AECOM

REACH

Design Code

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FINAL REPORT

May 2020

Quality information

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Contents

Introduction

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1. Introduction

1.1. Introduction

Through the Ministry of Housing, Communities and Local Government (MHCLG) Neighbourhood Planning Programme led by Locality, AECOM has been commissioned to provide design support to Reach Parish Council.

The Neighbourhood Planning Group is making good progress in the production of its Neighbourhood Plan and has requested to access professional advice on design guidelines for any potential development within the Parish. This document should support Neighbourhood Plan policies that guide the assessment of potential development proposals and encourage high-quality design. It advises on physical development helping to create distinctive places that are integrated with the existing village and landscape.

1.2. Objective

The main objective of this report is to develop design guidelines that any potential development in Reach should follow in order to retain and protect the rural, tranquil character and scenic beauty of the area. New development should not threaten the character of Reach as a discrete, low-rise village, open to the surrounding countryside and landscape. The public spaces as well as the built and archaeological heritage are also assets that the Parish seeks to retain and enhance.

1.3. Process

Following an inception meeting and a site visit, AECOM and Reach Neighbourhood Plan steering group members carried out a high-level assessment of the village. The following steps were agreed with the group to produce this report:

- Initial meeting and site visit;
- Urban design and built heritage analysis;
- Preparation of design principles and guidelines to be used to assess potential developments;
- Draft report with design guidelines; and
- Final report.

1.4. Area of study

Location

The East Cambridgeshire parish of Reach lies about 13 km north-east of Cambridge, 8 km north-west of Newmarket, and 14 km south of Ely. The Parish shares borders with Burwell to the north and east, and Swaffham Prior to the south and west. The nearest train stations are Newmarket, Waterbeach, and Cambridge North.

Population

At the 2011 census the population of the Parish was 358.

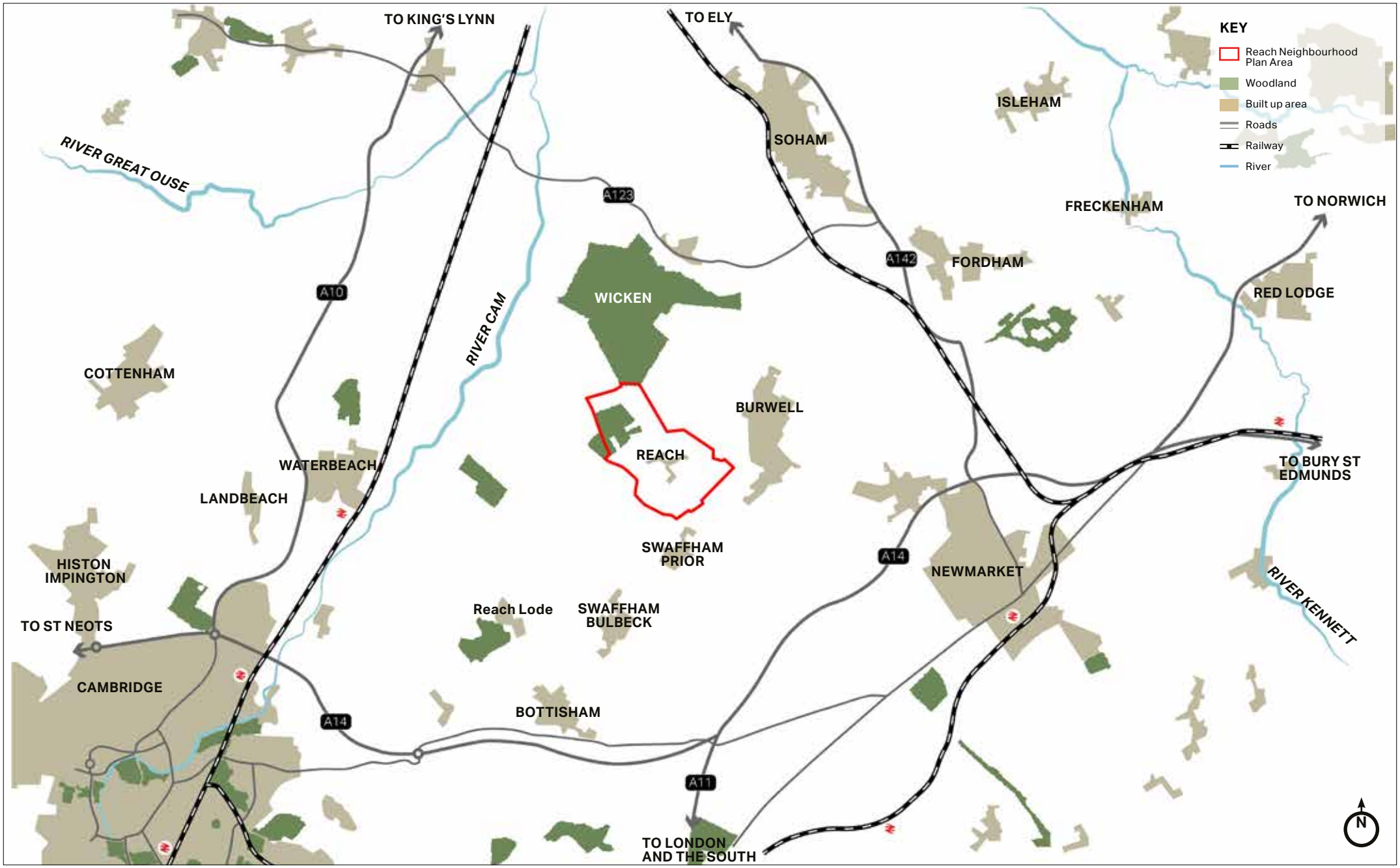


Figure 1: Neighbourhood Plan/Parish area.

Local character analysis

02

2. Local character analysis

This section outlines the broad physical, historical and contextual characteristics of Reach. It analyses the roads and public realm, the pattern and layout of buildings, building heights and rooflines, and parking in the area. The images in this section have been used to portray the built form of Reach.

2.1. Introduction

The village of Reach is located at the point where the Devil's Dyke meets the Reach Lode, an artificial watercourse extending across the fens to the River Cam. Due to the local geology and the historic role of Reach as an inland port, with the Reach Lode giving direct access to the sea, its buildings display a variety of architectural styles and construction materials. The growth of the settlement was mainly due to its position at the end of Reach Lode where a port or interchange point for water- and land-borne trade developed, probably in the early-medieval period.

The protection of most of the village as a Conservation Area is a testimony to the architectural diversity and historic interest of Reach. The Parish has 14 listed buildings and structures, all Grade II listed. It also has a number of noteworthy (unlisted) buildings such as the Old chapel, as well as two scheduled monuments, the Devil's Dyke and a Roman villa with an Iron Age settlement. The settlement's location in the distinctive landscape of the fen-edge also contributes to its particular character.

Figure 2: St Etheldreda's Church.

Figure 3: Terraced houses on Fair Green.

Figure 4: Grade II-listed War Memorial on Fair Green.

Figure 5: Northward view of the Reach Lode.

Figure 6: Archway behind St Etheldreda's , a remnant of the east wall of the old church.

Figure 7: Village sign on the south side of Fair Green.

2.2. Landscape and open space

The Parish lies on predominantly flat land, part of which was on the edge of chalk from the Fenland. It is situated at the interface of the following National Landscape Character Areas; NCA 46, *The Fens* and NCA 87 *East Anglian Chalk.* The landscape is punctuated by a large number of man-made features, including docks, channels, and dykes. The flat topography and the relatively sparse tree cover enable long-distance outward views. There is a high degree of openness to the surrounding countryside, which is visible and easily accessible from the centre of the village. Fair Green and the Hythe are some of the main open recreational spaces in the village. Beyond the settled area, open and recreational spaces include Reach Wood and the 24 Acres which includes a community woodland, an orchard, a cricket pitch and an equestrian area. The 24 Acres is owned by the National Trust and forms part of the Wicken Fen Vision, an ambitious plan to create a diverse landscape for wildlife and people stretching from Wicken Fen to the edge of Cambridge. Overall about two-thirds of the Reach neighbourhood plan area falls within the Vision area, mainly low-lying peat soils. The Devil's Dyke, which extends several kilometres south-east beyond the parish boundaries, is a SSSI chalk grassland.

2.3. Street and public realm

The Parish has a sparse and organically shaped network of country roads that contribute to the quiet rural character of the village. The street layout can be explained by factors such as the village's location at the edge of the Fenland, its natural and man-made topography and hydrology, and the resulting history of successive land reclamations. Fair Green, for example, was created by flattening the northernmost end of the Devil's Dyke, which informed its elongated shape and the regular layout of the roads that border it. Fair Green now forms the most prominent public space in the village and the convergence point of most local roads. The fen-edge has also determined the irregular shape of Blackberry Droveway and Barston Drove, which are the historic land routes to the neighbouring settlements of Burwell and Swaffham Prior.

A number of footpaths and cul-de-sac roads follow the course of former channels and docks, such as the road that borrows the name of the Hythe and the northern end of Chapel Lane. The path of man-made waterways that cut across areas reclaimed from the Fenland, in contrast, has determined the regular shape of most footpaths that connect the village to the north of the Parish. The network of footpaths complement the sparse road network and enable easy pedestrian connections between the village centre and the surrounding countryside. The recent resident survey indicates their value to local residents and the latter's desire to for safe, traffic-free routes to neighbouring settlements. There are no major roads within the Parish boundaries.

2.4. Pattern and layout of buildings

Reach is a sparsely built-up village with an organic layout. The existing structure is partly the result of the merging of two distinct settlements that followed the flattening of the northern end of the Devil's Dyke to create Fair Green. The pattern and layout of the buildings was also influenced by the fen edge and the function of the village as a port.

Overall, buildings face the roads and lanes with a wide range of setbacks, and most have back gardens. The central feature of the village is Fair Green, around which more buildings are aligned directly along the back of the footway with fewer front yards compared to the rest of the village. Building setbacks tend to increase on other roads and lanes, with more frequent and generous front gardens. One notable exception to the informal and organic layout of the village is the cluster of semi-detached houses along Ditchfield, built in the 1950s and characterised by homogeneous sizes, dimensions, massing, and setbacks. Overall, the low built-up density and predominance of detached and semi-detached houses offer a sense of openness along with many opportunities for glimpses of the surrounding countryside from within the village. Most properties also back onto the open countryside as a result of the one-plot deep configuration along the village roads.

2.5. Building height and roofline

The village has an irregular roofline comprising one, two and a very occasional three storey. The irregularity of the roofline, which adds visual interest and contributes to the rural and informal character of the village, is accentuated by the variety of building orientations, heights, and widths. Fair Green is bordered by a higher proportion of adjoining buildings set along a more regular building line, which forms a more unified roofline. On neighbouring roads and lanes, in contrast, the roofline is more heterogeneous due to the more organic street pattern and the greater variety in building setbacks and orientations. One exception is the development along Ditchfield, characterised by a more uniform roofline created by the repetition of two-storey semi-detached houses placed at regular intervals on both sides of a short cul-de-sac road. In general, the low roofline defines the character of the village as a "discrete" settlement within the open landscape. Because of its low-lying roofline, the village remains concealed from most inward views by mature trees. Due to the flat terrain, however, new extensions with constructions above one storey could be exposed to outside views.

2.6. Car parking

Parking is mainly provided off-street in the form of private residential parking. Most plots are large enough to provide parking in the form of front yard, side, or garage parking. Most private parking spaces are screened by a variety of features including low walls, soft landscaping, and hedges. Cars can also be relegated to the side or rear of some properties. A number of properties have garage structures that respect the local materials and do not overly distract from the main building. On a few properties, however, prominent driveways or front yards with no screening or greenery increase the prominence of motor vehicles on the streetscape, which dilutes the otherwise tranquil and rural character.

Most roads are too narrow to accommodate on-street parking without impeding vehicle access. Informal on-street parking on Fair Green has been observed, with an impact on bus access. There are no public car parks of significant size.

Figure 8: Fair Green, the most prominent green space in the village centre.

Figure 9: Village Hall on Fair Green.

Figure 10: Dyke's End, the village's only pub on Fair Green.

2.7. Heritage

Reach is a fen-edge village in East Cambridgeshire and is an amalgamation of two separate settlements that were once located on either side of the Devil's Dyke and were known as East and West Reach, respectively.

The location of the village at the meeting point of the Roman lode, and the Saxon Devil's Dyke is closely aligned with the history of the area. The most profound legacy of Reach's past in the landscape is the Devil's Dyke (SM, NHLE 1003262), a linear earthwork that extends for 7½ miles (12 km), in an almost straight line from the fen-edge at Reach to Woodditton. The Devil's Dyke was once extended up to the Reach Lode, however, before the beginning of the 13th century, the end of the Dyke was flattened to create space for markets and fairs, including the existing Fair Green.

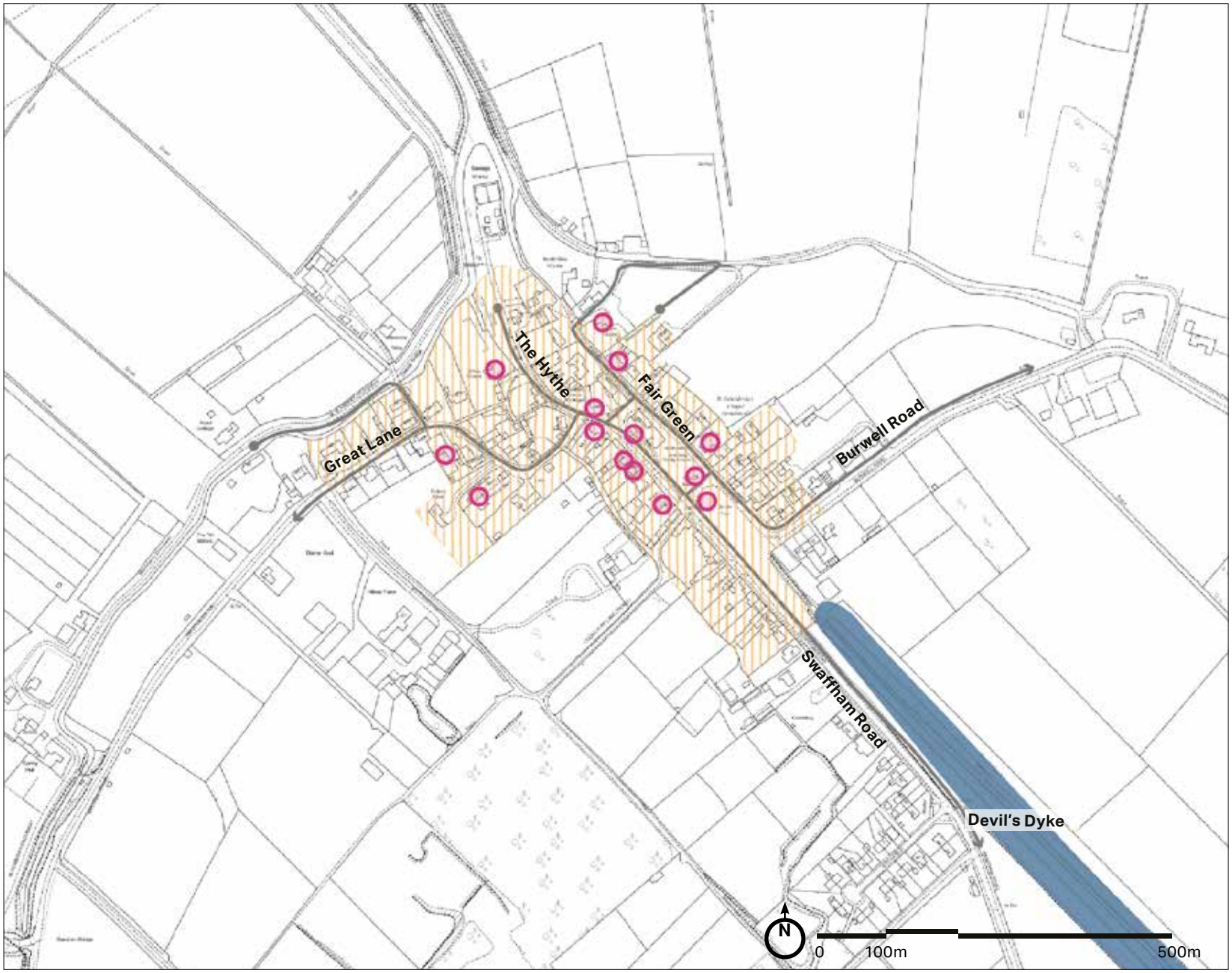
Being located at the end of the Reach Lode, the settlement was developed into a centre of considerable trade in the medieval period. Reach Port once included a large complex of channels, docks, wharves and warehouses, including the Hythe, a small peninsula created or heavily amended by past inhabitants, to the north of the village. By the 14th century, Reach Port had developed a more than local importance for trade in large quantities of locally quarried clunch (soft limestone), timber, iron and local agricultural products. The opening of the Cambridge-Mildenhall railway in 1884 contributed to a significant decline in Reach as a port. During the 1900s, the Reach Lode continued to be used for transferring goods but commercial trade was eventually ceased around the Second World War.

The establishment of the Reach Lode in Roman times and the Devil's Dyke in Saxon times as well as the fen-edge location of the settlement have dictated Reach's development and are evident on the existing landscape and character of the village. Most of the historic core of the village is encompassed by the Reach Conservation Area. Historic buildings date mainly from the 16th to the early-20th century with one of the oldest buildings in the village being the Manor House (Grade II, NHLE 1162383), a farmhouse dating from the early-16th century although partially rebuilt in the early-18th century. It has red-brick and limestone walls with some timber-framing in the gables and tile and pantile gabled roofs. It is common for older houses in the village to have been partially rebuilt in brick in the 18th and early-19th centuries, retaining their rear and side walls made of clunch. Another historically significant building is the house known as White Roses (Grade II, NHLE 1309612), a former vicarage located on the Hythe built in the early 16th century and altered in the 17th and 19th centuries. The building occupies a key position between a series of basins and docks where goods such as the local clunch were loaded onto boats for transport.

Buildings in the village very rarely exceed two storeys. However, small variations in height and the use of chimney stacks contribute to a varied roofline. Prominent materials in the village include red and yellow brick and locally-quarried clunch with rendered façades being also common.

Post-war development in the village is concentrated at the ends of the village. For example, a small social housing cluster was created on Ditchfield at the southern end of the village in the 1950s. The majority of the modern development has respected the mass, scale and height of the historic settlement, however the materials used are not always responsive to the local vernacular.

Figure 11: St Etheldreda's Church.



KEY

- Conservation area
- Grade II-listed buildings
- Scheduled monument

Figure 12: Map of listed buildings in Reach © East Cambridgeshire District Council.

Design guidelines

03

3. Design guidelines

This section sets out the guidance that will influence the design of potential new development and inform the retrofit of existing properties in Reach. Where possible, images from Reach are used to exemplify the design guidelines. Where these images are not available, best practice examples from elsewhere are used.

3.1. Pattern and layout of new buildings

Reach is a small, low-lying village with a one-plot deep configuration along most roads. The low building density contributes much to its rural character and enables frequent views into the surrounding countryside. The existing character must be appreciated when considering potential new development, whatever its size or purpose.

- To remain consistent with the rural informal character of the parish, new properties should be clustered in small pockets showing a variety of types. The use of a repeating type of dwelling within a same cluster or along a same street frontage should be avoided; instead, variations in building heights, widths, and/or depths should be sought to create variety and interest in the streetscape. Any new developments adjoining Ditchfield, however, must be sympathetic to that area's more uniform building layout and architecture.
- Boundaries such as walls or hedges, whichever is most appropriate to the location, should enclose and define each road or lane along the back edge of the pavement. They should however not have a detrimental impact on the open and spacious nature of the village; for example, they should not sever the visual connection between the village centre and the surrounding countryside.
- The placement and orientation of buildings should form an identifiable building line for each development group. The consistency, extent, and depth of building setbacks must be sympathetic to the immediate context: for example, houses facing Fair Green and Ditchfield adhere to a more consistent building line compared to the rest of the village. In general, however, subtle variations are encouraged to respect the village's informal character and to add visual interest.
- Properties should aim to provide rear and front gardens, where appropriate, or at least a small buffer to the public sphere, for example, in the form of planting strips for cases where the provision of a front garden is not possible.
- The layout of new development should optimise the benefit of daylighting and passive solar gains as this can significantly reduce energy consumption.
- Interfaces between the existing settlement edges and any new development must be carefully designed to integrate new and existing communities. This is particularly important where new residential buildings face existing residential properties that until now back onto open fields.
- As the fen edge has a strong influence on the layout of buildings, it should be protected and any future development should ensure that the village maintains a neat presence in the landscape.

Figure 13: Detached housing with landscaped boundary treatments on Great Lane.

Figure 14: Terraced houses with a narrow planting strip along Fair Green.

Figure 15: One-storey detached house with a front garden.

Figure 16: Semi-detached housing without front garden.

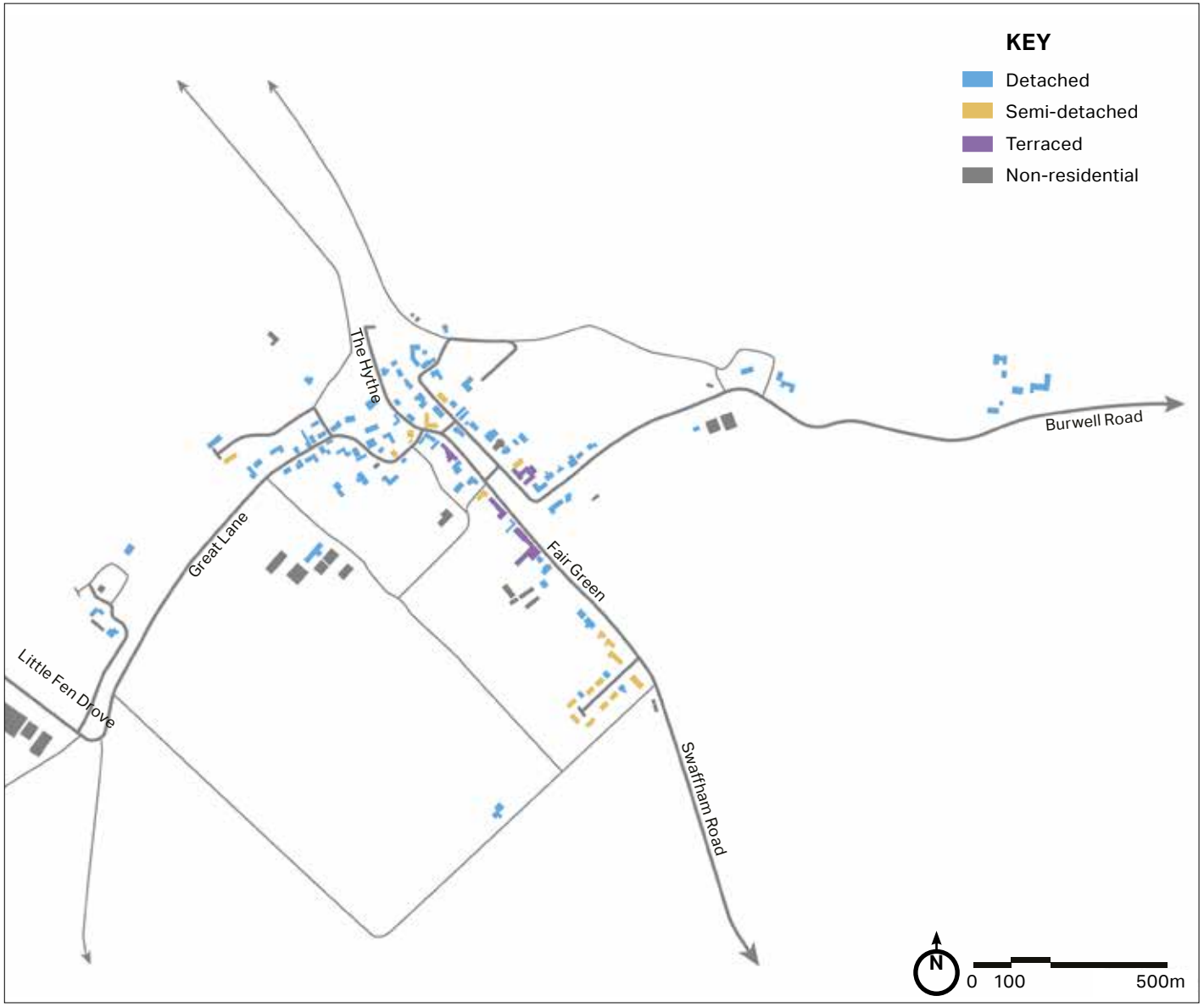


Figure 17: Map showing building typologies in Reach © East Cambridgeshire District Council.

The diagram below applies relevant site and building layout principles to a small hypothetical site in the neighbourhood plan area.

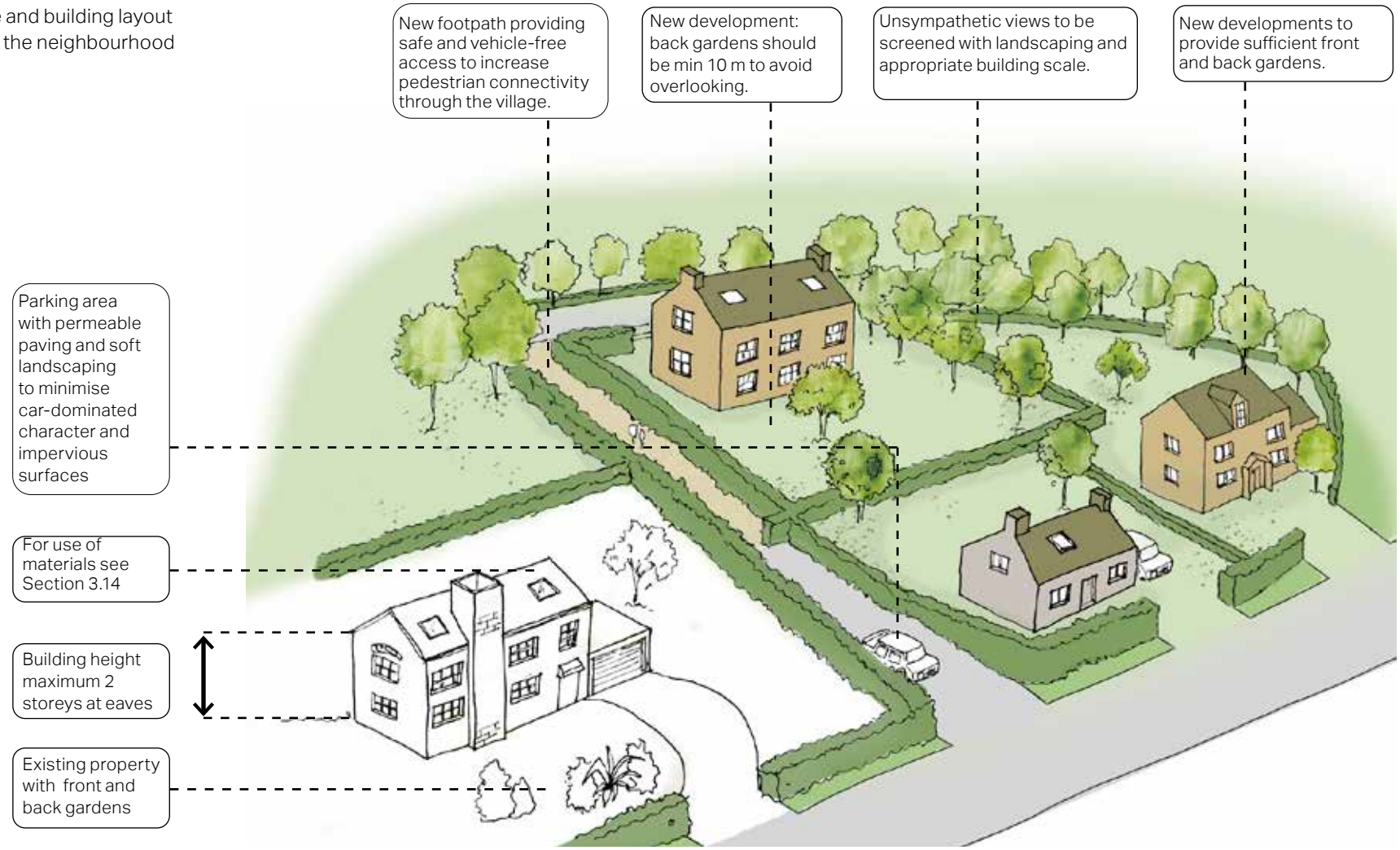


Figure 18: Illustrative plan for a small hypothetical development highlighting many of the elements of the Reach design guidelines where they relate to the pattern and layout of buildings.

3.2. Road layout and connectivity

Reach has a limited road network composed mostly of narrow country roads. New developments, should any be built, may require the construction of short sections of new roads. The following principles should therefore be taken into account:

- New roads and lanes, if required, must meet the technical highways requirements as well as be considered a 'space' to be used by all, not just motor vehicles. It is essential for new developments to have roads and lanes designed for the needs of pedestrians and cyclists, not just motor vehicles. Existing roads should be retrofitted for the same purpose and to discourage speeding.
- New roads and lanes should be linear with gentle meandering to provide interest and evolving views. Subtle variations in width may also be introduced to discourage speeding and reflect the layout of existing country roads in the Parish. Routes should be laid out in a permeable pattern, allowing for multiple connections and a choice of routes, particularly on foot. Any cul-de-sacs should be relatively short and include provision for onward pedestrian links.
- Vehicular access to properties should be direct from the street where possible.
- The distribution of land uses should respect the general character of the area and road network, and take into account the degree of isolation, lack of light pollution, and levels of tranquillity.

3.3. Pedestrian and cycle connectivity

- All newly developed areas must retain or provide safe, direct, and attractive pedestrian links between neighbouring roads and lanes and local facilities. Establishing a robust pedestrian network a) across any new development and b) among new and existing development, is key in achieving good levels of permeability among any part of the Parish. This is especially important in Reach, where a robust network of paths is needed to shore up the sparse road network to provide car-free links to neighbouring settlements and the surrounding countryside for pedestrians, cyclists, and horse riders.
- A permeable network of road, lanes, and paths provides people with a choice of different routes and enables pedestrians, cyclists, and horse riders to avoid heavily trafficked roads.
- Design features such as barriers to vehicles must be kept to a minimum to avoid the creation of gated communities. Footpaths in new developments must remain accessible to the wider community where possible.
- Strategically placed signposts can assist pedestrians and cyclists with orientation and increase awareness of publicly accessible paths beyond the village. However, new signposts must respect the rural character of the parish and avoid creating visual clutter.

Figure 19: Aerial view showing the restrained road network in the village © Google Maps.

Figure 20: Great Lane, a narrow meandering street with a footway (left).

3.4. Green spaces and views

The Parish is set within an attractive landscape and has a number of green and recreational spaces within its boundaries. The axis connecting Devil's Dyke, Fair Green and the Hythe, contains ample archaeological evidence of Reach's rich history and can give us information about the transformation of the landscape from as early as the Roman period. There are a number of initiatives to enhance green and natural assets in the Parish, including the National Trust-led Wicken Fen Vision[1] and efforts to make the Hythe[2] and the Reach Lode more inviting places for residents and tourists.

New developments should take a number of measures to preserve and enhance these assets as well as the local flora and fauna:

- Development adjoining public open spaces and important gaps should enhance the character of these spaces by either providing a positive interface (i.e. properties facing onto them to improve natural surveillance) or a soft landscaped edge.
- New developments should incorporate existing native trees and shrubs and avoid unnecessary loss of flora. Any trees or woodland lost to new development must be replaced. Native trees and shrubs should be used to reinforce the more rural character of the area.
- Reach is a low-lying village that owes its discreet setting partly to mature trees that help integrate it into the surrounding landscape. The layout and spacing of new buildings should reflect the rural character and allow as much as possible for long-distance views of the countryside while creating opportunities for new trees and greenery where appropriate.
- Opportunities to create or enhance pedestrian links with green and open spaces must be sought, particularly towards the Hythe and the National Trust Vision area.
- Landscape schemes should be designed and integrated with the open fields that border the village to avoid coalescence with larger neighbouring settlements.
- On-street parking must be carefully managed along and in the vicinity of green spaces, especially Fair Green and the Hythe. This is to ensure that on-street parking does not impede vehicle or pedestrian access to these spaces or distract from their quality.
- the option to remove the redundant sewage plant from the site of the Hythe is strongly supported by villagers, as indicated in the 2020 resident survey. This scenario would make room for a larger and more attractive green space at the Hythe.

[1] National Trust. https://www.nationaltrust.org.uk/wicken-fen-nature-reserve/features/wicken-fen-vision
[2] WildReach. https://www.wildreach.co.uk/wildlife-resources/the-hythe/

Figure 21: A view from the Hythe towards the west of the Parish.

Figure 22: Southward view of Fair Green.

Figure 23: Long-distance view of the open countryside from Burwell Road.

Figure 24: Drying Green, a green space, near the Hythe.

Figure 25: Northward view from the Hythe towards the Reach Lode.

Figure 26: The village layout enables frequent glimpses into the surrounding countryside from the village centre.

3.5. Enclosure

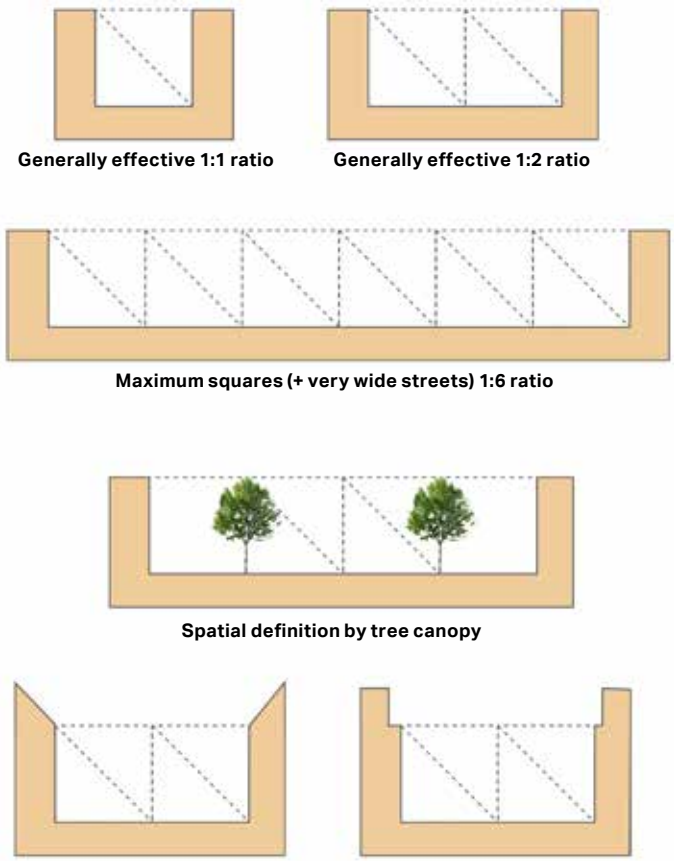
Focal points and public spaces in new developments should be designed with good proportions and provide continuous walls. Clearly defined spaces contribute to the achievement of a cohesive and attractive built form and assist in creating an appropriate sense of enclosure.

The following principles serve as general guidelines that should be considered when seeking to achieve a satisfactory sense of enclosure:

- In case of building set-back, façades should have an appropriate ratio between the width of the road and the building height (see diagram opposite).
- Buildings should be designed to turn corners and terminate views.
- Generally, building façades should front onto roads, and variation to the building line can be introduced to create an informal character.
- In case of terraced buildings, it is recommended that a variety of plot widths, land use and façade depth should be considered during the design process to create an attractive rural character.

Figure 27: The 'rules' on enclosure can be suspended when a significant green space is incorporated, for example Fair Green.

Figure 28: Great Lane has continuous variations in building setbacks but retains a sympathetic level of enclosure.



Images from Urban Design Compendium (Homes England)

3.6. Gateways and access features

- Future design proposals should consider placing gateway and built elements to clearly mark the access or arrival to any potential developed sites. This is particularly important for developments at the edge of the settlement due to their location at the interface between the built-up area and the countryside.
- The sense of departure and arrival can often be achieved by a noticeable change in scale, enclosure, or road configuration. The gateway buildings or features should however reflect local character.
- Besides building elements acting as gateways, high quality landscaping features could be considered appropriate to fulfill the same role.
- One area in Reach that makes an effective use of gateway features is the development on Ditchfield, whose entrance is flanked by a pair of symmetrical buildings, hedges, and soft landscaping on both sides of the junction with Swaffham Road.

Figure 29: Informal gateway features created by a marked change in enclosure from closed to open and by the similarity appearance of the two buildings.

Figure 30: A footbridge acting as a gateway feature between the settled village and the open countryside.

3.7. Building scale and massing

- The majority of buildings in Reach do not exceed two storeys in height. Therefore, new buildings in Reach should be sympathetic in mass, height, and scale to the existing context.
- Subtle variation in height is encouraged to add visual interest, such as altering eaves and ridge heights. The bulk and pitch of roofs, however, must remain sympathetic to the tree canopy, the local vernacular, and the low-lying character of the village. Another way to achieve visual interest could be by varying frontage widths and plan forms. The application of a uniform building type throughout a development must be avoided.
- The massing of new buildings should ensure a sufficient level of privacy and access to natural light for their occupants and avoid overshadowing existing buildings. This is particularly important in areas of historic character.
- The density of new developments should comply with the existing relatively low density in Reach. This is reflected in a Residents' Survey done in 2020. 58% of respondent thought that maintaining traditional densities is very important and a further 22% thought it quite important.

Figure 31: Examples of buildings in Reach demonstrating a variety in scale and massing.

3.8. Roofline

There is a desire for Reach to remain a low-lying village with predominantly one- and two- storey buildings, allowing the settlement to be tucked into the surrounding landscape thanks to the mature tree canopy.

Creating a good variety in the roof line is a significant element of designing attractive places. There are certain elements that serve as guidelines in achieving a good variety of roofs:

- The scale of the roof should always be in proportion with the dimensions of the building itself;
- Monotonous building elevations should be avoided, therefore subtle changes in roofline should be ensured during the design process;
- Locally traditional roof materials and detailing should be considered and implemented where possible in cases of new development; and
- Dormers can be used as a design element to add variety and interest to roofs.

Figure 32: Gabled roof with chimney stacks.

Figure 33: A rare instance of roofline uniformity on Fair Green.

Figure 34: In most of the village, chimney stacks variations in roof shapes, heights, and materials provide an informal character.

3.9. Vehicle parking

In general, the over-provision of parking spaces is detrimental to the character of a place and encourages an over-reliance on cars. Measures to ensure that the design of vehicle parking, where its need has been demonstrated, is sympathetic to the public realm are therefore needed:

- Residential car parking should be a mix of on-plot side, front, garage, and courtyard parking, depending on the most appropriate solution for each location. There is a strong wish among residents that car parking generated by any new development should be accommodated within that development rather that on-street.
- For family homes, cars should be placed at the side (preferably) or front of the property.
- All new car parking surfaces should be permeable.
- Any new car parking must be sensitively located, landscaped, and planted to remove the visual clutter that vehicles bring. This is particularly important when parking is placed at the front of properties, where it must harmonise with the existing streetscape and materials. The aim is to keep a sense of enclosure and to break the potential of a continuous area of car parking in front of the dwellings. This can be achieved by means of walls, hedging, planting, and use of differentiated quality paving materials.
- Where provided, garages should reflect or complement the architectural style of the main building rather than forming a distractive mismatched unit.

Figure 35: Side on-plot residential parking (left) and garage (right) on Great Lane.

Figure 36: Side on-plot parking with garage on Great Lane.

Figure 37: Informal on-street parking on Fair Green, must carefully managed to ensure adequate access by other vehicles, including buses.

On-plot side or front parking

- On-plot parking can be visually attractive when it is combined with high-quality and well-designed soft landscaping. Front garden depth from pavement back must be sufficient for a large family car.
- Boundary treatment is the key element to help avoid a car-dominated character. This can be achieved by using elements such as hedges, trees, flower beds, low walls, and high-quality paving materials between the private and public space. Low walls, where appropriate, should employ high-quality materials that respect the local character.
- All parking surfaces must be constructed from porous materials to reduce surface water run-off.

Figure 38: On-plot parking on a large front yard on Great Lane.

1. **Front parking with part of the surface reserved for soft landscaping. Permeable pavement to be used whenever possible.**
2. **Side parking set back from the main building line. Permeable pavement to be used whenever possible.**
3. **Boundary hedges or low masonry walls (where appropriate) to screen vehicles and parking spaces.**

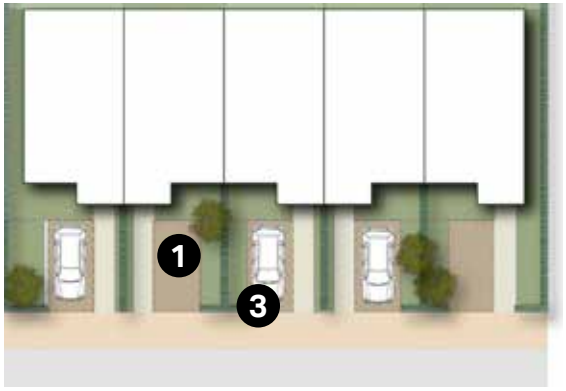


Figure 39: Illustrative diagram showing an indicative layout of on-plot front parking.

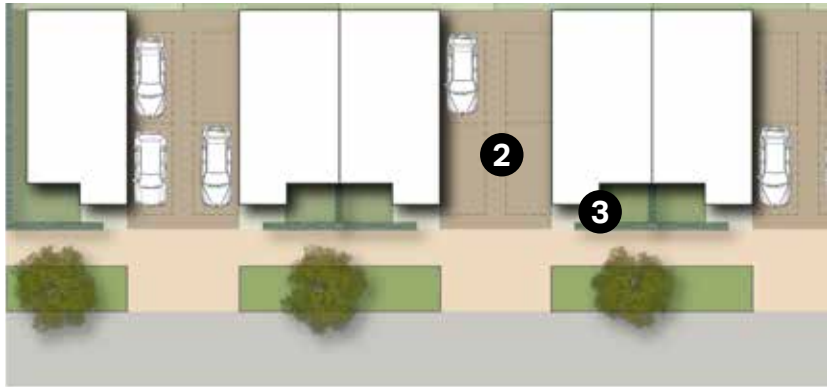


Figure 40: Illustrative diagram showing an indicative layout of on-plot side parking.

On-plot garages

- Where provided, garages must be designed either as free-standing structures or as additive form to the main building. In both situations, they must complement and harmonise with the architectural style of the main building rather than forming a mismatched unit. They must also not result in excessively small and overshadowed gardens.
- Often, garages can be used as a design element to create a link between buildings, ensuring continuity of the building line. However, it should be considered that garages are not prominent elements and they must be designed accordingly.
- It should be noted that many garages are not used for storing vehicles, so they must be carefully compared with other vehicle parking options to make the best use of the space available on a given property.
- Garages in all new developments should make provision for wheelie bin storage and/or bicycle parking where possible. See page 32 and Section 3.18 for the design of bicycle parking and bin storage respectively.

Figure 41: House with front yard parking and garage (left) built with traditional materials found in Reach - pantile roof, black weatherboarding, and yellow brick (Burnwell whites). Note: it is recommended that garage structures are set back from the building line.

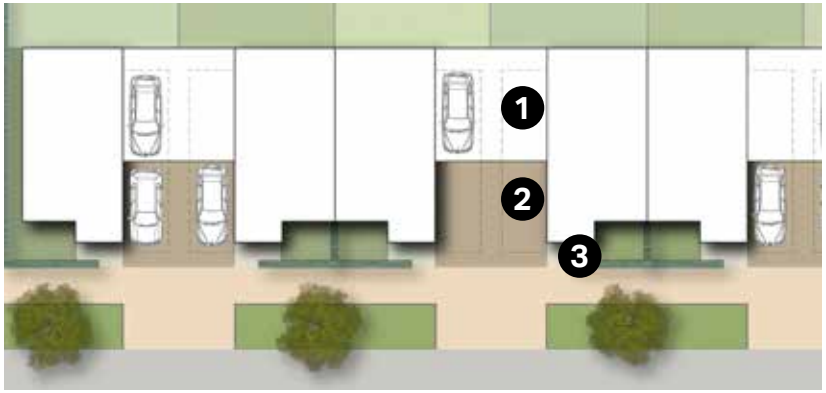


Figure 42: Illustrative diagram showing an indicative layout of on-plot parking with garages.

1. **Side parking set back from the main building line. Permeable pavement to be used whenever possible.**
2. **Garage structure set back from main building line. Height to be no higher than the main roofline.**
3. **Boundary hedges to screen vehicles and parking spaces.**

Parking courtyards

- This parking arrangement can be appropriate for a wide range of land uses. It is especially suitable for apartments and townhouses fronting busier roads where it is impossible to provide direct access to individual parking spaces. It should be noted that some local authorities may prefer rear parking courtyards over front courtyards.
- Ideally all parking courts should benefit from natural surveillance.
- Parking courts should complement the public realm; hence it is important that high-quality design and materials, both for hard and soft landscaping elements, are used.
- Parking bays must be arranged into clusters with widths of 4 spaces maximum and interspersed with trees and soft landscaping to provide shade, visual interest, and to reduce both heat island effects and impervious surface areas.

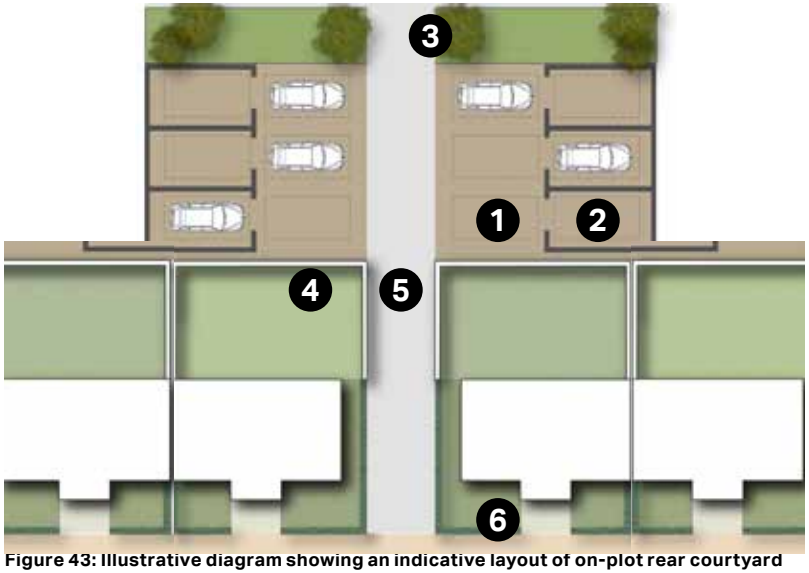


Figure 43: Illustrative diagram showing an indicative layout of on-plot rear courtyard parking.

1. **Courtyard parking with soft landscaping. Parking bays to be arranged in clusters of 4 spaces maximum. Permeable pavement to be used whenever possible.**
2. **Sheltered parking space (optional).**
3. **Trees and/or soft landscaping to prevent car dominance and add shading.**
4. **Rear of residential properties - balance to be sought between natural surveillance and privacy.**
5. **Pedestrian link to main residential frontage.**
6. **Boundary hedges or low masonry walls (where appropriate).**

Bicycle parking and storage

- A key way to encourage cycling is to provide secured covered cycle parking within all new residential developments and publicly available cycle parking in the public realm.
- For residential units, where there is no garage on plot, covered and secured cycle parking must be provided within the domestic curtilage. The use of planting and smaller trees alongside cycle parking can be used to mitigate any visual impact on adjacent spaces or buildings.
- Bicycle stands in the public realm should be sited in locations that are convenient and that benefit from adequate natural surveillance. They should be placed in locations that do not impede pedestrian mobility or kerbside activities.
- Cycle storage must be provided at a convenient location with an easy access. If it is located in rear gardens, a clear unobstructed access route should be provided. The storage space should be designed for flexible use and should be well integrated into the streetscape if it is allocated at the front of the house. The storage structure can be either standing alone or part of the main building.
- Visitor cycle parking within residential areas should be provided close to the buildings in the form of a suitable stand or wall bar.

Figure 45: Bicycle parking in Cambridge - "Sheffield" cycle stands (left) and covered bicycle storage space (right)

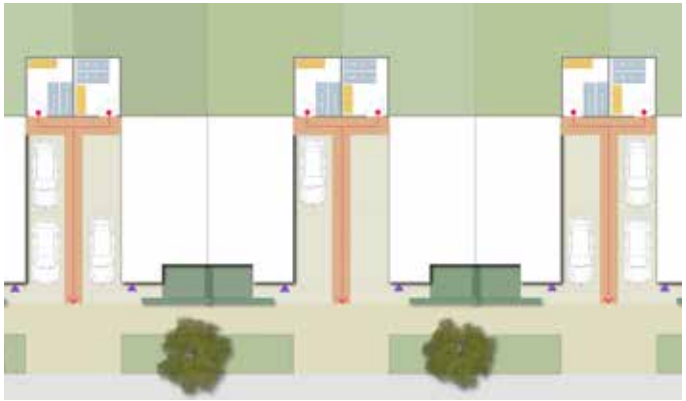


Figure 44: Cycle parking and access for semi-detached houses with on-plot parking.

3.10. Building modifications, extensions, and plot infills

Extensions to dwellings can have a significant impact not only on the character and appearance of the building, but also on the street scene within which it sits. A well-designed extension can enhance the appearance of its street, whereas an unsympathetic extension can have a harmful impact, create problems for neighbouring residents and affect the overall character of the area.

The Planning Portal[1] contains more detailed information on building modifications and extensions, setting out what is usually permitted without planning permission (permitted development) as well as what requires planning permission. Reach, for example, contains designated land[2] in the form of a Conservation Area, where planning permission is required.

- Extensions should be appropriate to the scale, massing and design of the main building and complement the streetscape.
- Alterations and extensions of historic buildings should respect the host building. Replacement of historic and traditional features, such as timber windows and doors with uPVC and other non-traditional materials should be avoided.
- Extensions are more likely to be successful if they do not exceed the height of the original or adjacent buildings. Two-storey extensions should be constructed with the same angle of pitch as the existing roof.
- The design, materials and architectural detailing of extensions should be high-quality and respond to the host building and the local character of the neighbourhood plan area.
- Impacts upon the space surrounding the building such as overlooking and overshadowing should be considered.
- Any building modifications, extensions, and plot infills on or next to Ditchfield should respect the area's more uniform and symmetrical building layout, enclosure, and roofline.

Figure 46: House with a side extension with the same treatment as the main body.

Figure 47: Side extension set back from the main building line.

Figure 48: Infill house on Ditchfield that respects the regular layout and roofline of the adjacent two-storey buildings.

[1] Planning Portal. https://www.planningportal.co.uk/info/200234/home_improvement_projects

[2] Designated land is land within a conservation area, an area of outstanding natural beauty (AONB), an area specified by the Secretary of State for the purposes of enhancement and protection of the natural beauty and amenity of the countryside, the Broads, a National Park or a World Heritage Site.

3.11. Fenestration

- Fenestration on public/private spaces increase the natural surveillance and enhance the attractiveness of the place. Long stretches of blank (windowless) walls should be avoided. Overall, considerations for natural surveillance, interaction, and privacy must be carefully balanced.
- Windows must be of sufficient size and number for abundant natural light.
- The layout and massing of new buildings should ensure access to sunshine and avoid overshadowing neighbouring buildings. New developments should also maximise opportunities for long-distance views where available.
- Consistent window styles and shapes must be used across a given façade to avoid visual clutter and dissonance.
- In and around conservation areas, fenestration must reflect an understanding of locally distinctive features such as scale, proportions, rhythm, materials, ornamentation, and articulation. This should, however, not result in pastiche replicas.

Figure 49: Windows on side elevations (left) can increase natural surveillance and sunlight inside houses.

Figure 50: A façade with a simple and attractive arrangement of multi-pane sash windows and fanlight above the entrance door.

3.12. Building line and natural boundary treatment

- Buildings should front onto roads and lanes. The building line should have subtle variations in the form of recesses and protrusions but will generally form a unified whole.
- Buildings should be designed to ensure that roads and/or public spaces have good levels of natural surveillance from buildings. This can be ensured by placing ground floor habitable rooms and upper floor windows facing the street.
- Boundary treatments should reinforce the sense of continuity of the building line and help define the street, appropriate to the character of the area. They should be mainly continuous hedges and low walls, as appropriate, made of traditional materials found elsewhere in the village such as local bricks and clunch. The use of either panel fencing or metal or concrete walls in these publicly visible boundaries should be avoided. Natural boundary treatments should not impair natural surveillance.
- Front gardens should be provided in all but exceptional circumstances such as where the local character determines otherwise.
- If placed on the property boundary, waste storage should be integrated as part of the overall design of the property. Landscaping could also be used to minimise the visual impact of bins and recycling containers.

Figure 51: White Roses, a two-storey building with hedges as boundary treatment.

Figure 52: Buildings aligned along the southern side of Fair Green behind a narrow planting strip.

Figure 53: Continuous hedges and attractive masonry walls soften the visual impact of the front yard parking area.

3.13. Architectural details

This section showcases some local building details which should be considered as positive examples to inform the design guidelines.

Brick and stone gable.

Painted-brick parapet gable.

Sash window details.

White-painted brick house with a mix of vertical (ground floor) and horizontal (upper floor) sash windows.

A modern gabled porch with low-level planting to mark the transition between public and private spheres.

A house on Great Lane with shed dormers, clay pantile roof, and clunch walls with painted casement window details.

Yellow brick façades known as Burwell Whites with contrasting red brick lintels.

Semi-detached 1920s houses built by the local authority on Ditchfield.

Brick façades and building details painted with different colours.

Decorated door details.

House façades displaying a variety of colours and roof materials.

3.14. Materials and building details

The materials and architectural detailing used throughout Reach contribute to the historic character of the area and reflect the local vernacular. It is therefore important that the materials used in proposed development are of a high-quality and reinforce local distinctiveness. Any future development proposals should demonstrate that the palette of materials has been selected based on an understanding of the surrounding built environment.

This section includes examples of building materials that contribute to the local vernacular of Reach and which could be used to inform future development.

CLUNCH

RED BRICK

PAINTED STONE/BRICK

YELLOW BRICK (BURWELL WHITES)

OFF-WHITE RENDER

BLACK WEATHERBOARDING

CLAY PANTILE ROOF

SHED DORMER

LANDSCAPED HEDGE

MULTI-PANE SASH WINDOW

CLAY PLAINTILE ROOF

GABLED PORCH

BRICK BOUNDARY WALL

MULTI-PANE CASEMENT WINDOW

SLATE ROOF

BLACK-PAINTED BUILDING PLINTH

BRICK AND CLUNCH BOUNDARY WALL

HORIZONTAL (YORKSHIRE) SASH WINDOW

3.15. Eco design

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. 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[1].

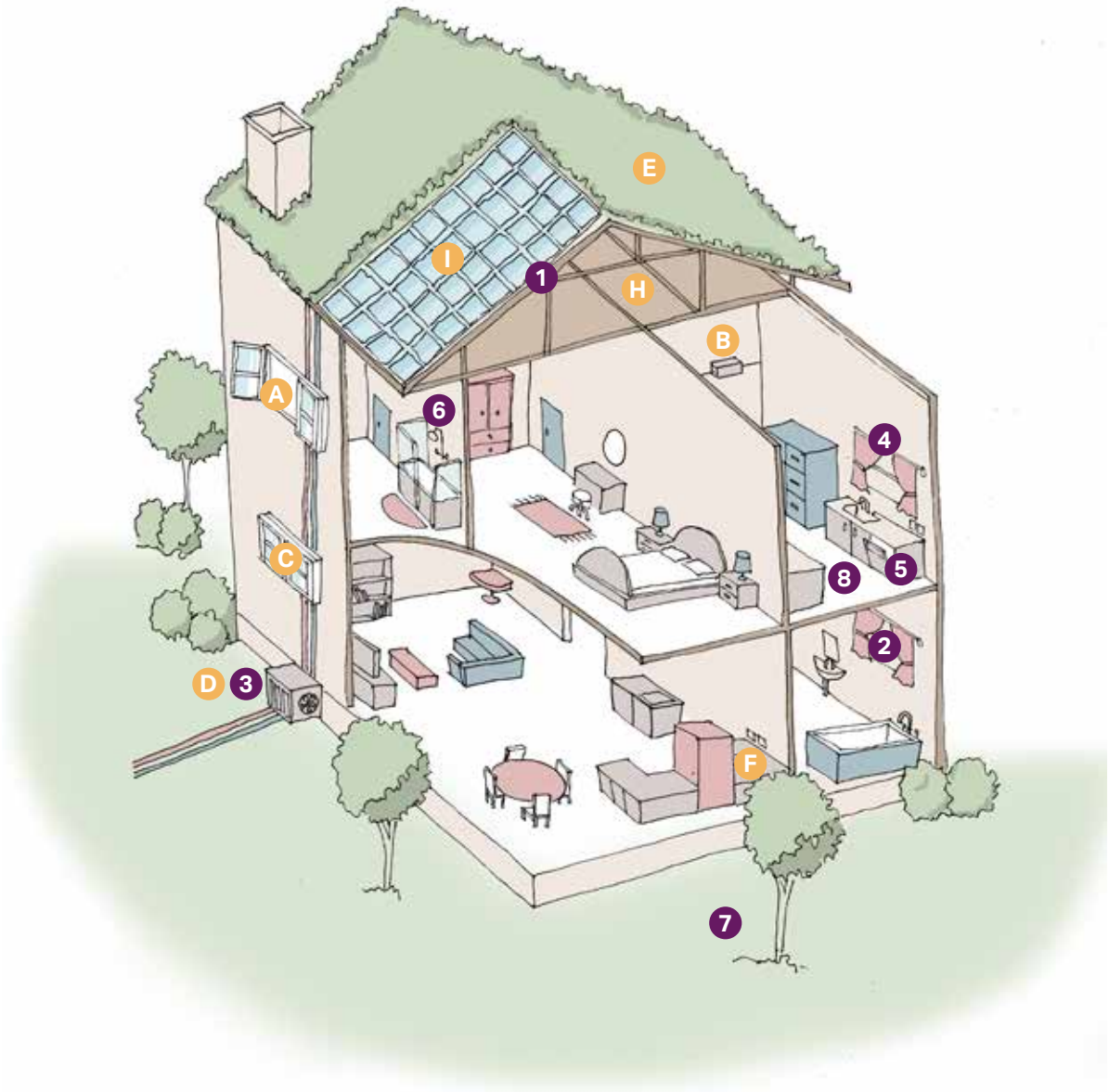


Figure 54: Diagram showing low-carbon homes in both existing and new build conditions.

[1] Historic England. https://historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historic-buildings/

Existing homes

1. **Insulation** in lofts and walls (cavity and solid)
2. **Double or triple glazing with shading** (e.g. tinted window film, blinds, curtains and trees outside)
3. **Low- carbon heating** with heat pumps or connections to district heat network
4. **Draught proofing** of floors, windows and doors
5. **Highly energy- efficient appliances** (e.g. A++ and A+++ rating)
6. **Highly waste- efficient devices** with low-flow showers and taps, insulated tanks and hot water thermostats
7. **Green space (e.g. gardens and trees)** to help reduce the risks and impacts of flooding and overheating
8. **Flood resilience and resistance** with removable air back covers, relocated appliances (e.g. installing washing machines upstairs), treated wooden floors

New build homes

A. **High levels of airtightness**

B. **More fresh air** with the mechanical ventilation and heat recovery, and passive cooling

C. **Triple glazed windows and external shading** especially on south and west faces

D. **Low-carbon heating** and no new homes on the gas grid by 2025 at the latest

E. **Water management and cooling** more ambitious water efficiency standards, green roofs and reflective walls

F. **Flood resilience and resistance** e.g. raised electrical, concrete floors and greening your garden

H. **Construction and site planning** timber frames, sustainable transport options (such as cycling)

I. **Solar panel**

3.16. Rainwater harvesting

Rainwater harvesting refers to the systems which allow the capture and storage of rainwater, as well as those enabling the reuse in-situ of grey water. These systems involve pipes and storage devices that could be unsightly if added without an integral vision for design. Therefore, it is recommended that design incorporate one or more of the following methods:

- Concealment of tanks by cladding them in complementary materials;
- Use of attractive materials or finishing for pipes;
- Combination of landscape/planters with water capture systems;
- Use of underground tanks; and
- Utilisation of water bodies for storage.

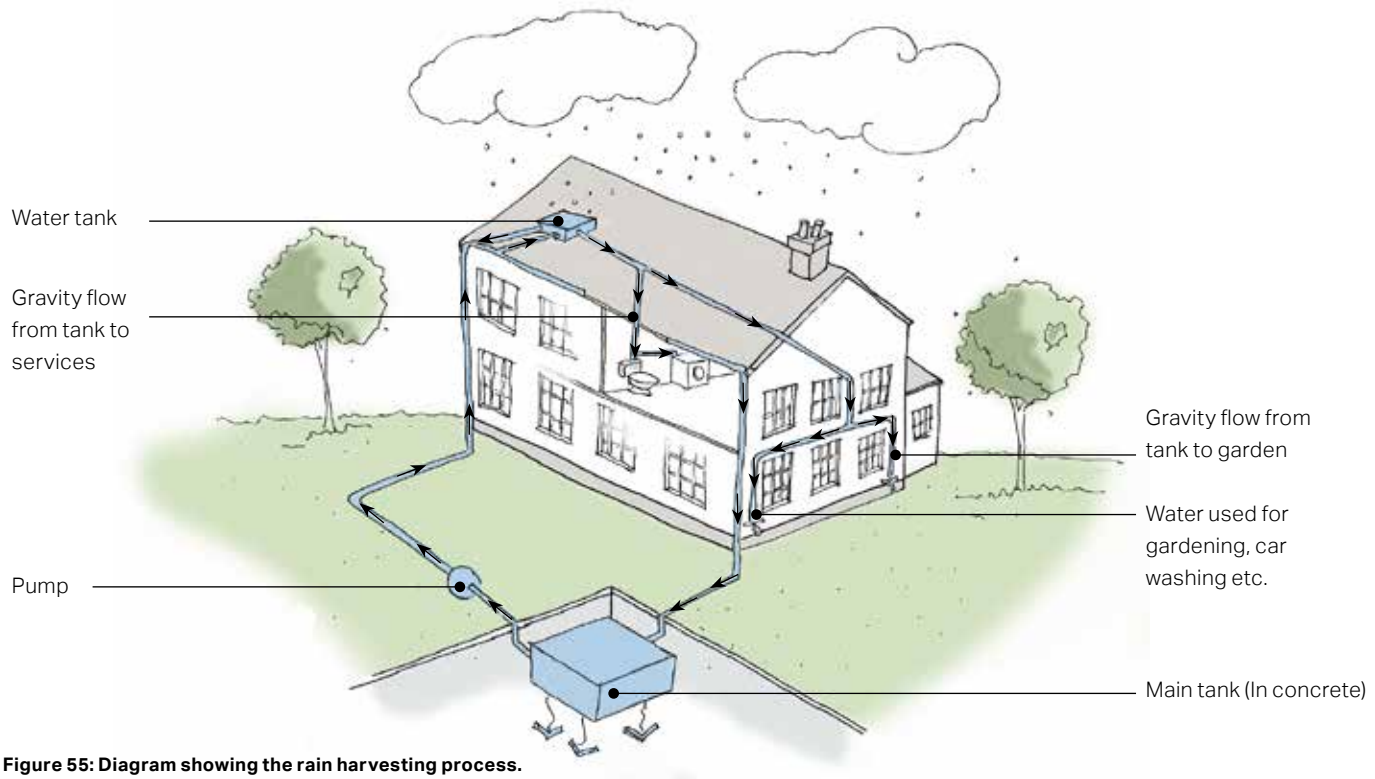


Figure 55: Diagram showing the rain harvesting process.

Figure 56: Local examples of tanks used for rainwater harvesting.

3.17. 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 pavements offer a solution to maintain soil permeability while performing the function of conventional paving. 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. When installed, permeable paving should perform the following functions in addition to their main role:

- Respect the local material palette;
- Help to frame the building;
- Create an arrival statement;
- Be in harmony with the landscape treatment of the property;
- Help define the property boundary.

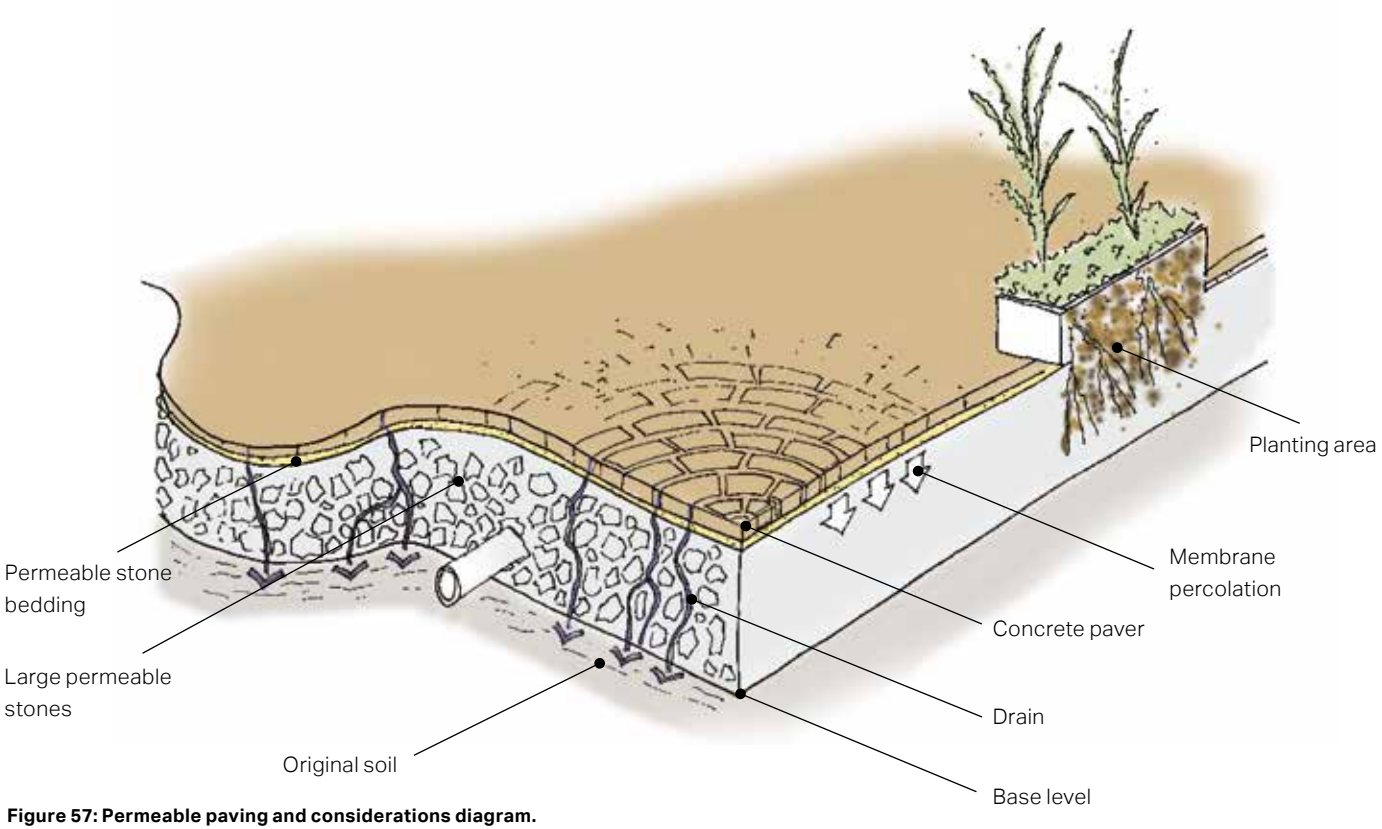


Figure 57: Permeable paving and considerations diagram.

Figure 58: Examples of permeable paving treatments: clay pavers, stone/precast concrete setts, and unbound gravel.

3.18. Servicing

With modern requirements for waste separation and recycling, the number and size of household bins have increased. The issue poses a problem in relation to the aesthetics of the property if bins are left without a design solution.

Waste and cycle storage, if placed on the property boundary, must be integrated with the overall design of the boundary. A range of hard and soft landscaping treatments such as hedges, trees, flower beds, low walls, and high-quality paving materials could be used to minimise the visual impact of bins and recycling containers.

The image and diagrams on this page illustrate design solutions for servicing units within the plot.

Figure 59: Example of bin storage using a palette similar to the building.

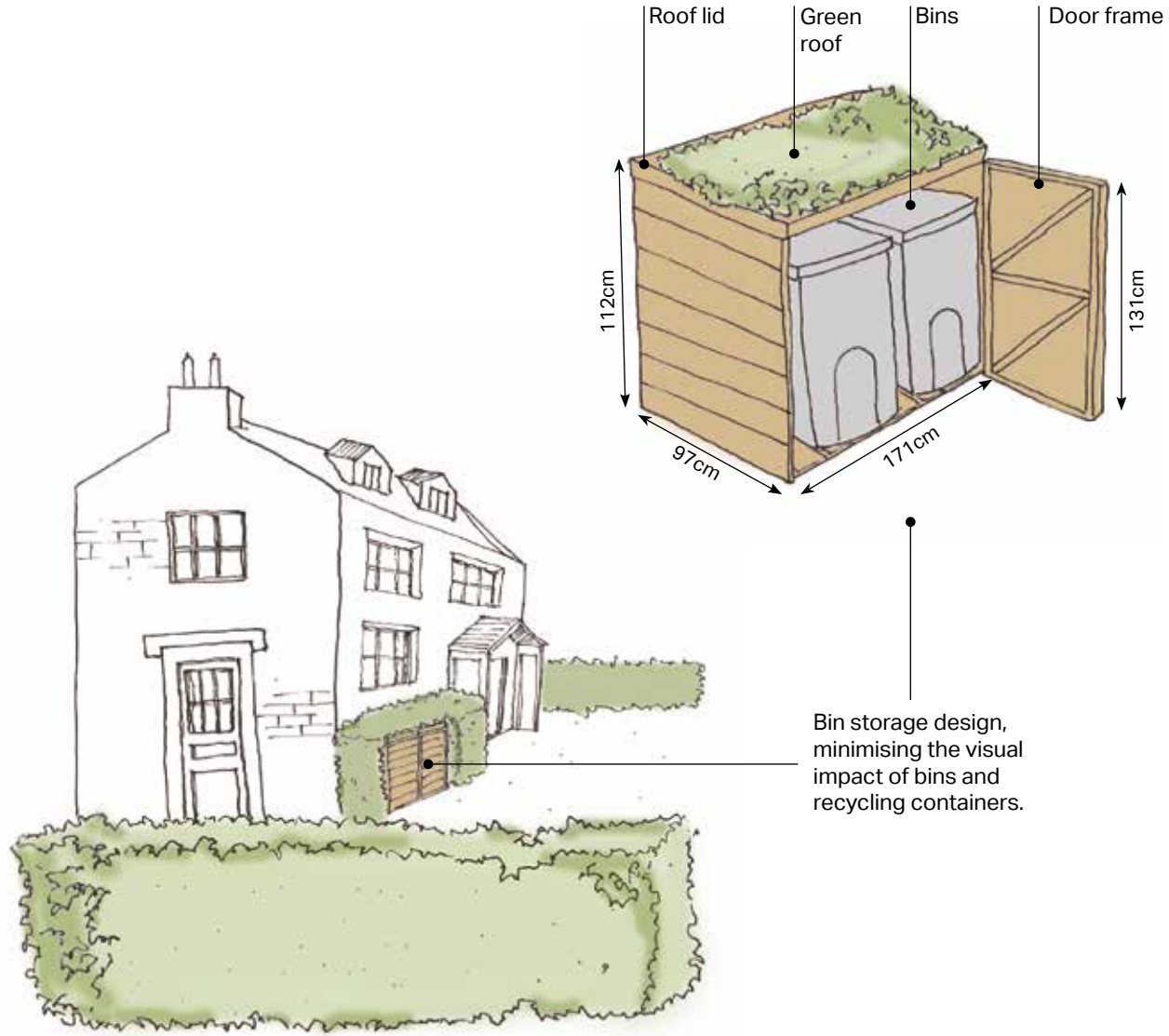


Figure 60: Bin storage design solution.

3.19. Solar roof panels

The aesthetics of solar panels over a rooftop can be a matter of concern for many homeowners. Some hesitate to incorporate them because they believe these diminish the home aesthetics in a context where looks are often a matter of pride amongst home owners. This is especially acute in the case of historic buildings and conservation areas, where there has been a lot of objection for setting up solar panels on visible roof areas. Consequently, some design solutions are suggested below:

On new builds:

- Design solar panel features from the start so that they form a part of the design concept. Some attractive options are solar shingles and photovoltaic slates; and
- Use the solar panels as a material in their own right.

On retrofits:

- Analyse the proportions of the building and roof surface in order to identify the best location and sizing of panels;
- Aim to conceal wiring and other necessary installations;
- Consider introducing other tile or slate colours to create a composition with the solar panel materials; and
- Conversely, aim to introduce contrast and boldness with proportion. For example, there has been increased interest in black panels due to their more attractive appearance. Black solar panels with black mounting systems and frames can be an appealing alternative to blue panels.

Figure 61: 1950s house on Swaffham Road retrofitted with roof solar panels.

Figure 62: Examples of different approaches to solar panels, all aiming to make a positive appearance by blending, contrasting, or making a main feature.

3.20. General questions to ask and issues to consider when presented with a development proposal

Based on established good practice, this section provides a number of questions 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 taken into account 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 the proposals. The proposals or design should:

1. Integrate with existing paths, roads, circulation networks and patterns of activity;
2. Reinforce or enhance the established village character of roads and lanes, greens, and other spaces;
3. Respect the rural character of views and gaps;
4. Harmonise and enhance existing settlement in terms of physical form, architecture and land use;
5. Relate well to local topography and landscape features, including prominent ridge lines and long-distance views.
6. Reflect, respect and reinforce local architecture and historic distinctiveness;
7. Retain and incorporate important existing features into the development;
8. Respect surrounding buildings in terms of scale, height, form and massing;
9. Adopt contextually appropriate materials and details;
10. Provide adequate open space for the development in terms of both quantity and quality;
11. Incorporate necessary services and drainage infrastructure without causing unacceptable harm to retained features;
12. Ensure all components e.g. buildings, landscapes, access routes, parking and open space are well related to each other;
13. 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
14. Positively integrate energy efficient technologies

Following these considerations, there are number of questions related to the design guidelines outlined later in the document.

Street grid and layout

- Does it favour accessibility and connectivity over cul-de-sac models? 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?

Local green spaces, views and 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?
- Has the proposal been considered within its wider physical context?
- Has the impact on the landscape quality of the area been taken into account?
- How does the proposal affect the character of a rural location?
- 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?
- Does the new development respect and enhance existing amenity space?
- Have opportunities for enhancing existing amenity spaces been explored?
- Will any communal amenity space be created? If so, how this will be used by the new owners and how will it be managed?

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?

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 townscape?
- 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?

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?

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?

Household extensions

- Does the proposed design respect the character of the area and the immediate neighbourhood, and does it have an adverse impact on neighbouring properties in relation to privacy, overbearing or overshadowing impact?
- Is the roof form of the extension appropriate to the original dwelling (considering angle of pitch)?
- Do the proposed materials match those of the existing dwelling?
- In case of side extension, 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?

Building materials and surface treatment

- What is the distinctive material in the area, if any?
- 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?

Car parking solutions

- 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?
- Do new parking spaces integrate electric vehicle charging technology? Can existing parking spaces be retrofitted with electric vehicle charging points?

Architectural details and contemporary design

- If the proposal is within a conservation area, how are the characteristics reflected in the 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?

Figure 63: View of the Grade II listed War Memorial and St Etheldreda's Church of on Fair Green.


7

Delivery

04

4. Delivery

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

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 Guidelines as planning consent is sought.
Local Planning Authority	As a reference point, embedded in policy, against which to assess planning applications. The Design Guidelines should be discussed with applicants during any pre-application discussions.
Parish Council	As a guide when commenting on planning applications, ensuring that the Design Guidelines 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.

Figure 64: Northward view from the Hythe.

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AECOM is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM had revenue of approximately $17.4 billion during fiscal year 2016. See how we deliver what others can only imagine at aecom.com and @AECOM.

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