

Protecting and Enhancing Warburton's Natural Environment



Cheshire
Wildlife Trust

February 2021

Introduction

Neighbourhood Planning has provided an important opportunity for communities to shape their local environment for future generations. Identifying and evaluating opportunities and constraints will mean that communities are in an informed position and therefore better able to protect their valuable natural assets.

In 2011, the government published their Biodiversity 2020 '*strategy for England's Wildlife and Ecosystem services*' which built on the recommendations of the earlier Natural Environment white paper. The mission of the Biodiversity 2020 strategy is 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.*'

The National Planning Policy Framework (NPPF), first published in 2012 drew on these principles and protecting and enhancing 'our natural, built and historic environment' is one of the three core objectives in the revised NPPF 2018 (paragraph 8c). Known as 'no net loss policies' or 'net gain policies', Local (non-strategic) policies are specifically designed to address the overall loss of biodiversity. Policy guidance is enshrined in the NPPF in paragraphs 118a, 174b and 175d with the latter two paragraphs referring to 'measurable' net gain (i.e. use of a biodiversity metric).

The UK Sustainable Development Strategy (updated July 2019) sets out four shared priority actions for taking sustainable development forward:

- Sustainable consumption and production
- Climate change and energy
- Natural resource protection and environmental enhancement
- Sustainable communities

At a local level, at the time of writing, the Trafford Council are currently developing a new Local Plan and the Greater Manchester combined Authorities (which includes Trafford Borough Council) are currently developing a new Greater Manchester Spatial Framework, now known as 'Places for People'.

Trafford Local Plan

The new draft Trafford Local Plan is currently out for consultation and the current planning policies with the Local Plan adopted in 2012 will apply until the new plan is adopted.

A scoping report (June 2018) for the new plan recommends that the Local Plan "...will establish the planning policy framework for the borough for the period up to 2035..." and one of the five key strategic policies it identified includes "Climate change mitigation and adaptation, conservation and enhancement of the natural and historic environment, including landscape"

The scoping report also highlighted:

- The importance of increasing the resilience of infrastructure and the natural environment to climate change.

- Protecting biodiversity and encouraging the incorporation of green infrastructure into developments.

Greater Manchester Spatial Framework (GMSF) / Places for People (PFP)

The proposed policy GM-G10 of the draft GMSF/PFP stipulates that ‘across the whole plan a net enhancement of biodiversity resources will be sought’.

The Greater Manchester Natural Capital Group (of which the Greater Manchester combined Authorities are a lead partner) delivers the Local Nature Partnership in the Greater Manchester area. The GMNCG’s aims are to ‘strengthen **local** action to protect and improve their area’s **natural** environment’.

Biodiversity 2020, sets out numerous ways to work towards achieving these aims, with landowners, conservation charities and individuals playing a part. However, the planning system also has a central role, particularly in strategic planning, but also development control. At a local level, Neighbourhood Planning will potentially be a key factor in determining whether the aims of Biodiversity 2020 are realised by identifying local priorities for nature conservation that should be taken into account during the planning process.

In 2018, as part of its 25 Year Environment Plan, the government pledged to become the first generation to leave the natural environment in a better condition than that they inherited.

In the State of Nature Report 2016, the UK ranked amongst the most nature-depleted countries in the world. The government’s ambitious proposals for nature recovery and “clean growth” could be pivotal in the future of our environment.

Although this is a national framework, its success will also depend on local communities and partnerships working to protect and enhance their environment to contribute to its social, economic and environmental objectives.

Objectives of the Study

The first stage to protecting and enhancing the natural environment is to identify the natural assets that exist within a neighbourhood. This report aims to identify the core, high ecological value sites for nature conservation in the Warburton Neighbourhood Planning Area, as well as sites deemed to be of medium ecological value. 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 should they be proposed for future development.

The report also aims to identify key local and regional ecological networks within the neighbourhood planning area and recommends these be protected through the neighbourhood plan. Additionally, it identifies key features associated with the landscape character of the Warburton area so these can be referenced in planning policies.

Background – 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 that we need a step change in our approach to wildlife conservation 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 also 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 our well-being, health and economy, and provides us with a range of ecosystem services such as food, water, materials, flood defences and carbon sequestration. Biodiversity underpins most, if not all, of them. The pressures on our land and water are likely to continue to increase and we need to learn how to manage these 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 declines in the provision of some ecosystem services, and losses to species populations. Ecological networks or Nature Recovery Networks have become widely recognised as an effective way to conserve wildlife in environments that have been fragmented by human activities.

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

- *Core areas*
These are areas of high nature conservation value that form the heart of the 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. 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 species can move between core areas.
- *Restoration areas*
These are areas where measures are planned to restore or create new high value areas (which will ultimately become 'core areas') so that ecological functions and species populations can be restored. 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, 'stepping stones' and ecological corridors, and 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, together with 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, including 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.

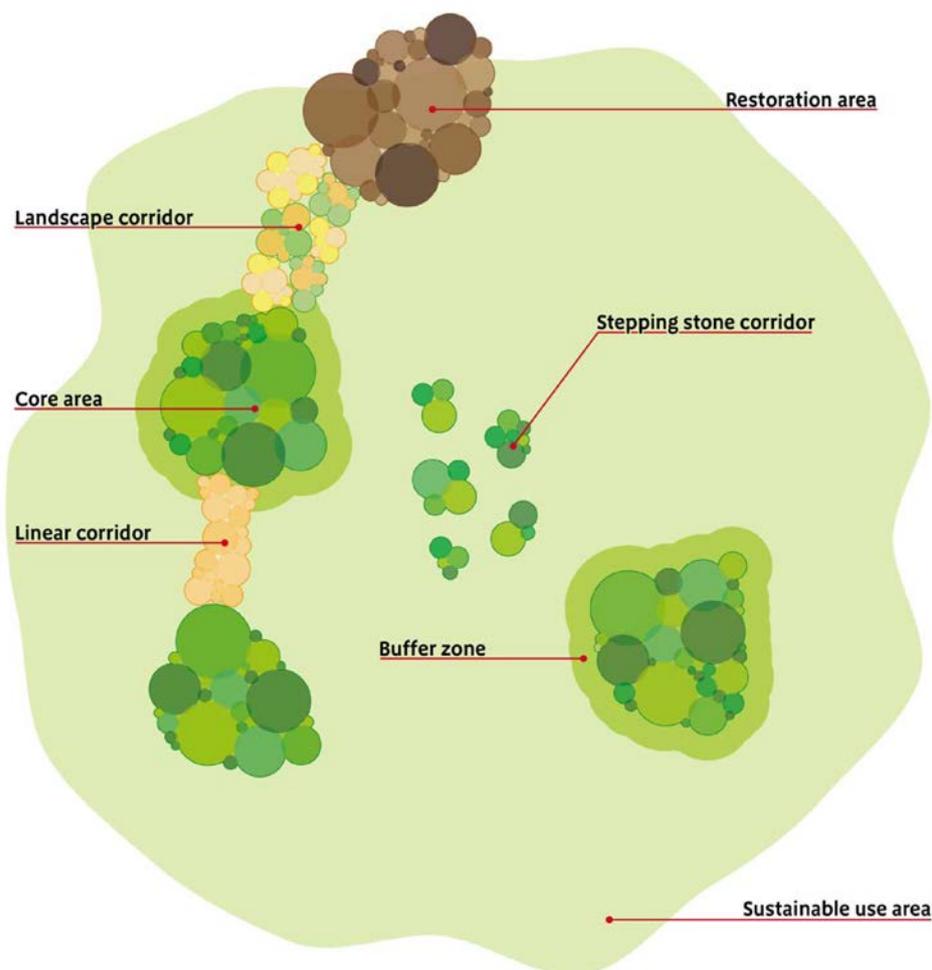


Figure 1. The components of ecological networks (Making Space for Nature report)

The principles of creating coherent ecological networks are now embedded within many planning and policy documents. The Natural Environment White Paper 'The Natural Choice', which was published in 2011, reiterated a Government commitment to move from no-net biodiversity loss to biodiversity net-gain, by recognising the importance of supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks.

The National Planning and Policy Framework revised in 2018, includes specific guidance on conserving, restoring and enhancing ecological networks including:

- 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.
- 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.
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- 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.

Landscape Character Area

On a national level, Warburton lies within National Character Area (NCA) 60 the Mersey Valley National Character Area. NCA's are areas with similar landscape characteristics, which don't necessarily follow administrative boundaries and are determined by aspects such as geology, landform, soils, vegetation and land use.

The Mersey Valley National Character Area (NCA) consists of a wide, low-lying river valley landscape focusing on the River Mersey, its estuary, associated tributaries and waterways. It is a varied landscape that extends from the mosslands near the Manchester Conurbation NCA in the east, to the Merseyside Conurbation NCA and the wide estuary with its intertidal mudflats/sand flats and saltmarsh in the west. The area encompasses a complex mix of extensive industrial development and urban areas interspersed with high-quality farmland.

Local Landscape Character Areas

More locally, the Warburton Neighbourhood Plan area is covered by a number of Landscape Character Area Assessments (listed below). These Landscape Assessments are intended to be used as a basis for planning policies, the creation of future landscape strategies as well as raising public awareness of landscape character and creating a sense of place.

1. Draft Warburton Landscape Character Types and Areas.
2. Greater Manchester Combined Authorities Landscape Strategy 2018. This document incorporates 10 Landscape Character Types (LCTs) across Greater Manchester and assesses their landscape sensitivity to changes resulting from development or land management practices.
3. Trafford Metropolitan Borough Landscape Strategy 2004, produced as a Supplementary Planning Guidance (SPG) to assist with planning decisions as well as to guide prospective developers and land owners in landscape scale decisions and appropriate land use.

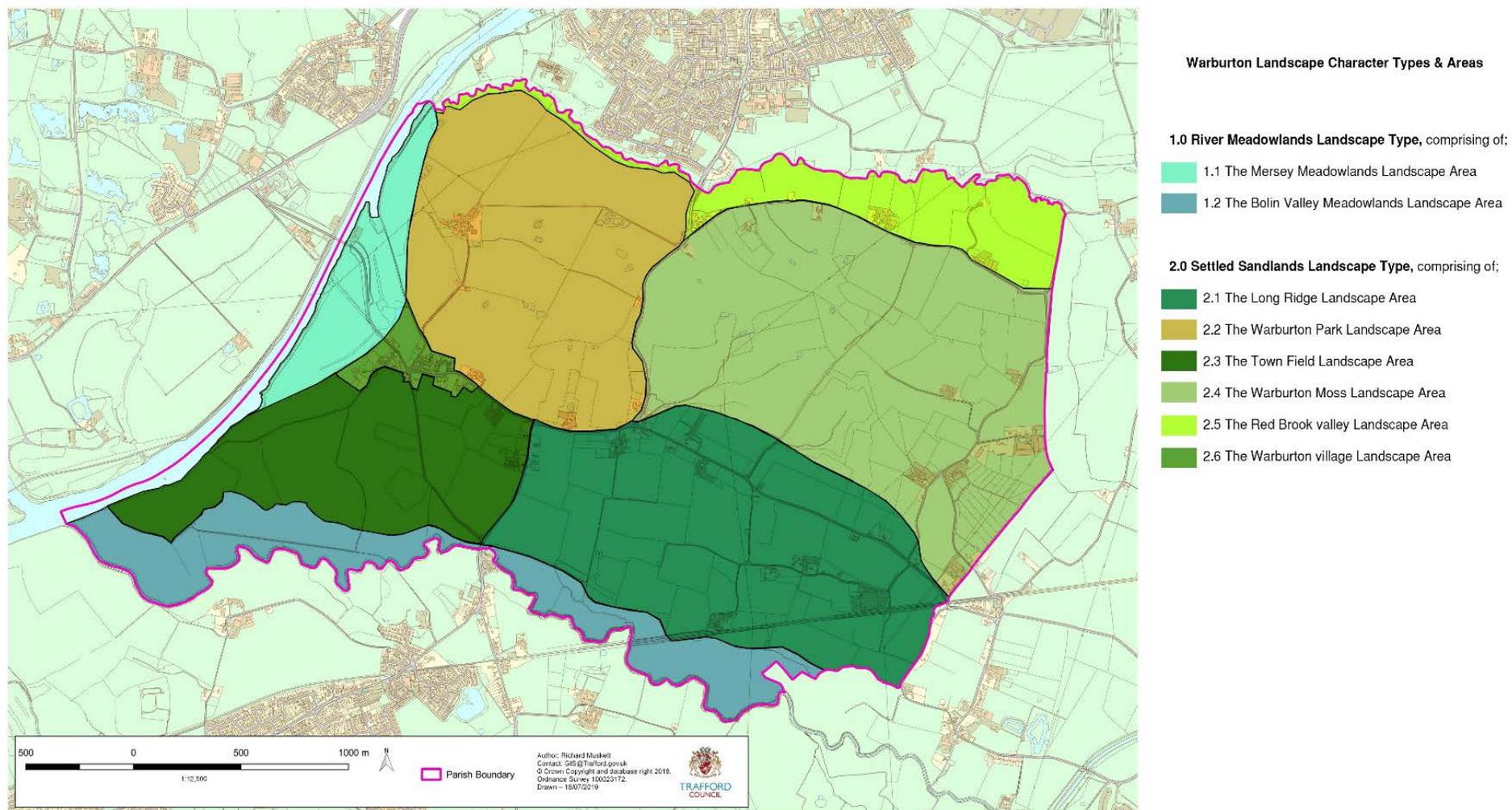


Figure 2. Draft Warburton Landscape Character Types and Areas 2020.

The Draft Landscape Character Assessment for Warburton (Figure 2) is based on the Trafford Landscape Character Types. The Trafford Landscape Character Assessment recognises two LCT's within the Warburton Neighbourhood planning area, namely the River Meadowlands LCT and the Settled Sandlands LCT. The Warburton Land Character Assessment splits these Character Types into eight further local Landscape Character Areas. These are summarised below.

1. River Meadowland Land Character Type

1.1. The Mersey Meadowlands Landscape Area

Key Characteristics

- The Manchester Ship Canal, a commercial waterway, currently subject to little use;
- The old course of the River Mersey, associated with wet woodland and swampy, often waterlogged ground;
- Cliff-like edge to the Manchester Ship Canal;
- Landfill, both to create the high-level bridge approach ramp and for 'reclamation', and;
- The presence of dominating features in the landscape, such as the high-level bridge and the old church of St Werburgh.

Management of the Landscape

- Discourage visually intrusive landfill operations in the floodplain;
- Encourage more appropriate landform and restoration to existing landfill sites, and;
- Encourage long-term wildlife habitat and conservation management.

1.2. The Bollin Valley Landscape Area

Key Characteristics.

- Flat, linear alluvial areas;
- Often developed on used or permanent pasture;
- Close association with watercourse;
- Raised levees and river channel restrictions;
- Contain a multitude of communication links – canals, roads, railways etc., and;
- Bridge and viaduct crossings.

Management of the Landscape

- Monitor existing hedgerows and hedgerow trees;
- Encourage rolling programme of new hedgerow tree planting, and;
- Investigate the opportunities for extended footpath systems associated with the river.

2. Settled Sandlands Land Character Type

2.1. The Long Ridge Landscape Area

Key Characteristics

- Long, low ridge;
- Absence of trees along hedge lines – trees only occur closer to buildings, in a sole block of plantation woodland and along roadside hedges;

- Rectangular fields with hedges running up and down slopes or horizontally, and;
- A number of footpaths, including the Trans-Pennine Trail.

Management of the Landscape

- Monitor existing hedgerows and hedgerow trees;
- Encourage rolling programme of new hedgerow tree planting, and;
- Investigate the opportunities for extended footpath systems and linkages to other areas.

2.2. The Warburton Park Landscape Area

Key Characteristics

- Groups or copses of trees;
- Curved boundaries;
- Relatively flat or low-lying ground;
- Numbers of small ponds within copses of trees;
- Large, relatively regular field pattern;
- Irregular sections of 'park pale' earthworks at various points around the perimeter, and;
- Few properties around the park perimeter to the south and east.

Management of the Landscape

- Monitor existing hedgerows and hedgerow trees;
- Encourage rolling programme of new hedgerow tree planting, especially to the perimeters of the former deer park, and;
- Encourage management of the small copses around the numerous ponds in the former deer park.

2.3. The Townfield Landscape Area

Key Characteristics

- Areas largely devoid of trees (except for Bent Lane);
- Areas of few (and declining numbers), but historically interesting hedges;
- Open views to and from the area, locally restricted by woodland in the medium distance, and;
- Almost flat, gently sloping ground.

Management of the Landscape

- Monitor existing hedgerows and hedgerow trees, and;
- Encourage rolling programme of new hedgerow tree planting.

2.4. The Warburton Moss Landscape Area

Key Characteristics

- Relatively flat or low-lying land;
- Arable fields or 'moss' woodland;
- Absence of hedgerows and hedgerow trees;
- Wide expansive and sweeping views;

- Open and exposed;
- Often containing tranquil areas;
- Dark peaty soil to mossland proper;
- Frequent occurrence of low-lying mists and fogs;
- Lack of important roads through the area;
- Subsidence issues with buildings, roads and telephone / power line poles;
- Use of open ditches as field boundaries, and;
- Importance to wildlife.

Management of Landscape

- Retain, monitor and adjust current water levels within the mosslands to avoid fluctuations, drying out and potential wind erosion;
- Consider the balanced needs of both agriculture and wildlife habitat;
- Consider the merits of higher water levels in areas of less productive mossland, promoting alternative agricultural techniques such as paludiculture and promoting greater habitat diversity and wildlife value;
- Retain the existing quiet and tranquil character of the mosses without encouraging excessive recreational use or built development;
- Urgently consider methods of mitigation to reduce the visual impact of the landfill tips around Moss Wood and in the centre of the moss;
- Encourage the management of Moss Wood woodland, diversifying habitat for wildlife and;
- Retain the basic landscape structure of the mossland fields and ditches, whilst encouraging a greater diversity of native flora to the ditches.

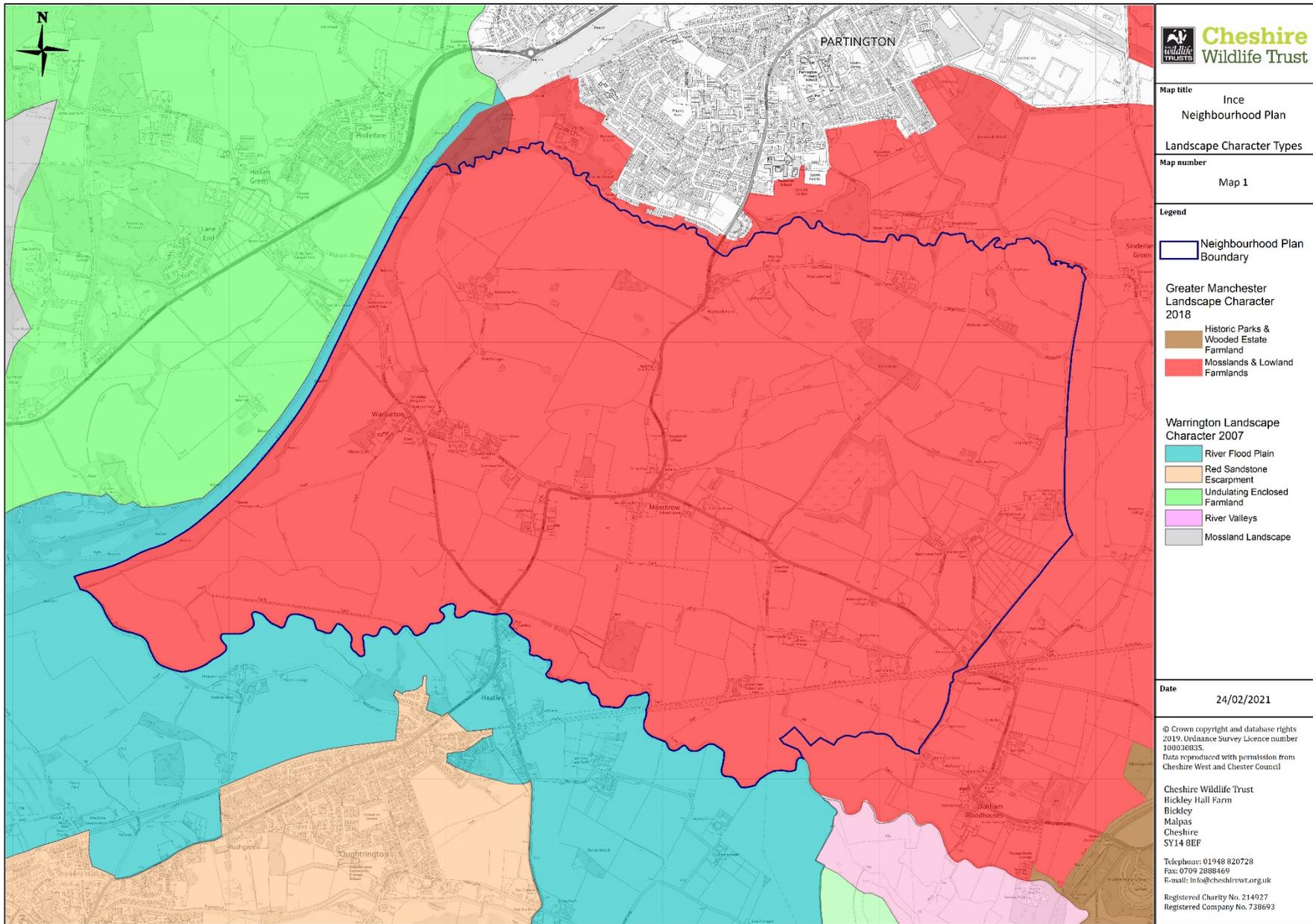
2.5. The Red Brook Valley Landscape Area

This area is confined to the valley of the Red Brook, which runs from the east into the River Mersey, under the A6144 (Warburton Lane). To the west of this road and north of the brook is Coroner's Wood, an ancient woodland, scheduled as a Site of Biological Importance (SBI) by Trafford Council. To the east of the road the valley is much more open, merging into mossland to the south. Moss Lane forms an approximate boundary with its hedges on both sides of the road and runs more or less along the valley side.

2.6. The Warburton Village Landscape Area

Much of this relatively small area comprises of the existing Warburton Conservation Area, but includes more recent housing to the east. Its core is Warburton Old Church, dedicated to St Werburgh. This church was located on the high southern embankment of the River Mersey and is set in an originally circular churchyard, indicative of great age. To the immediate north is the Old Rectory.

Map 1: Greater Manchester Combined Landscape Character Typology 2018 (including surrounding Landscape Character Areas for Manchester & Warrington)



The Landscape Character Assessment for Greater Manchester (Map 1) identifies one recognisable landscape character type (LCT) within the Warburton Neighbourhood planning area, the Mosslands and Lowland Farmlands LCT. Each LCT is subdivided into smaller Landscape Character Areas (LCAs); details of the relevant LCTs and LCAs are given below:

Mossland and Lowland Farms LCT

General Description

This Land character type is a largely rural landscape and provides an important sense of separation between distinct settlements and urban areas. In places, the landscape is strongly influenced by large scale industrial and commercial development, motorway corridors and railway lines, and there is also evidence of past mineral and extractive industries.

In lowland farmland areas there is a mixture of pasture and arable cultivation, and field boundaries tend to be defined by gappy hedgerows or post and wire fencing.

Former areas of the mosslands, with productive peaty soils, have been converted to large arable fields bound by drainage ditches and blocks of moss woodland. Parts of the mosses have a remote feel, due to a combination of few buildings and tracks in poor conditions. Large areas of the mosslands contain important semi-natural habitat, protected as Sites of Special Scientific Interest (SSSI). Brookheys Covert is one such example in Trafford and has a diverse range of woodland and wetland habitats in favourable condition.

Land Use and Field Patterns

The mosslands are a simple, ordered landscape divided geometrically into a series of fields of varying size, with deep, open drainage ditches as field boundaries interspersed with moss woodlands.

Land use is largely reclaimed lowland farmland; mainly arable but with some pasture, interspersed with distinctive areas of remnant mossland. Some areas of lowland farmland have medium to large scale fields which are generally defined by gappy hedgerows with few hedgerow trees.

Semi-natural Habitats and Woodland Cover

Remnant mosslands and large geometric moss woodlands are an important nature conservation feature and large parts designated as SSSI. Many are also locally designated as Sites of Biological Interest (SBI), including: Red Moss (Bolton), Brookheys Covert (Trafford), Highfield Moss (Wigan) and Astley and Bedford Mosses (Wigan), the latter of which is also designated as a Special Area of Conservation (SAC).

In lowland farmland areas there are small pockets of woodland, either on small steep-sided valleys, along motorway edges or associated with settlement edges. Areas of willow and alder carr fringe wetlands which include ponds, flashes and ditches. Farmland is drained by narrow brooks that contribute to the network of wetland habitats within the landscape.

LCA 44: Warburton and Carrington Mosses

A landscape sensitivity study for each character area scores this character area as having medium levels of sensitivity to residential, commercial and industrial development.

Guidance and opportunities to consider within this Landscape Character Type, stated within the Greater Manchester Landscape Character and Sensitivity Assessment Report (2018), that are relevant to protecting and enhancing Warburton's Natural Environment include:

- Utilise areas of existing woodland (e.g. moss woodlands, valley woodlands, woodland along settlement edges) to integrate new development into the landscape, avoiding sites designated for their nature conservation importance.
- Protect areas of semi-natural habitat, including mosses and moss woodlands, which are locally designated as SBIs or nationally protected as SSSIs. Seek to enhance these where possible and provide linkages to form robust habitat networks.
- Conserve and manage the mosslands, including those areas which form part of SBIs and Local Nature Reserves (LNRs), to avoid drying and erosion. Consider the potential to restore less productive areas of farmland to lowland raised bog habitat where possible.
- Restore and enhance areas of deteriorating farmland including the provision of additional species-rich hedgerow planting to fill gaps and replace post and wire fencing. Reintroduce hedgerow trees where appropriate.
- Protect areas of moss woodland, which provide important semi-natural habitat and contribute to the distinctive geometric character of the mosslands. Utilise the screening effects of existing woodland to integrate development into the landscape where possible.
- Conserve and manage existing woodlands to encourage habitat diversity, using locally appropriate species and protecting from grazing during establishment.
- Improve the condition of the mossland 'rides' and restore ditches and field boundaries in the mosslands to improve grassland biodiversity.
- Consider additional woodland planting (where appropriate) to enhance landscape structure, soften the urban fringe, screen industrial areas and reduce the noise and visual impacts of motorway corridors.
- Design Sustainable Drainage Systems (SuDS) in to any new development, addressing changes in hydrology and subsequent knock-on effects, such as increased diffuse pollution from agricultural run-off.

Natural Area

Natural Areas as defined by English Nature (now Natural England) in 1996 are a series of biogeographical units reflecting ecological integrity, land-form, 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.

Warburton, along with the vast majority of Merseyside, Greater Manchester and parts of Lancashire, lie within the Urban Mersey Basin; one of the most densely populated parts of the country. Central to this area are the River Mersey and River Irwell, and an associated network of canals, rivers and valleys around which the major cities and industries have developed.

Habitat Network Mapping Project

Natural England has developed a Nature Networks Handbook which is an Integrated Framework for creating Ecological Networks for Wildlife & People. It aims to provide practical recommendations that support the delivery of the Biodiversity 2020 Strategy, the Natural England Conservation Strategy (C21) & the Government's 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:

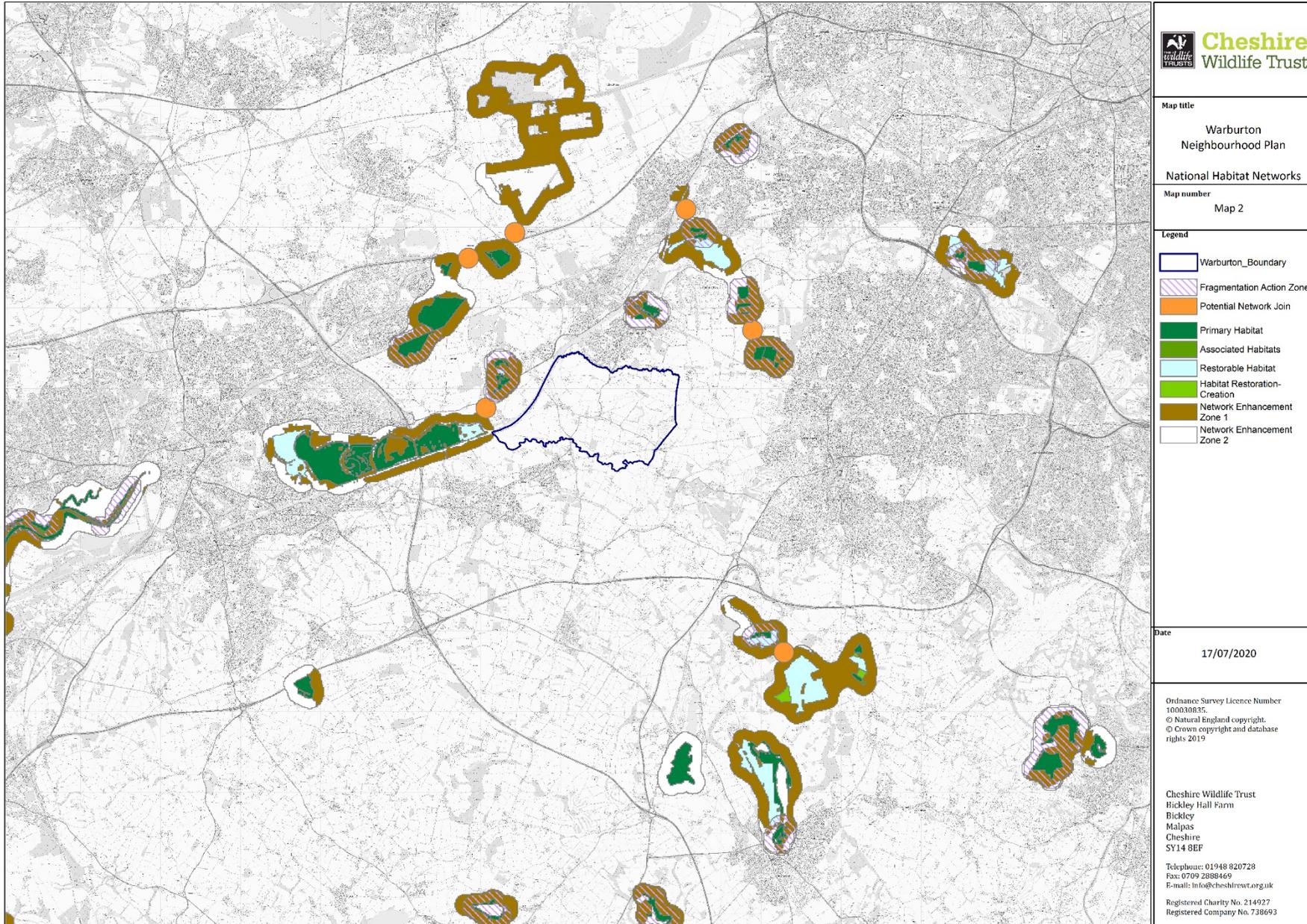
- Upland calcareous grassland
- Lowland calcareous grassland
- Reed-beds
- Lowland meadows
- Upland hay meadows
- Purple moor-grass and rush pastures
- Lowland dry acid grassland
- Lowland heathland
- Upland heathland
- Upland flushes fens & swamps
- Lowland fens
- Lowland raised bog
- Blanket bog
- 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 both 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.

Map 2: National Habitat Network Combined Habitat Mapping (excludes woodland habitats) – Natural England 2018



National Habitat Network Mapping has highlighted a number of areas of Primary Restorable Habitats to the north and west of Warburton's boundary. Woolsten Eyes SSSI lies along the Manchester Ship Canal to the west of Warburton. Primary Lowland Fen and Reedbed Habitats as well as Restorable Lowland Fen and Floodplain Grazing Marsh have been mapped within Woolsten Eyes SSSI. A potential join between Woolsten Eyes and Primary Lowland Calcareous Grassland within Rixton Clay Pits Local Nature Reserve (LNR) has also been identified.

Further north east of Warburton, a corridor is mapped between Primary Lowland Fen habitats located within Altrincham Sewage Works, Birch Moss Covert, Wetland at Carrington Moss and Carrington Power Station Local Wildlife Sites.

Risley Moss SSSI and LNR, as well as Holcroft Moss SSSI have also been mapped as Priority Lowland Raised Bog habitat to the northwest of Warburton.

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 Trafford and Greater Manchester

The Local Authorities of Greater Manchester are working together to produce a joint plan to manage the supply of land for jobs and new homes across Greater Manchester. As part of the GMSF/PFP, a map of the Priority Green Infrastructure and Ecological Networks (May 2018) across Greater Manchester has been created.

The GMSF Priority Green Infrastructure and Ecological Networks identify broad habitat networks for the whole of the Greater Manchester. The following broad habitats were identified as being the most important in the context of Greater Manchester:

- Uplands;
- Lowland Wetlands;
- River Valleys and Canals;
- Woodlands and Trees, and;
- Major Parks and Greenspace.

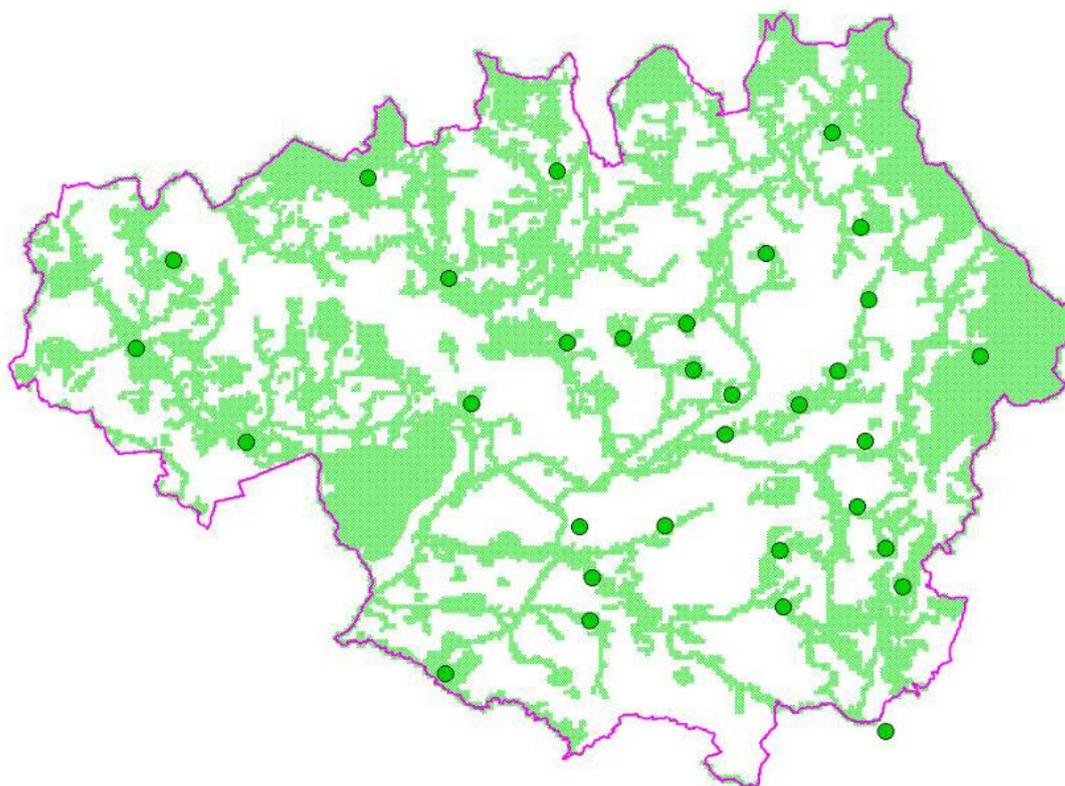


Figure 3. Draft Priority Green Infrastructure and Ecological Network Map for Greater Manchester Spatial Framework 2018

The wildlife corridors identified in this report (Map 9) are more specific to ecological networks that are important for conserving and enhancing biodiversity at a local scale, as opposed those identified in the GMSF.

Natural Course Ecological Network Tool 2020

As part of Natural Course, an EU funded LIFE Integrated Project that tackle big environmental challenges, Natural England has created an ecological network tool that models wetland and woodland habitat networks across Cheshire and South Lancashire. It highlights priorities for biodiversity and nature-based solutions for Natural Course objectives to improve and protect the water quality of the North West and provides an evidence base for Local Nature Recovery Strategies. Figure 4 shows primary wetland and woodland habitats and their associated action zones (where there are opportunities to create, buffer or expand these habitats) highlighted within the Warburton Neighbourhood Plan Area. Supporting information on the Wetland and Woodland Habitat Categories for the Network Tool can be found in Appendix 4.

Natural Course Ecological Network for Cheshire and South Lancashire 2020

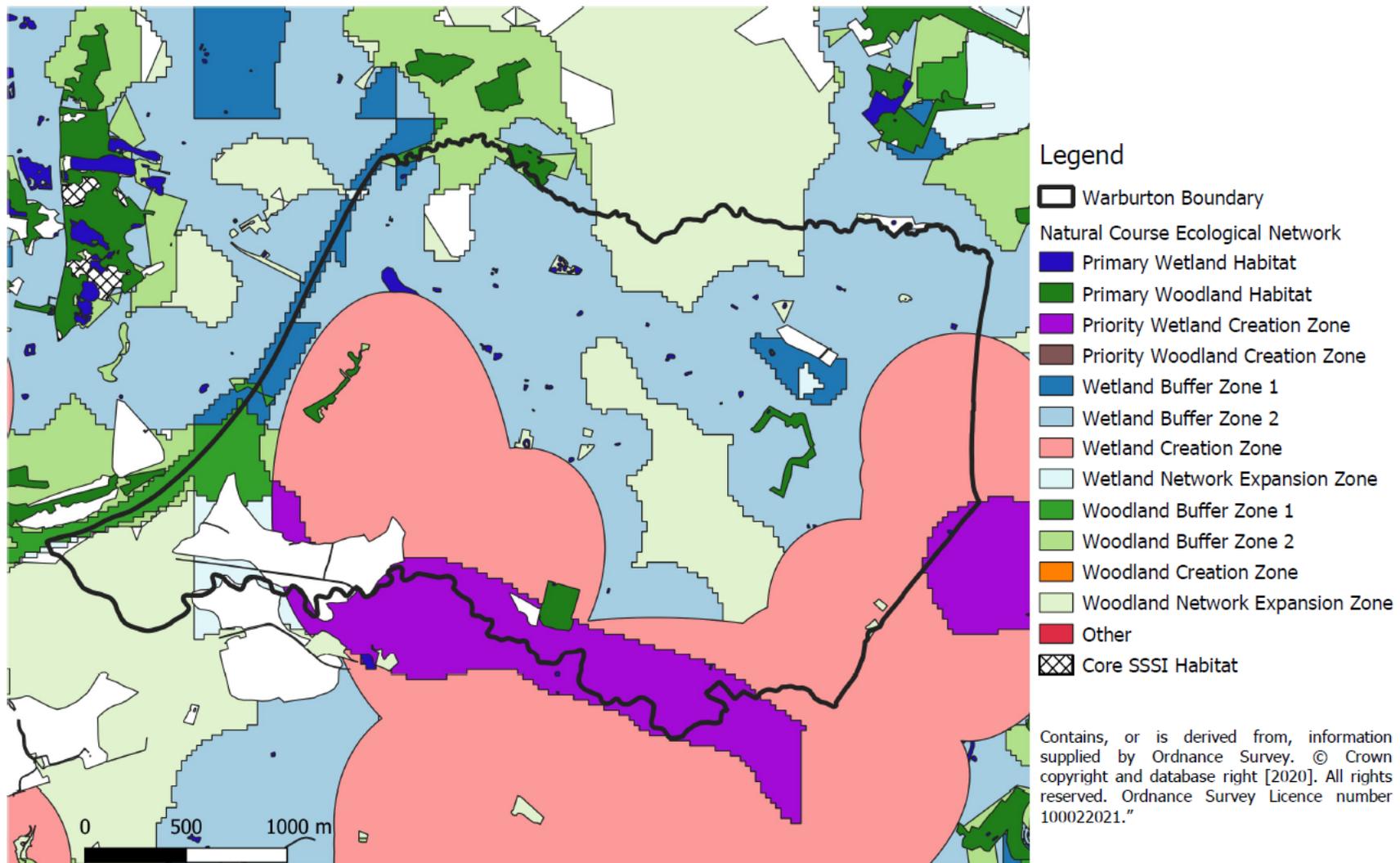


Figure 4. Wetland and Woodland Habitat Networks identified in Warburton by Natural England’s Ecological Network Tool 2020

Methodology

Habitat Distinctiveness Map

In line with current Defra methodologies to determine 'net gain' in biodiversity, habitat data from the sources listed below was attributed to one of three categories listed in the table:

Habitat type band	Distinctiveness	Broad habitat type covered	Colour on map
High or Very high ecological value	High or Very High	<ul style="list-style-type: none"> Designated nature conservation sites (statutory and non-statutory) Endangered or Critical European red List habitats Priority habitat* as defined in section 41 of the NERC Act '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 Includes 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 structure which are un-vegetated, unsealed surface or built linear features of very low biodiversity value.	n/a
*with the exception of arable field margins			

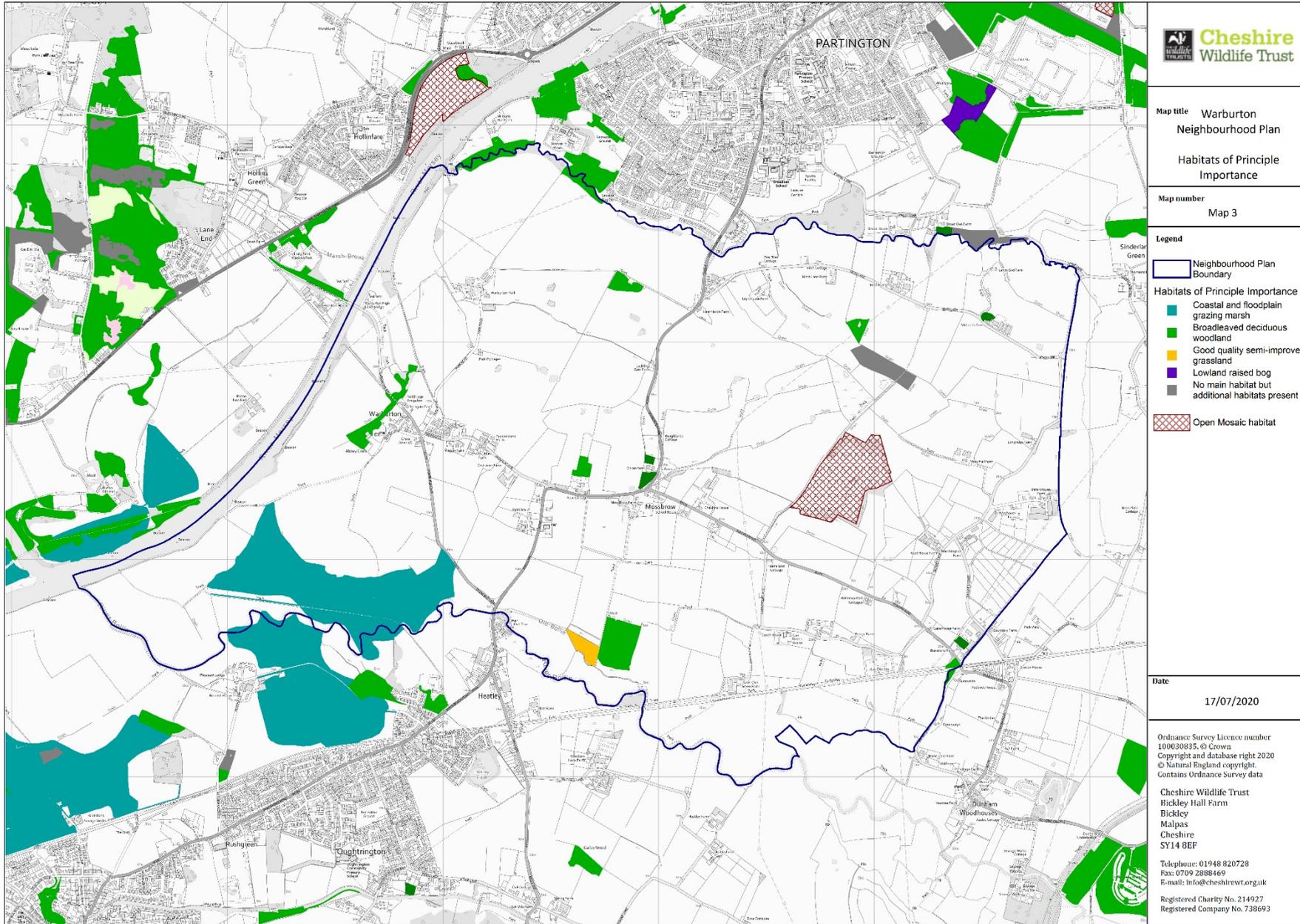
Habitat type bands (Defra July 2019)

1. Several published data sets were used to produce the habitat distinctiveness maps:
 - a. Priority habitat Natural England 2016 – High/medium confidence coded as high distinctiveness, and low confidence coded as medium distinctiveness unless other data is available.
 - b. Landcover data, Centre for Ecology and Hydrology 2007. Priority habitats (principal importance) and semi-natural habitats coded as medium distinctiveness (data in Appendix 1).
 - c. Agricultural land classification, Natural England - grade 4 medium distinctiveness, grade 5 high distinctiveness (adjusted where other data is available).
 - d. Protected sites (International Sites, European Sites, Sites of Special Scientific Interest, Local Wildlife Sites/Sites of Biological Importance and Local Nature Reserves), Natural England, CWT/CE Local Authority, GMEU/Trafford Local Authority – coded as high distinctiveness.
 - e. Ancient woodlands – Natural England 2015 – coded 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 coded as medium distinctiveness. (Supporting information in Appendix 2).

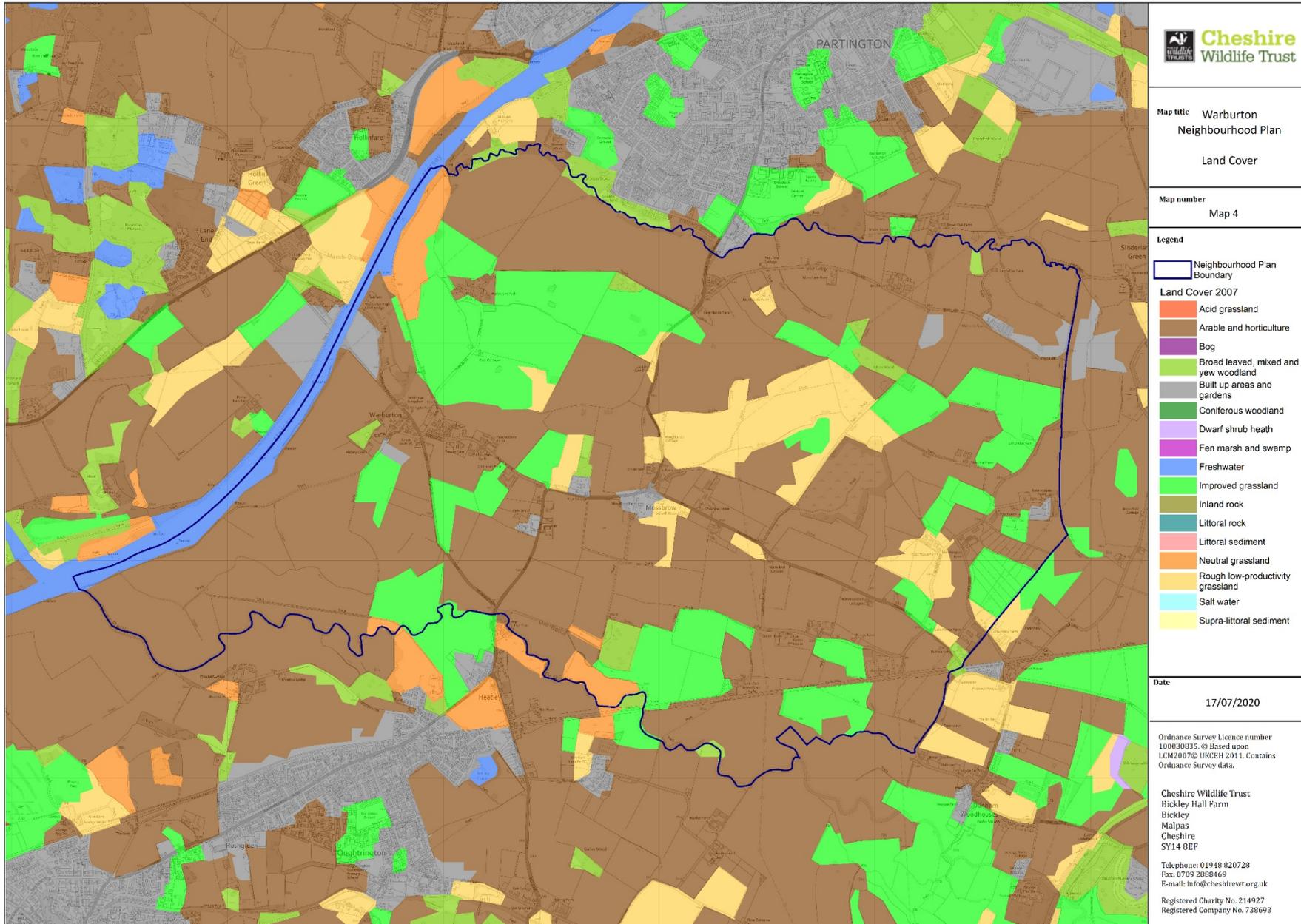
2. Aerial photography (Microsoft Bing™ Imagery, Google Earth) was used to validate the results by eye.
3. The Warburton Neighbourhood Plan Area Land Character Assessment and Natural England's National Habitat Network categories were mapped and the results were used to inform the conclusions.
4. Information from recent planning applications in Warburton were researched and species records have been incorporated where appropriate. Ecological records were also obtained (where available) from, the NBN (National Biodiversity Network) Atlas and the Woodland Trust's Ancient Tree Inventory website.

Mapping

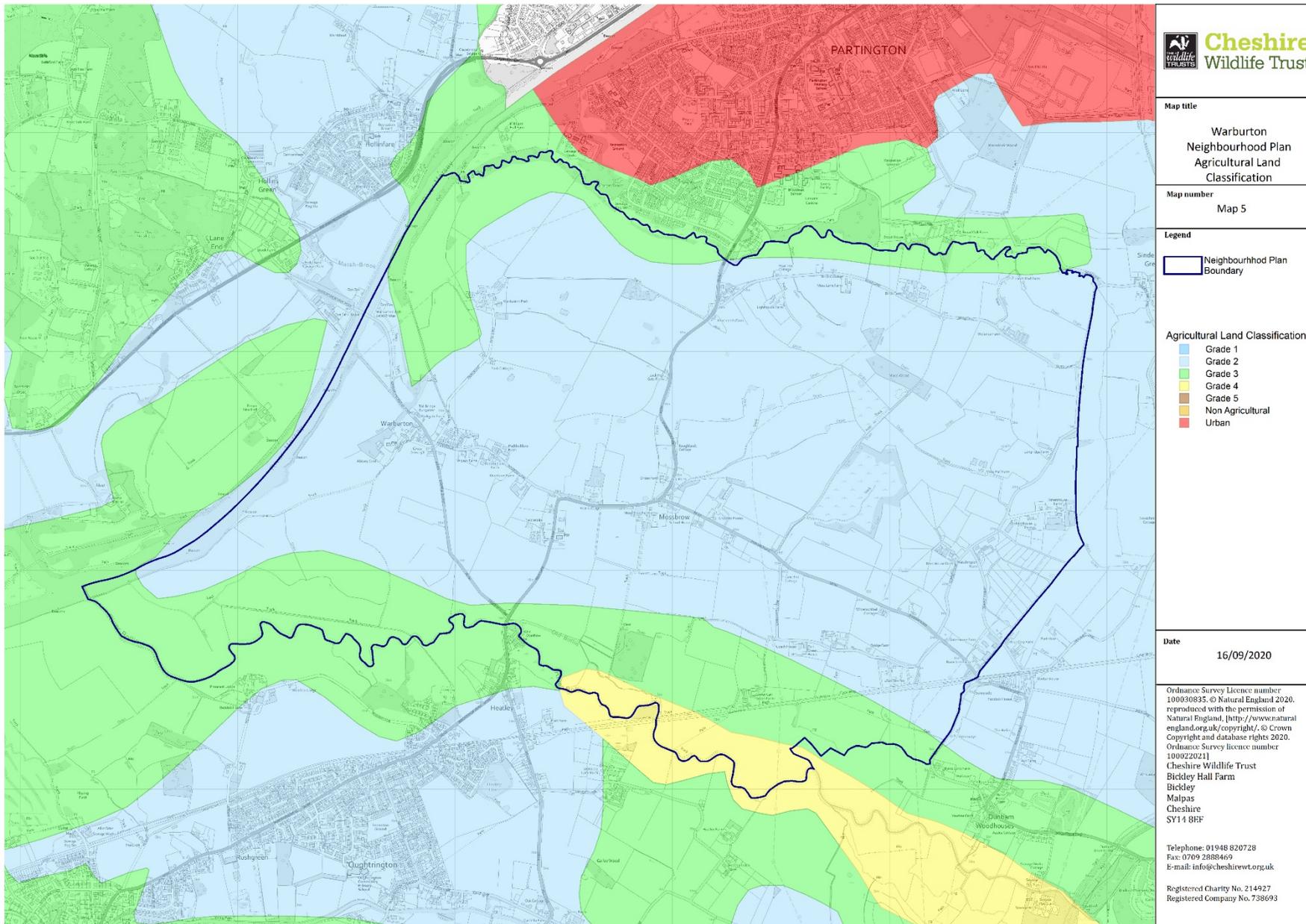
Map 3: Terrestrial habitats of Principal Importance – Natural England 2016



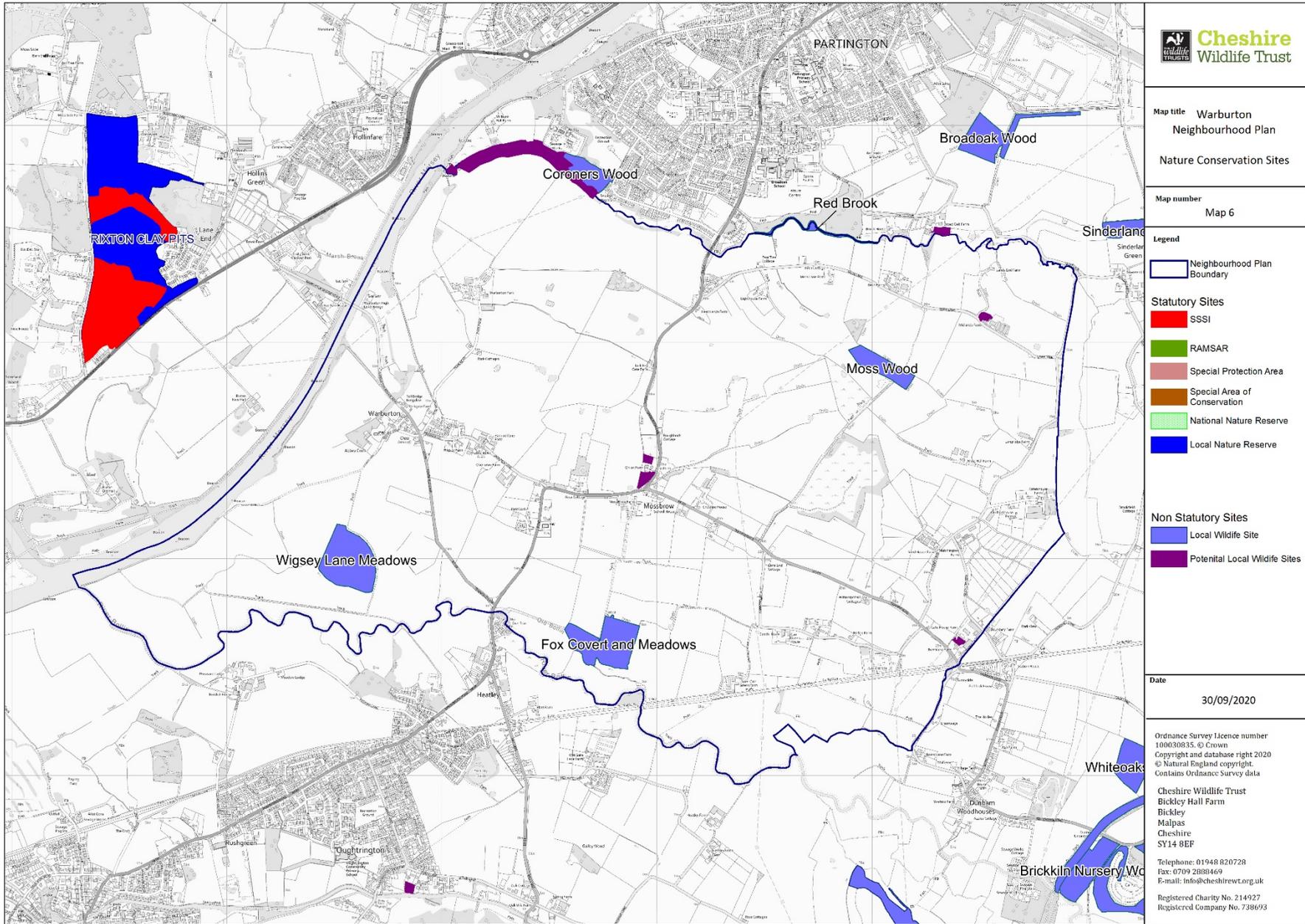
Map 4: Land Cover Map 2007 (LCM2007) parcel-based classification of satellite image data showing land cover for the entire United Kingdom derived from a computer classification of satellite scenes obtained mainly from the Landsat sensor



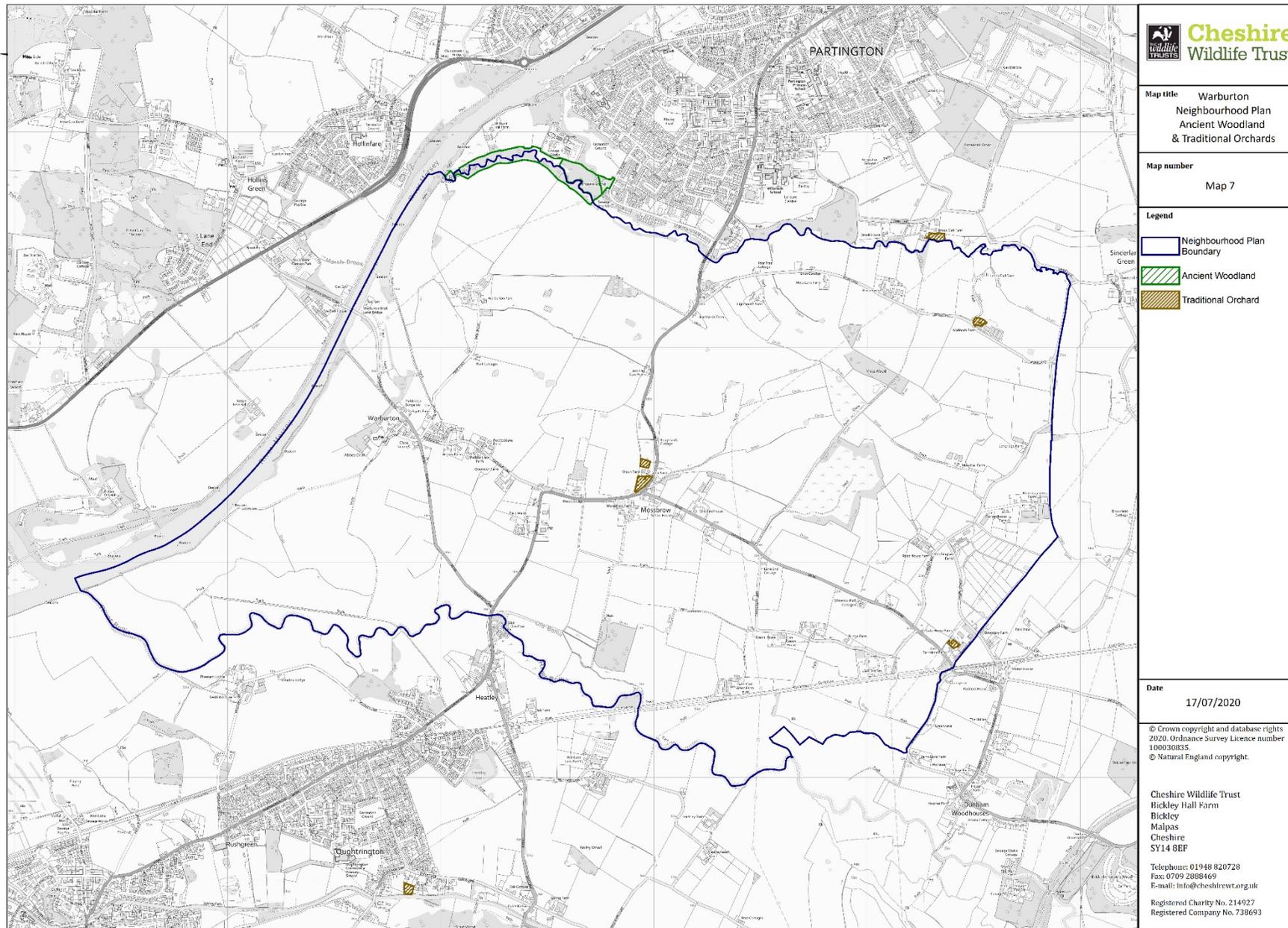
Map 5: Agricultural Land Grading – Natural England 2013



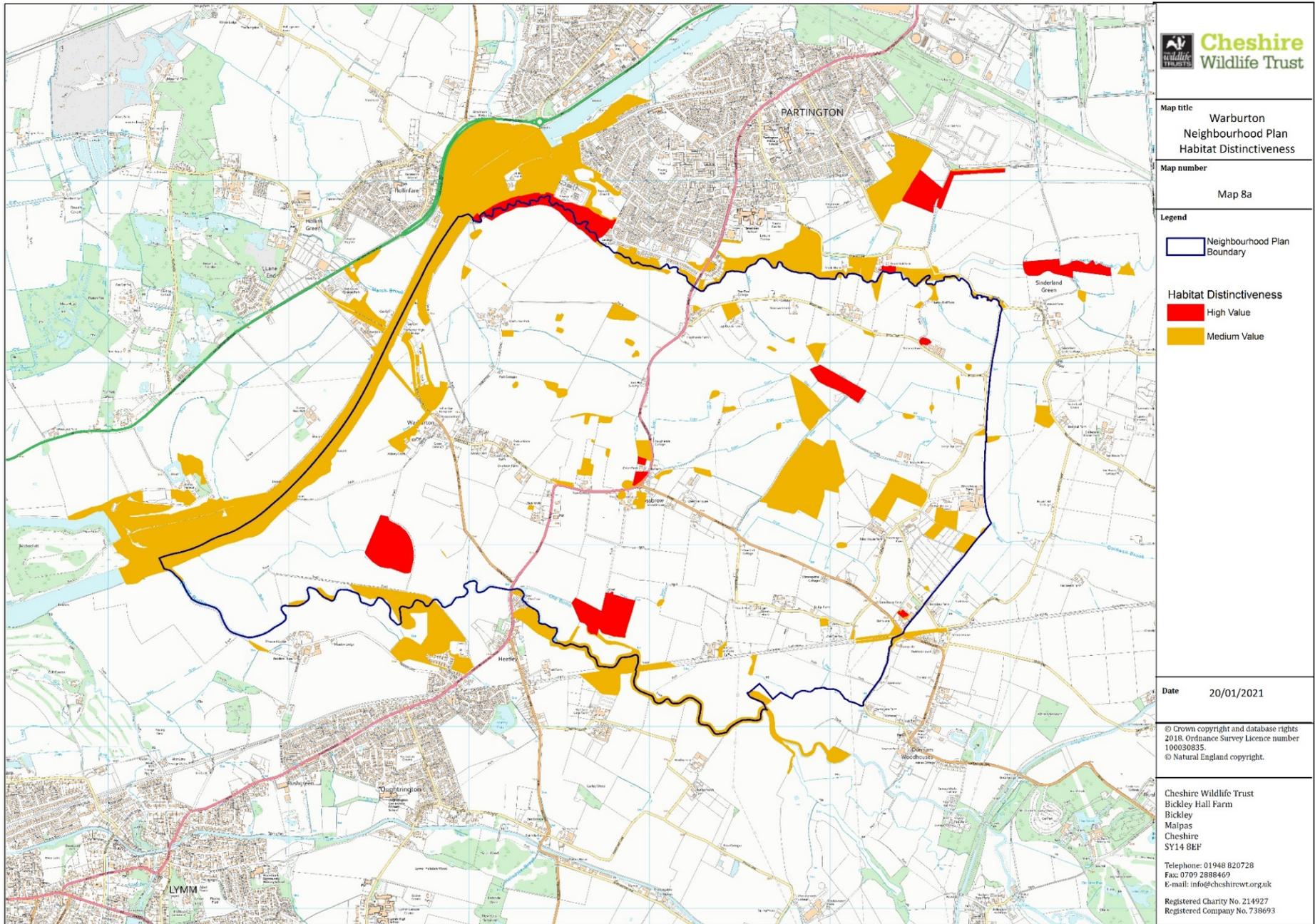
Map 6: Nature Conservation Sites, including designated Sites of Special Scientific Interest, Local Nature Reserves, European designated sites (SAC, SPA), Ramsar sites, Sites of Biological Importance/Local Wildlife Sites and non-designated Potential Local Wildlife Sites/Potential Sites of Biological Importance



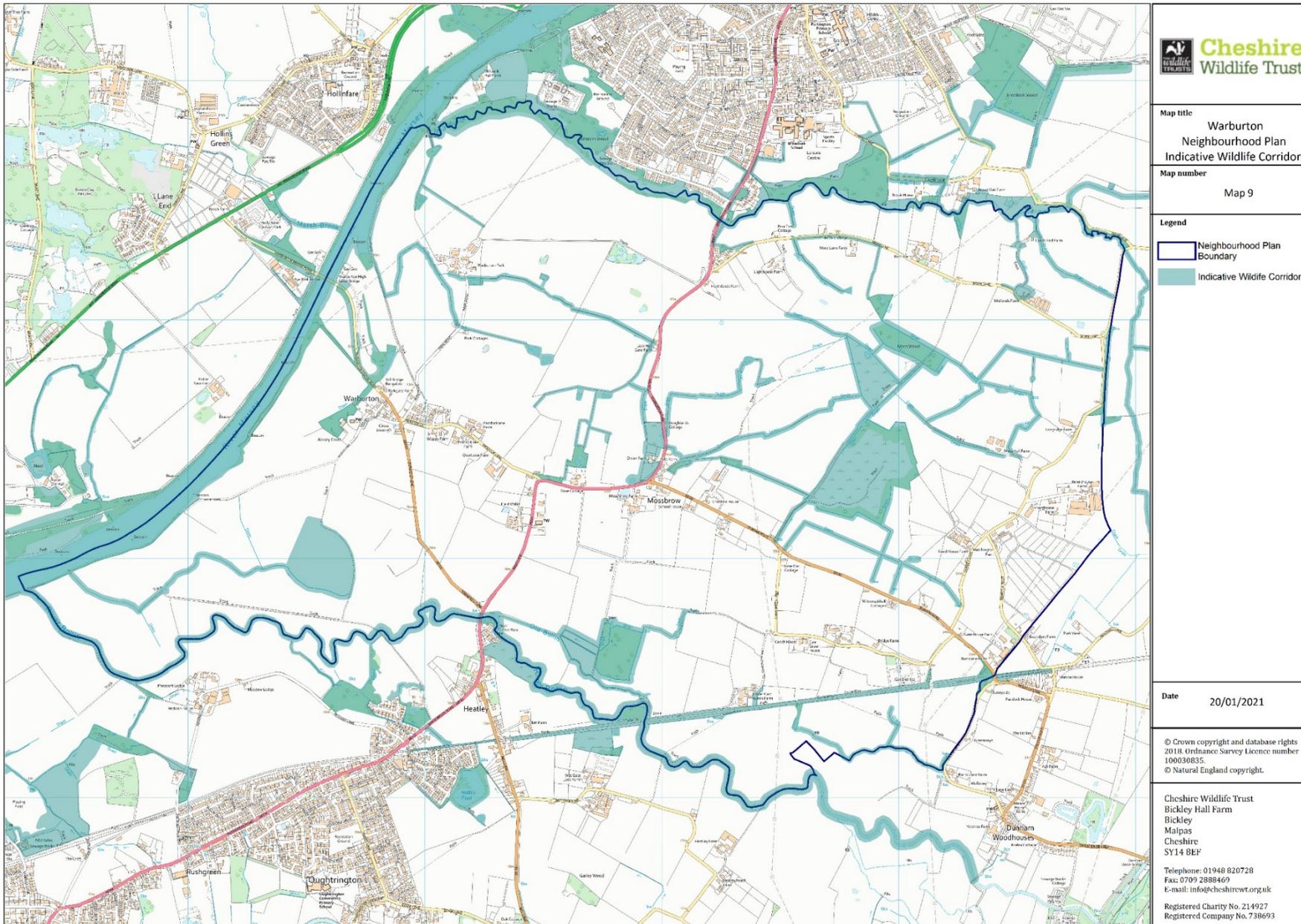
Map 7: Ancient woodland and traditional orchards – Natural England 2018



Map 8: Habitat Distinctiveness



Map 9: Indicative Wildlife Corridors for Biodiversity & Nature Conservation



Results and Discussion

High Distinctiveness Habitat

Areas of high distinctiveness habitat are shown on Map 9 (displayed as red) and provide important wildlife habitats. These are natural or semi-natural habitats, which are of significant or critical importance to wildlife due to their high biodiversity and ecological values. They should be a priority for conservation and appropriately managed in order to maintain or enhance their ecological features.

1. Woodland

Many woodlands in the Greater Manchester and Cheshire area are isolated, fragmented and impoverished, which makes the woodlands that are present particularly important features for biodiversity in the region.

In the Warburton area, Coroner's Wood, Moss Wood and part of Fox Covert and Meadows are selected as Sites of Biological Importance (SBI's) for their woodland habitat. Coroner's Wood is an ancient woodland (i.e. thought to be at least 400 years old). Coroner's Wood SBI, along with four hectares of adjacent woodland along the Red Brook, is listed on the ancient woodland inventory (Map 7). Although not listed on the ancient woodland inventory, the woodland within Fox Covert and Meadows SBI appears on the Cheshire Tithe maps c1839, which suggests it is potentially ancient in origin. Ancient woodlands are considered irreplaceable habitats due to the time taken for them to acquire their diverse flora and fauna. Local records

There are two additional woodlands just outside Warburton Parish that appear on the Cheshire Tithe maps for Warburton from the 1800's, but do not appear on the Ancient Woodland Inventory; suggesting they may also potentially be ancient in origin. The first is Sinderland Green Wood SBI, which lies just north of Townsend farm along Sinderland Brook, to the north east of Warburton. The second is Broadoak Wood SBI, which is located on the outskirts of Partington and lies north of Broad Oak Farm.

High quality woodlands, such as those discussed above, are likely to support important assemblages of woodland birds, including red listed¹ woodland birds such as song thrush and mistle thrush which have been recorded in the area in recent years. Lesser spotted woodpecker was last recorded in 2004 in the South West of the Parish. Song thrush are also a UK species of Principal Importance for conservation in England (S41 species)². The woodlands are also highly likely to support several species of bat, which roost in trees, forage for insect prey and commute along the network of woodland edges, hedgerows and watercourses.

There are a number of biological records for Himalayan Balsam within Warburton Parish. These include; a record from 2013 within a woodland pond immediately north of Moss Wood SBI, several records from 1992 to 2012 along the River Bollin in the vicinity of Heatly to the south and west of Fox Covert and Meadows SBI and a record along red brook where it passes under Warburton Lane from 2012.

¹ Birds of Conservation Concern 2015

² Listed on section 41 of the NERC Act 2006 or UK Biodiversity Action Plan species

Damp riparian woodlands along watercourses such as those identified along the Red Brook, are vulnerable to the spread of the invasive non-native Himalayan balsam (*Impatiens glandulifera*). This species poses one of the greatest threats to the condition of these woodlands, as its vigorous growth outcompetes native flora. This can have devastating impacts on the native flora and a knock on effect on the birds, invertebrates and mammals inhabiting these woodlands. Additionally, Himalayan balsam is an annual plant that dies back in the winter leaving bare soil which can then be eroded away in heavy rain.

2. *Traditional Orchards*

Traditional orchards are a quintessential component of the historic English landscape. Orchards are becoming increasingly rare due to neglect, intensification of agriculture and pressure from land development. These habitats provide excellent conditions for biodiversity to thrive and can support assemblages of rare species. Four traditional orchards are identified within Warburton on Map 7:

- Villa Farm Orchard and Onion Farm Orchard, located in the centre of the Parish within Mossbrow village;
- Midlands Farm Orchard, which is located off Moss Lane in the North East of the Parish, and;
- Barns Lane Farm Orchard in the south eastern extent of the parish.

A fifth orchard at Brook Oak Farm is located just north of the parish boundary along Red Brook. All five orchards are selected as Potential Local Wildlife Sites (pLWS); sites that are highly likely to be selected as Local Wildlife Sites but have not yet been formally surveyed against the selection criteria.

3. *Grassland*

Species-rich grasslands are the fastest disappearing semi-natural habitat in the UK. Only a few pockets of species-rich grassland within Warburton remain and two of these scarce sites are designated as SBI's. Wigsey Lane Meadows, in the south west of Warburton, and part of Fox Bridge Covert and Meadows, located in the south of Warburton, are selected under the Greater Manchester SBI criteria Gr2 for their semi-natural grasslands.

Areas of species-rich grassland will support populations of declining pollinators including moths, specialist grassland butterflies (such as small skipper or common blue) and solitary bees and hoverflies. 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.

4. *Running Water*

The River Mersey and its two tributaries Red Brook and the River Bollin provide important corridors along the boundaries of Warburton. A section of Red Brook along the northern boundary of the parish, between Warburton Lane and Brook House, is selected as Red Brook SBI. This site is potentially under threat from HS2 construction.

Nuttall's water weed, a non-native invasive pondweed, has been recorded within the Red Brook, downstream of the SBI and just east of Warburton Lane. This aquatic plant is fast growing and outcompetes most native species, reducing the biodiversity of waterways. It can also be harmful to

invertebrates and fish as it can cause dangerous fluctuations in oxygen levels throughout the water column. In slow flowing rivers, drainage channels and canals; this plant's dense growth can impede the flow of water and exacerbate flooding.

Medium Distinctiveness Habitat

Areas of medium distinctiveness habitat are shown on Map 8 (displayed as orange) and provide important wildlife habitats in their own right as well as acting as ecological stepping stones and corridors. Because the methodologies used to produce the maps are desk based rather than field survey based, there is a possibility that some of the medium distinctiveness areas have been undervalued and an ecological survey may indicate they should be mapped as 'high distinctiveness' priority habitat (which would be displayed as red in Map 8). Conversely, there may be areas which have been overvalued, particularly if recent management has led to the deterioration of the habitat; in which case these areas should be removed from the habitat distinctiveness map.

1. Woodlands

As well as the ancient woodlands and semi-natural woodlands selected as SBI's discussed above, there are a few small scattered blocks of broadleaved woodland present within the Warburton area.

These include:

- A small woodland with several ponds along a track to Warburton Park;
- A small woodland with a large pond and island located north of Rose Cottage and to the west of Mossbrow village;
- A triangle of woodland with a small pond immediately north of Moss Wood SBI;
- Two small triangles of woodland either side of the cycle way near to Barns Lane Farm along the eastern boundary of the Parish, and;
- A long thin woodland along the western periphery of Warburton near the Toll Bridge, also with a pond in its northern extent.

These broadleaved deciduous woodlands are considered likely to be habitats of principal importance by Natural England, and are marked on Map 3. More recently established woodlands such as these, although not ancient in origin, are still likely to provide a valuable habitat for wildlife, particularly invertebrates and birds, and given their connectivity provide important corridors through the landscape.

Bat species including Common and Soprano Pipistrelle have been recorded within the parish, as well as some older records of Daubenton's and Noctule bats from 2000, all of which are likely to be associated with the woodland habitat throughout the parish. All bats are European Protected Species (EPS) and many are also Species of Principal Importance for conservation in England (S41 species).

2. Grasslands

The majority of the land within Map 4 is mapped as arable and horticulture fields with the remainder largely mapped as improved grassland. A few field parcels are mapped as neutral grassland along the River Mersey on the north western edge of the parish and along the southern boundary on the River Bollin. Scattered patches of low productivity rough grassland are mapped on less productive fields around the village of Mossbrow, including a larger parcel of land to the east of Roughlands Cottage.

Semi-natural grasslands are invaluable for wildlife as they can support large populations of invertebrates and a variety of mammals, including brown hare, for which there are numerous records in the fields off Carr Green Lane in the south east of the Parish.

Many farmland birds on the BTO's Birds of Conservation Concern, like the red listed Skylark which have been recorded in the parish, feed on insects that live in semi-natural grasslands. Other farmland birds, such as the red listed Linnet (recent records within the parish) and Corn bunting rely on seeds from mixed open farmland and weedy grasslands. Corn buntings have declined throughout Cheshire and were last recorded in Warburton around 2009.

The amber listed kestrel (recent records within the parish) rely on small mammal populations supported by rough grassland. These grasslands also provide important feeding areas for overwintering birds such as starlings (red listed) and swifts (amber listed); both of which are recorded within the parish.

Rough grasslands can also provide valuable terrestrial habitat for newts, including the protected species great crested newt, provided they are in the vicinity of breeding site (the maximum dispersal distance for great crested newts is just over 1km)³ and there are no intervening barriers (such as main roads or rivers).

3. *Field ponds*

Fields ponds contribute to the permeability of the landscape for wildlife and provide important habitats for aquatic invertebrates as well as breeding habitat for amphibians including protected species such as 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. Despite this, even low value ponds can help increase landscape permeability for species such as birds and terrestrial invertebrates. Any ponds have been highlighted as habitat of medium distinctiveness in Map 8 and should always be retained where possible when land is developed.

4. *Floodplain Grazing Marsh*

Map 3 shows the fields flanking the River Bollin in the south west of the parish are mapped as Floodplain grazing marsh priority habitat. These encompass fields either side of Reddish lane to the south of the River and fields along a farm track between Birch Brook Road at Heatley and the River Mersey. A small portion the fields to the north of the river are also selected as Wigsey Lane Meadows SBI.

Many areas of coastal and floodplain grazing marsh have been agriculturally 'improved' and are of limited botanical interest. Consulting Map 5, the underlying area is classed as grade 3 agricultural land, which is of moderate suitability for agricultural production; perennial rye-grass, Yorkshire fog and rushes tend to dominate the sward in these locations. However, there may be pockets of greater

³ Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth

interest for wildlife in damper areas. The drainage ditches throughout the former areas of marsh can support a good diversity of plants and invertebrate populations such as dragonflies and damselflies. Grazing marsh can also potentially support breeding waders such as curlew and lapwing; both of which are red listed Birds of Conservation Concern and have been recorded in the parish (lapwing are recorded within the parish and there are old records for Curlew from 2004).

5. *Scattered trees and Hedgerows*

Hedgerows have not been included within the habitat distinctiveness mapping as it is difficult to gauge the wildlife value of a hedge from aerial mapping. However, the smaller field parcels are bounded by a good network of hedgerows and a number of field drainage ditches. Many of the hedgerows within Warburton also include trees (standards) that have been allowed to grow out of the hedgerows, creating a more structurally diverse habitat.

Scattered farmland trees, together with the hedgerow network, are fundamental to landscape permeability; particularly those with adjacent wide field margins or those lying adjacent to semi-natural grassland. Hedgerows provide important corridors for foraging bats, small mammal populations, amphibians as well as many invertebrate species. They also offer valuable nesting and foraging habitat for birds, including many declining species such as the red listed house sparrow and tree sparrow, which are both recorded within Warburton.

The NBN Atlas provides a number of scattered records of Hedgehogs throughout Warburton. These mammals, a species of principal importance, make use of hedgerows, woodlands, meadows and suburban gardens, and are particularly sensitive to expanding urbanisation.

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 or reproduce. In conjunction with the results of the National Habitat Network Mapping (2018) and the GMSF/PFP (under development) this study has identified a number of wildlife corridors (shown in Map 9) with ecological connectivity throughout and beyond the Neighbourhood Planning area. The National Habitat Network map and GMSF/PFP provide a broad map of the networks across England and Greater Manchester respectively. The wildlife corridors identified in Map 9 supplement these, while also being more specific to ecological networks that are important for conserving and enhancing biodiversity at a local scale. The GMSF/PFP network mapping and the wildlife corridors maps in Map 9 both identify “primary habitat” or “core areas” for biodiversity within the Warburton area; along the River Mersey, Red Brook and the River Bollin. The disused railway that bisects the parish along its south eastern extent also offers an important corridor for wildlife with links to the wider landscape. Additionally, there are a series of ponds, drainage ditches and wetland habitats in the eastern half of the parish, with relatively good connectivity, that provide an important network for wildlife.

The identified corridors link areas of valuable habitat with good connectivity, including; woodlands, grasslands and freshwaters. The corridors do however cross over roads where connectivity will not be maintained, although the maximum gap is less than 30 metres enabling some more mobile species to cross. Some of the hedgerows within the identified corridors may not be species rich and some run through intensively farmed land; meaning likely high inputs of agrochemicals could potentially be

affecting the species composition, especially at ground level. Increasing hedgerow diversity and changing management, as well as creating a buffer strip of rough grassland along its edge, would help bolster ecological connectivity in this area. Similarly, some sections of the corridors run along watercourses immediately adjacent intensively farmed agricultural land. Introducing buffers in these locations would be beneficial.

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

Map 9 incorporates an indicative boundary for the wildlife corridor network; however, this is likely to require refinement following detailed survey work. Corridors should be wide enough to protect the valuable habitats identified in Map 8; for this reason a 15 metre buffer zone has been incorporated around any high distinctiveness habitat. This buffer is necessary to protect vulnerable habitat from the effect of encroachment, resulting from external pressures such as light pollution, ground water pollution, predation by domestic pets and invasive alien or garden species.

Any potential development proposals should ensure high distinctiveness habitats, wildlife corridors or core areas for wildlife are avoided. Any development adjacent these areas should incorporate substantial mitigation to lessen impacts on wildlife while seeking to enhance their overall condition to achieve a net-gain for biodiversity, for example:

- 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 a scheme.
- Incorporating directional, low spillage (bat sensitive) lighting should be used on the outside of buildings or in car-parks and along pathways and watercourses.
- Installing hedgehog-friendly fencing as standard, purposely designed to allow the passage of hedgehogs from one area to another.
- Creating south facing banks or bunds for reptiles, butterflies and other invertebrates and the incorporation of bee bricks and bat/bird boxes into the design of buildings, ideally made of highly durable material such as woodcrete.
- Directing surface drainage water from developed areas away from sensitive locations, in particular habitats that are dependent on the hydrology of a site such as coastal and floodplain grazing marshes, due to the risk of pollution.
- Incorporating Sustainable Drainage Schemes (SuDS) which are useful in providing additional wildlife habitat and preventing flooding, although they may still hold polluted water so should not drain directly into existing wildlife habitat unless the filtration system is extensive. If designed well some SuDS can also enhance the biodiversity value of a site post-development.

Not all sections of the wildlife corridor provide high quality habitat and measures to improve its ability to support the movement of species is a priority⁴. Enhancement of the corridor may be facilitated by opportunities arising through the planning process (e.g. Section 106 agreements, planning conditions

⁴ Refer to Recommendations section

and biodiversity offsetting/compensation) or through the aspirations of the local community working with local landowners.

There are also opportunities through the Northern Forest Plan including planting of new woodland on former agricultural land to link existing sections highlighted as wildlife corridors. **It is vitally important that tree planting should only occur on species-poor habitats away from existing (non-woodland) priority habitats, semi-natural habitats, habitats of value to wildlife and the edges of watercourses including ditches and ponds. Specialist ecological advice should always be sought before any tree planting is undertaken.**

In addition to the 'wildlife corridor network' this study has identified further areas of high or medium 'habitat distinctiveness' (Map 8) which, although outside the wildlife corridor network, may nevertheless provide important wildlife habitats and, acting as ecological stepping stones, facilitate the movement of more mobile species throughout the wider landscape. These areas comprise semi-natural grassland, ponds and semi-natural woodlands.

The network of field boundary hedgerows and farm drainage ditches within the Warburton area provides habitat connectivity between high distinctiveness areas. 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 Warburton'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 or semi-natural grassland are the fastest disappearing habitats in the UK. These grasslands are particularly important for pollinating insects, insectivorous 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 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, compensation may be required 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.

Conclusion

This study has highlighted that the important wildlife habitat is mainly associated with the riparian corridors along the River Mersey, River Bollin and Red Brook, the woodland and grassland SBIs and the wetland habitats and series of ditches in the east of the parish. The disused railway line also provides an important network for wildlife through the southern extent of the parish. Apart from the SBI's and a few areas along the Mersey and Bollin, very few semi-natural grasslands were identified; making the ones that are present especially important.

By attributing habitat distinctiveness values to all land parcels in the Neighbourhood Plan area the study has provided important evidence that should be taken into consideration when planning

decisions are made. However, it is strongly recommended that further (phase 1/UK Habitat Classification) habitat survey work is undertaken at the appropriate time of year, in order to supplement this study and to verify that 'medium value' habitats have not been over or under-valued.

Most notably the study has highlighted a 'wildlife corridor network' which provides ecological connectivity between woodland, grassland and riparian habitats throughout and beyond the Neighbourhood Planning area. The wildlife corridor network is likely to support a wide range of species including numerous birds, mammals (including priority bat species), plants and invertebrates that are in decline both locally and nationally. These species depend on the semi-natural habitats highlighted in the report.

We recommend that the corridor network shown in Map 9 is identified in the Neighbourhood Plan and protected from development, so that the guidance relating to ecological networks set out in the NPPF (paragraphs 170d, 171, 174a, 174b, and footnote 57) may be implemented at a local level. The wildlife corridor network includes a buffer zone of up to 15 metres in places to protect the notable habitats shown in Map 8. If new areas of high distinctiveness habitat are subsequently identified, these should also be protected by a 15 metre buffer zone exempt from development.

Any future development of sites which lie adjacent to a high distinctiveness habitat or a wildlife corridor should be able to demonstrate substantial mitigation and avoidance measures to lessen any potential impacts on wildlife, and seek to enhance these features where reasonable to do so. This should include be based on the principal scheme design should seek to retain and enhance the 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 be supported with additional measures such as a sensitive lighting design, the installation of durable bat/bird boxes and ensuring surface water is directed away from sensitive areas and into SUDS schemes.

To summarise, future development of Warburton should respect the natural environment. The most intact landscapes, in terms of biodiversity, landform and historical/cultural associations should be valued highly when planning decisions are made. Protection and enhancement of Warburton's natural assets is of the utmost importance for nature conservation and ecosystem services but it is also important for the enjoyment of future generations.

Recommendations for Improving and Protecting Habitat in order to Create a Coherent Ecological Network

Following adoption of the neighbourhood plan, CWT advises that the following recommendations should be actioned:

1. Create links between existing 'wildlife corridor network'

There is currently good connectivity between the riparian corridors along the rivers and Red Brook. It is recommended that the wildlife value of existing hedgerows and agricultural drainage ditches are enhanced to extend the corridors and join them together. To achieve this, hedgerows could be cut less frequently, perhaps on rotation, additional trees planted and hedgerows layed to increase diversity and some of the hedgerow trees not flailed and allowed to grow up as standards. Drainage channels that regularly contain standing or flowing water can be specifically managed for wildlife under Countryside Stewardship. Semi-natural woodlands could be left to expand and regenerate naturally, increasing the woodland coverage and connectivity across the neighbourhood while also providing biodiversity benefits from the diverse structure of natural tree growth.

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

The areas highlighted as 'wildlife corridor network' in Map 9 incorporate all of the locally designated Sites of Biological Importance for Trafford and Local Wildlife Sites for Cheshire East, however it is highly likely that other land would meet also the criteria for Sites of Biological Importance and Local Wildlife Site selection. These areas (which may be identified as potential Local Wildlife Sites in map 6) should be designated if the selection criteria⁵ 6 are met; as LWS/SBI designation is likely to provide a greater level of protection within the planning system.

The wildlife corridor network should be in 'favourable condition'⁷ to provide breeding, foraging and commuting habitat for the native species that live there and native species which may subsequently colonise. Ideally these areas should be surveyed by a qualified ecologist to identify management priorities.

Management priorities:

- Drainage ditches and watercourses in intensively farmed land should be buffered by semi-natural areas to provide riparian habitat and help prevent 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

⁵ Greater Manchester Sites of Biological Importance Selection Guidelines 2016
https://www.gmwildlife.org.uk/resources/downloads/sbi_selection_guidelines.pdf

⁶ Local Wildlife Site criteria for the Cheshire region 2012
<https://www.cheshirewildlifetrust.org.uk/sites/default/files/files/Cheshire%20LWS%20criteria%20V40.pdf>

⁷ 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 3

species. It will also improve water quality and bank stability while decreasing siltation resulting in a reduction in the need to dredge.

- 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 (plant 60-90cm high 'whips' which have a good rate of survival, use tree guards to protect from rabbits and stock fence where necessary). New sections of hedgerow should ideally incorporate a tree every 30m (on average) which are demarked so as not to be inadvertently flailed. Non-native invasive plant species should be removed by a specialist contractor and a 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 wildlife 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 destruction 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 (tree/scrub cover should ideally be 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 works ponds professional advice should be sought and ponds should be assessed to ensure existing wildlife is not impacted, such as; great crested newts which use ponds for breeding and may also be in rank vegetation or under brash piles around the banks, or roosting bats which may be roosting in trees surrounding the ponds.
- Schedule 9 invasive species should be prevented from colonising Warburton's natural habitats. Under the Wildlife and Countryside Act 1981 it is an offence to plant or otherwise cause these species to grow in the wild. Areas of Himalayan balsam and Nuttall's water weed are present along Red Brook and Himalayan Balsam has also been recorded along the River Bollin. These plants should be managed by a specialist contractor to control their spread. These species colonise rapidly and will outcompete native woodland, grassland and wetland flora.
- It is likely that other Schedule 9 species such as variegated yellow archangel, montbretia and Spanish hybrid bluebells are present within the area, as they easily spread from domestic gardens. If present they should be eradicated by, or under the supervision of, a specialist contractor. Of particular concern are non-native bluebells, which may spread into Warburton's bluebell woodlands after being planted as a garden ornamental. Householders

should be educated of the problems with the encroachment of alien species into semi-natural habitats and avoid inadvertently planting any Schedule 9 invasive species within their gardens, especially where they adjoin open areas.

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 valuable sites can be buffered. Larger areas of better connected habitat support larger and more resilient species populations and help 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 low maintenance field margins and sowing locally sourced (local genetic stock) wildflower meadows⁸.

Woodland expansion is desirable to buffer Warburton's existing woodlands particularly as there are opportunities through the Northern Forest Initiative. 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 creates valuable habitat links for the dispersal of species. The creation, expansion or enhancement of wooded 'stepping stone' land parcels between existing woodland would also provide habitat within the landscape for more mobile species to colonise. **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 (glades and rides) and up to 25% shrub species. For maximum benefit biodiversity rides should be east-west oriented (so that sunlight is maximised) 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 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. 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 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

⁸ Cheshire Wildlife Trust can provide advice and seeds for locally sourced wildflower meadow creation.

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, 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 should 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 good condition high value hedges will require a 3:1 replacement ratio.

Any new sections of hedgerow should be created following the guidance provided above (point 1). Filling of gappy hedgerows will ensure that hedgerows have 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 greater 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 species

Hedgehogs travel an average of 1 mile every night, but their movement through suburban landscapes is often impeded by impenetrable garden fences. Ensuring new developments provide hedgehog friendly fencing as standard and encouraging householders to make holes in the bottom of their fences will increase the permeability of the landscape and the amount of land available to this species of principal importance. Increasing the permeability of suburban landscapes in this way will also provide benefits for other species. Wildlife permeable fencing should be complemented by educating and advocating for the use of non-toxic slug pellets by residents.

6. Ensure net gain policies are embedded in Neighbourhood Planning policies

Providing 'net gain' for biodiversity is embedded in the guidance in the NPPF (paragraphs 118a, 170d, 174b and 175d). In order to protect local natural assets, it is recommended that 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. Phase 1 habitat mapping

It is strongly recommended that Warburton's Neighbourhood Planning area is mapped in detail using either the Phase 1 Habitat or UK Habitat Classification System methodologies. This will provide an accurate, detailed picture of Warburton's habitats and could be used to verify the results of the habitat distinctiveness mapping (Map 8) undertaken in this study. Detailed habitat mapping may identify additional areas of medium or high distinctiveness priority habitat or habitat of principal importance, not identified in this assessment. Areas identified as having medium value habitat in this report should be targeted for survey as a priority to ensure they are not under/over-valued. Phase 1 mapping should also be used to determine the exact position of the wildlife corridor network.

Appendices

Appendix 1

Habitats, LCM2007 classes⁹ and Broad Habitat subclasses 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

⁹ No habitat scores higher than 'medium distinctiveness' due to the reliability of the data

		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
'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
		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 2

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 3

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

- The conservation features for which the site has been selected are clearly documented.
- There is documented evidence of a management plan/management scheme/advisory document which is sufficiently targeted to maintain or enhance the above features.
- 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.
- The Local Sites Partnership has verified the above evidence.

Appendix 4

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

Ecological Network Tool Interpretation – network classifications

The Ecological Network Tool output takes the form of a GIS layer with the following categories.

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 restoration or creation, as they represent	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 provide stepping stones between habitat patches. Where other associated habitats of conservation importance overlap with Wetland Buffer

	connecting areas within the network which could join existing primary habitat.	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.	Priority 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 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 2' 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.