedial measures to be implemented, if required.

7.9.9 Monitoring would also include an assessment of species enhancement measures (as outlined under Incorporated Enhancement Measures, below), including an assessment of the integrity of such features. Where appropriate usage of such features will also be assessed. Monitoring will inform the requirement for repair or replacement, as required.

7.9.10 An organisation with experience in managing wetland habitats would be responsible for the management and monitoring of the NBBMA during operation of the Proposed Development.

Residual Effects

7.9.11 The construction of the Proposed Development is anticipated to result in significant temporary adverse effects on Frodsham, Helsby and Ince Marshes LWS during the construction phase. However, the implementation of the oLEMP and associated monitoring and management, which would be implemented for the operational lifespan of the Proposed Development, are considered to be beneficial to this LWS, resulting in significant positive effects in the medium-long term.

7.9.12 No other significant effects are anticipated on terrestrial ecology receptors during construction, operation or decommissioning of the Proposed Development.

7.10 Cumulative Effects

7.10.1 Cumulative effects can result from a combination of impacts, which on their own may not be significant but when combined with others, could generate significant effects.

7.10.2 The approach to the Cumulative Effects Assessment is described in **ES Volume 1 Chapter 4.0 [EN010153/DR/6.1]**. A short list of projects which the Proposed Development could have potential significant cumulative environmental effects with has been prepared, see **ES Volume 2 Appendix 4-2 [EN010153/DR/6.2]**. The location of the projects is shown on **ES Volume 3 Figure 4-3 [EN010153/DR/6.3]**.

7.10.3 As set out in **ES Volume 1 Chapter 4.0 [EN010153/DR/6.1]** there are a number of development schemes located within Protos, a significant development site with the benefit of planning permissions for a range of energy generation and resource management businesses. Due to the proximity of the developments to one another they have been collectively assessed below. Where specific cumulative effects could arise from an individual project these have been expanded on.

7.10.4 Project Ref 16 (100MW BESS) and Ref 17 (135Kv substation) have also been considered together due to their proximity and the interrelationship of the two projects.

7.10.5 For the purpose of this chapter, only mobile terrestrial features will be considered with regards to cumulative effects.

Halton Schemes – Ref 16 (100MW BESS) and Ref 17 (135Kv substation)

7.10.6 These developments are located to the north of the Weaver Navigation. The habitats present on the development are relatively common (of local value) and the nature of the development proposed (BESS) means the level of impact on terrestrial ecology beyond the boundary of the Sites is likely to be limited. As such significant cumulative effects are considered unlikely.

Protos Schemes – Ref 20 (Ince Biopower CO2); Ref 27 (Plastics Recycling Facility); Ref 25 & 28 (Hydrogen Production Facility); Ref 31 (Waste Recycling and hydrogen refuelling); 34 (Standby Electricity Generating Plant); Ref 35 (Post Combustion CO2 Capture Facility); Ref 81 (Protos West AGI)

7.10.7 The likelihood of significant cumulative effects occurring with the developments at Protos are limited due to the separation distance between these projects and the Main Development Area. Furthermore, in order to mitigate effects of the Protos development a large scale strategic ecological mitigation strategy has been developed and was implemented in advance of development on Protos. This has been in place for a number of years and is delivering ecological benefit, even in advance of many of the development plots being used. On this basis it is considered unlikely that significant cumulative effects would arise.

Ref 33 (Encirc Automated Warehouse)

7.10.8 The likelihood of significant cumulative effects occurring with the developments at Enric are limited due to the separation distance between this project and the Main Development Area.

Ref 32 (Hydrogen Production Facility)

7.10.9 The Development is located within an existing developed area of the Stanlow industrial complex and therefore there is unlikely to be significant cumulative effects on terrestrial ecology.

Ref 37 (HyNet Carbon Dioxide Pipeline)

7.10.10 The distance from the Main Development Area, and the fact that the majority of impacts of the development are likely to be limited to the construction phase, means there is limited potential for cumulative effects on terrestrial ecology with the Proposed Development.

Ref 38 (HyNet Hydrogen Pipeline)

7.10.11 The pipeline crosses the Main Development Area in the east, and cuts through the centre of the Skylark Mitigation Area. The pipe runs approximately 0.5 km south of the NBBMA at its closest point.

7.10.12 It is considered that if this development were being constructed at the same time as the Proposed Development, cumulative impacts on foraging bats, otter, water vole and fish may occur during the construction phase, associated mainly with temporary disturbance and habitat loss for the period of construction works of the pipeline.

7.10.13 The nature of the disturbance is likely to be similar to that experienced during the construction of the Proposed Development. The PEIR for the HyNet Hydrogen Pipeline included a draft Outline Construction Environmental Management Plan that commits to providing a series of specific management plans to protect wildlife and implement best practice measures. These measures will likely be secured by requirements set out in the DCO for the project.

7.10.14 The Applicant would work with the promotor of the pipeline to coordinate sensitive timings of works to avoid and minimise cumulative disturbance. The Applicant would work with the promotor to discuss construction programming and ecological sensitives to reduce impacts. This pre-commencement planning of timings would be detailed within the CEMP for both Proposed Developments.

7.10.15 Given the relatively short-term impact (the PEIR indicated the installation of the pipeline would be 150m-350m per day and timings of the works would be set out in a Biodiversity Mitigation Strategy), along with the implementation of best practice mitigation by both projects, it is considered that there is unlikely to be significant cumulative effects during the construction works.

7.10.16 During the operation of this development, the pipeline will be underground, and habitats will be reinstated once the underground pipeline has been constructed. As such, no cumulative effects during the operational phases are anticipated.

Ref 78 (Runcorn Carbon Dioxide Spur Pipeline)

7.10.17 This pipeline would run along the northern boundary of the Main Development Area. It is considered that if this development were being constructed at the same time as the Proposed Development, cumulative impacts on foraging bats, otter, water vole and fish may occur during the construction phase, associated mainly with temporary disturbance and habitat loss for the period of construction works of the pipeline.

7.10.18 This development is still at the scoping stage and so the approach the project will take to mitigation is less clear. However, impacts are likely to be similar to the hydrogen pipeline, both in nature, magnitude and period. It is also expected that CWaCC would require a CEMP to be provided pursuant to a planning condition and that CEMP would include measures to mitigate effects on ecological receptors.

7.10.19 The Applicant would work with the promotor of the pipeline to coordinate works. It is anticipated that the pipeline section within Cell 1 and 2 will not be constructed at the same time as the Cell 3 mitigation works to create the NBBMA. Furthermore, it is also assumed that the pipeline section within the Cell 3 mitigation area would not be undertaken at the same time as the construction works being undertaken across Cell 1, 2 and 5. This would be capable of being controlled via a planning condition by CWaCC and is considered a reasonable assumption.

7.10.20 Given the relatively short-term impact (similar to the hydrogen pipeline it is assumed the installation of the carbon dioxide pipeline would be 150m-350m per day), along with the implementation of best practice mitigation by both

projects, it is considered that there is unlikely to be significant cumulative effects during the construction works.

7.10.21 During the operation of this development, the pipeline will be underground, and habitats will be reinstated once the underground pipeline has been constructed. As such, no cumulative effects during the operation phases are anticipated.

Local Wildlife Sites

7.10.22 Enhancement measures would include a commitment to achieve a measurable increase in biodiversity units across the Site. These enhancements would result in positive impacts on habitats, which in turn would also benefit Frodsham, Helsby and Ince Marshes LWS.

7.10.23 With the implementation of construction safeguards and mitigation significant cumulative impacts upon LWS species are not anticipated (as discussed when taking into account species in the project individual cumulative assessments above).

7.10.24 Proposed pipeline projects which interact with the Proposed Development are anticipated to result in temporary habitat loss which will be reinstated upon completion.

7.10.25 As such, the Proposed Development is not anticipated to cumulatively impact upon LWSs, including Frodsham, Helsby and Ince Marshes LWS.

7.11 Conclusions

7.11.1 This chapter of the ES assessed the likely effects on terrestrial ecology during construction, operation and decommissioning of the Proposed Development.

7.11.2 Effects are considered following the implementation of incorporated mitigation and enhancement measures, to include a commitment to deliver a voluntary 10 % increase in biodiversity units.

7.11.3 The Proposed Development has been designed to largely retain important ecological features within the Site. This includes the retention of woodland, hedgerows, tree lines and ditches, with the exception of minor hedgerow removal and ditch crossings; thereby maintaining effective nature connectivity networks within the wider environment.

7.11.4 The Proposed Development also includes significant habitat enhancement provisions; these will be managed for the benefit of wildlife over the long term and will provide biodiversity gains for a wide variety of species. Additionally, the proposed creation of botanically diverse grasslands, tree planting and hedgerow planting would deliver a quantifiable increase in habitat and hedgerow units within the Site.

7.11.5 The delivery and ongoing management of these mitigation and enhancement measures is secured via the **oLEMP [EN010153/DR/7.13]** and a Requirement in Schedule 2 of the **draft DCO [EN010153/DR/3.1]**

7.11.6 As the Proposed Development includes the installation of solar panels, construction of the BESS and Frodsham Solar Substation, and the creation of the NBBMA within Frodsham, Helsby and Ince Marshes LWS, the assessment concludes there would be significant temporary adverse effects on Frodsham, Helsby and Ince Marshes LWS during the construction phase. However, the implementation of the measures set out in the **Illustrative Environmental Masterplan [EN010153/DR/6.3]** and the **oLEMP [EN010153/DR/7.13]**, along with the associated monitoring and

management, are considered to result in benefits to this LWS, resulting in significant positive effects in the medium-long term.

7.11.7 No other significant effects are anticipated on terrestrial ecology receptors during construction, operation or decommissioning of the Proposed Development.

7.11.8 An assessment of cumulative impacts is included within the chapter. No potential significant cumulative impacts have been identified.

7.11.9 Overall, with the incorporated mitigation and enhancement measures, no significant residual adverse effects are predicted to occur upon any important terrestrial ecology feature as a result of the construction, operation or decommissioning of the Proposed Development.

7.12 References

[i] Department for Energy Security and Net Zero (2024). *Overarching National Policy Statement for energy (EN-1).* Available at: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1 [Last Accessed: 9 September 2024]

[ii] Department for Energy Security and Net Zero (2024). *National Policy Statement for renewable energy infrastructure (EN-3).* Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3 [Last Accessed: 9 September 2024]

[iii] Department for Energy Security and Net Zero (2024). *National Policy Statement for electricity networks infrastructure (EN-5).* Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5 [Last Accessed: 9 September 2024]

[iv] Department for Levelling Up, Housing and Communities (2023). *National Planning Policy Framework (NPPF).* Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 [Last Accessed: 9 September 2024]

[v] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2023). *Planning practice guidance (PPG).* Available at: https://www.gov.uk/government/collections/planning-practice-guidance [Last Accessed: 9 September 2024]

[vi] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2 (updated April 2022)*. Chartered Institute of Ecology and Environmental Management, Winchester.

[vii] Department for Environment, Food & Rural Affairs and The Rt Hon Michael Gove MP (2021). The 25-year Environment Plan. Available at: https://www.gov.uk/government/publications/25-year-environment-plan [Last Accessed: 24/09/2024].

[viii] Natural England and Department for Environment, Food and Rural Affairs (Defra) Protected species and development: advice for local planning authorities. Available at: https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications [Last Accessed: 08/05/2025].

[ix] Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

[x] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6

[xi] CIEEM, CIRIA & IEMA (2016). Biodiversity Net Gain Good practice principles for development. Available at: https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf [Last Accessed: 24/09/2024].

[xii] DEFRA (2024). The Statutory Biodiversity Metric User Guide (Updated July 2024). Department for Environment, Food and Rural Affairs.

[xiii] Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities (2024). Biodiversity net gain. Planning practice guidance on biodiversity net gain. Available at: https://www.gov.uk/guidance/biodiversity-net-gain [Last Accessed 26/09/2024].

[xiv] Cheshire region Biodiversity Action Plan. Available online at: https://www.cheshirewildlifetrust.org.uk/sites/default/files/2018-06/BAP%20list%20-%20updated%20April%202011.pdf [Last Accessed: 24/09/2024].

[xv] Government Circular (2005). Biodiversity and Geological Conservation – Statutory Obligations and Their Impact Within The Planning System. ISBN 9780117539518.

[16] Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

[xvii] EC (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels

[xviii] RSK Biocensus (2023). Frodsham Renewable Energy Development Preliminary Ecological Appraisal Report. RSK Biocensus

[xix] RSK Biocensus (2023). Frodsham Renewable Energy Development Bat Activity Survey Report. RSK Biocensus.

[xx] RSK Biocensus (2023). Frodsham Renewable Energy Development GCN Survey Report. RSK Biocensus.

[xxi] RSK Biocensus (2023). Frodsham Renewable Energy Development Water Vole Habitat Assessment Report. RSK Biocensus.

[xxii] RSK Biocensus (2023). Frodsham Renewable Energy Development Reptile Surveys Letter Report. RSK Biocensus

[xxiii] WSP UK Limited for Cadent Gas Limited (2024). HyNet North West Hydrogen Pipeline. Appendix 5I: Otter and Water Vole Survey Report. WSP UK Limited for Cadent Gas Limited

[xxiv] WSP UK Limited for Cadent Gas Limited (2024). HyNet North West Hydrogen Pipeline. Appendix 5F: Great Crested Newt Survey Report. WSP UK Limited for Cadent Gas Limited.

[xxv] WSP UK Limited for Cadent Gas Limited (2024). HyNet North West Hydrogen Pipeline. Appendix 5I: Reptile Survey Report. WSP UK Limited for Cadent Gas Limited.

[xxvi] WSP UK Limited for Cadent Gas Limited (2024). HyNet North West Hydrogen Pipeline. Appendix 5k: Aquatic Ecology Survey Report. WSP UK Limited for Cadent Gas Limited.

[xxvii] CIEEM (2017). Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

[xxviii] Natural England. Ancient Woodland Inventory. Available at: https://naturalengland-defra.opendata.arcgis.com/search?collection=Dataset [Last Accessed: 25/07/2024].

[xxix] Natural England. Peaty Soils Location. Available at: https://naturalengland-defra.opendata.arcgis.com/search?collection=Dataset [Last Accessed: 25/07/2024].

[xxx] RSK Carter Ecological (2010). Frodsham Windfarm; GCN Survey Report. RSK Carter Ecological.

[xxxi] British Standards Institute (2012). BS5837:2012 Trees in relation to design, demolition and construction.

[xxxii] Bat Conservation Trust and Institution of Lighting Professionals. (2023). Guidance Note 08/23: Bats and artificial lighting at night. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ [Last Accessed: 24/09/2024].

[xxxiii] Bat Conservation Trust and Institution of Lighting Professionals. (2023). Guidance Note 08/23: Bats and artificial lighting at night. https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/ [Last Accessed: 24/09/2024].

[xxxv] The BNG calculations have been undertaken utilising DEFRA's Statutory Biodiversity Metric Calculator, available at: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides [Last Accessed: 12/07/2024].

[xxxvi] Chanin P (2003). Ecology of the European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough.

[xxxvii] Tinsley, E., Froidevaux, J. S. P., Zsebők, S., Szabadi, K. L. and Jones, G. (2023). Renewable energies and biodiversity: Impact of ground-mounted solar photovoltaic sites on bat activity. Journal of Applied Ecology. 60 (9).