

PART 04

Phase 1

Coding

8. SITE WIDE CODING

This section provides guidance on site wide regulations that will shape the fundamental structure of the Phase 1 development.

8.1 Block structure

- Block structure will be defined by deformed grids and shall be based on ease of pedestrian movement and connections.
- Site layout must be legible with clearly designed way finding features to encourage residents to travel by foot and cycle.
- Landmarks and key marker structures / buildings shall be clearly defined and suitably designed to contribute to way finding and to realise connected spaces and routes for ease of movement.
- Design of an urban block shall emphasise vernacular character and morphology. Plot sizes, building typologies, style and orientation and boundary treatments should follow the local precedents.
- The key core principles of Secure by Design, described right, should be considered when designing the block.



Figure 8.1 Indicative block layout

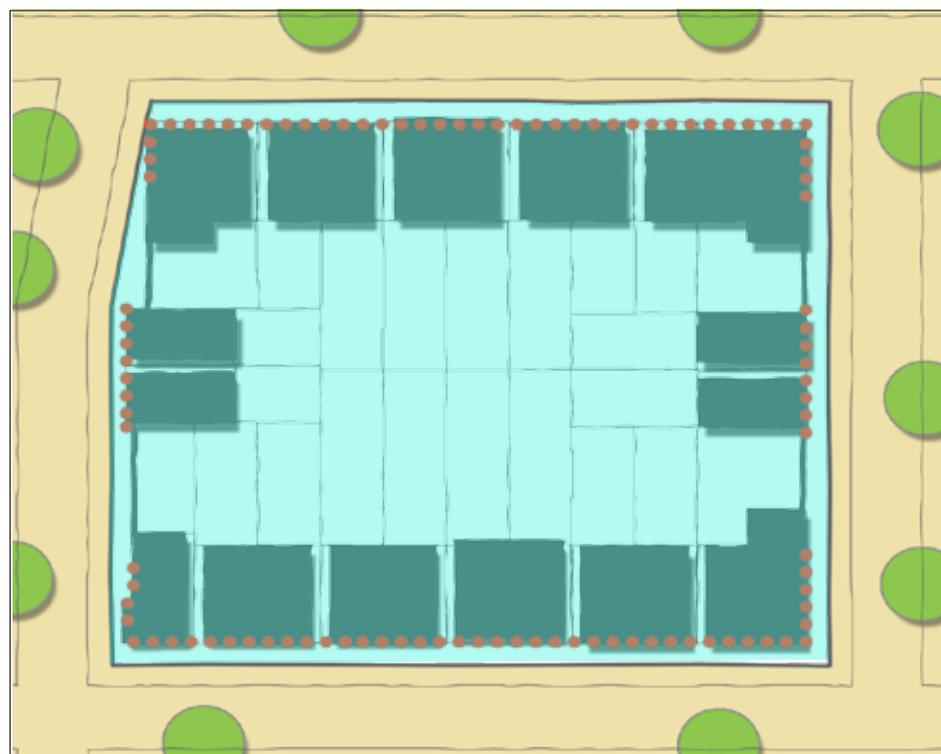


Figure 8.2 Clearly defined public - private edge

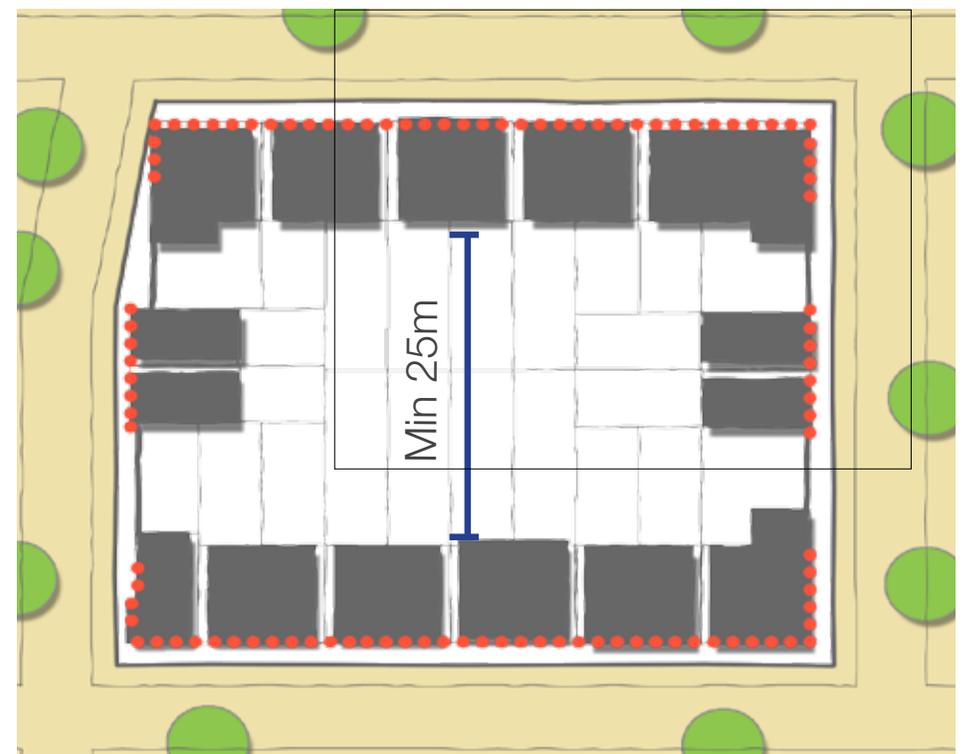


Figure 8.3 Minimum distance from back to back units

Fixed elements

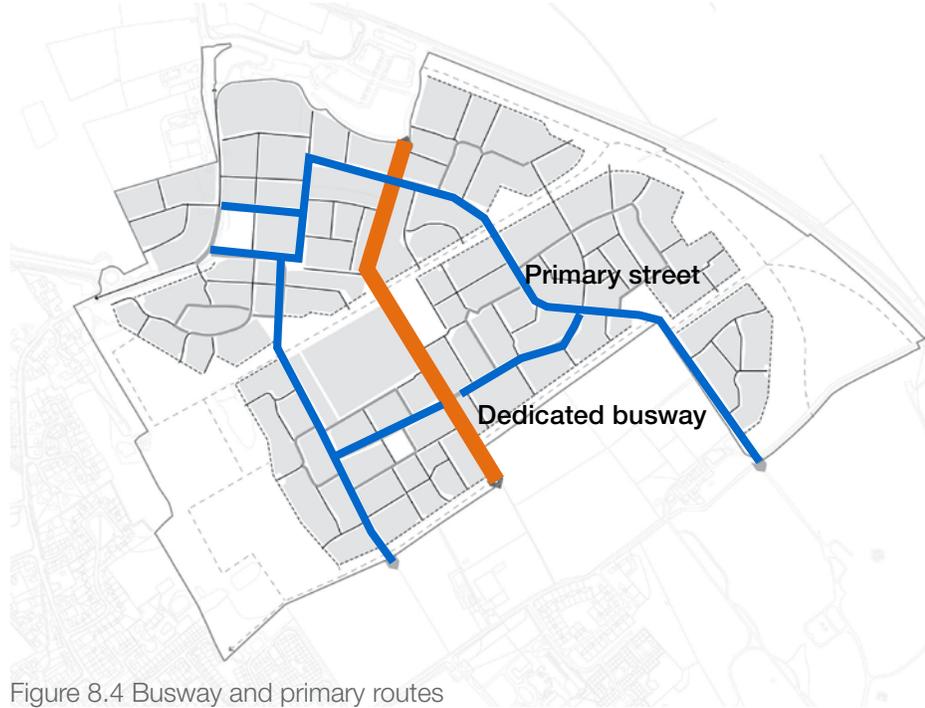


Figure 8.4 Busway and primary routes



Figure 8.5 Green infrastructure

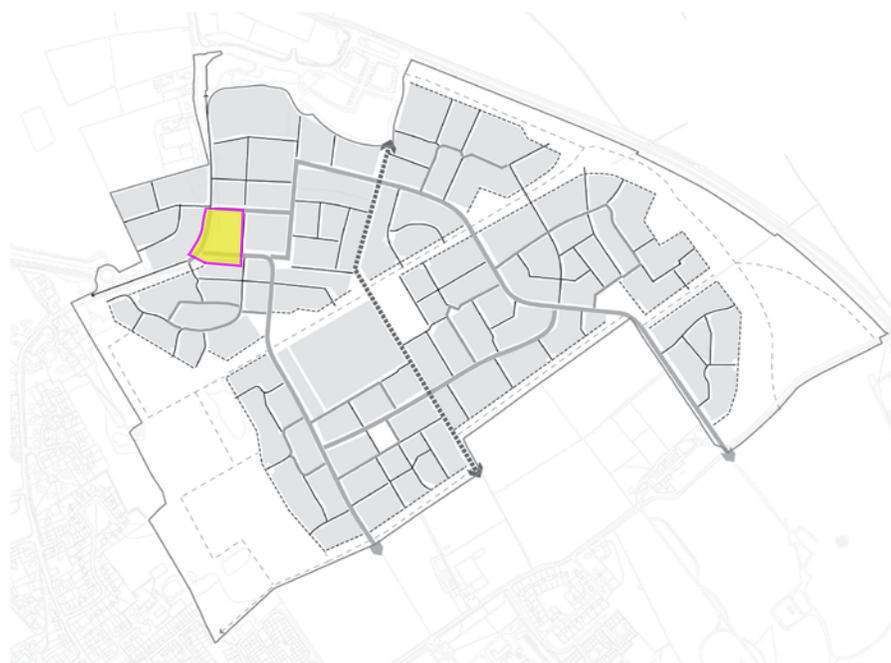


Figure 8.6 B1050 & local centre

Secured by Design and Health Impact Assessment (HIA)

Secured by Design (SBD) principles apply to all affordable housing and all open market housing.

The layout is based on a perimeter block structure, which maximises natural surveillance of the streets and public realm. Importantly, the delineation between public and private areas is very well defined, with features such as internal parking courts and public access to the rear boundary of properties limited.

The development's design and layout must follow SBD guidelines wherever possible and all dwellings must achieve SBD section two compliance. Areas of incidental open space that are not overlooked or that do not have a clear function must be avoided.

Particular regard must be paid to the design of the end of block buildings by the introduction of specific corner buildings with doors and windows within the gable ends and parking courts with natural surveillance from habitable rooms and main entrances to secondary dwellings. Where public access to the side or rear of properties is available, these spaces must be adequately overlooked.

The design criteria are laid out on the Secured by Design website: www.securedbydesign.com

Health Impact Assessment (HIA)

The HIA submitted in support of the Phase 1 outline planning application identified a set of detailed recommendations. They have continued to inform the evolving design, layout and content of Phase 1.

This Design Code takes into account and has been influenced by the recommendations in the HIA relating to the principles of Secured by Design and Building for Life, ensuring that adequate parking has been provided, minimising courtyard parking and identifying the potential for green roofs and walls in the employment area.



8.2 Green infrastructure



Figure 8.7 Green infrastructure plan

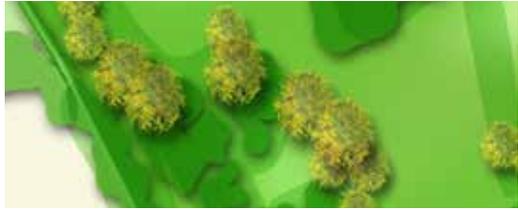
		PLAN	PROVISION	DEFINING CHARACTER	SOFT LANDSCAPE	HARD LANDSCAPE
L1	EXISTING TREES AND HEDGEROWS		Existing trees / hedgerows to be retained.	Hedgerows provide natural setting and help ecological mitigation.	Manage existing hedgerow and lay/replant under storey species with the aim of increasing species diversity.	N/A.
L2	GREENWAY NORTH / SOUTH		Informal open space provides a green setting.	Semi-natural character with opportunity for formal tree planting and well maintained edges to development parcels and access streets.	Large mature climax trees and meadow grassland with native species. Swales and natural drainage important features.	Pedestrian/cycle access along greenway.
L3	EASTERN WATER PARK		Principal open space / water park on eastern edge of site and along the CGB.	Riparian habitat. Simple landscape approach comprising open grassland, trees. Water body will mitigate any urban heat island effect.	Natural habitats associated with fen edge. Predominantly native species including typical wetland species.	Informal paths and use of timber for seating and play areas.
L4	WESTERN PARK		Principal open space along western edge.	Naturalistic framework that brings the countryside into the separation between Longstanton and Northstowe, where the sports playing fields are provided.	Natural habitats associated with parkland, proposed planting to respond to existing Kingfisher Lake and associated retained vegetation.	Informal paths and use of timber for seating.
L4a	ALLOTMENTS/ COMMUNITY ORCHARD		Important local amenity.	Natural setting including low hedging and mature trees.	Opportunity to create an avenue or grove of fruit trees.	N/A.
L4b	SPORTS PITCHES		Designed to provide formal recreation.	Designed to fit the formal pitches within the parkland landscape. Formal pitches and MUGA will be assimilated into the wider green infrastructure through landscape treatment.	Grass turf for playing surface.	Synthetic turf pitches, sports pavilion and associated car and cycle parking.
L5	POCKET PARKS		Designed to provide usable open space.	Informal in appearance.	Use of native trees, limited shrub planting and low hedging, with amenity grass.	Opportunity for informal play spaces, and neighbourhood meeting areas.

Table 8.1 Green infrastructure

Western park

- Extensively green and open, it provides the range of open space provision necessary to serve the development for the benefit of existing residents of Longstanton and future residents of the new development.
- The landscape buffer is aligned with the prevailing wind direction and will provide cooling and shading to provide resilience to a changing climate.
- It also provides strategic pedestrian linkages from Longstanton to the park and ride, and a link from the new development into Longstanton. These linkages must be designed and developed to required standards. (For guidance on design and material of linkages please see PART 03 - chapter 6 page 64-67).
- Existing retained vegetation provides green separation to maintain the landscape setting to Longstanton edge. A long term maintenance plan should be set out to replant or successfully retain existing vegetation.
- Landscape planting should give appropriate consideration to retained landscape features i.e. wet woodland, veteran trees and water bodies.
- Landscape planting should give appropriate consideration of future climate change and resilience. Choice of vegetation and species and provision of adequate management should be considered in the design of all green and blue infrastructure.

The western park will provide:
Informal parkland and retained existing vegetation
Formal play pitches provision
Allotments / community orchard

As part of the design of the western park, a strong naturalistic green framework must be established that encloses the sports facilities and helps screen those facilities from Longstanton. Floodlighting design must minimise light pollution beyond the sports ground zone.



1) List of trees to be used in western park

Primary structural tree species		
Species	Specific cultivars	Notes
Alder	<i>Alnus glutinosa</i>	
English oak	<i>Quercus robur</i>	
White willow	<i>Salix alba</i>	
Crack willow	<i>Salix fragilis</i>	Rural edge only – pollarded?
Secondary supporting tree species		
Field maple	<i>Acer campestre</i>	
Downy birch	<i>Betula pubescens</i>	Verified native form
Black poplar	<i>Populus nigra</i>	
Wild cherry	<i>Prunus avium</i>	
Bird cherry	<i>Prunus padus</i>	
Goat willow	<i>Salix caprea</i>	
Grey willow	<i>Salix cinerea</i>	Usually more of a large shrub
Osier willow	<i>Salix viminalis</i>	
Wild service tree	<i>Sorbus terminalis</i>	
Small leaved lime	<i>Tilia cordata</i>	

Eastern water park

- Running north-south along the CGB the eastern water park will be provided as a principal recreational informal open space.
- Design of the park should reflect the character of the fen edge.
- It provides links into the strategic commuter route to Cambridge and the Longstanton park and ride. Therefore, the park must be designed with Secure by Design principles providing adequate natural surveillance on those routes.
- The water park will also provide a source of cooling to the microclimate thereby acting as a strong climate change adaptation feature.



The eastern water park will comprise; Informal water park with a series of swales and water bodies

Swales must be planted with a mix of amenity, wet meadow and grassland species to enhance biodiversity. Opportunity to provide permanent water in parts to create a sequential experience of the water park.

Attenuation ponds

The balancing ponds must be multi-functional, suitable for attenuation and as a public amenity with significant ecological value. The basins must incorporate an area of contoured permanent water providing shallow areas planted with emergents and steeper banks suitable for a wide range of aquatic mammals and breeding birds. The shallow semi-dry banks of the drainage basin must be seeded with a mixture of wet-meadow and grass species.

Attractive boardwalk along the pond

A timber boardwalk must be provided in key locations to allow access to shallow areas of water and reed beds and / or should link across permanent water.

Sustainable water management

Subject to the capacity of the water body, landscaping contractors will be encouraged to use this water for irrigation purposes, particularly during the establishment period.



2) List of trees to be used in eastern water park

Primary structural tree species

Species	Specific cultivars	Notes
Alder	<i>Alnus glutinosa</i>	
English oak	<i>Quercus robur</i>	
White willow	<i>Salix alba</i>	
Crack willow	<i>Salix fragilis</i>	Rural edge only – pollarded?

Secondary supporting tree species

Field maple	<i>Acer campestre</i>	
Downy birch	<i>Betula pubescens</i>	
Black poplar	<i>Populus nigra</i>	Verified native form
Wild cherry	<i>Prunus avium</i>	
Bird cherry	<i>Prunus padus</i>	
Goat willow	<i>Salix caprea</i>	
Grey willow	<i>Salix cinerea</i>	Usually more of a large shrub
Osier willow	<i>Salix viminalis</i>	
Wild service tree	<i>Sorbus terminalis</i>	
Small leaved lime	<i>Tilia cordata</i>	

Greenways

- Running east-west greenways will provide informal recreational green space and a natural drainage system.
- They will provide strategic pedestrian and cycle linkages between neighbourhoods.
- The greenways will act as effective climate buffers and provide shade, cooling and wind interception.
- Developers should consider the potential climate adaptation and mitigation role of the proposed greenways.



The greenways will provide:

A series of swales and drainage ditches

Swales must be planted with a mix of amenity, native wet meadow and grassland species to enhance biodiversity.

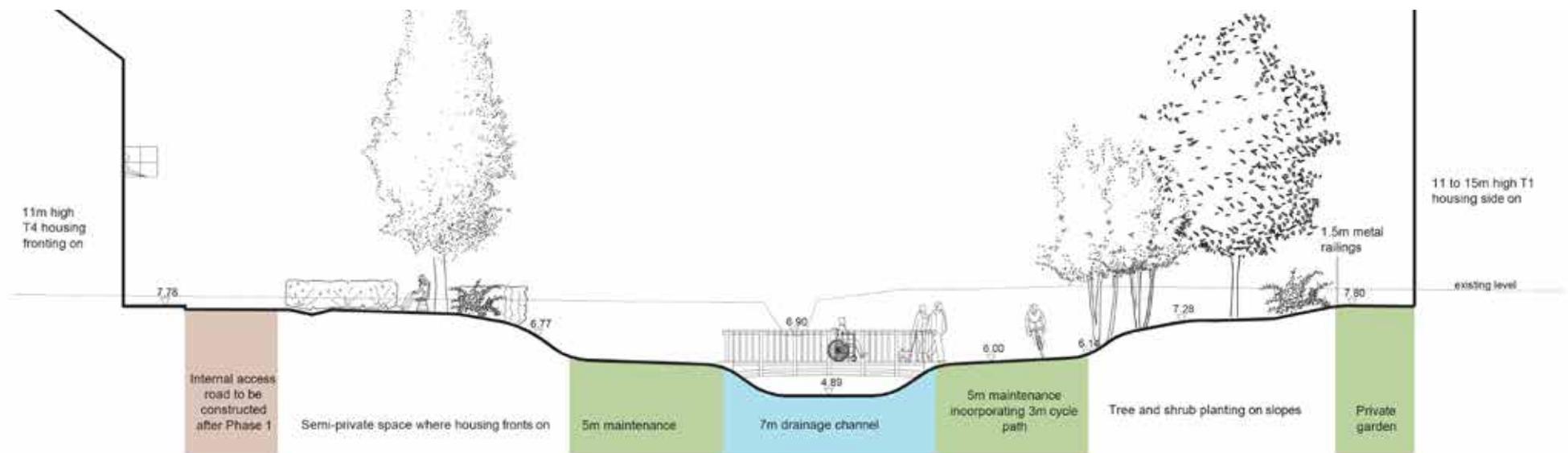
Play areas - LEAPs and informal play

Guidance and coding of play areas are explained in chapter 8.3 play strategy.

Attractive walking routes to local community areas and primary school

Leisure routes connecting wider green infrastructure

These routes must be designed to encourage people to walk and cycle to enjoy outdoor life and embrace a healthy lifestyle. The route must be designed to be used conveniently by pedestrians, cyclists and wheelchair users.



G Figure 8.8 Indicative section showing cycle /pedestrian bridge across greenway

3) List of trees to be used in greenway

a) With a rural character

Primary structural tree species		
Species	Specific cultivars	Notes
Field maple	<i>Acer campestre</i>	
Alder	<i>Alnus glutinosa</i>	
Wild cherry	<i>Prunus avium</i>	
English oak	<i>Quercus robur</i>	
White willow	<i>Salix alba</i>	
Small leaved lime	<i>Tilia cordata</i>	
Secondary supporting tree species		
Downey birch	<i>Betula pubescens</i>	
Goat willow	<i>Salix caprea</i>	
Grey willow	<i>Salix cineria</i>	
Osier willow	<i>Salix viminalis</i>	

3) List of trees to be used in greenway

b) With an urban character

Primary structural tree species		
Species		Notes
Field maple	<i>Acer campestre</i>	Use widely
Italian alder	<i>Alnus cordata</i>	
Turkish hazel	<i>Corylus colurna</i>	
Small leaved Lime	<i>Tilia cordata</i>	
Secondary supporting tree species		
Birch	<i>Betula pendula</i> <i>Betula Jaquemontii</i>	More formal character
Sweet chestnut	<i>Castanea sativa</i>	Mostly in soft areas

Pocket parks

- They will provide formal and informal play and recreational areas.

Guidance and coding of play areas are explained in chapter 8.3 play strategy.



4) List of trees to be used in pocket park, nodes and squares

Species	Specific cultivars	Notes
Cornelian cherry	<i>Cornus mas</i>	Use widely
Dogwood	<i>Cornus kousa Chinensis</i>	Use as a feature tree, both individually and as part of an arboretum group
Hawthorn species	<i>Crataegus lavalleyi</i>	Use widely
Walnut	<i>Juglans regia</i>	Use as a feature tree, both individually and as part of an arboretum group
Crab apple	<i>Malus sylvestris</i>	Use as a feature tree, both individually and as part of an arboretum group
Common medlar	<i>Mespilus germanica</i>	Use as a feature tree, both individually and as part of an arboretum group
Dawn redwood	<i>Metasequoia glyptostroboides</i>	Use as a feature tree, both individually and as part of an arboretum group
Black mulberry	<i>Morus nigra</i>	Use as a feature tree, both individually and as part of an arboretum group
Persian ironwood	<i>Parrotia persica</i>	Use as a feature tree, both individually and as part of an arboretum group
Foxglove tree	<i>Paulownia tomentosa</i>	Use as a feature tree, both individually and as part of an arboretum group
Cherries	<i>Prunus avium</i> <i>Prunus padus</i>	Use widely
Holm oak	<i>Quercus ilex</i>	Use as a feature tree, both individually and as part of an arboretum group
Wild service tree	<i>Sorbus torminalis</i>	Use as a feature tree, both individually and as part of an arboretum group
English yew	<i>Taxus baccata</i>	Use as a feature tree, both individually and as part of an arboretum group
Small leaved lime	<i>Tilia cordata</i>	Use widely
Fruit trees	<i>Apple, cherry, damson, pear</i>	Use edible fruiting varieties to create feature orchard areas

8.3 Youth and children’s play

- Provide a diverse range of safe, attractive and stimulating spaces throughout the development, easily accessible and catering for all age groups.
- In developing the youth and children’s play strategy, reference has been made to the following documents:
 - Planning and Design for Outdoor Sport and Play, Fields in Trust (supersedes The Six Acre Standard).
 - A Guide to the Design, Specification and Construction of MUGAs, Sport England
 - Design for Play - A Guide to Creating Successful Play Space (Play England, June 2008)
 - How to Involve Children and Young People in Designing and Developing Play Spaces - Play England
- Play areas are provided within green open spaces.
- Natural play is a key objective and the direct links between greenways and the waterside park will provide children with a rich natural environment to explore and enjoy.
- Play areas must be designed in accordance with the requirements of the Disability Discrimination Act in order to be accessible to all.
- Secure by Design principles must be followed when designing play areas.
- The play strategy will create a network of vibrant, high quality public spaces that provide opportunities for children to play safely.
- Areas of play space have been located in traffic free areas or areas of limited vehicular use, and to coincide with primary footpaths, cycle routes and community streets.
- For the NEAP a buffer zone of 30m to the nearest property boundary must be provided with appropriate landscape treatment. A buffer zone of 10m to the nearest property and a minimum of 20m to the nearest habitable room façade must be provided for LEAPs.

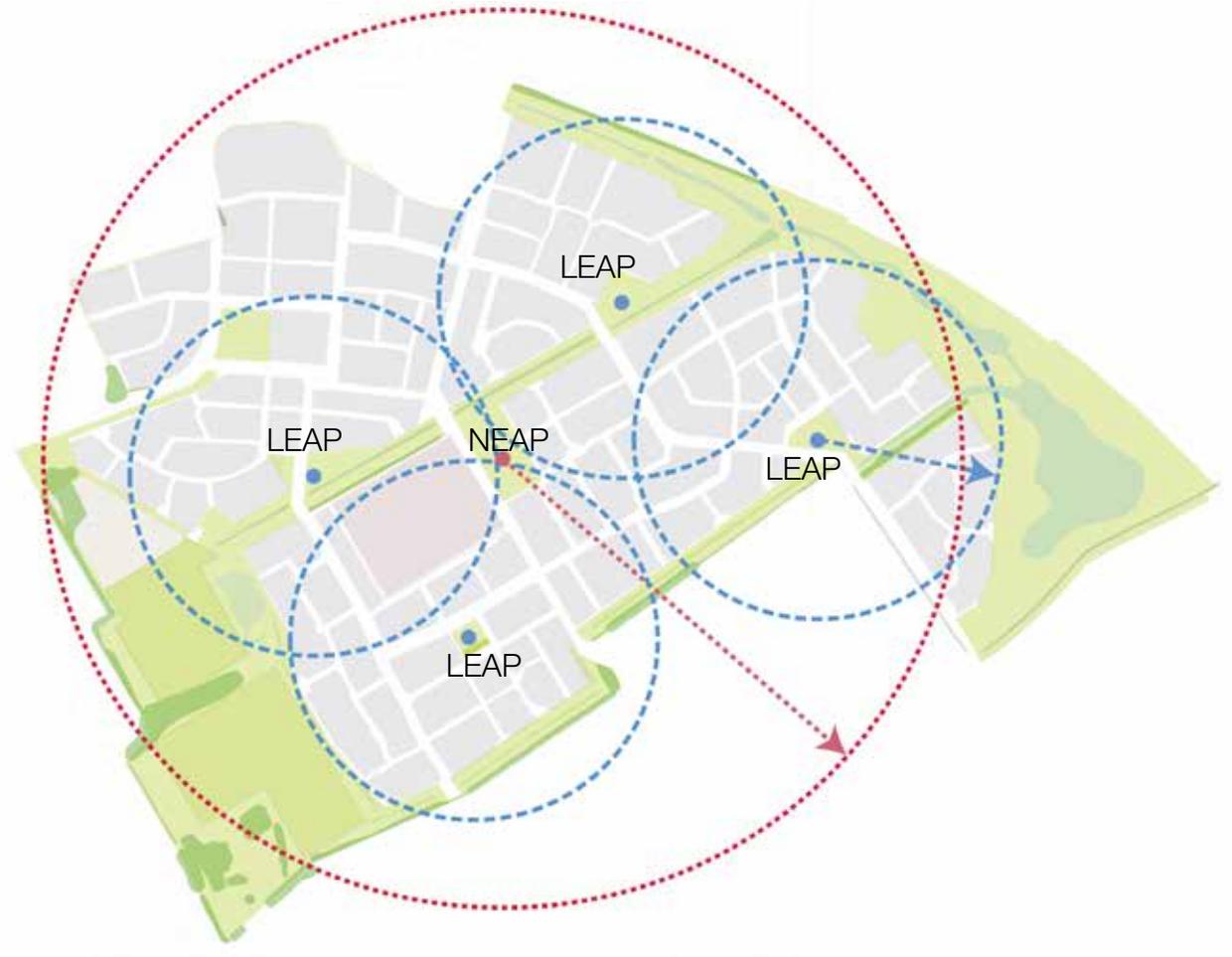


Figure 8.9 Play area catchments

Play areas	Components
NEAP and LEAP	<ul style="list-style-type: none"> • A simple material palette to be used for public realm furniture, such as seating, to create colourful play spaces. • High quality, stimulating and challenging play equipment must be used to create stimulating and challenging play areas. • Rubber, wet pour, safety or similar surfacing. • The areas must provide a secure environment for children of all age groups
LAPs	<ul style="list-style-type: none"> • Where possible in green open space informal high quality natural play areas shall be provided.

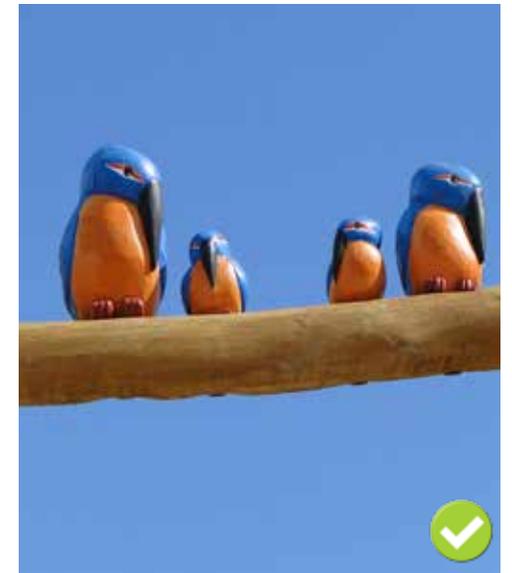
Table 8.2 Play area components

Table 8.3 Summary of approved play provision across the new development

<p>NEAP</p>	<ul style="list-style-type: none"> • 600sqm • High quality play equipment and grassed mounding must be used to create stimulating and challenging natural play areas • Grass reinforced matting or similar to be used as safety surfacing
<p>LEAPs</p>	<ul style="list-style-type: none"> • 400sqm • High quality play equipment must be used to create stimulating and challenging play areas • Informal boundary treatment could comprise 0.9m high native hedgerow • Safe surfaces, wet pour and natural materials i.e. sand, barks or similar surfacing • When provided in greenways grass reinforced matting or similar to be used as safety surfacing
<p>SIPs</p>	<ul style="list-style-type: none"> • Natural play areas should be provided in the form of playful landscapes. These play areas will have no formal equipment but will be imaginatively designed and contoured. • The design must use natural materials such as logs, boulders and should explore the imaginatively created landform.
<p>LAPs</p>	<ul style="list-style-type: none"> • 100sqm • Unequipped, informal play areas designed to provide safe and secure environment for young children and parents • Playful landscape design should be included to encourage natural play through use of natural materials
<p>Formal play pitches</p>	<ul style="list-style-type: none"> • Proposed sports pitches in the sports hub should be provided to the standards set out by Sport England or as agreed by SCDC • Synthetic Artificially Turfed Pitch and formal MUGA will be provided as part of a series of formal sports provision • Attractive play areas should be provided with appropriate surfacing and security fence / boundary



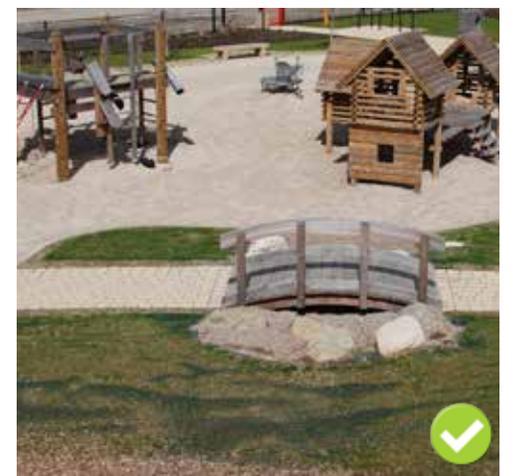
Attractive and high quality, stimulating play area design



Public art can be a tool to achieve high quality and unique play spaces



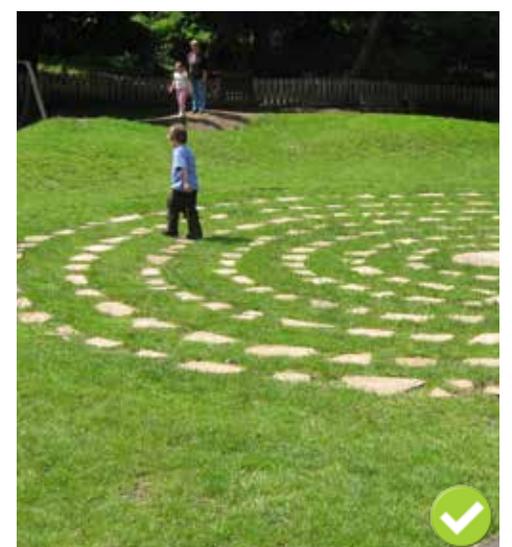
Playful landscape



Interesting design with use of levels and play area for different age groups



Encouraging 'natural play'



8.4 Parking

Bikes

- The design of cycle parking facilities must be consistent and integrated within the surrounding public realm.
- Bike storage provision should ensure that the bicycle should be the most readily accessible mode of transport for residents.
- The location of cycle parking must not obstruct the passage of pedestrians or vehicles.
- Adequate room must be provided for cyclists and cycles when using the parking provided and cycle parking must be appropriately spaced.
- Provision of cycle parking in the public realm should be explored near major public transport stops i.e. at the stop on the dedicated busway.
- All cycle parking must be secured and with good lighting (where applicable) and natural surveillance to provide personal security.
- The design of cycle storage and bin storage must be constructed, where houses are reliant on on-street parking or occasionally courtyard parking, cycle parking must be provided as integrated with building or in purpose built covered areas within rear gardens.
- Cycle parking should be provided along streets where possible.

Type of development	Number of spaces
Residential	<ul style="list-style-type: none"> • 1 space per bedroom up to 3 bedroom dwellings • 4 spaces for 4 bedroom dwellings (in accordance with CfSH standards), 4 spaces for 5 bedrooms, 5 spaces for 6 bedrooms, etc • some level of visitor cycle parking, in particular for large housing developments
Food retail	1 space per 25m ² (gross floor area) up to 1500m ² thereafter 1 per 75m ² .
Public halls and community centres	1 space per 15m ² of public floor area.
School	Cycle spaces to be provided on plot for 50% of children between 5 and 12.
Sports and recreational areas	1 space for every 25 m ² net floor area or 1 space for every 10m ² of pool area and 1 for every 15 seats provided for spectators.
Employment areas / office	1 space for every 30 m ² GFA, to include some visitor parking. 1 space for every 40 m ² GFA, to include some visitor parking (for general industry).

Table 8.4 Cycle parking

Note: taken from 'Cycle Parking Guide For New Residential Developments' Produced by Transport Initiatives LLP and Cambridge City Council

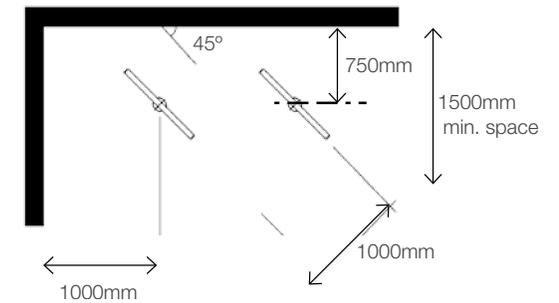
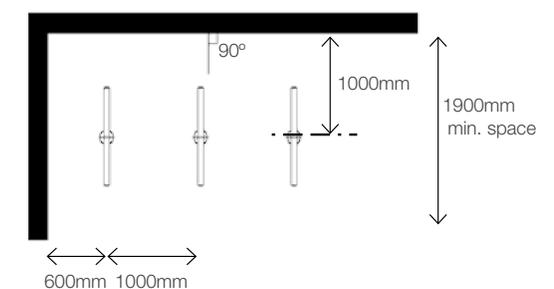


Figure 8.10 Parking arrangement for public realm – diagonal

Parking arrangement for public realm – parallel



Source: 'Cycle Parking Guide For New Residential Developments' Produced by Transport Initiatives LLP and South Cambridgeshire District Council



Sheffield cycle stand in public realm



Sheffield cycle stand in public realm

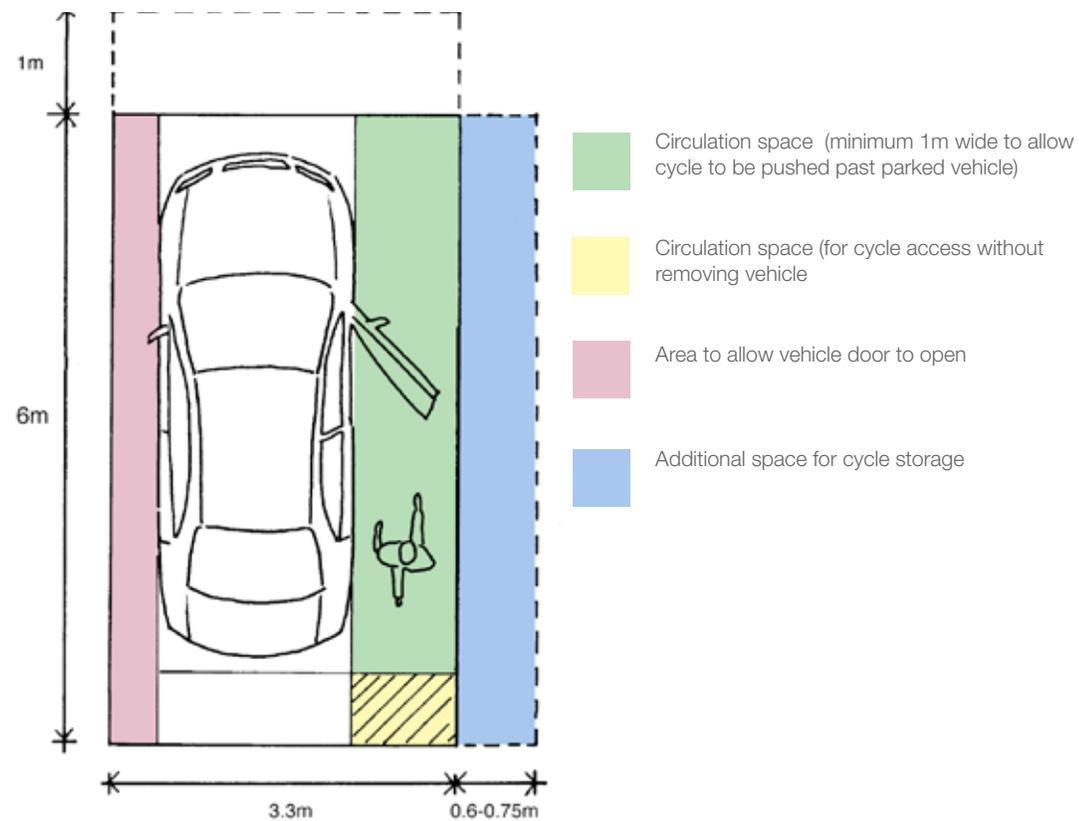


Figure 8.11 Approved garage dimensions
(Showing additional storage required for cycle parking if proposed in garages)

Source: 'District Design Guide : High quality and sustainable development in South Cambridgeshire'

Bike storage in residential units



To avoid cycles being parked in the public realm cycle storage should be provided with easy access



Secure cycle storage detail in units with garages

Bike storage in public realm



Bespoke high quality cycle storage shall be encouraged in the public realm



High quality cycle stand design placed with poor accessibility can lead to ineffective use

Bike storage in apartments



In apartments secure communal cycle storage should be provided. In the image above the additional visitor cycle parking spaces are provided

Cars

An average of **TWO** car parking spaces per dwelling for residential properties.

- All residential properties shall be provided with at least one allocated car park space.
- All properties with four or more beds shall be provided with at least two car park spaces.
- Visitor car parking will be provided on street. On street, unallocated parallel and perpendicular parking with high quality planting and public realm material will be provided to create an active street scene and as a traffic calming element.
- Car parking arrangements will mostly be provided as front access garages or driveways and therefore must be designed without being visually intrusive.
- Rear courtyard parking should be avoided unless by its inclusion a better quality public realm and street design are achieved.
- Garages must be located behind the building line, detached garages are most appropriate in lower density areas. Garages and gated drive-through parking must have sufficient room in front of them to allow for a car to be parked without blocking the public footway.
- Each garage must contain a double pin socket to facilitate on-plot recharging should residents wish to purchase electric vehicles.

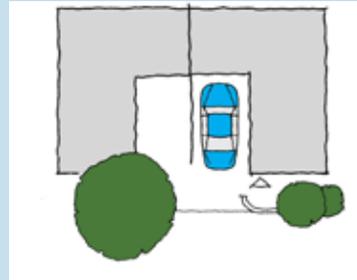
Key to achieving this structure will be to ensure sufficient on plot parking is provided.

The design of houses and streets must minimise the opportunities for people to park cars in places not intended for parking.

Table 8.5 General site wide parking arrangement principles

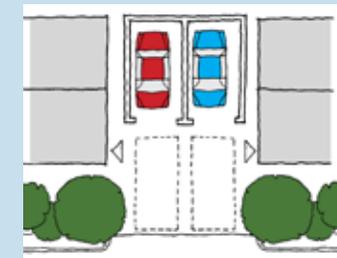
On-plot allocated *(this should be the preferred approach to allocated parking)*

Front access private drive



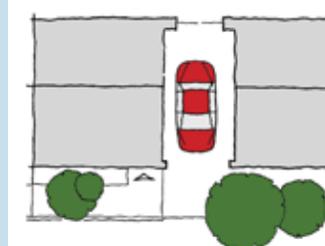
Front access private drives shall be provided with an appropriate boundary design without being intrusive to the street scene.

Front access detached garage



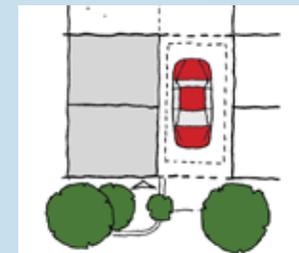
Garages must be located behind the building line and should allow sufficient spillout space, at least another car depth.

Front access attached garage



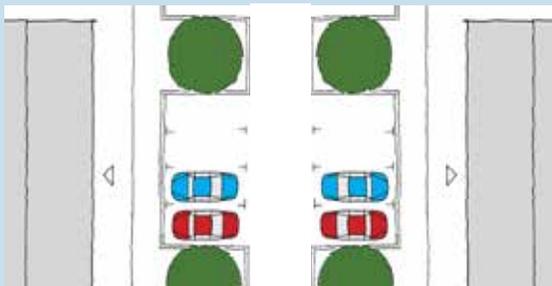
Attached garages shall be designed to create continuous frontage in high quality materials.

Front access drive through

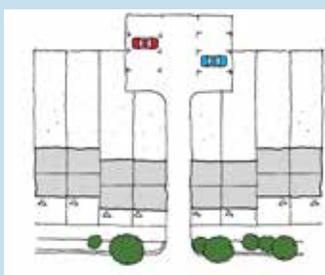


Front drives through parking spaces must be designed as integrated features of the properties with at least a car depth (approximately 5m) from the building line. Access to properties should be at the front of the property.

Off-plot allocated

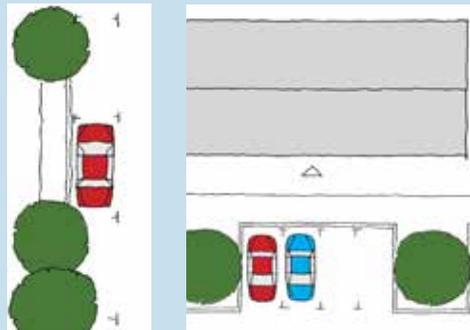


Parking mews shall be designed without being intrusive in the street scene / public realm.



Rear parking areas should only be provided when all the other options are exhausted. They should be provided with Secure by Design principles and must be carefully designed, small scale (max 8 parking spaces), well lit, overlooked and secured by a gate.

On street



Parallel parking areas must not be wide enough to encourage perpendicular parking.

In community areas



8.5 Bins and utilities

Refuse collection and bin storage

- The storage and collection of refuse and materials for recycling must be arranged so as not to visually or physically detract from the appearance of the development.
- The site layout must allow refuse and recycling collections to be conducted from the adoptable public road network.
- The private streets must be designed to accommodate refuse vehicles and must meet necessary standards with regard to turning areas and roadway construction.
- Within private driveways a suitable bin collection point must be provided at no more than 100m run or at a stretch distance of maximum five units whichever is smaller.
- On street parking must be grouped in no more than 5 to 6 nos to allow ease of movement for collection of refuse.
- Where possible post boxes should be located on the outside of apartment buildings not within controlled areas.

Table 8.6 Bins and utilities

TYPE	DESCRIPTION
HOUSING	<p>Storage areas for residential bins will need to allow for the following:</p> <ul style="list-style-type: none"> • Green bin - food and garden waste • Blue wheeled bin and paper caddy - recycling • Black wheeled bin - non-recyclable waste <p>A covered and enclosed designed structure must be provided with hard standing. The structure must be designed to have minimal impact on the public realm and be built with suitable material and sitting behind the building line. Bin storage provided at the side or front of the house must be designed as an integrated part of the housing unit and needs to allow sufficient size storage area. Detached storage structure of wheeled bins within front gardens or driveways is not permitted. When storage bins are provided in rear gardens, an appropriate alleyway should be provided to bring to the street on the day of collection. In terrace housing, alleyways / access must be provided for groups of 2/3 houses. Where bicycle storage is provided in the rear gardens, a single bespoke structure must be provided to incorporate cycles and bin storage.</p>
APARTMENTS	<p>For apartments, a single communal storage area for recycling and general waste shall be provided at ground level. Residents will be required to take their waste to these communal bins. The communal storage area shall either be provided within the footprint of the apartment block (preferred solution) or as part a high quality free standing structure constructed of the same material as the apartments.</p>
RETAIL/ EMPLOYMENT /PRIMARY SCHOOL	<p>Bin storage for retail uses shall be located within the internal service area. It must not be visible from the public realm.</p> <p>Bins for the primary school shall be stored in a free-standing structure constructed in the compatible material to the school building.</p> <p>For employment areas waste collection areas should be provided in the rear parking / service yards. Employment units adjacent to residential properties should be designed with due consideration of the impact of noise and smells on the occupiers of neighbouring properties. All non-domestic bin storage will include suitable dedicated space for the segregation and recycling of waste.</p>



Integrated design solution of bin storage to the front of properties are preferable



Location and detail of manhole should consider street surface



Bin storage provided in front, design of the building envelope should integrate the structure of bin storage to avoid detrimental street scene with exposed bins



Poorly detailed bins and cycle storage are not acceptable, design not responsive to the boundary height



Use of a soft boundary should be encouraged in communal bin storage areas

Recycling & waste in public areas

- Public litter bins must be provided in suitable locations within the public realm.

Utilities

- The utility systems will be installed in service corridors located within the adoptable highway.
- Features such as bus shelters, trees, on street parking, signage and seating shall all be located within service free zones as illustrated.
- Where trees are planted close to services root barriers shall be incorporated in compliance with the relevant service provider.

Figure 8.12 Primary street

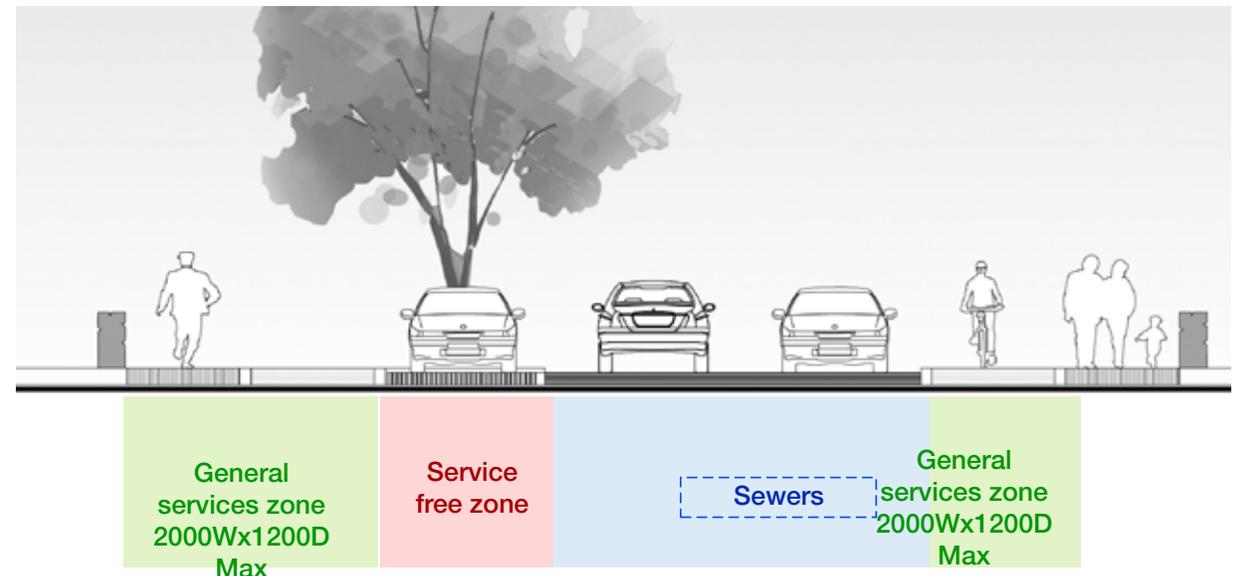


Figure 8.13 Secondary street

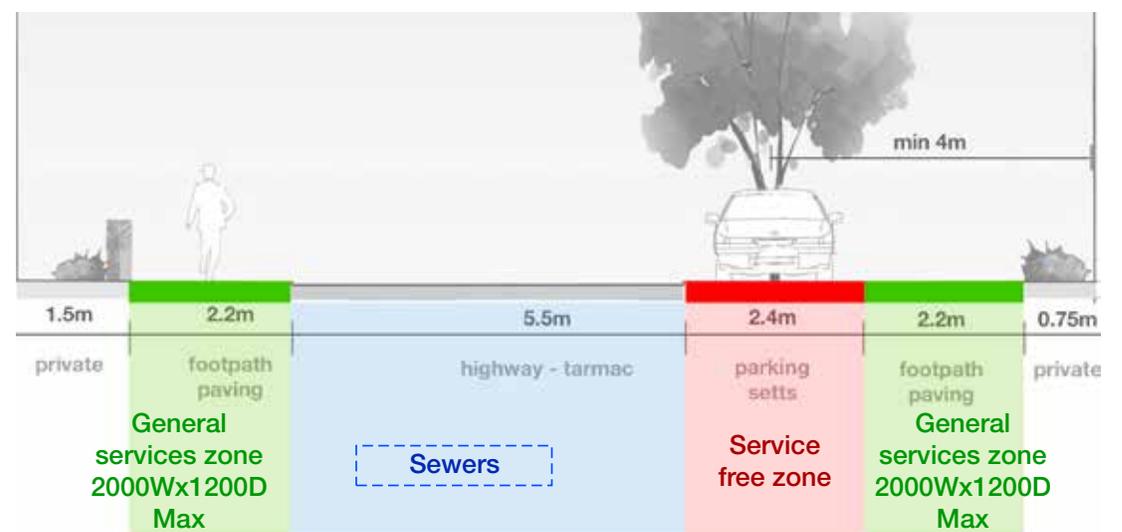
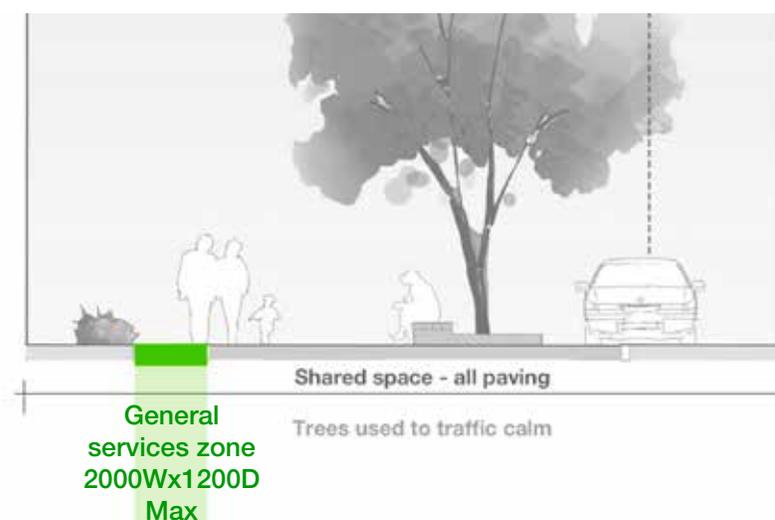


Figure 8.14 Shared space



Well designed utility box



G Utility boxes arrangements detrimental to public realm are not acceptable

8.6 Building design principles

Form

- Housing units should follow traditional building forms with local materials and should take design inspiration from local precedents.
- Public or civic buildings and a primary school will be designed as a landmark or marker building and can be contemporary in style with appropriate vernacular design features.
- Houses and non-domestic buildings should be designed to capture solar energy where possible whilst giving due consideration to risk of overheating and future climate change adaptation. See chapter 8.7 for more details.
- Where photovoltaic or solar hot water systems are utilised, these should be integrated into the building fabric and any other low carbon or renewable energy technology should be sensitively integrated with the building. Unless described differently in the identity area specific regulations, the general building form will allow for traditional pitched roofs.
- Use of chimneys is only acceptable when used as a functional element and not only for aesthetic purposes.
- Window and door design must demonstrate vernacular style, painted or stained timber being the preferred material.
- The facade design must demonstrate a clear rationale for the proportions of openings and must have vertical proportions.
- Flue extracts to boilers, wherever possible, must not be used on front elevations.
- For primary streets and squares, all gable ends must be detailed to avoid exposed blank walls, for example with a window, chimney or a hip roof.

Table 8.7 Materials & treatment

The following materials are excluded for use externally anywhere in the development area.		Basic material palette for roofs, walls and openings				
	<ul style="list-style-type: none"> • Cladding, soffits, fascia boards • Sand cement render • HCFC & CFCs • Untreated / unstained soft timber • Render in shades of red 	Roof tiles				
	Expansion joints in brickwork or render must be discreetly incorporated. Mortar must be pointed as appropriate for the brick type.	1. LIGHT COLOURED BRICK / CAMBRIDGE BRICK (75%)				
		2. DARK COLOURED BRICK (25%)				
		3. PAINTED BRICKS IN MUTED SHADES				
		4. RENDER				

For each of the identity areas in chapter 9 reference is made in the regulating plan to specific building types. These are explained below.

Landmark building

Landmark buildings will have strategic importance for the whole development. They will comprise both residential and civic buildings and should convey special importance or mark a key civic space.

Marker building

Marker buildings should be visually distinctive and aid legibility.

Primary frontage/building groups

Building frontages/groups should be designed as a composition and maintain higher levels of street enclosure.

Treatment of a corner block

Corner building guidance

Careful consideration should be given while designing corner units, especially when placed on the junction of key routes. Consideration should be given to the following combination of measures to improve the appearance:

- Where a private rear garden boundary is exposed to a roadway or open space it must be of high quality and form a continuous edge with the building frontage.
- Window arrangements on both street elevations of corner houses or end gables should be provided to a high quality.
- Exposed garages must be avoided at the end of the corner units.



Gable end on corner can be designed with appropriate openings to avoid blank walls



Property boundaries on all sides must be of high quality, high blank walls to the rear garden enclosure should be avoided



Blank walls on corner units must be avoided



Provision of garages must be avoided on the corner

Landscape guidance

The importance of corner plots can also be expressed through a landscape treatment. This may be through large specimen trees that terminate vistas, or, as in the image opposite, through the provision of a small public space. The façade of the building should still be designed to reflect the importance of the corner plot, but it may be framed or filtered by tree planting or similar. Where a landscape treatment is proposed, the proposals must demonstrate that the space is contained by the built form and that the public realm and architectural approach have been designed as a unified whole.



Landscape corner treatment

Transition zones

House builders must demonstrate harmonious street scenes despite changes in building typology along the dedicated busway and primary and secondary routes.

The code is not intended to prohibit innovative or distinctive architectural approaches, but there are a number of simple devices that help avoid architectural discord or a disparate streetscene. These are set out below and must be considered by designers when developing layouts to achieve a cohesive street scene:

- Building typologies, scale and rhythm must be closely matched to maintain the integrity of the street.
- Colours, materials and tones must be the same along the street.
- Street trees help with transition and it may be appropriate for the same species to be used along the street.
- There must be a consistency of heights of ridgelines, eaves height and overhang across the streets. Eaves should be well defined with a consistent overhang.
- Treatments of the public realm such as surface materials and street furniture must be used as a binding element.
- Boundary treatment and building set backs must be consistent on opposite sides of the streets.
- Plot widths must be similar or in proportion.
- Proportions of the facades must be aligned across the street.
- Front boundary treatment, windows and balconies must be coordinated across the street.



A good example of use of a simple material palette as a tool to harmonise the street scene despite different house types



Consistent boundary treatment can be effective to create a cohesive street scene despite colour changes in materials



The orientation of the gable end is different on opposite sides of the road however, the same angle of the ridge and the same pitch can be effective with simple materials



Use of consistent architectural style of entrances, doors windows and dormers



Views along streets are important, little thought has been given to the relationship of the building styles and finishes for three different development plots



Frequently differing architectural styles and house types must be avoided on key routes

Boundary treatments

The treatment of boundaries will be fundamental to creating a safe and secure environment for residents of Northstowe, as well as an attractive, unified and uncluttered streetscape. There are three boundary types:

- Front boundaries, where residential blocks interface with the street.
- Rear boundaries, where properties have common boundaries or share access to secure rear courtyards.
- Side boundaries where two properties meet or where private properties line the street.

All side or rear boundaries to the public realm on primary, secondary or tertiary streets must be walls. Walls must be consistent with building materials.

Front boundaries

Acceptable front boundary treatments are as follows:

- Railing.
- Dwarf wall (or dwarf wall with hedge or railings or both).
- Hedge.
- Picket fence (with or without hedge).

Generally brick boundary walls must be built in running courses over 5m or the matching course of the brickwork of the building or with sloping courses on shorter lengths. Robust and purpose made coping should be used on corners. Front boundaries should be no higher than 0.9m in height. Walls with railings should have brick piers at an appropriate distance.

Some boundary treatments are identity area specific, refer to chapter 9 (pages 134 to 171).

Rear and side boundaries

Rear boundaries to communal spaces, including car parking or public open space should address the following elements:

- The rear boundaries which back onto a secure central courtyard must allow surveillance of the parking area from habitable rooms whilst maintaining privacy for the rear gardens. The boundary between the gardens and the courtyard will be no less than 1.8m and no greater than 2m in height.
- The design of the boundary should match the design of the building.
- Honeycomb brickwork or concrete blocks are not acceptable.



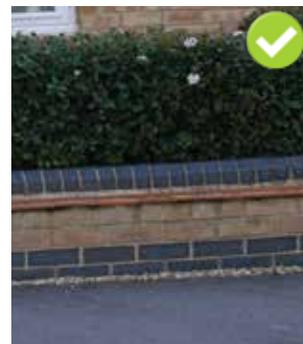
Good examples of low wall and hedging being used as front boundary treatment



Painted picket fence is an acceptable front boundary in a selection of identity areas. Refer to pages 134 to 171.



Formal hedging as an acceptable front boundary treatment



A range of coping details



Illustration above shows ornamental treatment in the brick wall, this could assist people to climb the walls and must be avoided



Brick or stone wall boundary – 1.8m high with common coping details on primary / secondary street

8.7 Sustainability strategy

Development at Northstowe aims to integrate sustainability in all aspects of design and construction. This section provides guidance on specific sustainability standards and design considerations to inform Phase 1.

Proposals should also give consideration to the “Northstowe Development Framework Document Addendum: An exemplar of sustainable living”, which was prepared by SCDC and the Joint Promoters and endorsed by the Northstowe Joint Development Control Committee in October 2012.

Code for Sustainable Homes

All homes shall meet a minimum Level 4 of the Code for Sustainable Homes.

In the event any future development parcels are unable to be registered under the Code developers will be expected to demonstrate how the sustainability principles outlined within this document have been implemented.

Lifetime Homes

All affordable homes shall meet Lifetime Homes Standards.

BREEAM

All non-domestic buildings should target a BREEAM Very Good (2011) rating as a minimum.

Buildings are encouraged to achieve Excellent where this is considered feasible and viable.



Solar panels and photovoltaics should be designed into the roof structure as opposed to being placed on top

Sustainable low carbon living

- The design of individual buildings should demonstrate a holistic energy conservation strategy through a fabric first approach.
- All homes must be fitted with low energy lighting, and energy efficient white goods, where specified.
- At a master planning level, the developer should where possible orientate new homes and buildings to optimise passive solar gain, whilst suitably safeguarding risks of overheating.
- Layouts of individual dwellings and buildings should consider optimising solar gain through appropriate design measures and consider:
 - Provision for solar gains through south facing glazing
 - Control of heat loss to avoid losing solar gains
 - Efficient and responsive heating appliances and controls
 - Comfort and amenity
- All design solutions should reflect distinctiveness of character areas.
- Details of public transport and car sharing schemes should be provided in every home user guide.
- All homes will have provision for safe, secure and accessible cycle storage.
- All non-domestic buildings will have suitable cycle storage in close proximity to the building entrance.
- At least one internal/external electrical socket must be supplied at each garage to allow for access to ‘hook up’ an electric car.
- All non-residential areas should consider the requirement for EV charging infrastructure in accordance with the EV Charging Strategy.
- Developers should refer to the Phase 1 Sustainable Low Carbon Living Strategy and the accompanying Action Plan and provide relevant information and details of sustainability measures to be adopted.

Low carbon and renewable energy technologies

Developers are required to consider low carbon and renewable energy technologies in accordance with Part L of the Building Regulations and the Code for Sustainable Homes.

- When specified these should be integral to the overall design of development parcels and individual homes and buildings.
- Systems should be appropriate to individual character areas and consistent across streets as far as possible.
- Where they are not specified but considered feasible provision should be made to allow homeowners to integrate systems without adversely impacting the design and aesthetic of the character areas.
- Full details on the operation and maintenance of low carbon or renewable energy technologies should be provided in the Home User Guide as well as financial and environmental benefits of their correct use and upkeep.

Resource efficiency

- Locally and sustainably sourced materials should be favoured.
- All timber used must be from accredited sources and demonstrate a chain of certification.
- All buildings must minimise the use and disposal of water in accordance with the Phase 1 Water Conservation Strategy through the use of high efficiency fittings, low flush cisterns and provision of rain water butts in all private garden areas.
- All homes should target water consumption of <105l/p/day.
- Rain water harvesting is to be considered within all non-domestic buildings to contribute to resource conservation.
- All homes should include built in recycling bins internally in accordance with the requirement of the Code for Sustainable Homes.
- Apartments should consider suitable communal recycling facilities.
- All private gardens are to be provided with composting bins and where this is not possible 'blockwide' bins must be provided.

Future communications

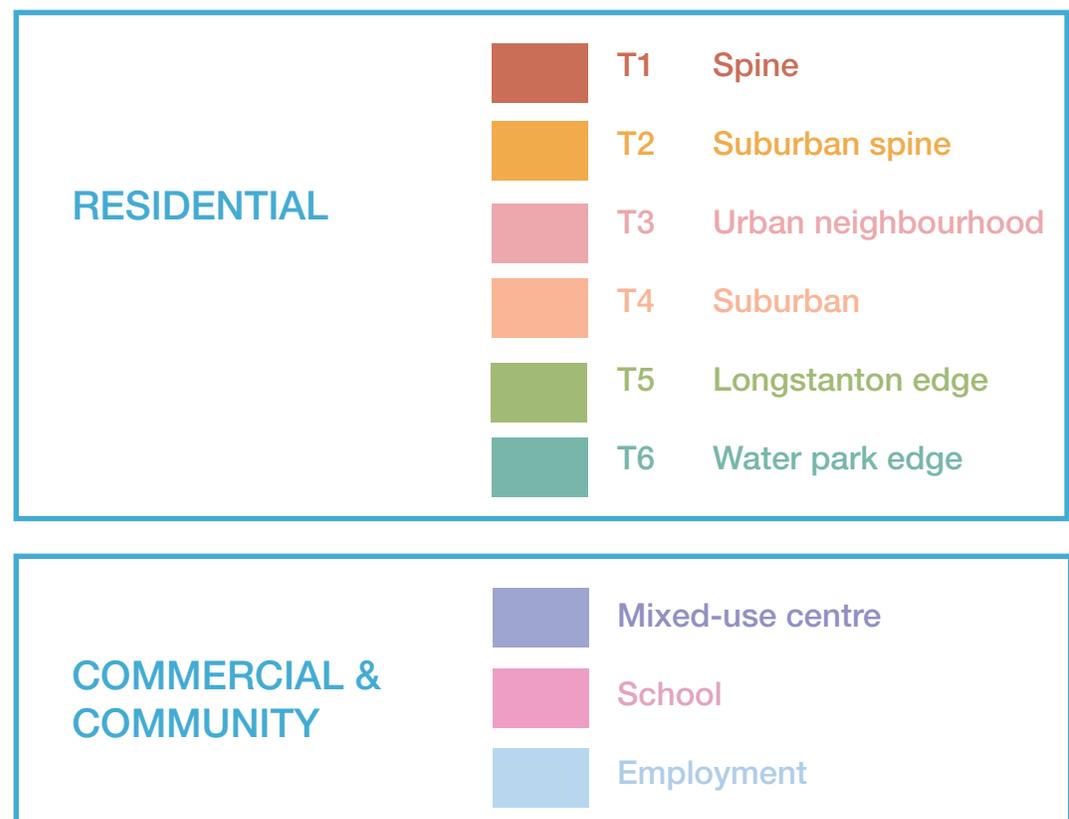
- All development parcels should have fibre optic telecommunications connectivity with a dedicated connection to each home and non-domestic building.
- Installation of smart meters to monitor gas/heat and electricity consumption should be considered in accordance with the national Smart Metering Implementation Programme.
- All homes should be installed with a simple and easy to use display energy monitor within the dwellings.

Climate change

- All development parcels should give full consideration to future climate adaptation and ensure the risk of overheating is minimised.
- Ventilation and air tightness solutions should carefully consider overheating and potential impact of urban heat.
- Consideration of solar shading and thermal buffers should be designed-in from the outset in the context of the Phase 1 landscape and green infrastructure.
- House types that address the north side of the street should have a different layout to the south side of the street.
- House types that have a south-facing front elevation should consider a deeper front garden with provision for amenity space in direct sun.
- Developers should ensure all south-facing windows and glazed door openings can be shaded during summer, by means of a fixed louvered shade, vegetation, projecting eaves or gables, awnings and canopies.
- Provision of new green or blue infrastructure within development parcels should be related to the wider Phase 1 green and blue infrastructure with suitable connectivity.
- Consideration should be given to green roofs and walls for all non-domestic buildings.
- A sustainable urban drainage system (SUDs) will be implemented across the site as part of the advance infrastructure works. One of the objectives is to provide mitigation for flood risk.
- Developers will be required to lay porous paving and manage rainwater disposal within plots and manage outfalls to the SUDs or conventional drainage system, in accordance with the approved drainage strategy for development in Phase 1.

9. IDENTITY AREA SPECIFIC CODING

This section provides guidance on identity areas. The identity areas are illustrated in the figure opposite. The area specific guidance should be viewed alongside the parameters plans.



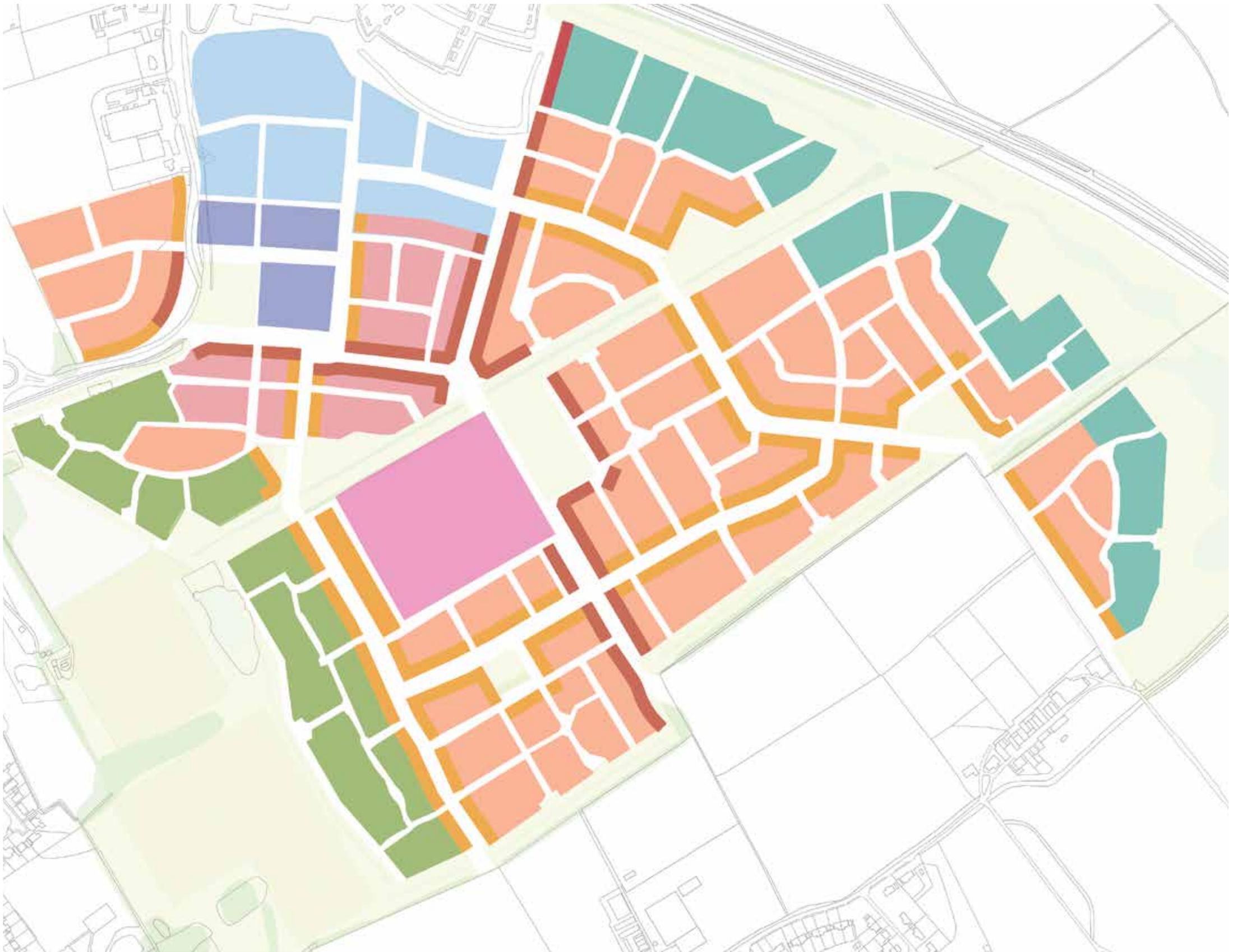
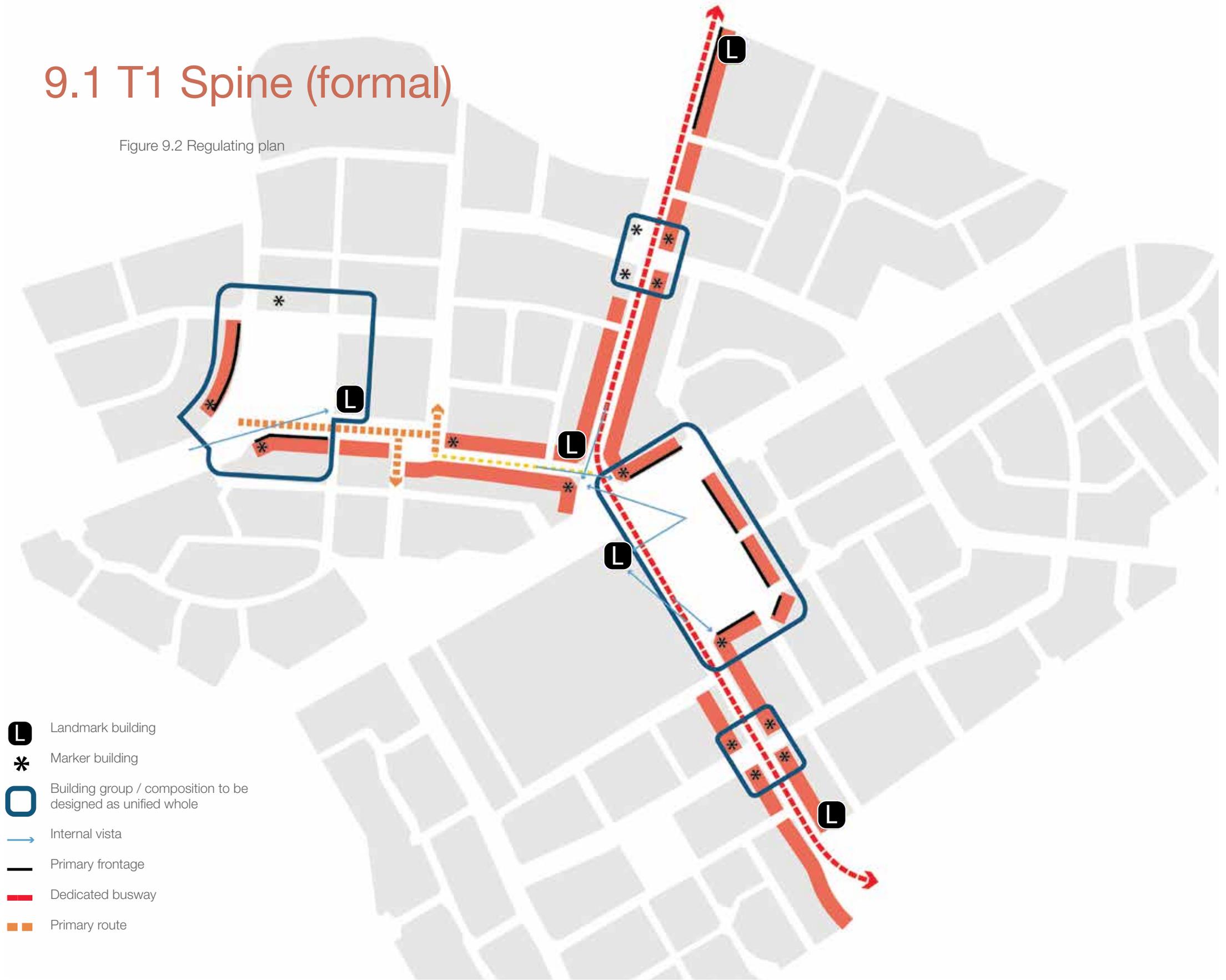


Figure 9.1 Identity areas

9.1 T1 Spine (formal)

Figure 9.2 Regulating plan



-  Landmark building
-  Marker building
-  Building group / composition to be designed as unified whole
-  Internal vista
-  Primary frontage
-  Dedicated busway
-  Primary route

Guidance based on local precedents

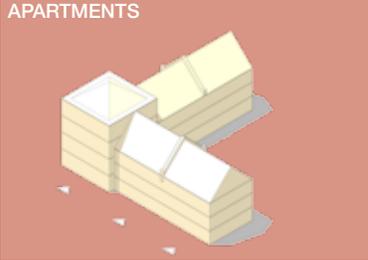
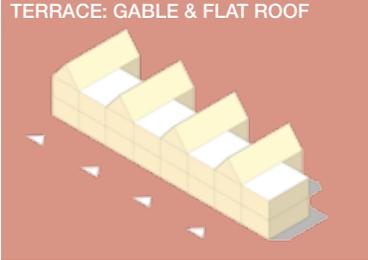
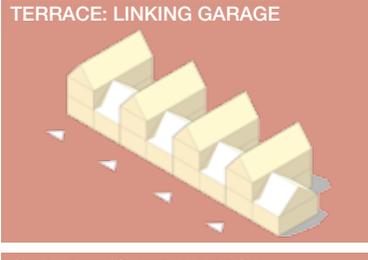
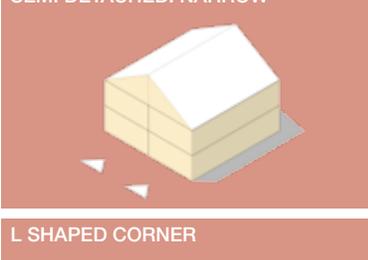
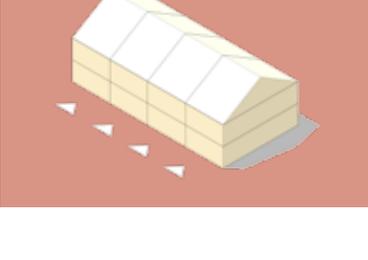
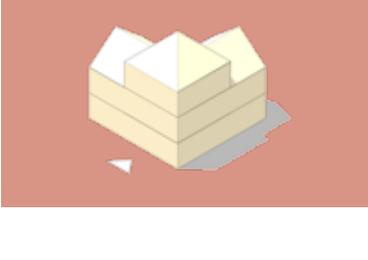


- Predominantly 2 to 3 storey buildings with opportunity for higher landmark buildings.
- Limited variance in heights (no more than 20% variation)
- Consistent roof line, pitch and height
- Marker / landmark buildings terminate vistas along approach to space - see definition on page 128
- High level of enclosure around public squares and the approaches to them - (75%)
- Primarily buff brick with occasional red brick
- Consistent and simple palette materials used in the public realm
- Consistent building rhythm on streets approaching local centre
- Continuous frontage into and around the central spaces
- Buildings close to the local centre should be built with higher ground floor to ceiling heights to provide flexibility of change of use

Urban form

	MANDATORY REQUIREMENTS	COMMENTS
DENSITY	Up to 42 dph for buildings on spine, in the local centre and park.	Density ranges could overlap as the regulating plan provides an up to limit. Dwellings fronting the civic green and community park should exhibit highest density, decreasing away from the square.
BUILDING HEIGHTS	Up to 4 storeys (15m in the context of the parameter plans) for marker and landmark buildings fronting the square and on approach to the local centre - gateway square. Higher proportion of taller buildings (up to 3.5 storey fronting the local centre 2-2.5 storey across the majority of the identity area Building heights should be mirrored on each side of the spine road.	Architectural detail to act as landmark would justify taller element of the school.
SPATIAL ARRANGEMENT	Linear street arrangement focussed towards the civic green and community parks Clear hierarchy of streets and spaces.	
BLOCK TYPES	Linear blocks.	Range of sizes, for instance enabling rear servicing road or occasional private drive along dedicated busway.
FRONTAGE SETBACKS	0.6m minimum. 2.5m maximum. Primary school set back maximum 15m.	Consistent setbacks should be provided to groups of at least five units.

Illustrative building typologies

BUILDING TYPOLOGY	SETBACK & PARKING	
APARTMENTS 	Narrow setback 0.6m-1.5m Parking solutions: • on street • courtyard	
TERRACE: GABLE & FLAT ROOF 	Setback: 0.6m-2.5m Parking solutions: • front access attached garage • front access drive through • rear on plot	
NARROW TERRACE: SAWTOOTH 	Narrow setback 0.6m-1.5m Parking solutions: • rear on plot • front access drive through courtyard	
TERRACE: LINKING GARAGE 	Setback: 0.6m-2.5m Parking solutions: • front access attached garage • front access drive through • mews	
SEMI DETACHED: CORNER T SHAPE 	Narrow setback 0.6m-1.5m Parking solutions: • front access drive through • front access attached garage	
SEMI DETACHED: NARROW 	Narrow setback 0.6m-2.5m Parking solutions: • front access drive through • front access attached garage	
NARROW TERRACE 	Narrow setback 0.6m-1.5m Parking solutions: • rear on plot • front access drive through courtyard	
L SHAPED CORNER 	Narrow setback 0.6m-1.5m Parking solutions: • rear on plot • front access attached garage • courtyard	

Generally regular set backs should be used. However localised narrowing or widening can be considered to accentuate thresholds and/or gateways.



G Figure 9.3 Indicative sketch showing grouping of typologies

Building plots and typologies

	MANDATORY REQUIREMENTS	COMMENTS	IMAGE
PLOT WIDTHS	Regular plots widths. Narrow plots with gable ends to be common along street.	Development parcels on both sides of the spine should have unified approach to plot widths.	
BUILDING TYPOLOGY	Repeated typologies should be used in groups (no less than four properties) to emphasise rhythm. A higher proportion of terrace and semi-detached should be used along the spine.	Flats / apartments could be used as a landmark or to hold corners. Flexible ground floor design should be considered to provide opportunity for live/work units	
BUILDING RHYTHM	Strong formal regular rhythm. Repeated vertical emphasis should be used. There must be a unified rhythm mirrored on each side of the street.	Development parcels on both sides of the spine must demonstrate a unified and cohesive vertical expression.	
BUILDING GAPS AND ENCLOSURE	High level enclosure (80% - 90%). Squares and parks are to be defined by a continuous building frontage. Freestanding outbuildings and garages should be avoided.		
ROOF FORM	Predominantly repeated gabled roof forms at 90 degrees to the spine road. Occasional variation in roof pitch could be acceptable on landmark or marker buildings. Flat roofs should not be used with the exception of the primary school or where a clear design justification can be given.	An alternative could be used if there is a clear townscape need and the rationale is justified. Chimneys are not necessary but if they are used they should be functional. Ornamental and aesthetic feature chimneys are not acceptable. Primary school and community building should incorporate a proportion of green roof, green wall or brown roof.	
BOUNDARY TREATMENTS	Formal boundary treatments should be implemented; a low wall with black metal railings or a low wall with hedging, shallow setback (front garden). The small area of private frontage should be distinguished from the public realm through surface treatment. Boundary treatments must be unified on both sides of the spine road.	Materials and boundary treatment should be unified and complementary across and along the street to create a cohesive street scene. Where a change occurs this should have matching elements to create a transition.	

Narrow, regular plots in small groups

Vertical rhythm

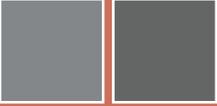
Continuous frontage

Pitched roof dormer windows

Gable end facing the street

Black metal railings above a low wall

Materials and details

	MANDATORY REQUIREMENTS	IMAGE
<p>MATERIALS - ELEVATIONS</p> <p>Colour palette: Brick</p>  <p>Painted brick</p> 	<p>Predominantly brick. buff/white Cambridge brick and multi stock brick. The same bond must be used in abutting units. Timber and hanging tiles are not acceptable. Limited use of red brick is acceptable. The primary school building can use other materials to provide a suitable landmark in the townscape.</p>	 <p>Cambridge buff brick</p>  <p>Painted brick as a landmark</p>
<p>MATERIALS - ROOF</p> <p>Colour palette:</p> 	<p>Predominately grey tiles with occasional browns and red colours used for marker buildings and landmark buildings.</p>	 <p>Grey colour tiles</p>
<p>FENESTRATION</p> <p>Colour palette:</p> 	<p>Vertical emphasis is desirable in fenestration. Detailing of fenestration must be designed to achieve a unified appearance along and across the street. Colours must be consistent across the street.</p>	 <p>Vertical emphasis - fenestration</p>
<p>RAINWATER GOODS</p> <p>Colour palette:</p> 	<p>High quality guttering details should be provided (black or dark grey).</p>	 <p>High quality black guttering</p>

Material palette

The following material palette provides guidance for the ratio of the use of materials on the spine areas, with the aim being to create neighbourhoods which are both locally distinctive and integrated.



Spine demonstration area

The spine will demonstrate a formal arrangement, in response to the dedicated busway and primary street leading to the local centre, as highlighted in the plan opposite. The formal nature of the identity area will be achieved through consistent building lines, building separation and building setbacks. Street widths will remain constant, as will the treatment of the public realm, unifying the identity area. Urban boundary treatments must be used and will include railings and a combination of dwarf walls and hedging. Building heights should vary along the length of the identity area, however a maximum differential of 1 storey over a run of 6 dwellings must be observed.

Illustrative plan of typical area within the spine identity area

- | | |
|---|---|
| ① Primary street | ⑥ Enclosure to busway and public realm |
| ② Secondary square at junction (see p.107) | ⑦ Consistent building line |
| ③ Dedicated busway | ⑧ Consistent setback |
| ④ Private drive for residents | ⑨ Formal boundary treatments, hedge, wall and hedge, railing acceptable |
| ⑤ Paving bands break linear busway; pedestrian friendly areas | ⑩ Short terrace runs of no more than 6 |



Figure 9.4