

Protecting and Enhancing Pickmere's Natural Environment



Cheshire
Wildlife Trust

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Acknowledgements

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Introduction

Neighbourhood Planning provides an important opportunity for communities to shape their local environment for future generations. Identifying and evaluating local environmental opportunities and constraints at a neighbourhood level grants communities an informed position and enables them to better protect their valuable natural assets.

Biodiversity Policy Overview

In 2011 the government published Biodiversity 2020, a 'strategy for England's Wildlife and Ecosystem services', which built on the recommendations of a previous government 'Natural Environment' white paper. The mission of the Biodiversity 2020 strategy was to 'halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.' While the Biodiversity 2020 strategy has now been superseded its aims and outcomes built a foundation for, and have been adopted into, more recent and forthcoming environmental policy. Achieving the outcomes set out in Biodiversity 2020 remains an important undertaking if the national decline of natural assets is to be halted and reversed.

In 2013 the State of Nature Partnership (SoNP), consisting of 25 conservation organisations, published its first 'State of Nature Report' with the key aim of 'diagnosing the causes of wildlife decline'. When the first update was published in 2016 the UK was ranked amongst the most nature-depleted countries in the world. By the time of the most recent update in 2019, the SoNP had grown to include over 70 partners drawn from conservation NGOs, research institutes, and the UK and national governments. Unfortunately however, many of the observed SoN measures suggested the decline of nature has continued in the most recent decade and that there has been no let-up in the net loss of nature in the UK.

In 2018, as part of the DEFRA 25 Year Environment Plan, the government pledged to improve the environment within a generation, leaving it in a better condition than they inherited it in. A key goal of the plan is to achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife through the creation of a Nature Recovery Network; a national network of wildlife-rich places. The government aims to achieve the goals of the 25 Year Environment Plan through a number of mechanisms including the planning system (via the NPPF) and through the Environment Act.

The National Planning Policy Framework (NPPF), first published in 2012 and subsequently updated and in 2018, 2019 and most recently in 2021, draws on the principles set out above. 'Protecting and enhancing our natural, built and historic environment' is one of the three core objectives in the revised NPPF 2021 (paragraph 8c). In the recent revisions of the NPPF there has been a shift from 'no net loss policies', to policies that mandate a 'measurable net-gain in biodiversity', i.e. referring to the use of a Biodiversity Net Gain (BNG) metric to measure biodiversity gains. Accompanying this shift toward providing a biodiversity net-gain is growing support for establishing coherent ecological networks at the local level, in order to strategically underpin the protection and enhancement of local biodiversity assets. Non-strategic local policies and strategic policy guidance related to ecological networks and biodiversity net-gain is enshrined in the NPPF (2021) paragraphs 120a, 174d, 179a and 179b.

The Environment Act (2021) sets out a new environmental governance framework as the UK leaves the European Union's environmental policy and legislative structures. The Act mandates new systems for target-setting, planning, monitoring and reporting with the aim of improving our natural environment. As with the shift toward biodiversity net-gain and ecological networks supported in the NPPF, the Environment Act includes:

- The establishment of a mandatory requirement for developers to provide a 10% biodiversity net-gain as a condition of planning permission for new development applicable to all development under the Town and Country Planning Act 1990 and Nationally Significant Infrastructure Projects, and;
- The introduction of a new national system of spatial strategies for nature known as Local Nature Recovery Strategies (LNRS). Each strategy will, for the area that it covers; map the most valuable existing habitat for nature; map specific proposals for creating or improving habitat for nature and wider environmental goals and agree priorities for nature's recovery. It is anticipated this local network will inform a national Nature Recovery Network (NRN).

At a local level, ecological networks are enshrined in the existing Cheshire East Local Plan (adopted July 2017) Policy SE 3 – Biodiversity and Geodiversity. Local sites and assets identified at the neighbourhood planning level are also safeguarded under Policy SE3. Cheshire East Council have also now adopted a Site Allocations and Development Policies Document (December 2022). Within the SAPD, 'Policy ENV 1 – Ecological Network' seeks to strengthen the protection of ecological networks across the borough while 'Policy ENV 2 – Ecological Implementation' requires development to deliver an overall net-gain for biodiversity. To supplement Policy ENV 2, Cheshire East Council have also produced a Biodiversity Net Gain Supplementary Planning Document (May 2021) that is also in the process of being adopted. This SPD provides detailed guidance on achieving Biodiversity Net-Gain from new development and sets out how this can be achieved in Cheshire East.

The primary aim of our national and local strategic biodiversity policy is to bring nature back into recovery and leave it in a better state than in which we inherited it. The primary focus is protection and enhancement at a landscape scale; developing coherent ecological networks by delivering strategic habitat creation incentivised through biodiversity net-gain, with developers, landowners, conservation charities and individuals playing a part. The planning system has a central role in this, particularly in regard to spatial biodiversity strategies and the delivery of net-gain, but also through development control. At a local level Neighbourhood Planning will be a key factor in determining whether the aims of national strategies such as DEFRA's 25 Year Environment Plan are realised, by identifying local priorities for nature conservation that should be considered during the planning process. Although this is a national plan its success will depend on the contributions of local communities toward achieving social, economic and environmental objectives and working to protect and enhance their local environment.

Ecological Networks

In 2010, Professor Sir John Lawton submitted a report to DEFRA entitled 'Making Space for Nature: A review of England's Wildlife Sites and Ecological Network'. The report identified a need for change in our approach to wildlife conservation; shifting from trying to hang on to what we have to one of large-scale habitat restoration and recreation underpinned by the re-establishment of ecological processes

and ecosystem services, for the benefits of both people and wildlife. The report identified that this vision will only be realised if we work at local scales in partnership with local people.

The natural environment is fundamental to well-being, health and the economy, and provides us with a range of ecosystem services such as food, water, raw materials, flood defences, air quality and carbon sequestration. Biodiversity underpins most, if not all, of these ecosystem services. Anthropogenic pressures on the environment are likely to continue to increase and therefore we need to learn how to manage these important natural resources in ways that deliver multiple benefits, for example, achieving profitable and productive farming while also adopting practices which enhance carbon storage, improve floodwater management and support biodiversity.

England's wildlife and semi-natural habitats have become increasingly fragmented and isolated, leading to significant declines in the provision of certain ecosystem services and biodiversity. Ecological networks and 'Nature Recovery Networks' are now widely recognised as an effective way to conserve wildlife in environments that have been fragmented by human activities and bring nature back into recovery.

Ecological networks generally have five components (Figure 1) which reflect both the existing and potential future ecological importance and function:

- **Core areas** – These are areas of high nature conservation value that form the heart of an ecological network. They contain habitats that are rare or important because of the wildlife they support or the ecosystem services they provide. They generally have the highest concentrations of species or support rare species assemblages. They include protected wildlife sites and other semi-natural areas of high ecological quality.
- **Corridors and stepping stones** – These are spaces that improve the functional connectivity between core areas, enabling species to move between them to feed, disperse, migrate or reproduce. Connectivity need not just come from linear, continuous habitats; a number of small sites may act as 'stepping stones' across which certain mobile species can move between core areas.
- **Restoration areas** – These are areas where measures are planned to restore or create new high value areas (with the ultimate goal of becoming 'core areas') so that ecological function is restored and the associated species populations can return. They are often situated so as to complement, connect or enhance existing core areas.
- **Buffer zones** – These are areas closely surrounding core areas, restoration areas, and ecological corridors and stepping stones that protect them from adverse impacts from the wider environment.
- **Sustainable use areas** – These are areas within the wider landscape focussed on the sustainable use of natural resources and appropriate economic activities alongside the maintenance of ecosystem services. Set up appropriately, they help to 'soften the matrix' outside the network and make it more permeable and less hostile to wildlife, supporting self-sustaining populations of species that are dependent upon, or at least tolerant of, certain forms of agriculture. The functions of buffer zones and sustainable use areas overlap, but the latter are less clearly demarcated than buffers and have a greater variety of land uses.

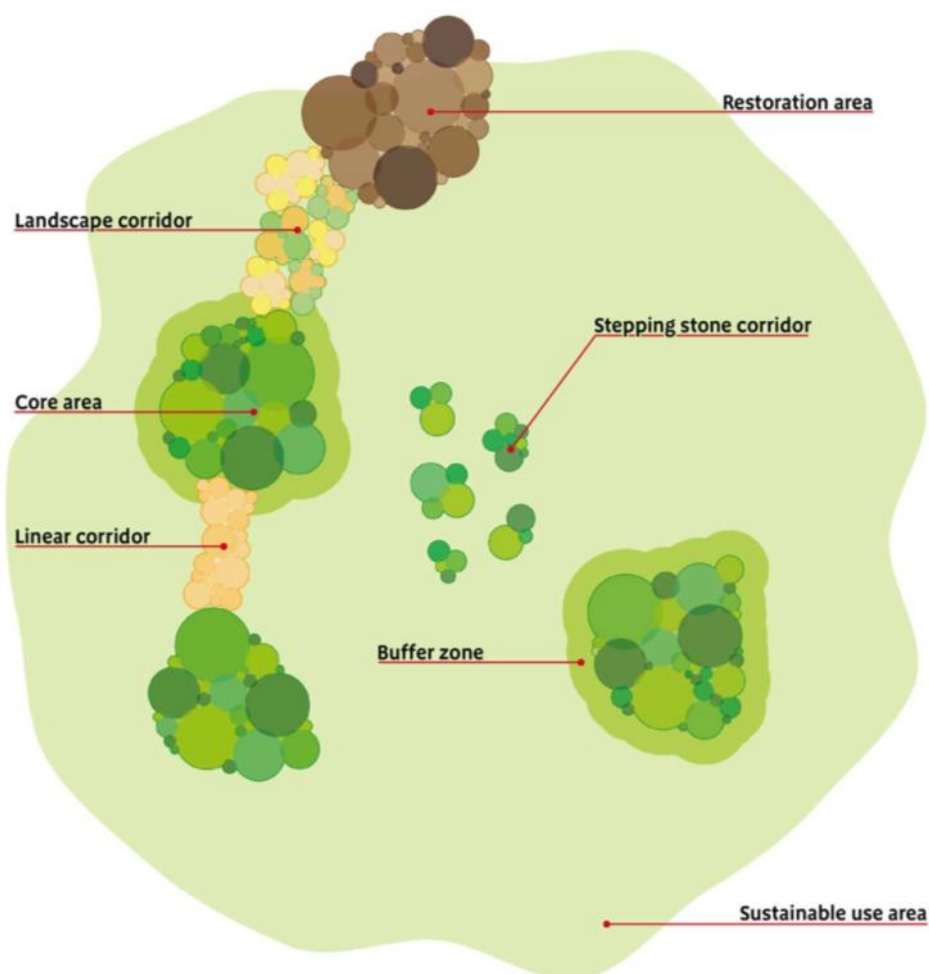


Figure 1. The components of ecological networks (Making Space for Nature report)

As discussed, the principles of establishing coherent ecological networks are now embedded within many planning and policy documents. The NPPF (2021), includes specific guidance on conserving, restoring and enhancing ecological networks including:

- Paragraph 174 - Planning policies and decisions should contribute to and enhance the natural and local environment by:
 - a) Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - b) Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - c) Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
 - d) Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

- e) Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
- Paragraph 175 - 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; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.
- Paragraph 179 - To protect and enhance biodiversity and geodiversity, plans should:
 - a) 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; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
 - b) Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Objectives of the Study

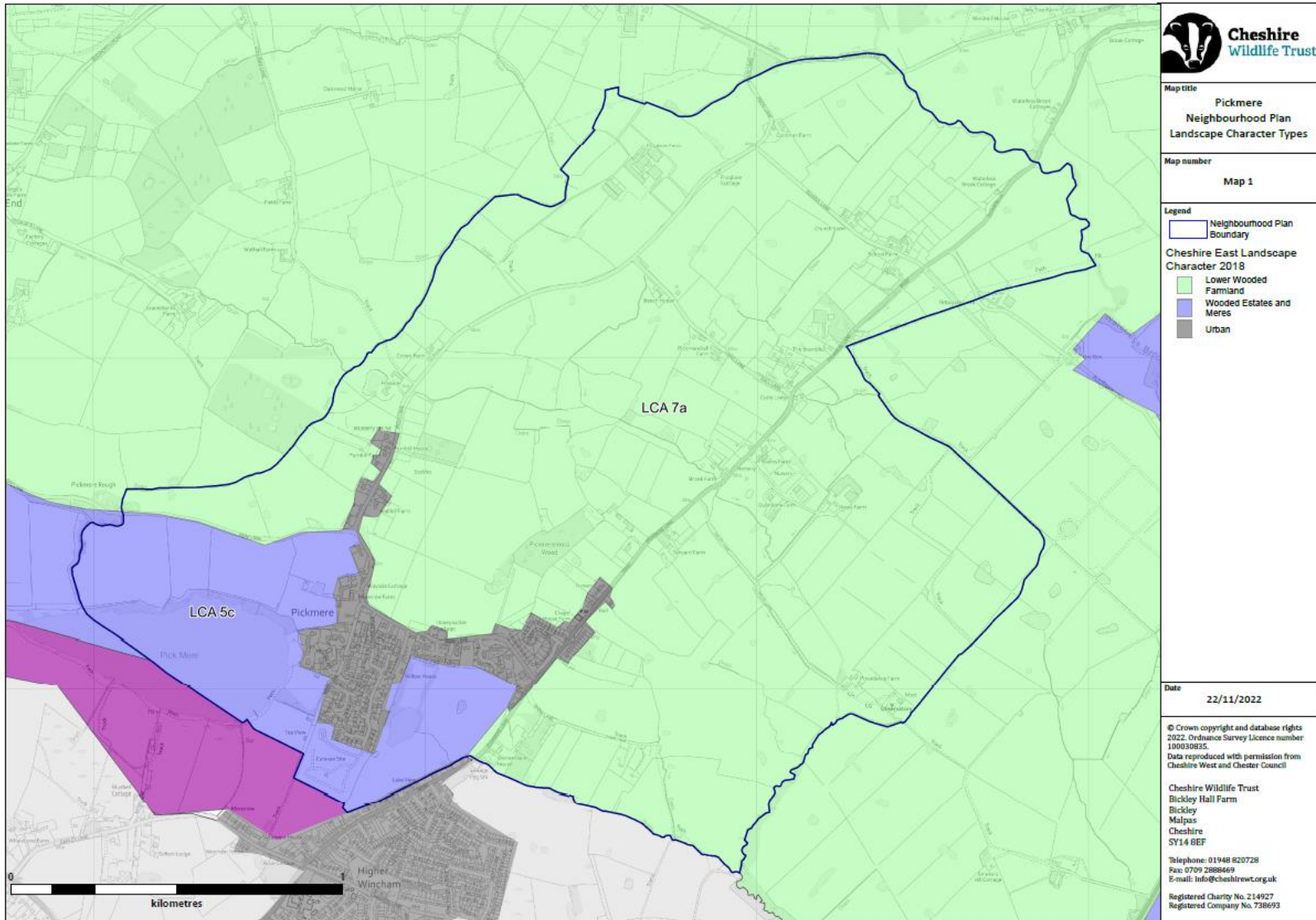
In order to protect and enhance the natural environment it is important to first identify the natural assets that exist within a neighbourhood. This report aims to identify the core, high and medium ecological value sites for nature conservation within the Pickmere Neighbourhood Planning Area. High value sites are recommended for protection through the neighbourhood planning process and medium value sites could be considered as biodiversity opportunity areas subject to further evaluation. Medium and high value sites should also act as an alert in the planning system, triggering full evaluation and assessment, should they be proposed for future development. The report also aims to identify the main local and regional ecological networks within the Neighbourhood Planning Area and recommends these are safeguarded within the neighbourhood plan. Additionally, it identifies key features associated with the landscape character of the Pickmere area so they can be referenced in neighbourhood planning policies.

Pickmere's Landscape Character Assessment

At a national level Pickmere lies within National Character Area (NCA) 61 – Shropshire, Cheshire and Staffordshire Plain; a largely pastoral area of rolling plain which is important for food production. Especially important is dairy farming which is well suited to the damp lush pastures that are found on the glacial till clay soils. More locally Cheshire East Council produced a Landscape Strategy in 2018 which incorporates 14 Landscape Character Types (LCTs). Different aspects such as geology, landform, soils, vegetation and land use have been used to identify recognisable patterns that have categorised into different LCTs. This Landscape Strategy is intended to be used as a basis for planning and the creation of future landscape strategies as well as raising public awareness of landscape character and creating a sense of place.

The Landscape Character Assessment for Cheshire East (Map 1) identifies two recognisable landscape character types (LCT) within the Pickmere Neighbourhood Planning Area. The majority of Pickmere falls within the 'Lower Wooded Farmland' LCT, with a small portion of the planning area around and including Pick Mere falling within the 'Wooded Estates and Meres' LCT. Each LCT is subdivided into smaller Landscape Character Areas (LCAs), the details of which are given below.

Map 1 – Cheshire East Landscape Character Typology 2018



LCT 5: Wooded Estates and Meres

General Description

This type is defined by a concentration of historic estates and their associated features, including parkland and formal gardens, a high density of woodland, mosses and meres which are often utilised as ornamental lakes. The topography of the type ranges from flat ground, through broad undulations to occasional steeper slopes. Fields are varied in size and shape and are generally of medieval or post-medieval origin. Settlement is mainly dispersed with a limited number of small, nucleated villages and hamlets including Rostherne and Marbury.

Landscape Guidance

The following points provide guidance for landscape management and built development within the LCT:

- Avoid siting development (including buildings and other structures) in visually prominent areas or areas of complex landform.
- Protect the distinct geological features of the landscape, including rock exposures and continue to implement appropriate management regimes.
- Protect and appropriately manage the dense woodland that characterises the estate landscapes. Plan for the restoration of plantation woodland with native species and the replacement of aging specimen trees.
- Manage and enhance valued semi-natural habitats, particularly the undesignated ponds, mosses and meres which are focal features of the landscape as well as woodland and unimproved grassland habitats. Seek to create linkages between habitats where possible to improve biodiversity resource within the landscape.
- Ensure that the meres are appropriately managed and conserved for their natural heritage value and issues including agricultural run-off are addressed.
- Conserve the historic integrity of the designed landscapes and their component heritage features. Promote interpretation of these features where this would not be at odds with conservation of these assets.
- Retain historic field patterns and restore the hedgerows and walls forming field and estate boundaries where they have been lost or degraded.
- Respect the setting, form and vernacular of existing settlements, including those designated as Conservation Areas. Ensure any conversion of farm buildings to residences retains a rural character and does not introduce sub-urbanising features.
- Ensure that the recreational value of the landscape is retained, whilst managing activity in a sustainable manner that promotes conservation of the valued features.
- Plan strategically for sustainable transport routes to the attractions and recreation destinations. Avoid introduction of recreation activities which may detract from the valued perceptual qualities of the landscape.
- Maintain any sweeping, designed views/vistas within the estates and longer views experiences in the landscape which include the Pennines and the Sandstone Ridge.
- Ensure that the sense of enclosure and high levels of tranquillity experienced throughout much of the landscape are retained.

- Utilise trees and woodland to screen major transport routes to reduce their visual and audial impacts.
- Retain the rural character of the narrow, winding roads and avoid the over-engineering of roads which could create an urbanising influence within the strongly rural landscape. Conserve and maintain the characterful lanes with avenues of mature trees.

LCA 5c: Budworth Character Area (including Budworth Mere Country Park & Pickmere)

This character area is made up of Budworth and Marston Meres and Marbury Country Park. The landform appears as a large basin or depression with slopes of varying gradient, with the bottom occupied by Budworth Mere and Pickmere. There is widespread evidence of hedgerow loss and replacement with post and wire fences. Much of the area appears to be intensively farmed and the low, over-maintained hedges and scarcity of hedgerow trees contribute to the open and expansive nature of the landscape. The western part around Marbury Mere appears well-wooded, especially on the mere's southern margin near Big Wood. The visual character is quite different to that of the more open landscapes further east. There is little visual connectivity with adjacent character areas due to the basin-like topography and the difference in height between the highest and lowest points. The area is bisected by the A559, emphasising the topography as it falls down to a central low point and rises up the other side. The two large bodies of open water visually dominate the character area due to the general scarcity of screening elements such as high hedges or woodland. Enclosure is mainly regular small-medium fields with hedgerow boundaries that are typical of post medieval agricultural improvement. There is a small area south of Great Budworth, where fields of medieval date have been identified and there is an area of common land to the west of Pickmere. Both Budworth Mere and Pickmere are SBIs. Budworth Mere is the third largest in the county, and best known as a habitat for breeding birds and a refuge for migrating wildfowl. An extensive area of reedbed with associated woodland at the western end is managed as a nature reserve by the Cheshire Wildlife Trust. Pickmere is a large natural mere with good marginal vegetation including reedbed, scrub and broadleaved woodland.

LCT 7: Lower Wooded Farmland

General Description

This character type covers a large area and is divided into seven character areas extending from High Leigh and Arley in the north, east to Poynton and Congleton and as far south as Audlem. This very gently rolling landscape type has many similarities with the Cheshire plain, yet it has a greater concentration of woodland and a slightly higher settlement density with more nucleated hamlets and villages. Land use is a mix of arable and pasture, while settlement largely retains its dispersed pattern. Intensive reorganisation during the post-medieval period saw the dilution of some medieval field patterns. The landscape is very rural, although has been impacted in places by the presence of major transport routes and nearby large urban areas.

Landscape Guidance

The following points provide guidance for landscape management and built development within the LCT:

- Avoid development (both buildings and other structures) on steep slopes or in visually prominent locations.
- Protect the overall wooded character of the area through appropriate management of the areas of deciduous woodland (including ancient woodland) and mature in-field and hedgerow trees.
- Retain historic field patterns and restore the hedgerows and walls forming field and estate boundaries where they have been lost, degraded or replaced with fences. Conserve the existing hedgerow network which provides valued linkages between other habitats.
- Protect and manage the valued wetland habitats of the meres and mosses for the benefit of flood alleviation, biodiversity and recreation purposes. Management of adjacent agricultural land should aim to reduce nutrient run off to these habitats.
- Unimproved grassland and remnant heathland habitats are conserved and enhanced, with new linkages between habitats created where possible.
- Conserve the historic integrity of the designed landscapes and their component heritage features. Promote interpretation of these features where this would not be at odds with conservation of these assets.
- Protect and appropriately manage the cultural heritage of the area, including nationally important Scheduled Monuments to preserve a sense of history. Promote interpretation of these features where this would not be at odds with conservation of these assets.
- Retain the character of the narrow rural lanes and avoid the over-engineering of roads which could create an urbanising influence within the strongly rural landscape.
- Ensure new and changing land uses do not degrade from the traditional rural character of the area.
- Retain the sense of enclosure and high levels of tranquillity with the landscape and screen the visual and audible effects of existing and new intrusive features within the landscape where possible/appropriate.

LCA 7a: Arley Character area (Including Park Moss, Holford Moss & Plumley Lime Beds)

Arley is a low rolling character area. It extends from the northern county boundary south to the gas storage fields at Holford Moss. To the east lies the Estate Woodland and Mere types of Tatton and Tabley and to the west is the East Lowland Plain. This is a medium to large scale landscape with obvious and strong contrasts in landscape character arising from a significant variation in the distribution of hedgerow trees. There is a very localised concentration of woodland, broadleaved and mixed, including a small element of ancient woodland, north of Pickmere Parish. Although in many parts the field system remains intact there are signs of hedgerow decline across large parts of this character area. Where more intensive arable farming is practiced there are conspicuous lines of isolated oaks and post and wire fences. Where woodland is present it can appear as a solid block within this expansive and open landscape. Elsewhere there are sufficient hedgerow trees to filter views across the landscape. Fields are largely post-medieval in date and reflect improvements at this time. Boundaries consist of a mix of patchy hawthorn hedges with standard trees and fences. Horsiculture has also made an impact on this area e.g. modern fenced horse paddocks. Fundamentally this is a rural character area, with a network of minor roads and settlement. However, the M6 bisects the centre of the landscape and the M56 cuts across the northern portion. The visual impact increases locally where

the motorway is raised upon embankment or where over-bridges allow a number of minor roads to cross over the motorway.

Natural Area

Natural Areas as defined by English Nature (now Natural England) in 1996 are a series of biogeographical units reflecting ecological integrity, landform, land-use and cultural influences. Their boundaries usually correspond to those of the Landscape Character Areas although they normally encompass multiple LCAs as they are generally larger.

Pickmere, along with most of Cheshire, the northern half of Shropshire and part of northwest Staffordshire sit within the Meres and Mosses Natural Area. This is an expansive area of gently rolling agricultural plain which at the end of the last ice age was largely underwater. Although the vast area of water eventually drained away it left behind a wetland landscape of meres, mosses, meandering rivers and ponds. This landscape is recognised as being of international importance for its wetland wildlife.

National and Regional Ecological Network

Habitat Network Mapping

Natural England's 'Nature Networks Handbook' is an integrated framework for creating ecological networks for wildlife and people. It aims to provide practical recommendations that support the delivery of the Biodiversity 2020 Strategy, the Natural England Conservation Strategy (C21) & the DEFRA 25 Year Environment Plan. The National Habitat Network Mapping Project is a spatial tool developed as part of the Handbook. It provides a national overview of the distribution of habitat networks for the following 19 separate priority habitats:

- Upland calcareous grassland
- Lowland calcareous grassland
- Reed-beds
- Lowland meadows
- Upland hay meadows
- Purple moor-grass and rush pastures
- Lowland dry acid grassland
- Lowland heathland
- Upland heathland
- Upland flushes fens & swamps
- Lowland fens
- Lowland raised bog
- Blanket bog
- Limestone pavements
- Coastal sand-dunes
- Coastal shingle
- Maritime cliff & slope
- Saltmarsh
- Semi-natural Ancient Woodland

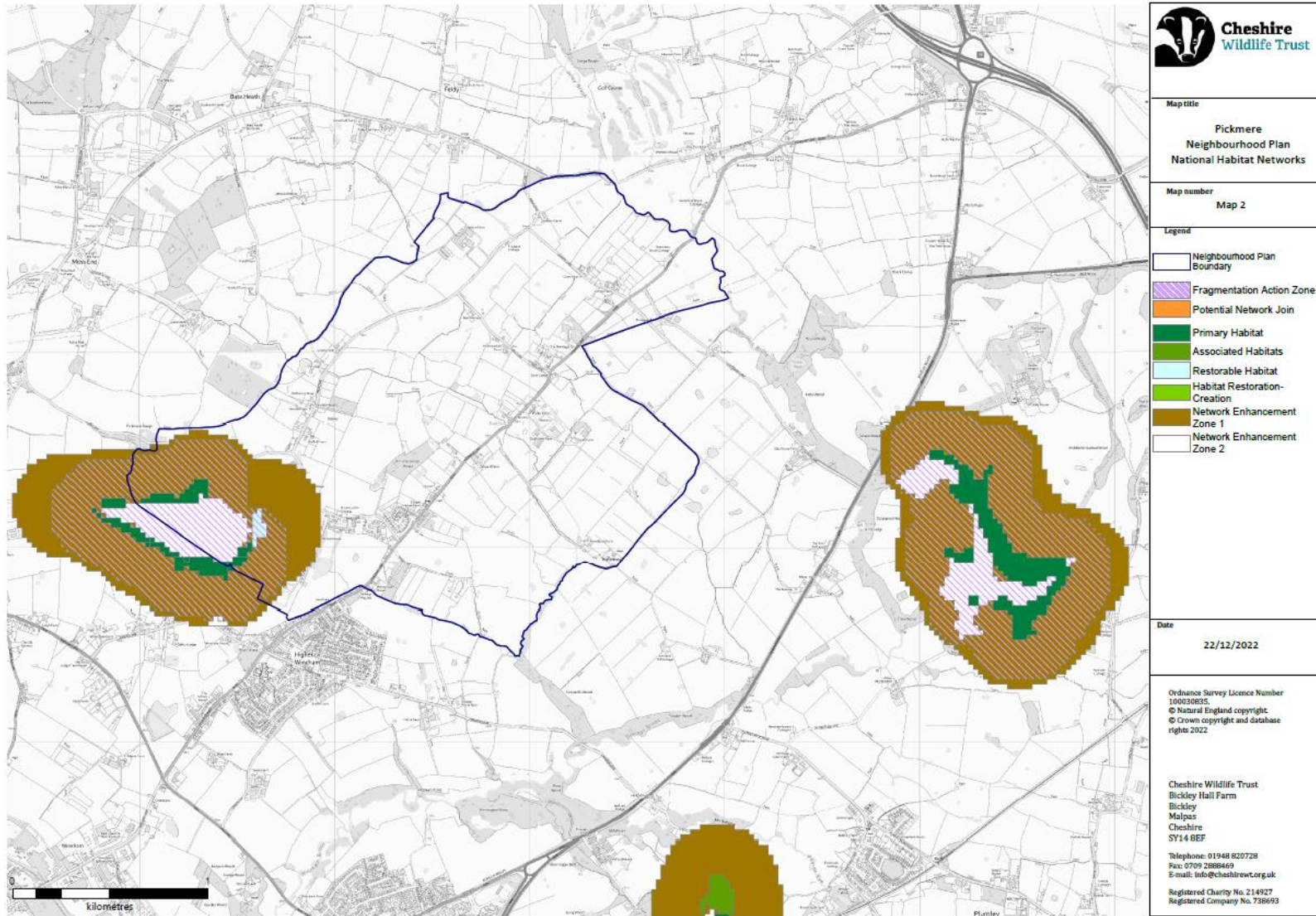
The Key components of the National Habitat Network map are:

- **Primary Habitat** – Existing patches of priority habitat for each habitat network e.g. lowland heathland;
- **Associated Habitats** – Other habitat types that form a mosaic or an ecologically coherent grouping;
- **Habitat Created-Restored** – Habitat where restoration or creation of new habitat is underway;
- **Restorable Habitat** – Habitats that are currently degraded but have the potential to be restored;
- **Network Enhancement Zones** – These are areas that should be prioritised for actions to buffer priority habitat/habitat networks;
- **Fragmentation Action Zone** – Smaller fragmented areas of habitat that have the potential to be enlarged or joined with other habitat patches, and;
- **Potential Network Joins** - Potential locations for action to create network links.

The maps are intended for use at a national level and to feed into the development of ecological networks at a local level. They should be used in conjunction with other data sets and local knowledge to help improve the ecological resilience of habitats and habitat networks. The National Habitat Network in the vicinity of Pickmere is shown in Map 2.

In 2023 Natural England are due to roll out Local Nature Recovery Strategies which, once completed, should inform a national Nature Recovery Network. Until then, the 'Nature Networks Handbook' is the preferred methodology at scales above the local level.

Map 2 – National Habitat Network



National Habitat Network Mapping has highlighted Pickmere and the surrounding area as being part of the National Habitat Network. The waterbody of Pickmere has been identified as Enhancement Zone 2. The lowland dry acid grassland and lowland fen priority habitats immediately surrounding the waterbody (map 3) are labelled as Primary Habitat, with the deciduous woodland and wider area in Enhancement Zone 1. A non-priority area of lowland dry acid grassland to the east of Pickmere has been identified as restorable habitat. Most of this national network region has also been identified as Fragmentation Action Zone, with the exception of the urban settlements to the east of Pickmere.

The Primary and Restorable habitats described above are buffered by Network Enhancement Zones and Fragmentation Action Zones; where opportunities to enhance the habitat network should be prioritised. This could be through the restoration of degraded habitat or through the expansion of existing habitat.

Ecological Network for Cheshire East 2018

As part of the Cheshire East Site Allocations and Development Policies Document (December 2022), which contains detailed policies to protect and enhance the natural environment, a map of the ecological network within the borough has been produced (Figure 2).

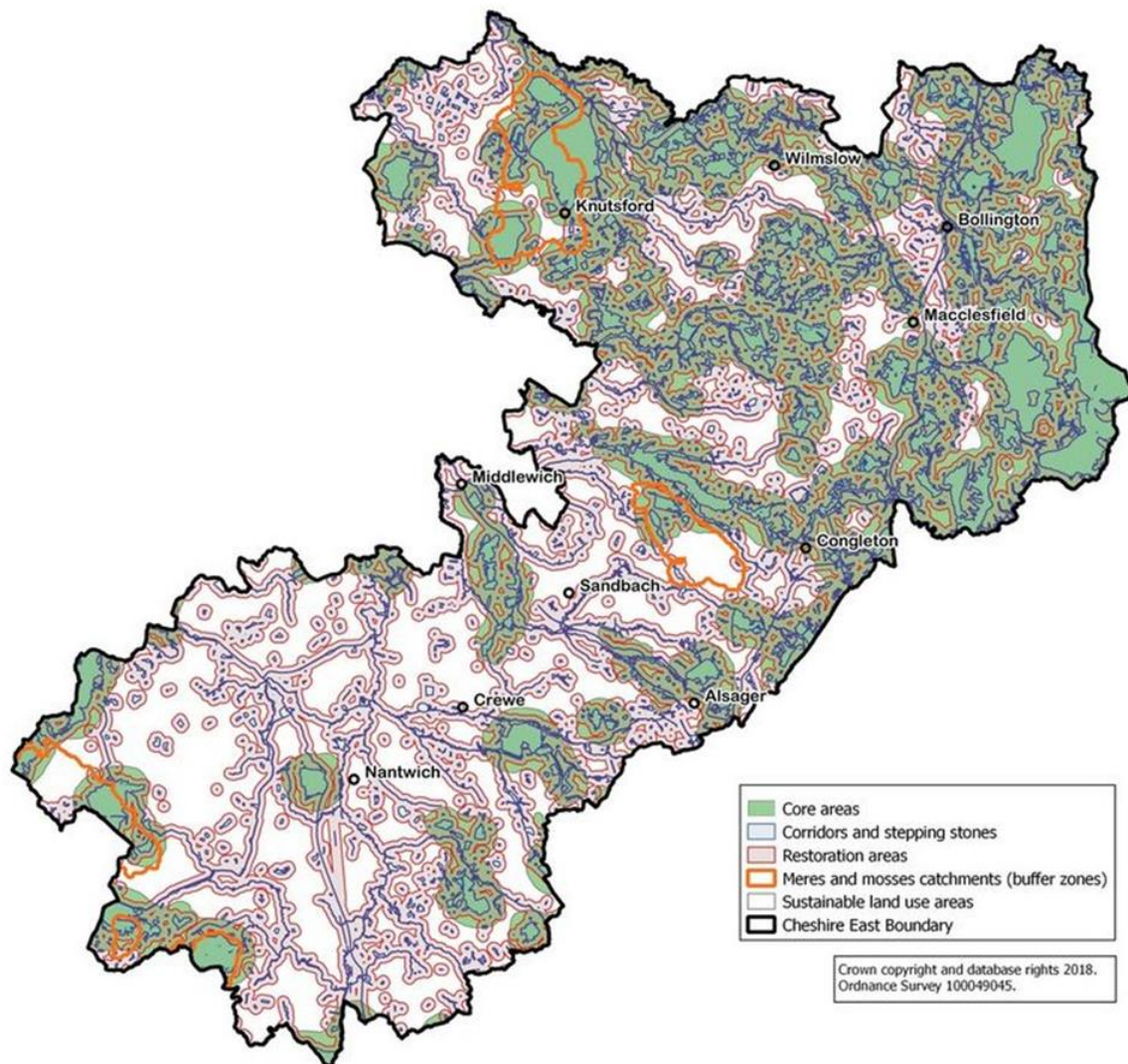


Figure 2. Ecological Network for Cheshire East 2018

The ecological network is associated with SADPD Policy ENV 1 and incorporates existing protected sites and priority habitats and identifies areas to restore and buffer the network. The Council aims for the ecological network to assist in the provision of nature conservation and ecosystem services that are essential for sustainable development, including water management, carbon capture and access to nature with associated recreational and health benefits. It is not intended to restrict development or growth but instead should be used as a tool to guide development and inform the strategic delivery of biodiversity net-gain.

In line with the existing Local Plan (Part One) new development will be expected to protect, conserve, restore and enhance the components of the ecological network for the borough. The existing designated sites (statutory and non-statutory) and priority habitats are essential components of the network and need to be protected and conserved. The purpose of the SADPD Policy ENV 1 (Ecological Network) is to ensure that; where development occurs in any area that is strategically important for biodiversity, the habitat creation delivered by these developments is done so in a strategic manner, maximising the benefits to enhancing a resilient ecological network within the Borough. As specified in the forthcoming Cheshire East Biodiversity Net Gain Supplementary Planning Document (May 2021); the Ecological Network Map associated with Policy ENV 1 should also be used to inform the strategic significance of habitat creation when delivering biodiversity net-gain using the DEFRA metric.

Outside the planning system the ecological network is intended to inform land management, investment decisions and priorities such as agri-environment schemes, river catchment partnership plans and NGO (non-government organisation) landscape scale initiatives. The Cheshire East Ecological Network identifies a broad system across the whole borough, whereas the wildlife corridors identified in this report (Map 10a) are more specific to ecological networks that are important for conserving and enhancing biodiversity at a local scale.

Natural Course Ecological Network Tool 2020

Natural Course, an EU funded LIFE Integrated Project, is a collaboration of public, private and third sector organisations working together to help to deliver improvements to rivers and the water environment across North West England. The project seeks to better understand and overcome some of the biggest barriers preventing the achievement of 'good ecological status' under the EU Water Framework Directive in the North West River Basin District.

As part of Natural Course, Natural England has created an ecological network tool that models wetland and woodland habitat networks across Cheshire and South Lancashire. The tool highlights priorities for biodiversity and nature-based solutions for Natural Course objectives in order to protect and enhance water quality across the North West. The tool also provides a robust evidence base for Local Nature Recovery Strategies, mandated in the Environment Act (2021) and rolled out in 2023.

The primary wetland and woodland habitats and their associated action zones (i.e. where opportunities exist to create, buffer or expand these habitats) within the Pickmere Neighbourhood Plan Area, as modelled by the Natural Course Ecological Network Tool, are shown in Figure 3. Supporting information on the Wetland and Woodland Habitat Categories for the Network Tool can be found in Appendix 1.

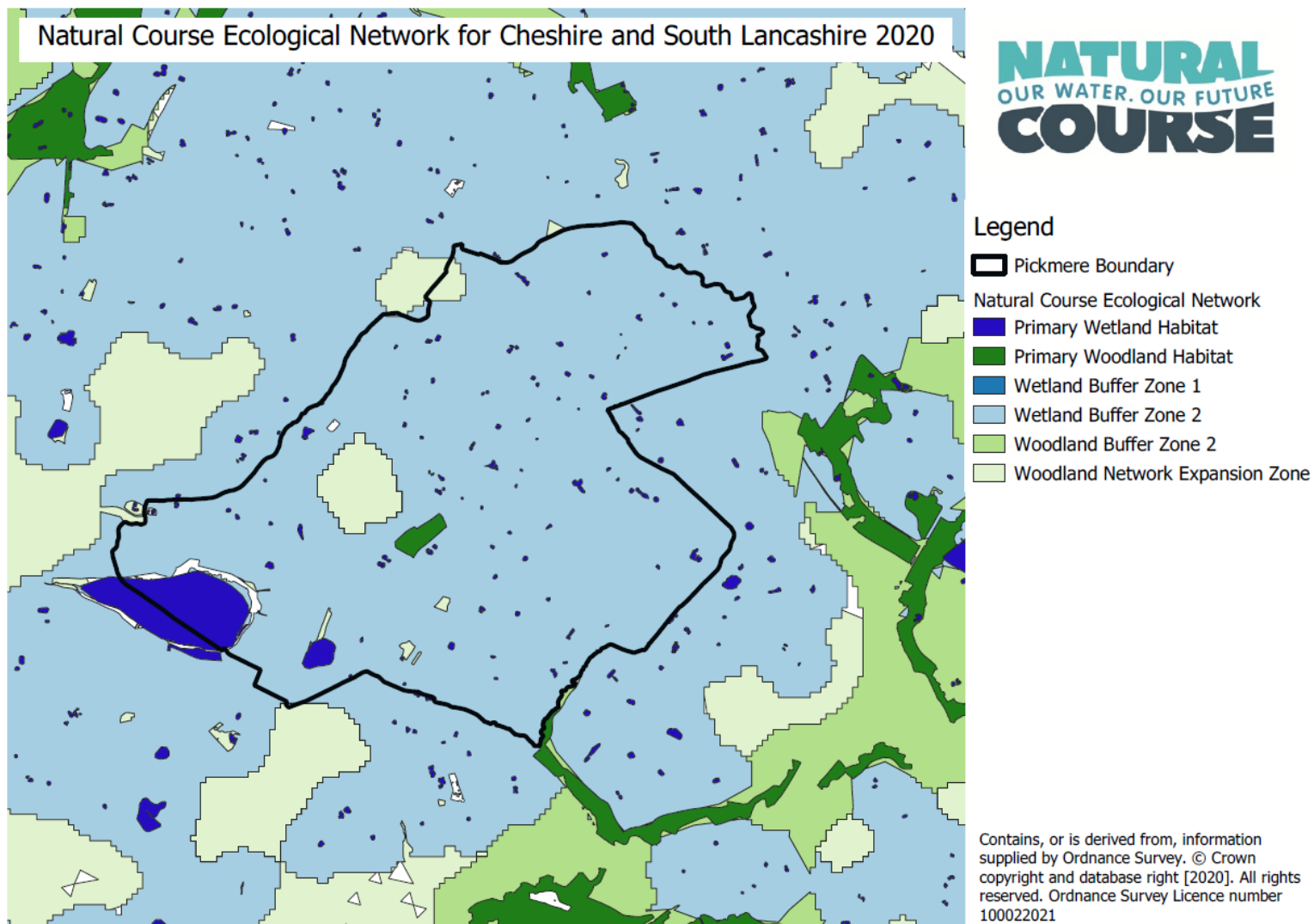


Figure 3. Natural Course Wetland and Woodland Habitat Network

Local Habitat Distinctiveness and Wildlife Corridor Network

Methodology

The local ecological network mapping relates directly to habitat distinctiveness; the central component of biodiversity quality used by DEFRA to determine biodiversity net-gain. Habitat distinctiveness is based on an assessment of the distinguishing features of a habitat or linear feature, including the consideration of species richness, rarity (at local, regional, national and international scales), and the degree to which a habitat supports species rarely found in other habitats. The distinctiveness band of each habitat is preassigned by DEFRA and the bands are based upon the UK habitat classification system. A combination of simple rules and expert judgement have been used to assign each habitat type to the appropriate distinctiveness band. While DEFRA uses five bands of distinctiveness (very high, high, medium, low and very low), for the purposes of this exercise the very high and high distinctiveness bands have been merged to leave only four bands.

Habitat data from the sources listed below was attributed to one of the four distinctiveness categories listed in Table 1 below:

Table 1. Habitat type bands (Defra July 2019)

Habitat Type Band	Habitat Distinctiveness	Broad Habitat Type	Colour on Map
Very high or high ecological value	Very High or high	<ul style="list-style-type: none"> Designated nature conservation sites (statutory and non-statutory); Endangered or critical European red list habitats; Priority habitat (with the exception of arable field margins) as defined in Section 41 of the NERC Act, and; 'Rare' habitats in the UK with a high proportion unprotected by designation. 	Red
Medium ecological value	Medium	<ul style="list-style-type: none"> Arable field margin priority habitat; Non-priority habitats with significant wildlife benefit; Semi-natural habitats and habitats with the potential to be restored to priority quality, and; Field ponds. 	Orange
Low ecological value	Low	Agricultural and Urban land use of lower biodiversity value but may still form an important part of local ecological network	n/a
Very low ecological value	Very Low	Urban land use with artificial structures which are un-vegetated, sealed/unsealed surface or built linear features of very low biodiversity value.	n/a

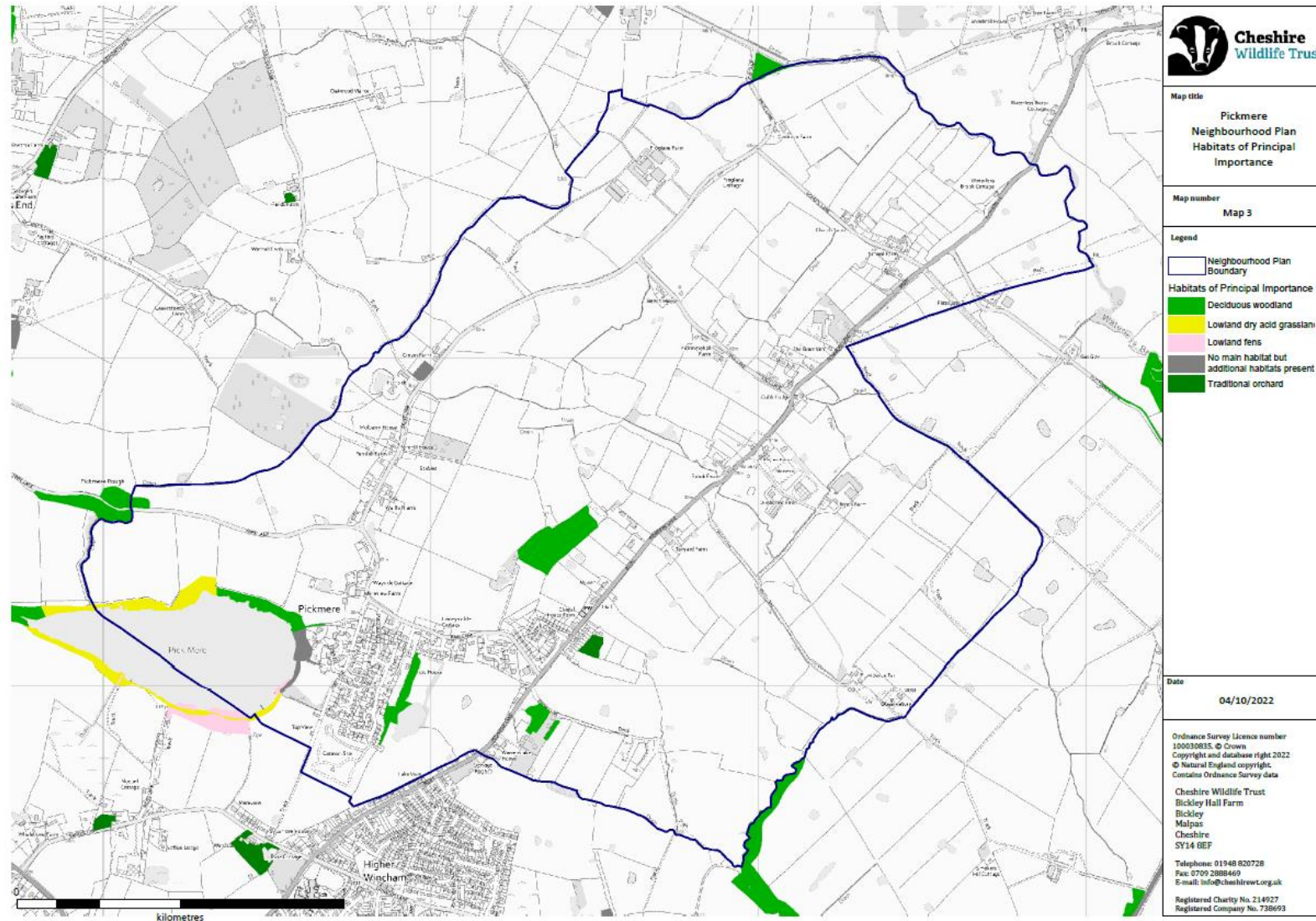
Data sources used to produce the habitat distinctiveness maps included:

1. Several licensed and open data sets:
 - a. Priority Habitat Inventory (PHI) – Natural England 2019 (last updated 9 December 2022) – High and medium confidence habitats (as defined on the PHI by NE) were classified as high distinctiveness. Low confidence habitats were classified as medium distinctiveness unless other supporting data was available.
 - b. Land Cover Map (LCM2019) – Centre for Ecology and Hydrology 2019. Priority habitats (principal importance) and semi-natural habitats classified as medium distinctiveness (data included in Appendix 2).
 - c. Agricultural Land Classification (ALC) – Natural England 2017 (last updated 19 February 2019) – Grade 4 classified as medium distinctiveness, Grade 5 classified as high distinctiveness (adjusted where other supporting data was available).
 - d. Designated Sites of Nature Conservation (including International Sites, Sites of Special Scientific Interest, Local Wildlife Sites/Sites of Biological Importance and Local Nature Reserves) – Natural England and CWT/CE Local Authority were classified as high distinctiveness.
 - e. Ancient woodlands – Natural England 2019 (last updated 20 November 2022) – classified as high distinctiveness.
 - f. Meres and mosses and other peat soils – Meres and Mosses Landscape Partnership scheme 2016 – Functional Ecological Units, river valley peat and destroyed (historical) peat classified as medium distinctiveness (supporting information included in Appendix 3).
 - g. Cheshire Tithe Maps Online – Using maps from Cheshire Archives looking for woodlands that could be potential Ancient Woodlands due to presence over a long period of time but haven't been formally identified. Classed as medium distinctiveness.
2. Open source aerial imagery (Microsoft Bing™ Imagery and Google Earth) was used to validate and review the habitats by eye.
3. The Pickmere Land Character Assessment and Natural England's National Habitat Network categories were mapped, and the results were used to inform the conclusions.
4. Information from recent planning applications in Pickmere were researched and species records have been incorporated where appropriate. Ecological records were also obtained (where available) from, the National Biodiversity Network (NBN) Atlas and the Woodland Trust's Ancient Tree Inventory.

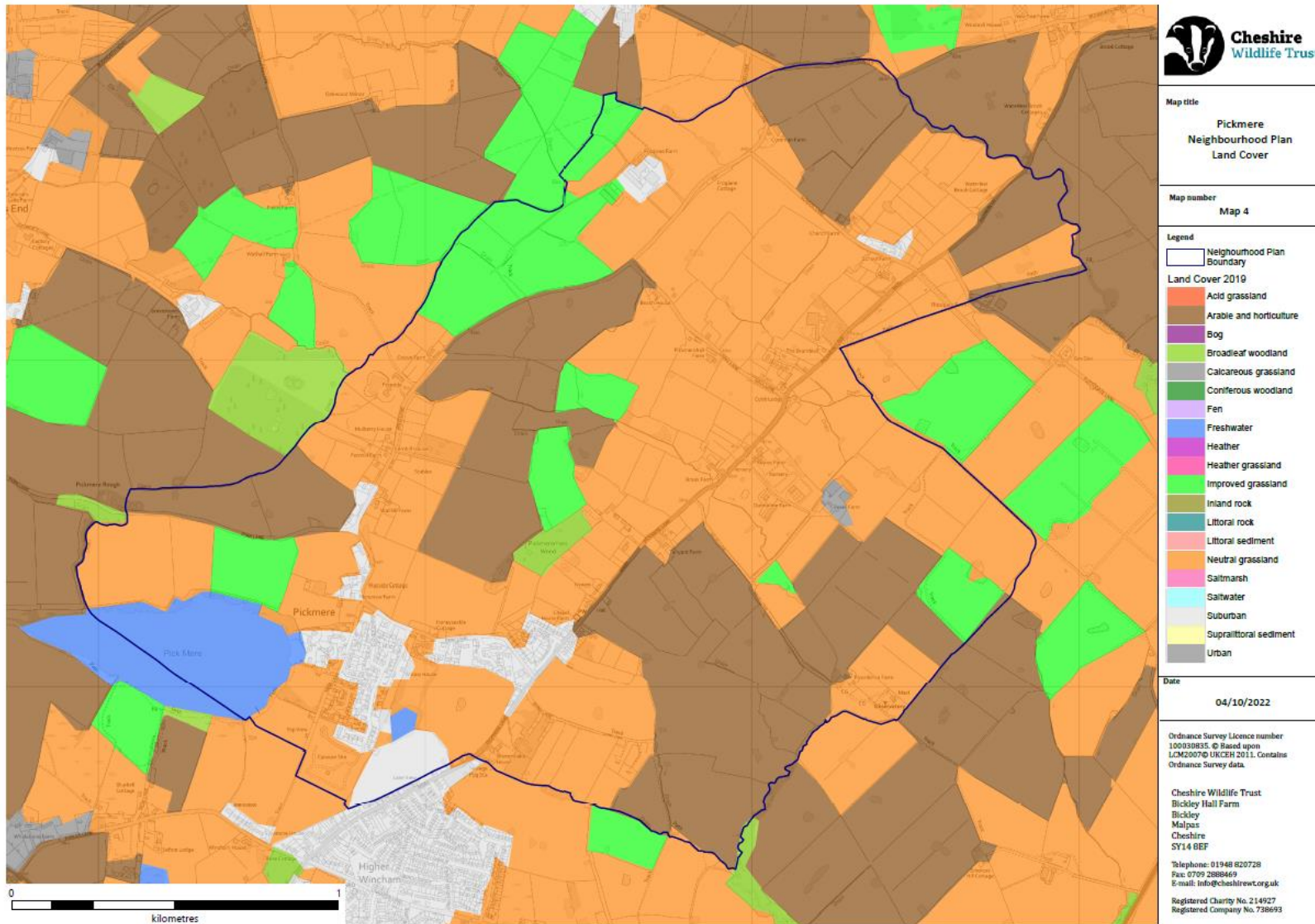
Maps

The suite of maps produced during the local ecological network mapping exercise are included below.

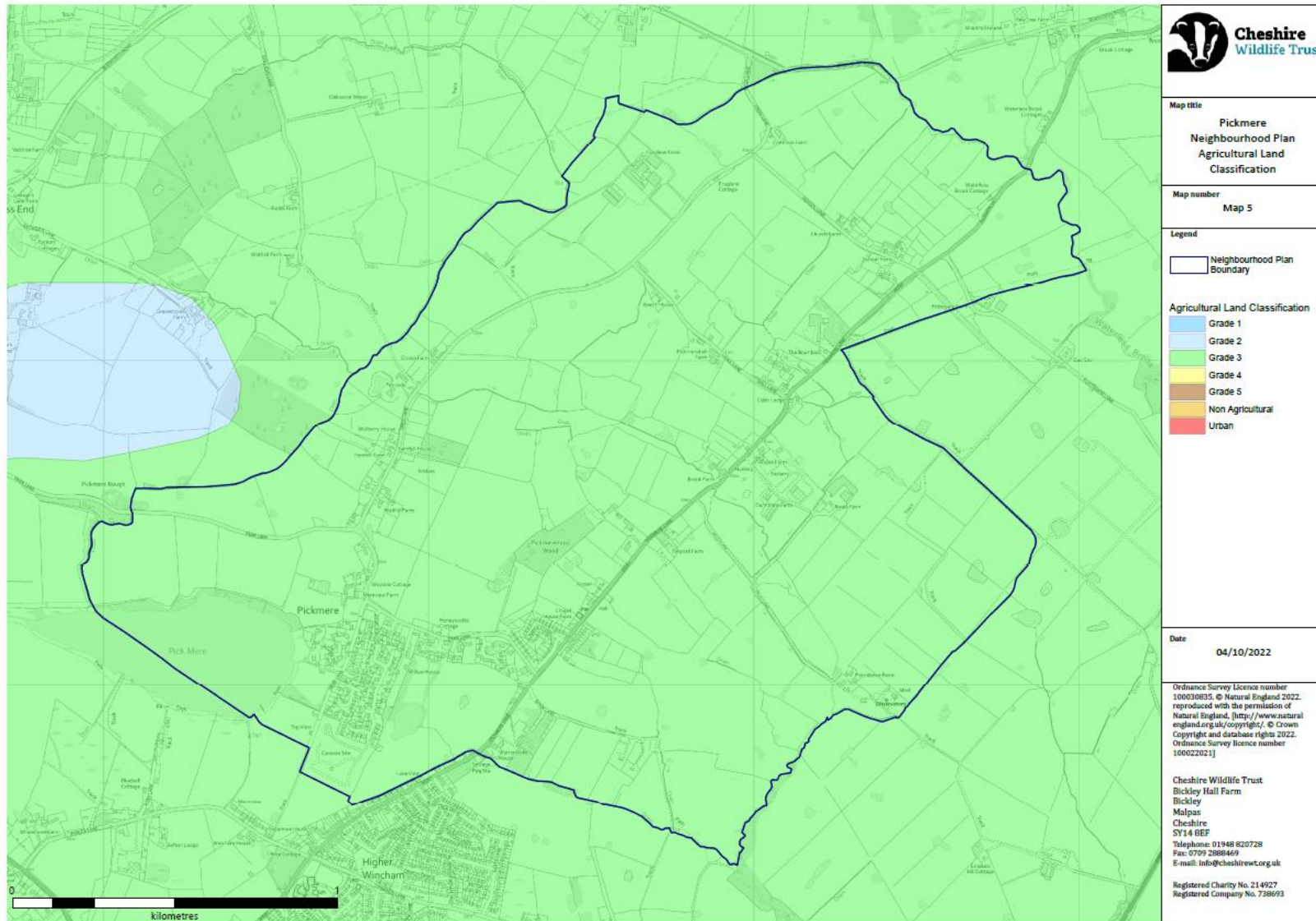
Map 3 – Terrestrial Habitats of Principal Importance



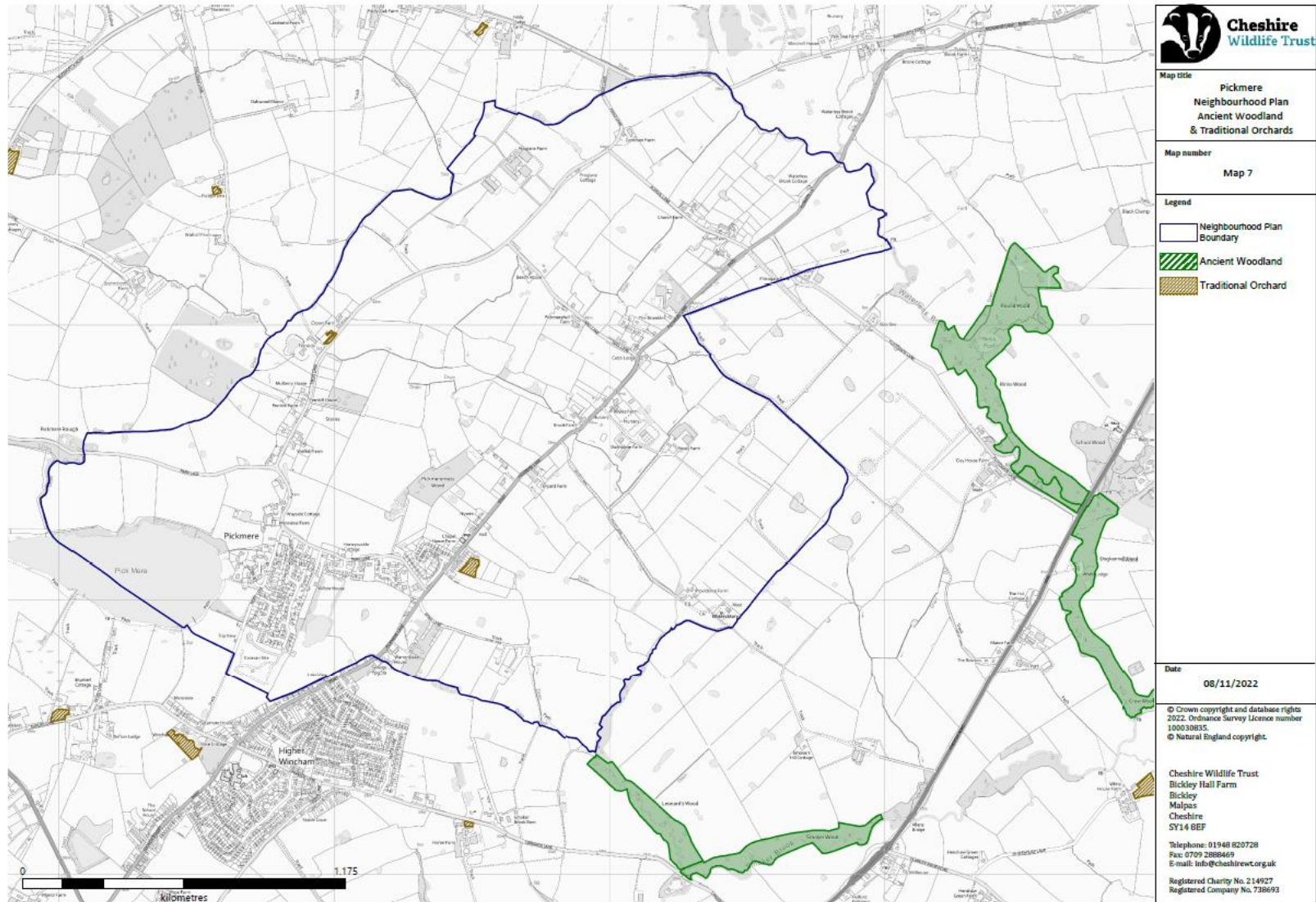
Map 4 – Land Cover (2019)



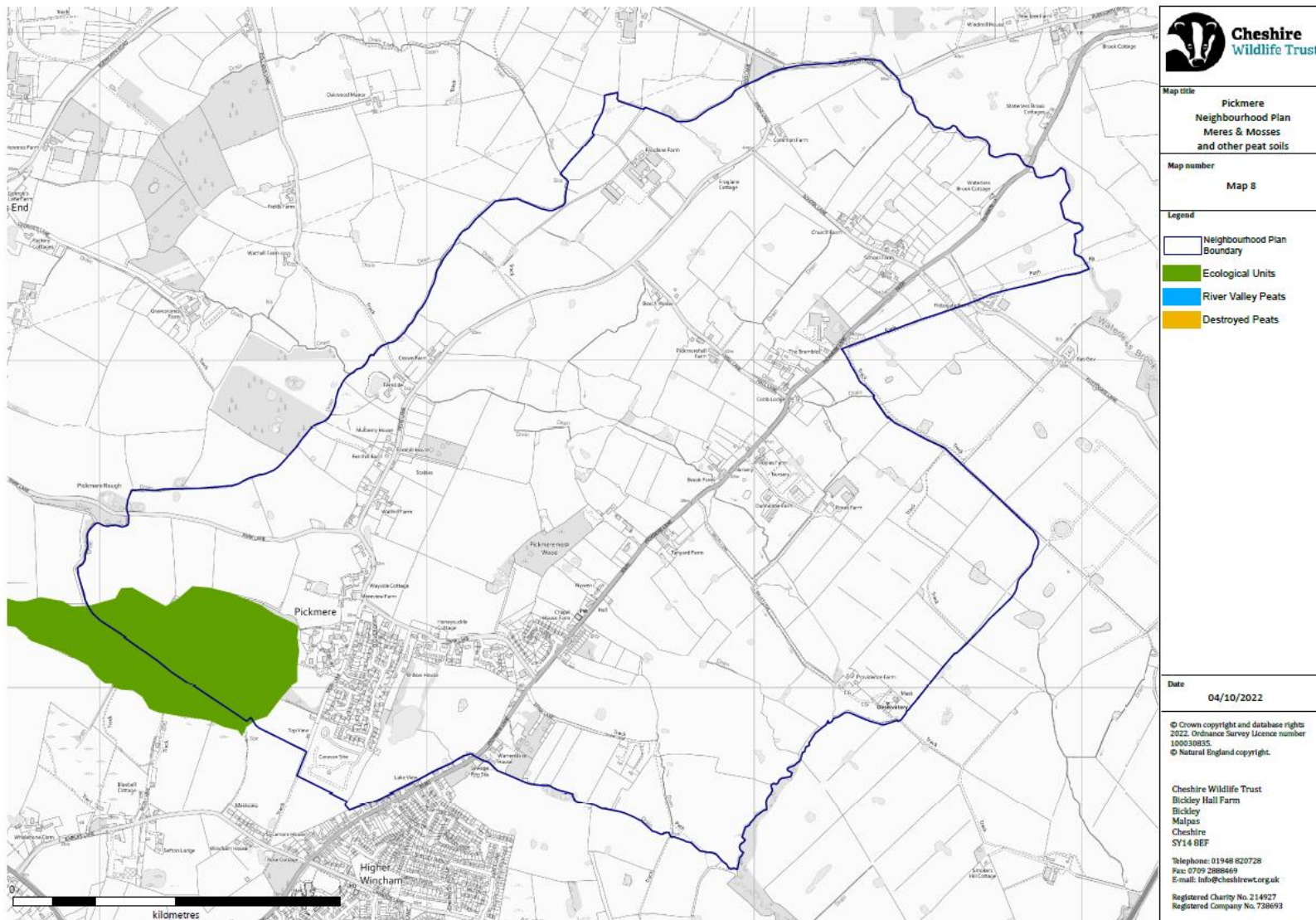
Map 5 – Agricultural Land Classification



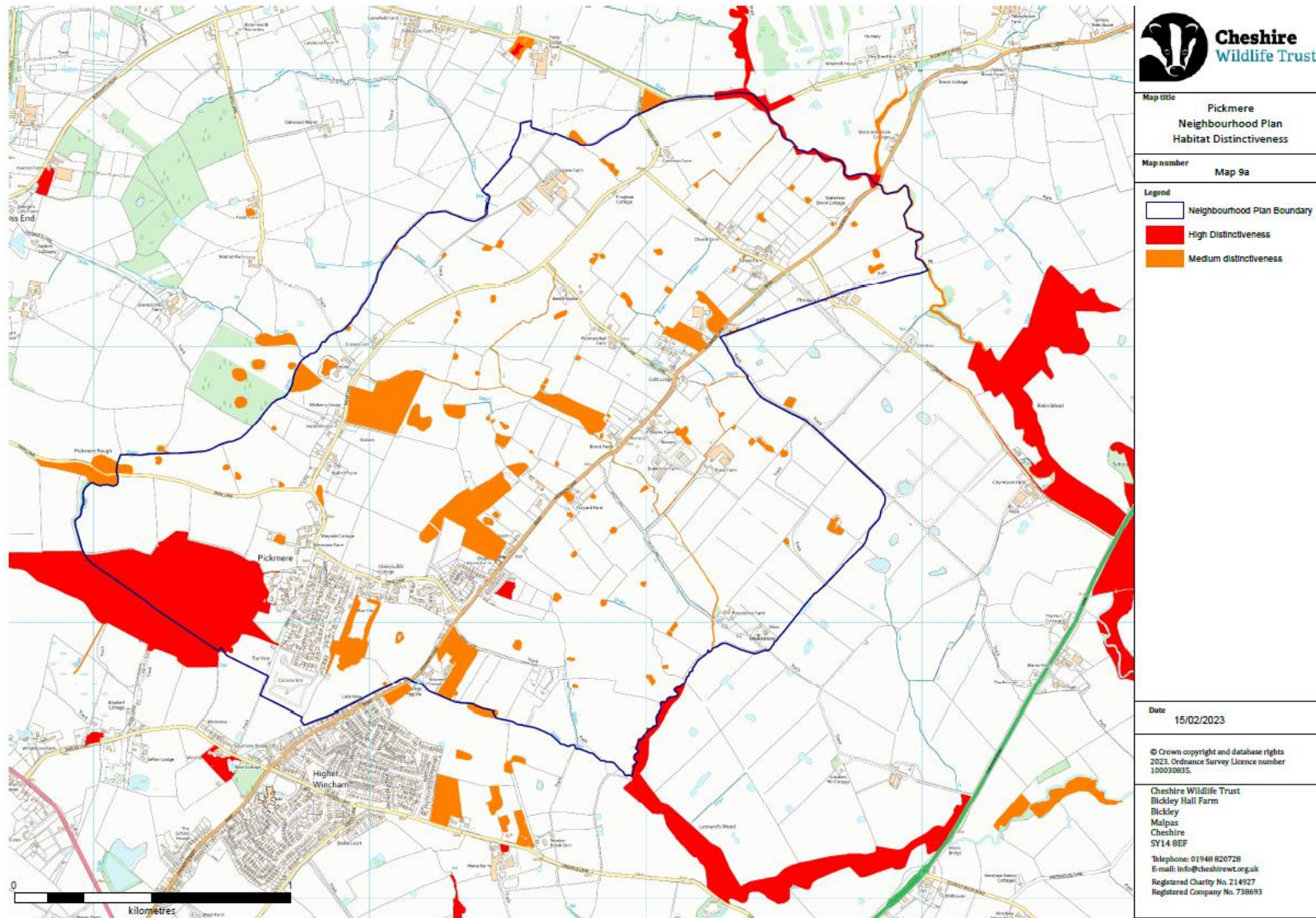
Map 7 – Ancient Woodland and Traditional Orchards



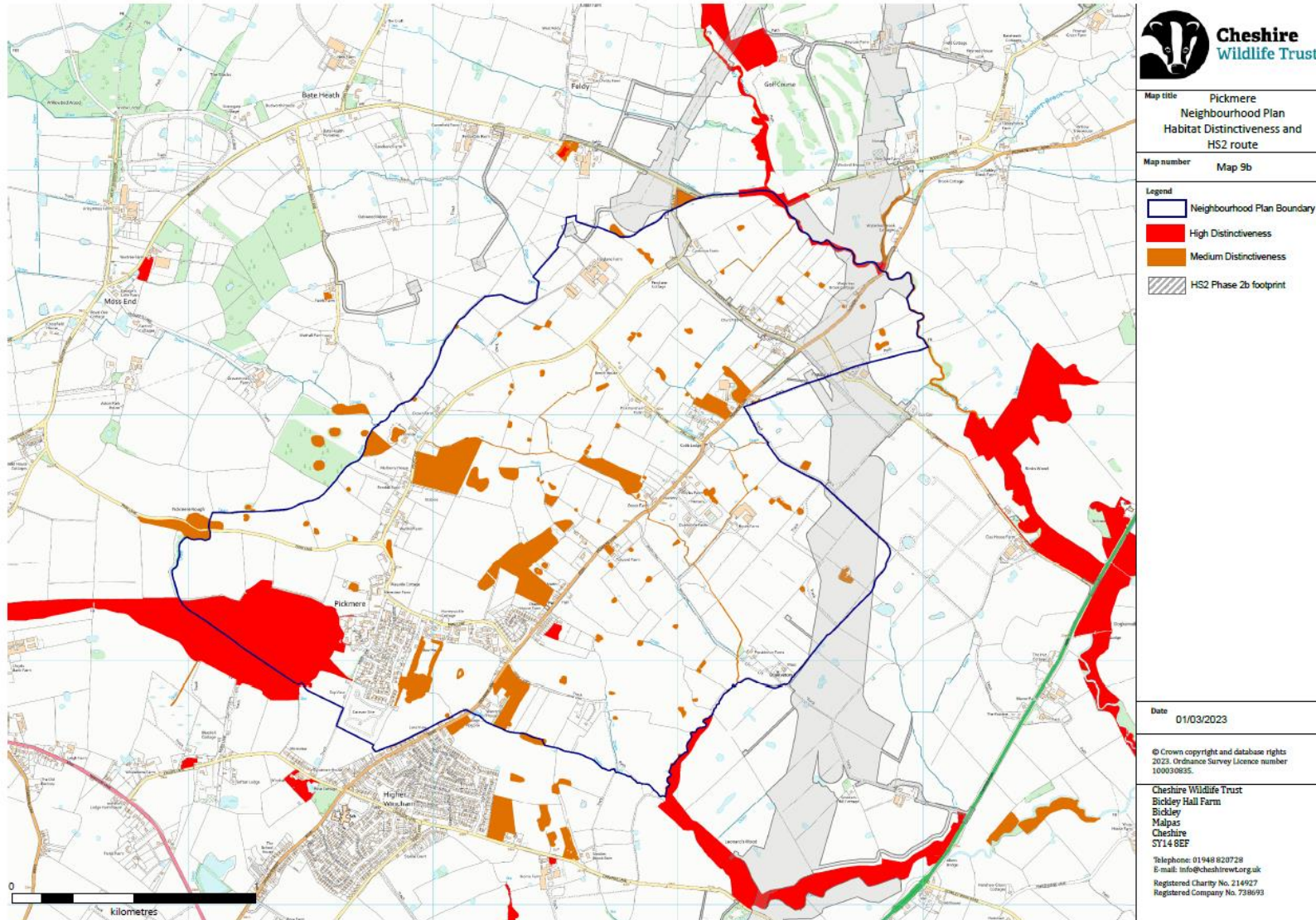
Map 8 – Meres, Mosses and Other Peat Soils



Map 9a – Habitat Distinctiveness

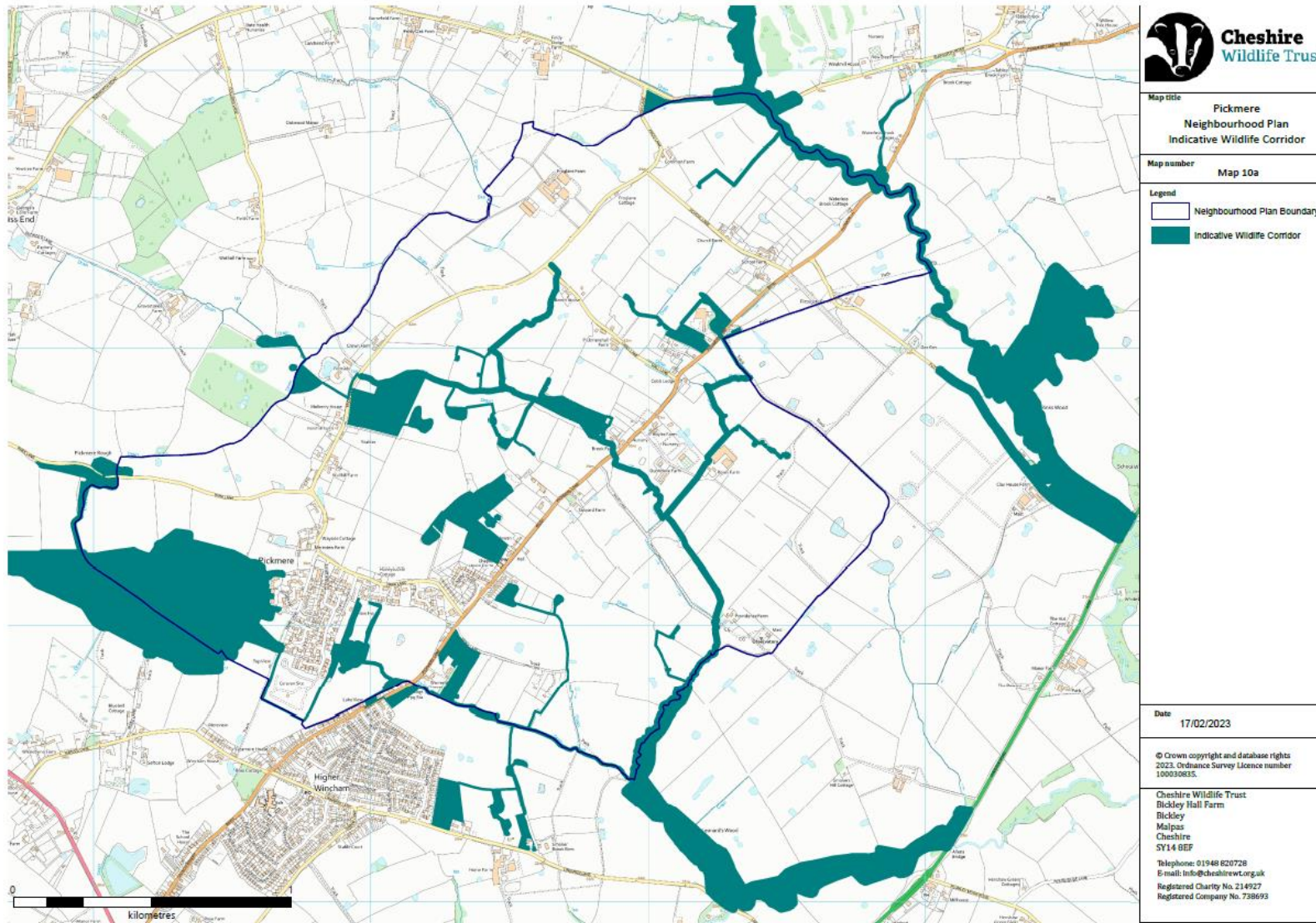


Map 9b – Habitat Distinctiveness and HS2

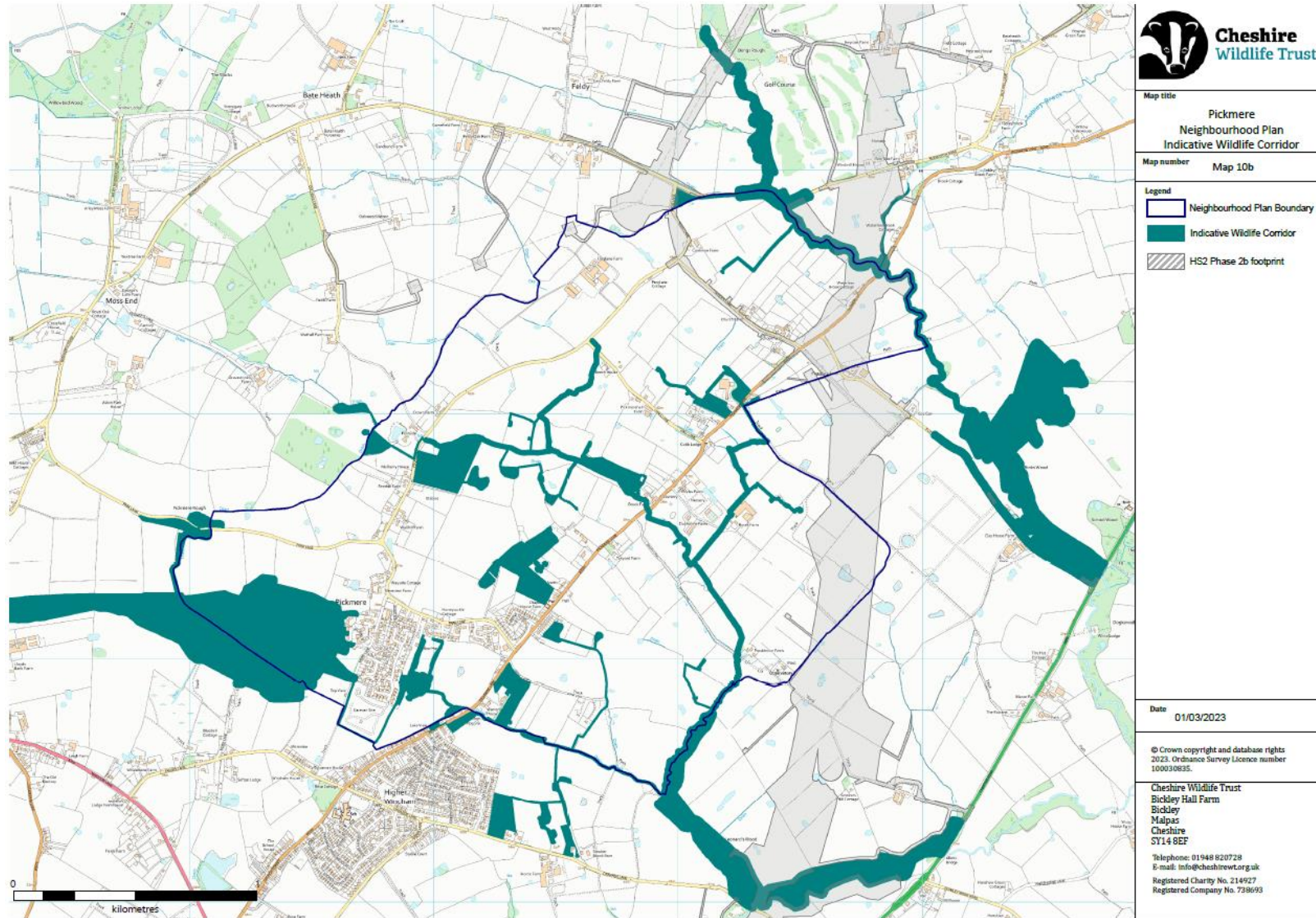


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Map 10a – Indicative Wildlife Corridors



Map 10b – Indicative Wildlife Corridors and HS2



Results & Discussion

High Distinctiveness Habitats

Areas of high distinctiveness habitat are shown on Map 9a – Habitat Distinctiveness (mapped in red). These are natural or semi-natural habitats which are of significant or critical importance to wildlife due to their high biodiversity and ecological value. They should be a priority for conservation and appropriately managed in order to maintain or enhance their ecological features. Habitats of high distinctiveness within the Pickmere Neighbourhood Planning area are discussed in detail below.

Woodland

Arley and Waterless Brook Corridor LWS runs from Pickmere Lane through farmland northwest to Waterless Bridge at Budworth Road, then continues north along the western boundary of Heyrose Golf Course. The banks of Arley Brook support more or less continuous canopy cover of semi-natural deciduous woodland throughout the LWS, forming a wildlife corridor suitable for the movement of species through the surrounding managed landscape. Canopy species include frequent alder and crack willow with oak, ash and sycamore. Grey willow forms patches of carr and woodland understorey species of hawthorn, elder and hazel are also present. Three veteran crack willow trees are found within the site. A ground flora including class 2 ancient woodland indicator species dog's mercury and wood speedwell is present. Ground flora also includes enchanter's-nightshade, wood avens, red campion, ground-ivy and locally dominant Himalayan balsam. Standing deadwood is present within the woodland with regrowth of native tree species.

Leonards and Smokers Wood LWS, on the south-eastern boundary of the parish, comprises of two narrow connected woodlands following the course of two brooks which eventually converge. The woodlands vary in structure and composition throughout but generally contain a mixture of broadleaf and coniferous species as a consequence of previous woodland management regimes. Pedunculate oak and sycamore are constant throughout, with planted specimens including Corsican Pine, Scots Pine and Poplar species. There are several veteran oak and ash trees present, with ash trees on the northern and western boundaries having girths of 4 metres.

The ground flora is generally indicative of ancient woodland, with large areas of Bluebell and Ramsons. Class 1 and 2 ancient woodland indicators are present such as ramsons, hairy woodrush, small-leaved lime and wood speedwell. In the wetter areas adjacent to the brooks the species included: alder, willow, lesser celandine, marsh marigold, yellow flag iris and opposite-leaved golden saxifrage.

The proposed HS2 phase 2b footprint affects both woodland LWS (map 9b), running through Arless and Waterless Corridor LWS in two places at both the north and south end with a significant portion of the south end being within the footprint. The footprint also runs through the middle of Leonards and Smokers Wood, although only a small area is directly affected, the footprint buffers the eastern half of the LWS to both the north and south.

Grassland

Within Arley and Waterless Brook LWS, to the north of waterless bridge, an area of marshy grassland contains meadowsweet, greater bird's-foot-trefoil and wild angelica. While in the north, lying just

outside the parish boundary, a small area of good quality semi-improved grassland with common knapweed, greater bird's-foot-trefoil, tormentil, creeping cinquefoil and common sorrel.

Acid grasslands are a rare habitat with very little found in Cheshire East, the majority of which is on the edge of the Peak District. Lowland dry acid grassland is a nutrient poor habitat, which restricts opportunities for its occurrence within intensely farmed landscapes, containing species such as heath bedstraw, sheep's-fescue, wavy hairgrass and tormentil. This habitat supports invertebrates that are specific to acid grasslands such as solitary bees, and many Birds of Conservation Concern (BoCC) are known to use them including Nightjar, Merlin and Skylark. Pickmere LWS is surrounded by an area of lowland dry acid grassland (map 3), and it is likely used for by Skylark as there are records of the species in the west of Pickmere parish¹.

Wetlands

Pickmere LWS is an open mere that supports reedbeds with abundant common reed around much of its margins and wet deciduous woodland/willow scrub along the banks, particularly along the northern edge. Other emergent wetland species include Reed Canary-grass, Brooklime and Yellow Iris. Woodland around the mere banks includes Willow and Alder. The mere is used by motorboats over the summer months. Beyond the eastern margin, public access around the mere is restricted to the public and permissive paths, therefore the woodland and reedbed marginal habitats around most of the mere are likely to remain relatively undisturbed. Non-native Himalayan balsam is present at the eastern end of the mere. A large number of bird species use this site for wintering and breeding, including Moorhen, Reed Bunting and Teal¹.

The wetland habitats at Pickmere, open water, fen and acid grassland, provides suitable habitat for a range of species such as Reed Bunting, Sedge Warbler, Lapwing and a number of dragonfly and damselfly species including Migrant Hawker, Blue-tailed Damselfly and Common Darter, all of which are present in the surrounding area¹.

Watercourses

Arley Brook is freely meandering with some of the bank having fallen away and an oxbow having been formed in the north of the site. The river has also changed its course to the south resulting in a small oxbow. This provides a highly valuable connection between habitats for birds such as Goldeneye and Willow Warbler, dragonfly species and small mammals including bank vole and water shrew.

Traditional Orchard

Traditional orchards are a quintessential component of the historic English landscape. Orchards are becoming increasingly rare due to neglect, the intensification of agriculture and increasing pressure from development. These habitats provide excellent conditions for biodiversity to thrive and can support assemblages of rare species. One traditional orchard was identified within the Pickmere study area on Map 7 and is mapped as a potential LWS (pLWS)².

¹ NBN Atlas

² pLWS are sites that are highly likely to be selected as Local Wildlife Sites but have not yet been formally surveyed against the selection criteria

Medium Distinctiveness Habitats

Woodland

There are several small woodland pockets throughout Pickmere and they are concentrated in the south of the parish, some of which are low confidence priority woodlands. The largest area of medium distinctiveness woodland, Pickmeremoss Wood, is shown as a plantation woodland on the Cheshire Tithe maps so is likely to be older than the surrounding woodland. Although both the high and medium distinctiveness woodlands across the parish are small in size, they provide habitat for bat species such as Soprano pipistrelle, and birds including Great Spotted Woodpecker, Wren and Long-tailed Tit².

Grassland

There are several parcels of semi-natural grassland scattered throughout the parish that have been identified from aerial photography. Predominantly located in the centre, these areas potentially provide the largest area of good quality habitat outside of Pickmere's LWS's. Species including Lapwing and Starling, both red listed BoCC, which are important farmland birds have been recorded in the parish³ and support the inclusion of these areas as medium distinctiveness habitats, where they use open grasslands for feeding and breeding.

Species-rich grasslands are the fastest disappearing semi-natural habitat in the UK. Areas of species-rich grassland will support populations of declining pollinators including moths, specialist grassland butterflies and solitary bees and hoverflies. Additionally, where species-rich grasslands are located close to waterbodies, dragonflies and damselflies are likely to be present as these feed on other invertebrates but also require waterbodies to breed.

Field Ponds, Drains, Scrapes and Watercourses

Fields ponds, drains, scrapes and watercourses contribute to the permeability of the landscape for wildlife. They are essential for the survival of aquatic invertebrates, riparian mammals and provide breeding habitat for amphibians including protected species such as the great crested newt. Larger waterbodies are likely to be valuable for both breeding and overwintering birds as well as foraging bats. Where ponds are stocked with high numbers of fish the wildlife value is decreased. This is because introduced fish (such as bottom feeding non-native carp) can deplete the pond of invertebrate larvae, amphibian eggs/larvae and water plants.

The key ponds, drains, scrapes and watercourses within the Pickmere NP area have been highlighted as habitats of medium distinctiveness in Map 9a and should always be retained and buffered where possible when land is developed. Particular attention should be paid to the watercourse that runs from Frog Lane across the middle of the parish into Leonards and Smokers Wood LWS.

Hedgerows and Scattered Trees

Hedgerows have not been included in the habitat distinctiveness mapping as it is difficult to gauge the wildlife value of a hedge from aerial mapping. However, many of the field parcels within Pickmere are bounded by a significant network of hedgerows and drainage ditches. Many of the hedgerows also include trees (standards) that have been allowed to grow out, resulting in a more structurally diverse habitat. Similar to field ponds, scattered farmland trees together with the hedgerow network are

³ NBN Atlas

fundamental to landscape permeability; particularly those adjacent to wide field margins or those lying adjacent to semi-natural grassland.

Hedgerows provide important corridors for foraging bats, small mammals, amphibians and many invertebrate species including pollinators. They also offer valuable nesting and foraging habitat for birds, including many declining species such as the BoCC amber listed Dunnock and Whitethroat and red listed Tree Sparrow, which have been recorded within the Pickmere study area. A significant number of farmland BoCC species have also been recorded, including red listed Linnet and Yellowhammer which are likely use the network of hedgerows to forage and for shelter.

Wildlife Corridor Network

Wildlife corridors are a key component of wider ecological networks as they provide connectivity between core areas of high wildlife value and habitats of high distinctiveness; enabling species to move between them to feed, disperse, migrate and reproduce. In conjunction with the results of the National Habitat Network Mapping (2018) and the Ecological Network for Cheshire East, this study has identified a number of indicative wildlife corridors (Map 10a) with ecological connectivity throughout and beyond the Neighbourhood Planning area. The National Habitat Network map and Ecological Network for Cheshire East provide a broad map of the networks across England and Cheshire East respectively. The wildlife corridors identified in Map 10a supplement these, while also being more specific to ecological networks that are important for conserving and enhancing biodiversity at a local scale. The CE Ecological Network mapping and the wildlife corridor (Map 10a) maps both identify primary habitat or core areas for biodiversity within the Pickmere study area, discussed in detail below.

The local wildlife sites (Map 6) sit around the periphery of the parish and, where connections are possible, utilise hedgerows and streams which are also mainly on the study area boundary. Arley and Waterless Brook LWS is connected by Waterless Brook to Rinks Wood which is to the east of the parish. Hedgerows along the southern boundary link Leonards Wood to Pickmere LWS, connecting the small areas of woodland in between. Due to these habitats being of importance to Pickmere, maintaining and improving these connections is vital to the functionality of wildlife corridors. Pickmere LWS is an important feature within the parish because of its conservation status and biodiversity value, supporting open water, fen and acid grassland habitats and species that are not prolific in the area. However, it would be at risk of being isolated if the nearby villages of Pickmere and Higher Wincham were to expand and encroach on the LWS. As there are limited options for connectivity, it is vital that the existing corridor between Pickmere and Leonards Wood LWS is protected and enhanced to improve the integrity of the network.

The stream that run from Frog Lane on to the northern point of Leonards Wood form the main central corridor in the study area and connect to areas of semi-natural grassland and woodland. This stream flows into Smoker Brook further south which is a continuation of Waterless Brook (and eventually the River Weaver in Northwich). It is therefore important to protect, enhance and buffer these watercourses as they provide an essential connection beyond the study area and into the wider landscape.

The connectivity between the Waterless Brook (in the north of the study area) and the rest of the parish is much weaker, due mainly to a lack of substantial areas of medium or high distinctiveness

habitats. Notable habitats in this area are dominated by isolated scattered ponds which do not contribute to the overall connectivity. As the hedgerows are of mixed condition throughout the parish they cannot be relied upon to connect the larger sites.

The current proposed HS2 phase 2b footprint passes through the wildlife corridor in three locations (map 10b), through the LWS of Arley and Waterless Brook Corridor and Leonards and Smoker Wood. This could affect the connectivity of the corridor within Pickmere and to the wider landscape.

The identified corridors link areas of valuable habitat with good connectivity, including Pickmere LWS and Leonards and Smoker Wood LWS. Some of the mapped corridors do cross over roads where direct connectivity will not be maintained, however in these instances the maximum gap is less than 30 metres meaning more mobile species should not be affected. Some of the hedgerows within identified corridors may not be species rich and many run through intensively farmed land, meaning high inputs of agrochemicals could potentially be negatively affecting the species composition, particularly at ground level. Increasing hedgerow diversity and implementing wildlife friendly management regimes, as well as creating rough grassland buffers would help improve the ecological connectivity provided by hedgerows across Pickmere.

Protection of the Wildlife Corridor and other High and Medium Distinctiveness Habitat

The indicative boundary of the Pickmere wildlife corridor network is shown in Map 10a. However, this is likely to require refinement following detailed survey work undertaken on the ground. A 15 metre wide buffer has been incorporated around any high distinctiveness habitat in order to ensure the corridors are substantial enough to protect the valuable habitats identified in Map 9a. This buffer is necessary to protect vulnerable habitats from the effects of encroachment by external pressures such as increased anthropogenic disturbance, light pollution, ground water/aquatic pollution, domestic pet predation and the spread of invasive non-native plant species or garden cultivars.

Any potential development proposals in the Neighbourhood Planning area must avoid high distinctiveness habitats, core wildlife areas and the wildlife corridor network. Any development adjacent or in close proximity to these areas must incorporate substantial mitigation to minimise the residual effects on wildlife while also seeking to enhance the overall condition of habitats, in order to achieve a measurable net-gain for biodiversity. This can be achieved by:

- Prioritising a scheme design that retains and enhances important semi-natural habitats and key features for biodiversity, while also improving the permeability and function of the site for wildlife by creating new resources within and new connections to the wider landscape.
- Embedding out of bounds areas and dark corridors along watercourses, woodland edges and hedgerows into the environmental design of the scheme.
- Ensuring all external lighting is directional, low spillage and wildlife friendly.
- Ensuring the scheme drainage strategy directs run off away from sensitive environmental assets and does not promote pollution propagation pathways. This is particularly important for habitats that are dependent on hydrology such as running or standing water, peatlands, saltmarsh and coastal or floodplain grazing marshes.
- Incorporating Sustainable Drainage Schemes (SuDS) which can provide additional wildlife habitat, provide measurable net-gains for biodiversity and prevent flooding. However, SuDs

may hold polluted water so should not drain directly into running or standing water unless an extensive filtration or settlement system is in place.

- Ensuring only UK and Northern Ireland sourced and grown nursery stock of native plant and tree species be used in the landscaping of developments.
- In addition to incorporating species specific mitigation, general enhancement measures should be installed where appropriate, such as:
 - Hedgehog-friendly fencing, purposely designed to allow the passage of hedgehogs from one area to another;
 - South facing banks or bunds for reptiles, butterflies and other invertebrates, and;
 - Bee bricks and bat or bird boxes, ideally made of highly durable material such as woodcrete.

Not all sections of the Pickmere wildlife corridor provide high quality habitat, and measures to improve its ability to support the movement of species is a priority (see Recommendations section). Enhancement of the corridor may be facilitated by opportunities arising through the planning process (e.g. Biodiversity Net Gain or other ecological compensation via Section 106 Agreements or Planning Conditions), through government incentives (such as Environmental Land Management Schemes aka ELMS) or through the aspirations of the local community working with local businesses and landowners.

There are also opportunities to enhance the wildlife corridor, such as those set out in the UK Government England Trees Action Plan⁴. **However, it is vitally important that tree planting should only occur on species-poor habitats away from existing (non-woodland) priority or semi-natural habitats, peatlands, watercourses or aquatic habitats such as ditches and ponds and any other habitats of value to specific wildlife. Specialist ecological advice should always be sought before any tree planting is undertaken to ensure no unintended negative effects to biodiversity arise as a result.**

In addition to the wildlife corridor network, this study has identified other areas of high or medium habitat distinctiveness (Map 9a) which, although outside the network, likely provide important wildlife habitats and facilitate the movement of more mobile species throughout the wider landscape by forming essential ecological stepping stones. These areas primarily comprise ponds and semi-natural woodlands.

The network of field boundary hedgerows and agricultural drainage ditches within the Pickmere Neighbourhood Planning area provide connectivity between high and medium distinctiveness habitats. These areas would otherwise be separated by extensive areas of land predominantly of low habitat distinctiveness; potentially restricting the ability of wildlife to disperse throughout the area. Not all the hedgerows are identified as key components of Pickmere's ecological network, however, collectively these hedgerows provide linear connectivity throughout the neighbourhood and beyond. In addition to their intrinsic ecological value a good hedgerow network also adds to the landscape character value.

Old meadows supporting species-rich neutral, marshy or semi-natural grasslands and wetlands are some of the fastest disappearing habitats in the UK. These habitats are particularly important for a variety of invertebrates including pollinating insects and other species such as breeding and wintering

⁴ <https://www.gov.uk/government/publications/england-trees-action-plan-2021-to-2024>

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birds, mammals, amphibians and some species of reptiles. It is extremely important that the highlighted 'medium distinctiveness' areas should be thoroughly evaluated in the development control process. If they are found to support species-rich grassland or wetland habitats, they should be re-classified as 'high distinctiveness' priority habitat or habitat of principal importance. These habitats should not be built on (as stipulated in the Local Plan and the NPPF). In order to achieve a 'net gain' for biodiversity, significant compensation will likely be required (and will be difficult to achieve) if these areas are lost to development, assuming avoidance and mitigation strategies have been applied in line with the guidance set out in the National Planning Policy Framework.

Recommendations for Creating a Coherent Ecological Network

Following adoption of the Pickmere Neighbourhood Plan, CWT advises that the following recommendations should be actioned in order to protect and enhance habitats which contribute to the creation of a coherent ecological network:

1. Create and expand links between the existing wildlife corridor network

There is currently good connectivity between nature conservation sites across the Neighbourhood Planning Area. It is recommended that the wildlife value of existing hedgerows, agricultural drainage ditches and field ponds are enhanced to extend and join these existing corridors to other identified areas of medium and high distinctiveness habitats. To achieve this, hedgerows could be managed less intensively including less frequent cutting or cutting on rotation with additional trees planted or managed as standards in order to increase species and structural diversity. Drainage channels that regularly contain standing or flowing water can be specifically managed for wildlife under Countryside Stewardship, Biodiversity Net Gain and potentially under the forthcoming ELMS. Semi-natural woodlands can be left to expand and regenerate naturally, increasing coverage and connectivity across the neighbourhood while also providing biodiversity benefits arising as a result of the diverse structure of natural tree growth.

2. Improve the quality of the wildlife corridor network and assess against Local Wildlife Site selection criteria

The areas within the wildlife corridor network shown on Map 10a incorporate all of the locally designated Local Wildlife Sites for Cheshire East, however it is highly likely that other land within the network will also meet the criteria for LWS selection. These areas (including those identified as pLWS on Map 6) should be designated if the selection criteria⁵ are met, as LWS designation will provide a greater level of protection within the planning system. The wildlife corridor network should also ideally be in 'favourable condition'⁶ in order to provide optimal breeding, foraging and commuting opportunities for the native species that currently utilise the network, and those that may subsequently colonise it. These areas should be surveyed by a qualified ecologist to identify specific management priorities, however some general priorities are included below:

- Drainage ditches and watercourses within intensively farmed land should be buffered by semi-natural areas to provide riparian habitat and reduce pollution runoff (1 metre from the top of the bank of a watercourse is the minimum requirement under cross compliance regulations, however 4 - 6 metres is recommended). This will benefit any populations of otter using the watercourses, as well as provide breeding, foraging and commuting areas for other species. It will also improve water quality and bank stability while decreasing siltation resulting in a reduction in the need to dredge. In particular the streams that lead into Leonards Wood from the north and west, which form integral links in the wider corridor, should be targeted or prioritised.

⁵ Giles, R. (2012) Local Wildlife Site Selection Criteria for the Cheshire region. Covering the districts of Cheshire West and Chester, Cheshire East, Wirral Halton and Warrington. Updated February 2014. Cheshire Wildlife Trust.

[<https://www.cheshirewildlifetrust.org.uk/wildlife/our-work-wildlife/our-work-wildlife/local-wildlife-sites>]

⁶ The definition of 'favourable condition' for various habitats is provided in the Farm Environment Plan (FEP) Manual (Natural England 2010). The definition of 'positive management' for Local Wildlife Sites is provided in Appendix 4.

- Hedgerows that are not already in good condition (particularly those that form part of the wildlife corridor) should be restored or re-instated using locally native species such as hawthorn, blackthorn, hazel and holly (using 60-90cm high 'whips' which have a good rate of survival and tree guards or stock fencing). New sections of hedgerow should incorporate a tree every 30m (on average) which can be demarked so as not to be inadvertently flailed. Non-native invasive plant species should be removed by a specialist contractor and a bespoke management plan put in place to ensure they do not return.
- Hedgerows in intensively farmed land should be buffered by semi-natural areas to provide additional wildlife friendly habitat (2 metres from the centre of the hedge is the minimum requirement under cross compliance regulations, however 4 - 6 m is recommended) and improve the diversity of ground flora species.
- Cutting or grazing of all semi-natural grassland should be carried out to retain the wildlife value. This will enable more herb growth within the sward, prevent more competitive species from taking hold and prevent grasslands from eventually scrubbing over. Where cutting is used as a method of management it should be carried out after flowering plants have set seed. Where farmland birds such as skylark are breeding, cutting outside of the nesting season (March to September inclusive) will avoid the destruction or abandonment of nests. Under the Wildlife and Countryside Act 1981 it is an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Conversion of semi-natural grassland to arable land should be avoided.
- Field ponds which have become overgrown and choked with vegetation should be cleared out to allow light to penetrate, to provide areas of open water and allow a more diverse marginal flora to develop (with the remaining tree/scrub cover around 10 - 15%). These measures will also benefit amphibians, invertebrates and mammals. Ideally no more than one third of the pond should be dredged in a single year so that existing biodiversity is retained and enhanced. Waste vegetation should be left at the side of the ditch for 24 hours before removal to allow any fauna to return to the water. **Prior to any work professional advice should be sought and ponds should be assessed to ensure existing wildlife is not impacted, including great crested newts which use ponds for breeding and may also be present in rank vegetation or under brash piles around the banks, or roosting bats which may be roosting in trees surrounding ponds.**
- Invasive non-native species (listed on Schedule 9 of the WACA) should be prevented from colonising Pickmere's semi-natural habitats. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or otherwise cause these species to grow in the wild. Although the NBN Atlas returned no confirmed records of invasive non-native plant species (INNPS) within the study area, both Japanese Knotweed and Himalayan Balsam are present within or on the periphery of Local Wildlife Sites that partially lie within the boundary. Caution must be taken as they spread prolifically, particularly effectively along watercourses. These species colonise rapidly and will outcompete native woodland, grassland and wetland flora and any existing or future stands of INNPS should be managed by a specialist contractor to control their spread.
- It is also likely that other Schedule 9 INNPS such as variegated yellow archangel, montbretia and Spanish hybrid bluebells are present in the area, as they easily spread from domestic gardens. If present they should be eradicated by, or under the supervision of, a specialist contractor. New and existing householders should be educated of the problems with the

encroachment of INNPS or non-native garden cultivars into semi-natural habitats and avoid inadvertently planting any invasive species in their gardens, especially where they adjoin open areas, semi-natural habitats, or watercourses.

3. Protect, enhance, and connect areas of high/medium value which lie outside the wildlife corridor

Opportunities should be explored to restore, expand, and create more wildlife friendly habitat, especially where connectivity with other areas of valuable habitat can be achieved or where important sites can be buffered. Larger areas of better-connected habitat support larger and more resilient species populations, while helping to prevent local extinctions.

Ways to enhance connections or to buffer sites could include the restoration of hedgerows, allowing semi-natural woodland to expand through natural regeneration, creation of wetland scrapes or ponds, creation of low maintenance field margins and sowing locally sourced (local genetic stock) wildflower meadows⁷. Improving the hedgerows and field ponds in the south of the parish to increase connectivity to Pickmeremoss Wood, and in the north of the parish to connect with the corridor running through the centre, should also be a priority.

Woodland expansion is desirable to buffer Pickmere's existing woodlands, which are mainly in the south of the study area. Additionally, planting in the north of the parish would provide a network from Arley and Waterless Brook Corridor LWS into the parish. New plantations that are isolated from existing woodland are of limited value due to slow colonisation by woodland species, whereas planting woodland corridors between existing woodlands (or letting woodlands expand and merge naturally) creates valuable habitat links for the dispersal of species. The creation, expansion or enhancement of woodland stepping stones between existing core woodland areas also enhances links across the landscape for more mobile species. **It is vitally important that tree planting should only occur on species-poor habitats away from existing (non-woodland) priority habitats, and the edges of watercourses including ditches and ponds.** A detailed botanical survey should always be carried out prior to any woodland planting taking place. Professional advice should **always** be sought when creating new habitat particularly when designing the layout, position and composition of new woodland and how to use local woodlands as a reference. Well-designed new woodlands contain up to 40% open space (in the form of glades and rides) and up to 25% shrub species. For maximum benefit biodiversity rides should be east-west oriented (to maximise sunlight penetration) and at least 30 metres wide to avoid over-shading when the canopy closes. It is recommended that trees and shrubs should be sourced from the Forestry Commission seed zone, from seed collected from local stands or from the local seed zone (collections should be made under the Voluntary Scheme for Certification of Native Trees and Shrubs, endorsed by the Forestry Commission).

4. Protect the existing hedgerow network

Hedgerows that meet certain criteria are protected by The Hedgerow Regulations (1997). Under the regulations it is against the law to remove or destroy 'Important' hedgerows without permission from the Local Planning Authority and the removal of a hedgerow in contravention of The Hedgerow Regulations is a criminal offence. The criteria used to assess hedgerows relate to their value from an

⁷ Cheshire Wildlife Trust can provide advice and seeds for locally sourced wildflower meadow creation.

archaeological, historical, landscape or wildlife perspective. The regulations exclude hedgerows that have been in existence for less than 30 years, garden hedges and some hedgerows which are less than 20 metres in length. The aim of the regulations is to protect 'Important' hedgerows in the countryside by controlling their removal through a system of notification.

Any proposals that involve the removal of hedgerows, sections of hedgerows or their associated features (e.g. ditches, banks and standard trees) should be supported by an assessment to ascertain their status in relation to The Hedgerow Regulations. Should the Local Planning Authority grant permission for removal, compensatory hedgerows will be required to be provided; however, it is good practice to compensate for the loss of all hedgerows whether the hedgerow regulations apply or not. Like-for-like replacement is considered the minimum level of compensation, but it is likely that high value hedges in good condition will require a 3:1 replacement ratio. This can also be incorporated into a Biodiversity Net Gain assessment.

Any new sections of hedgerow should be created following the guidance provided above. In-filling of gappy hedgerows will ensure greater connectivity, which will be of particular advantage to bats and small mammals. Ideally hedgerows should be cut on rotation (outside the nesting bird season) every three years towards the end of winter. This leads to increased flowering and allows plants to fruit and/or set seed, providing a greater food resource for invertebrates, mammals and birds. Some butterfly and moth species overwinter as eggs on shoots and twigs and are therefore severely impacted by annual flailing.

5. Measures to protect other species

In addition to the general habitat management priorities above that will benefit a wide range of species throughout the Neighbourhood Planning Area, ensuring new developments provide general wildlife enhancement (bat/bird boxes and bee bricks etc.) and wildlife permeable fencing as standard (or encouraging householders to make holes in the bottom of their fences) will increase the permeability of the more urbanised areas in Pickmere. A key example is hedgehogs that could travel an average of 1 mile every night were their movement through suburban landscapes not impeded by impenetrable garden fences. Increasing the permeability of suburban landscapes in this way will also provide benefits for other species such as newts, toads and frogs. Wildlife permeable fencing should be complemented by educating and advocating for the use of non-toxic slug pellets by residents. Dedicating an area of a garden to wildlife (e.g. by not mowing an area of lawn, leaving fallen brash in situ and incorporating wildlife ponds) as well as ensuring artificial lawns are not commonplace can also help to supplement these measures.

6. Ensure the requirement to secure a measurable biodiversity net gain is embedded in Neighbourhood Planning policies

Providing a measurable net gain for biodiversity is embedded in NPPF (paragraphs 8, 32, 174d, 179b and 180d) and required under CEC Local Plan Policy SE 3 and SADPD Policy ENV 1. In order to protect local natural assets, it is essential that strong biodiversity net gain policies form part of the Neighbourhood Plan. Any new green infrastructure arising as a result of biodiversity net-gain should take consideration of the recommendations set out in this report and how it can contribute to the wider ecological network.

7. Habitat mapping

It is strongly recommended that Pickmere's Neighbourhood Planning Area is mapped in detail using either the Phase 1 Habitat or the UK Habitat Classification System methodologies. This will provide an accurate, detailed picture of the habitats within the Neighbourhood Planning Area and could be used to verify the results of the habitat distinctiveness mapping (Map 9a) undertaken in this study. Detailed survey may identify additional habitats of principal importance or priority, high or medium distinctiveness habitat that have not been identified in this assessment. Areas identified as having medium value habitat in this report should be targeted for survey as a priority, in order to verify the findings and ensure they are not under or over-valued. Ground level survey can also inform the exact position of the wildlife corridor network with greater accuracy than this study.

Conclusion

This study has highlighted that the important wildlife habitat in Pickmere is predominantly associated with the woodland and watercourses of Pickmere LWS, Arley and Waterless Brook LWS and Leonards Wood LWS which sit in the three corners of the parish. The wetlands and watercourses provide habitat for a large number of bird species including Mallard, Little Grebe and Lapwing, while the woodlands provide shelter for both bird species and mammals such as badgers and bats. The corridor is connected mainly through a network of ditches, with an absence of good condition hedgerows leading to poor connectivity to the north of the parish which is somewhat isolated. There are a number of farmland and hedgerow bird species found in the parish that would benefit from improved hedgerow management such as Tree Sparrows, Linnets and Yellowhammer.

The nature of the landscape being mainly agricultural leaves little space for high priority grasslands in the parish and surrounding areas. However, as the land is predominantly classified as ALC Grade 3 (map 5), it may be managed less intensively and could potentially support restorable grassland, or support species rich grassland in the future. However, further surveys would be required to determine feasibility.

By attributing habitat distinctiveness values to all land parcels in the Neighbourhood Planning Area the study has provided important evidence that should be taken into consideration when planning decisions are made. However, in order to supplement this study and to verify that 'medium value' habitats have not been over or under-valued in their importance, it is strongly recommended that further habitat survey work (phase 1/UK Habitat Classification) is undertaken at the appropriate time of year.

Most importantly the study has highlighted a wildlife corridor network which provides ecological connectivity between wetlands, watercourses and woodland habitats throughout and beyond Pickmere. The wildlife corridor network is likely to support a wide range of species including birds, amphibians (including protected and priority newt species), mammals (including protected and priority bat species), plants and invertebrates that are in decline both locally and nationally. These species depend on the existence and connectivity of semi-natural habitats highlighted in this report.

We recommend that the wildlife corridor network (Map 10a) is incorporated into the Pickmere Neighbourhood Plan and protected from development, to ensure the guidance relating to ecological networks set out in NPPF (paragraphs 174d, 175, 171, 179a, 179b) is implemented at the local level in Pickmere. The wildlife corridor network includes a buffer zone of up to 15 metres in places to protect the notable habitats shown in Map 9a. If new habitats of high distinctiveness are subsequently identified in the Neighbourhood Planning Area, or identified habitats of medium distinctiveness are shown to be undervalued, these areas should also be protected by a 15 metre buffer zone exempt from development. Following adoption of the Pickmere Neighbourhood Plan, CWT advises that a number of recommendations should be actioned in order to protect and enhance habitats which contribute to the creation of a coherent ecological network.

Any future development of sites which lie adjacent to a high distinctiveness habitat or a wildlife corridor will need to demonstrate substantial mitigation and avoidance measures to lessen any potential impacts on wildlife (in line with NPPF Para 180a; the avoidance, mitigation and compensation hierarchy), and seek to enhance these features where reasonable to do so (in line with

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NPPF Para 179b; the provision of measurable biodiversity net gains). This can be achieved by prioritising a scheme design that retains and enhances the sites important semi-natural habitats and key features for biodiversity, while also improving the permeability and function of the site for wildlife by creating new resources within and new connections to the wider landscape. This should then be supplemented with bespoke mitigation where appropriate and with additional protective measures such as sensitive lighting designs, the provision of dark corridors and appropriate drainage strategies. Development should also be supplemented with a range of specific and general biodiversity enhancements.

Protection and enhancement of Pickmere's natural assets is of the utmost importance for nature conservation, ecosystem services and for the enjoyment of future generations. Therefore, future development in Pickmere should respect and prioritise the natural environment with the most intact landscapes, in terms of biodiversity, landform and historical/cultural associations valued highly when planning decisions are made.

Appendices

Appendix 1 – Natural England Ecological Network Model Interpretation

Woodland and Wetland Habitat Network Categories for Natural England’s Ecological Network Tool GIS layers 2020:

Category	Description	Recommended Action
Core SSSI Habitat	SSSIs are among the most protected sites in Great Britain, and Natural England has statutory obligations to act for the benefit of SSSIs and encourage owner/occupiers to manage the land to favourable condition.	SSSIs can be noted for a range of biological or geological features. Regardless of the nature of the SSSI, management should always aim to achieve favourable condition for the features for which the site is notified. Therefore, should woodland or wetland network zone overlap with the boundaries of a SSSI, the action suggested by the model (see below) should only be carried out if it is consistent with the management of the notified features.
Primary Habitat	Wetland habitat from the priority habitat inventory (lowland raised bog, lowland fen and reedbeds), ponds and lakes (OS MasterMap). National Forest Inventory broadleaved or mixed-mainly broadleaved woodland.	The restoration and enhancement of primary habitat should be considered to improve habitat quality where necessary (e.g. scrub management on lowland bogs, encouragement of diverse age structure in woodlands) or increase extent if possible.
Priority Wetland Creation Zone	Land where wetland network connectivity is most restricted due to fragmentation and the land is suitable for wetland creation such as mosslands or reedbeds.	Priority Wetland Creation Zones are a high priority for wetland habitat creation, as it represents a major pathway of the network through a highly fragmented landscape. This may involve increasing the extent of existing habitat patches or creating new habitat within the vicinity appropriate for the species being considered. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new wetlands.
Wetland Creation Zone	Land where wetland network connectivity is most restricted due to fragmentation and is less suitable for wetland creation.	To bolster the wetland network in these areas, alternative wetland creation should be considered e.g. SuDS or lined ponds.
Wetland Buffer Zone 1	Land within the network which connects existing primary wetland habitats and is naturally suitable for wetland creation. Wetland Buffer Zones are a high priority for	The restoration and creation of wetland habitats e.g. rewetting of modified bogs, in these areas should be considered, however conditions on the ground will determine the most appropriate action within these areas; restoration to improve habitat quality, creation to increase the extent of existing habitat patches, or to

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	restoration or creation, as they represent connecting areas within the network which could join existing primary habitat.	provide stepping stones between habitat patches. Where other associated habitats of conservation importance overlap with Wetland Buffer Zones, such as species-rich grasslands or wet woodlands, restoration and improvement of these habitats should be considered, to improve the resilience of primary wetland habitats by providing buffer zones and diverse habitat mosaics. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new wetlands.
Wetland Buffer Zone 2	Land within the network which connects existing primary wetland habitats, but which is less suitable for natural wetland habitat creation.	Non-natural wetland restoration measures e.g. SuDS, lined ponds, should be considered in these areas. Management and bolstering of important associated habitats, as with Wetland Buffer Zone 1, should also be considered here.
Wetland Network Expansion Zone	Land outside of the current wetland network where land is suitable for wetland creation, which could help to link up the existing habitat across the landscape.	Habitat creation in the Wetland Network Expansion Zone has the potential to aid the joining up of existing habitats patches within the network, however these areas are less of a priority in terms of improving the overall connectivity of the network as a whole. These areas may become 'Wetland Buffer Zone 1' in future iterations of the model if projects on the ground result in additional primary habitat. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new wetlands.
Priority Woodland Creation Zone	Land where woodland network connectivity is most restricted due to fragmentation and the land is potentially suitable for wet woodland creation.	Woodland Creation Zones are a high priority for woodland habitat creation, as it represents a major pathway of the network through a highly fragmented landscape. This may involve increasing the extent of existing habitat patches or creating new habitat within the vicinity appropriate for the species being considered. In Priority Woodland Creation Zones, the land may also be suitable for wetter habitats, and encouragement of wet woodland may be considered here. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new woodlands.
Woodland Creation Zone	Land where the network connectivity is most restricted due to fragmentation and is less suitable for wet woodland creation.	To bolster the woodland network in these areas, woodland creation measures are of high priority here. This may include the planting of new woodlands, with careful consideration of appropriate species mix, or encouragement of natural regeneration where possible. Rigorous ground-truthing and consideration

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		of other priority habitats or conservation objectives in the area will be vital before creating new woodlands.
Woodland Buffer Zone 1	Land within the network which connects existing primary woodland habitats and is potentially suitable for wet woodland creation.	Woodland Buffer Zones are a high priority for restoration or creation, as they represent connecting areas within the network which could join existing primary habitat. Conditions on the ground will determine the most appropriate action within these areas; restoration to improve habitat quality, creation to increase the extent of existing habitat patches, or to provide stepping stones between habitat patches. Given the potential suitability for wetter habitats here, rewetting and management for wet woodland may be considered here. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new woodlands.
Woodland Buffer Zone 2	Land within the network which connects existing primary wetland habitats, but which is less suitable for natural wetland habitat creation.	The restoration and creation of woodland habitats e.g. tree planting or encouragement of natural regeneration should be considered in these areas. Where other associated habitats of conservation importance overlap with Woodland Buffer Zones, such as species-rich grasslands or heathlands, restoration and improvement of these habitats should be considered, to improve the resilience of primary woodland habitats by providing buffer zones and diverse habitat mosaics. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new woodlands.
Woodland Network Expansion Zone	Land outside of the current woodland network where species flow is likely to be relatively high due to better landscape permeability.	Habitat creation in the Woodland Network Expansion Zone has the potential to aid the joining up of existing habitats patches within the network, however these areas are less of a priority in terms of improving the overall connectivity of the network as a whole. These areas may become 'Woodland Buffer Zone' in future iterations of the model if projects on the ground result in additional primary habitat. Rigorous ground-truthing and consideration of other priority habitats or conservation objectives in the area will be vital before creating new woodlands.

Appendix 2 - Habitats, LCM2007 Classes and Broad Habitat Sub-classes for LCM2007 (CEH)

LCM2007 class	LCM2007 class number	Broad Habitat sub-class	Broad habitat sub-class code	Habitat Score
Broadleaved woodland	1	Deciduous	D	Medium
		Recent (<10yrs)	Dn	Medium
		Mixed	M	Medium
		Scrub	Sc	Medium
Coniferous Woodland	2	Conifer	C	Low
		Larch	Cl	Low
		Recent (<10yrs)	Cn	Low
		Evergreen	E	Low/Medium
		Felled	Fd	Medium
Arable and Horticulture	3	Arable bare	Aba	Low
		Arable Unknown	Aun	Low
		Unknown non-cereal	Aun	Low
		Orchard	O	Medium
		Arable barley	Aba	Low
		Arable wheat	Aw	Low
		Arable stubble	Ast	Low
Improved Grassland	4	Improved grassland	Gi	Low
		Ley	Gl	Low
		Hay	Gh	Low
Rough Grassland	5	Rough / unmanaged grassland	Gr	Medium
Neutral Grassland	6	Neutral	Gn	Medium
Calcareous Grassland	7	Calcareous	Gc	Medium
Acid Grassland	8	Acid	Ga	Medium
		Bracken	Br	Medium

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Fen, Marsh and Swamp	9	Fen / swamp	F	Medium
Heather	10	Heather & dwarf shrub	H	Medium
		Burnt heather	Hb	Medium
		Gorse	Hg	Medium
		Dry heath	Hd	Medium
Heather grassland	11	Heather grass	Hga	Medium
Bog	12	Bog	Bo	Medium
		Blanket bog	Bb	Medium
		Bog (Grass dom.)	Bg	Medium
		Bog (Heather dom.)	Bh	Medium
Montane Habitats	13	Montane habitats	Z	Medium
Inland Rock	14	Inland rock	lb	Medium
		Despoiled land	Ud	Medium
Salt water	15	Water sea	Ws	Medium
		Water estuary	We	Medium
Freshwater	16	Water flooded	Wf	Medium
		Water lake	Wl	Medium
		Water River	Wr	Medium
Supra-littoral Rock	17	Supra littoral rocks	Sr	Medium
Supra-littoral Sediment	18	Sand dune	Sd	Medium
		Sand dune with shrubs	Sds	Medium
		Shingle	Sh	Medium
		Shingle vegetated	Shv	Medium
Littoral Rock	19	Littoral rock	Lr	Medium
		Littoral rock / algae	Lra	Medium
Littoral sediment	20	Littoral mud	Lm	Medium
		Littoral mud / algae	Lma	Medium

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		Littoral sand	Ls	Medium
Saltmarsh	21	Saltmarsh	Sm	Medium
		Saltmarsh grazing	Smg	Medium
Urban	22	Bare	Ba	Low
		Urban	U	Low
		Urban industrial	Ui	Low
Suburban	23	Urban suburban	Us	Low

Appendix 3 – Meres & Mosses LPS / NIA: Methodology for Mapping Extant Meres & Mosses

The mapping of 'Functional Ecological Units' is primarily based on topography, with use being made of LIDAR data. LIDAR is a remote sensing technique whereby an airborne survey using lasers generates detailed topographic data (known as a Digital Terrain Model / DTM). With approximately 70% coverage of the Meres & Mosses landscape.

Mapping of the Functional Ecological Units (FEUs) started with the identification of extant sites:

1. All designated sites, SSSIs and County (Local) Wildlife Sites, that are either a mere or a moss were included.
2. Beyond the designated sites, use was made of a detailed peat soils map for the area. From this dataset a distinction was made between likely moss peats and extensive areas of likely fen peat associated with some of the river valleys. The moss peat sites were then reviewed using aerial photography and divided into two categories: destroyed and de-graded. The former are sites under arable, intensive grassland or other land use, where any relict habitat, and potentially even the peat itself, have been lost – these were excluded. The de-graded sites are those supporting some form of relict habitat (e.g. extensive grassland, rush pasture or woodland) offering potential for restoration – these were taken forward as FEUs.
3. Finally, the 1: 10,000 scale OS base map was scanned for names alluding to meres and mosses. All waterbodies specifically called "Mere" were included in the mapping, but sites with names suggestive of meres (e.g. Black Lake) were ignored. A few sites were identified called "Moss" – however, because these were not shown on the peat soils map, these were excluded.

For each potential FEU the LIDAR data was manipulated to show land within a nominal 3 metres elevation of the lowest point on the site. The FEU was then defined as the obvious basin around the lowest point – i.e. the land where it should be possible to restore hydrological function and therefore a wetland habitat mosaic (generally a nominal 1.0 - 1.5 metres above the lowest point on the site). Where no LIDAR data was available, the likely boundary of the FEU was estimated from the peat soils data and aerial photography.

Appendix 4 – Local Wildlife Site Definition of Positive Management

In order for a Local Wildlife Site to be recorded as in positive management all four of the following should be met:

1. The conservation features for which the site has been selected are clearly documented.
2. There is documented evidence of a management plan/management scheme/advisory document which is sufficiently targeted to maintain or enhance the above features.
3. The management requirements set out in the document are being met sufficiently in order to maintain the above features. This should be assessed at 5 year intervals (minimum) and recorded 'not known' if the interval is greater than 5 years.
4. The Local Sites Partnership has verified the above evidence.