

Track changes Enabled

# ORWELL

Design Guidance and Codes

Draft Report  
November 2023

# 1. Introduction

Through the Department for Levelling Up, Housing and Communities (DLUHC)'s Neighbourhood Planning programme, led by Locality, AECOM was commissioned by Orwell Parish Council to provide design support as part of the Neighbourhood Plan process.

## 1.1 Purpose and process

The design guidelines and codes set out in this report will provide a detailed framework that should be followed by any future design proposals that come forward within the village to ensure it meets a consistent, high quality standard of design and positively contributes to the unique character of Orwell.

It is intended that this report becomes an integral part of the Neighbourhood Plan by informing policies that will influence the design of new development and have weight in the planning process.

The following steps (see opposite) were agreed with the Neighbourhood Plan Steering Group to produce this report, which draws upon policy development and engagement work undertaken by the Group.

## 1.2 Policy Context

This section outlines the national and local planning policy and guidance documents that have influenced, and should be read in conjunction with this design guide.

### 1.2.1 National Policy and Guidance

#### **National Planning Policy Framework**

##### **Department for Levelling Up, Housing and Communities (DLUHC) | 2021**

Development needs to consider national level planning policy guidance as set out in the National Planning Policy Framework 2021 (NPPF) and the associated National Planning Policy Guidance (NPPG). In particular, the NPPF Chapter 12: Achieving well-designed places stresses the creation of high-quality buildings and places as being fundamental to what the planning and development process should achieve. It sets out a number of principles that planning policies and decisions should consider ensuring that new developments are well-designed and focus on quality.

#### **National Model Design Code**

##### **Department for Levelling Up, Housing and Communities (DLUHC) | 2021**

The National Model Design Code 2021 provides detailed guidance on the production of design codes, guides and policies to promote successful design. It expands on 10 characteristics of good design set out in the National Design Guide. This guide should be used as reference for new development.

#### **National Design Guide**

##### **Department for Levelling Up, Housing and Communities (DLUHC) | 2019**

The National Design Guide 2019 illustrates how well-designed places that are beautiful, enduring and successful can be achieved in practice.

#### **Building for a Healthy Life**

##### **Homes England | 2020**

Building for a Healthy Life (BHL) is the Government-endorsed industry standard for well-designed homes and neighbourhoods. The BHL toolkit sets out principles to help guide discussions on planning applications and to help local planning authorities to assess the quality of proposed (and completed) developments, but can also provide useful prompts and questions for planning applicants to consider during the different stages of the design process.

BHL is supported by Streets for a Healthy Life, which demonstrates what can be achieved in creating streets as places for people.

**Manual for Streets****Department for Transport (DfT) | 2007**

The Manual for Streets is the Government's guidance on how to design, construct, adopt and maintain new and existing residential streets. The document, alongside subsequent updates, promotes streets and wider development that avoid car-dominated layouts and place the needs of pedestrians and cyclists first.

## **1.2.2 Local Policy and Guidance**

**South Cambridgeshire Local Plan****South Cambridgeshire District Council | 2018**

The document, adopted in 2018, sets out district-wide policies as well as more specific development policies and housing allocations for the parishes in the district. Policy S/6 establishes the development strategy to 2031. Policy S/10 classifies Orwell as a group village in which development on sites capable of accommodating over 8 dwellings is not deemed sustainable. The Plan does not allocate any new housing in Orwell.

**Draft Greater Cambridge Local Plan (Regulation 18: Preferred Options 2021)****Greater Cambridge Shared Planning | 2021**

This draft document stems from Cambridge City Council and South Cambridgeshire District Council's work to create a joint Local Plan that applies to both districts. Seeking to ensure a consistent approach to planning, it is set to replace the two councils' separate Local Plans, both adopted in 2018, once they expire. This document was drafted to collect feedback that will inform the preparation of the Draft Local Plan itself, with a target adoption date set for 2024.

**South Cambridgeshire District Design Guide SPD****South Cambridgeshire District Council | 2010**

This document forms part of the Local Development Framework and expands on district-wide policies in the Development Plan Document (DPD) adopted in 2007. It provides design guidance on high-quality attractive and sustainable development at all scales in South Cambridgeshire.

**Sustainable Design and Construction SPD****Greater Cambridge Shared Planning | 2020**

This document sets out standards to meet the visions, objectives and policies of the Cambridge and South Cambridgeshire Local Plans as sustainable as possible. It provides an overview on the importance of urban design and policy implementation, including climate change adaptation, biodiversity and pollution.

**Landscape in New Developments Local Development Framework SPD****South Cambridgeshire District Council | 2010**

This document forms part of the Local Development Framework. It provides background information on why and when a landscape scheme is required, information on delivering high quality landscape and details on landscape drawing and management plans.

## **1.3 Area of study**

The Neighbourhood Area is the civil parish of Orwell in the district South Cambridgeshire centred around the village of Orwell. It is located 11 km south-west of Cambridge, 9 km north of Royston, 20 km south-east of St Neots, and 25 km south of Godmanchester. The Neighbourhood Area is bordered by the parishes of Great Eversden, Little Eversden, and Harlton to the north; Barrington to the east; Whaddon and Meldreth to the south; and Wimpole to the west. The Parish population was 1,147 in the 2021 Census.

The parish is mainly occupied by farmland and is dominated by the village of Orwell, its main settlement. The rest of the area contains small woodland areas and scattered clusters of agricultural buildings.

The settlement grew around the well that gave it its name and developed next to the Roman road (modern A603) that runs to Cambridge west of the village. Listed in the Domesday Book of 1086 as Ordeuella, (Ord Wella, in Old English) the village's name means "spring by a pointed hill".

The Cambridge Green Belt covers areas that border the Neighbourhood Area, although it does not extend into Orwell Parish.

The Neighbourhood Area is bisected by the A603, which provides direct links to Cambridge. Four different bus routes serve the parish. The nearest train station is located in neighbouring Shepreth, 3 km south-east of Orwell.

## 1.4 Summary of resident consultation

To be provided by Orwell Parish Council

# 2. LOCAL CHARACTER ANALYSIS

This section presents a snapshot of the Neighbourhood Area today to inform the design objectives of the Design Guidance and Codes. It provides an overview of Orwell's heritage, landscape, and movement network.

## 2.1 History and heritage

### HISTORIC DEVELOPMENT

The earliest accurate map of Orwell, drawn in 1686 for Sir Thomas Chicheley, lord of Orwell Manor, shows the village's two principal streets, now High Street and Town Green Road with St Andrew's Church to the north of their junction. The Parsonage is shown to the west of the church and the Town House (poorhouse) to the east. Smallholdings are shown on either side of the two streets with larger plots beyond. The village green is shown as a roughly rectangular space ranged north-south with the road that is now Lotfield Street proceeding eastward from the centre of its eastern side before turning north then west to join what is now Stocks Lane coming south from High Street.

The 25in Ordnance Survey map of 1887 shows the late 19th century additions to the village including new school buildings at the junction of High Street and Town Green Road, the Post Office and the Methodist Chapel. The map shows that Stocks Lane had been extended to the south-east by this time to join Back Street (now Lotfield Street) at the point where it had turned west. Much of the land to the rear of the properties on High Street and Town Green Road can be seen to have been used as orchard at this time. An exception is the Clunch Pit on Toot Hill to the north of High Street.

The 1960 OS 1:1250 map shows no new roads but does show the post-Second World War semi-detached houses and bungalows on Fisher's Lane to the north-west of the village. Post-war expansion of the village has been mainly in the form of closes of mostly detached houses off Town Green Road, Lotfield Street, Stocks Lane and Hurdleditch Road. Cross Lane Close was the first of these in 1971-82 followed by Greenford Close in 1982-85 and Brookside in 1992-93.

### DESIGNATIONS

There are 52 designated assets in the Neighbourhood Area. All apart from one are listed buildings, the exception is a small part of the grade I Wimpole Hall RPG (NHLE 1000635) north-west of the village. Wimpole Hall has a long and complicated history. The original medieval moated manor house was surrounded by a deer park in the 14th century but the part of the park within the Orwell Neighbourhood Area was a secondary drive to the mainly 18th century Wimpole Hall and was laid out in the mid-19th century. The drive is now a track and runs through woodland named Victoria Plantation.

Of the 51 listed buildings, 49 are in the village itself while two are located at Malton Farm, originally the settlement of Malton, a separate parish, approximately 2.4km south-east of the centre of the village. Forty-nine of the listed buildings are listed grade II with only one, Malton Farmhouse, listed grade II\* and one, St Andrew's Church, listed grade I.

The majority of the listed buildings (78% or 40 examples) are houses and cottages. 10% (five examples) are farm buildings and 8% (four examples) come under the loose heading of street furniture. The final two listed buildings are St Andrew's Church and its churchyard wall.

Of the domestic buildings, 58% (23 examples) date to the 17th century with only seven examples being of earlier date. The 18th and 19th centuries are equally represented at 25% or ten examples each. The domestic listed buildings are overwhelmingly timber framed (88%), all rendered with only two examples having brick infill throughout. While there is a decline in the proportion of timber-framed buildings in the 18th and 19th centuries it is slight and 80% of the 19th century buildings were timber framed. Six domestic buildings are in brick and date to between the 17th and 19th centuries and just two are constructed of the local clunch.

Roofs are very often hipped or half hipped. Roof coverings of the timber framed buildings are equally divided between thatch and tile though the steep pitches of many of the tiled buildings indicates they were originally thatched. As with timber framing, the use of thatch does not decline significantly through time although this is skewed by the re-roofing of a number of the older thatched properties. Just one example has a slate roof, the 19th century Chequers Public House.

Orwell is notable for the sizeable proportion of single storey dwellings among its listed buildings. Of 40 houses and cottages, 45% (18 examples) are single storey while 55% (22 examples) are two storey. The majority of the one storey dwellings have attic rooms with dormer windows, often added at a later date. The proportion of one- and two-storeyed properties remains relatively constant through time apart from during the 16th century when all five houses were built with two storeys. There was a slight decline of single storey properties in the 19th century where the split is 60/40 in favour of two storey properties.

The architectural style of historic dwellings in the village is generally vernacular with a few examples such as Manor Farmhouse tending towards the polite. Quinneys and 89 High Street, two cottages built in the early 1840s, use the Cottage orné style.

All the farm buildings, apart from Store at Grove Farm, which was a former wing of a medieval house, are barns. All date to the 18th century and all, apart from the stone-built Barn at Number 68, High Street are timber framed and weatherboarded.

Four listings can be loosely defined as street furniture. The most unusual is a stretch of boundary wall in front of the listed 15th century Tudor Mede. The wall is constructed of rendered clunch and capped with thatch. There are two listed cast iron water pumps in the village, both dating to the late 19th century. Finally, a K6 Telephone Kiosk located on the south side of High Street is listed. It is thought that approximately 11,000 K6s survive of which approximately 2,500 are listed for their proximity to other listed buildings.

While Orwell has currently no buildings on Cambridgeshire's Local Heritage List, Orwell Methodist Church on Town Green Road and the former school buildings on either side of the same street at its junction with High Street should be considered for inclusion.

## Timeline

1086. Orwell recorded in Domesday. The population was listed as 22 households under eight different owners including the Abbey of St Mary Chatteris which had owned land in the parish before the Conquest.

1200. Nave and chancel of the Church of St Andrew completed and tower started.

1216. Malton village (now Malton farm) recorded as a separate parish.

1254. A weekly Thursday market granted; village green created.

1300 (c.). Nave aisles and porch of the Church of St Andrew completed.

1327. 56 people assessed for tax in Orwell and Malton.

15th century. Parish officers were appointed to supervise the cleaning and repair of dikes.

1400. Malton farmed as one estate by this date.

1428. Malton depopulated by this date.

1494. Malton starts to be enclosed.

1509-10. Church of St Nicholas (Malton) partly demolished.

1524. 56 people assessed for tax in Orwell and Malton.

1672. A house in Orwell was licensed as a Presbyterian meeting-place.

1686. A map drawn for Sir Thomas Chicheley, lord of Orwell manor shows several smallholdings along High Street and a poorhouse on the eastern side of the church.

1743 (c.). Charity school established by John Colbatch, rector of Orwell.

1761. Methodist meeting place licensed.

1797. Cambridge Road turnpiked. Remains of Church of St Nicholas (Malton) recorded as ruinous.

1801. Population of Orwell and Malton 375.

1836. Five open fields in Orwell. Open fields and waste combined amounted to 1,634 acres.

1837. Parish enclosed. The village green was enclosed, the land being allocated to private individuals. Roads including the Great and Little Potter's ways, Mill way, Great Toft way, and Farthing way were closed. 340 acres of land awarded to the Rectory in lieu of tithes.

1839. Old School House (No. 2 High Street) built.

1854. Rectory farm established.

1860. First restoration of Church of St Andrew.

1871. Population of Orwell and Malton 800.

1873. Brewery established but disused by 1902.

1882. Seven public houses recorded.

1883. Second restoration of Church of St Andrew.

1885. Infants' board school opened.

1911. Population of Orwell and Malton 505.

1929. Village Hall opened.

1936. Town House (formerly the parish poorhouse) burned down.

1950s. 'Woolaway' prefab bungalows built at Leaden Hill, Town Green Road, Fisher's Lane and Grove Farm.

1961. Population of Orwell and Malton 619.

1970. Five farms in Orwell, Rectory farm, Manor farm, Grove farm, Town farm (renamed Meadowcroft farm), and West farm. Malton had been run as a single holding since enclosure.

1971-82. Cross Lane Close development built on former orchard land.

1982-85. Timber-framed houses built on former orchard land at Greenford Close.

1992-93. Brookside estate of affordable homes built on Manor farm land.

## **2.2 Settlement patterns**

The village of Orwell abuts the foot of Toot Hill stretching in an east-west direction. It is structured along two main axes: an east-west axis formed by High Street and Fisher's Lane, and a north-south axis formed by Town Green Road. The general layout of the village is spacious and informal, with a majority of detached houses not exceeding two storeys.

The historic core corresponds to the area covered by the Orwell Conservation Area to the north-east of the settlement. It stretched in a linear pattern along High Street, with St Andrew's Church at its western extremity.

The historic core has preserved its original layout characterised by irregular parallel plots with narrow frontages that form a herringbone pattern perpendicular to the road. Properties face both sides of High Street and back onto the open countryside in a one-plot deep pattern.

The spacious arrangement of buildings enables frequent glimpses into the countryside through gaps between properties from High Street.

More scattered historic development occurred on Town Green Road and Lotfield Street around the former village green which was subsequently infilled.

Historic plots show gentle variations in size and layout. A significant proportion of buildings abut the back of the highway with no setbacks, while other properties have generous front gardens. Buildings are typically detached or adjoining houses, one or two storeys in height, with large variations in architectural styles and construction materials.

More recent development stretched westward along Fisher's Lane, while most of the growth occurred south along a spine formed by Town Green Road. Some development took the form of linear and small infill development along the roads, with houses built in a variety of materials and forms. Most 20th-century development, however, consisted of clusters of development serviced by small cul-de-sac roads branching off from Town Green Road and Lotfield Street. Each cluster contains properties that have greater internal uniformity in design such as plot layout, building height, orientation, architectural features, and construction materials. Modern developments typically have both front and back gardens with a majority of on-plot vehicle parking. In some cul-de-sacs, houses are either aligned or displayed at 90 degrees angles instead of espousing the geometry of the road.

Outside the built-up area, buildings are limited to scattered clusters of agricultural buildings and a small one-sided stretch of ribbon development along Hillside.

## **2.3 Landscape and spatial setting**

### **Landscape designations**

The parish of Orwell lies on the boundary of two National Character Areas, namely NCA 87: East Anglian Chalk and NCA 88: Bedfordshire and Cambridgeshire Claylands. The claylands are a broad, gently undulating, lowland plateau dissected by shallow river valleys. The Chalk is a simple and uninterrupted landscape of smooth, rolling chalkland hills and large regular fields enclosed by low hawthorn hedges, with few trees and expansive views.

Most of the parish is farmland, with scattered small areas of woodland. One distinctive local feature is the Orwell Clunch Pit, which is a designated Sites of Special Scientific Interest (SSSI) due to its grassland flora and identified as a Local Geological Site. Other designations include an area of the designed parkland landscape associated with Wimpole Hall, scattered areas of priority habitat including deciduous woodland and pockets of lowland calcareous grassland, orchards and mosaic habitats as well as a few allotments and open green spaces.

The Orwell Inset Map and District Wide Policies Map identifies a Roadside Nature Reserve on either side of Wimpole Road, recognising their status as the largest area of unimproved grassland in the county and their role as important habitat. Additionally, the River Cam / Rhee which defines the southern border of the parish is identified as a County Wildlife Site.

The northern edge of the Neighbourhood Area directly borders designated green belt land, although the parish is entirely excluded from the Cambridge Greenbelt.

### **Green infrastructure**

The parish is home to a number of public open spaces and recreational facilities such as playing fields and other sports facilities, allotments, and a network of public rights of way that runs through the neighbourhood. The village's close proximity to the open countryside and footpaths in all directions creates a sense of openness.

## **2.4 Access and movement**

### **Roads**

Orwell is serviced by the A603, known locally as Hillside and Cambridge Road, which runs centrally through the settlement giving access to the M11 on the east and A1189 on the west. The road also directly leads into Cambridge, thus giving easy and direct access to surrounding settlements. Fisher's Lane and High Street that runs across the settlement are the main roads that connect directly to the A603.

The remaining interconnected network of minor and local roads in the settlement area is formed of residential and country lanes.

### **Walking and active travel**

There is a network of footpaths and byways throughout the parish in addition to a few bridleways which offer pedestrian connections between villages and into the surrounding rural landscape. There are minimal cycling routes throughout the Neighbourhood Area with no National Cycle Network routes and few local cycle lanes. The village benefits from some internal footpaths. New developments should ensure that they are porous to pedestrians and offer links to the village centre and surrounding countryside.

### **Public transport**

Orwell has 20 train stations within a 30km radius. The closest railway station to the Neighbourhood area is at Shepreth. Managed by the Great Northern, there are one to two trains an hour northbound to Cambridge in 15 minutes and southbound to London Kings Cross in 1 hour 12 minutes. Royston is a popular commuter station with fast services on the Brighton line into the City of London and London Bridge.

Orwell has 4 bus routes which serve 9 bus stops with connections to surrounding settlements: the 15 Wednesdays only to Royston, C2 Thursdays Only to St Neots, 75 and X75 is a direct service to Cambridge run by A2B Bus and Coach. The current bus routes do not provide a service to either Shepreth or Royston Station. The 75 bus passes through Barrington from which it is a 24 minutes cross country walk to Shepreth.

The lack of public transport links impacts on the need for personal transport and the knock on requirement for adequate parking in residential areas.

## **2.5 Built character**

### **Mix of building types**

Owing to Orwell's spacious settlement pattern, the majority of buildings are two-storey detached houses, with a strong minority of semi-detached houses and bungalows. Small areas of one-storey terraced houses were built as council housing, and there are a few adjoining buildings in the Conservation Area.

A variety of building styles are present in Orwell, but the strong influence from the historic core and references to the local material palette can be seen throughout the parish. The historic core is clearly defined by the Conservation Area and the concentration of listed buildings. As the village expanded, characteristics from each period of development can be seen used by the residential units around the periphery. This consists of architectural styles from the post-war era, and more recent 20th-21st century examples.

### **Landmark buildings**

The main landmark building in Orwell is St. Andrew's Church, which closes the northward perspective on Town Green Road and whose spire dominates the otherwise low-lying roofscape.

There are a number of heritage assets within the neighbourhood area which are local landmark buildings of value. For example, The Chequers pub stands at the intersection between Town Green Road and Chequers Close, it acts as a landmark corner building and is the only remaining pub in the village.

### **Materials**

Structures in Orwell are built in a variety of materials. Many traditional buildings are rendered in shades of off-white and cream, often with a black plinth. Cambridge white bricks and locally extracted clunch are also commonly used. A small number of older buildings have exposed half-timbering.

In rare instances, Fieldstone and limestone are used for dressing. Black weatherboarding is more common in agricultural buildings and outbuildings. 20th and 21st century buildings introduced a wider variety of brick types and hues, sometimes in non-traditional combinations with render, hung tiles, and vinyl.

Roofs are traditionally steep and either thatched or clad in clay pantiles or plaintiles. Welsh slate is used on shallower roofs, often Victorian or later. Chimney stacks use mostly Cambridge white or red bricks. On modern buildings, concrete tiles are common.



Landscaped hedges are the predominant form of boundary treatments. Other properties are delimited by timber picket fences or low brick walls. Some properties have no front garden delineations. Pavement and road surfacing consists of tarmac and asphalt. Some pavements include grass verges.

**Building line**

There are a variety of building line types within the parish. Generally each street follows a typical pattern where all of the buildings share a common building line, creating a continuous enclosure along the street. The building lines are an important aspect of the rural character of the village, as they help unify diverse building forms. In some cul-de-sac clusters, however, buildings are displayed at stark ninety-degree angles without following the gentler curvature of the roads.

**Low building scale**

One of the unifying elements within the parish is the low building scale, with houses typically one to two storey, creating a consistent built character. The building scale in relation to each other and surroundings are key in maintaining the rural nature of the village.

### 3. CHARACTER AREA STUDY

This section outlines the character areas of Orwell. These areas vary in character primarily due to their location, setting, and period of development.

#### 3.1 Character areas

The Neighbourhood Areas can be divided into five distinct character areas. These character areas have been listed and defined on the plan, overleaf.

The character areas were informed by the context of the Neighbourhood Area, and represent underlying characteristics which are influenced by the location and period of development.

- CA1 Village Core
- CA2 Primary Residential
- CA3 Cul-de-Sacs
- CA4 West Croft
- CA5 Open Countryside

#### 3.2 CA1 Village Core

The Village Core Character Area centres around the Orwell Conservation Area stretching along High Street, and covers the Village Shop and Pub along Town Green Road. The area forms the core of the original village settlement and contains most of the village’s Listed Buildings.

Land use	Mainly residential buildings. Includes the Village Hall and both churches, with adjoining green spaces, the Village Shop, and a hair salon.
Pattern of development	Organic, spacious and informal, dominated by detached buildings with a minority of adjoining buildings. Properties are arranged in a predominantly one-plot deep linear pattern along High Street.

Building line/plot arrangement	A variety of building setbacks. Some properties have front gardens of varying depth while others have buildings directly abutting the highway. Older properties generally have small or no front gardens while the houses constructed more recently are set further back from the road so that the overall impression is that the streets are still predominated by the character of the older properties (ref: Orwell Parish Plan 2011) Buildings are oriented to face the road, whose meandering pattern creates an informal organic building line.
Boundary treatment	Front gardens are typically delineated by landscaped hedges. A minority have timber fencing and low masonry walls.
Heights & roofline	A mix of one- and two-storey buildings with gentle variations in height. A variety of gabled, pitched, and half hip roofs. Some properties have composite roofs due to successive extensions. Chimney stacks and dormers punctuate the roofline. The tower of St Andrew's dominates the roofline.
Public realm	Tarmac pavements on both sides of the road, at places with grass verges providing a buffer from the road. Informal on-street kerbside parking.
Materials	Predominantly local traditional materials. Typically off-white or cream render and Cambridge white bricks, with some weatherboarding for outbuildings. Roofs feature mostly clay pantiles and plaintiles, slate, and thatch.

### 3.3 CA2 Primary Residential

The Primary Residential Character Area includes a minority of historic buildings interspersed with more recent infillings. A large variety in building layouts and materials (traditional and modern). Stocks Lane, Lotfield Street, Town Green Road, Fisher's Lane.

Land use	Mainly residential buildings. Includes Petersfield Primary School and Orwell Recreational Ground.
Pattern of development	Spacious and informal, with a mix of detached and semi-detached buildings. Properties are arranged in a predominantly one-plot deep pattern along the streets. A mix of ribbon, infill, and small cul-de-sac developments.
Building line/plot arrangement	A variety of building setbacks. Properties typically have front gardens of varying depths, usually with front garden parking for vehicles. Buildings are oriented to face the road, whose meandering pattern creates an informal organic building line. Older properties generally have small or no front gardens while the houses constructed more recently are set further back from the road so that the overall impression is that the streets are still predominated by the character of the older properties (ref: Orwell Parish Plan 2011)

Boundary treatment	Most front gardens are delineated by landscaped hedges. A minority have timber fencing, low masonry walls, or no delineation.
Heights & roofline	A mix of one- and two-storey buildings with gentle variations in height. A variety of gabled, pitched, hip, and half hip roofs.
Public realm	Tarmac pavements are in places replaced with grass verges on one side of some roads. Informal on-street kerbside parking.
Materials	A mix of local traditional and non-traditional materials. Typically off-white or cream render, weatherboarding, and bricks in both local and non-local varieties. Roofs feature mostly clay and concrete tiles.

### 3.4 CA3 Cul-de-Sacs

The Cul-de-Sacs Character Area consists of uniform building layouts and materials (modern), within each cluster. In some, the building line does not follow the road layout. Some are council housing estates, others are executive homes. Pearmains Close, Cross Lane Close, Meadowcroft Way, Brookside, Greenford, Oatlands. Lordship Close.

Land use	Exclusively residential buildings - majority private with some affordable.
Pattern of development	Medium- to low-density, with a mix of detached, semi-detached, and terraced buildings. Properties are arranged in clusters around cul-de-sac roads. With the exception of Oatlands, the roads are meandering in nature such that the extent of the development is only revealed as you travel through it.
Building line/plot arrangement	Near-uniform setbacks within each cluster. Properties typically have short front gardens of standard depths, mostly with front garden parking for vehicles. Most buildings have either identical orientations or meet at ninety-degree angles instead of forming a building line espousing the curvature of the roads, sometimes resulting in blank walls.
Boundary treatment	Many front gardens lack delineation. The others have landscaped hedges, timber fencing, or concrete posts with metal wires.
Heights & roofline	One- and two-storey buildings with uniform heights and roof shapes within each cluster.

Public realm	Tarmac pavements are in places replaced with grass verges on one side of some roads. Strongly dominated by front garden, kerbside, and echelon parking.
Materials	Mostly non-traditional materials, with a uniform palette within each cluster. Typically bricks in mostly non-local varieties with some render, weatherboarding, and hung tiles. Roofs feature mostly concrete tiles.

### 3.5 CA4 West Croft

The West Croft Character Area is a more recent 21st century development, which attempts to be more sympathetic to the local traditional built forms and materials. Integration of traffic calming and green infrastructure.

Land use	Mainly residential buildings, with small areas of open space. Mostly private with some shared ownership
Pattern of development	Medium-low density and compact, with a mix of detached and semi-detached buildings. The development is structured along West Croft, which feeds into smaller branches. The layout preserves the view towards the tower of St Andrew's Church.
Building line/plot arrangement	Strongly defined building lines with consistent setbacks. Properties typically have small front gardens of similar depths, usually with vehicle parking on the side of properties. Buildings are oriented to face the road, with slight variations espousing gentle bends.
Boundary treatment	Most front gardens are short and delineated by low-level planting.
Heights & roofline	Mostly two-storey with a minority of one-storey buildings. Consistent heights and roof shapes, typically gabled, pitched, and hip roofs.
Public realm	Tarmac pavements on both sides of the main road. Smaller roads are surfaced with pavers and shared between vehicles and pedestrians. Some planted verges, with specimen trees throughout the development, some native hedging in public areas and small areas of open space, including seating and play-boulders. Traffic calming in the form of raised tables.
Materials	A consistent palette sympathetic to the local traditional materials. Typically Cambridge white bricks and off-white or cream render, timber on minor structures. Roofs feature mostly clay and slate tiles.

### 3.6 CA5 Open Countryside

The Open Countryside Character Area largely consists of agricultural fields, with some residential and industrial buildings dispersed throughout the rural landscape.

The Open Countryside Character Area is comprised of land within the Neighbourhood Area, where not identified within another character area.

Land use	Mostly arable fields with small areas of woodland, and some extensive native hegerows. This area is also characterised by a network of ditches and the chalk streams which meander through the Neighbourhood Area. A small number of agricultural and residential properties.
Pattern of development	Isolated clusters of agricultural buildings. One-sided ribbon development with properties are arranged on parallel narrow plots along Hillside.
Building line/plot arrangement	Buildings are too few and scattered to form an identifiable area except along Hillside, where properties face the road with varying setbacks.
Boundary treatment	A variety of treatments including landscaped hedges, mature trees, low brick walls, timber fencing. Other properties lack any boundary delineation.
Heights & roofline	One- and two-storey buildings with heterogeneous heights and roof shapes.
Public realm	One-sided pavement with green verges along Hillside. Elsewhere, roads are mostly bordered by hedges and ditches with no pavements. The wider Neighbourhood Area includes footpaths and farm tracks bordered, in some instances by native hedgerows, trees and ditches. Many of these draining into the chalk stream network.
Materials	A mix of local traditional and non-traditional materials. Typically off-white or cream render, weatherboarding, and bricks in both local and non-local varieties. Roofs feature mostly clay, slate, and concrete tiles. Corrugated metal is common on modern large agricultural buildings.

### 3.7 Orwell character summary

The tables set out in this section summarises key findings informed by the context analysis and more detailed character area analyses. These findings will help to shape the design guidelines and codes in the following chapter.

Points of positive attributes are strengths and opportunities can be harnessed and further reinforced by the design codes and guidance. Any issues and potential threats identified will be targeted and mitigated against through suggestions of good urban design practices and principles.

Positive attributes in Orwell that could act as references in future development	Relevant design guidelines and codes in Chapter 4
<p>There is a variety of different patterns of development within the Neighbourhood Area offering visual interest along the streetscape whilst also celebrating its rural nature. These patterns should be respected and referenced in any future development.</p>	<p><b>LB01, LB04, EC03</b></p>
<p>Orwell is home to a wealth of heritage assets, from St Andrew's Church to the traditional white chalk and thatched cottages. The design of new developments should take cues from the existing local vernacular.</p>	<p><b>LB02, LB03, LB04</b></p>
<p>As a picturesque rural area, Orwell boasts a number of green spaces, surrounded by open fields and woodlands. The Orwell Clunch Pit is a valuable SSSI with its chalk grassland flora and offers a rich habitat. Orwell also has a number of key blue assets. These green and blue assets should be preserved and respected by any new development to protect the rural character of the Neighbourhood Area and promote biodiversity.</p> <p>Green and Blue Assets is not plain English. Can we work on this and list the key assets</p>	<p><b>EC01, EC02, SF03</b></p>
<p>Long- and short-distance views towards the landscape backdrop and green spaces should be preserved and promoted in any new development. Similarly, views towards important landmarks and heritage structures should not be obstructed.</p>	<p><b>LB02</b></p>
<p>The rural and low density development setting of Orwell contributes significantly to its unique and traditional character. Therefore, this should be maintained and protected from further development that could shift these qualities. When looking towards the village from the footpaths and roads leading to it, the buildings are largely concealed from view by hedgerows and the treeline, or the rolling nature of the land. This gives the impression of a 'hidden' village and is part of the essential character of the village that was previously identified in the 2011 Orwell Parish Plan (p7)</p>	<p><b>LB05</b></p>

Issues and potential threats for future development in Orwell	Relevant design guidelines and codes in Chapter 4
<p>New development could create abrupt edges with the rural countryside. Natural boundary treatments such as hedgerows and shrubs should be in place to allow for a smooth transition into the landscape.</p>	<p><b>LB03, EC03</b></p>
<p>Streets could be cluttered by inappropriate parking that can lead to congestion and a car-dominated streetscape. Appropriate parking arrangements, including bicycle parking, should be provided for any new or infill development.</p>	<p><b>AM02, AM03</b></p>

<p>Areas close to the Chalk Stream are subjected to elevated flood risk, especially areas around the High Street which runs parallel to the ridge line to the north. Any development or infill development should incorporate SuDS elements to mitigate against flood risk.</p> <p>A prevalence of combined sewer and surface water drainage arrangements in the older and higher parts of the village results in overloading of the sewerage pumping capacity during heavy rain. This results in documented cases of the sewers overflowing onto the streets and entering the surface water drains that feed directly into the Orwell Brook, a Chalk Stream. Additional housing or changes to properties that contribute to this problem should be conditional on moving surface water to SuDS or separating the surface water run-off from the sewerage service.</p>	<p><b>SF01</b></p>
<p>Active travel infrastructure (e.g. cycling and PRow network) and public transport links that are currently limited. Future development in the parish should seek to develop opportunities for walking and cycling. Footpath connections between existing cul-de-sacs would be beneficial. Footpath and cycleway connections to other villages with access to rail travel would potentially reduce reliance on cars and provide a positive impact on health and wellbeing and the environment</p> <p>The current Greenways scheme, that supports cycling as a commuting option to Cambridge, extends to Haslingfield and Shepreth. Planning gain opportunities, (Section 106 agreements) should be sought to fund and facilitate an extension of the scheme to Orwell.</p>	<p><b>AM01</b></p>
<p>The cohesiveness of the streetscape could be undermined by inappropriate building densities and massing in new constructions or modifications. These should match that of the surrounding areas to respect the historic low-scale character of Orwell.</p>	<p><b>LB01, LB04</b></p>

## 4. DESIGN GUIDANCE AND CODES

This chapter provides guidance on the design of development, setting out the expectations that applicants for planning permission in the Parish will be expected to follow.

### 4.1 Introduction

This section sets out some key design considerations and aims to encourage readers, developers and their appointed teams to underpin their approach using good practice and a robust process that will clearly communicate their design intentions, be collaborative, and ensure the delivery of a high-quality product that is appropriate and responsive to its sensitive context.

Good places can be delivered from a better understanding of the existing and do not need to rely on inappropriate examples from elsewhere. The parish comprises a lot of rich history and character, most of this delivered without the influence of the motorcar. The challenge for the future is how we create good movement infrastructure that connect people and places, one that prioritises the movement of pedestrian and cyclists and integrates a strong green infrastructure.

The focus for the design codes is primarily on built form within new development, although broader place-making principles related to the natural environment are also discussed, covering aspects such as green infrastructure, biodiversity and water management. These codes will aim to guide any changes or development within the parish to ensure the local character is respected whilst allowing space for innovation within the built environment.

This is not a step-by-step guide for all interventions of any scale, therefore all involved in urban design and built form must work to understand ‘place’ and consequently, how these and other key principles should be applied.

## 4.2 Part 1. General design considerations

The scope of the design guidance and codes is not limited to large interventions within the main settlement area but also within the wider rural setting as well as individual small-scale developments. Creating good places demand a focus on achieving quality and this needs to be embedded in the heart of the process. Also, quality does not necessarily equate to higher costs. Through partnership and collaboration, developers should aim to aim to deliver places that comprise these qualities.

1. Development should demonstrate synergy with, and be complementary to, existing settlement in terms of physical form, movement/access, and land use type;
2. Development should relate sensitively to local heritage buildings, topography/landscape features, countryside setting, and long-distance views;
3. Development should reinforce or enhance the established character of the settlement;
4. Development should integrate with existing access, public rights of way (PRoW), streets, circulation networks, and understand use;
5. Development should explore opportunities to enhance access to public green space, to reflect settlement needs;
6. Development should reflect, respect and reinforce local architecture and historic distinctiveness, avoiding pastiche replication;
7. Redevelopment of heritage buildings including farms should aim to conserve as many vernacular features as is practicable;
8. Development should retain and incorporate important existing landscape and built-form features;
9. Building performance in terms of conservation of heat and fuel over-and-above building regulations should be a key design driver for new development;
10. Development should respect surrounding buildings in terms of scale, height, form, and massing;
11. Development should adopt contextually appropriate materials and construction details. Embodied carbon toolkits should be used to guide material specification;
12. Development should ensure all components e.g. buildings, landscapes, access, and parking relate well to each other; to provide safe, connected, and attractive spaces;
13. Net Zero aims should be integrated, and development should adopt low-energy and energy generative technologies within the development at the start of the design process; and
14. Development should use nature-based water management solutions/ SuDS to manage on-site water and boost biodiversity habitat.

## 4.3 Part 2. Key design guidance and codes

The following set of design guidance and codes forms the main substance of this document. These codes set out the expectations that are specific to the context of the Orwell Neighbourhood Area. The use of photographs and diagrams help to reflect good precedents, demonstrate design issues for consideration, and further highlight the application of each design.

The guidance and codes advocate for character-led design which responds to and enhances the landscape and townscape character. It is important that new development responds to local context and enhances the “sense of place” whilst meeting the aspirations of residents.

Theme	Prefix	Code
Layout and Buildings (LB)	LB01	<b>Pattern of development</b>
	LB02	<b>Development affecting heritage assets</b>
	LB03	<b>Preserving and promoting the local vernacular</b>



	LB04	<b>Extensions, conversions, and infill</b>
	LB05	<b>Building heights and roofline</b>
Access and Movement (AM)	AM01	<b>Safe and friendly neighbourhoods</b>
	AM02	<b>Parking typologies</b>
	AM03	<b>Secure bicycle parking</b>
Ecology (EC)	EC01	<b>Landscape setting</b>
	EC02	<b>Wildlife corridors and habitat connectivity</b>
	EC03	<b>Development edges in the rural landscape</b>
Sustainable Futures (SF)	SF01	<b>Sustainable water management (SUDS)</b>
	SF02	<b>Energy efficiency and sustainable energy sources</b>
	SF03	<b>Dark skies</b>

## LAYOUT AND BUILDINGS (LB)

### LB01 Patterns of development

An understanding of the existing patterns of growth in Orwell combined with an efficient use of land are required for any new development. Any new development should adhere to the following principles:

- Properties should be clustered in small pockets showing a variety of types. The use of a repeating type of dwelling along the entirety of the street should be avoided;
- Any new development in CA1 Village Core should retain gaps between buildings that enable visual connections with the open countryside;
- Buildings should be arranged to enable or preserve important views such as those towards the tower of St Andrew's Church and green features;
- The layout and built density of new development should be informed by the character of the immediate area and location within the village; and
- The form and layout of new streets should align with historic ones where possible, with a preference towards interconnected street networks. Cul-de-sacs, if any, must be short and provide overlooked pedestrian and cycle links.

### LB02 Development affecting heritage assets

Future developments and renovations should remain sympathetic to the design and historical significance of Orwell's built heritage:

- Important views and vistas towards the St Andrew's Church, other historic assets, landmarks, and historically important streets should be respected by new and infill developments. Long-distance views from historic assets towards the open countryside should also be protected;
- Any listed building and locally listed building should be protected and adequately maintained, as they can act as effective landmarks for navigation whilst adding to the quality of the built environment;

- New development within the historic setting must respect its significance and demonstrate how local distinctiveness is reinforced - e.g. allowing for generous setback from the asset and be of a massing and scale that is sensible to the neighbouring structure;
- New developments, building extension or modification of existing properties close to heritage assets should make positive contributions to the character or distinctiveness of the Conservation Area; and
- New developments within the Conservation Area should propose architectural details, materials, and boundary treatments that are in harmony with surrounding heritage assets to respect the local vernacular.

## LB03 Preserving and promoting the local vernacular

New developments should be respectful of architectural styles and use of materials of surrounding housing, whilst ensuring that a mix of styles are provided that is in keeping with Orwell's local character. Modern interpretations and tasteful adaptations are welcomed in new developments as long as they remain sympathetic to their surrounding contexts.

Any new development should refer to the Conservation Area and Listed Buildings for examples of local built character.

Development proposals should provide specification on the building scale, massing and roofscape, as well as the detailed architectural design, including materials, fenestration, and detailing. Proposals should also demonstrate how the setting of the local context has been considered.

### Scale, massing and roofscape

- Buildings are one to two storeys in height;
- Traditionally, the main roof line of buildings in the village is modified by outbuildings and extensions at the rear. New development should reflect this variety, although the extensions must be well designed and not all of the same pitch and size;
- The thatched roofs on historic buildings usually have a steeper pitch, which can be replicated in any new developments;
- Roof forms should be in keeping with the surrounding context;
- Roof materials of existing village buildings include a variety of clay and slate roof tiles. Clay roof tiles should be of muted brown-red colour; and
- The balance and diversity in scale and roofscape should be maintained in development.

### Materials, fenestration, and detailing

The intricacies of the architectural features

and detailing in the parish are locally distinctive and define the unique built character of Orwell. These elements provide visual interest and reduce the scale and bulk of the buildings. Common wall materials are Cambridge white bricks and white render, some of which have exposed painted timber frames, which add to the character of the Parish. The white render found on the cottages within the Conservation Area, usually with thatched roofs are typical of the village. The white has traditionally been made using local chalk. On rendered properties, it is common for the door and windows to have an accent colour.

Guiding principles for development to respond to the local character include:

- Development involving multiple houses should ensure a variety of detailing is utilised across the development to provide visual interest along the street and avoid homogeneous building designs;
- Any materials which are not sympathetic to the existing character and material palette should be avoided; and
- The use of traditional and preferably locally sourced materials is generally more appropriate.

### Boundary treatments

Boundary treatments should reinforce the sense of continuity of the building line and help define the public realm, appropriate to the character of the area.

The use of appropriate forms of boundary treatments contributes to the rural and historic character of the Parish. They should be mainly continuous hedges and low walls, made of traditional materials found in the Parish.

- It is preferred that hedges using native species are used as boundary treatments as 'living boundaries' that contribute to biodiversity by serving as wildlife habitat;
- Boundary treatments should offer privacy and screen parked vehicles and ground floor windows facing the street;
- Front gardens should be bordered with hedges, flowerbeds, bushes and trees to offer some soft landscaping and improve visual impact;
- In the case of development at the edge of the countryside, natural boundary treatments can act as buffer zones between the site and the countryside; and
- If placed on the property boundary, waste storage should be integrated as part of the overall design of the boundary.

## **LB04 Extensions, conversions, and infill**

Extensions and modifications to dwellings can either revitalise an older building and enhance the streetscape, or on the other hand, adversely impact the appearance of a building and its local context.

The Planning Portal contains more detailed information on building extensions and modifications, setting out what is usually permitted without planning permission (permitted development) as well as what requires planning permission.

The following principles should be considered by development involving extensions and modifications:

- Designs that wrap around the existing building and involve overly complicated roof forms should be avoided;
- Extensions and other modifications are best located to the rear of the historic buildings to sensitively integrate with the existing distinctive proportions;
- Side extensions should be set back from the front of the main buildings and retain the proportions of the original building. This is in order to between existing and new;
- Extensions should consider the materials, architectural features, window sizes and proportions of the existing building, and respect these elements to design an extension that matches and complements the existing building. A range of roof heights adds interest to the village roofscape and enhances the integration of extensions with original buildings;
- It may be most appropriate for extensions on significant or notable buildings to be clearly different from the original building. This can allow the merits of the original building to stand out. However such a decision should always be based on an understanding of the building's character; and
- The original building should remain the dominant element of the property, in terms of scale and form, regardless of the number of extensions. Extensions must be appropriate for the scale, massing and character of the main building, and should complement both the streetscape and the village setting. Overly complicated extensions and associated roof forms should be avoided.

It should be noted that many household extensions are covered by permitted development rights, and so do not need planning permission. These rights do not apply in certain areas such as Conservation Areas.

## **LB05 Building heights and roofline**

The varied building height and roof elements make an important contribution to defining the character of the parish.

Development in Orwell should respond to the following codes:

- Building heights within and around the village should be of a low-lying nature and should not overwhelm the surrounding landscape;
- Consider how the roof design integrates with the surrounding development;

- Buildings are usually low, maximum two storeys tall, and sit below the canopy. Bulky roofs must be avoided;
- Ensure the height of development responds to the surrounding buildings, street width and sense of enclosure, topography and mature vegetation; and
- Design the scale and pitch of the roof to be in proportion with the dimensions of the building, and avoid overly complex designs.

## ACCESS AND MOVEMENT (AM)

### AM01 Safe and friendly neighbourhoods

As set out by Homes England in the 'Building for a Healthy Life' Manual, it is vital to create:

- Integrated neighbourhoods;
- Distinctive places; and
- Streets for all.

The following section provides guidance on the above categories in relation to Orwell.

#### Integrated neighbourhoods

The settlement pattern of Orwell is dominated by a small network of linear historic streets interspersed with modern cul-de-sacs. It is vital that these distinctive settlement areas are well-integrated and connected. Active travel such as walking and cycling should be encouraged. The following guidelines should help create places that are easy to move through and around:

- New footpath links should be provided wherever possible, and these must connect up with the existing walking network, placing the priority on the pedestrian, thereby encouraging people to favour active travel over the car for local journeys;
- The design of the street network should respond to the topography and natural desire lines;
- Streets and footpaths should be laid out in a permeable pattern, allowing for multiple connections and choice of routes on foot. Any cul-de-sac should be short and provide onward pedestrian links; and
- Development should design internal streets and paths that are well connected and direct, responding to any desire lines.

#### Streets for all

Streets should be designed to not only accommodate vehicles but also as 'spaces' for people that live on and along them. An active streetscape is an essential part of a successful public realm design:

- New streets must be designed as a 'space' to be used by all. Existing streets should be retrofitted for the same purpose and to discourage speeding;
- Create public-realm spaces which provides plenty of places for sit, chat or play in the street;
- Make use of landscape and planting layers which adds sensory richness; and
- New development schemes should provide the appropriate amount of street lighting to ensure night-safe spaces.

### AM02 Parking typologies

Parking areas remain a necessity for many modern developments. However, they do not need to be unsightly or dominate the streetscape. Parking provision should be undertaken as an exercise of placemaking.

#### On-street parking

In order to reduce the visual impact of parked cars on the street, on-street parking should not be the only form of parking arrangement in future developments. Where they are needed:

- On-street parking must be designed to avoid impeding the flow of pedestrians, cyclists, and other vehicles. They can also serve as informal traffic calming; and
- On low-traffic residential streets or lanes that are shared between vehicles and pedestrians, parking bays can be clearly marked using changes in paving materials instead of road markings.

#### **On-plot side or front parking**

- Parking provided on driveways directly in front of dwellings should be restricted due to the visual impact that cars have on the street. Front gardens should be a minimum depth of 6m to allow movement around parked vehicles. They should also be well screened with hedgerows when providing parking space to the front of a dwelling; and
- Parking provided on a driveway to the side of a dwelling should be of sufficient length (5m minimum) so that a car can park behind the frontage line of the dwelling. This will reduce the visual impact that cars will have on the street scene. When parking is provided to the side of a dwelling a minimum front garden depth of 3m should be provided.

### **AM03 Secure bicycle parking**

New developments should aim to design streets that provide space for cycling, and must also ensure that appropriate secure bicycle parking is provided.

The following guidelines must be referred to when designing bicycle parking:

- Cycle parking should be implemented in both private or public spaces, next to amenities or even along cycle lanes within the countryside, to encourage cycling;
- Materials can vary depending on the context, however, an overall earthy palette is recommended to reflect the rural context;
- Cycle parking should be well integrated and not dominate the public realm. For that reason, high-quality and well-designed soft landscaping is suggested along the edges as well as the use of an earthy-coloured palette.

Please refer to the 'Chapter 10 Promoting and Delivering Sustainable Transport and Infrastructure' from the South Cambridgeshire Local Plan for more guidance.

#### **Public cycle parking**

- Public cycle parking should be located where they can benefit from good natural surveillance, adjacent to high traffic and footfall routes;
- Fences and street furniture should not be used to attach bicycles;
- The design and materials should be sympathetic to the rural and historic character of Orwell;
- Parking should not impede access to properties, pavements, and movement.

## **ECOLOGY (EC)**

### **EC01 Landscape setting**

Orwell is connected to a rich green and blue infrastructure network. Revise as above. It is home to a variety of public open spaces (including allotments) and contains a number of ancient woodland within its boundaries. Not only do the GBI provide environmental and wellbeing benefits, they add life to the landscape and help shape and add character to the number of local green spaces. Although Orwell is not within the boundary of the Cambridge Green Belt, development in the Parish should be sensitive to its setting. Any new development should also consider the following guidelines:

- Any new development should create additional green and blue infrastructure that connects wildlife sites and incorporates sustainable urban drainage (SuDS) features;
- Trees and hedgerows should be incorporated into the public realm and other open spaces as well as private development where appropriate;
- Existing vegetation, native mature trees, and hedgerows should be preserved by incorporating them into the new landscape design and using them as landmarks, where appropriate;

- Provision should be made for new open spaces and wildlife-rich streets that connect communities with nature from the doorstep to key green infrastructure; and
- New development should sustain and improve connections to existing open spaces where possible and consideration should be given to the creation of circular walking routes which can link green spaces for the benefit of wildlife and people

## **EC02 Wildlife corridors and habitat connectivity**

The Orwell chalk hills contains a rich variety of natural habitats of local and national importance, whilst the parish landscape also includes many smaller areas that support rich biodiversity. Because of its vulnerability to climate change, biodiversity should be prioritised through design. Some design guidelines are:

- Development should protect and enhance existing habitats, for example woodlands, streams, rivers and hedgerows. In particular, development should help increase movement between isolated populations and provide escape cover from predators and shelter during bad weather;
- Biodiversity interventions in the public space could help improve the environment as well as inform and educate the community about the existing species and habitats. For instance, creating hedgehog streets, wildlife-friendly show gardens, community forests, or designated areas within green space for wildlife could raise awareness about biodiversity;
- A variety of measures could be retrofitted into existing front and rear gardens to enhance biodiversity and movement of species. Such measures include bird boxes, pollinator gardens, bat boxes, hedgehog houses or bug hotels. These additions, apart from enhancing biodiversity, could improve the surrounding environment; and
- Development should respect the existing natural boundary treatments, whilst new ones should be designed to allow for the movement of wildlife and provide habitats for local species e.g. hedgehogs. For instance, trees, hedges and hedgerows should be preserved.

## **EC03 Development edges in the rural landscape**

Existing vegetation that forms boundaries between settlements and the landscape should not be undermined by new development. In particular, any new development set on the edges of village settlement boundaries needs to respect the existing natural setting and aim to enhance it. Some design guidelines on how new development should treat rural development edges are:

- Edge of settlement development should gradually transition to the surrounding landscape context, with a soft, lower-density edge. Building elevations along the existing settlement edge should connect into it and should provide an attractive and positive frontage;
- New development should conserve existing native trees, shrubs, and hedgerows, and incorporate any green asset within their design - avoiding any unnecessary loss of flora;
- Abrupt edges to development with little vegetation or landscape should be avoided. Instead, a comprehensive, layered landscape buffering should be encouraged; and
- Development adjoining public open spaces, open fields, and the countryside should face onto them with appropriate setback to improve natural surveillance for public spaces. One way to achieve this is to encourage new developments to incorporate edge lanes and green corridors into street designs, which can also provide active travel options - see illustration below.

## **SUSTAINABLE FUTURES (SF)**

### **SF01 Sustainable water management (SUDS)**

The term SuDS stands for Sustainable Urban Drainage Systems. It covers a range of approaches to managing surface water in a more sustainable way to reduce flood risk and improve water quality whilst improving amenity benefits.

SuDS work by reducing the amount and rate at which surface water reaches a waterway or combined sewer system. Usually, the most sustainable option is collecting this water for reuse, for example in a water butt or rainwater harvesting system, as this has the added benefit of reducing pressure on important water sources.

The most effective type or design of SuDS would depend on site-specific conditions such as underlying ground conditions, infiltration rate, slope, or presence of ground contamination. However, a number of overarching principles that could be applied in new development are:

- Manage surface water as close to where it originates as possible;
- Reduce runoff rates by facilitating infiltration into the ground or by providing attenuation that stores water to help slow its flow down, so that it does not overwhelm water courses or the sewer network;
- Improve water quality by filtering pollutants to help avoid environmental contamination;
- Integrate into development and improve amenity through early consideration in the development process and good design practices;
- SuDS are often also important in areas that are not directly in an area of flood risk themselves, as they can help reduce downstream flood risk by storing water upstream;
- Some of the most effective SuDS are vegetated, using natural processes to slow and clean the water, whilst increasing the biodiversity value of the area;
- Best practice SuDS schemes link the water cycle to make the most efficient use of water resources by reusing surface water; and
- SuDS should be designed sensitively to augment the landscape and provide biodiversity and amenity benefits.

### **Permeable paving**

Most built-up areas, including roads and driveways, increase impervious surfaces and reduce the capacity of the ground to absorb runoff water. This in turn increases the risks of surface water flooding.

Permeable paving offers a solution to maintain soil permeability while performing the function of conventional paving. Therefore, some design guidelines for new development are:

- The choice of permeable paving units must be made depending on the local context; the units may take the form of unbound gravel, clay pavers, or stone setts; and
- Permeable paving can be used where appropriate on footpaths, private access roads, driveways, car parking spaces (including on-street parking) and private areas within the individual development boundaries.

Regulations, standards, and guidelines relevant to permeable paving and sustainable drainage are listed below:

- Sustainable Drainage Systems - non-statutory technical standards for sustainable drainage systems.
- The SuDS Manual (C753).

### **Storage and slow release**

Rainwater harvesting refers to the systems allowing the capture and storage of rainwater as well as those enabling the reuse in-site of grey water.

Simple storage solutions, such as water butts, can help provide significant attenuation. However, other solutions can also include underground tanks or alternatively overground gravity fed rainwater systems that can have multiple application areas like toilets, washing, irrigation. In general, some design guidelines to well integrate water storage systems are:

- Consider any solution prior to design to appropriately integrate them into the vision;
- Conceal tanks by cladding them in complementary materials;
- Use attractive materials or finishing for pipes; and
- Combine landscape/planters with water capture systems.

## **SF02 Energy efficiency and sustainable energy sources**

Energy efficient or eco design combines all-round energy efficient construction, appliances, and lighting with commercially available renewable energy systems, such as solar water heating and solar electricity.

Starting from the design stage, there are strategies that can be incorporated towards passive solar heating, cooling and energy efficient landscaping which are determined by local climate and site conditions. The retrofit of existing buildings with eco design solutions should also be encouraged.

The aim of these interventions is to reduce overall home energy use as cost effectively as the circumstances permit. The final step towards a high-performance building would consist of other on site measures towards renewable energy systems.

It must be noted that eco design principles do not prescribe a particular architectural style and can be adapted to fit a wide variety of built characters. A wide range of solutions is also available to retrofit existing buildings, included listed properties, to improve their energy efficiency to the heritage significance.

**Implementing eco-design into homes**

The guidelines and suggestions illustrated overleaf (Figure 67) focuses on improving the energy efficiency of properties through the implementation of eco-design principles.

- By default, new development should adopt a fabric first approach in line with the governments emerging Future Homes Standard, to attain higher standards of insulation and energy conservation;
- Thermal insulation can be provided for any wall or roof on the exterior of a building to prevent heat loss. Particular attention should be paid to heat bridges around corners and openings at the design stage;
- Consider the thermal mass of building materials to even out variations in internal and external conditions, absorbing heat as temperatures rise and releasing it as they fall. This can be beneficial during the summer and winter;
- Provide acoustic insulation to prevent the transmission of sound between active (i.e. living room) and passive spaces (i.e. bedroom), and attached dwellings.

**SF03 Dark skies**

Orwell sits in a dark skies landscape. The nearby Wimpole Estate is an exemplar of dark skies. Orwell enjoys relatively dark skies compared to Royston and Cambridge this is a valued characteristic of the village.



VIIRS 2021 Radiance  $10^{-9} \text{ W/CM}^2 \text{ *sr}$  VIIRS = Visible Infrared Imaging Radiometer Suite This is a combined view of both the visible and Infrared light detected by satellites. As such it includes the heat loss from buildings, as well as the visible light pollution.

Any new development should minimise impact of lighting within the built-up areas and countryside and reduce light pollution that disrupts the natural habitat and human health.



South Cambridgeshire Council has entered into a PFI agreement with Balfour to provide street lighting. The agreement includes compliance with the latest Guidance note 01/21 from the Institution of Lighting Professionals on the Reduction of Obtrusive Light. This guidance is equally applicable to domestic settings.

See <https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2021/>

The following design guidelines aim to ensure there is enough consideration given at the design stage:

- External lighting should be avoided on new buildings unless it is absolutely necessary for reasons of security and safety. If lighting is required, it should be kept minimal, at low level and at low intensity, with hoods and baffles used to direct the light to where it is required to ensure that no light is emitted upward;
- The choice of lighting should be energy efficient and sustainable. The installation of carefully directed motion sensors should be encouraged;
- Lighting schemes should be part of a strategic approach where all light sources are put in a hierarchical order based on their use. This order will define the light levels and switch off times;
- Foot/cycle path lights, should they be necessary, must be in harmony with the surrounding rural landscape. Lighting such as solar cat's-eye lighting, reflective paint and ground-based lighting could be introduced;
- Light sources should be less than 3,000K to ensure appropriate levels of light spill and glare. Light shields can also be used at light sources for additional protection over glare and light spill and thus dark skies;
- Lighting schemes should be directed downward to avoid reducing dark skies or disturb neighbours or passers-by; and
- To minimise the impact on bats, all luminaires should lack UV elements. Metal halide, fluorescent sources should be avoided, and instead LED luminaires are preferred (Bat Conservation Trust 2018). In general, lighting around any integrated bat roost features within the new development should be completely avoided.

## 4.4 Checklist

As the design guidance and codes in this document cannot cover all design eventualities, this section provides a number of questions based on established good practice against which the design proposal should be evaluated. The aim is to assess all proposals by objectively answering the questions below. Not all the questions will apply to every development. The relevant ones, however, should provide an assessment as to whether the design proposal has considered the context and provided an adequate design solution.

As a first step there are a number of ideas or principles that should be present in all proposals. These are listed under 'General design guidance for new development'. Following these ideas and principles, questions are listed for more specific topics on the following pages.

### 1. General design guidelines for new development:

- New development will integrate with existing paths, streets, circulation networks and patterns of activity;
- Reinforce or enhance the established settlement character of streets, greens, and other spaces;
- Harmonise with and enhance the existing settlement in terms of physical form, architecture and land use;
- Relate well to local topography and landscape features, including prominent vegetation and long-distance views;
- Reflect, respect, and reinforce local architecture and historic distinctiveness;
- Retain and incorporate important existing features into the development;
- Respect surrounding buildings in terms of scale, height, form and massing;
- Adopt contextually appropriate materials and details;
- Provide adequate open space for the development in terms of both quantity and quality;
- Incorporate necessary services and drainage infrastructure without causing unacceptable harm to retained features;
- Ensure all components e.g. buildings, landscapes, access routes, parking and open space are well related to each other;

- Make sufficient provision for sustainable waste management (including facilities for kerbside collection, waste separation, and minimisation where appropriate) without adverse impact on the street scene, the local landscape or the amenities of neighbours;
- Positively integrate energy efficient technologies;
- Ensure that places are designed with management, maintenance and the upkeep of utilities in mind; and
- Seek to implement passive environmental design principles by, firstly, considering how the site layout can optimise beneficial solar gain and reduce energy demands (e.g. insulation), before specification of energy efficient building services and finally incorporate renewable energy sources.

## **2. Local green spaces, views & character:**

- What are the particular characteristics of this area which have been taken into account in the design; i.e. what are the landscape qualities of the area?
- Does the proposal maintain or enhance any identified views or views in general?
- How does the proposal affect the trees on or adjacent to the site?
- Can trees be used to provide natural shading from unwanted solar gain? i.e. deciduous trees can limit solar gains in summer, while maximising them in winter.
- Has the proposal been considered within its wider physical context?
- Has the impact on the landscape quality of the area been taken into account?
- In rural locations, has the impact of the development on the tranquility of the area been fully considered?
- How does the proposal impact on existing views which are important to the area and how are these views incorporated in the design?
- Can any new views be created?
- Is there adequate amenity space for the development?

## **3. Street grid and layout:**

- Does it favour accessibility and connectivity? If not, why?
- Do the new points of access and street layout have regard for all users of the development; in particular pedestrians, cyclists and those with disabilities?
- What are the essential characteristics of the existing street pattern; are these reflected in the proposal?
- How will the new design or extension integrate with the existing street arrangement?
- Are the new points of access appropriate in terms of patterns of movement?
- Do the points of access conform to the statutory technical requirements?

## **4. Gateway and access features:**

- What is the arrival point, how is it designed?
- Does the proposal maintain or enhance the existing gaps between settlements?
- Does the proposal affect or change the setting of a listed building or
- listed landscape?
- Is the landscaping to be hard or soft?

## **5. Buildings layout and grouping:**

- What are the typical groupings
- of buildings?
- How have the existing groupings been reflected in the proposal?

- Are proposed groups of buildings offering variety and texture to the streetscape?
- What effect would the proposal have on the streetscape?
- Does the proposal maintain the character of dwelling clusters stemming from the main road?
- Does the proposal overlook any adjacent properties or gardens?
- How is this mitigated?
- Subject to topography and the clustering of existing buildings, are new buildings oriented to incorporate passive solar design principles, with, for example, one of the main glazed elevations within 30° due south, whilst also minimising overheating risk?
- Can buildings with complementary energy profiles be clustered together such that a communal low carbon energy source could be used to supply multiple buildings that might require energy at different times of day or night? This is to reduce peak loads. And/or can waste heat from one building be extracted to provide cooling to that building as well as heat to another building?

## **6. Building line and boundary treatment:**

- What are the characteristics of the building line?
- How has the building line been respected in the proposals?
- Has the appropriateness of the boundary treatments been considered in the context of the site?

## **7. Building heights and roofline:**

- What are the characteristics of the roofline?
- Have the proposals paid careful attention to height, form, massing and scale?
- If a higher-than-average building(s) is proposed, what would be the reason for making the development higher?
- Will the roof structure be capable of supporting a photovoltaic or solar thermal array either now, or in the future?
- Will the inclusion of roof mounted renewable technologies be an issue from a visual or planning perspective? If so, can they be screened from view, being careful not to cause over shading?

## **8. Household extensions:**

- Does the proposed design respect the character of the area and the immediate neighbourhood?
- What is the impact of the proposed changes/extension on the surrounding environment, including green space and parking/pedestrian access?
- Is the roof form of the extension appropriate to the original dwelling?
- Do the proposed materials match those of the existing dwelling?
- In case of side extensions, does it retain important gaps within the street scene and avoid a 'terracing effect'?
- Are there any proposed dormer roof extensions set within the roof slope?
- Does the proposed extension respond to the existing pattern of window and door openings?
- Is the side extension set back from the front of the house?
- Does the extension offer the opportunity to retrofit energy efficiency measures to the existing building?
- Can any materials be re-used in situ to reduce waste and embodied carbon?
- What is the impact of the proposed changes/extension on the surrounding environment, including green space and parking/pedestrian access?

## **9. Building materials & surface treatment:**

- What is the distinctive material in the area?
- Does the proposed material harmonise with the local materials?
- Does the proposal use high-quality materials?

- Have the details of the windows, doors, eaves and roof details been addressed in the context of the overall design?
- Does the new proposed materials respect or enhance the existing area or adversely change its character?
- Are recycled materials, or those with high recycled content proposed?
- Has the embodied carbon of the materials been considered and are there options which can reduce the embodied carbon of the design? For example, wood structures and concrete alternatives.
- Can the proposed materials be locally and/or responsibly sourced? E.g. FSC timber, or certified under BES 6001, ISO 14001 Environmental Management Systems?

## 10. Car Parking:

- What parking solutions have been considered?
- Are the car spaces located and arranged in a way that is not dominant or detrimental to the sense of place?
- Has planting been considered to soften the presence of cars?
- Does the proposed car parking compromise the amenity of adjoining properties?
- Have the needs of wheelchair users been considered?
- Can electric vehicle charging points be provided?
- Can secure cycle storage be provided at an individual building level or through a central/ communal facility where appropriate?
- If covered car ports or cycle storage is included, can it incorporate roof mounted photovoltaic panels or a biodiverse roof in its design?
- Has adequate off-road parking been provided for each dwelling?
- Does the proposed parking arrangement provide sufficient security and deter anti-social behaviour/crime?

## 11. Architectural details and design:

- Does the proposal harmonise with the adjacent properties? This means that it follows the height massing and general proportions of adjacent buildings and how it takes cues from materials and other physical characteristics.
- Does the proposal maintain or enhance the existing landscape features?
- Has the local architectural character and precedent been demonstrated in the proposals?
- If the proposal is a contemporary design, are the details and materials of a sufficiently high enough quality and does it relate specifically to the architectural characteristics and scale of the site?
- Is it possible to incorporate passive environmental design features such as larger roof overhangs, deeper window reveals and/or external louvres/shutters to provide shading in hotter months?
- Can the building designs utilise thermal mass to minimise heat transfer and provide free cooling?
- Can any external structures such as balconies be fixed to the outside of the building, as opposed to cantilevering through the building fabric to reduce thermal bridge?

## 5. Delivery

The Design Guidance and Codes will be a valuable tool in securing context driven, high-quality development in Orwell. They will be used in different ways by different actors in the planning and development process, as summarised in the table.

A valuable way they can be used is as part of a process of co-design and involvement that takes account of local preferences and expectations of design quality. In this way the guidance and codes can help to facilitate conversations on the various topics that should help to align expectations and help understand the balancing of key issues. A design code alone will not automatically secure optimum design outcomes.

Actors	How they will use the design guidelines
Applicants, developers, and landowners	As a guide to community and Local Planning Authority expectations on design, allowing a degree of certainty – they will be expected to follow the Design Guidance and Codes as planning consent is sought.
Local Planning Authority	As a reference point, embedded in policy, against which to assess planning applications.  The Design Guidance and Codes should be discussed with applicants during any pre-application discussions.
Parish Council	As a guide when commenting on planning applications, ensuring that the Design Guidance and Codes are complied with.
Community organisations	As a tool to promote community-backed development and to inform comments on planning applications.
Statutory consultees	As a reference point when commenting on planning applications.