Three Rivers District Council

Local Development Framework

Green Infrastructure Background Paper

March 2010

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1) Introduction

The attractiveness of Three Rivers as a place where people want to live, work and relax depends in part on the environment, both natural and built. It is therefore important that the environment is maintained and where possible enhanced in order to sustain the attractiveness and character of the District.

Regional requirements mean that the District must provide new homes and employment opportunities, and these will require development of supporting infrastructure. Three Rivers will also need to reduce the District's impact on and exposure to the effects of climate change, and to ensure that development in the District is sustainable.

Providing supporting infrastructure, responding to climate change and contributing to sustainable development are all possible functions of green infrastructure.

There are many available definitions of green infrastructure, but it has been defined by Natural England[1] as

> *'A strategically planned and delivered network comprising the broadest range of high quality spaces and other environmental features. It should be designed and managed as a multifunctional resource capable of delivering those ecological services and quality of life benefits required by the communities it serves and needed to underpin sustainability. Its design and management should also respect and enhance the character and distinctiveness of an area with regard to habitats and landscape types.*
>
> *Green infrastructure includes established green spaces and new sites and should thread through and surround the built environment and connect the urban area to its wider rural hinterland. Consequently it needs to be delivered at all spatial scales from sub-regional to local neighbourhood levels, accommodating both accessible natural green spaces within local communities and often much larger sites in the urban fringe and wider countryside'.*

There are a range of types of spaces that may be considered to contribute to 'green infrastructure' including:

- Parks and Gardens: urban parks, country and regional parks, formal gardens.
- Amenity Greenspace: informal recreation spaces, housing green spaces, domestic gardens, village greens, urban commons, other incidental space, green roofs.
- Natural and Semi-Natural Urban Greenspaces: woodland and scrub, grassland (e.g. downland and meadow), heath or moor, wetlands, open and running water, wastelands and disturbed ground, bare rock habitats (e.g. cliffs and quarries).
- Green Corridors: rivers and canals including their banks, road and rail corridors, cycling routes, pedestrian paths, rights of way.
- Other: allotments, community gardens, city farms, street trees, cemeteries and churchyards.

[1] Natural England's Green Infrastructure Guidance (http://naturalengland.etraderstores.com/NaturalEnglandShop/Product.aspx?ProductID=cda68051-1381-452f-8e5b-8d7297783bbd

The Natural England definition states that green infrastructure should be designed and managed as multi-functional. Potential functions may be environmental, social or economic and may include supporting: habitats and biodiversity, local distinctiveness, links between areas access, landscape setting, public health, the protection, conservation and management of heritage assets, sport and recreation, cultural experiences, education and training, food production, flood management and climate change adaptation and mitigation.

A high quality and multi-functional green infrastructure network can provide a range of environmental, social and economic benefits. Example benefits include:

- Social benefits: improving quality of life, providing access to nature and open space, offering greater integration between existing and new communities.
- Economic benefits: providing attractive places to live, work and visit, promoting inward investment and tourism, delivering resources and processes supplied by natural ecosystems and providing employment opportunities linked to outdoor environmental education and leisure enterprises.
- Environmental benefits: improving the quality of the environment, strengthening local character and identity, providing space for wildlife and heritage conservation, improving air quality and responding to climate change.
- Health benefits: facilitates and promotes active lifestyles e.g. more cycling and walking and mental well-being.

Gaining the greatest range of benefits from green infrastructure requires partnership working between neighbouring local authorities, the county council, relevant interest groups and landowners.

This background paper will review the context for green infrastructure in Three Rivers, will identify existing green infrastructure and assets and potential areas for future development of the green infrastructure network.

2 Green Infrastructure Context

2.1 National Context

Planning Policy Statement 1: Delivering Sustainable Development requires development plans and planning decisions to have due regard to environmental issues in meeting sustainable development objectives and states that development should provide for an appropriate mix of uses, including the incorporation of green space.

Planning and Climate Change- Supplement to PPS1 states that spatial strategies and any development should help deliver, amongst other things, green infrastructure and biodiversity as part of a strategy to address climate change mitigation and adaptation.

Planning Policy Statement 12: Local Spatial Planning gives prominence to the provision of green infrastructure, particularly alongside housing development. It advises that Core Strategy documents should be supported by evidence of what green infrastructure is needed to enable the amount of development proposed for the area to be delivered, taking account of its type and distribution. PPS12 notes that good infrastructure planning considers the infrastructure required to support development, costs, sources of funding, timescales for delivery and gaps in funding.

PPS12 recognises that many issues critical to spatial planning do not reflect local planning authority boundaries, and this is particularly relevant for green infrastructure networks which often cover large areas making planning an individual district in isolation a difficult task.

In addition to these documents, national policy documents with relevance to planning for green infrastructure include:

- PPG2: Green Belts
- PPS3: Housing
- PPS7: Sustainable Development in Rural Areas
- PPS9: Biodiversity and the Historic Environment
- PPG15: Planning and the Historic Environment
- PPG17: Planning for Open Space, Sport and Recreation
- PPS25: Development and Flood Risk.

2.2 Regional Context

East of England Plan policy ENV1 (Green Infrastructure) states that:

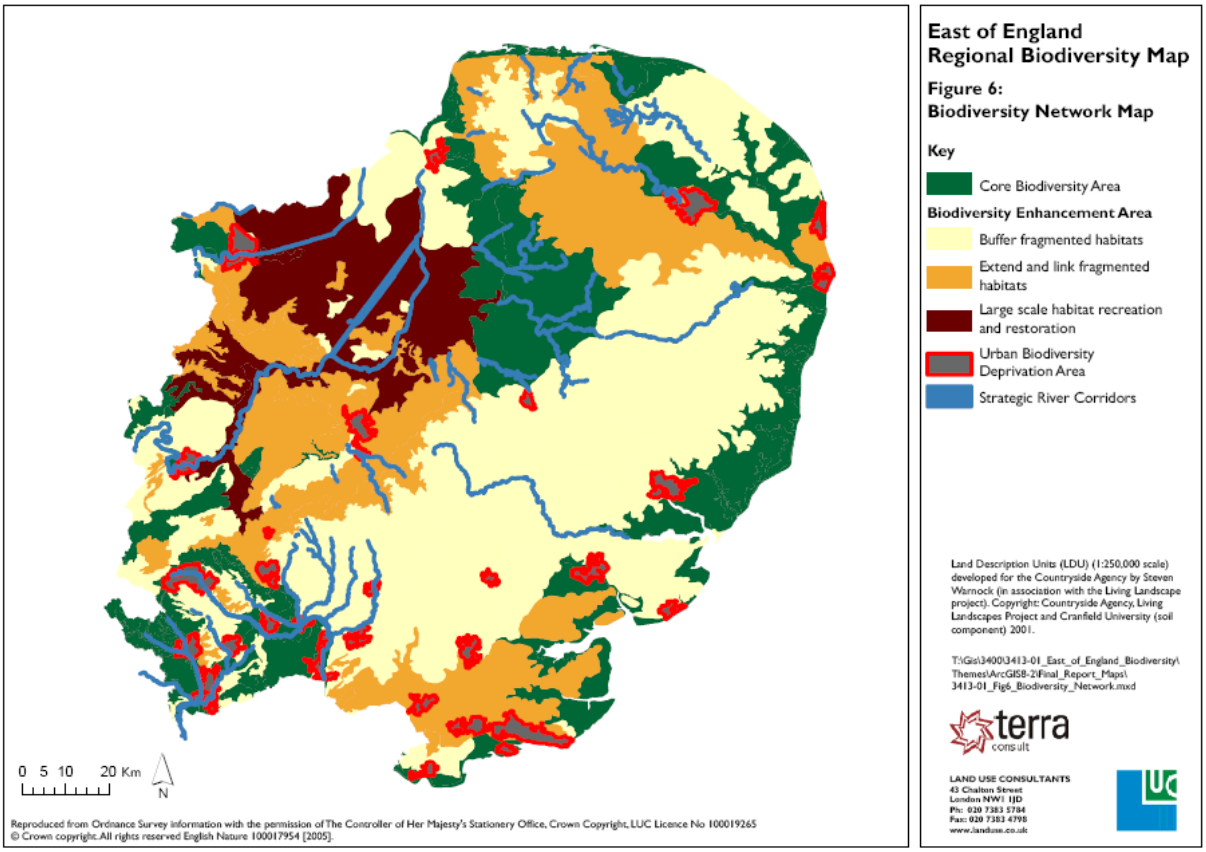
> *'Areas and networks of green infrastructure should be identified, created, protected, enhanced and managed to ensure an improved and healthy environment is available for present and future communities. Green infrastructure should be developed so as to maximise its biodiversity value and, as part of a package of measures, contribute to achieving carbon neutral development and flood attenuation. In developing green infrastructure, opportunities should be taken to develop and enhance networks for walking, cycling and other non-motorised transport.'*

The East of England Plan considers that while the policy applies region-wide and at all scales of development, green infrastructure will be particularly important in settlements and

surrounding areas proposed for regionally significant development, notably the Key Centres for Development and Change. Watford and Hemel Hempstead, both adjoining Three Rivers have been designated as Key Centres for Development and Change increasing the importance of green infrastructure within Three Rivers and linkages into Watford and Dacorum boroughs.

The East of England Biodiversity Mapping Project (2005)[2] has developed a regional biodiversity network map for the East of England. This was produced in response to the levels of growth proposed for the Region which suggested the need to establish a network of biodiversity areas and corridors to both conserve existing biodiversity and restore and regenerate biodiversity in areas which may be suffering from a current deficit, set against an uncertain background of climate change. The regional biodiversity network map produced is shown in Figure 2.1 and indicates core biodiversity areas, biodiversity enhancement areas, strategic river corridors and urban biodiversity deprivation areas.

Figure 2.1: East of England Biodiversity Network Map



The East of England Biodiversity Delivery Plan 2008-2015[3] recognises that the East of England is one of the most biodiversity rich areas in England, and that while the region strives for greater prosperity and an improved quality of life, this must also take into account the needs of biodiversity.

[2] http://www.eoebiodiversity.org/reports/eofengland%20biodiversity%20network%20report.pdf
[3] http://eoebiodiversity.org/pdfs/habitat%20targets.pdf

2.3 Hertfordshire Context

The Hertfordshire Biodiversity Action Plan[4] provides a 50-year vision for the wildlife and natural habitats of Hertfordshire and identifies those habitats and species which are a priority for conservation action. It provides a valuable source of information on the county's natural assets.

In recognition of the need to develop a consistent and collaborative approach to green infrastructure provision in Hertfordshire, Hertfordshire County Council are leading on the preparation of a Framework for green infrastructure in Hertfordshire. The Framework preview document[5] encourages a consistent and focussed approach to green infrastructure provision in Hertfordshire through the creation of a green infrastructure Partnership and by supporting local green infrastructure strategies to deliver the many social, economic and environmental benefits that green infrastructure has the potential to provide.

The Framework identifies the priorities for green infrastructure planning in Hertfordshire as:

- Establishing a common approach to green infrastructure planning across authority boundaries;
- Safeguarding green space assets that contribute to green infrastructure including wildlife sites and corridors and movement networks for people (walking, cycling and other non-motorised transport);
- Assessing the quantity, quality and functionality of existing green infrastructure assets to identify areas where additional and/or enhanced green infrastructure is needed to meet future needs;
- Encouraging provision of connected networks of green space in urban, urban fringe and adjacent countryside areas related to settlements proposed for regionally significant development (notably Hatfield and Welwyn Garden City, Hemel Hempstead, Stevenage and Watford in Hertfordshire; and Luton/ Dunstable and Harlow, close to the county's boundaries);
- Highlighting the importance of 'landscape scale' assets of regional significance for the retention, provision and enhancement of green infrastructure (Chilterns Area of Outstanding Natural Beauty, Watling Chase Community Forest and the Lee Valley Regional Park) and strategically significant green infrastructure projects and proposals (such as the green infrastructure projects around the fringes of Greater London and associated corridors) within Hertfordshire; and
- Stimulating development of policies in Local Development Documents that respond to locally identified needs, and identify the scale and location of green infrastructure required to extend and enhance existing assets to create multi-functional networks of green space.

A county plan that highlights strategically important green infrastructure across Hertfordshire is due to be completed, and this will inform a suite of compatible district-scale plans.

[4] http://www.hef.org.uk/nature/biodiversity_vision/contents.htm
[5] http://www.hertsdirect.org/libsleisure/heritage1/landscape/about/ginf/

2.4 Local Context

Three Rivers District Council's long-held vision is that the District should remain a prosperous, safe and healthy place where people want and are able to live and work. Reflecting the priorities for the District, the Three Rivers Strategic Plan 2010-2013[6] states that 'as an excellent Council, we are working for safer and sustainable communities'. Green infrastructure provision can help to contribute to progress towards sustainable communities.

The Three Rivers Community Strategy 2006-2012[7] has identified priorities for the District as:

- Anti-social behaviour, crime and fear of crime;
- Reducing inequalities (in health, poverty, access to services, prosperity and employment);
- Improving the environment;
- Children and young people's access to education, skills and training; and
- Access to affordable housing.

Green infrastructure provision may particularly contribute to the reducing inequalities and improving the environment priorities.

In 2005, an Open Space Sport and Recreation Study was completed in accordance with the requirements of PPG17, and is due to be updated in 2010. The study assessed current provision in Three Rivers and identified issues and measures to improve provision.

An Open Space, Amenity and Children's Play Space Supplementary Planning Document was adopted by the Council in December 2007. This provides guidance on the provision of open space and children's play space as part of development proposals, and also includes guidance on designing open spaces for recreation.

[6] http://www.threerivers.gov.uk/Default.aspx/Web/CouncilPoliciesPlans
[7] http://www.threerivers.gov.uk/GetResource.aspx?file=Community%20Strategy%202006%20to%202012.pdf

3 Green Infrastructure in Three Rivers

A variety of datasets and information sources have been used to identify and where possible map the distribution of green infrastructure assets within Three Rivers, and subject to data availability in surrounding local authority areas.

The green infrastructure assets which have been considered relevant for Three Rivers are: the Chilterns Area of Outstanding Natural Beauty, Sites of Special Scientific Interest, Local Nature Reserves, County Wildlife Sites, Key Biodiversity Areas, Biodiversity Action Plan priority habitats, Biodiversity Action Plan priority species, woodlands, parks and open spaces, heritage assets, rivers, canals, railways and their corridors and pedestrian and cycle networks.

3.1 The Chilterns Area of Outstanding Natural Beauty

Three Rivers incorporates 546ha of the Chilterns Area of Outstanding Natural Beauty (AONB), an area of national landscape importance. The area of Chilterns AONB within Three Rivers is shown in Figure 3.1. It is sparsely populated and is characterised largely by chalk stream river valley and adjacent hillsides and woodlands.

3.2 Sites of Special Scientific Interest

Sites of Special Scientific Interest are nationally important wildlife and geological sites. There are five Sites of Special Scientific Interest within Three Rivers as shown on Figure 3.2. The sites are:

- **Frogmore Meadows**: a 4.6ha lowland neutral grassland site, assessed as 'unfavourable, no change' condition (2004) as a result of undergrazing.
- **Sarratt Bottom**: a 3.46ha lowland neutral grassland site, assessed as 'unfavourable, no change' condition (2004) as a result of undergrazing.
- **Croxley Common Moor**: a 39.64ha lowland acid grassland site, assessed as 'unfavourable recovering' condition (2006).
- **Whippendell Woods**: a 66.68ha lowland broadleaved, mixed and yew woodland site, assessed as 'favourable' condition (2005).
- **Westwood Quarry**: a 0.08ha earth heritage site, assessed as 'unfavourable declining' condition (2004) as a result of scrub encroachment.

3.3 Local Nature Reserves

Local Nature Reserves are designated sites of importance for wildlife, geology, education or public enjoyment. There are nine Local Nature Reserves within Three Rivers as shown on Figure 3.3. These sites are:

- **Chorleywood Common**: 76ha supporting three different unimproved grassland habitats- acid heath, neutral grass and chalk meadow.
- **Chorleywood House**: 65ha within the Chilterns AONB combining formal parkland, open meadows and mature woodland leading down to the banks of the River Chess.

- **Croxley Common Moor**: 41.2ha of grassland, with 130 different types of plants and numerous anthills. Also designated as a SSSI due to the special plant life and community value.
- **The Withey Beds**: 7.5ha of wetland, one of the few remaining in Hertfordshire and particularly important as it supports a wide range of habitats including wet woodland, marsh, drier grassland and open ditches as well as including the River Colne.
- **Oxhey Woods**: 100ha of principally ancient semi-natural woodland, containing a complex range of habitats which make it one of the most important woodlands in the county.
- **Prestwick Road Meadows**: a 3ha remnant of old farmlands with ancient hedgerows.
- **Batchworth Heath**: 4ha of grassland.
- **The Aquadrome**: 41ha of land, water, woodland and landscaped park. The two lakes (Batchworth and Bury Lake) are flooded gravel pits.
- **Stockers Lake**: 38ha including one of the oldest gravel pits in the Colne Valley.

3.4 County Wildlife Sites

County wildlife sites are defined as discrete areas of land which are considered to be of significance for wildlife features in at least a District context. There are 152 county wildlife sites in Three Rivers which meet wildlife site criteria. These sites cover a variety of habitat types and species identified as having biodiversity value and should therefore be retained. These sites are spread across the District and are shown on Figure 3.4.

3.5 Key Biodiversity Areas

The Hertfordshire Biodiversity Action Plan identifies three key biodiversity areas in Three Rivers. These areas are shown in Figure 3.5 and are:

- **Mid-Colne Valley**: wetlands (gravel pits) and grassland.
- **Whippendell Woods and surrounds**: woodlands, grassland and wetlands.
- **River Chess Valley**: wetlands, grasslands, woodlands and heath.

The Bricket Wood/ Moor Mill Key Biodiversity Area noted for its wetlands, woodlands and heath is located at the north east of the District, mostly within St Albans District, though a small part of it does fall within Three Rivers.

3.6 Biodiversity Action Plan Priority Habitats

The Hertfordshire Biodiversity Action Plan has identified a series of priority habitats for Hertfordshire. These are:

- Key habitats of which there is a significant proportion of the UK resource in Hertfordshire. Hertfordshire has special responsibility for these and are therefore a priority for action:
    - Chalk rivers
    - Lowland Beech woods.
- Key habitats which have declined in the recent past or are still declining locally. These habitats are directly threatened and must therefore be a priority for action:

        - Ancient species-rich hedgerows
        - Lowland acidic grassland and lowland heathland
        - Lowland calcareous grassland.
    - Key habitats which are locally rare and/or threatened and therefore require conservation action:
        - Lowland hay meadow
        - Floodplain grazing marsh
        - Fens
        - Reedbeds
        - Cereal field margins.
    - Local habitats which Hertfordshire has a significant proportion of the UK resource and therefore a wider responsibility for, or habitats which are locally distinctive and important in defining the character of the local natural environment:
        - Oak-hornbeam woods.

3.7 Biodiversity Action Plan Priority Species

The Hertfordshire Biodiversity Action Plan also identifies a series of priority species for Hertfordshire. These are:

- UK priority species where Hertfordshire can contribute to the achievement of the national targets, because the species are characteristic of the area:
    - Brown Hare
    - Otter
    - Water Vole
    - Grey Partridge
    - Song Thrush
    - Bullfinch
    - Linnet
    - Spotted Flycatcher
    - Turtle Dove
    - Stag Beetle
    - Thatch Moss
    - Cornflower
    - Dormouse
    - Pipistrelle
    - Bittern
    - Skylark
    - Stone Curlew
    - Corn Bunting
    - Reed Bunting
    - Tree Sparrow
    - Great Crested Newt
    - White-clawed Crayfish
    - Shepherd's Needle
    - Corn Cleavers
- Species which are locally rare, declining, threatened and are wither high profile and/or locally distinctive:
    - Natterer's Bat
    - Nightingale
    - Water Rail
    - Kingfisher
    - Palmate Newt
    - Brown Hairstreak
    - Chalkhill Blue
    - Grizzled Skipper
    - Corn Parsley
    - Long-eared Owl
    - Pochard
    - Hawfinch
    - Snipe
    - Small Blue
    - Duke of Burgandy
    - Silver-washed Fritilliary
    - Corn Buttercup
    - Corn Gromwell
    - River water-dropwort
    - Narrow-fruited Corn Salad
    - Great Pignut
    - Green-winged Orchid
    - Ivy-leaved Water Crowfoot
    - Pasqueflower
    - Petty Whin
    - Snakes-head Fritillary

3.8 Woodlands

Three Rivers contains a variety of woodlands, some of which are ancient woodlands. Figure 3.6 shows areas of woodland in the District.

3.9 Parks and Open Spaces

Figure 3.7 shows the parks and open spaces in the District. Parks and open spaces include village greens and areas of common land, and parts of the Colne Valley Regional Park which is a mosaic of farmland, woodland and water incorporating river, canal and lakes. There are many smaller areas of amenity space which have not been mapped, but may still be important resources more locally.

3.10 Heritage Assets

Figure 3.8 shows registered parks and gardens, Scheduled Ancient Monuments and archaeological sites within the District, which may be important Green Infrastructure assets.

There are two registered parks and gardens at Cassiobury Park and Moor Park.

There are the three Scheduled Ancient Monuments within the District:

- Roman Villa, Moor Park
- Manor of the More
- Moated Site, Oxhey Hall.

There are 19 archaeological sites within the District:

- Oxhey Hall Farm moated site
- Chorleywood West
- Roman Ditch System, Abbots Langley
- Medieval Earthwork, Juniper Hill
- Abbots Langley Village
- Rickmansworth Town Centre
- Prehistoric Ring Ditches, Commonwood
- Bathend Clump, Moor Park
- Moor Park Roman Villa
- Newhall Farm Roman Villa
- Rectangular Enclosure, Micklefield
- River Colne Settlements
- Sarratt Village
- Roman Building, Valley Farm
- Medieval Church, Church End
- Roman Villa, River Chess
- Medieval Earthwork, Sarratt
- Romano-British Burials, Kings Langley
- Roman Gardens Roman Villa.

3.11 Rivers, Canals, Railways and their Corridors

Figure 3.9 shows the corridors of the Rivers Chess, Colne and Gade, the Grand Union Canal and railways in the District. These corridors provide important linkages across the District and into adjoining areas.

3.12 Pedestrian and Cycle Routes

Public access is an important feature of Green infrastructure, and Figure 3.10 shows the extent of the public footpath network, and existing and proposed cycle routes.

Figure 3.1: Chilterns Area of Outstanding Natural Beauty

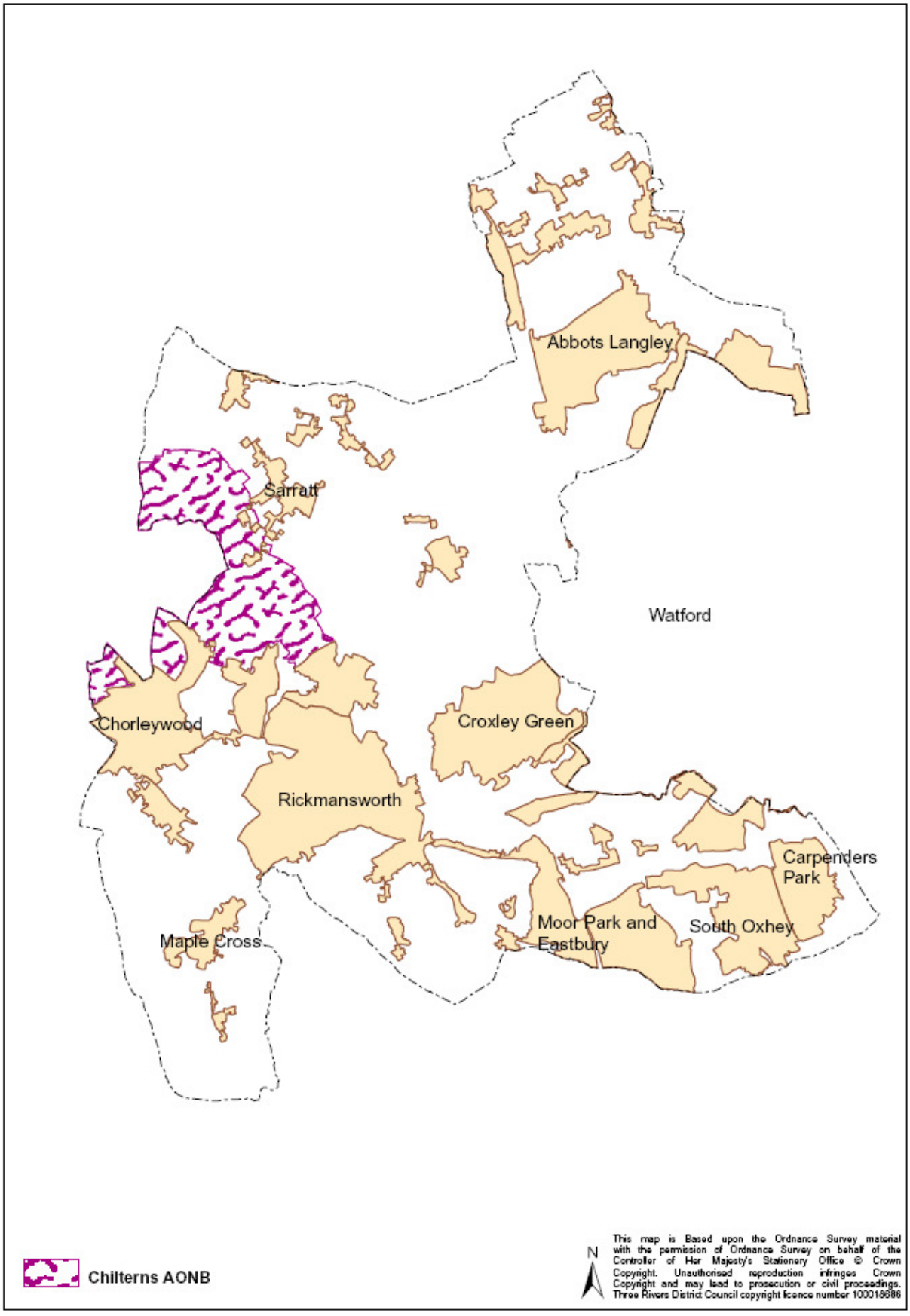


Figure 3.2: Sites of Special Scientific Interest

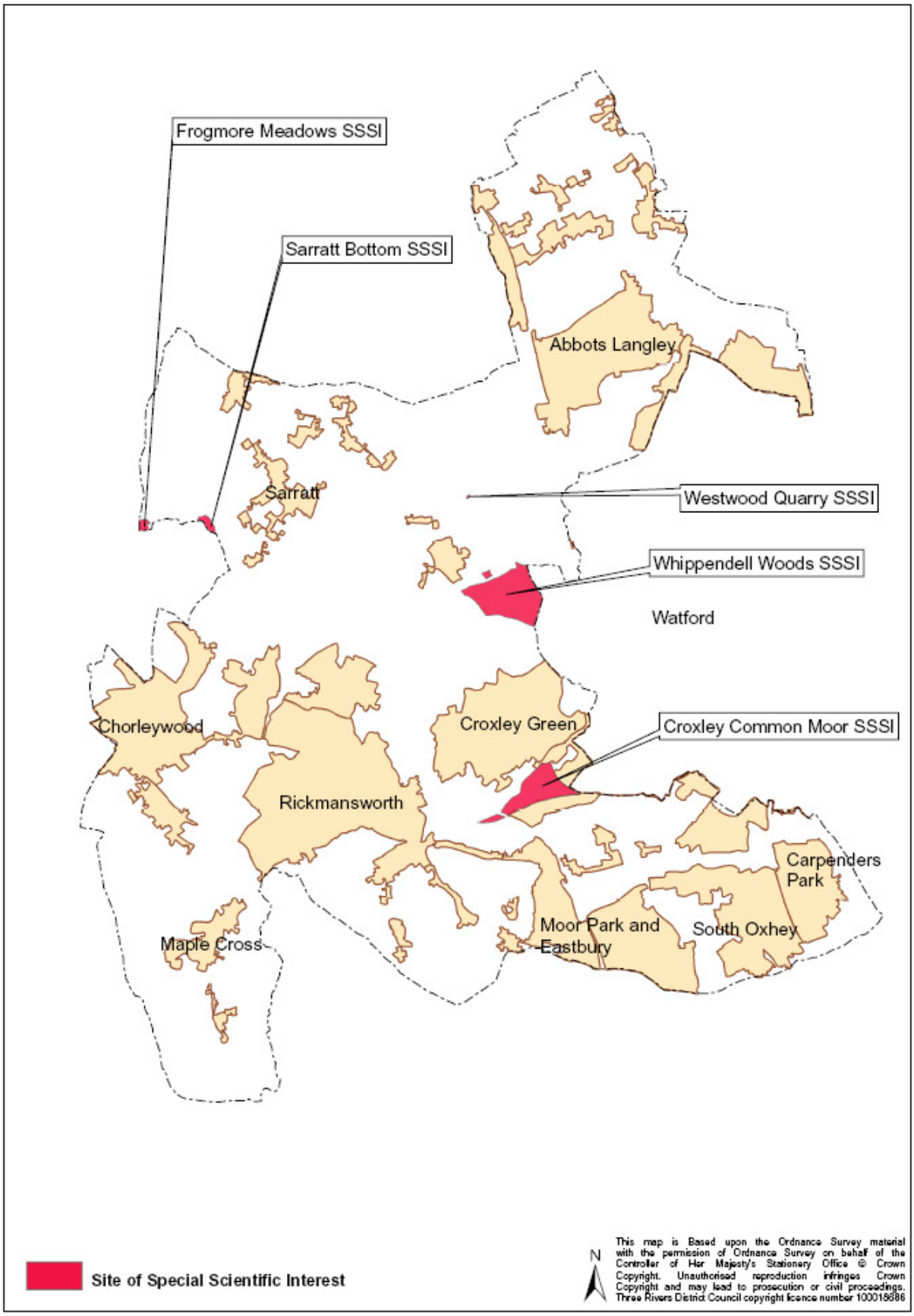


Figure 3.3: Local Nature Reserves

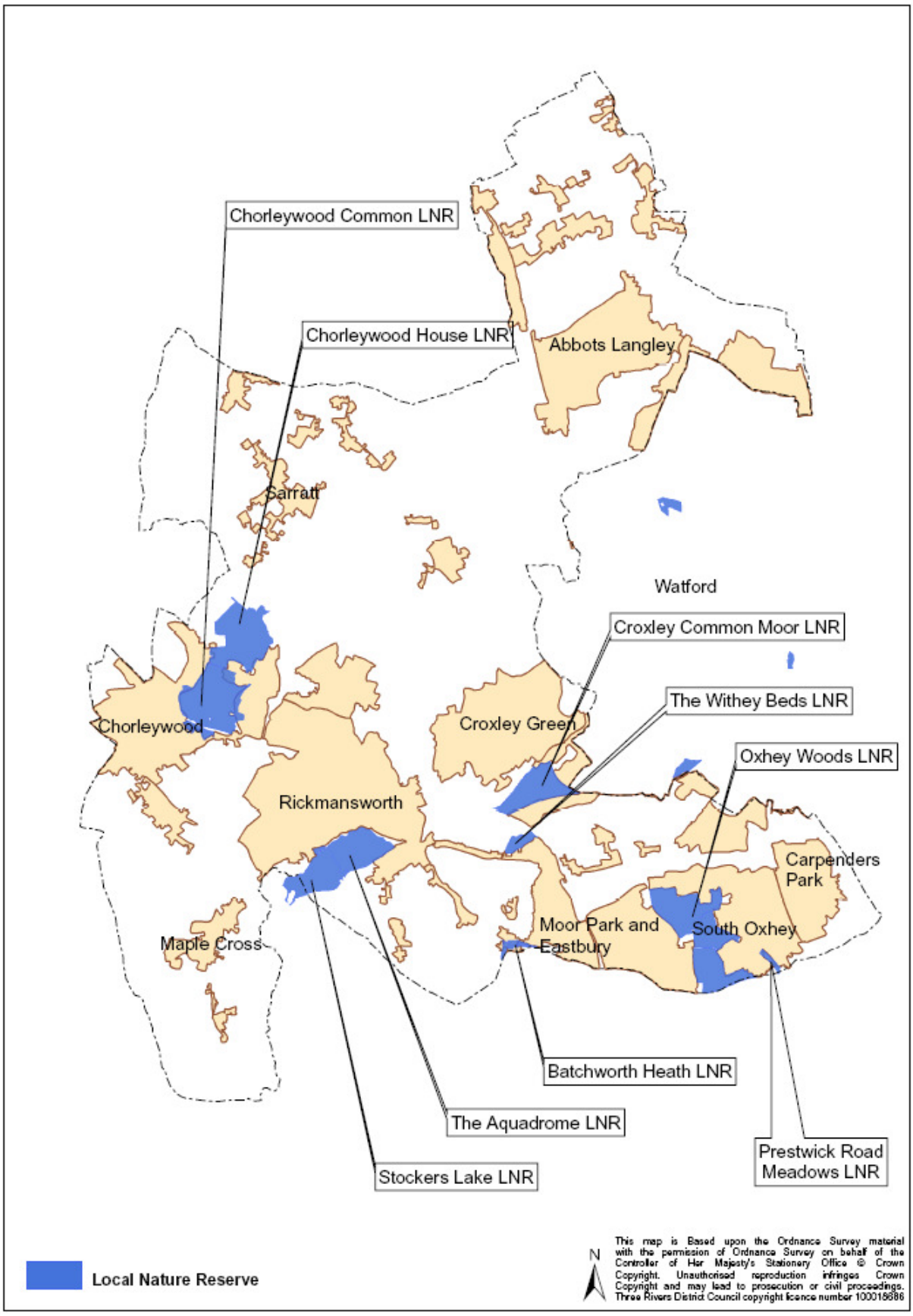


Figure 3.4: County Wildlife Sites

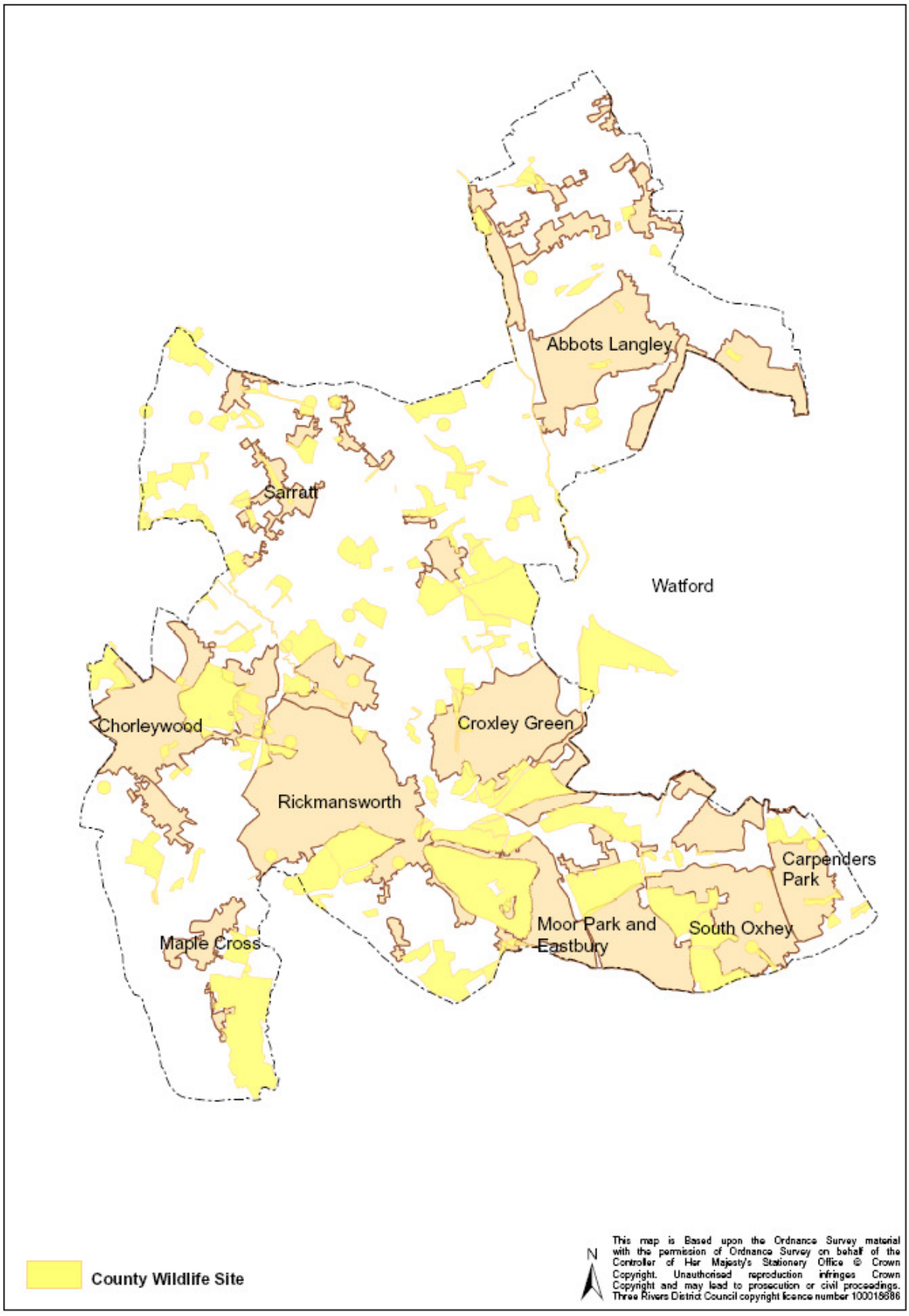


Figure 3.5: Key Biodiversity Areas

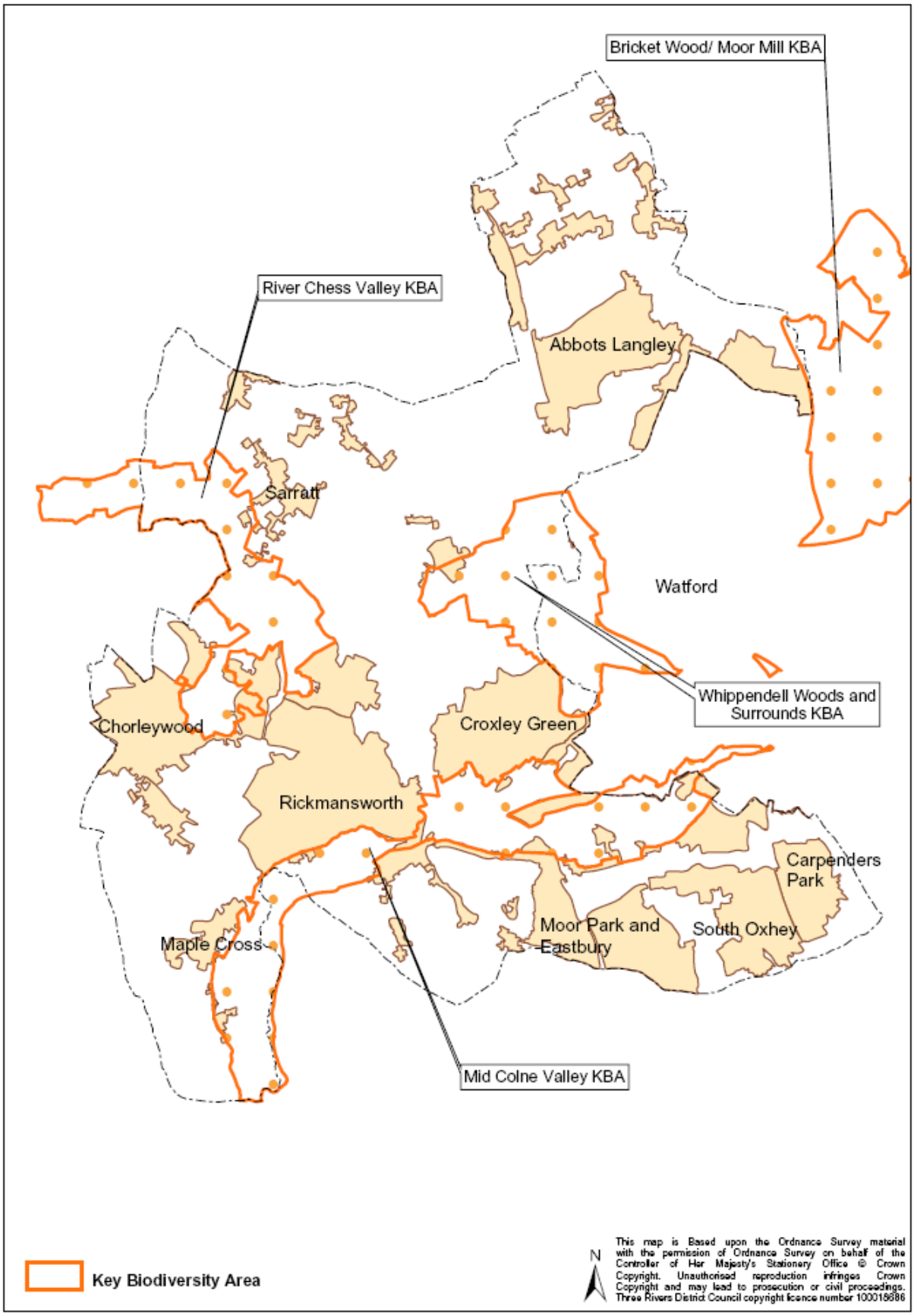


Figure 3.6: Woodlands

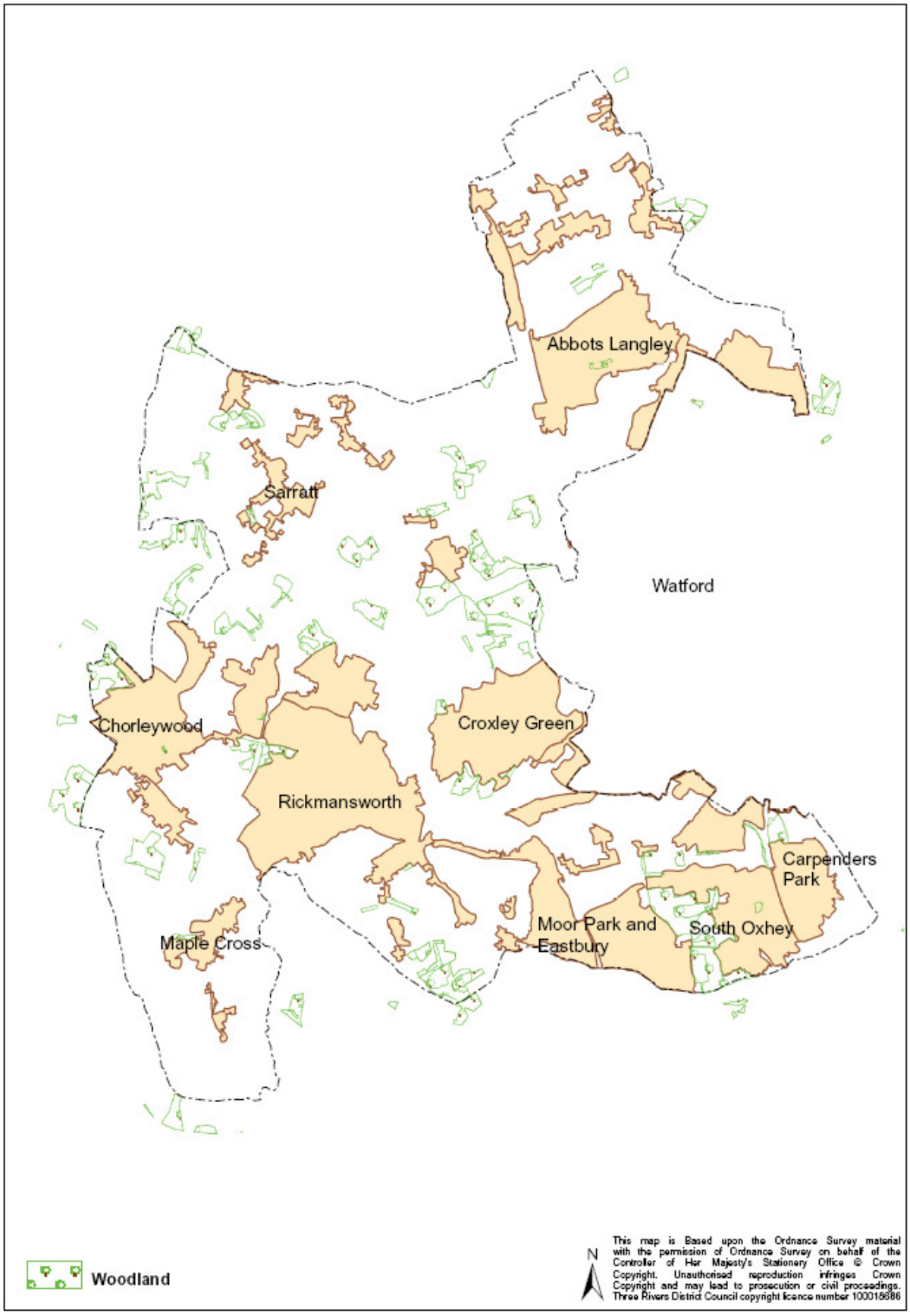


Figure 3.7: Parks and Open Spaces

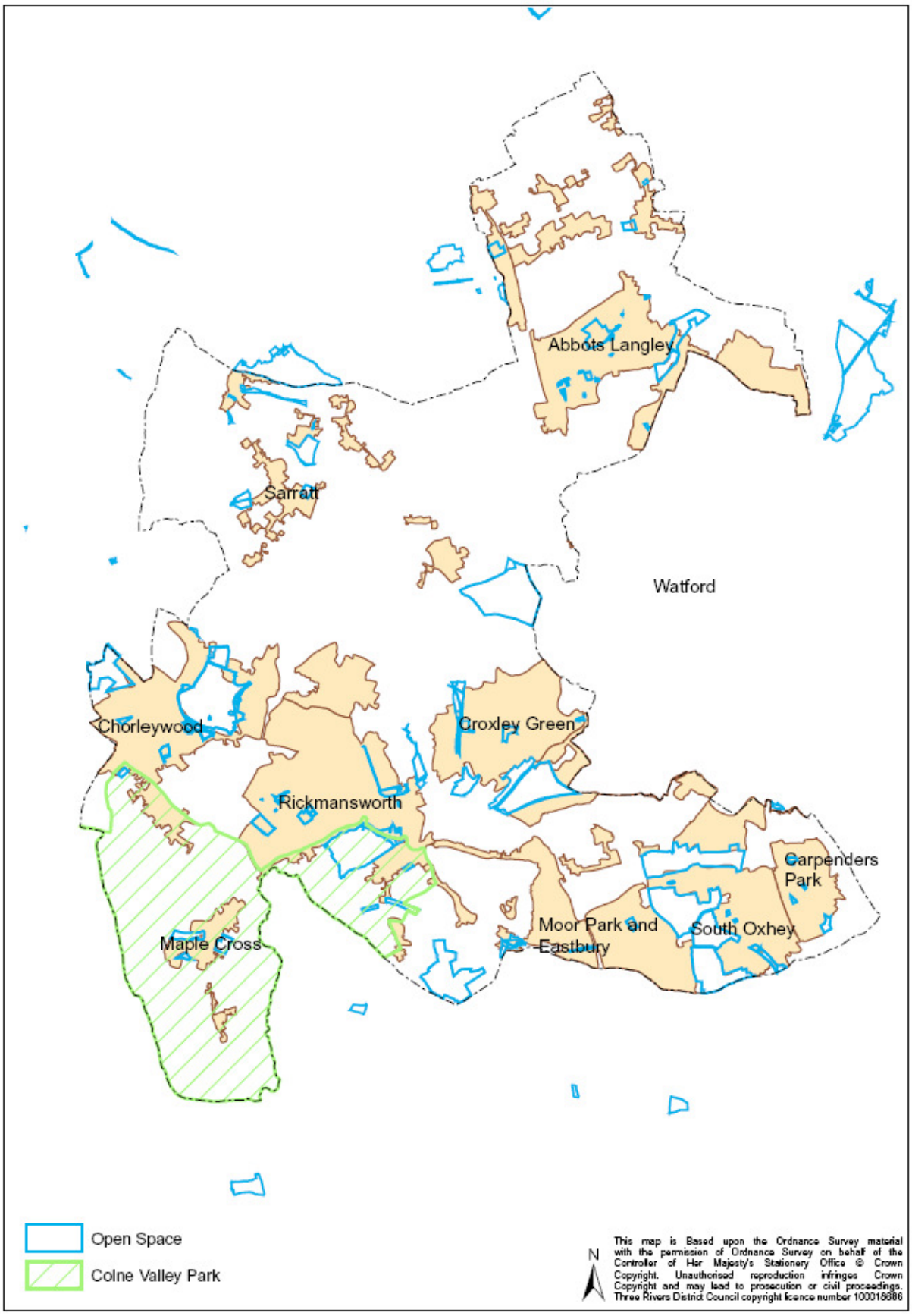


Figure 3.8: Heritage Assets

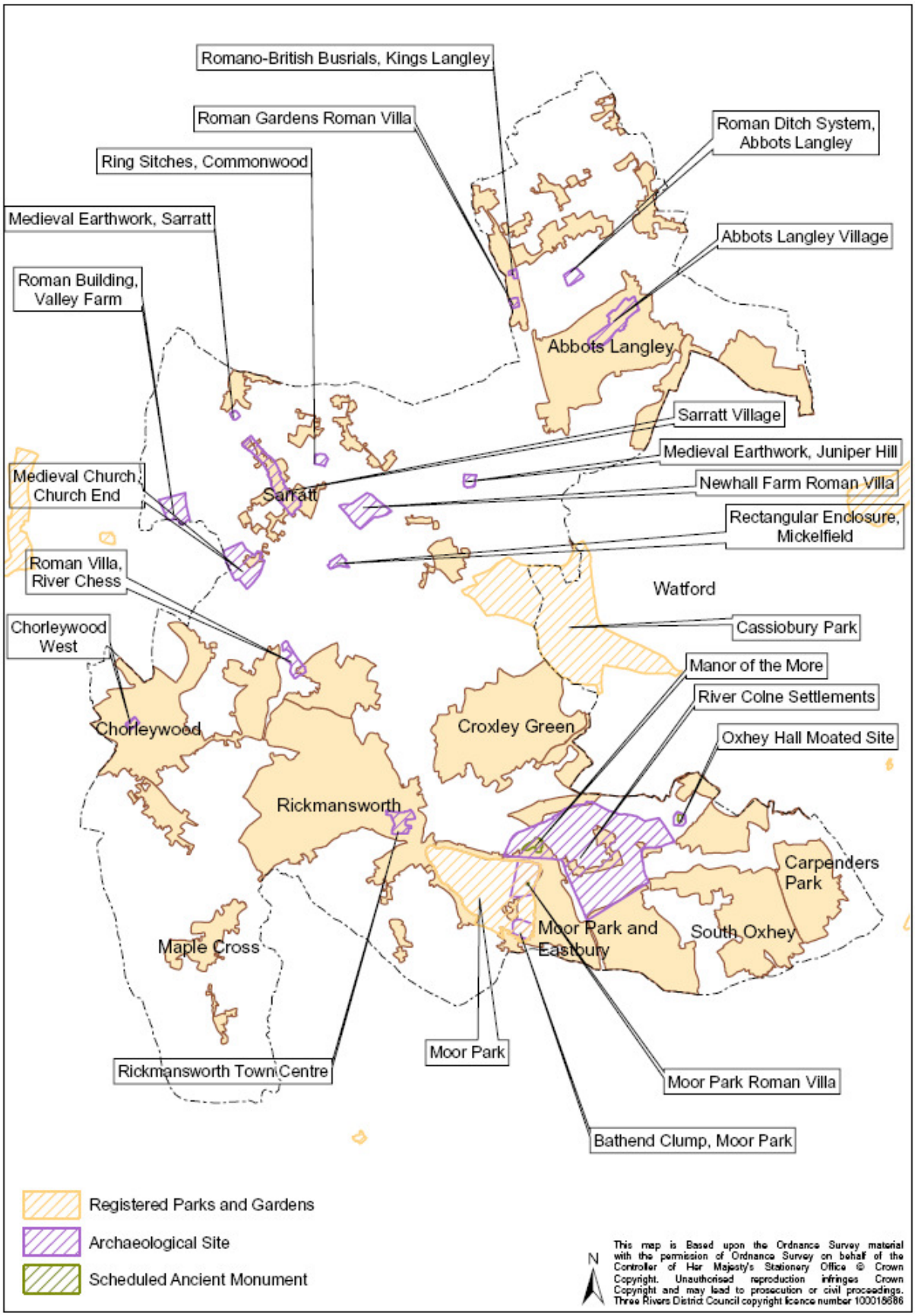


Figure 3.9: River, Canal and Railway Corridors

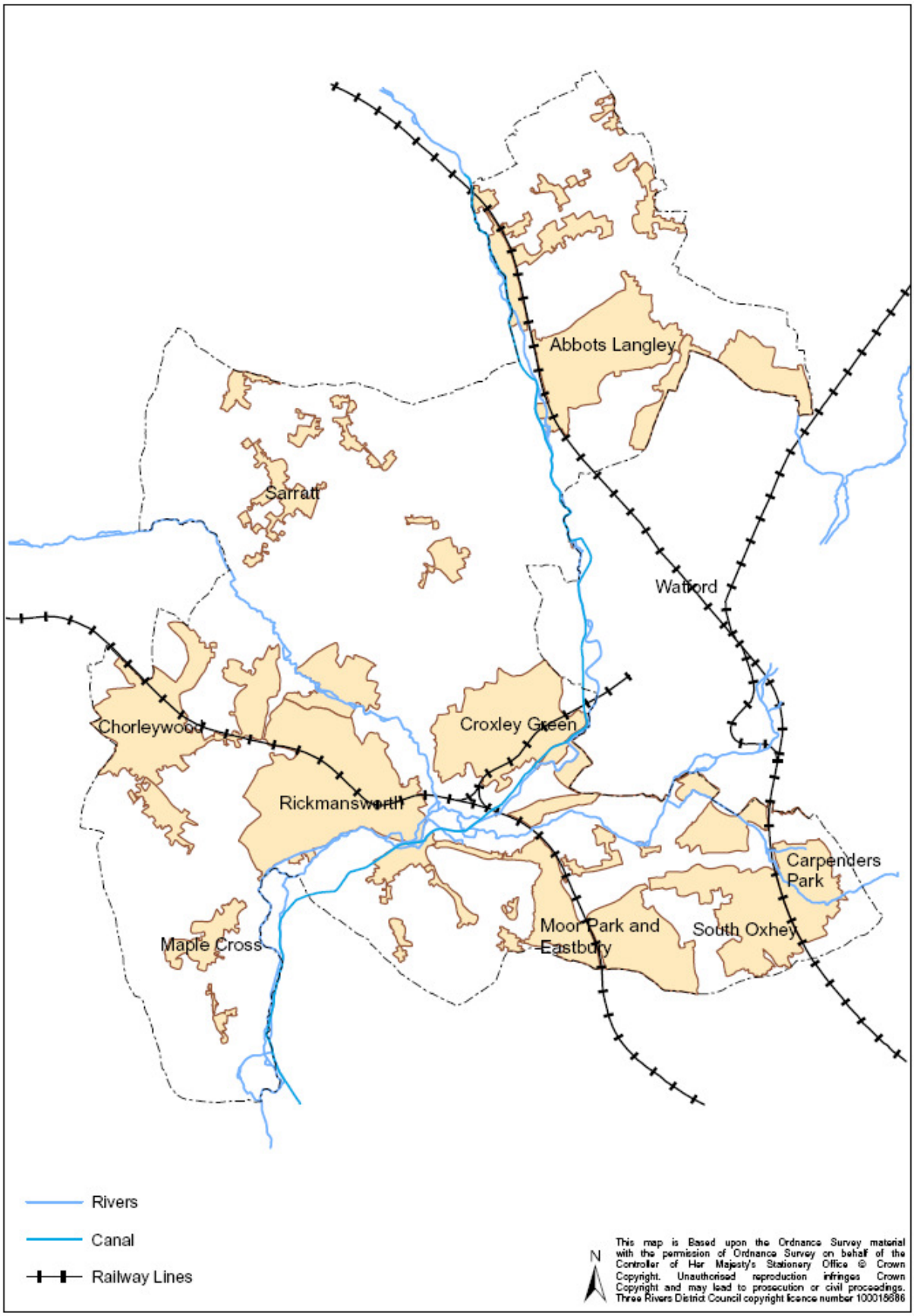
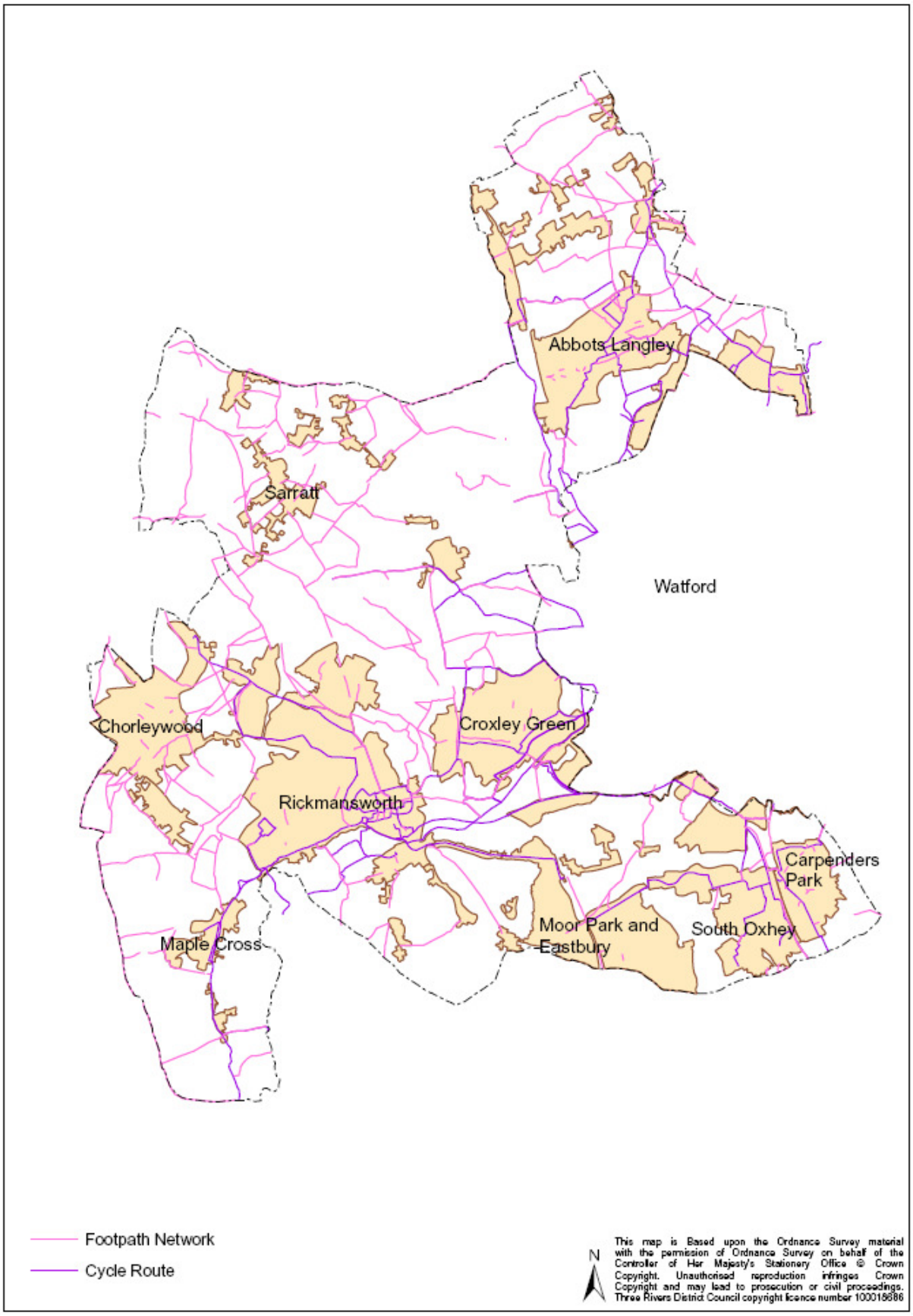


Figure 3.10: Footpath and Cycle Route Network



3.13 Green Infrastructure Assets and Corridors

Figure 3.11 overlays all the mapped green infrastructure assets in the District and shows that much of the District and the built up areas have potential for access to some form of green infrastructure.

Using areas of important green infrastructure assets, a series of green infrastructure corridors have been identified. These corridors reflect existing and potential linkages between green infrastructure assets in the District.

The corridors that have been identified are:

- **The Chess Corridor:** links Chorleywood and areas to the west of the District with Rickmansworth. This corridor incorporates Sarratt Bottom and Frogmore Meadows Sites of Special Scientific Interest and Chorleywood Common and Chorleywood House Estate Local Nature Reserves.
- **The Gade and Grand Union Canal Corridor:** links Kings Langley and areas to the north of the District with Rickmansworth. This corridor incorporates the Whippendell Woods and Croxley Common Moor Sites of Special Scientific Interest.
- **Penmans Corridor:** Links Abbots Langley and the Gade and Grand Union Canal Corridor with Chipperfield and areas to the west of the District. This corridor incorporates a number of woodlands, Chipperfield Common and Penmans Green.
- **The Colne Corridor (including the Ebury Way):** links Maple Cross and areas to the south west of the District with Rickmansworth and across to Moor Park, Croxley Green, South Oxhey, Carpenders Park and into Watford. This corridor includes parts of the Colne Valley Regional Park, and the Aquadrome and the Withey Beds Local Nature Reserves.
- **The Oxhey Woods Corridor:** links Watford to areas to the south of the District and includes Oxhey Woods Local Nature Reserve.
- **The Moor Park, Batchworth Heath and Bishops Wood Corridor:** forms and arc linking the west of Rickmansworth to Moor Park and includes Batchworth Heath Local Nature Reserve and Moor Park registered park.

These are shown in Figure 3.12, and alongside individual green infrastructure assets in Figure 3.13.

Although these corridors represent key green infrastructure assets and existing or potential linkages, green infrastructure resources outside the identified corridors may also be significant.

Figure 3.11: Green Infrastructure Assets

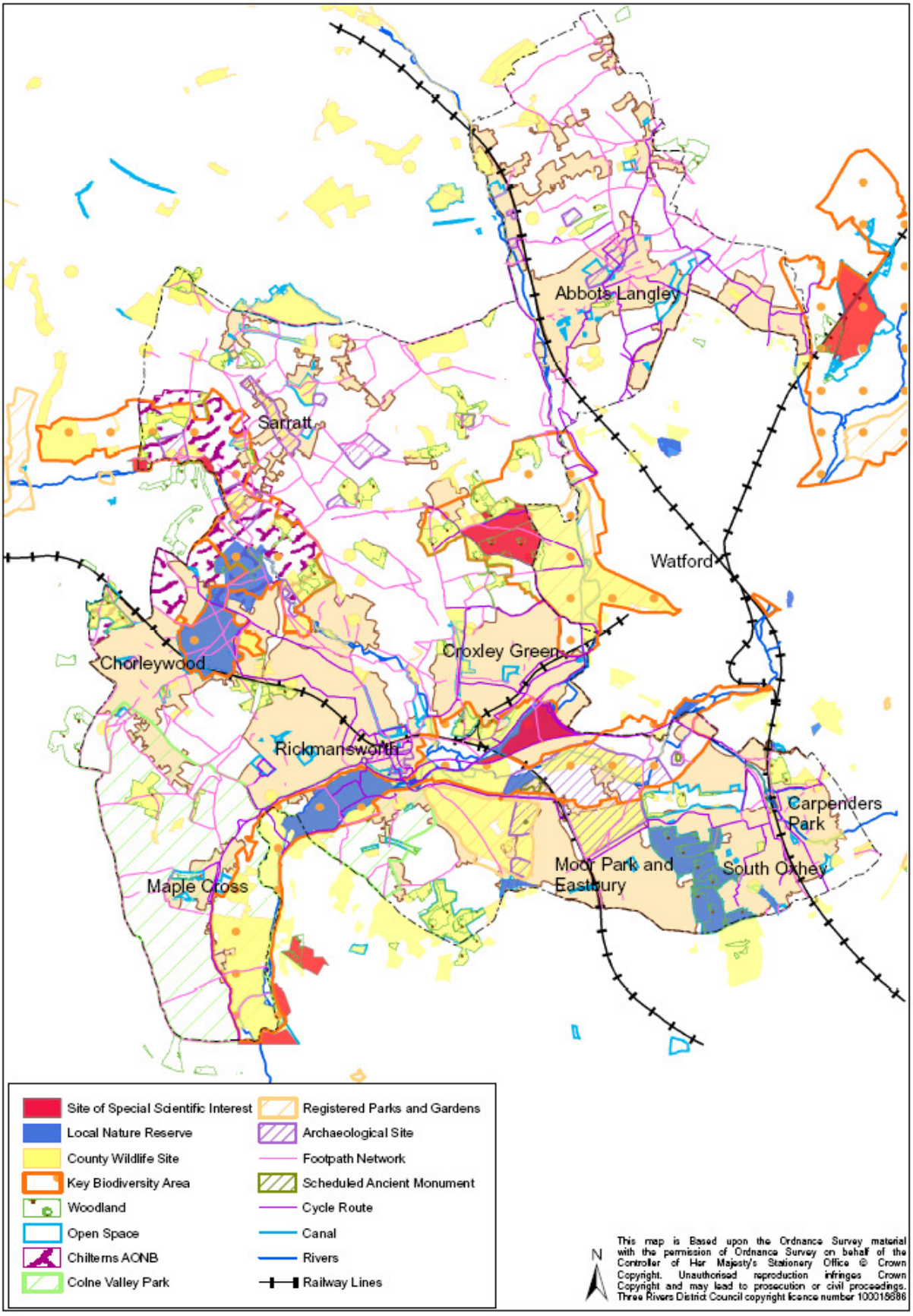


Figure 3.12: Green Infrastructure Corridors

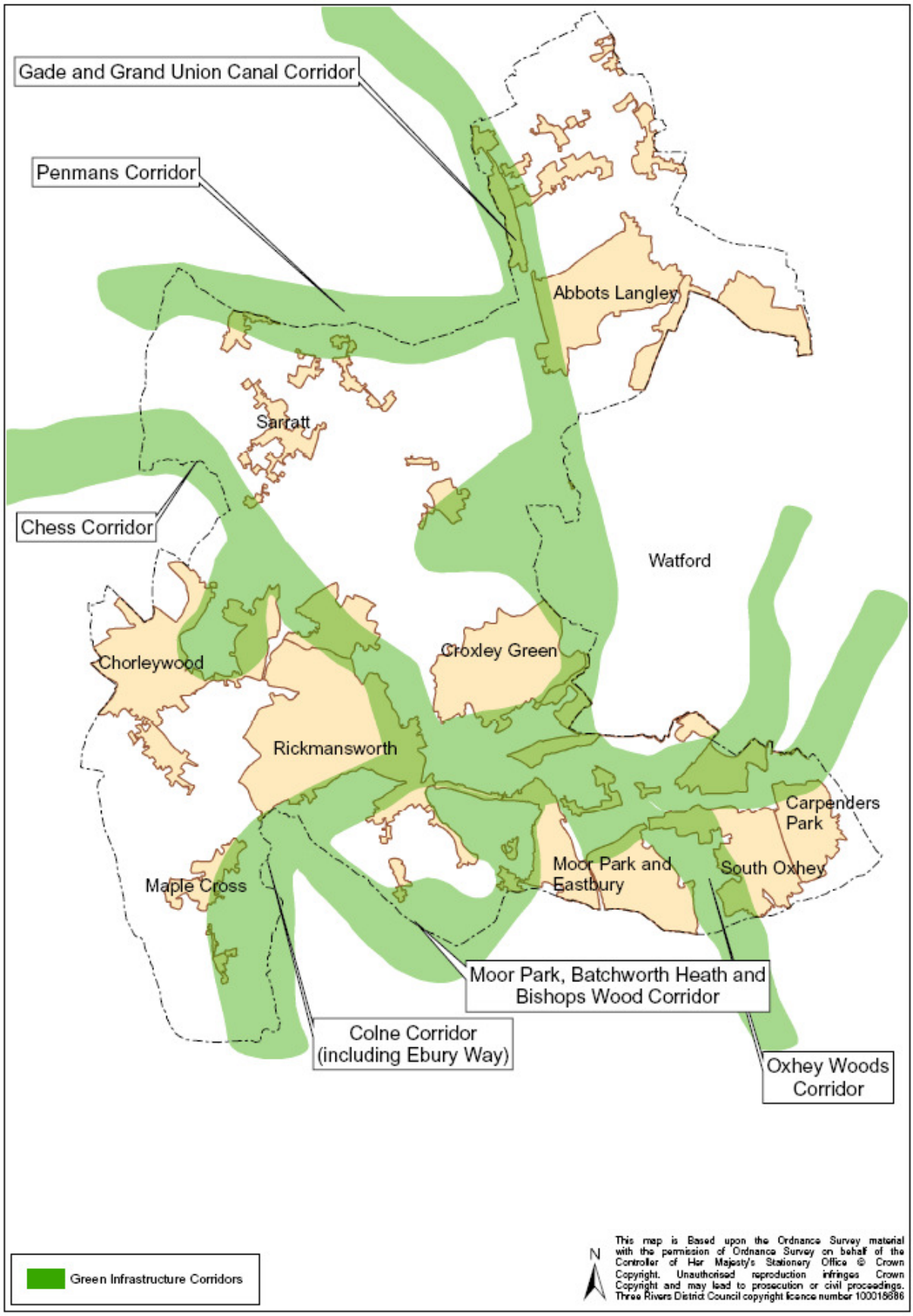
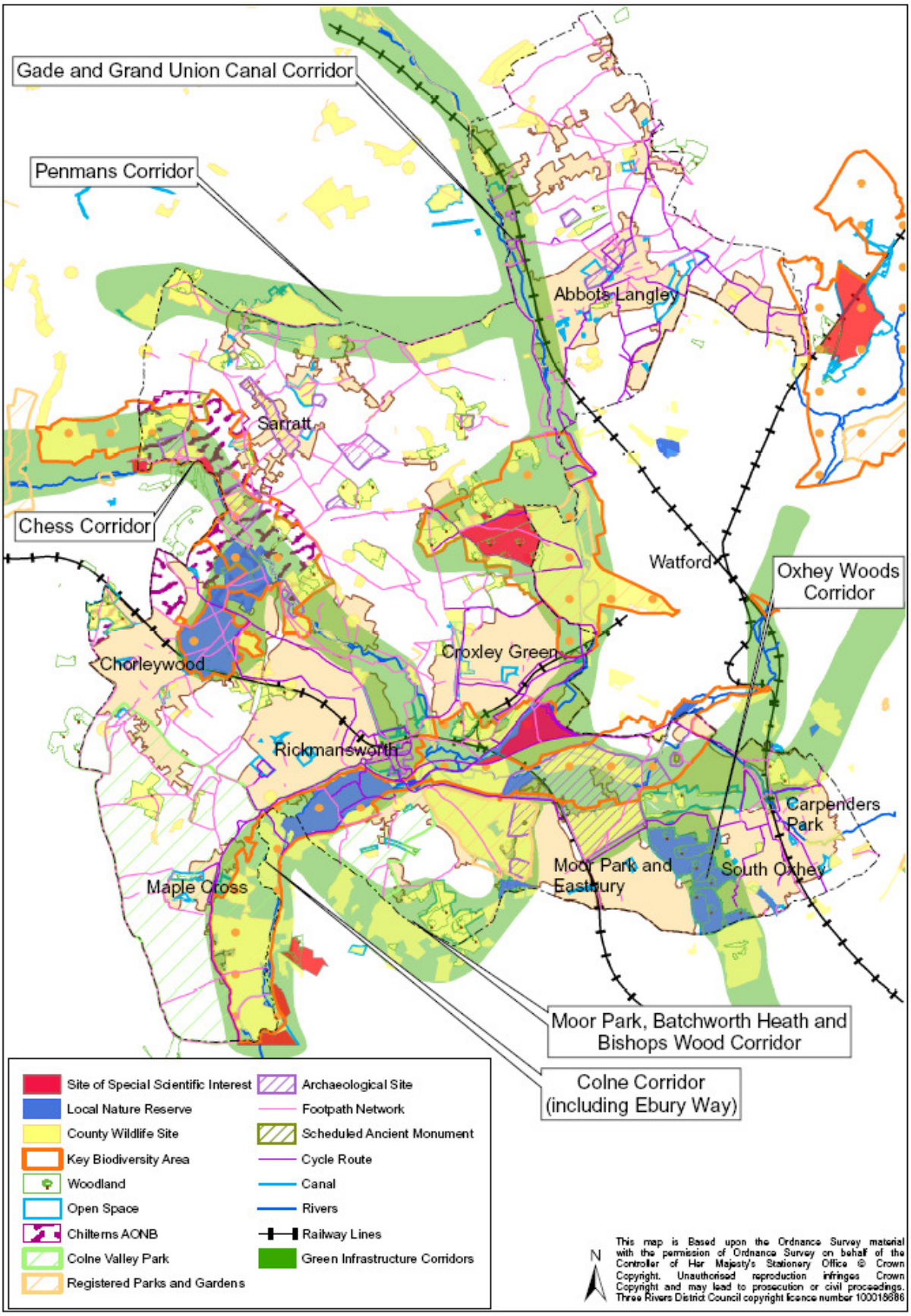


Figure 3.13: Green Infrastructure Assets and Green Infrastructure Corridors



4 Green Infrastructure Priorities in Three Rivers

The East of England Plan requires Three Rivers to provide 4,000 new dwellings between 2001-2021, and until revision to the plan it is assumed that an additional 1,000 dwellings will be required between 2021-2026. There may also be requirements for additional employment land. Land to meet requirements will be identified through the Local Development Framework.

The Three Rivers Core Strategy aims for new development in the District to maintain or improve the quality of life of Three Rivers' communities, and for development to be supported by appropriate infrastructure provision. This should include green infrastructure provision and improvement for both people and wildlife.

Green infrastructure contributes to the high quality natural and built environment of the District and towards sustainable communities.

The mapping exercise undertaken and described in Chapter 4 shows that there are existing assets with potential to contribute to green infrastructure across much of the District. Assets may be public or private, with or without public access, and in both urban and rural, and have the potential to provide for urban populations to access to green infrastructure.

The key green infrastructure assets and the existing and potential links between these have been identified and these represent the priorities for green infrastructure in the District. The focus for green infrastructure should therefore be on conserving and enhancing the key assets and linkages between them as shown on Figure 3.13, including:

- The corridors of the Rivers Chess, Colne and Gade and the Grand Union Canal
- The Chilterns Area of Outstanding Natural Beauty
- The District's Sites of Special Scientific Interest, Local Nature Reserves, wildlife sites and key biodiversity habitats, species and areas identified in the Hertfordshire Biodiversity Action Plan
- The Colne Valley Park.

The connectivity between key assets through the establishment of linked and coherent networks and corridors of green spaces and sustainable transport links should also be improved. New development should contribute to the delivery of new green infrastructure and management of a linked green infrastructure network, and should not compromise the integrity of the existing network by causing fragmentation, damage to, or isolation of green infrastructure assets.

Given the level of growth identified for Three Rivers and the surrounding area, there is a strong need to conserve and enhance green infrastructure. In order to provide for green infrastructure for Three Rivers in the future, a net gain in the quality and quantity of green infrastructure in the District should be sought. This may be through the protection and enhancement of assets and provision of new green spaces.

5 Future Actions

The Council is working with the County Council and Natural England to produce a suite of compatible district-scale green infrastructure plans in parallel with a county plan that highlights strategically important green infrastructure, and a more detailed local strategy taking into account standards for accessible open and green space.

This work will inform the production of a Green Infrastructure and Landscape Supplementary Planning Document to provide more detailed guidance on the provision of green infrastructure in Three Rivers and an updated landscape strategy for the District. This will include identification of policy and delivery mechanisms for green infrastructure, including possible funding, delivery mechanisms and main actors for the implementation of green infrastructure in Three Rivers.