8 Examples of walling materials in the East of England Region

A Exposed timber frame with brick infill. (South Suffolk and North Essex Claylands)

B Weatherboarding over timber frame. The typical wall covering for timber-framed agricultural buildings across the Region is horizontal weatherboarding. (East Anglian Chalk)

C Timber-framing panels could also be infilled with wattle and daub. This example has been tarred – a characteristic treatment seen on many farm buildings in the Region. (South Suffolk and North Essex Claylands)

D Clay applied to laths. (South Norfolk and High Suffolk Claylands)

E Pargetting. Where plastered panels, or in some cases the whole of the elevation of a building was plastered, the wet plaster could be decorated. Such treatment is normally found on farmhouses but may be seen on some farm buildings such as stables. (South Suffolk and North Essex Claylands)

F Rammed earth. Solid earth walling is seen in parts of the Region, especially in the chalk areas. (South Suffolk and North Essex Clayland)

All photographs © English Heritage/Michael Williams except B © *Bob Edwards;* F © *Susanna Wade Martins* (continued overleaf)

8 Examples of walling materials in the East of England Region (continued.
G Clay lump. The use of unfired blocks of clay laid in regular courses as with brickwork began in the late 18th century but most belong to the mid-19th century during which time whole farmsteads were built using this method. Typically clay lump or clay bat buildings were protected by a coating of gas tar. (South Norfolk and High Suffolk Clayland)
H & I Brick. The Region contains some important early examples of brick used in agricultural buildings such as this late 17th-century barn (H) that has characteristic features such as the decorative ventilation patterns and stepped gables. Features such as diaper brickwork and tumbled brickwork to gables (not illustrated) are Regionally characteristic. Locally made bricks can also give a distinctive character to farm buildings, particularly the yellow Cambridge bricks. (H Mid Norfolk; I Breckland)
J In the chalk areas of the Region flint provided one of the few stones for building. Although used from the medieval period and in some higher status barns in north Norfolk, its use in farm buildings, combined with brick for banding, quoins and dressings, is typical of the 18th and 19th centuries. (Mid Norfolk)
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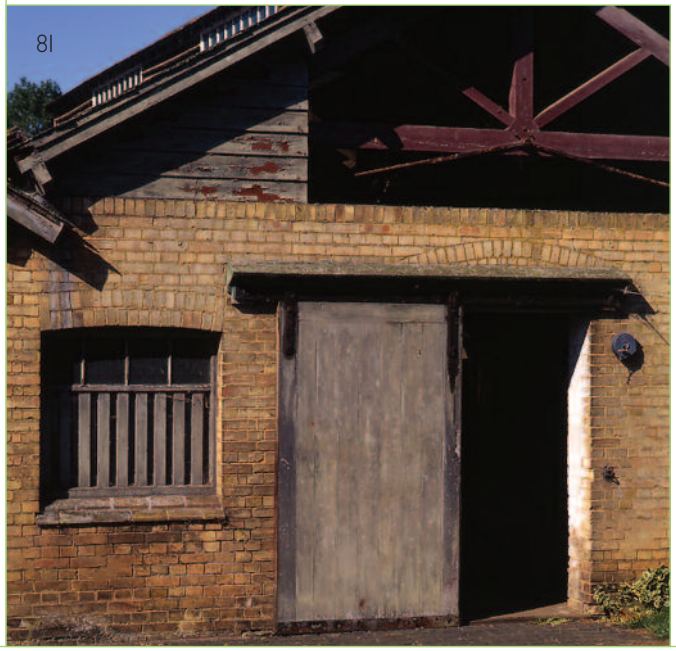


Norfolk, east Cambridgeshire and the Chiltern edge. Its introduction was delayed in the claylands until the mid-19th century, when larger estate farms took the lead in replacing timber and clay structures with brick and tile.

3.2.2 ROOFING (Figure 9)

3.2.2.1 Thatch

All farm buildings in arable areas were thatched in longstraw, although have been replaced by combed wheat reed. During the 19th century much of the Region's thatch was replaced with plain clay tiles or pantiles, but thatching in water reed continued in the Broads and parts of the Fens.

3.2.2.2 Slate

There is no source of stone suitable for making stone slates in the Region, the nearest production centre being in Northamptonshire. Therefore, stone slates are only rarely encountered along the western edge of the

9 Examples of roofing materials in the East of England Region
A Thatch. Water reed from the managed reed beds of the Norfolk Broads was used in the north-east part of the Region. In many other parts of the region straw from arable farming was available and widely used for farm buildings. (The Broads)
B Clay tiles. Clay for brick and tile making was available in many parts of the Region and was exploited from the medieval period. (South Suffolk and North Essex Claylands)
C Pantiles. Profiled roofing tiles are a characteristic feature of the roofs of the East of England. (East Anglian Chalk)
D Welsh slate. Across most of the Region the use of Welsh slate increased as the railways made transportation easier and cheaper. Slate allowed a lower roof pitch to be used, characterising many farm buildings of the period from earlier thatched or tiled buildings. (Breckland)
A *227169 Taken as part of the Images of England project © Mr E.M Trendell;* B & D *© English Heritage / Michael Williams;* C *© Bob Edwards*


9A


9B


9C


9D

Region. Welsh slate was imported through the Region's coastal ports and from the late 18th century by canal.

3.2.2.3 Tiles

The north of the Region is strongly associated with pantiles, which in an area stretching up the Scottish border were increasingly used at a vernacular level from the early 18th century and in some cases earlier. It had also spread across the northern half of Suffolk and Bedfordshire by the 18th century. Plain tile is more typically found in the southern half of the Region, spreading into mid Norfolk (Brunskill 1987, p.170; Moir & Letts 1999, pp.18–19).

4.0 Agricultural History and Farm Buildings

The existing stock of traditional farm buildings results from centuries of change and development. As a general rule, farmhouses (see 5.1) pre-date farm buildings, even in areas of 18th- and 19th-century enclosure. Larger-scale and higher-status buildings, which were consistently used for the same purpose or capable of being adapted to later uses, generally have the greatest chance of survival. It follows that barns are the overwhelming type of building to have survived from before 1750, and that steadings adapted or built anew in the later 18th and 19th centuries have retained evidence for a greater diversity of functions. Rates of survival differ both regionally and locally, but placing a building within its broad national and historical context will enable decisions on their wider value to be made.

4.1 AN INTRODUCTION TO ENGLISH AGRICULTURAL HISTORY AND FARM BUILDINGS: THEIR DEVELOPMENT, SURVIVAL AND SIGNIFICANCE

4.1.1 UP TO 1550 (Figures 10 & 11)

The 12th and 13th centuries were characterised by rising population, the colonisation of new land (through the drainage of fens, clearance of woods and expansion of farming on to upland moors) and the direct commercial management by estates of their land, whether this was dispersed among other holdings or ring-fenced in its own boundaries. The Church was a particularly active landlord, and monastic orders such as the Cistercians ran their estates from both home (or demesne) farms and outlying granges, which could be very large in scale (commonly 3 to 1000 acres in size). Climatic changes in the second decade of the 14th century, with increased rainfall and lower temperatures, led to famine. These troubles, compounded by pestilence (the Black Death of 1349 and subsequent epidemics), resulted in a sharp fall in population and the contraction or desertion of settlements on marginal soils. Direct cultivation by landlords continued on some home farms, but in most areas farms on estates became leased out – in whole or in part – to tenants, a process often accompanied by the breakdown of traditional customary tenancies. Other developments which accelerated from the 14th century included the amalgamation of farms into larger holdings, the enclosure of former communally farmed strips, and a steady growth in productivity sustained by greater emphasis on pastoral farming, new techniques and rotations of crops.

4.1.1.1 Survival and Value

All survivals of this period are of great rarity and significance. The best-known survivals are the great barns of secular and especially ecclesiastical estates. These comprised the foci of farmyards with ancillary buildings that have been almost completely swept away, for which documentary but very little archaeological evidence exists. The great cattle ranches (vaccaries) of the northern uplands have left no traces in terms of built fabric, although their impact on the landscape is still legible. Archaeological and documentary records – the latter particularly after 1350 – are similarly the main source of evidence for the farmsteads of peasant farmers, and for the emergence of a wealthier class of tenants and freehold farmers from the 13th century. In recent years evidence has brought to light farmhouses and occasionally barns of a wealthier class of farmers (both customary tenants and freeholders), providing the first evidence for wealth generated solely from local agriculture and of a class of farmers counted as among the wealthiest in Europe. These structures are concentrated in mid-Devon, the southern half of the West Midlands and in particular the South East and southern East Anglia.

4.1.2 1550 TO 1750 (Figures 10 & 11)

Larger farmers and landowners initially benefited from the great land sales that followed the Dissolution of the Monasteries in the 1530s, while most farmers gained from rising prices and favourable leases. Agricultural productivity – particularly of grain – was spurred by a doubling of population from between 2.5 and 3 million to over 5 million by 1660, and an associated rise (by six times) in grain prices. After 1650, a fall in grain prices, a rise in cattle prices and demand from London and other growing urban markets, led to a rise in cattle rearing in the north of England, and of the dairy industry and specialised produce (such as hops and cider) in other areas. Improvements in transport, including the coastal and river trade, provided access to new markets. New rotations and crops, particularly clover, grasses and turnips, had become established by the end of this

period on the light soils of East Anglia and adopted with varying success in other parts of the country. This period is strongly marked by the continuing process of enclosure and the related process of exchange and consolidation of farm holdings, the growth of farm size (especially in corn-producing areas), large estates and the widespread development of a landlord–tenant system. Landowners, notably the county gentry, emerged as 'influential pioneers of new crops and new systems of farming' (Thirsk 1984, p.xxiii). The consolidation of estates and holdings are reflected in the continuing – and in more anciently enclosed areas often the final – phase of enclosure. The national market became more integrated from the later 17th century, in tandem with the emergence of specialised regional economies. This, and the development and strengthening of local building traditions, are also reflected in the layout and design of both farmhouses and more substantial farm buildings.

4.1.2.1 Survival and Value

Substantially complete farm buildings of this period are rare. They will often provide the first surviving evidence for the development and strengthening of regional traditions and building types: for example, the timber-framed West Midlands barns that replaced earlier small cruck barns; the linear farmsteads of the North Pennines; the development of bank barns in Cumbria; the growth of the southern English downland farmsteads with their associated large barns. The smaller farms of anciently enclosed pastoral areas are the most likely to retain fabric dating from this period, although it is very rare for farmsteads to have more than a barn and house.

4.1.3 1750 TO 1880

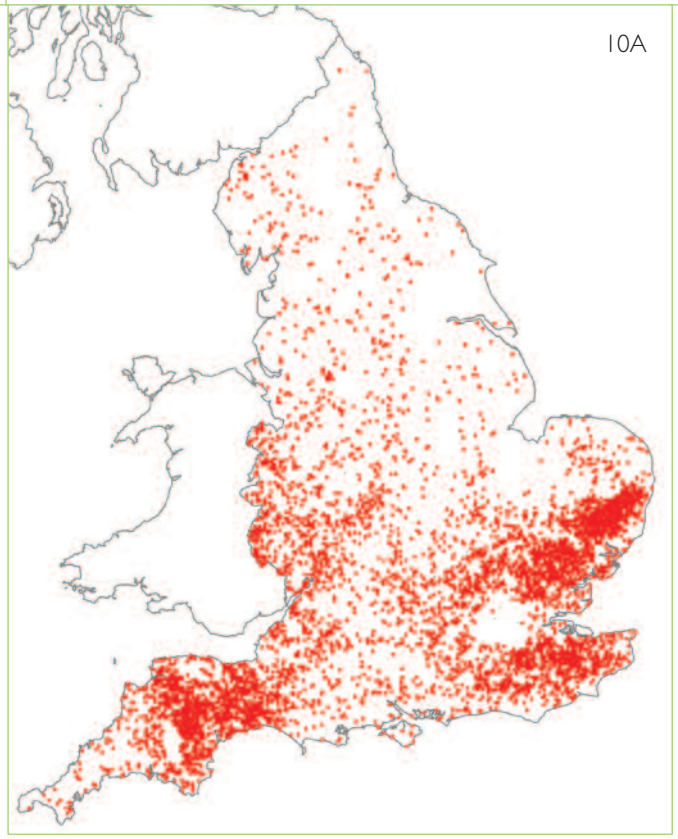
Agricultural productivity sustained a massive increase in population, which had risen from around 6 million in 1750 to over 16.7 million by 1851 and 26 million in 1881. This was the most important period of farm building development, commonly divided by agricultural historians into two periods: before and after 1840. Probably under 25% of the land area of England remained unenclosed by 1750, and the majority of this was enclosed by 1815. This was a process at first concentrated on the Midland clays (for the management of land as pasture for fattening) and then – from the start of the Napoleonic Wars in the 1790s – on the expansion of the cultivated area onto poorer and lighter soils such as the northern moorlands and the southern downlands, and poorly-drained land such as the Fens and the Lancashire mosses.

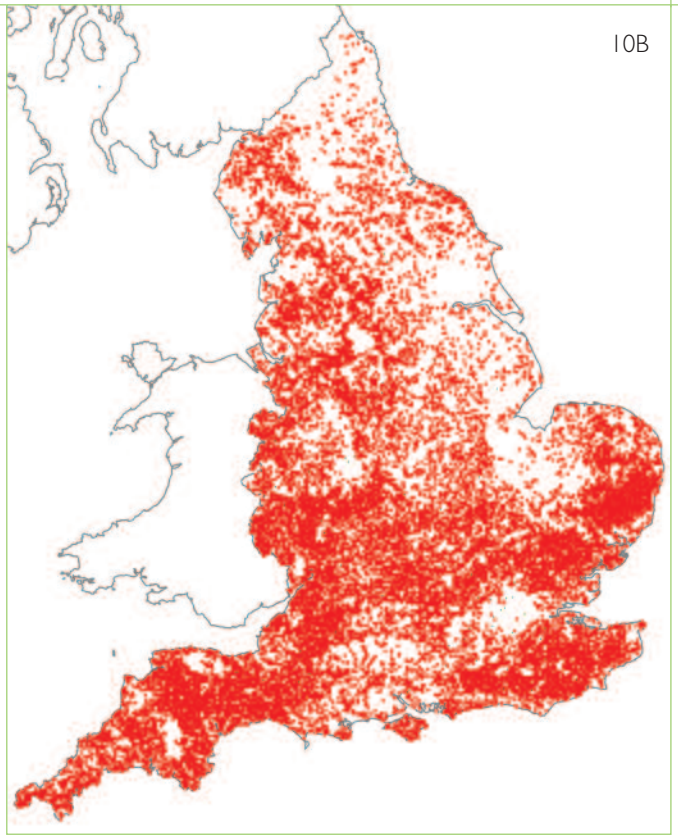
In the 'High Farming' years of the 1840s to 1870s, high-input/high-output systems – based on the availability of imported artificial fertilisers and manures (superphosphates, nitrates, guano and bones) and feeds such as oilcake brought on to the farm – replaced the 'closed circuit' methods that relied on farm-produced feeds and manure. A major development – as observed by the agricultural journalist James Caird writing in the 1850s – was an increased distinction between the intensively cropped landscapes of the eastern half of the country, and the wetter and more pastoral-based economies of the western half.

There were several key drivers behind this development:

- Higher grain prices from 1750, peaking during the Napoleonic Wars (1794–1815), were joined from around 1840 by a steady increase in meat and dairy prices, both the result of population growth and the demands of an increasingly affluent urban population.
- The strengthening of a national market, facilitated by the ever-expanding transport infrastructure (of canals, improved river and road communications and the railways) and the growing importance of middlemen, both of which facilitated the marketing of food.
- Marked increases in land prices from the 1760s. This increased the incentive especially of estates to invest, outgoings on repairs and improvements occupying an increasing share of gross rentals from this period to as much as 25% by the 1850s (Mingay 1989, pp.602–3).
- Increasing interest and involvement by government: for example through the Board of Agriculture set up in 1793 (and which immediately set about the commissioning of its famous county studies in order to gather information on best practice); and from the late 1840s the establishment of loan companies for buildings and drainage, which added to the development of a national banking system.
- Textbook and journal literature such as *The Book of Farm Buildings* by Stephens & Scott Burn (1861), and the examples of best practice included in J Bailey Denton's *Farm Homesteads of England* (1863). Agricultural societies, from farmers' clubs to the Royal Agricultural Society of England (RASE) founded in 1837, played an important role through their shows and publications. The Royal Agricultural College was established at Cirencester in 1845, and – as seen in the founding of the Rothamstead experimental station in 1832 – the following two decades witnessed the development of agricultural chemistry and veterinary science.
- The accelerating trend towards larger farming units, both through purchase of smaller farms by more substantial tenants and freeholders, and through estate policy. This was especially pronounced on the poorer soils, which often required the highest levels of capital investment.
- The role of estates, through the development of the land agent profession, investment in infrastructure (especially buildings and drainage) and the encouragement through leases of improved husbandry techniques by their tenants. Estate polices were also a major factor in the rationalisation of holdings and the emergence of larger farms.

10 Distribution of listed farmhouses in England, pre-1550 and 1550–1750. There is an obvious danger in making sweeping generalisations from such maps, but they do present valid questions for future analysis and research. Wealth derived from arable farming, including the proximity to the London market, dairying and fattening, wool and cloth production are obvious from the pre-1550 map. Here the distribution is thinnest for large parts of northern England, where rebuilding in stone – particularly from the late 17th century – had made its mark by 1750. Notable by their continuing thin distributions are the Lincolnshire and Yorkshire Wolds and Northumberland, where agricultural improvements and the re-planning of landscapes resulted in extensive rebuilding and re-siting of farmsteads after 1750.





- Enclosure. This was often a major factor in increasing output, through facilitating new rotations of crops and the improvement of grassland and stock management. Expenses associated with enclosure – of fencing, hedging and ditching (as much as 50% of the cost), and occasionally the construction of new steadings and buildings (which could be 17%) – increased the incentive of small owners and occupiers with little capital to sell to larger landowners (Wade Martins 1995, p.83). An additional incentive to enclosure was the doubling of rents that could result.
- Improvements in livestock, for example the emergence by 1850 of the Shorthorn as the leading cattle breed and the replacement of the horned wool-producing varieties of sheep by sheep bred for their meat and manuring value.
- The widespread adoption of improved grasses such as sainfoin and winter feed-crops such as turnips, accompanied by the production of better seeds and farm machinery and the efficient distribution of good manure by livestock increasingly wintered in yards or buildings.
- Drainage through traditional techniques, such as bush drains and U-shaped tiles and from the 1840s tile pipes, the use of these being concentrated on the heavy soils of the Midland clays.
- The improvement of soils through liming and marling.

Farmstead design was being affected by the widespread introduction of new types of building and layout, and from the 1840s by the widespread extension of mechanisation (for preparing feed and threshing), the increasing availability of mass-produced fittings and materials, and the adoption of industrial and scientific principles to the accommodation and feeding of ever-increasing numbers of livestock. The building of planned steadings for some estates and wealthy farmers, in the period up to 1840 concentrated in the eastern lowlands, was accompanied by the rebuilding or adaptation of many thousands of existing steadings with cattle yards and buildings, and the replacement of the traditional threshing barn by the multi-functional and much smaller mixing barn (see Figure 22, bottom). In some areas, regional differences were beginning to disappear: for example, the removal of floors and walls for livestock and lofts in the combination barns in the wood pasture areas of Suffolk and the eastern Weald attest to the fact that they were becoming part of eastern England's arable region, as recognised by James Caird who conducted a survey of British agriculture for *The Times* in 1850–51 (Caird 1852).

4.1.3.1 Survival and Value

Substantially complete examples of farm buildings of the 1750–1840 period are far less common than those of the post-1840 period, when many farmsteads matured

into their present form and huge numbers of buildings were erected. Some, particularly the planned farmsteads of the period, represent new developments in farmstead planning or the architectural aspirations of landowners. Others continue to be strongly representative of both the variety and development of local and regional agricultural systems and local vernacular traditions, such as granite in west Cornwall or cob in mid-Devon, and even new materials such as clay lump (as developed in large parts of Suffolk and southern Norfolk).

4.1.4 1880 TO 1940

For over 100 years, agriculture had been increasingly subject to national and international fluctuations in commodity prices, to its considerable benefit in the Napoleonic Wars and the High Farming years. However, after a run of poor weather in the late 1870s, the income from arable crops that farmers had enjoyed in the 1860s collapsed (for example, by 40% in wheat between 1880 and 1900) and farming entered a severe depression. Britain, its urban economy prospering through free trade, became by the 1930s the world's greatest importer of agricultural produce, including animal fodder, from both neighbouring parts of Europe and the New World. This was the beginning of large-scale importation of grain from the American prairies, meat in refrigerated ships from New Zealand and Argentina, and cheese and bacon from Europe. More than in any preceding period, British domestic policy (the supply of cheap food) and the world market now directly affected regional variations and the supply of capital to British farmers. The result was the concentration of grain production on the drier soils of the eastern and southern counties, and in the areas that experienced the greatest contraction from the High Farming peak of grain production a focus on meat and dairy produce in order to meet urban demand. The growing demand for liquid milk and the importation of dairy produce also led to a decline in the farmhouse manufacture of butter and cheese.

The Government endeavoured to boost production through price support. Against the backdrop of the U-boat menace during the First World War it sought to reduce the country's dependency on imported grain and attempted to extend and co-ordinate both advice and legislation (over hygiene, for example) through the establishment in 1919–20 of the Ministry of Agriculture and Fisheries and county council committees and councils, in conjunction with organisations such as the National Farmers' Union (founded 1908). However, despite an increase in net output, the rising costs of labour, feeds and other inputs, combined with the decline in prices and rising levels of imports, ensured that little was invested in fixed capital. Arrears in rent characterised the period, even in years of relative recovery (such as after 1936 in arable areas). The holdings farmed by the new class of owner-occupiers – numbering 147,000 in 1927, as against 56,000 in 1909, the biggest change in land ownership since the Dissolution of the Monasteries (Whetham 1978, pp.160–61) – were burdened with debt.

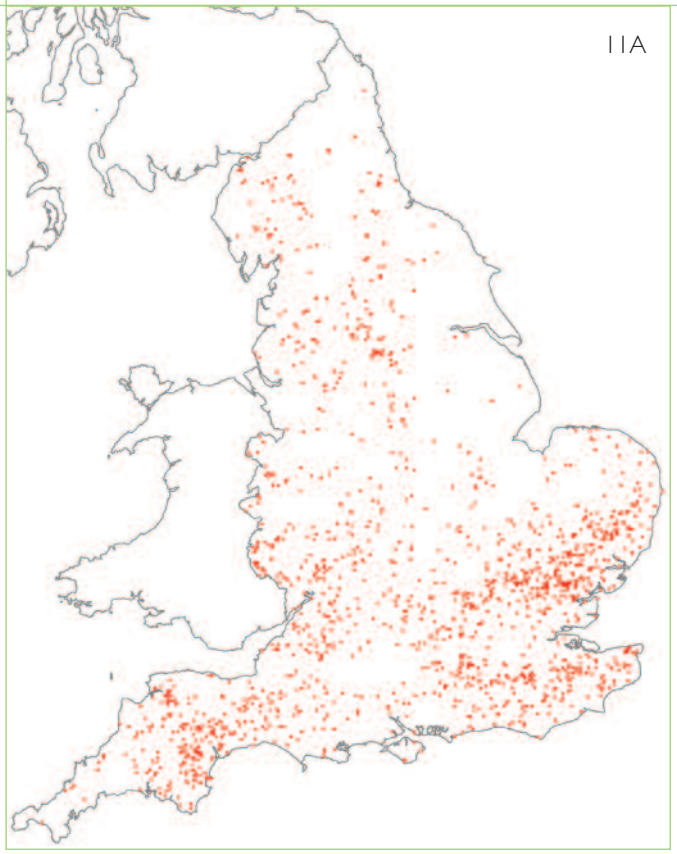
As a consequence there was little fresh investment in farm buildings other than repair and modification, and any buildings constructed tended to be of the cheapest materials. Many, such as Dutch barns, were prefabricated, and concrete and corrugated iron or asbestos sheet were being increasingly used for the refitting of cow and dairy units and the repair of traditional roofs. National and local surveys, such as the 1910 Land Valuation Survey, attest to the growing levels of disrepair, especially of pre-improvement farm buildings using traditional materials such as thatch and timber. Reduced rents and growing building costs meant that only the wealthiest farmers and landowners continued to invest in model or experimental farms, and many of these concentrated on the production of meat and dairy produce; most built very little, perhaps investing in dairy buildings or cattle sheds in an attempt to attract tenants or meet increased demand in some areas for meat and dairy produce.

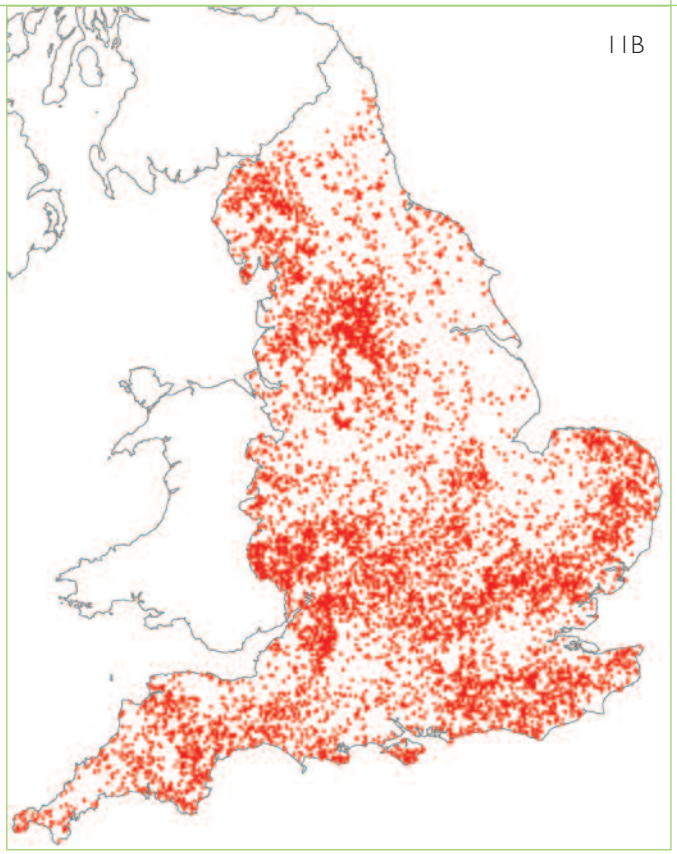
The continued promotion of scientifically based agriculture was matched by the application of new ideas on ventilation and farm hygiene to farm buildings, such as the regulations for dairying introduced in 1885. This was brought into effect mostly through the conversion of existing buildings (especially stabling into dairies) and to a small degree through new-build, notably on the smallholdings owned by county councils. Milking machines, where introduced, brought considerable changes to building layout, but the spread of mechanisation was very varied. By the mid-1930s, the mobile horsepower of the growing tractor fleet exceeded that of the stationary engine; the latter form of power having itself witnessed the transition to oil engines (from the 1890s) and electric power (not widespread until the 1950s). However, horses 'remained the dominant source of power' in the western half of England, and tractors were mostly confined to holdings of 300 acres or upwards, and the arable eastern areas (Whetham 1978, p.210). In the inter-war period, cereal, poultry and dairy farmers, and pig producers using imported North American feed, were in the vanguard of cost-cutting innovation that had a strong impact on post-war developments. There were some examples of planned steadings that in their adaptation of modern industrial theory bucked the trend (Brigden 1992).

4.1.4.1 Survival and Value

Planned steadings and buildings in some areas reflected the increased importance of dairying, particularly of liquid milk – the steadings of the Tollemache and Westminster estates in south Cheshire being one such example. The inter-war period witnessed the

11 Distribution maps of listed barns in England, pre-1550 and 1550–1750
The great majority of substantially complete pre-1750 barns have been listed. These maps pose important questions for future research. In the pre-1550 map, the concentrations in a belt around London, the southern Pennines and from the Feldon of Warwickshire into mid Devon conceal a wide range of sizes and types of barn, stretching from large aisled barns to relatively modest barns which have not been replaced in later centuries due to farm size and other factors. Many of the outliers, such as in Cornwall and Durham, represent the building of substantial barns on ecclesiastical estates in the medieval period. In the period 1550–1750, regional patterns of building and survival emerge more strongly, such as the concentration stretching from the Lancashire Plain to the southern Pennines, and the relative absence of pre-1750 barns in the planned landscapes of eastern and central England most profoundly affected by the agricultural improvements of the post-1750 period. The distribution for threshing barns of the period 1750–1880 reinforces rather than adjusts this distribution.





development of more intense forms of housing for pigs and poultry, and the replacement, as a result of hygiene regulations, of earlier forms of housing for dairy cattle with concrete floors and stalls, and metal roofs and fittings. County councils entered the scene as a builder of new farmsteads, built in mass-produced materials but in traditional form, in response to the Government's encouragement of smallholdings of up to 50 acres (20 hectares). Alongside the construction of new farm buildings, traditional farm buildings were adapted to new needs, and the use of corrugated iron (mostly for repair) has guaranteed the survival and reuse of earlier buildings, particularly the increasingly redundant threshing barn.

4.1.5 1940 TO THE PRESENT

The 1937 Agriculture Act anticipated the need to increase self-sufficiency, and the Second World War witnessed a 60% rise in productivity; this was the result of the growth in livestock numbers, increasing scientific and government control and guidance, more specialised systems of management and the conversion to arable of permanent pasture. The invention of artificial fertilizer (patented by Haber and Bosch in 1910) enabled otherwise uneconomic land to be brought into production, and finally made redundant earlier forms of fertilizer. The National Farm Survey of 1941–3 (Barnwell 1993) attested to the long years of neglect of the depression, less than half of the building stock being classed as in fair condition. The Agriculture Act of 1947 heralded the intensification and increased specialisation of farming in the post-war period, accompanied by the development of government and industry research and guidance. From the mid-1950s, strongly influenced by American models, there emerged a growing body of trade and advisory literature. The first of these, produced in 1956, highlighted the dilemma of 'old buildings too good to pull down but not suitable for their new purposes' (Benoy 1956). The Government provided grants to cover the capital cost of new building under the Farm Improvement Scheme (introduced 1957). The introduction of wide-span multi-purpose sheds in concrete, steel and asbestos met increasing requirements for machinery and for the environmental control of livestock and on-farm production, particularly of milk. The national stock of farm buildings grew by a quarter between 1945 and 1960 alone. The Agricultural Research Council's *Farm Buildings Survey of England* (published

1967) estimated that the average farmstead contained 6 pre-1914 buildings, 2.4 from 1918–45 and 2.5 built since 1945.

4.2 FARMING IN THE EAST OF ENGLAND

The landscapes of the East of England Region display evidence for its wide diversity in agricultural practices, from early enclosure landscapes across the clays of Essex and Suffolk to the large areas of reclaimed wetland in the Fens. In the medieval period, much of the Region was characterised by 'advanced and flexible field systems, sometimes closes, sometimes fields, sometimes both' (Hallam 1988, p.281). After the mid-14th century, intra-regional distinctions became even more varied: intensive rotations of crops in mid- and east Norfolk; the desertion and shrinkage of settlements on the lighter soils and the rise of sheep farming in these areas; and the shrinkage of hamlets around greens or on the edges of commons in the clay areas. There was little communal regulation of crop rotations and pasturing in most of the Region, and despite a general rise in holding size, smallholdings persisted and even proliferated around the emergent wool towns of north Essex and south Suffolk (Britnell in Miller 1991, pp.611–23).

Arthur Young claimed that it was in the early-enclosed claylands of Hertfordshire (see 4.2.8) that the first agricultural improvements in the Region took place. Turnips had been introduced as a fodder crop by the 1640s and clover by the 1730s. Major improvements in crop rotation from the late 17th century used winter feed crops (notably turnips, typically grown between the wheat harvest and the planting of spring barley) in combination with the stall or yard feeding of cattle (see 7.1.2.1) and artificial grasses. The latter was often undersown with the barley crop, and after the barley harvest left to grow as a hay crop for up to three seasons depending on the quality of the soil. This system, first taken up on the good loam soils, had a significant impact on both the agricultural development of the Region and the country at large. As early as the 1730s, William Ellis of Little Gaddesden was writing books advocating what later came to be known as the 'Norfolk system' of crop rotations using turnips and artificial grasses (Young 1813, p.55). It was introduced onto more acidic or clay-based soils from the late 18th century, along with capital-intensive improvements such as marling and draining. There was also a substantial increase in the average acreage of farms between about 1650 and 1750, as estates were enlarged, small farms were absorbed and dispersed holdings consolidated. Those parishes that became dominated by landowning families experienced these changes – and the completion of enclosure – to the greatest extent. Farmers' options had previously been limited by the soil type underlying their fields, and the Region's dry climate and late frosts prevented the widespread take-up of watermeadow systems as, for example, occurred in the South West.

After about 1750 these local differences in farming systems became less pronounced as light lands were marled with clay and heavy lands drained, making both suitable for cereal production. In some areas, this expansion of arable was accompanied by boundary loss and the loss of hedge timber. In Norfolk and Suffolk, for example, farms of 150 acres and over occupied 70% of the land area by the late 19th century (a third of this being holdings of 300 acres or over). The lightest soils were found in the north and west of Norfolk and Suffolk. These were particularly suited to the keeping of sheep, whose manure fertilised the soil, thus enabling grain, or more particularly barley, to be grown. Large-scale estate owners were dominant here, and were responsible for extensive enclosure of these landscapes: their policies often discriminated against smaller holdings and the maintenance of their buildings. More established owner–occupiers, in contrast, hung onto the smaller-scale farms in the fertile river valleys, which is where the earliest farm buildings and houses are to be found (Williamson & Wade Martins 1999, pp.67–9, 137–9, 76–81).

The Region's rivers, ports and coastline enabled the easy export of produce – especially barley – to London and foreign markets. The influence of London on land prices meant that farms and estates in the south of the Region were generally smaller than elsewhere. The captive urban market, expanding rapidly during the 18th century, stimulated both an increase in grain production and fodder for fattening stock. For this reason, too, orchards were found on nearly all farms in the south-west of Hertfordshire by 1800 (Young 1813, p.143). During the 19th century the influence of London was even more firmly felt, with market gardening and dairying increasing in importance. Railways became a major factor from the 1840s. Intensive bullock and cattle feeding had been a feature of the Region since the medieval period, and included stores imported from Scotland and, later, Ireland. This trade intensified from the 1840s, enabling the soil to be enriched with their manure and stocking levels to be maintained whilst grassland was ploughed up for arable. Other features of this period in the Region were the great increase in the use of artificial feeds and fertilisers (allowing even root courses to be omitted), the widespread use of portable threshing machines (although hand threshing remained on smaller farms) and considerable investment in drainage (particularly in the marshes and fens). Sheep remained a mainstay of the farming economy in North West Norfolk, Breckland and the Sandlings (see 4.2.3). By adapting to the needs of the London populous the farmers of the Region did not suffer from the depression in grain prices at the end of the 19th century as much as those in other southern

English Regions. This meant that new farm building was likely to continue, especially in facilitating the supply of liquid milk and cheese. Perhaps the most obvious, if late, example of this are the farms built by the Ovaltine Company outside Bishops Langley in 1931 (Brigden 1992).

As grain prices tumbled after 1870 many Essex farmers left the land, to be replaced by Scottish dairy farmers from Ayrshire who saw the opportunities provided by the London market. By 1893 Lord Petre had let at least 14 farms to Scots. The census of 1891 showed 58 Scottish farmers, concentrated broadly in the Ongar and Brentwood area, and on the Petre estate (Hunter 1999, p.167). The main problem encountered by these farmers was the lack of good-quality buildings for cattle. Unlike Scotland, there was no stone in Essex so 'whole farmsteads were of oak framing and elm boarding'. These were good when new, but many were described as, 'old and rotten and settled down off plumb' (McConnell 1891, p.312). At the same time Lord Rayleigh was taking farms in hand and converting them to dairy production. By 1914 he was farming 6,000 acres, providing milk for London. This trend resulted not only in the creation of an entirely new landscape with an increase in permanent grass from 179,374 in 1875 to 302,803 in 1939 (Hunter 1999, p.168), but also a need for new or adapted buildings. In a time of depression, these were more likely to be undertaken as cheaply as possible with little in the way of elaborate new building. However, these adaptations are an important part of both the national farming story and local distinctiveness.

AREA SUMMARIES

These summaries have been compiled as preliminary statements on the agricultural development of the distinctive parts of the Region. Inevitably, these do not relate as strongly to county boundaries as distinct landscape zones. These are outlined below, either by including the Joint Character Area (JCA) title – see 2.1– after the area heading or, if they approximate or relate to groups of JCAs, in the first line of the text. The sources for them are diverse, and include Historic Landscape Characterisation where completed, work in progress on developing historic profiles for the Joint Character Areas (see www.cqc.org.uk) and sources listed in the bibliography. They are generalised statements, within which there may again be important differences in farming practice, settlement and estate patterns and landscape character.

For Rockingham Forest (JCA 92) and Yardley-Whittlewood Ridge (JCA 91), see East Midlands. For Thames Valley (JCA 115) see South East.

4.2.1 North West Norfolk and North Norfolk Coast (JCAs 76 and 77)

The light chalk lands of the north-west, where the movement of sheep flocks was subject to a strong degree of manorial control and which experienced a high rate of settlement desertion in the 14th and 15th centuries, became famous for their large estates and farms, improved farming and the promoting of the 'Norfolk system' of crop rotations (see 4.2). From the medieval period until the onset of enclosure, manure was provided through the 'foldcourse system', where manorial flocks of sheep were moved across common land in the summer and fields in the winter. There is a contrast between the deep and well-drained soils of the coastal strip and major valleys, and the sandy, more acid soils of the uplands. Viable communities survived on areas of more fertile soil after 1350: most fields here were unenclosed at the outset of the 18th century. Older buildings are concentrated in these latter areas, often within settlements. Enclosure was largely complete on the poorer upland soils by the 18th century, where individual farmsteads often stood on the sites of deserted medieval settlements. From the 1760s steadings were progressively rebuilt at the centre of their holdings with large barns and combined cart shed and granary ranges. It is on these upland areas that the large estates for which this area became so well known – Holkham, Raynham, Houghton, Sandringham – were centred. The most famous of all the landowners was Thomas William Coke of Holkham, the owner of the largest estate in the area (40,000 acres) from 1776 to 1842.

4.2.2 Breckland (JCA 85)

The poorest of the soils overlaying the chalk are to be found in the sands of Breckland stretching through west Norfolk and Suffolk into Cambridgeshire. By the 18th century much of this area was owned by great estates, some of which had enclosed land by agreement, and foldcourse systems dominated. Some areas were left to great heaths where sheep grazed and rabbit warrens proliferated. Much remained open heath until taken over by the Forestry Commission in the 1920s, but some was enclosed and the systems of north-west Norfolk adopted with varying success. More than 70% of Breckland was enclosed after 1750, most of this concentrated in the 1790–1820 period, after which some of the land ploughed up for corn reverted to rough grazing. The area between Thetford and Bury St Edmunds is characterised by huge farms and substantial sets of buildings with fine houses dating from the enclosure period. Again a few earlier farms survive in the pockets of better soil, mainly along the river valleys where arable land had traditionally been viable.

4.2.3 Suffolk Coasts and Heaths (JCA 82)

A sandy area, known as the Sandlings, is to be found along the east coast. It is narrower and more dissected than Breckland and so often forms part of farms on neighbouring stronger soils. The Sandlings is bordered on

one side by coastal marshes, typically grazed by dairy cows and bullocks, sandy heaths grazed by sheep, and more fertile clay soils inland. Enclosure of the latter was largely complete by around 1700, and much of the heath and marsh divided into leasehold or privately owned blocks. Few new farms were built in this area after 1750.

Few farms are entirely confined to Sandling soils. Some of the Region's largest and best-managed farms were to be found in this area in the early 19th century with good crops of carrots produced as fodder. Here again attempts were made to improve the soils, which resulted in the building of some new farms, but parliamentary enclosure was far less important here and much of this heathland has remained open sheep walk into this century. By the 17th century, away from the most acid soils there had been considerable piecemeal enclosure. By the 18th century much of the coastal strip was owned by estates and the farms were large (over 300 acres). Alongside the sandy heaths they contained enough arable land to operate a mixed farming system. The heaths were mostly let as sheep walk rather than used as common land and by the 19th century the area was renowned as sheep-breeding country with famous flocks being kept, particularly at Martlesham and Butley Abbey. Cattle were kept on the grazing marshes.

4.2.4 **Central North Norfolk** (JCA 78)
Here the morrainic gravels associated with the Cromer Ridge have left poor soils, with a mix of large estates and smaller gentry farms. Until the later 18th century, there was a mix of piecemeal enclosure and areas of open field and common land awaiting enclosure. The economy was arable-based, but access to meadow and grass enabled the stocking of large numbers of bullocks and milking cattle. Much of the area remained open until the late 18th century when fields were enclosed and new farms laid out. Woodland has survived, both on the slopes of the ridge and on the more gravelly soils, much of it incorporated into the parks of the great landowners.

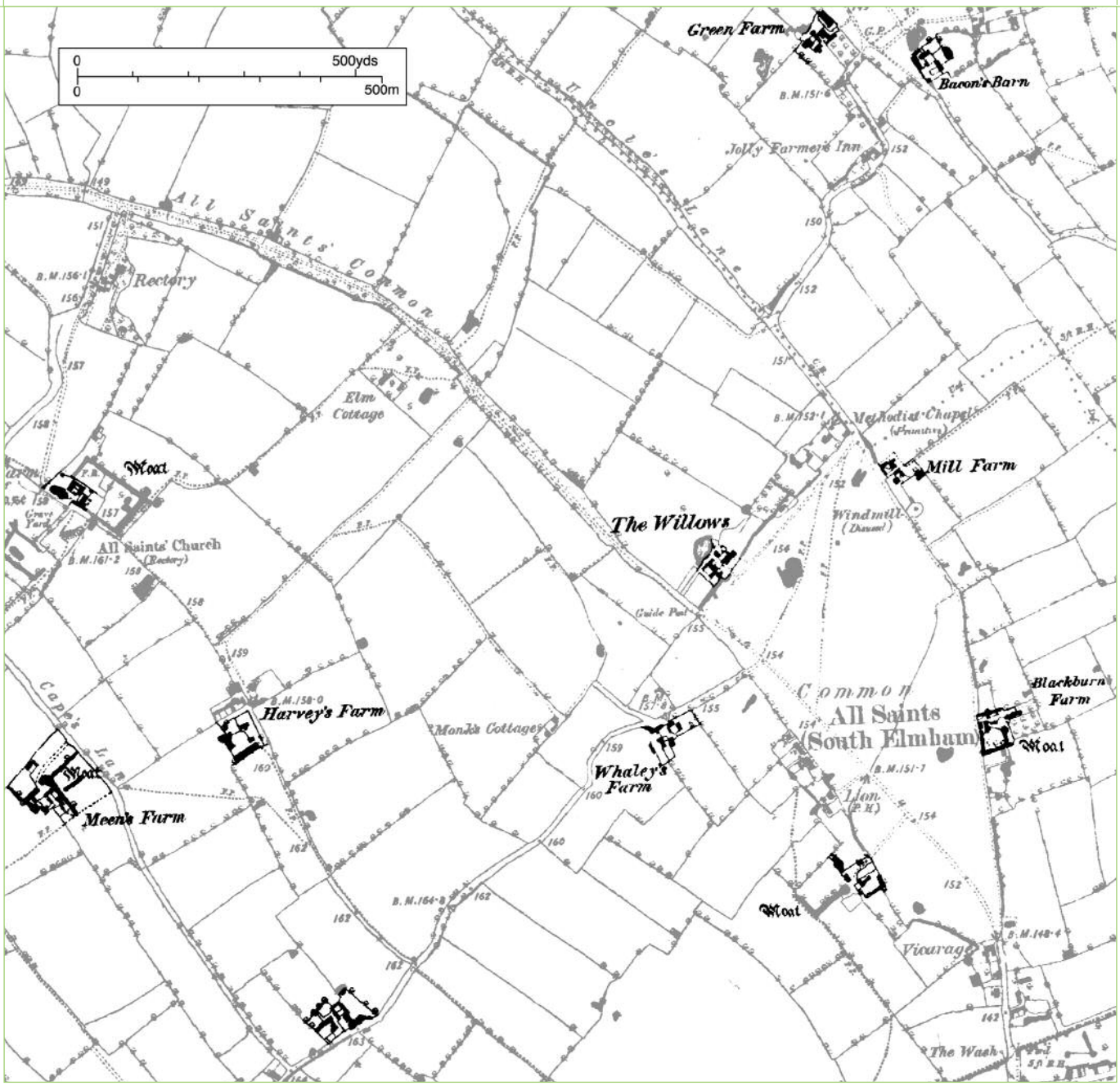
4.2.5 **The Flegg, and North East Norfolk and The Broads** (JCAs 79 and 80)
The sandy loams of The Flegg are amongst the most fertile lands in England. The large number of substantial 17th-and 18th-century farmhouses, often with contemporary barns and sometimes other buildings beside them, balance out the lack of great houses and parks. They are an indication of the importance and prosperity of owner–occupier farmers in the area. The emphasis in the medieval period was on cereals grown in open fields, but under complex systems of management that bore little relationship to the classic three-field systems of the East and West Midlands. Intensive livestock feeding was a feature from early on: exceptionally in a national context, stall-feeding of cattle is documented in the 13th century. Livestock had easy access to fens and marshes, this being privately rather than communally managed. The 16th and 17th centuries saw the development of a healthy dairying and fattening industry, supplemented by the 18th century by store cattle bought in from Scotland. More than half of this area awaited enclosure after 1750, this being associated with drainage. With enclosure, some new farms were built out in the fields. Along the broadland edge, livestock, which could be grazed on the marshes, played an increasing role in the farming system, with a distinctive type of winter cattle housing in which the animals were tied in rows on either side of a central turnip store. Very few of these buildings remain (see 7.1.2).

The Norfolk and Suffolk marshes alongside the Broads form a distinctive area, which despite the influence of drainage grants in the 1970s have retained much of their pastoral character. They were usually grazed by neighbouring farms and so formed an integral part of the local farming systems, contributing to the wealth of the area. The use of the Broads for grazing by surrounding farms meant that there were few agricultural buildings in the area.

4.2.6 **Mid Norfolk** (JCA 84)
This area is dissected by a large number of rivers with wide shallow valleys where settlement was typically dispersed (around greens and commons, and on the sites of deserted medieval settlements) and where open fields remained into the 18th century. Arable farming was of greater importance, and estates more dominant, than on the heavier clays further south. More sandy and acid soils characterise the heathland plateau, an area which experienced depopulation in the late medieval period and which from at least the 17th century contained a mixture of permanent grass for cattle and heathland that was largely enclosed around 1800.

4.2.7 **South Norfolk and High Suffolk Claylands** (JCA 83) (Figure 12)
Here pastoral farming, particularly dairying and cattle fattening, had been dominant from the 15th century. Small, hedged fields around closes, intermixed with open-field strips, were characteristic by the 18th century. Over 90% of the area was enclosed by the later 18th century, enclosure after this period affecting areas of residual common pasture and arable. Average field size could be as little as five acres and hedges were generally thick and wide, although this could of course vary from area to area, and many demesne farms (of perhaps 250 to 350 acres had large pasture closes of 25 to more than 100 acres). These were reduced in size during the 18th century, but still remained comparatively large, and in fact it seems that in these situations, many fields were *made yet smaller* during the Napoleonic Wars. On the Tollemache estate (Helmingham, Suffolk), these large

12 Farmsteads in the landscape: All Saints South Elmham (South Norfolk and High Suffolk Claylands)
Across the claylands of the south and east of the Region, settlement is predominantly dispersed with high numbers of scattered farmsteads and hamlet groups, often focused on small greens or along stretches of roadside common. The farmsteads, mostly of medieval origin, often retain buildings of pre-1700 date and many are moated. Here the fields are the result of old enclosure but lie within a broad, curving co-axial field system. Such field systems can run for several kilometres across the landscape, and can be prehistoric in origin. *Based on OS 1st Edition 6" map 1843-1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024.*



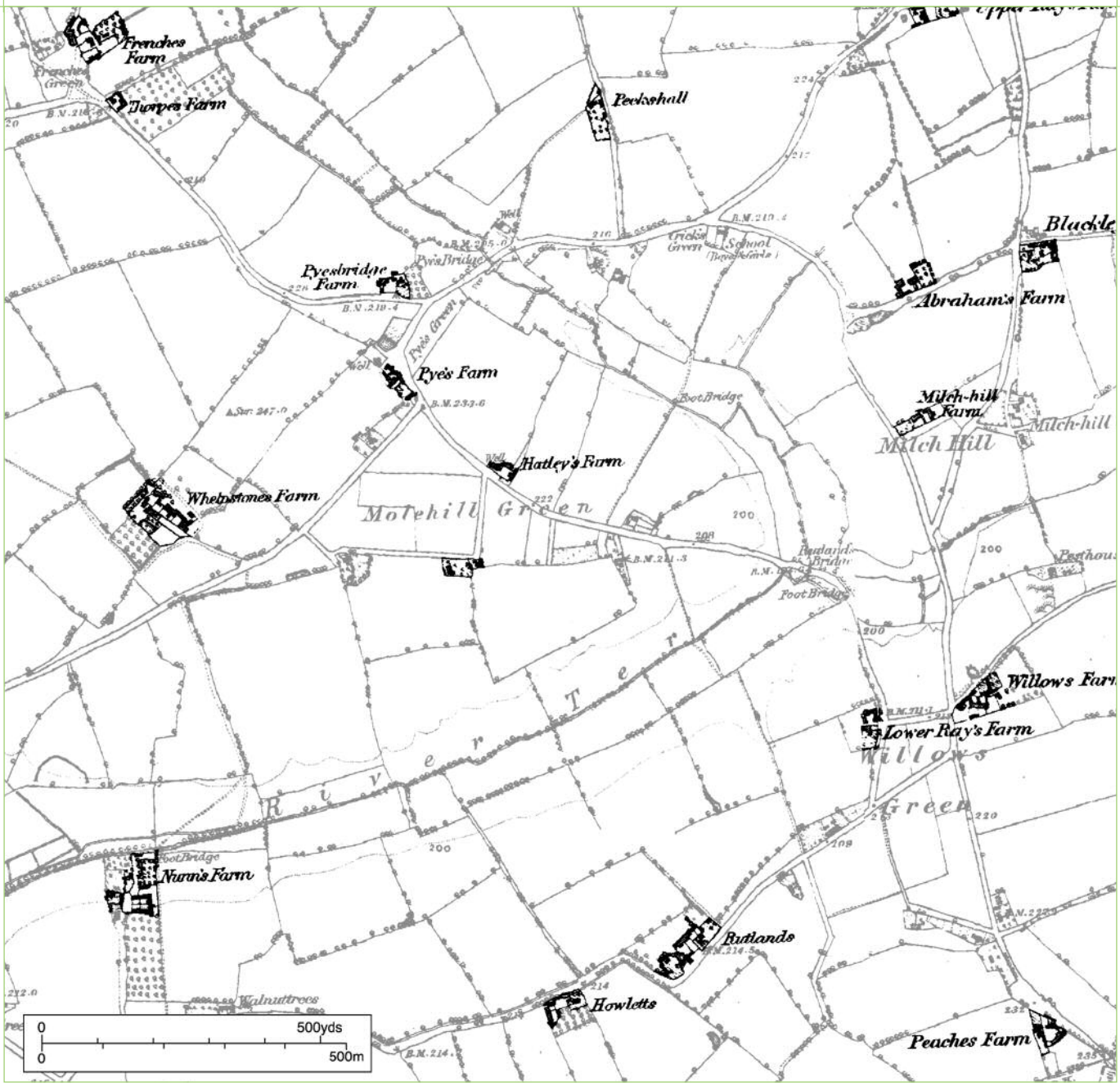
pastures were sometimes let in the 17th century as individual units of land, so a small farmer could rent an additional large block of pasture for keeping cattle. Later they became permanently attached to individual farms. There were few nucleated villages or parks of large landowners. Instead farmsteads, often on ancient and sometimes moated sites, were scattered with hamlets around greens. Generally, the land of south Norfolk and north Suffolk was owned by smaller proprietors, often without the interest or capital to invest in buildings and so smaller farms with older, more traditional buildings survive. This area has one of the highest concentrations nationally of surviving pre-1750 farmstead buildings.

The dairy lands of 'High Suffolk', described in detail by Arthur Young, were ploughed up as improved methods of land drainage enabled farmers on even the heaviest lands to take advantage of rising grain prices from the late 18th century – with consequent changes to the internal structure of the area's barns (see 6.1.2). The smallest of the fields were amalgamated to suit arable farming but complete new farmsteads were rarely erected.

4.2.8 South Suffolk and North Essex Claylands (JCA 86) (Figure 13)

The enclosure history of the South Suffolk and North Essex Claylands is very similar to that of South Norfolk

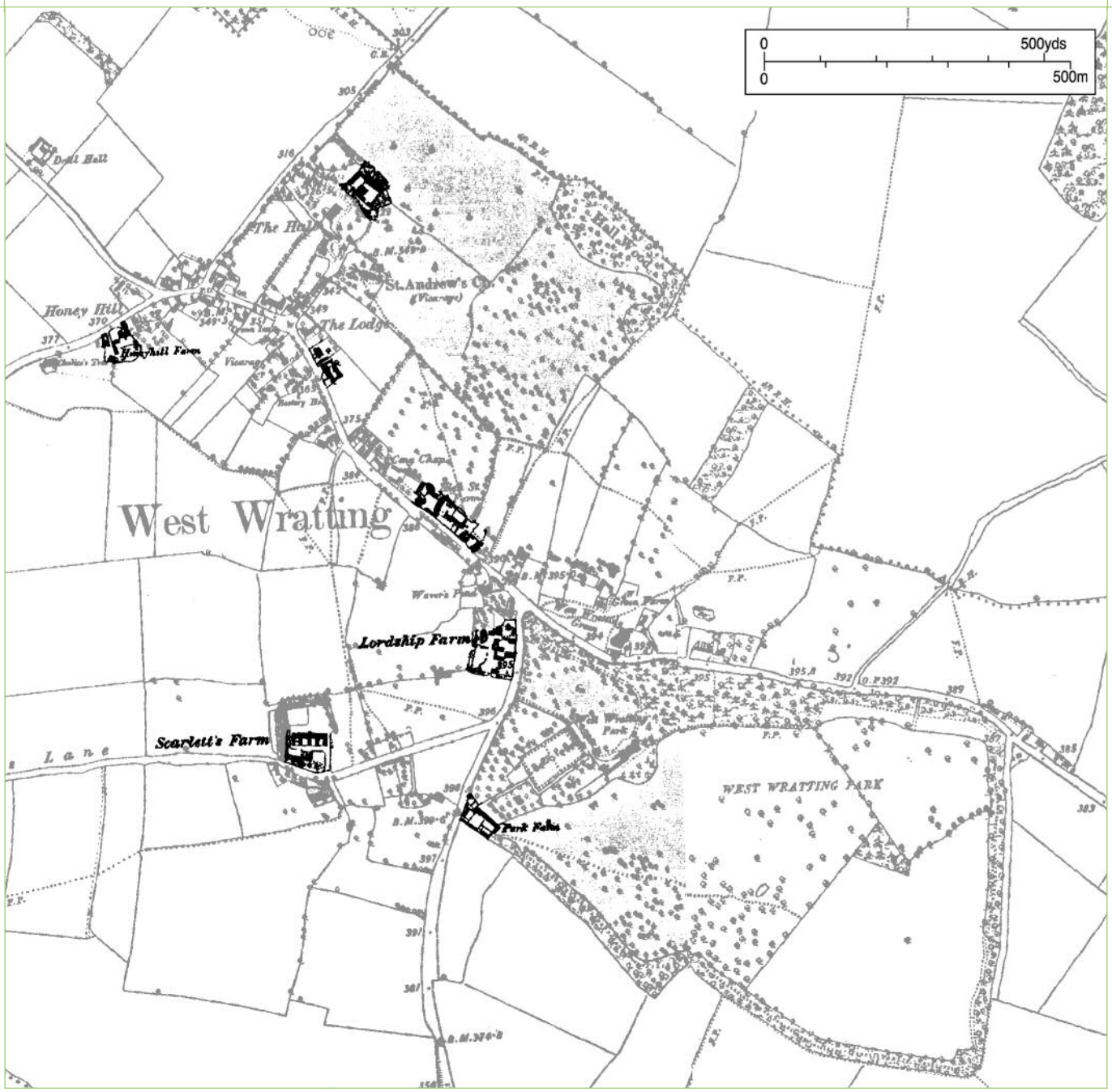
13 Farmsteads in the landscape: Felsted (South Suffolk and North Essex Claylands)
In terms of the settlement pattern, this area is very similar to that of the claylands further to the north as shown in Figure 12. This is landscape of ancient enclosure with well-hedged irregular fields and farmsteads that often retain buildings of medieval or 17th century date, although this area is more typical of wood-pasture landscapes with small, irregular fields with well-wooded hedges. Typically, these farmsteads were of loose courtyard plan, with small detached timber-framed barns and cow houses, although early examples of cattle housing rarely survive (or at least are not easily distinguishable from small barns). *Based on OS 1st Edition 6" map 1843-1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024*



and High Suffolk. The chalky boulder clay supported mixed farming in small fields surrounded by wide and thick hedges. On the heaviest Essex clays farming was difficult and, as Caird noted, 'great exertions are necessary to render its cultivation profitable' (Caird 1852, p.134). South of the River Gipping and extending into Essex and Hertfordshire, the claylands become more undulating and therefore easier to drain and so more suited to arable farming (Holderness 1984, p. 211). There seems to have been very little open field and instead early enclosure resulted in a mixed pattern of isolated farms, hamlets around small greens and nucleated settlement. By the 17th century the area was more urbanised than most, with a reliance on the textile industry (Thirsk 1967, p. 54). By the 19th century much of this area specialised in the production of grain and the fattening of cattle for the London market.

In mid-Essex the area to the south remained heavily wooded into the 19th century, but now only Epping Forest remains. To the north heathland remained open until the late 18th century when it was enclosed by parliamentary acts, resulting in a pattern of large rectangular fields and isolated farms. Into Hertfordshire this area had a mixed wooded landscape with fields varying from small irregular fields with plenty of

14 Farmsteads in the landscape: West Wratting (East Anglian Chalk)
Nucleated settlement – some of it polyfocal as here – is characteristic of much of the chalk belt running across the East of England Region. In many cases the farmsteads remained in the village after enclosure of the surrounding open fields in the early 19th century. This map identifies a number of large farmsteads with loose courtyard plans, several of which are reputed to have been of manorial status and one of which, Scarlett's Farm, was moated. It is probable that there were other, smaller farmsteads along the village street that went out of agricultural use at around the time of enclosure. Today most of these farmsteads retain some farmstead character although there are no listed agricultural buildings.



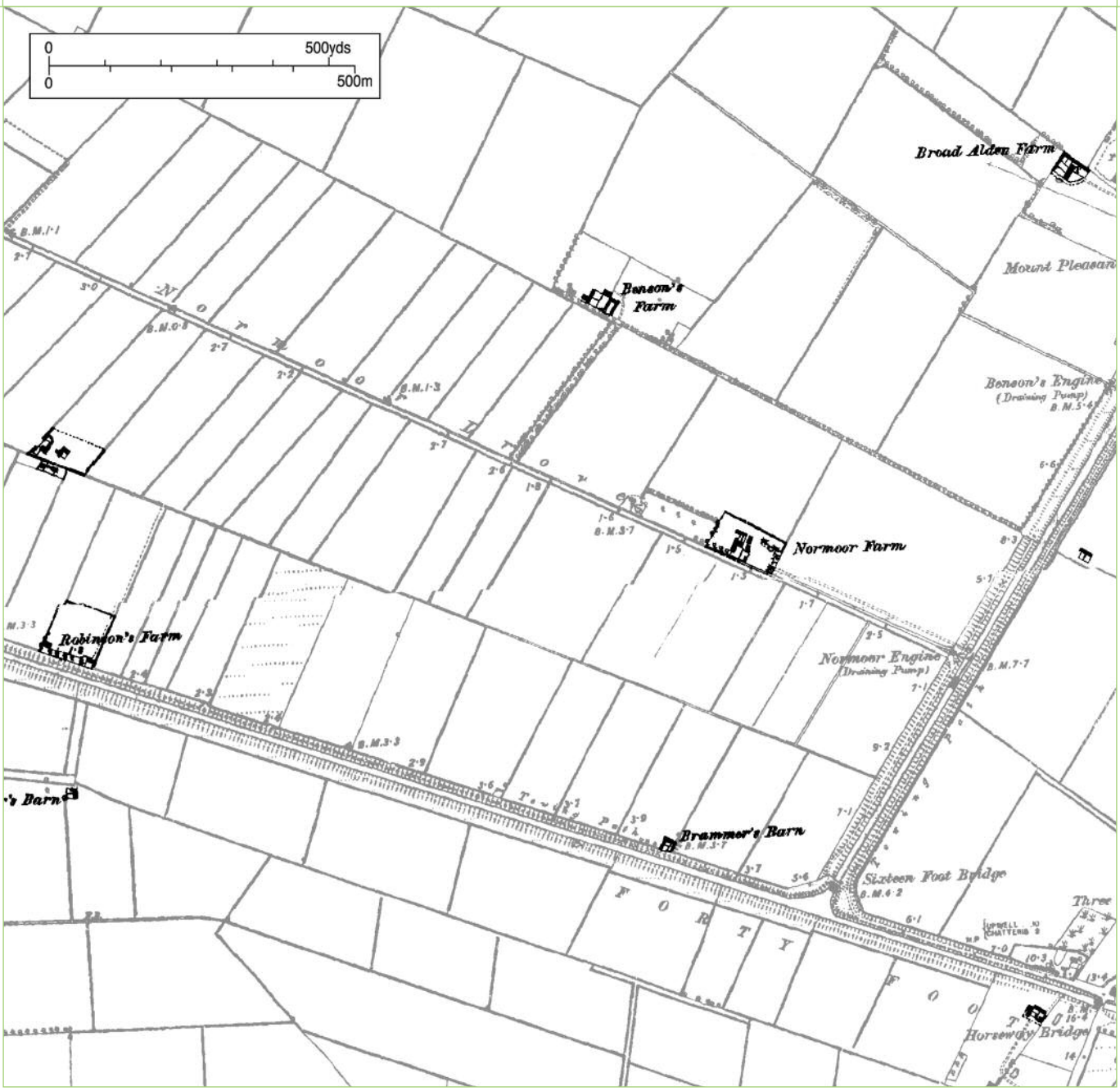
hedgerow timber to the north and regular enclosure fields to the south. Names containing the suffix 'end' or 'green' are typical of this area of dispersed hamlets and single farms.

4.2.9 The Chilterns and East Anglian Chalk (JCAs 110 and 87) (Figure 14)
For more on the Chilterns see South East.

The rolling, open chalk belt of the Chilterns extends into south-west Hertfordshire and continues north-eastwards as the East Anglian Chalk character area into Cambridgeshire and north-west Essex. This was mostly sheep and corn country of late enclosure, with barley the main cereal and the towns of Bishops Stortford (see 4.2.8), Baldock, Ashwell, Royston and Hitchin being major malting centres.

The Cambridgeshire chalks were still mainly open in the 1790s, and although there was considerable enclosure activity during the Napoleonic Wars there was still criticism of Cambridgeshire farming. According to one

15 Farmsteads in the landscape: Doddington (The Fens)
Drainage of the Middle Level area of the Fens commenced in 1490 with the construction of a drain by John Morton, Bishop of Ely. However, extensive reclamation works did not begin until the mid-17th century, when the Duke of Bedford and a group of 'Gentleman Adventurers' commissioned Dutch engineer Cornelius Vermuyden to drain the area to create summer grazing lands. The Forty Foot Drain was excavated around 1670 as part of this ambitious scheme. Further works to the drainage systems in the 19th century allowed an increase in arable on the fertile peat soils. New farms were created within a regular framework of straight roads and field boundaries. Due to the shrinkage of the peat as it dried out, many of the original farm buildings constructed suffered structural problems and have been replaced. *Based on OS 1st Edition 6" map 1843-1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024*



observer, the farmers on the newly enclosed fields now had 'the opportunity of redeeming [the county's] reputation as the worst cultivated in England' (Gooch 1813, p.56). In Hertfordshire enclosure was also an issue in the early 19th century. Many 'improving' farmers felt hampered by the antiquated common fields system; for example, a Mr Foster of Royston could only sow turnips in his strips in the common field with the permission of the parish flock master and by paying the shepherd 1s. 6d an acre for not letting the sheep eat the crop (Young 1813, p.48).

By 1846, things had changed. The chalky soils were nearly all enclosed and farmed as 'splendid wheatland' and large flocks of sheep were fattened for the London market. Isolated farmyards had been built where cattle were fattened but still it was thought that the buildings, even on these newly enclosed farms, were 'defective' in having too many barns (Jonas 1846, pp.35–72).

4.2.10 **The Fens** (JCA 46) (Figure 15)

One of the most distinctive landscapes is that of the Fens. The northern silt-based fens, which stretch into the East Midlands Region, have a long settlement history

going back to the Romano-British period and beyond. A period of expansion between the 9th and 13th centuries resulted in patterns of irregular enclosure around villages and longer strips that were used for arable or permanent pasture. Grassland, dominant from the 15th century, gave way to arable cultivation from the late 18th century. The reclamation of the more empty peat-based southern fens began in the 17th century, but was not completed until the introduction of steam power in the 19th century (Darby 1983). This expensive process relied heavily on the capital of the great landlords, principally the Duke of Bedford whose activity was concentrated in the parish of Thorney. Not until the new Nene Outfall was constructed in 1830 was there a reliable way of getting water to the sea, but once this was opened draining inland became possible. This involved the laying out of new farms, with buildings placed at regular intervals along the roads. Many of these fine farmsteads have since been replaced as their foundations cracked on the unstable peat. The flamboyant architect, S.S. Teulon, was employed by the Duke of Bedford to design Thorney village and some of the farmhouses, which along with the few remaining farm buildings form an important element of this flat estate landscape.

4.2.11 **Bedfordshire and Cambridgeshire Claylands and the Bedfordshire Greensand Ridge** (JCAs 88 and 90)
On the claylands the available land was generally organised into nucleated settlements: hamlets and small villages, each surrounded by communal fields and common grazing. The fragmentation of this farming system began with the increase in the value of sheep pasture and enforced depopulations in the 15th and 16th centuries, and concluded with reapportionment of the townships by general enclosure (private agreements and parliamentary acts) in the late 18th and early 19th centuries. The relative poverty of the soils has dictated a dispersed settlement pattern along the Greensand Ridge, with monastic institutions including large Cistercian abbeys at Warden and Woburn and smaller priories at Chicksands, Beadlow and Millbrook controlling a large proportion of the farmland and heaths, managing woodland (trees were sent from Chicksands to Ely Cathedral) and developing extensive warrens. The dissolution of these houses in the early 16th century added to the proliferation of large private estates which had already become a feature of the area.

Due to the control exercised by estates over both farmland and associated settlements, Parliamentary Acts were rarely required for the regular enclosures laid out in the late 18th and 19th centuries. Fine examples of planned farmsteads, with provision for steam power, and agricultural workers' cottages illustrate the rationalisation of farming estates in the late 18th and 19th centuries. Numerous isolated farmsteads, including a significant proportion of brick-built estate and model farms belonging to large landowners such as the Duke of Bedford, are a significant feature of the reorganised farming landscapes of the late 18th to mid 19th century. Dairying was an important component of farming on the dipslopes and river valley pastures into the early 20th century. Horticulture, based on the light and fertile soils of the Ivel Valley, developed in the later 19th century and remained a major element of the landscape until the later 20th century.

4.2.12 **Greater Thames Estuary** (JCA 81)
The agricultural traditions of the Greater Thames Estuary can be divided into two main themes: inland and coastal. Although the farming settlements are located principally in the inland zone, they reflect an ancient pattern of farming tenure which strove to extend holdings across the rising arable claylands and towards the grazing marshes, exploiting the resources of each. Comparatively few isolated farms are located within and along the edges of the marshes. The reclamation of marshland for farmland has a long history documented as far back as the 8th century. However, the economic value of large areas of marshland, especially in South Essex, rested on fattening cattle and especially sheep which required no reclamation, the salt preventing foot rot and disease (Thirsk 1967, p.53). The pattern of inland agriculture is frequently extremely ancient in origin – strong linear systems running tangentially to the rivers and reflecting ancient patterns of movement and tenure between the arable clayland and the marshes.

4.2.13 **Northern Thames Basin** (JCA 111)
The medieval pattern of village nucleations and dispersed farming settlement remains central to the character of the Hertfordshire plateau and its river valleys. The pattern of piecemeal enclosure and individual farm holding established in the medieval period supported a mixed farming economy, which developed and prospered alongside the development of local markets and the ability to supply London's growing demands for corn, meat and dairy products – and of horses (Thirsk 1967, p. 50). Profitable farming conditions saw the demise of much medieval parkland in the 17th and 18th centuries, alongside the growth of substantial farming estates for the London merchants, rising nobility and gentry (Holderness 1984, pp. 244-5). Some areas of regular enclosure are associated with the rationalisation and amalgamation of farms and estates in the 18th and 19th centuries.

Common grazing on heath and wood pasture in the wooded hills of Essex to the south of the area gave way to private arable and livestock holdings in the late 18th and 19th centuries, and a characteristic pattern of substantial farmsteads within regular patterns of

enclosure especially in the more low-lying areas. A principally dispersed settlement pattern became established within the extensive tracts of the Essex heathlands in the medieval period, reinforced by 19th-century enclosure of the open landscape, which brought about the pattern of new farmsteads and mixed farming still in evidence today. Orchards were established around Colchester, as well as a significant area of meadow pasture and leys following the numerous narrow rivers and streams.