



Design Guide 3

Geology & Landscape

3.1 GEOLOGY AND LANDSCAPE

West Oxfordshire is a predominantly rural District. It encompasses large areas of unspoilt countryside and a diverse pattern of landscapes, including expansive uplands and floodplain, folded river valleys, historic parkland, low-lying farmland, riverside meadows and remnants of ancient forest. It contains scattered villages together with a number of larger towns.



Fig. 1 A typically expansive Cotswolds landscape

Fundamental to a thorough understanding of the District – both in respect of new development and change to and preservation of existing settlements and buildings – is a thorough understanding of the geology and landscape of the District.

The geology of West Oxfordshire is dominated by 150 million-year-old Jurassic rocks, and comprises a sequence of limestones and clays that give rise to two principal swathes of terrain: **The Cotswold Hills** and **The Upper Thames Vale**.

The Cotswold Hills sweep across the centre and north of the District, and are dominated by a thick belt of oolitic limestone. This pale, hard

rock plays a defining role in the character of the District. It is the source of the classic, locally dominant building stone, and forms the high, expansive, smoothly rolling plateaux, which reach an elevation of around 220 metres near Chipping Norton, and dip gently towards the south-east. Soils across this part of the District tend to be thin, well-drained and calcareous, supporting arable farmland or grassland.

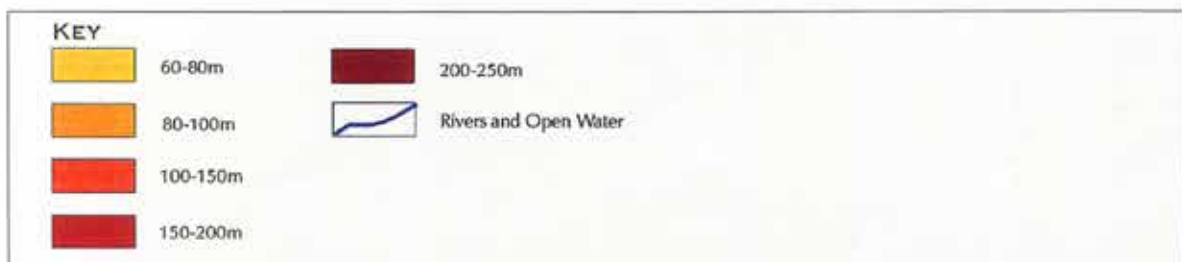
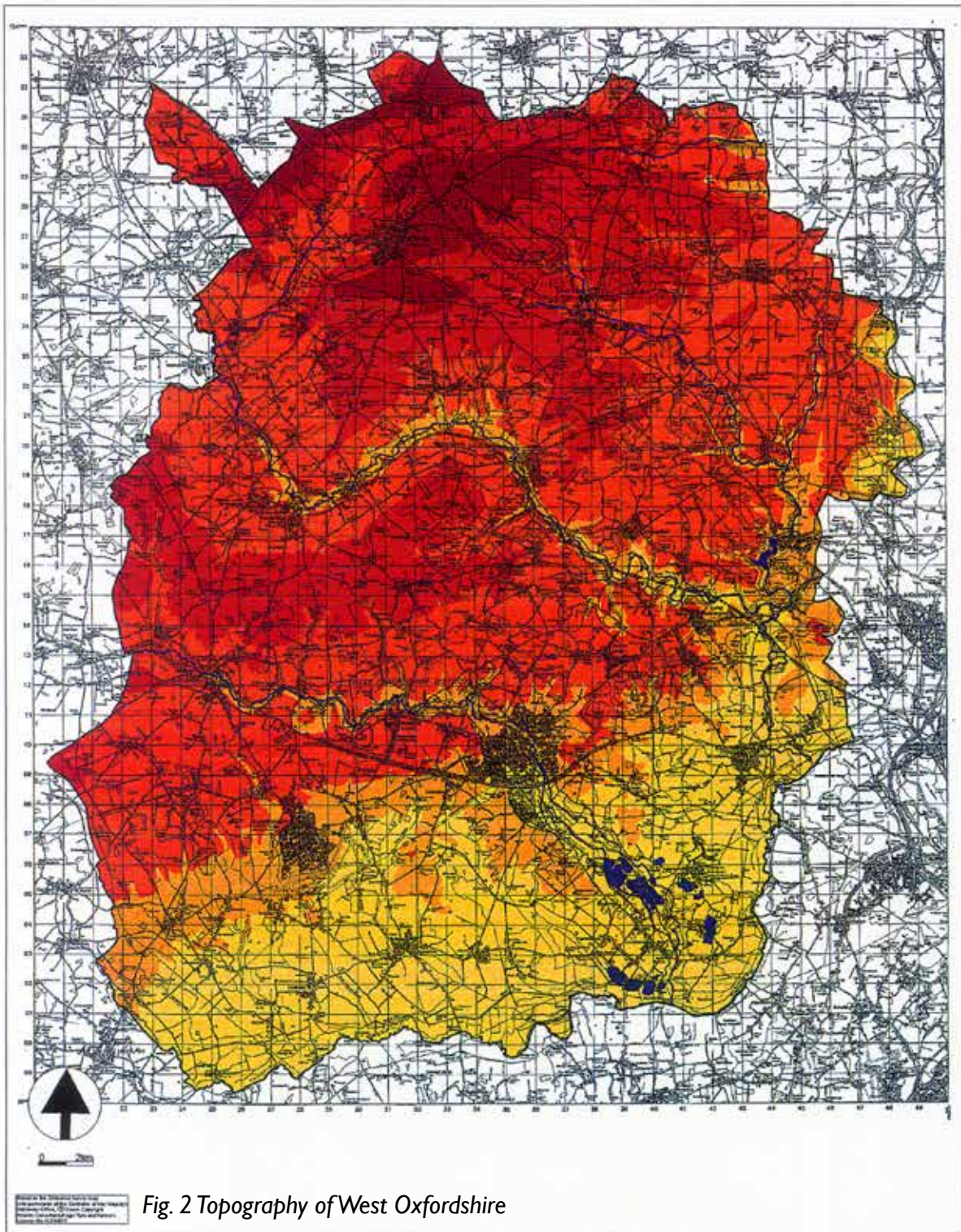
Notable variations in geology and landform occur in the north of the District. In the broad, shallow basin of the upper Evenlode Valley in the north-west, softer lias rocks are exposed, which include darker iron-bearing marlstone.

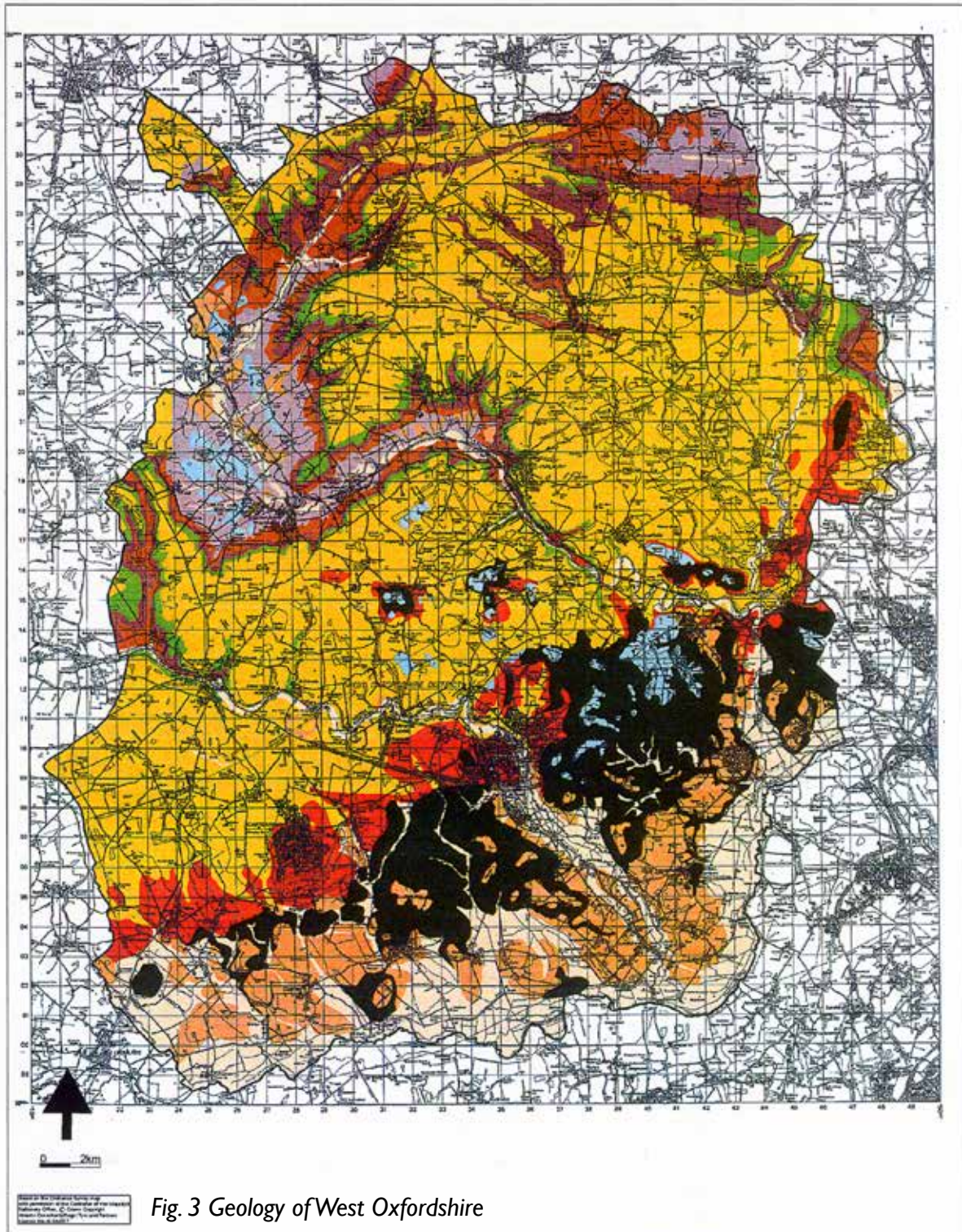
The upper Evenlode Valley is characterised by gentle, low-lying topography with heavy clay soils supporting mixed farmland and a strong structure of hedgerows and hedgerow trees.











Across the north of the District, but particularly in its north-east corner, these softer Lias rocks are heavily folded and cut through by rivers and streams to form an area of complex topography supporting a rich pattern of mixed farmland, thick hedgerows, trees and woods.

The geology here contains rocks with high iron content. These are known as ‘ironstones’, and give rise to the highly distinctive warm, orangey or ginger-coloured building stone, which plays a defining role in the buildings and settlements in the extreme north of the District.

In the south of the District, the oolitic limestone of the Cotswolds gives way in successive belts to crumbly cornbrash limestone, and finally to the Oxford clay, river gravels and alluvium of **The Upper Thames Vale**. This area supports heavy clay soils and larger-scale mixed farmland with a relatively strong structure of hedgerows and trees.





KEY		Solid geology		Drift geology	
	Oxford Clay		Upper Lias		Alluvium
	Combrash		Middle Lias		River Gravels
	Great Oolite		Lower Lias		Glacial Deposit
	Inferior Oolite				

The landscape here is low-lying (between 60 and 100 metres) with a distinctive flat, open character. The predominance of clay is reflected in the greater use of brick as a principal building material in this part of the District.

3.2 THE WEST OXFORDSHIRE LANDSCAPE ASSESSMENT

The well-established *West Oxfordshire Landscape Assessment* (WOLA, 1998), from which the above summary is drawn, contains an exhaustive analysis of the landscape and geology of the District. It also includes detailed information on landscape condition – which areas are in poor condition and need enhancing; which are in good condition and need conserving – together with a ‘Landscape Enhancement Strategy’ map.

3.3 THE COTSWOLDS AREA OF OUTSTANDING NATURAL BEAUTY (AONB)

A large part of the District – roughly one third – forms part of the Cotswolds Area of Outstanding Natural Beauty (AONB). Designated in 1966 for its qualities as a quintessential English landscape, it is the largest of England’s 41 AONBs.

The primary purpose of AONB designation is the conservation of natural beauty, wildlife and cultural heritage. The relevant Act (the *National Parks and Access to the Countryside Act 1949*) distinguishes AONBs from National Parks, where the objectives of outdoor recreation, public understanding and enjoyment are deemed to be of equal importance.

The potential impact of development or change within the AONB will be a material consideration in determining planning applications within the area. Development likely to cause harm to the AONB is unlikely to be supported.

3.4 HISTORIC LANDSCAPE TYPES

Landscape character is the product of a complex mix of existing geology, landform and vegetation, shaped by successive human interventions over many centuries. The survival of evidence of historic land management methods – for example the ridge-and-furrow of medieval open fields – has left clearly discernible signs of the complex evolved landscape history of the District.

The historic imparked woodlands, including fragments of the ancient forest of Wychwood, are especially valuable assets here. An understanding of these and other historic landscape types is crucial if the distinctive local character of the District is to be maintained and strengthened. The identification and study of these has led to a number of projects whose aim has been the restoration, conservation and enhancement of these unique landscape types.

3.5 WOODLAND



Fig. 4 Local broad-leaf woodland

At one time much of the District was covered by the former royal hunting forest of Wychwood. By 1086 this covered at least 180 square miles. Since then, however, vast tracts of the forest have been cleared (much of it in the C19) leaving behind fragmentary copses and woods.

Many West Oxfordshire villages, including Finstock, Ramsden and Leafield, originated as clearings in the forest, and owe their distinctive straggling form to haphazard growth as the land was gradually cleared. The remnants of Wychwood forest are extremely important, both for their natural and their historical significance. The parishes of Wychwood and Cornbury, together with Swinbrook and Widford, contain sizeable areas of ancient woodland.

The Wychwood Project [www.wychwoodproject.org/] is a long established organisation dedicated to Wychwood Forest, and set up to encourage the understanding, conservation and restoration of the forest's rich mosaic of landscapes and wildlife habitats. The project area covers some 120 square miles, and encompasses 41 parishes.

3.6 HISTORIC PARKS



Fig. 5 Historic parkland at Rousham

West Oxfordshire, and in particular the north-east of the District, is unusually rich in historic parkland. Some landscapes, such as those at Woodstock and Cornbury, were 'imparked' (enclosed from ancient woodland) in the Middle Ages, in order to create hunting grounds for royalty and nobility. A second wave of development in the C17 saw the creation of the landscapes at Ditchley and Chastleton. However, the majority of the District's historic parks, including those at Rousham and Heythrop, were laid out in the C18. These historic parks are

inextricably linked to the rise of the great estates and the establishment of large country houses.

The creation of the great C18 designed landscapes, which may possess both formal and picturesque qualities, entailed three main forms of human intervention. The first of these was physical landscaping and the creation of formal features, such as terraces, parterres and pools, or informal features such as naturalistic landforms and lakes. The second involved the planting of trees and other vegetation, either in formal avenues or blocks, or in naturalistic clumps or belts. The third involved the addition of built elements, such as garden buildings, bridges, monuments, follies or eye-catchers.

In West Oxfordshire, Blenheim (successor to the medieval Woodstock Park) is pre-eminent, and has been designated a World Heritage Site. Designed by Lancelot 'Capability' Brown and others, it covers an area of 1,000 hectares, and is home to 45 structures Listed Grade-I or Grade-II*. Other major figures from landscape history are well represented in the District, including William Kent at Ditchley and Rousham, and Humphrey Repton at Sarsden and Great Tew.

See also Design Guide 7: Listed Buildings, Registered Parks & Scheduled Monuments.

3.7 LOWLAND HEATH



Fig. 6 Lowland Heath at North Leigh Common

Heaths are areas of open, relatively barren land, often resulting from forest clearance. They are characterised by poor-quality, free-draining soils that are high in acid and low in nutrients. This relatively hostile environment leads to the creation of highly distinctive habitats that support a unique combination of plants and animals.

Certain tree species, such as pine and silver birch, readily establish on heathland. Historically, cutting such trees for firewood, or allowing animals to graze, restricted tree growth and protected low plants, such as heathland grasses, heathers and gorses. Although the decline in such practices has seen much heathland reverting to woodland, there are several important remnants of lowland heath in West Oxfordshire, including a notable area at North Leigh Common.

3.8 HISTORIC FIELD PATTERNS



Fig. 7 Historic field patterns bounding Leafield

Significant areas of medieval farmland within the District resulted from forest clearances, in a process known as 'assarting' (the cleared areas known as 'assarts'). Resultant manorial farmland was often worked in strips in common fields. Ploughing patterns led to ridges where the plough soil accumulated between furrows defining the narrow plots; or furlongs, into which the open fields were divided. Headlands at the end of the strips were used for turning the plough. Manorial landholders

also had access to common pasture and woodland. Small and often irregular 'closes' around the edges of settlements are also characteristic of this period, and historic field names sometimes relate to the original owner of the land, as in 'Burtons Crofte'; or to its location, as in 'Towne Close'.

The enclosure of medieval open fields and the clearance of forests by major landlords occurred from the mid-C17. The pace of enclosure quickened from 1750, when Acts of Parliament came into effect, which led to open fields and common land being systematically enclosed, and land ownership consolidated. In the middle of the C19, a swingeing programme resulted in the widespread clearance and enclosure of Wychwood, near Cornbury Park.

3.9 MEADOWLAND



Fig. 8 Meadowland at Cogges

Meadows form a distinctive low-lying landscape type, and fall into one of two principal categories. There are those areas adjacent to rivers that experience regular winter flooding; and those in which river water is persuaded to flow through an area of land by means of a series of man-made ridges and ditches. Historically, meadowland has been used as pasture for the grazing of cattle; the flood water having the effect of keeping frost out of the ground, thereby allowing the early spring growth of grass. The alluvium deposits left on

meadowland by the receding waters provide highly fertile soils able to support a rich and distinctive array of flora and fauna. Much of the Thames Vale area in the south of the District is characterised by this landscape type.

For further information, please see: <https://www.westoxon.gov.uk/media/329154/Windrush-in-Witney-project-Summary-leaflet.pdf>

3.10 VEGETATION CHARACTER AREAS

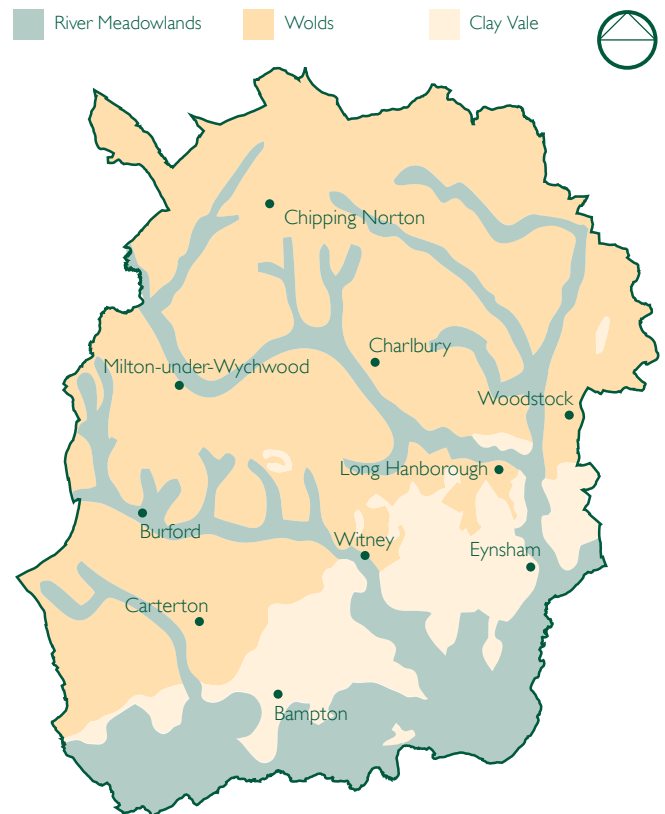
The management of flora and fauna should reinforce or restore those landscape characteristics which contribute to local distinctiveness and biodiversity. In general, intervention should aim to restore diversity and structure to the landscape; for example through the planting of trees and hedgerows, and the creation of habitats, in order to reinforce the distinctive characteristics of a particular landscape type.

In terms of vegetation type, West Oxfordshire can be subdivided into three broad character areas: the Limestone Wolds, the Clay Vale and the River Meadowlands; each with a distinctive combination of key and significant tree and hedgerow species.

NB it should be emphasised that these divisions represent the landscape character of the District expressed in its simplest terms.

See also: <https://www.oxfordshire.gov.uk/cms/content/oxfordshire-historic-landscape-characterisation-project> (Oxfordshire Historic Landscape Characterisation Project); <http://www.cotswoldsaoanb.org.uk/userfiles/file/management-plan-review/final/management-plan-2013-18-adopted-pre-publication.pdf> (AONB information); Natural England National Character Area Profile for the District; The Oxfordshire Wildlife and Landscape Study.

Vegetation Character Areas



Part of the Cotswolds Area of Outstanding Natural Beauty in West Oxfordshire



River Meadowlands

Key tree and hedgerow species

Willow	<i>Salix alba</i>
	<i>Salix caprea</i>
	<i>Salix viminalis</i>
	<i>Salix fragilis</i>
Alder	<i>Alnus glutinosa</i>
Poplar	<i>Populus spp.</i>
Ash	<i>Fraxinus excelsior</i>
Hawthorn	<i>Crataegus monogyna</i>

Significant species

Oak	<i>Quercus robur</i>
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Wolds

Key tree and hedgerow species

Beech	<i>Fagus sylvatica</i>
Ash	<i>Fraxinus excelsior</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>

Significant species

Oak	<i>Quercus robur</i>
Sycamore	<i>Acer pseudoplatanus</i>



Clay Vale

Key tree and hedgerow species

Oak	<i>Quercus robur</i>
Ash	<i>Fraxinus excelsior</i>
Hawthorn	<i>Crataegus monogyna</i>

Significant species

Willow	<i>Salix alba</i>
	<i>Salix caprea</i>
	<i>Salix viminalis</i>
	<i>Salix fragilis</i>
Poplar	<i>Populus spp.</i>
Field Maple	<i>Acer campestre</i>
Hazel	<i>Corylus avellana</i>

