



DESIGN GUIDE NEW RESIDENTIAL AREAS

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FOREWORD

(This will be signed by a member of senior management or appropriately identified Council official)

Development and Regeneration Services
Land and Environment Services





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PURPOSE AND VISION

Glasgow's *Design Guide for New Residential Areas* builds on and interprets the guidance set out in *Designing Streets*, taking cognisance of the City's physical context and policy requirements, to assist in the delivery of better designed new residential areas.

The Guide draws together the Council's key planning and road design requirements. It will be used by Council officials to support their assessment of proposals that require planning and road construction consent. Developers and all professionals involved in the regeneration of the City should use it to understand Glasgow's expectations for the design of new residential areas. The Guide seeks to provide a clear and consistent approach to design, embodying the core principles of *Designing Streets*, to deliver higher quality neighbourhoods and efficiency savings for developers. Its principle aims are:

- To promote best practice and improve the process for obtaining planning permission and roads construction consent;
- To provide developers/applicants with easy-to-use guidance that explains the steps necessary to secure planning and road construction consent in the most time-effective and consequently cost efficient manner;
- To promote the creation of safe and integrated neighbourhoods that offer choices of movements for all users and foster healthy active lifestyles; and
- To encourage overall quality and distinctiveness in new developments.



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STATUTORY CONSENTS

The current policy context to the planning approval process is set out in the local development plan: *Glasgow City Plan 2* and the strategic development plan: *the Glasgow and the Clyde Valley Strategic Development Plan 2012*. Development of new residential areas would require:

Planning Permission in Principle, followed by **Approval of Matters Specified in Conditions**

or

Planning permission;

and also require

Roads Construction Consent for associated new roads and Road Bond where appropriate;

and (if required)

Written consent (Section 56) from the roads authority for any works on or adjacent to the existing public road.

(See Appendices 1 and 2 for further guidance)

EXECUTIVE SUMMARY

This document sets out guidance for developers and designers of new residential areas. It is based on the principles set out in *Designing Streets*, the Scottish Government's policy on street design, and makes it clear how Glasgow City Council will deal with applications for planning permission and relevant related Roads consents.

When considering a residential development, the developer will now be required to take on board the six Core Principles set out in the Guide. The developer must then carry out appraisals of the site and its context, and form a conceptual strategy which will be developed into a detailed design. Both the urban design and street layout will need to be considered as part of this. The design of a new development therefore will be informed by the local characteristics, topography and setting, and this should result in a development which has a distinctive identity. The process should involve discussions with both the planning and roads authority at key points, starting before the detailed design is reached. A design audit which confirms how this process has been followed, and how this has influenced the resulting design, will need to be submitted with any application for planning permission.

As Sustainable Urban Drainage Systems (SUDS) need to be provided for new housing developments, it is important that a drainage strategy is worked out for the whole development at an early stage, and should form part of the conceptual layout. The surface water drainage requirements can have a significant effect on the layout of the site.

The design and layout of new residential areas should create a network of streets, places and paths which will encourage walking and cycling. The network should be clear, easy to navigate and allow cyclists and pedestrians to feel safe.

New streets should provide an attractive environment for pedestrians by slowing vehicle traffic, normally to a maximum of 20 mph. This should be achieved, where possible, by a combination of urban form, junction and carriageway design, rather than vertical traffic calming measures.

Good public transport provision should be available at the initial phase of any new residential development, either by linking to existing networks or providing new routes. Pedestrian and cycle routes should be linked to public transport provision, and proposed bus routes and bus stops should be marked on the plans submitted for planning permission.





The width of the street is important. If streets are too wide this does not create a positive sense of place and community. Streets now often have to accommodate swales and other sustainable urban drainage features as well as pedestrian footways, the carriageway and street trees. Private parking in front gardens also makes streets wider, and means that cars become over-dominant in the street. Front gardens should be reduced to between 2-4 metres to discourage front garden parking. Parking spaces and garages should be located to the side of dwellings or in rear gardens or parking courts.

In order to maintain an appropriate street width, carriageways can be reduced to 4.8 metres wide, except where they are identified as a public transport route which would remain 6 metres wide. Where streets are 4.8 metres wide they should widen out in appropriate places to provide visitor parking in bays of 2.5 metres wide. The design should make it clear to drivers which areas are suitable for on-street parking.

Street trees are encouraged as part of the public street, to enhance biodiversity and link habitats. They can also help to provide a human scale to the proportions of the street. Street trees can also have a traffic calming effect, as they reduce visibility down a street, making car drivers slow down.

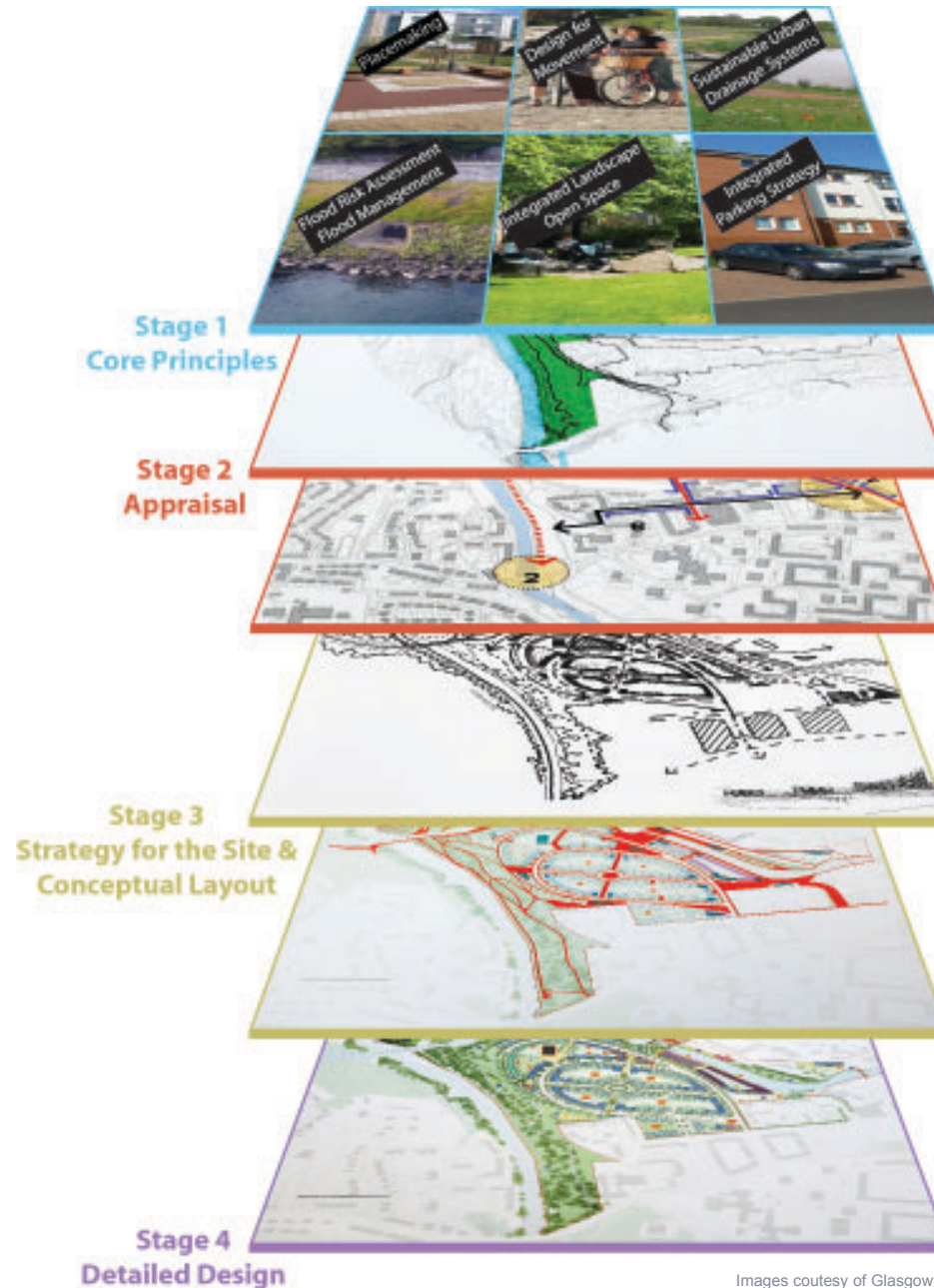
Open space should be provided within new residential developments and linked to existing open spaces. It should be clear from an early stage in discussions who would be responsible for the maintenance of open spaces including both hard landscaping such as public realm areas, and green space or parkland. In smaller developments, designers should consider areas of “playable” space which provides opportunities for children’s play in landscaped spaces without traditional play equipment.

Shared surfaces, where the carriageway is shared by vehicles and pedestrians, should only be considered where the volume of traffic is low and consists mainly of residents of that street. Vehicle speeds in shared surface roads should not exceed 10 mph and the road layout and design should encourage this. Street materials, if they are not asphalt, should be discussed with the roads authority at an early stage.

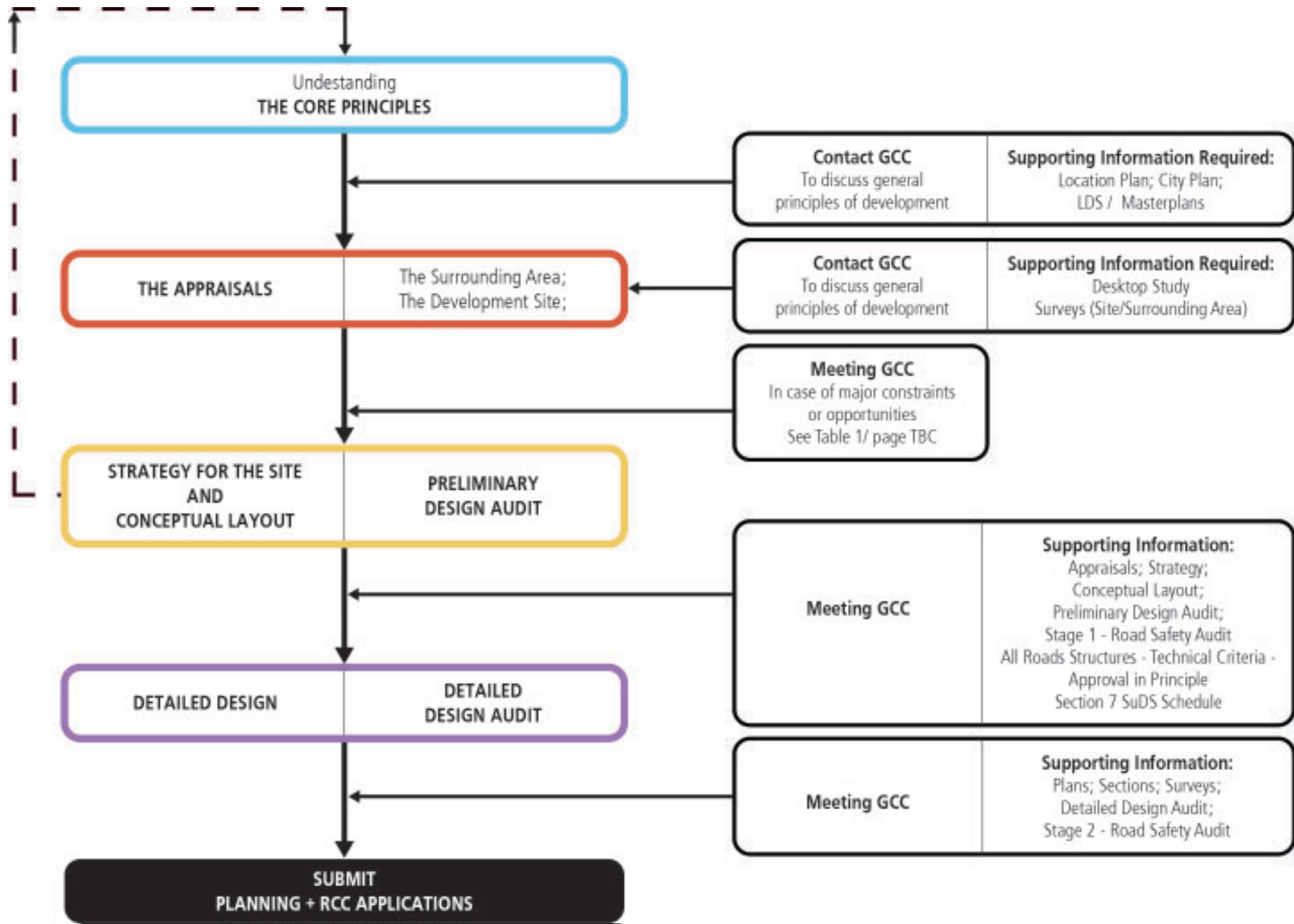
DESIGN GUIDE: THE PROCESS STAGES

The Design Guide sets out what is expected of both the Council and developers when considering new residential developments. It breaks the process into key elements that, taken together, represent a holistic approach to the design. Applicants should demonstrate, through these process stages and a Design Audit process, that all core principles have been successfully addressed.

The Design Guide identifies the supporting material, evidence and criteria that the Council will use to assess proposals at each stage. The Guide will also identify those stages where it is either advisable or recommended to meet with Council officers.



Images courtesy of Glasgow Canal Partnership/ Elder & Cannon





STAGE 1

GETTING THE BASICS RIGHT

1.0 UNDERSTANDING THE CORE PRINCIPLES:

- Placemaking
- Design for Movement
- Sustainable Urban Drainage Solutions
- Flood Risk Assessment & Flood Management
- Integrated Landscape and Open Space
- Integrated Parking Strategy

1.0 UNDERSTANDING THE CORE PRINCIPLES

Objective: *At this stage the developer is required to gain an understanding of Glasgow's Core Principles for the design of new residential developments. These should inform the concept of the design from its inception and form the basis of all the subsequent stages as identified in the Design Guide.*

PLACEMAKING

New developments should have a distinctive and positive identity. Buildings, streets and open spaces should be designed to generate an understandable layout by way of routes, informal spaces and key focal points that provide a sense of place. In designing new developments, full account should be taken of the characteristics of the site. Both place and movement should be given equal consideration. A feeling of safety should be provided through natural surveillance.

The design of new residential developments should:

- create safe, welcoming spaces and provide opportunities for informal interaction among people;
- create a locally distinctive design that takes account of the aspect and orientation of buildings in relation to streets and amenity space and that enhance views in and out of the site;
- consider built forms and key physical features which generate active street frontages and are arranged to reinforce the presence of gateways or to enhance features that create visual interest;
- provide a mix of housing types that respond to community needs and the desire of residents to remain in a local area as their needs change. Thus, new developments should be designed to allow for a degree of adaptability both within the curtilage of the property and within the open space;
- include integrated community facilities where these are deemed sustainable, with the aim of decreasing dependency on the car to access general facilities, and to foster a sense of community among residents;



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DESIGN FOR MOVEMENT

The relationship between buildings, spaces and the routes that connect them plays a fundamental role in the creation of distinctive places and walkable neighbourhoods. The design of new residential developments should:

- create an integrated permeable network of streets, footways, paths and spaces that are conveniently connected and offer choices of movement;
- identify and link pedestrian and cyclist desire lines to the surrounding network; avoid segregation of different modes of transport;
- provide key links to any existing local communities, facilities, schools, shops, public transport, hospitals etc;
- identify carefully considered and potentially commercially viable public transport routes to, from and through the site; and
- ensure all dwellings are served by a potentially adoptable road.

The control of vehicle speeds and vehicle routing is crucial to the successful creation of a sense of place and will be discussed in the Detailed Layout section of this document.

SUSTAINABLE URBAN DRAINAGE SOLUTIONS SYSTEMS (SUDS)

Climate-change and the need to consider the capacity of the existing sewer infrastructure are two key factors that have driven the need to identify more sustainable drainage solutions for all forms of new development. There is now a legislative requirement to provide SUDS. The design of new residential developments should apply the following principles:

- SUDS must be an integral component of the design from its inception, with the connections into the wider network identified.
- All parts of a shared surface water system for road and curtilage water must be designed to allow future adoption/vesting by an in perpetuity body. This will normally mean Scottish Water and/or the Council.
- SUDS should be developed in conjunction with the roads layout and landscape strategy, have regard to any sensitive environmental receptors and be integrated with the wider wetland habitat networks.

Initial investigations on drainage and SUDS should establish the soil and hydrological

conditions of the area and the site. The design principals should be agreed with the Council including future regime for maintenance, discharge location and methodology of calculating surface water discharge rates.

Developers should also note the following:

- The appropriate levels of SUDS treatment should be provided in new developments to meet the requirements of the *Water Environment and Water Service (Scotland) Act 2003*. In most cases housing will require one level and the road network will require two levels of SUDS treatment.
- Any in-curtilage SUDS (private) should have a strategy for long-term maintenance.
- Whole Life Costs (*WLC model*) and future maintenance issues will be key to the successful selection of any given SUDS design.

Glasgow City Council and Scottish Water have (*not yet signed*) entered into two legal agreements to allow for shared surface water drainage systems. (*See chapter 3.3.3 for details*)



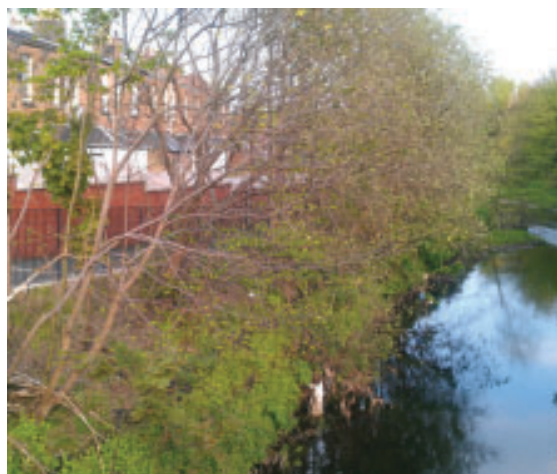
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FLOOD RISK ASSESSMENTS AND FLOOD MANAGEMENT

A key requirement for any development is flood management and determining any potential flood risks. All developments should be screened to determine if there are any potential flood risks from the following sources:

- Fluvial (flooding from rivers and burns)
- Pluvial (ponding of rainwater which has not entered any drainage network, normally occurring in low lying areas)
- Sewer
- Overland flow/Flood Routing
- Ground water

If any of the aforementioned flooding sources are identified there will be a requirement to carry out a Flood Risk Assessment. The Council's Flood Management team should be consulted at the conceptual stage of all development to discuss these requirements. Details of the main requirements can be found in the Council's *Flood Risk Assessment and Drainage Impact Assessment: Planning Guidance for Developers*



INTEGRATED LANDSCAPE AND OPEN SPACE

Well designed landscapes and open spaces can add more value to high quality housing and provide a commercial advantage in a competitive marketplace.

The design of new residential developments should:

- link key landscaped features, biodiversity elements and public open space to form an integrated green network within the site and the wider area. Where this is not possible, close and distance views should be established as a means of indirectly linking green areas, with green 'stepping stones' provided by planting and/or street trees;
- design landscape elements that are multi-purpose and connect to each other;
- design landscape features to take full cognisance of existing movement patterns, the location of housing and site topography;
- clearly identify both formal and informal open spaces. These spaces should have a sense of purpose and be appropriately located to foster ownership and stewardship by local residents; and
- put in place a sustainable long-term maintenance strategy.



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INTEGRATED PARKING STRATEGY

The way parking is handled is a major factor in determining the quality of a residential development. Parked vehicles affect how places look and can create visual and psychological barriers to residents affecting the overall perception of safety for residents and visitors alike.

Good design should accommodate the requirements of car users. Parking should be located to minimise its visual and physical impact in the surroundings to avoid creating a car-dominated environment.

The current parking standards are set out in City Plan Policy [TRANS 4 Vehicle Parking Standards](#). See also Section 3.3.2 Parking Provision and Layout for detailed guidance.



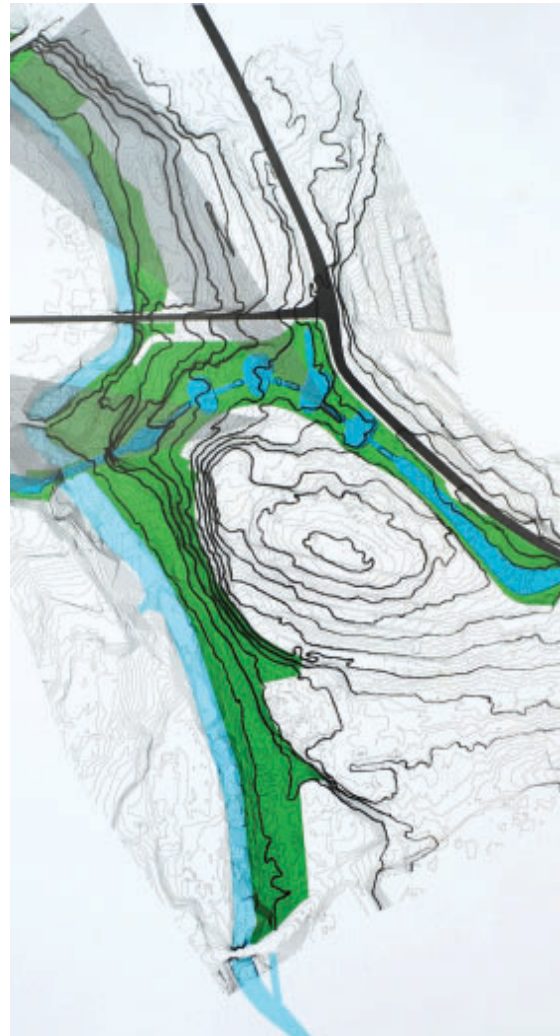


STAGE 2

2.0 THE APPRAISAL

2.0 THE APPRAISAL

Objective: *At this stage the developer is expected to gain a full understanding of the site and its wider context by carrying out a series of desktop studies. These will emphasise its physical characteristics, constraints and opportunities. The outcome of the Appraisal should be interpreted in light of the Core Principles as examined in Stage 1*



The appraisal should be split into three phases:

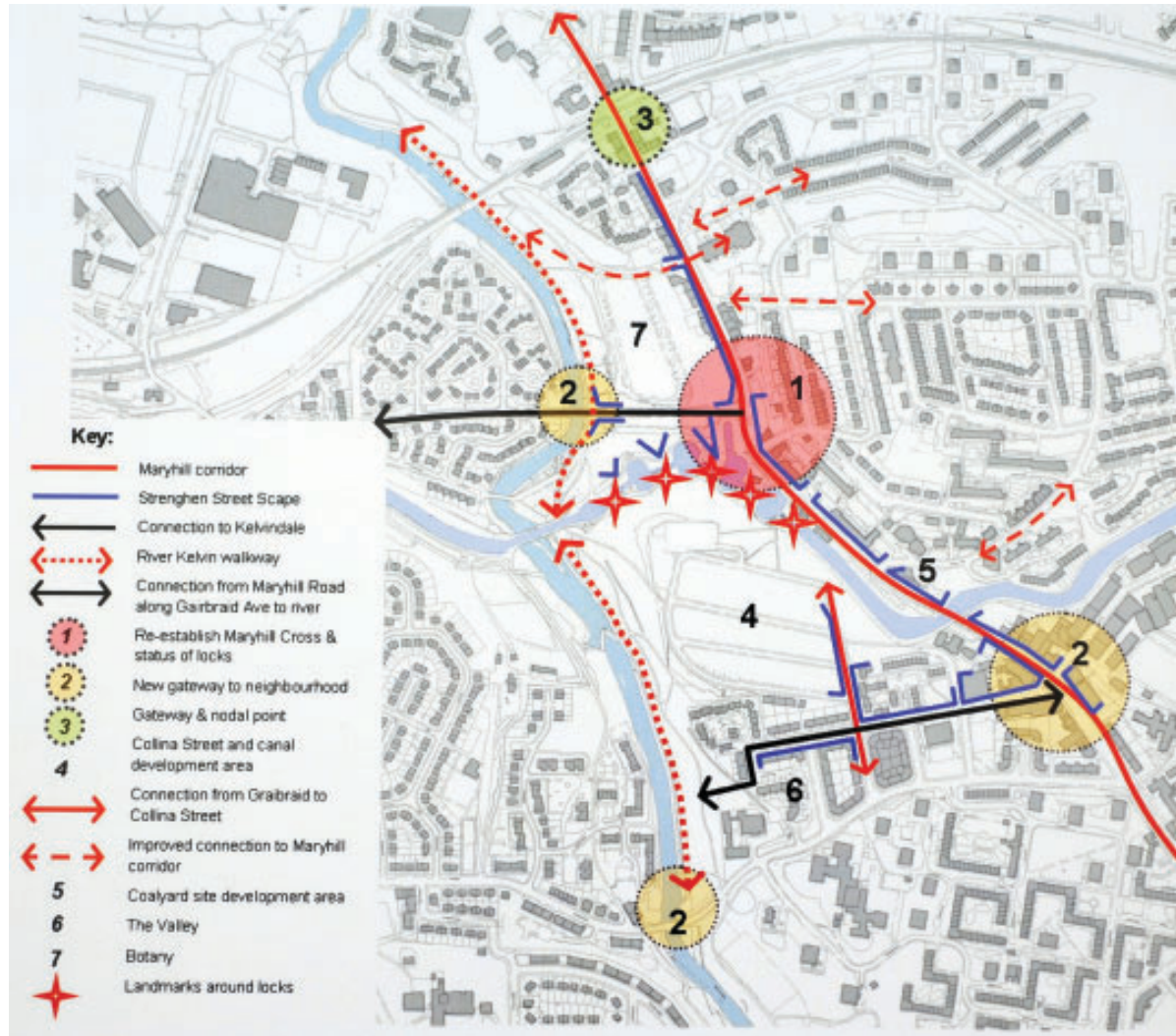
- 1** - A desktop study as detailed in **Table 1** below. This should identify any key constraints and opportunities which will influence how the site is developed.

TABLE 1

- Planning Policy History
- Site History
- Site Ownership
- Listed Buildings / TPOs
- Utilities (including sewer capacity)
- Geotechnical
- Contaminated Land
- Archaeology
- Landscape and Ecology
- Hydrology (watercourses, rights of discharge and flood risk)
- Publicly Adopted Roads (including Stopping Up)
- Public Rights of Way / Passage and Core Paths
- Parks and open space

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- 2 - Following the desk top study, the developer should contact the Council with the results, to agree the parameters of further surveys. These will usually include:



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TABLE 2

- a) A topographic survey of the site showing contours, spot heights at no less than 0.5 metre intervals, boundary features and watercourses. The topographic survey should not stop at the boundary of the site but include adjacent areas; the extent of the adjacent areas to be included should be discussed with the Council. Cross sections for key locations may also be required.
- b) A photographic survey of the site and surrounding area accompanied by a location plan indicating the location of the images.
- c) Other surveys such as Transport Assessments, Drainage Impact Analysis, Environmental Impact Assessments, Tree Surveys and Habitat Surveys, as considered necessary by the Council.
- d) Flood Risk Assessments and Flood Management: this assessment will give consideration to the risk associated with the flooding source and how this may be mitigated. Any proposed mitigation measures will require to take account of impact upon functional flood plain, climate change, river levels etc and illustrate how the development will not increase flood risk elsewhere. Section 204 of the Scottish Planning Policy, Section 204, Risk Framework provides guidance on the appropriate levels of protection. These standards have been clarified in City Plan 2.

3 - In addition to the surveys above, the developer must also carry out an assessment addressing the following Core Principles, as set out in **Table 3**. In doing this, it will be necessary to look beyond the boundaries of the site. This will allow the potential development's connections with the surrounding area to be assessed. This assessment should take the form of a narrative, with schematic drawings where applicable.



TABLE 3

The appraisal should consider the following elements of the Core Principles:

Placemaking

- the activities generated by the use of the existing spaces;
- key nodes, focal point or gateways;
- the arrangement, size and shape of adjacent urban blocks;
- the densities, building heights and types in the area;
- the pattern of development i.e. is it formally informal/linear or enclosed and plot sizes;
- the scale, massing, materials and architectural style of the built form and any key physical features;
- the townscape and any existing landmarks;
- the site's development plan designation and or presence of listed buildings, and
- views in and out of the site (include photographs/sketches).

Design for Movement

- the nature and use of the existing surrounding streets including a clear understanding of existing movement patterns, and the volume of vehicular and pedestrian traffic;

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- potential access points into the site for pedestrians, cars and cyclists;
- any existing rights of way paths (including rights of way, core paths, desire lines and designated cycleways) , public transport routes and bus stops including details of distances from the site to these existing facilities;
- the walking distances to principal destinations such as schools, shops and community facilities;
- Any barriers to access from the site to existing transport routes or local facilities.

SUDS

- drainage and water courses (including rights of discharge);
- existing SUDS such as ponds or swales. The potential to integrate these into the proposed development should be considered;
- current SUDS maintenance regimes;
- local environmental conditions including microclimate.

Flood Risk Assessments and Flood Management

- Flood risk from all sources

Integrated Landscape and Open Space

- topography;
- paths including rights of way, core paths, desire lines and designated cycle ways;



- open spaces, formal and informal and their existing use;
- location and type of existing trees and other vegetation;
- existing areas of biodiversity/ecological importance, including SSSIs and other natural environmental designations;
- existing maintenance responsibilities for identified open space and greenspace

Parking Strategy

- existing parking provision in the area ; this should be surveyed both during the day and evening;
- parking location / type;
- constraints caused by existing parking in the area, e.g. obstructing footways or access for service emergency vehicles
- any large unused parking areas

The three parts of the appraisal will inform the next stage, the *Strategy for the site and Conceptual Layout*, and should be submitted to the Council as part of the pre-application discussions. Some of the surveys will also need to be submitted with the planning application (see *Appendix 1*).



STAGE 3

3.0 STRATEGY FOR THE SITE &
CONCEPTUAL LAYOUT

3.1 PRELIMINARY DESIGN AUDIT

APPLYING THE GUIDE

3.2 DETAILED LAYOUT

3.3 HOUSING TYPOLOGIES

Higher Density and Tenemental Housing
Terraced Housing
Detached and Semi-detached Housing

3.0 STRATEGY FOR THE SITE AND CONCEPTUAL LAYOUT

Objective: *From the analysis carried out in the Appraisal, the developer will be required to formulate a strategy for the site informed by the findings of the previous stages (**Understanding the Core Principles and The Appraisals**). This will aim to demonstrate how the constraints and opportunities offered by the site will be addressed and enhanced. The strategy will then be translated into a conceptual layout that should aim to identify the basic spatial and functional relationships of all its components (the houses, the streets and the space between).*

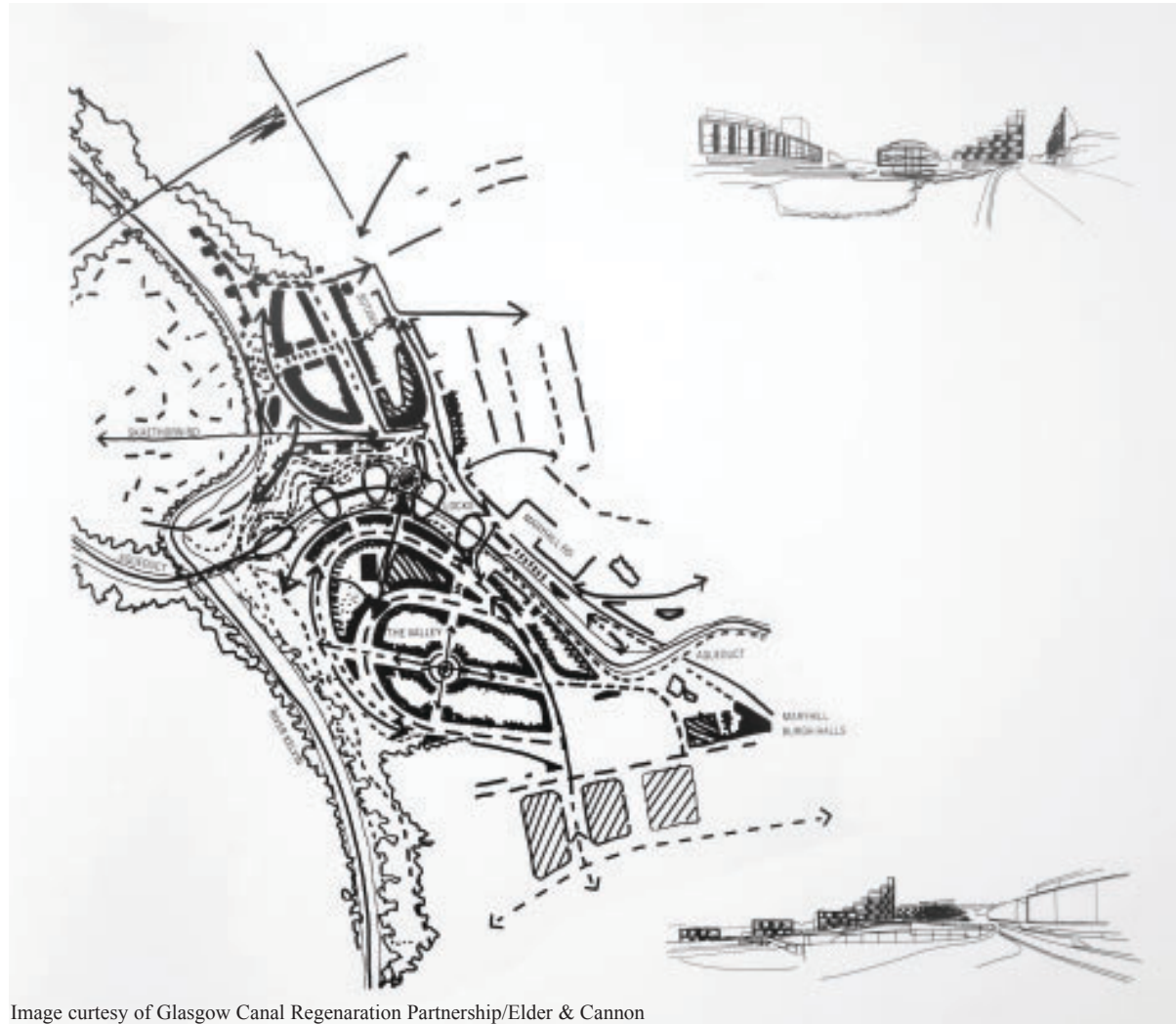


Image courtesy of Glasgow Canal Regeneration Partnership/Elder & Cannon

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The **Strategy** should include a written narrative of how the site will be developed and demonstrate a clear understanding of the layout's main components: streets, buildings and greenspaces.

The **Conceptual Layout** should address the topography, highlighting how the key physical and environmental features of the site will be integrated on the site and to its surrounding area, and indicate the internal links and their associated wider connections. The layout should also be designed to ensure it complies with the Construction Consent Guidance for New Residential Streets (See Appendix 2).

As part of this stage, the developer could submit a Bavarian B-Plan of the conceptual layout. This is a simple technique for evaluating and comparing layouts which highlights in different colours the key components of a layout.

Link to Bavarian B Plan info on the web

For further guidance see the examples below and the Scottish Government's Planning Advice Note *PAN 83 Masterplanning*





3.1 PRELIMINARY

Objective: *After having developed a conceptual layout the developer will now be required to carry out an initial audit. This will encompass all aspects of the concept and the design developed so far and should aim to ensure that all stages of the process to this point (Understanding the Core Principles, The Appraisal, Strategy for the Site and Conceptual Layout) have been completed in accordance with the advice set out in the Design Guide.*

Both the Preliminary and Detailed Design Audits (see Chapter 4.0) carried out as part of Glasgow's Design Guide process will incorporate the requirements of the Quality Audit and the Road Safety Audit. The audit seeks to ensure that the movement and placemaking functions of the street will be balanced and that appropriate safety concerns are successfully addressed.

The developer should ensure that the design is audited at all stages by the designers; throughout the pre-application process and during the consideration of the application in the Planning and Roads Construction Consent process.

The audit should assess the design for accessibility, walking (for all users, including visually or mobility impaired, buggies etc), parking, cycling and road safety. It should also assess quality of place and visual amenity and could include an assessment of how the street will be used by the community. Community engagement could also be used to inform the designers of local issues and this will be a formal pre-application process if the development is considered major.

The applicant should then submit to the Council a Preliminary Design Audit Report, which includes: The Appraisal, the Strategy for the Site, the Conceptual Layout; Stage 1 (Preliminary Design) Road Safety Audit; and a summary stating how the Core Principles have been achieved.

A meeting with the Council should be arranged following this submission.

(Link to The Process Stages)

3.2 THE DETAILED LAYOUT

Objective: *From the outcome of the Preliminary Design Audit the developer is now required to develop the conceptual layout into a detailed masterplan that will comprise the detail of all aspects of the design. This will subsequently form the basis of the submission to Glasgow City Council.*

Further guidance on application procedures and requirements are provided in the *Appendices*.

INTRODUCTION

This part of the Guide aims to provide guidance for the development of the detailed site layout by offering a methodology by showing how the design of the main components of a layout could be applied to the most common housing typologies.



IMAGE COURTESY OF RMJM

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3.3 HOUSING TYPOLOGIES

The following have been identified as the three main typologies in the design of new residential areas: The following have been identified as the three main typologies in the design of new residential areas:



■ Terraced Housing



Image courtesy of Collective Architecture

■ High Density and Tenemental Housing



■ Detached and Semi-Detached Housing (typically suburban)



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STAGE 4

4.0 THE DETAILED DESIGN

- The Layout
- Parking Provision and Layout
- SUDS and Flood Management
- Landscape, Amenity Open space and Recreation
- Walking, Cycling and Public Transport
- Building Lines, Entrances and Privacy
- Aspect, Orientation and Daylighting
- Services, Utilities and Street Lighting
- Street Materials and Street Furniture
- Refuse Containment and Collection

4.1 DETAILED DESIGN AUDIT



4.0 DETAILED DESIGN

Streets can fulfil a complex variety of functions. Their design requires a thoughtful approach that balances the needs of different users; it is therefore essential that a multi-disciplinary approach giving equal consideration to the following is adopted:

- The Layout
- Parking
- SUDS and Flood Management
- Landscape, Amenity Open space and Recreation
- Walking, Cycling and Public Transport
- Building Lines, Entrances and Privacy
- Aspect, Orientation and Daylighting
- Services, Utilities and Street Lighting
- Street Materials and Street Furniture
- Refuse Containment and Collection



THE LAYOUT

Overview

Residential streets should be designed to ensure that vehicle speeds do not exceed 20mph. A traditional grid-pattern layout may help to control vehicle speeds and will provide maximum connectivity for pedestrians and cyclists.

Street Proportions

Street width and building height should be considered together in terms of the function of the street and its location. To provide a clear sense of enclosure building heights should be in proportion to the width of the street. Height to width ratios of 1:1.5 to 1:3 provide good spatial enclosure. Ratios less than 1:4 will usually require street trees to create an adequate sense of enclosure.

Higher ratios may be appropriate in central urban areas but, generally, where higher density housing over six storeys is proposed, streets should be wider to accommodate street trees to provide a human scale, visual amenity and mitigate on-street car parking.

Variation of building height can provide visual interest and break up the overall mass of a development and should respond to the type and location of the street. Generally, in tenemental neighbourhoods uniformity of eaves height is an important characteristic that should be respected by new residential development.

Block Structure

Within the network of streets, the block is the framework within which buildings are located and organised.

Block structure should provide a permeable network of interconnected streets and spaces for pedestrians, vehicles and cyclists that offer direct connections, choice and flexibility.

While block structure can vary in shape and size according to the pattern of streets, orientation, topography and building types, a fine urban grain, with small street blocks and frequent junctions, is generally preferred.

The perimeter block is an effective structure for residential neighbourhoods as it makes efficient use of land, offers opportunities for enclosed private or communal gardens and parking courts, and provides direct, convenient, overlooked routes.



Image courtesy of Collective Architecture

Blocks should be designed to ensure building frontages face and overlook streets, footpaths and public spaces. Frontages with few windows and backs facing onto streets should be avoided as these create unattractive, lifeless spaces that lack natural surveillance. Gable ends should include windows of habitable rooms, e.g. living rooms and kitchens, to enhance natural surveillance.

Housing Layout, Plot and Garden Size

Within a layout, the size of a plot is important in defining the character of an area and this should be determined by the prevailing plot pattern as well as by the requirements of private amenities, parking, privacy zones and refuse storage. However, to provide visual interest and variety to the street design, variation in plot sizes is desirable. Housing layouts should have:

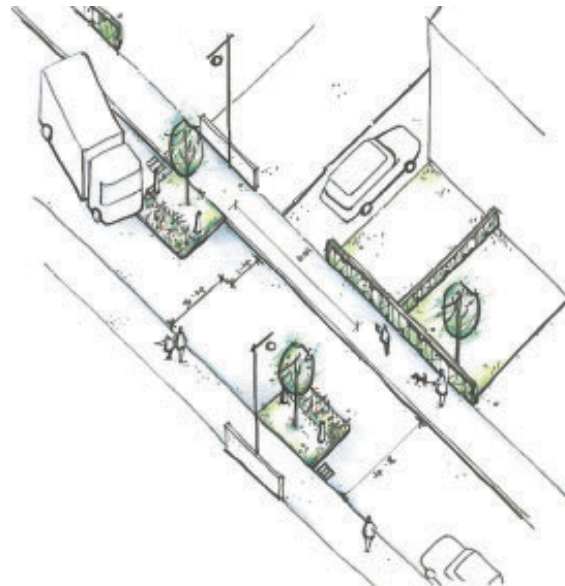
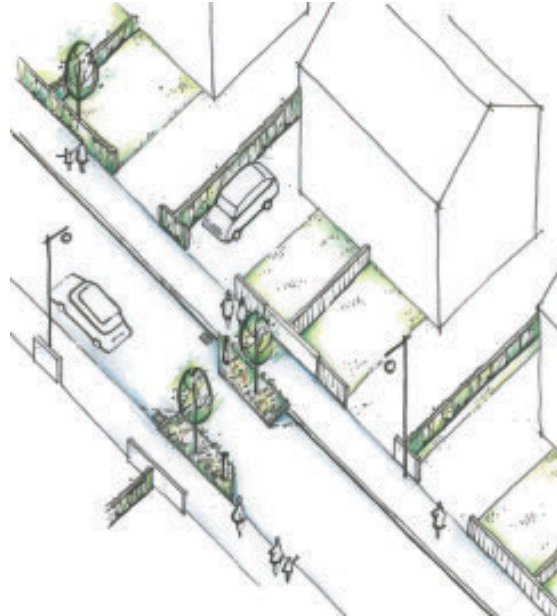
- side or back boundaries not located in prominent locations;
- car parking spaces located to the side or rear of the house or in a private rear parking court with no vehicle parking spaces immediately in front of habitable rooms;

- driveways with a minimum width of 3.5 metres. (In particular circumstances 3.2 metres may be considered.) Detached houses will also require at least one metre to the other side for maintenance purposes;
- front gardens generally between 2 and 4 metres in depth to discourage their use as car parking spaces and rear gardens of least 9 metres depth; and
- landscaping to help link the housing and street, enhance biodiversity and minimise the impact of parked vehicles.

Street Layout

The defining characteristic of the street is determined by the arrangement of plots and buildings facing on to public streets and the distinction between public areas and private space (to establish the location of SUDS, trees and public footway).

A good layout will have a number of connections onto the existing road network. In exceptional cases, where a single road connection is agreed, the number of dwellings should be restricted to 200; additional pedestrian and cycle connections should be provided. However, where a single



access road is 7.3 metres wide, and the footway construction designed to take vehicle loading, up to 300 dwellings may be permitted.

Street block sizes should be guided by a maximum distance of 50 to 70 metres between junctions, to help control traffic speeds and promote finely grained development.

A variety of junction types may be considered and include:

- Crossroads with a raised junction; and Sketch of raised junction
- Staggered junctions;
- Diagonal closures (except for pedestrians and cyclists);

If other mechanisms for controlling vehicle speeds are required, or if it is desirable to break a continuous length of road, a mixture of measures that complement the overall design could be applied. These include chicanes and /

or pinch points, both of which could provide landscaping and biodiversity areas.

To determine whether a layout could accommodate typical service vehicles a Swept Path Assessment will be required to demonstrate that vehicle movements can be readily made. It is possible for service vehicles to use the full road width, providing there are no visibility issues, but large vehicles must not overrun the footway at any time.

Shared Surface Roads

Shared surfaces in residential areas comprise a road without footways where the carriageway is shared by pedestrian and vehicles. Shared Surface Roads should only be considered where the volume of vehicular traffic is expected to be low and consist mainly of residents of that particular street. It is desirable that vehicle speed should not exceed 10 mph in Shared Surface Roads and the road layout should reflect this (refer to section 3.3 of Appendix 2 for further detail). A change in surfacing can assist with the desired speed reduction and concrete block paving or clay pavers may be appropriate for shared surfaces in locations where services are to be located in service strips outwith the shared surface footprint



Street Details

The following parameters will apply to all streets:

- Unobstructed footway widths must be no less than 2 metres.
- Carriageways should be 4.8 metres wide widening out to 7.3 metres where formalised visitor parking bays are provided. This on-street parking provision should alternate on each side of the street and it should be clear where on-street parking should and should not take place.
- To balance the overall landscaping in the street, swales and street trees can be used in the same manner as visitor parking bays.
- Carriageways that are bus routes must have a minimum width of 6 metres excluding any provision for on-street parking.
- Where bus shelters are proposed there should be localised widening of the footway to 4 metres to accommodate the shelter and leave 2 metres clear for pedestrians.
- Carriageway gradient should not exceed 5% with an absolute maximum of 8% with a typical crossfall of 3%
- Minimum junction spacing should be 25 metres.
- Landscaping, including the location of street trees and street lighting should be detailed at this stage. (See Appendix 4).
- Streets with one-way operation should be avoided
- Cul-de-sacs should be avoided but, where agreed they should have an adequate turning area where vehicles can turn in a forward gear and, where possible, include direct cycle and pedestrian links.

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Junction Visibility

Visibility at junctions and along the street should be checked against the relevant design speed for each street, and should be measured horizontally and vertically.

Forward Visibility

Stopping Sight Distance (SSD) is the distance within which drivers need to be able to see ahead and stop from a given speed.

Driveway Pedestrian Intervisibility

For further details on visibility splays at junctions, driveways and forward visibility see section 3.1 of Appendix 2 *Construction Consent Guidance for New Residential Streets*





CAR PARKING PROVISION

Mainstream Residential Housing

City Plan standards seek one allocated car parking space per dwelling. Allocated car parking should not be on the public street but be contained within the curtilage of the dwelling or in private parking areas. Visitor parking should be on-street and should be provided at a level of one space for every four dwellings.

Social Rented Housing

It is generally accepted that the level of Housing Association tenants' car ownership is lower than average. However, there is a concern that this base has the greatest potential for increase. Detailed evidence should, therefore, be submitted by Housing Associations of the predicted car ownership levels in each application if less than the minimum allocated car parking spaces are proposed. Social housing proposals should plan for an increase in car numbers up to one allocated space per dwelling, for example by providing landscaping which could be converted to car parking if required in the future. These areas should be identified at the outset.

On-Street Parking Restrictions

Outwith suburban areas, if a proposed scheme includes less than the minimum level of allocated parking, a Traffic Regulation Order may require to be promoted at the developer's expense. This could take the form of a Restricted Parking Zone (RPZ) where parking is restricted to marked bays, or a Controlled Parking Zone (CPZ) where no waiting and no loading restrictions are marked to prohibit parking.



CAR PARKING LAYOUTS

Parking, swales and landscaping will be the main elements in the street together with the footway and carriageway. The exact position and proportion will vary to allow the place and movement function to be balanced (Refer to section 3 of Appendix 2, *Construction Consent Guidance for New Residential Streets*).

The design of streets should not be necessarily mirrored, as long as all the necessary elements are included; thus, the street character should vary to provide visual interest and a sense of character and identity. Good street design should always make it clear where parking is allowed for residents and visitors alike.



1. Allocated Parking (Private)

High Density and Tenemental Housing

Allocated parking will generally be provided in rear private parking courts.

In tenemental developments, the relevant level of allocated parking may be difficult to achieve. Any solution requires to maintain residential amenity in the back courts as well as the quality of the street environment. In areas where there is an identified issue with commuter parking, controlled parking schemes should be provided.

Any variation in parking provision above or below the standards set out in City Plan *Policy TRANS 4* must be justified in terms of the criteria set out in this policy.

Parking provision could include undercroft or basement parking, though the provision of car parking on the ground floor of the street frontage of flatted development is discouraged as this reduces natural surveillance and creates sterile environments. This should only be considered in mixed commercial/residential areas.

Terraced Housing

In town houses, if car parking is provided by integrated garages living accommodation should also be provided on the ground floor to ensure natural surveillance.

Where this proves unsuitable, parking should be provided at the rear and not in the front garden. This could be in the form of rear parking courts or parking spaces within rear gardens accessed by rear lanes, private shared drives or by pend access to communal parking courts.

Where rear parking courts are proposed these should be small enough to allow for proximity to the residents who use it and also adequate surveillance from neighbouring houses. The ideal size for such courts would be 6-12 spaces.

Detached and Semi-Detached Housing

Car parking should be provided in-curtilage, to the side and/or the rear of the house and not in the front garden; distance to the side boundary should be 3.5 metres to allow for a car to be parked and access to the house. Where integrated garages are provided, they should be set back a minimum of 6 metres from the heel of the footway.

Driveway dimensions should be a minimum of 6 x 3.5 metres with garages at least 3 x 6 x 2.3(H) metres.

2. On-Street Parking (Public)

Where on-street parking is provided this should be designed to avoid confusion and indiscriminate parking by residents and/or visitors. Large areas of uninterrupted parking will not be acceptable.

On-street parking can be provided as parallel parking (minimum of two bays to allow for dual use by larger service vehicles) or right angled parking at the edge of the carriageway. In all situations street trees and landscaping should be integrated to soften the visual impact of parked cars within the streetscape. The narrower street width of 4.8 metres widening out to 7.3 metres to accommodate on-street parking bays will encourage drivers to use the parking spaces.

The location of on-street parking spaces will require more thought than in a traditional layout to minimise the psychological and physical barriers of parked vehicles. Although on-street parking bays should be visible from a habitable room they should not be directly in front of the main living room of a dwelling.





High Density and Tenemental Housing

On-street parking is likely to be parallel or end-on to the kerb. This should be broken up with street trees, which should be spaced alternately at each side of the street to provide a green avenue. Pinch points could be used as traffic calming measures as well as pedestrian crossing points to break up the parking.

The introduction of street trees and landscaping within parking bays together with integrated communal open space will contribute to create a better sense of place and overall quality of environment.

Terraced Housing and Detached and Semi-Detached Housing

On-street parking will be limited by the requirement to keep driveways clear and by swales within the street. Again it is likely that on-street parking will be parallel to the kerb and broken up by street trees. The juxtaposition of habitable rooms, driveways and landscaping should be carefully considered to maximise the placemaking opportunity. Pedestrian crossing points will generally be at street junctions i.e. approximately every 50 – 70 metres.

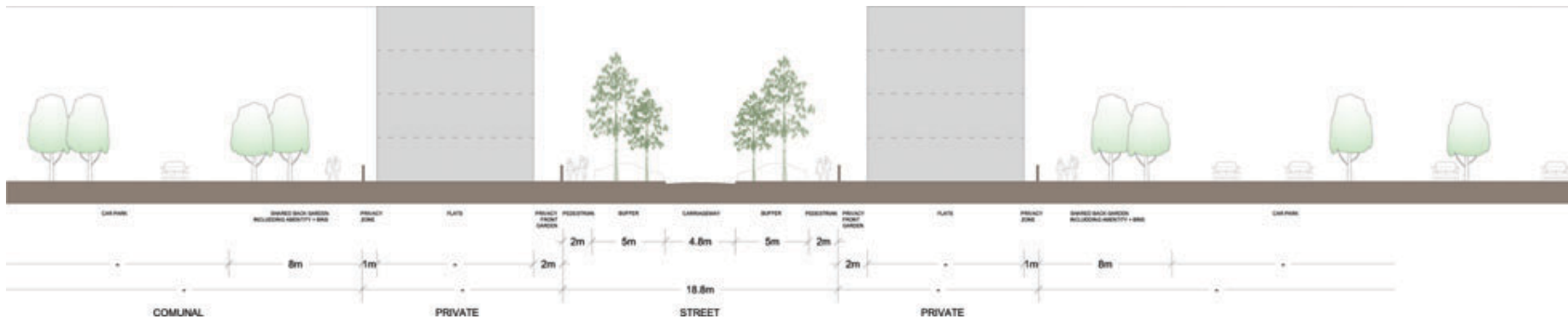
3.1 HOUSING TYPOLOGIES

HIGH DENSITY AND TENEMENTAL HOUSING

- A. Visitor Parking
- B. Resident Parking
- C. Landscape Strip
- D. Front Garden
- E. Back Garden
- F. Pedestrian Footway
- G. Rear Access



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- A. Visitor Parking
- B. Resident Parking
- C. Landscape Strip
- D. Front Garden
- E. Back Garden
- F. Pedestrian Footway
- G. Rear Access

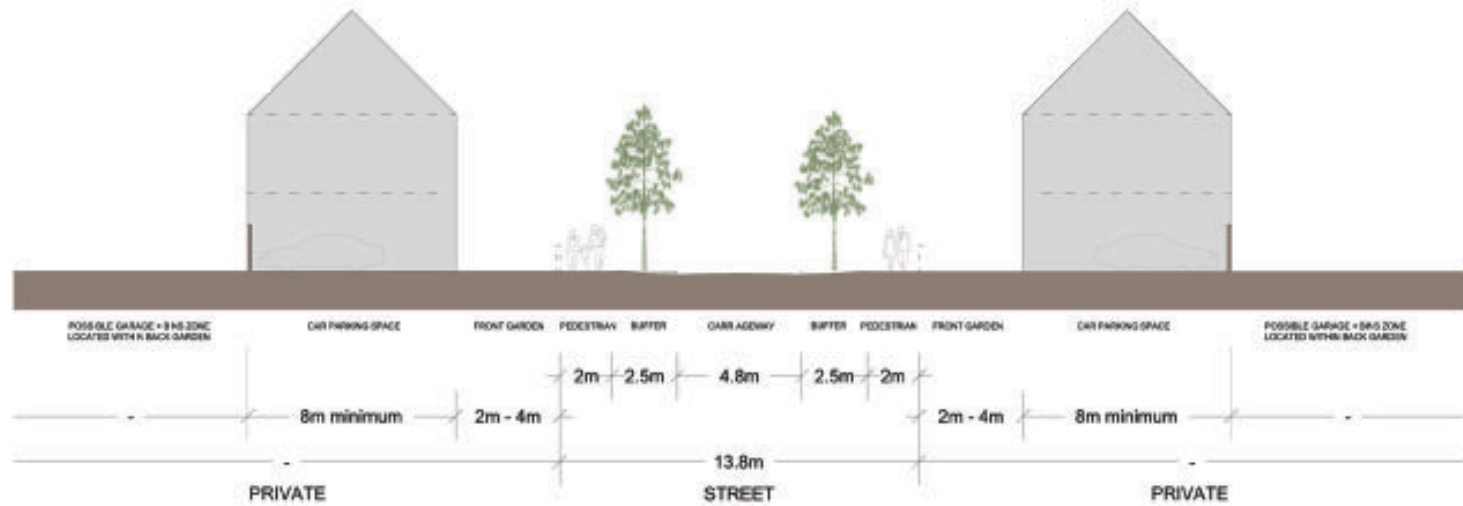
3.1 HOUSING TYPOLOGIES

DETACHED AND SEMI-DETACHED HOUSING

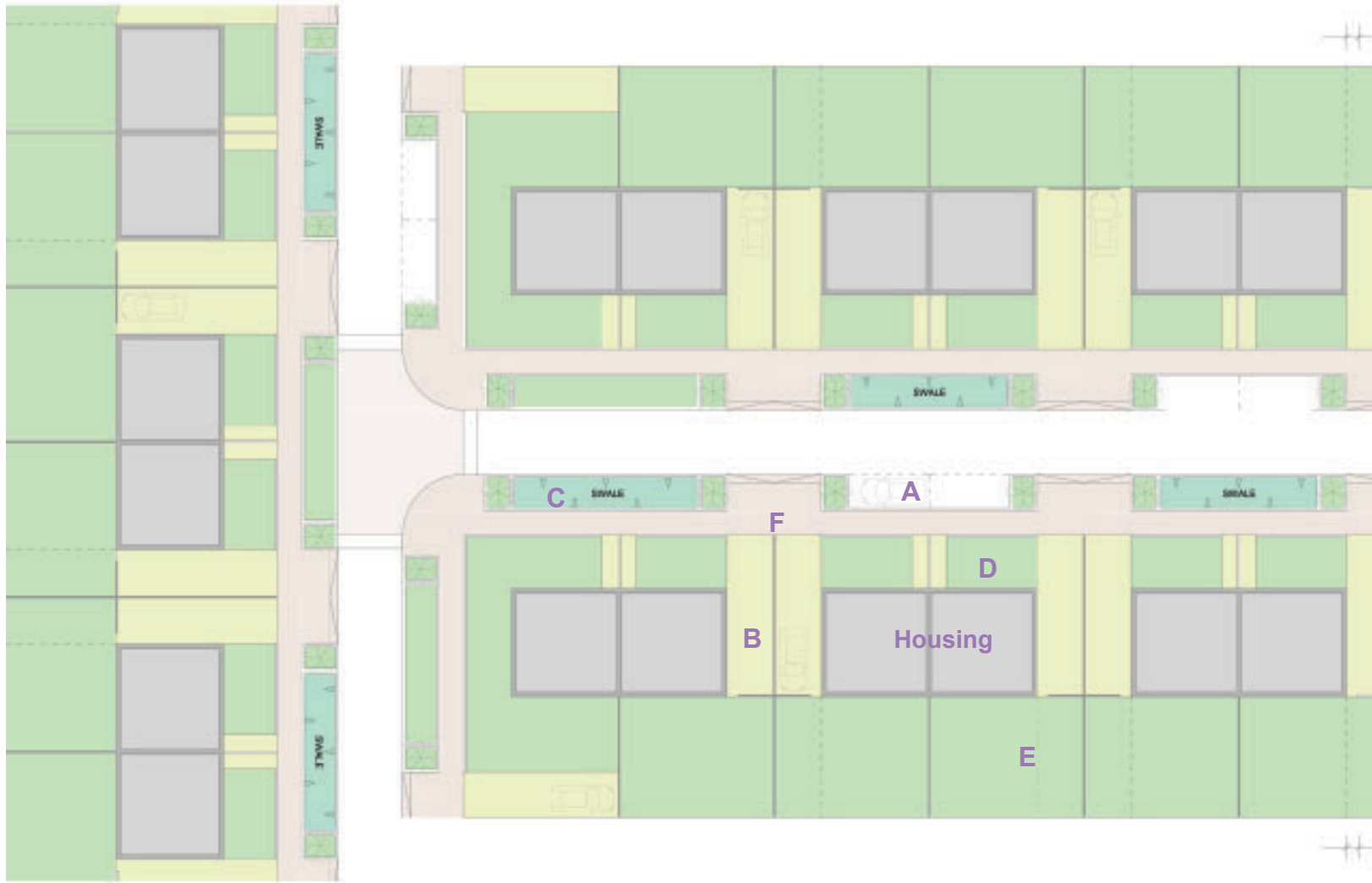
- A. Visitor Parking
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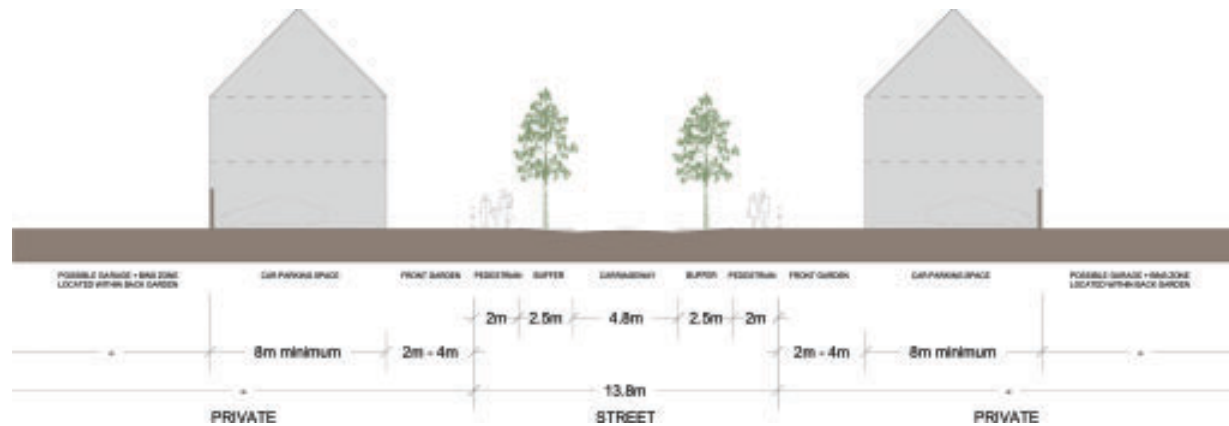
3.1 HOUSING TYPOLOGIES

TERRACED HOUSING AND DETACHED AND SEMI-DETACHED HOUSING

- A. Visitor Parking
- B. Resident Parking
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- G. Rear Access

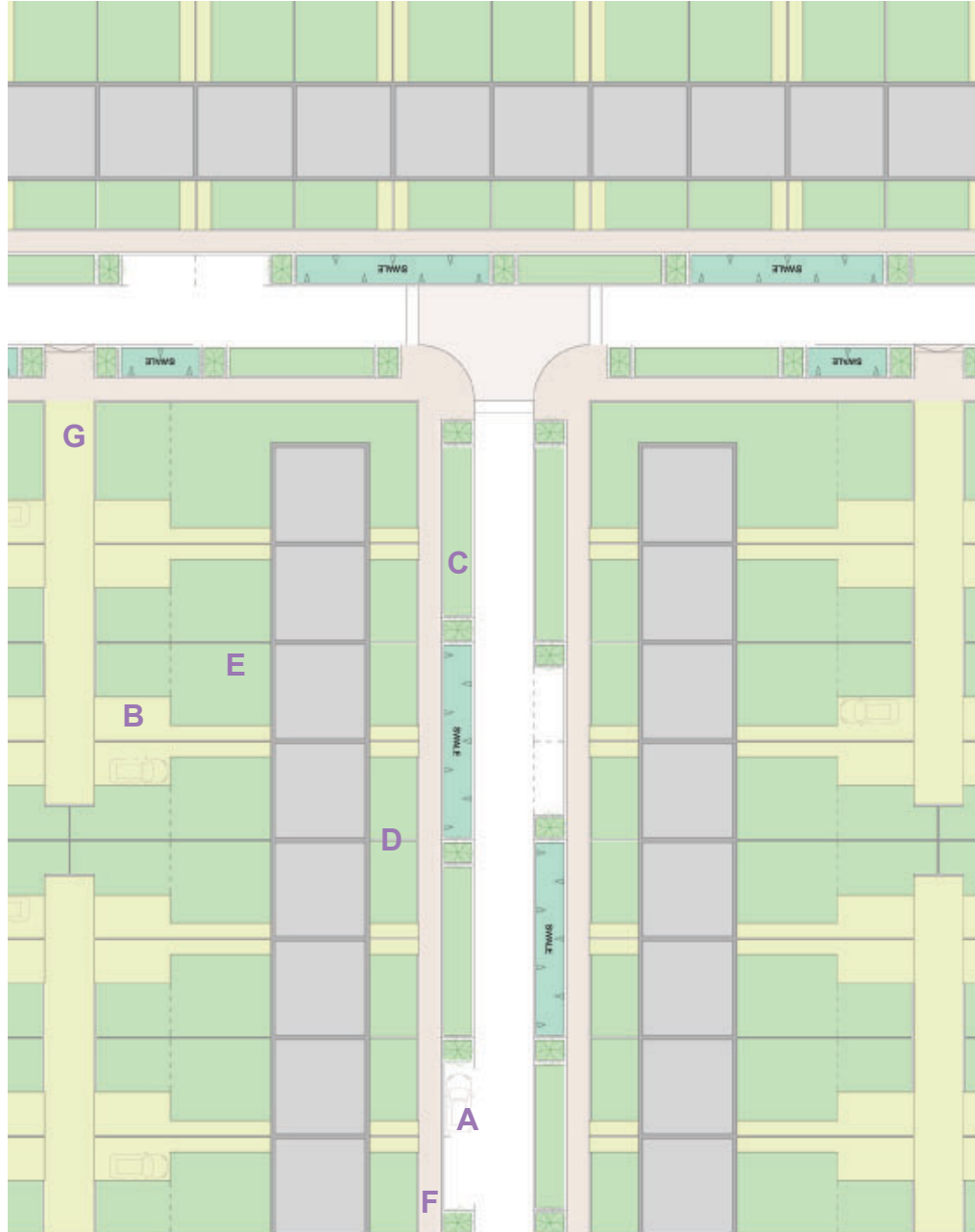


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- A. Visitor Parking
- B. Resident Parking
- C. Landscape Strip
- D. Front Garden
- E. Back Garden
- F. Pedestrian Footway
- G. Rear Access



SUDS AND FLOOD MANAGEMENT

It is fundamentally important that the SUDS strategy (Refer to Appendix 3) is developed at an early stage in the process and agreed in principle with the Local Authority before a housing layout is developed. The most effective solutions will take account of discharge location, site topography, street and housing layout.

The purpose of SUDS is to provide water quality treatment and attenuation of surface water. Surface water within a development can generally be split into two categories:

- 1) Curtilage water (private space) – roofs, driveway grounds and car parks
- 2) Roads, carriageway, footways and paths

While in-curtilage drainage is generally the responsibility of Scottish Water or the property owner the roads drainage will be generally the responsibility of the Council.

SUDS features such as ponds and basins should be overlooked and accessible to enable monitoring for maintenance purposes and integrated into the development's open space and movement requirements.

SUDS facilities should be designed to treat and convey a 1 in 30 year flood event. Any flows which





exceed the design capacity of the SUDS will require to be routed in a controlled manner to an appropriate location (i.e. regional SUDS facility or designated area) prior to discharge. If a SUDS facility is to discharge to a watercourse it should provide sufficient attenuation to ensure no detriment to the flows within the watercourse.

Further guidance on permissible discharges to watercourses may be obtained from *Flood Risk Assessment and Drainage Impact Assessment: Planning Guidance for Developers*.

During the development of the SUDS strategy the developer will be required to engage with Scottish Water and the Council to ensure that the strategy meets the prescribed standards of Scottish Water and the Council.

In some instances, the Council and Scottish Water may choose to share ownership of the surface water drainage network. This arrangement is possible by the use of Section 7 of the sewerage (Scotland) Act 1968 Agreement. The agreement would be between the Council and Scottish Water.

The Section 7 Agreement is a high level agreement between The Roads Authority and Scottish Water, however each development will be reviewed on an individual basis and a

bespoke Section 7 Schedule will be required to be prepared through joint discussion. This review will identify the combination of SUDS and drainage features which will be acceptable.

The developer will be required to provide a colour coded plan indicating what both Scottish Water and the council will be willing to vest / adopt once the works have been completed to the appropriate standard.

Appendix 3 gives typical layouts of possible shared surface water systems that would be acceptable to both Scottish Water and the Council. These layouts are not prescriptive but do give a starting point for discussion.

Guidance on the methodologies for calculating Water Quality Treatment Volume (V_t) is provided in *CIRIA C697: The SUDS Manual*.

In-curtilage SUDS

The developer is expected to provide one level of SUDS to treat surface water discharging from within the curtilage of each dwelling. These SUDS systems should be designed to cope with a 1 in 30 year flood event.

Although there are many ways of providing in-curtilage treatment and attenuation of surface water (for example, by permeable paving), there

is concern that the effectiveness of such solutions would diminish over time. Responsibility for maintenance would be placed on individual residents and this responsibility could not be enforced by statutory bodies. If such SUDS fail, an increased volume of untreated water could discharge onto the public road. This could damage the SUDS which are in place for the public road drainage, increase flood risk through overland flooding, and contaminate the receiving watercourse.

Private SUDS connecting to the public drainage system should have their ownership and maintenance responsibilities clearly established by the developer and discussed with Scottish Water prior to their acceptance of any part of the public drainage system for vesting.

The Council's preference, therefore, is for all SUDS to be maintained by an "in-perpetuity body". This could be, for example, the Council, Scottish Water, the NHS Trust, or their successors, but would not include private factors. Private in-curtilage SUDS maintained by a registered Housing Association may be considered providing that they connect to a Scottish Water outlet.

Where the above does not apply, other methods of SUDS outwith the curtilage must be provided. Scottish Water will normally vest a detention basin or pond to treat in-curtilage rainwater if it is designed to *Sewers of Scotland 2*.



SUDS for Publicly Adopted Roads

Residential streets will require to treat surface water in accordance with SEPA's *Regulatory Method (WAT-RM-08) Sustainable Urban Drainage Systems* prior to discharge to a watercourse or surface water sewer.

General guidance is:

- Less than 50 residential units require 1 level of treatment
- Between 50 and 1000 units require 2 levels of treatment
- Greater than 1000 units require a SEPA Licence

The above treatment levels are only provided for guidance purposes and it will be the Developers responsibility to ensure the SUDS proposals meet SEPA regulatory standards.

The maintenance of SUDS will also be considered as part of the Roads Construction Consent application and a draft maintenance schedule should be produced at this stage by the developer. A Whole Life Cost spreadsheet has also been developed (*see link*) which allows the capital and maintenance cost of SUDS to be considered together.

If an end-of-line treatment such as a SUDS pond or basin is provided (which could treat curtilage

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and roads drainage) then one further level of treatment may still be required for the roads drainage. This could be provided by bio-retention areas or swales, for example. These can also provide landscaping and traffic calming within the street.

CIRIA C697: The SUDS Manual, SUDS for Roads and the Whole Life Cost spreadsheet, all provide details of how to select, construct and maintain SUDS facilities.

High Density Development and Tenemental Typologies

In such development areas it is likely that there will be numerous pedestrian desire lines for street crossings and a high level of on-street parking. SUDS features such as swales contiguous with the road are discouraged in favour of end-of-line treatment solutions and / or green roofs, which are considered as the most appropriate.

Detached, Semi-Detached and Lower Density Development

In such development areas it is likely that there will be numerous pedestrian desire lines for street crossings and a high level of on-street parking. SUDS features such as swales contiguous with the road are discouraged in favour of end-of-line treatment solutions and / or green roofs, which are considered as the most appropriate.

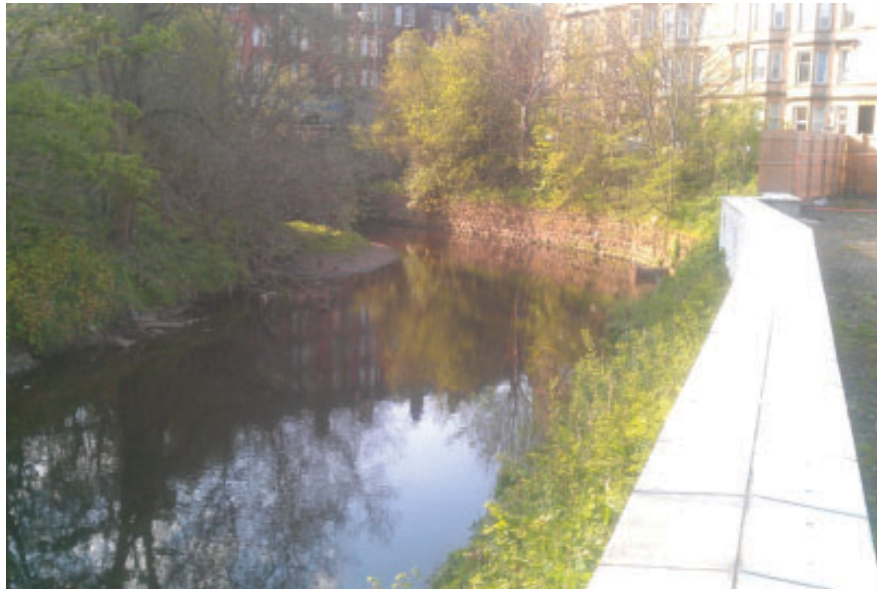
SUDS Features for Road Construction Consent Adoption

The Council will give consideration to the use of the undernoted SUDS features, subject to integration with the overall development design and appropriate technical standards:

- Liner roads swales
- 2-stage swales
- End-of-line swales with appropriate maintenance access
- Basins with appropriate maintenance access
- Ponds with appropriate maintenance access
- Bio-retention areas integrated with traffic calming
- Limited pervious paving

Where considered appropriate self-cleansing oversized pipes may be utilised.





Flood Risk Assessment and Flood Management

Following on from the flood risk assessment, the design will also have to take cognises of any design exceedance flows from within the development. Exceedance flows may be generated from combined sewers, surface water sewers or SUDS systems. Any flows of this nature will require to be routed safely through the development to a regional SUDS facility or a designated flood storage area.

The Council will adopt a risk based approach to the protection of existing roads network which is to be retained within a new build housing development. However the dwellings will be required to be protected to the aforementioned standards.

The following flood protection standards should be adopted for new residential development within the City:

Domestic dwelling (2 storeys or more)	1:200 Year
Domestic dwelling (single storey Bungalows, static caravans)	1:500 Year
Flatted development	1:500 Year

Within the required level of protection for development a 20% allowance should be made for Climate Change plus a suitable allowance for freeboard.

LANDSCAPE, AMENITY OPEN SPACE AND RECREATION

At conceptual layout stage, the developer will have produced a landscape strategy for the site. This should now be followed by a detailed landscape design that includes consideration of:

- how the green spaces can be linked together to form a green corridor to encourage biodiversity and pedestrian/recreational connectivity;
- the creation of spaces that people will naturally take ownership of and use for amenity and recreation, and will be easily accessible, attractive and safe. These can be multi-use spaces, e.g. amenity space combined with natural play space. (For further details see Appendix 4, *Guidance on Street Tree Details, Specifications and Standards*).
- soft landscaping which can contribute to sustainable drainage and reduce run-off by forming part of at-source SUDS (e.g. swales, bio-retention etc);
- provision of specific recreational spaces as required by *City Plan Policy ENV 2*;
- use of natural features such as watercourses, existing trees and shrubs, and topography in the site layout to maximise visual, recreational and drainage benefit;
- links to existing off-site recreational provision.

The developer must also, at an early stage, consider how the landscaping and recreational space will be maintained. SUDS features should be maintained by an in-perpetuity body such as the Council or Scottish Water, while landscaping features could be maintained by a factor. The strategy for maintenance must be presented with the landscape strategy and agreed with the Council.

SUDS and recreational spaces can/should overlap: SUDS features such as ponds and wetlands can provide habitats and visual amenity, while facilities such as sports pitches can provide locations for compensatory flood storage.



Image courtesy of Malcolm Cochrane and Grounds for Learning

Street Trees

Street trees are encouraged in all urban streets as a means of reinforcing the sense of place, providing visual enclosure, and forming green corridors and habitats through the site and its wider surroundings. They can also play a useful role in physical and psychological traffic calming.

- Tree planting (though not necessarily shrub planting) should be carried out away from services. An approved root containment system must be used.
- Trees in streets should avoid blocking driveways and sightlines, allow for suitable levels of on-street car parking between the trees, and not interfere with the pedestrian routes. Traffic calming features are often suitable for tree planting.
- Private front gardens should not be used for the delivery of street trees.
- The most cost effective method may be to plant trees in planting beds with soil and gravel, with or without additional shrub planting. This may have the dual benefit of acting as a bio-retention system.
- The planting beds should be protected by raised kerbs or other measures, to prevent



compaction which would severely curtail the lifespan and health of the trees. The canopy edge should not project beyond the carriageway kerb edge and on potential bus routes (i.e. any 6 metres wide carriageway) should be set back from the kerb by at least 450 mm.

- Trees must be designed together with a street lighting strategy to avoid leafed branches obscuring lights and CCTV cameras.

For guidance on street tree details, specifications and standards see Appendix 4, *Guidance on Street Tree Details, Specifications and Standards*.

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Recreational Space

City Plan Policy ENV 2 seeks the provision of recreational space on-site wherever possible. Developers are expected to provide the relevant level of facilities on-site unless they submit a clear justification for alternative arrangements based on site-specific factors. Provision of open space, both amenity and recreational should be built into the estimated costs of the development at the pre-planning stage.

Play space should not only include traditionally defined children's play parks with fixed equipment, but also the creation of "playable" spaces which meet the needs of different people at the same time. Support for playable spaces can extend the range of play opportunities available to children and can be cost effective, for example, providing playable spaces which can also function as amenity space and landscaping. Imaginative planting, ground mounding, boulders, seating and sculpture can all provide play for children of a wide range of ages as well as exercise and visual amenity for adults.

All communal or public open space should be accessible (by walking and cycling) and welcoming, and designed for natural surveillance to increase security and foster a sense of ownership in the community.

Boundary Treatments

Existing trees and shrubs, particularly on the perimeter of sites, should be retained where viable and enhanced by additional planting. Hedgerows can be used as boundary treatments in both urban and suburban development, at the

front boundary of plots or to provide a green street edge to a tenemental or high density site. It is recommended that such boundaries are strengthened by a post and wire fence or similar while the planting establishes itself. Hedgerows should favour plant species that support biodiversity e.g. native, nectar rich and berry bearing. Boundary treatments should be designed to avoid creating unnecessary barrier to the movement of species.

Higher Density Flats

The open space associated with higher blocks of flats depends on whether the buildings are hard to the edge of the street. As the main entrance will be from the street, where there may be little opportunity for a garden area to the front, it may be possible to form a green zone in the street itself in the form of communal gardens or landscaping for amenity use.

Children's play space should generally be in a safe and overlooked area. Amenity open space could link separate blocks and provide a playable space as discussed above. There should be outside provision for clothes drying in areas screened from public view and not excessively overshadowed.

As it is less likely that private outdoor amenity space will be provided, communal amenity space assumes an even greater importance. However, shared roof gardens and useable balconies could contribute to the provision of private amenity space.

Front privacy zones, if provided, could include green edges in the form of hedge planting. Street trees should also be provided.



Tenemental Housing

It is most likely that in tenemental areas the landscaping and recreational space will comprise backcourts, with street trees and upgrading of urban parks providing further greenspace and recreational opportunities. As it is less likely that private outdoor amenity space will be provided, communal amenity space assumes an even greater importance.

Some form of backcourt area or communal garden is required to provide tenemental flats with space for sitting out and drying laundry. Front privacy zones/gardens, if provided, could include green edges in the form of hedge planting.

Terraced Housing

Here the building and plot form is most likely to give rise to front gardens and rear gardens for private use. Where the terrace is part of a suburban low density housing scheme, communal open space may be provided in the form of parkland and green corridors throughout the wider site. Where the terrace is accessed by a lane arrangement to the rear, there is an opportunity for combining private garden ground, rear access and parking with a communal green space.



It is likely that the street will contain swales for sustainable urban drainage, and these features can be combined with planting to provide a green edge to the street between the private plots and the carriageway.

Detached and Semi-Detached Housing

Generally suburban housing consists of two or three storey dwellings with front and rear private gardens. Greenspace could be part of a larger parkland area through the site with some small scale play parks throughout the housing. The individual play parks should be located close to housing and overlooked by and easily accessible from the housing which it serves. They should not be entirely to the rear of the housing if there are high rear boundary fences as these will prevent adequate overlooking. They should not directly border car parking areas as this can cause conflict with car owners and there is also a risk of children running out between manoeuvring cars. There should be clear views in and out of these open spaces.

Swales for sustainable urban drainage can be combined with planting to provide a green edge to the street between the private plots and the carriageway.

WALKING, CYCLING AND PUBLIC TRANSPORT

Walking

Pedestrians should have priority in new residential developments. Pedestrian movements should be made as convenient, safe and pleasant as possible by careful attention during the early design of the scheme. The pedestrian network should reflect natural desire lines, be overlooked for security and take account of existing informal networks. Paths that skirt the development at the back of dwellings should be avoided.

Walking distances to community infrastructure should be minimised. A maximum of a 10 minutes walk should be the target. Maximum walking distances to play areas are provided in City Plan Development Guide *DG/ENV 2 Open Space and Public Realm Provision*

Pedestrian routes should be designed to accommodate the needs of the disabled and should follow the guidelines outlined below (Refer to section 5.4 of Appendix 2, Construction Consent Guidance for New residential Streets, for further details):



- Footways and paths should have minimum unobstructed widths of 2 metres and be designed to take account of any permanent structures that are required in the footway e.g. bus shelters, utility cabinets. Simple structures such as lighting columns and traffic signal poles can be accommodated within the 2 metres width.
- Pedestrian routes should be designed without the need for steps with red tactile paving provided at all controlled crossing points.
- Gradients on paths should not exceed 5% with an absolute maximum of 8% and a maximum crossfall of 3%.
- Underpasses and bridges to separate pedestrian routes from traffic will not be normally acceptable.
- Dropped kerbs must be provided at all controlled crossing points. They should have an upstand of 6 mm and dropped over 2 transitions to achieve required approach gradient.
- At uncontrolled junctions on core pedestrian routes, consideration should be given to raising the carriageway to the footway level with a buff coloured tactile paving provided to assist the visually impaired
- Paths should be designed to accommodate cyclists and be signed accordingly.

Cycling

A cycle network should be established to serve the needs of the cyclists and should be direct, avoid steep gradients, barrier free and overlooked. The cycle network will overlap with and augment the pedestrian network.

Cycle routes should be designed using *Cycling by Design 2010* published by Transport Scotland. Details with particular relevance to residential streets include:

- within residential developments cyclists should be accommodated primarily on the carriageway as these will be designed for a maximum vehicle speed of 20mph;

- where horizontal speed control measures are provided a cycle by-pass should be provided;
- access should also be provided onto footpath networks, which should be wide enough to accommodate pedestrians and cyclists (for appropriate widths see *Cycling by Design*).

Cycle Parking

The design of cycle parking provision should:

- consider the level of provision for residents (See *Policy TRANS 6 of City Plan*);

- include the provision in garages, bespoke cycle storage, communal areas in flats, on-street cycle racks;
- provide shared facilities to be secure, overlooked, convenient and sheltered;
- be suitable and available for use by both owners and visitors and be detectable by blind or partially sighted people by means of a tapping rail; and
- include cycle stands to be clear of pedestrian desire lines and closer to the carriageway than buildings.

For further details on cycle storage refer to Cycle by Design, Chapter 8.



Public Transport

New residential areas should be designed so that no one is required to walk more than 400 metres from their home to access public transport.

Good public transport provision should be available at the initial phase of any new development, either by linking to existing networks or by establishing new routes. A coordinated approach between different transport modes should be encouraged with pedestrian and cycle routes, and cycle parking, linked to all key transport nodes.

Where a new bus route or service diversion is promoted through the development this should be discussed with local transport operators. Proposed bus routes, bus stops, pedestrian routes etc should be clearly marked on the plans submitted for planning permission.

Designing for Bus Passengers

When a new bus stop is likely to be used by more than 50 passengers a day, shelter facilities should be provided by *Strathclyde Partnership for Transport* (SPT) and funded by the developer. Where bus shelters are provided, localised widening of the footway to 4 metres will be necessary to leave 2 metres clear for pedestrians. Where real-time information

services can be made available, such facilities should also be considered.

Bus stops should:

- not be located in front of residential properties. If this is unavoidable they should at least not be directly in front of ground floor windows;
- incorporate adjacent kerbs with heights of 180 mm above the carriageway to facilitate boarding, for a minimum length of 6 metres;
- provide a cage and clearway markings for bus services with a 30 minutes or less frequency. This should be highlighted with red screed around the cage's edge.
- be arranged to ensure buses stop on the main carriageway and not within lay-bys; and
- be provided with an accessible route with dropped kerbs and tactile paving as appropriate (routes should be overlooked).

For typical detail refer to section 3.5 of Appendix 2, Construction Consent Guidance for New Residential Streets.

Bus stop infrastructure should only be implemented once a bus company has agreed to provide a service.



BUILDING LINES, ENTRANCES AND PRIVACY

Building Lines and Enclosure

Building lines contribute to a sense of enclosure by providing a clearly defined edge to the street or public realm space.

To avoid visual fragmentation buildings should adhere to an established/ common building line and create a new one where none exists. Projections and set backs from the main building line can be used to add emphasis and variety to the streetscape at appropriate locations.

Where there is no established building line, development should be set back from the footway but set back distances should be minimised to aid enclosure of the street and increase the ability of buildings to interact with the public realm.

In suburban locations, garages should be located to the side of dwellinghouses and recessed behind the main building line.

Front boundary treatments can aid the sense of enclosure by providing clear separation of public and private space but should not act as a barrier to natural surveillance of the street from the building. Boundaries should be clearly defined with a boundary treatment appropriate to the location.

Entrances to Dwellings

The primary means of access for all dwellings should be from the main street. Entrances should be visible and frequent along the street to encourage natural surveillance and activity on to the streets, to make places feel safe and secure and contribute to a sense of place. Entrances should provide inclusive access for all people regardless of disability, age or gender.

Flatted developments should maximise front doors on to the street with ground floor flats having their own entrances. Separate entrances for ground floor flats also offer more flexibility

Privacy

While encouraging surveillance, consideration must be given to maintaining privacy for residents, both from the public street and between windows of habitable rooms. At site strategy stage, the developer must state how the layout will deal with this issue.



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Front Building Line and Privacy Zones

High Density and Tenemental Housing

The building line will/should be designed with a 1-3 metres privacy zone between windows and the public footway. Habitable rooms should face the front street. Depending on the volume of pedestrian traffic, a solution should be found to protect privacy. For front facing rooms this can be achieved by raising the internal floor height so that external cill height is also raised to 1.5m above street level. Alternatively, some form of screening by boundary planting should be provided.

Terraced Housing

If terraced houses are designed to have integrated garages, then a public room should be located on the ground floor to provide overlooking to the street. If the building is set back less than 4 metres from the footway, privacy solutions such as above should be provided.

Detached and Semi-Detached Housing

Building lines should be established at no more than 4 metres from the footway. This allows for side garden parking while discouraging front garden parking. This buffer zone will serve as a front garden area and will also provide adequate privacy from the public areas of the street. If the

area between the house and the public footway is reduced to 3 metres or less, privacy solutions should be sought.

Rear Privacy and Window to Window Distances

If there is a 45 degree angle or more between facing windows of habitable rooms, the distance between them could be reduced. (See table in Appendix 7)

In flatted developments, there should be at least a 4 metres privacy zone between the ground floor flats and any communal path or open space/backcourt. This could be an allocated private garden for the ground floor flat, or an area of planting to provide privacy.

ASPECT, ORIENTATION AND DAYLIGHTING

Streets and dwellings should be orientated to maximise solar gain and protection from the wind. Dwellings should have large areas of clear glazing, with main rooms facing south or west wherever possible. Blank gables to the south should be avoided.

While layouts should maximise daylight and sunlight to dwellings and gardens, this should not be to the exclusion of other considerations such as privacy or streetscape.

Dwellings should have dual aspect however, where proposed, single aspect units should have more generous internal space standards and aspects similar to or better than similar dual aspect units.

There should be no adverse impact on existing or proposed neighbours in terms of overlooking, loss of privacy, daylight, or sunlight.

The Building Research Establishment (BRE) document - *Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice*, 2nd edition, (P Littlefair 2011) should be used to assess impact on daylighting or sunliting.



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SERVICES, UTILITIES AND STREET LIGHTING

Public and Private Services

The location and installation of utility apparatus should be considered early in the planning process. Individual utility providers should be consulted and an indication of proposed locations should be submitted to the Council as part of the Roads Construction Consent application (Refer to section 3.6 of Appendix 2, Construction Consent Guidance for New Residential Streets, for more details).

Utility apparatus should be laid in corridors throughout the site with minimal service connections across carriageways or under Sustainable Drainage Systems (SUDS). No utilities should be located under SUDS features with impermeable membranes, unless they are ducted and encased in concrete.

No underground services other than road lighting cables should be located within 0.5 metre of the rear of the footway to allow for lighting columns and joint pillars or other street furniture.

Details of all underground apparatus associated with the development should be registered on the Scottish Community Apparatus Data VAULT system.

Further information / advice regarding the provision of facilities can be downloaded from the National Joint Utilities Group (NJUG) at www.njug.org.uk

Street Lighting

Although there is no statutory requirement on local authorities in the UK to provide public lighting, the Roads (Scotland) Act 1984 empowers local authorities to light roads as they consider appropriate. Glasgow City Council consider high quality lighting to be fundamental to safety and the enhancement of sense of place and its design should be related to the function of the space being lit.

The developer is responsible for the provision and maintenance of street lighting on roads/streets and public amenities until they are formally adopted by Glasgow City Council. Unless agreed otherwise, lighting of roads/streets and public amenities shall be in accordance with BS5489: Part 1.

In residential areas columns should be sited with consideration to the house design and remote from the visual line of the main house windows, the preferred position being at the division of property where possible, with allowance for entrances and drives. The siting of street lighting should also take account of the street tree strategy. Both siting and direction of lighting should minimise disturbance to biodiversity, e.g. roosting birds and foraging bats.

Columns should be sited at the heel of the footway or service area. The distance between any two lighting columns in any direction shall not be less than 15 metres.

For further details see section 5.8 of Appendix 2, *Construction Consent Guidance for New Residential Streets*

STREET MATERIALS AND STREET FURNITURE

Street materials and street furniture can play an important role in creating character and enhancing the function and identity of a place (Refer to section 5 of Appendix 2, Construction Consent Guidance for New Residential Streets, for more details).

Future maintenance of all public open spaces, roads (carriageway, footway, verge), streets, paths associated with developments should be considered at an early stage in the planning process.

In terms of Section 16 of the *Roads (Scotland) Act 1984*, the Council as Local Roads Authority will, upon request, adopt and in perpetuity maintain any new road or street constructed in accordance with a Roads Construction Consent (RCC).

The following key principles should therefore be applied:

- Materials should be of high quality, durable, easy to maintain and readily procured.
- Clear responsibility for in perpetuity maintenance should be established and agreed at early stage.

- Designs should give careful consideration to the robustness, durability and future availability of the preferred materials for Public Realm, lighting, street furniture etc.
- Materials should take into account the varied needs of the pedestrian users of the environment.
- Tonal contrast in materials is a useful source of information for visually impaired people. There should be a strong tonal or colour contrast between kerb and footway. Ideally any change in paving material, colour or texture should have a distinct purpose e.g. to denote car parking spaces.
- Ensure that clear physical delineation between private and publicly adoptable areas is provided

Street Furniture

Street furniture should be placed to minimise obstruction and meet the following criteria:

- be at least 1m high, sited at the back of the footway or path, should not obstruct any road junction sightline and must have a single colour contrasting band at 1m above ground level;





- be detectable at ground level with a long cane;
- should be coloured or tonally contrasted from their surroundings to be more legible to visually impaired people;
- outwith pedestrian routes, seating should be at regular intervals (around 50 metres) and should be 450 – 480 mm high; and
- guardrails should be avoided but if, following agreement with the Council, they are considered essential, they should be 1.2 metres high and extend down to 200 mm of ground level. They should contrast tonally with their surroundings; alternatively, the ends of the railings should be highlighted with two 150 mm deep tonally contrasting bands.

Road Pavement Construction

Unless agreed otherwise, the specification for construction and inspection procedures of paved areas and street lighting shall be in accordance with section 2.4 and 5 of Appendix 2, Construction Consent Guide for New Residential Streets.

Kerbs should normally be provided alongside paved areas (carriageway, footway, shared surface, path, parking area, etc.) to provide edge restraint, delineation and facilitate the management of drainage flows. Drop kerbs should be used at pedestrian and vehicular crossing points with 6 mm and 20 mm upstands from the carriageway.

Carriageways should be designed as flexible pavements. Written approval of the Roads Asset Manager will be required for materials other than Hot Rolled Asphalt (HRA) or Dense Bitumen Macadam (DBM). A Materials Strategy which outlines the cost, durability and maintainability of the proposed materials compared to HRA and DBM over a 40 year design life, should be submitted to the Roads Asset Manager.

Each vehicular trafficked pavement for new residential streets should be designed based on the following inputs and specific circumstances of the site:

- Design Life,
- Design Traffic, and
- Stiffness and strength of the sub-grade / sub-formation soil, on which the vehicular trafficked pavement is to be constructed.

Pedestrian and Cycle Pavements

The design of pedestrian and cycle pavements should take account of ground conditions and the volume of pedestrian and cyclist activity.

All pedestrian and cycle pavements should be designed to accommodate the additional load imposed by frequent light vehicular over-run and very occasional heavy vehicle over-run. Required construction thicknesses are as shown in *HD39/01, Footway Design, Design Manual for Roads and Bridges: Volume 7*.

For further details see section 5.4 of Appendix 2, Construction Consent Guidance for New Residential Streets

REFUSE CONTAINMENT AND COLLECTION

Refuse vehicles should be able to stop within 15-20 metres of communal bins. Collection points for smaller individual bins should be within 45 metres of the access point for the refuse vehicles. The developer should agree bin collection points at the detailed layout stage and areas should be provided on street for larger bins on collection day to avoid obstruction of pedestrian routes.

High Density Housing

Usually communal bins with 1280 litres capacity should be provided. Bin storage should be within the building with bins presented for collection on the street by the factor. On-street collection areas should be provided

Tenemental Housing

Bin storage should be located in backcourts. Bins can be communal or individual (with 240 litres capacity) and should be presented for collection on the street by householders or the factor. On-street collection areas should be provided for communal bins.

Terraced Housing

Bin collection vehicles could come to the end of the rear lanes. Bin storage should be to the rear of the house

Detached and Semi-Detached Housing

Bin storage will be within individual house plots and the householder would be responsible for presenting the bins at the nearest bin collection point. Storage areas for four bins should be located within the rear or side garden. Layouts should make provision for residents to present bins on the street on the relevant day by the householders or the factors. Bin stores should be easily accessible for all residents but should not be located in front gardens.



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4.1 DETAILED DESIGN AUDIT

Objective: *At this last stage of the work, the developer will be required to review the detail of the design and demonstrates that this has been carried out in accordance with the Core Principles, the findings of the Appraisals and the advice as sets out in the Design Guide together with the outcome of the Preliminary Design Audit.*

The Detailed Design Audit should be accompanied by detailed plans, site sections and elevations.

It is envisaged that Road Safety Audits will be undertaken at the following stages:

- Stage 2, Completion of Detailed Design (for Roads Construction Consent)
- Stage 3, Completion of Construction (post-construction)
- Stage 4, Monitoring (post-construction)



At this stage the applicant will meet with the Council prior to the submission of applications for Planning and Road Construction Consent.

Guidance on submitting Planning, Road Construction Consent, Section 56 approval and Stopping Up Order applications are contained in section 2 of *Appendix 2, Construction Consent Guidance for New Residential Streets*



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REFERENCE DOCUMENTS
GLOSSARY
APPENDICES

REFERENCE DOCUMENTS

Roads (Scotland) Act 1984

Manual of Contract Documents for Highway Works, Volume 1 Specification for Highway Works, Highways Agency, Department of Transport

Manual of Contract Documents for Highway Works Notes for Guidance, Volume 2 Specification for Highway Works, Highways Agency, Department of Transport

Transport Research Laboratory TRL Report No. 332 *Road Layout Design Standards and Driver Behaviour*, G Maycock, PJ Brocklebank, RD Hall

Transport Research Laboratory TRL Report No. 661 *The Manual for Streets: Evidence and Research*, I York, A Bradbury, S Reid, T Ewings, R Paradise

Design Manual for Roads and Bridges: Volume 7, Highways Agency, Department of Transport

Cycling by Design

Scottish Road Works Register

Scottish Community Apparatus Data VAULT

National Joint Utilities Group (NJUG)

Scottish Planning Policy 1 (SPP1)

Designing Places

Designing Streets: A Policy Statement for Scotland (22nd March 2010)

The Glasgow and the Clyde Valley Strategic Development Plan

Glasgow City Plan 2

Sewerage (Scotland) Act 1967

Water Environment and Water Service (Scotland) Act 2003

PAN 61: Planning and Sustainable Urban Drainage

CIRIA C697: The SUDS Manual

SUDS for Roads

Whole Life Costs Model Sewers for Scotland 2nd Edition

WAT-RM-08 Regulation of Sustainable Urban Drainage Systems

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Building (Scotland) Amendment Regulations 2011, 2011 Technical Handbook, Section 3 - Environment

Please find below the link to the SUDS WLC and WLC Carbon tool on SCOTS website:

<http://scotsnet.org.uk/best-practice.php>

Available at this site are the following files for download:

- the SUDS for Roads WLC and WL Carbon Tool (recommend to save rather than open when downloading)
- the SUDS for Roads WLC and WL Carbon Guidelines
- an Excel file (with instructions) which users can use to compare different SUDS options
- a Feedback form (and email address to send feedback to).

Also available at this web location is a link to download the SUDS for Roads 2010 Guidelines Manual.

BS 3882 : 1994, Specification for Topsoil

BS 5837 : 2012, Trees in Relation to Design, Demolition and Construction

CIRIA: The benefits of large species trees in urban landscapes: a costing design and management guide. Draft 6 | September 2011

Trees in the Townscape: A Guide for Decision Makers, Trees and Design Action Group (www.tdag.org.uk)

GLOSSARY

Adopt	Add to the Local Roads Authority's list of public roads
Allocated Parking Spaces	Parking spaces or driveways which are for the exclusive use of the residents of the individual dwelling and their visitors.
Bavarian B Plan	A plan that uses colour to highlight the components of a development layout e.g. red for buildings, green for open spaces and yellow streets and paths.
Biodiversity	The existence of a wide variety of plant and animal species in their natural environments
Build Out	Narrowing of the carriageway constructed on only one side as an extension of or adjacent to the verge, footway or cycle track.
Carriageway	That part of a road constructed for use by vehicular traffic. Auxiliary traffic lanes, passing places lay-bys and bus bays are included.
Chicane	A series of built outs on alternate sides of the carriageway.
CIRIA	Construction Industry Research and Information Association
CPZ	Controlled Parking Zone.
Curtilage Water	Surface water draining from roofs, driveways, grounds and car parks within the enclosed area immediately surrounding a house of dwelling
Cycle lane Cycleway DBM	Part of the carriageway intended for use by cyclists only.Part of the road, but separate from the carriageway. Pedestrians and cyclists may share a cycleway or they may be segregated from each other.Dense Bitumen Macadam. A pre-mixed continuous grading bituminous material.
Dropped Kerb	A reduction in carriageway edge kerb height.
Fine Urban Grain	Urban grain is the pattern of building plots, street blocks and streets in urban areas. A fine urban grain has small plots and street blocks with frequent junctions.

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Flexible Pavements	Roads constructed from bituminous materials that yield elastically to traffic loading
Fluvial	Flooding from rivers and burns
Footway	That part of a road associated with a carriageway reserved exclusively for pedestrians.
Formation	Subgrade prepared for road construction.
Gateway	An object or structure constructed on the verge footway or cycle track of a road for the purpose of indicating the presence in a length or lengths of road or roads of traffic calming works of a description, prescribed by the Traffic Calming Regulations.
HRA	Hot Rolled Asphalt. A low stone content pre-mixed gap graded bituminous material
Impermeable Membranes	A waterproof membrane
In-curtilage	Within the ground surrounding or belonging to a building.
Lateral Shift	An abrupt change in the alignment of the carriageway.
Overland Flow	Water flowing over the ground surface toward a channel; upon reaching the channel, it is called surface runoff.
Path	A road not associated with a carriageway, for use by pedestrians and pedal cycles only.
Pavement	Layers of the carriageway, footway, footpath or parking area structure above formation level, i.e. Surface Course, Binder Course, Base and Sub-Base.
Pinch point	Build outs constructed on both sides of a carriageway opposite one another.

Playable Space	Landscaped areas which have been designed to provide opportunities for informal children’s play, including for example mounded land forms, imaginative planting and objects such as rocks, logs and paving.
Pluvial	Ponding of rainwater which has not entered a drainage network, normally occurring in low lying areas.
Road	Any way (other than a waterway) over which there is a public right of passage (by whatever means) and including the road’s verge and any bridge (whether permanent or temporary) over which or any tunnel through which, the road passes.
Road Bond	A deposit lodged as a security with the local Roads Authority as a legal requirement, before work can commence on house construction within a housing development.
Road Construction Consent	The authority to construct a new road or an extension of an existing road irrespective of whether or not such roads are to be submitted for adoption as public granted by the Local Roads Authority under Section 21 of the Roads (Scotland) Act 1984.
RPZ	Restricted parking Zone.
Safety Audit	A formal systematic procedure applied at various stages of a road scheme to ensure that they operate as safely as possible.
Service Strip	Reservation for Statutory Undertaker services (gas, water, (etc)) normally located within confines of footway or verge.
Shared Surface	Paved area for unsegregated use by both pedestrians and vehicles.
SSD	Stopping Sight Distance
SUDS	Sustainable urban Drainage System
Swales	Type of SUD (depressed grass verge) adjacent to carriageway

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TPOs	Tree Protection Orders. Councils can designate certain trees or groups of trees as having special protection. Permission is required from the Council to fell or lop such trees.
Transport Assessment	A report which assessed the impact of a new development on the road and transportation network.
Unallocated Parking Spaces	Parking spaces which do not relate directly to any particular dwellings and are considered to be for the use of either residents or visitors on a “first come first served” basis.
Verge	The landscaped part of a road adjacent to the carriageway and generally at substantially the same level. It may abut footways, cycle tracks or ditches.
Vest	To be responsible for maintenance.
Visibility	The intervisibility between vehicles or between vehicles and pedestrians. Where this crosses land beside the road the area must be kept clear of obstructions and is called a “visibility splay” at a junction and “forward visibility” when travelling along a road.
WLC	Whole Life Costs



APPENDICES

Appendix 1 - Planning Guidance

*Appendix 2 - Construction Consent
Guidance for New Residential
Streets*

Appendix 3 - SUDS and Flood Management

*Appendix 4 - Guidance on street tree details,
specifications and standards*