T2 C11a

RadioStation Rugby

KEY PHASE 3

Tier 2: Application to Discharge Outline Condition 11a

Design Guide

This Design Guide has been prepared in response to Condition 11 of the Radio Station Rugby Outline Planning Permission (application reference R11/0699).

The Design Guide is to be read with reference to the Rugby Radio Station (Outline Planning Application) Design and Access Statement.

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Design Guide

Fig 0.1: The high quality of design including landscape, streets, community facilities and development being implemented in Key Phase 1 sets a standard for Key Phase 3 to follow.

Preface

Outline planning permission for a sustainable urban extension (SUE) at Rugby Radio Station was granted by Rugby Borough Council in May 2014 (ref: R11/0699) and a S.73 application was approved for the site in June 2017 (ref: R17/0022). The SUE comprises 6,200 dwellings together with up to 12,000 m² retail (A1), up to 3,500 m² financial services (A2) and restaurants (A3-A5), up to 3,500 m² for a hotel (C1), up to 2,900 m² of community uses (D1), up to 3,100 m² assembly and leisure uses (D2), 31 hectares (up to 106,000sqm of commercial and employment space (B1, B2 and B8).

Due to the strategic nature of the SUE and the scale and complexity of the development, the site will be developed in a series of 'Key Phases'. This will ensure that implementation can respond to market demand and the practicalities of development. The conditions attached to the outline planning permission require a three tiered approvals process to control the design and delivery of the development from outline, to Key Phase, to detailed site level. This approach is set out below.

Tier 1: Outline Planning Permission

The outline planning permission approved the broad quantum and disposition of land uses as defined by the Development Specification, Parameter Plans and the general design principles within the Design and Access Statement. Submission and approval of a set of site wide strategies in relation to specific topics is required by outline condition 6, prior to the commencement of development or approval of any Reserved Matters applications. The site wide strategies will supplement the parameters set by the outline permission.

Tier 2: Key Phase

Outline conditions 9, 11 and 12 require approval of detailed documentation to agree the definition of and provide a framework for each Key Phase. At this tier a greater level of detail is provided specific to that Key Phase with the required technical information to inform and provide a base against which Reserved Matters applications within the Key Phase area can be assessed:

- **Condition 9:** Key Phase Definition Statement - to define and justify the extent of that Key Phase.
- **Condition 11:** Key Phase Framework – following the definition of each Key Phase, a Framework including a Design Guide / Code, Delivery Plan and other Key Phase specific documents including any relevant supplements to the Tier 1 site wide strategies, that establish the design and delivery framework for that Key Phase, will be submitted for approval. These documents ensure that the Council can exert control over subsequent Reserved Matters applications and the implementation of development in that Key Phase.
- **Condition 12:** Key Phase Technical Requirements – detailed assessments for that Key Phase relating to specific technical issues such as heritage, ground conditions and ecology.

Tier 3: Reserved Matters

Once a Key Phase has been fully approved, including the relevant Framework documents relating to Tier 2, Reserved Matters applications can be approved for individual parcels or infrastructure within that Key Phase. These Reserved Matters applications will provide a further level of detailed design in accordance with the Framework for that Key Phase, including the Design Guide and the requirements of outline condition 15 (Reserved Matters applications).

Key Phase 3

SUE GP LLP are now seeking to facilitate a start on site on Key Phase 3 (KP3) through the submission of the necessary material to allow the Key Phase to progress and the first elements of infrastructure to be implemented. This requires the approval of a series of documentation in accordance with the tiered approach outlined above. Details are being prepared to be submitted to RBC for approval to facilitate the commencement of KP3, as follows:

Tier 1 - Outline

Condition 6 Site Wide Strategies have been submitted and approved by RBC in June 2014.

Tier 2 - Key Phase

1. Condition 9 KP3 Definition
- KP3 Definition Statement

   (The extent of KP3 in relation to the SUE is illustrated in Figure 0.3.)

2. Conditions 11 and 12- KP3 Framework and Technical Requirements
- **11a) KP3 Design Guide**
- 11b) KP3 Delivery Plan
- 11e) KP3 Code of Construction Practice Part B
- 12a) KP3 Heritage Statement and Mitigation Strategy
- 12b) KP3 Ecological Mitigation and Enhancement Strategy
- 12c) KP3 Foul and Surface Water Drainage Strategy
- 12d) KP3 Site Investigation of Ground Conditions

Tier 3 – Reserved Matters

A Reserved Matters application, together with full supporting technical information relevant to the Reserved Matters area, in accordance with outline conditions 14 and 15, will deliver the remaining strategic infrastructure for KP3.

This KP3 Design Guide forms part of the Tier 2 application to discharge in part outline condition 11 – KP3 Framework.

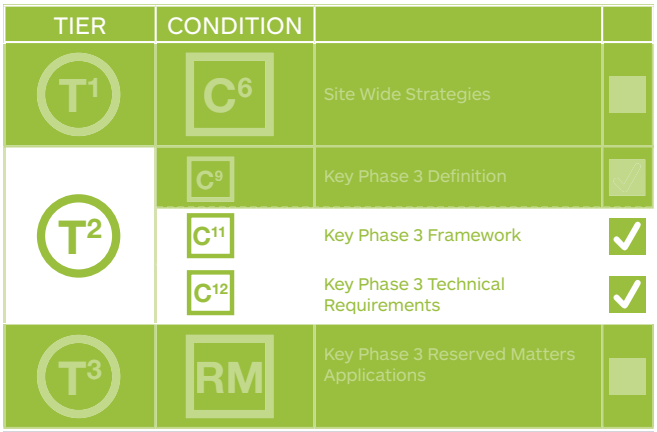

Fig 0.2: Diagram illustrating where the Design Guide sits within the tiers of the Key Phase approach.

Fig 0.3: Aerial Photograph with Radio Station Rugby Outline Planning Permission site (red line), Key Phase 1 (blue line) Key Phase 2 (yellow line) & Key Phase 3 (green line)

Overview of the Design Guide Contents

The Design Guide has been structured as follows:

Part A: Background, introduces the Design Guide and provides an overview of the context for the KP3 Design Guide in geographic, planning and design terms.

Part B: Spatial, presents design guidance information that establishes the development framework for KP3 including:

- Landscape Design;
- Movement & Access; and
- Built Form.

Appendices: Associated important KP3 information is set out in a set of appendices including indicative sequencing and compliance checklist. Appendices also include a sustainability statement that sets out sustainability targets for KP3 in terms of energy, waste and water.

	Part A: Background	
	Explains and appraises the context of the Key Phase 3 development area and the proposed development.	
	Chapter 1	Introduction
	Chapter 2	Context
	Part B: Spatial	
	Establishes a comprehensive framework for development for the Key Phase 3 area under chapter headings as follows:	
	Chapter 3	Landscape Design
	Chapter 4	Movement & Access
	Chapter 5	Built Form
	APPENDICES	
	Appendix A1 KP3 Compliance Checklist	
	Appendix A2 KP3 Sustainability Statement	
	Appendix A3 KP3 Indicative Sequencing	
	Appendix A4 List of Figures	

Fig 0.4: Overview of KP3 Design Guide Structure

PART A:

Background

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Chapter 1
Introduction

1.1 Objectives and Design Responses for Key Phase 3

The following table lists the overarching objectives that the design of Key Phase 3 (KP3) should achieve when implemented. Objectives are set out in the left hand column and the way in which they are to be achieved is set out in the right hand column.

KP3 Objective	Design Response
Successful Development Edges	• Key Phase 3 marks the western edge of development on the RSR site. This edge will be visually prominent, especially when viewed on the approach along the RSR 'Link Road' and as such a high quality design response is required, including: • High quality architectural design, particularly for housing addressing the western edge of Key Phase 3; • Housing on the western edge of Key Phase 3 will mark a 'Gateway' into the site from the Link Road and this should be marked with architectural articulation. • Excellent landscape design response, to help integrate Key Phase 3 with the wider landscape setting and context of the Link Road corridor and associated Green Infrastructure, including the Canal Green to allow for retention and enhancement of the bank adjacent to the Oxford Canal.
High quality development	• Proposals will follow the guidance set in the Design Guide and Regulatory Plan to help ensure a high quality development of landscape, movement and built form within Key Phase 3.
Development in residential parcels to include high quality landscape design	• The design of residential development parcels will demonstrate commitment to continue high quality design of landscape and public realm, led by the master developer's provision of a high quality Green and Grey Infrastructure Framework for Key Phase 3. • Notable landscape design features include the sensitive treatment of edges of residential areas facing west towards the link road, south towards the canal, east to Normandy Hill and north to the A5.
Distinctive identity	• The Design Guide sets material palettes for public realm landscape design and built form to help ensure a consistency in approach and specification. • Guidance for character areas within Key Phase 3 is provided in the Built Form chapter to guide appropriate design responses related to location and neighbouring land uses.
Walkable and cycling neighbourhoods and permeable network of streets	• The proposals for Key Phase 3 will be designed to encourage walking and cycling between areas within and beyond Key Phase 3 with provision of walking routes both on street in the movement network and leisure routes through green infrastructure.
Active frontages	• Homes will be designed to predominantly address public realm (streets and spaces) to ensure streets and spaces will be overlooked providing natural surveillance. This is particularly important for green infrastructure, the primary school and the Local Centre.
Opportunity for contemporary design	• A contemporary design approach to the appearance of built form proposals, that interpret the Design Guide principles in a contemporary style will be looked upon favourably by Rugby Borough Council.
An extensive and diverse green infrastructure setting	• The proposals will facilitate a network of green infrastructure including wildlife corridors to encourage biodiversity and quality landscape creation, along with a range of play areas, high quality civic space and utilisation of Ridge and Furrow on Normandy Hill.
Vibrant and desirable mixed communities	• A local centre will be created within Key Phase 3 to provide opportunity for mixed uses set around a high quality public space. • A range of residential homes will be provided to offer housing opportunities for a wide range of people and households. • The second primary school will be located at the centre of Key Phase 3.
Key Grouping(s) of Distinctive Urban Form	• The proposals will provide the setting for innovative architecture to highlight the significance of Key Groupings within Key Phase 3.

Fig 1.1: Table of KP3 Objectives and Design Responses

Fig 1.2: Precedent Photographs: illustrating examples of potential design responses for Key Phase 3 including:

1. An appropriate gateway to the development
2. Homes addressing landscape
3. Opportunity of waterside development facing canal
4. Importance of frontages to open spaces and landscape
5. Active frontages to address public realm
6. Walkable and cycling neighbourhoods
7. Opportunity for contemporary design
8 Key Groupings

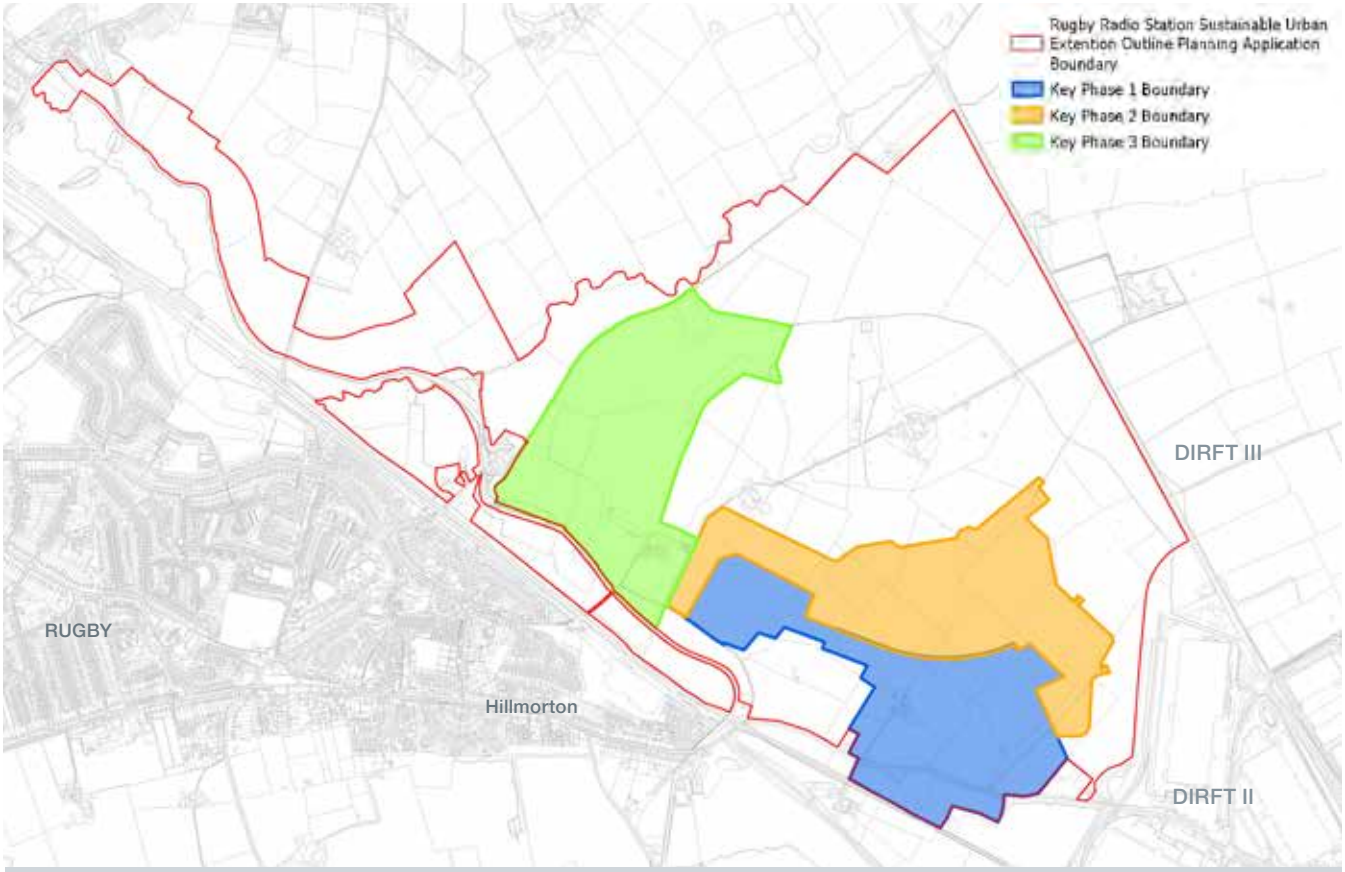


Fig 1.3: Rugby Radio Station Outline Planning Application Area and Key Phase 3 Boundary

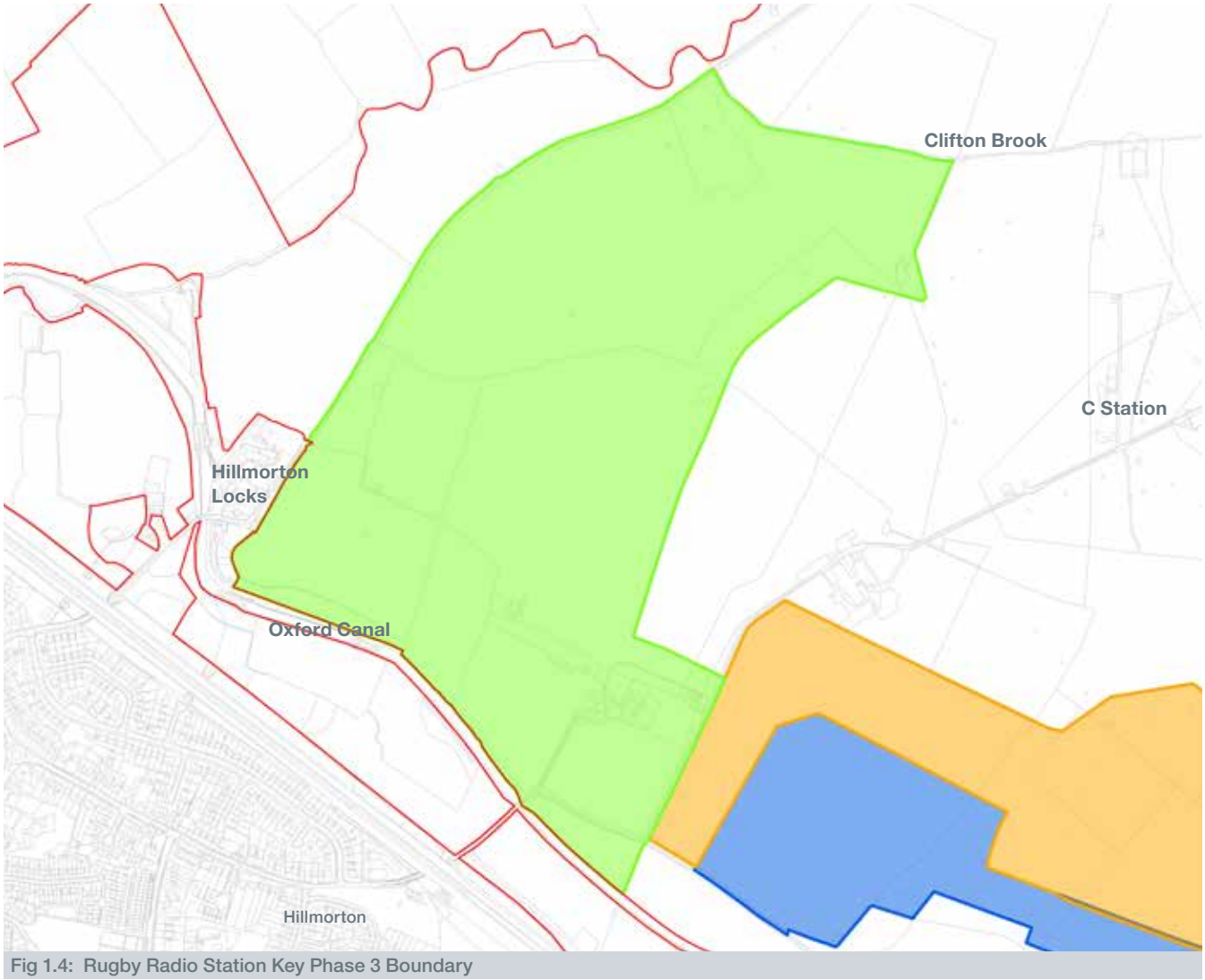


Fig 1.4: Rugby Radio Station Key Phase 3 Boundary

1.2 Purpose of the Design Guide

This Radio Station Rugby Key Phase 3 Design Guide has been submitted as part of a package of documents known as the Key Phase 3 Framework Documents.

These documents are required by Rugby Borough Council to discharge Condition 11 of the Outline Planning Permission (OPP) (ref: R17/0022) in respect of Key Phase 3.

The purpose of this Design Guide is to provide design guidance for the development of Key Phase 3 of Radio Station Rugby against which subsequent Reserved Matters Applications within that phase will be considered.

It has been prepared to ensure that the highest standard of design is delivered when preparing and considering Reserved Matters applications that are submitted pursuant to the Key Phase 3 of the OPP for the site.

In so doing, the Design Guide carries forward the design ethos as set out in the Outline Planning Design and Access Statement, translating this into the second Key Phase of the development.

Terminology:

- Hereafter the Radio Station Rugby Key Phase 3 Design Guide will be referred to as the Design Guide, in addition;
  - Rugby Borough Council will be referred to as RBC;
  - Warwickshire County Council will be referred to as WCC;
  - The Outline Planning Permission will be referred to as OPP;
  - Radio Station Rugby will be referred to as RSR.
  - Sustainable Urban Extension will be referred to as SUE;
  - Central primary street will be referred to as CPS;
  - Key Phase 3 will be referred to as KP3;
  - Key Phase 2 will be referred to as KP2; and
  - Key Phase 1 will be referred to as KP1.

1.3 Status of the Design Guide

The Design Guide has been prepared to part discharge condition 11 of the OPA Permission for RSR as relating to KP3. As such, the Design Guide is consistent with, and provides an enhanced level of detail to the approved Tier 1 documents for the wider site, namely the updated Parameter Plans, Development Specification, the Design & Access Statement Addendum and Supplementary Environmental Impact Assessment and should therefore be read in conjunction with these documents.

The Design Guide is specific to KP3. However it draws upon national and local best practice urban design guidance including By Design: Urban Design in the Planning System (2000); The Urban Design Compendium 1 & 2 (2000, 2007); Manual For Streets 1 & 2 (2007, 2010); Building for Life 12 (BfL12) (2012). The Design Guide also considers and responds to local design guidance including the Sustainable Design & Construction SPD (RBC, LDF, 2012).

The Design Guide has been approved by Rugby Borough Council and is a material consideration in the determination of applications in KP3.

1.4 Design Principles

The Design Guide includes:

a. **Design Principles** - elements within the Design Guide that should be adhered to.

b. Supporting illustrative content that shows how development may be configured to comply with the Guiding Design Principles.

Figure 1.5, provides an example of the relationship between design principles and supporting illustrative content to illustrate how they are identified.

How Design Principles are presented in the Design Guide:

- Guiding Design Principles are identified in summary lists at the start of chapters.
- Further supporting Design Principles are provided within the chapter, and are supplemented with indicative material to articulate the principles.
- Design Principles from all chapters are listed together in the Compliance Checklist provided in Appendix 1. Refer to 1.7 for further detail on the purpose of the checklist.

Fig 1.5: Example page layout showing how design fixes and design guidance are presented in the Design Guide

1.5 Using the Design Guide

The Regulatory Plan forms the overriding design control tool and informs the structure of the Design Guide.

The Design Guide document must be read alongside the accompanying Regulatory Plan. A full size version of the Regulatory Plan (1:2,000 scale at A0) is provided in the inside sleeve of paper copies of this Design Guide.

The following pages explain how the reader should use the Design Guide and Regulatory Plan.

Figure 1.6, below, gives an overview of the relationship between the Regulatory Plan and Design Guide document: the Regulatory Plan is the most important Design Guide plan and its content is explained in more detail in chapters within the document that relate to the plan's key. Chapters within Part B of the document expand upon the spatial framework for development, covered under the five topic areas listed.

Figure 1.7, shown over the page presents a flow chart diagram of 'How to Use the Design Guide', showing how the chapters build up, explaining layers of Regulatory Plan and associated material.

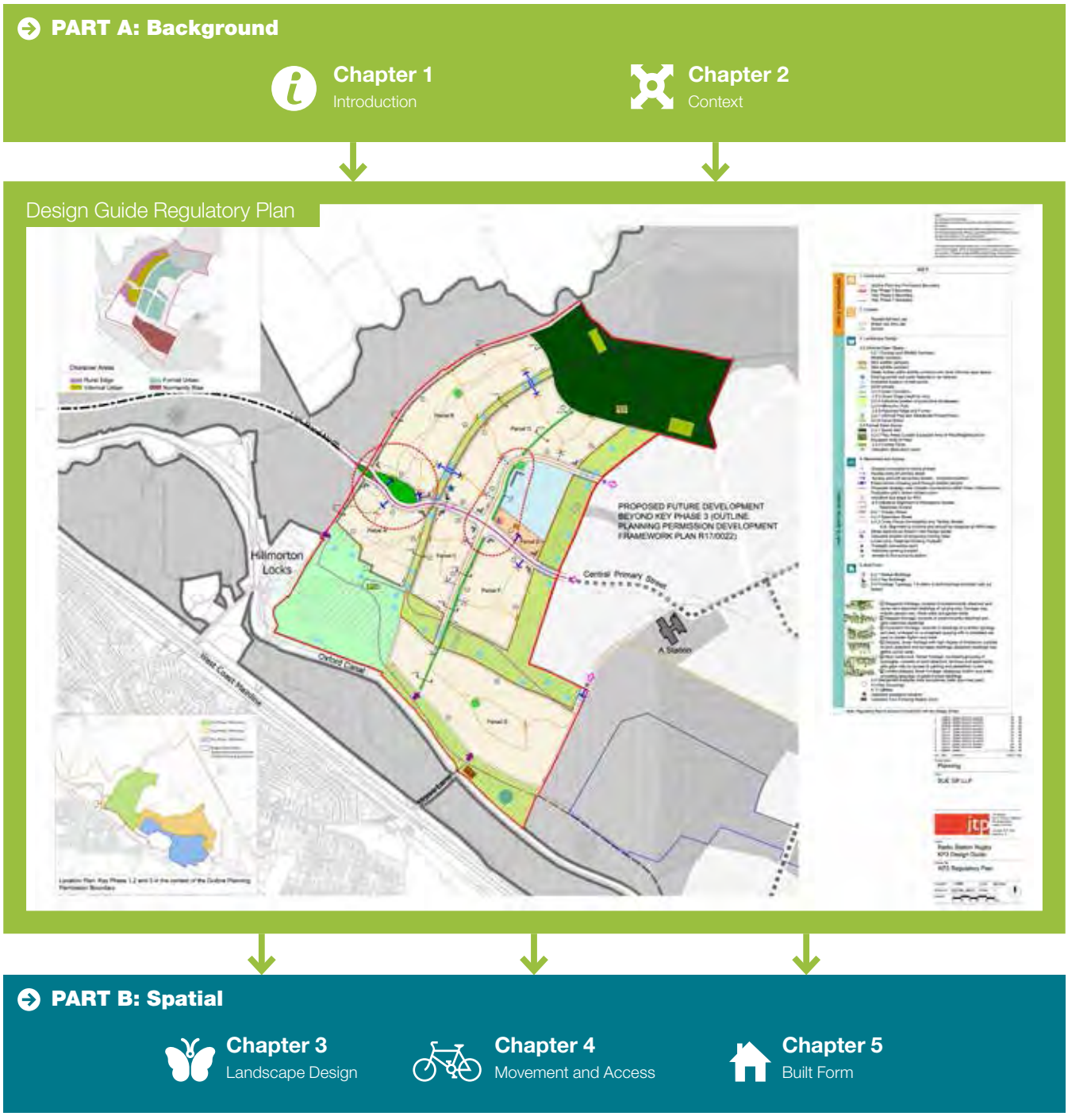
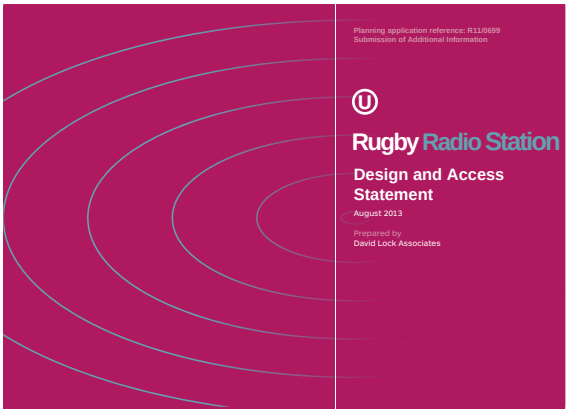


Fig 1.6: Design Guide Structure

Planning Application and DAS Addendum for the S.73 set the overall design context for the wider scheme. **The Design Guide for KP3 should be read alongside the DAS and its addendum.**

The main principles contained within the DAS, together with the OPA Parameter Plans, provide the framework for the Design Guide and Regulatory Plan.

RSR OPA DAS:



RSR KP3 Design Guide:

RSR KP3 Regulatory Plan:

PART A: BACKGROUND
Chapter 1: Introduction

Chapter 2: Context

PART B: SPATIAL
Chapter 3: Landscape Design

Chapter 4: Movement and Access

Chapter 5: Built Form

Fig 1.7: How to use the Design Guide

1.6 The Regulatory Plan

The Regulatory Plan provides the main design control tool. It sets the framework for development within KP3.

The Regulatory Plan is informed by the Development Framework Plan from the Outline Planning Application, demonstrating broad compliance with its parameters.

The Regulatory Plan defines key design structuring elements which are expanded upon in chapters of the Design Guide.

The key to the Regulatory Plan precisely cross references Part B chapters of the Design Guide, comprising:

1 Introduction;
2 Context;
3 Landscape Design;
4 Movement & Access; and
5 Built Form.

The Regulatory Plan also illustrates points of more technical detail that are expanded upon further within the Landscape Design chapter of the Guide.

These items include ecology issues such as ponds, locations for play areas, utilities including indicative locations for substations, and surface water drainage."

Parcel references:
The Regulatory Plan includes parcel references for development parcels. These letters are not cross referenced in the Design Guide, but are provided for ease of reference for future Reserved Matters applications. These parcel references do not represent a phasing sequence.

Further Regulatory Plan reference:
- An extract of the Regulatory Plan is presented in Figure 1.8, below.
- For a full scale print version of the Regulatory Plan please refer to the A0 copy located in the inside sleeve of the Design Guide.

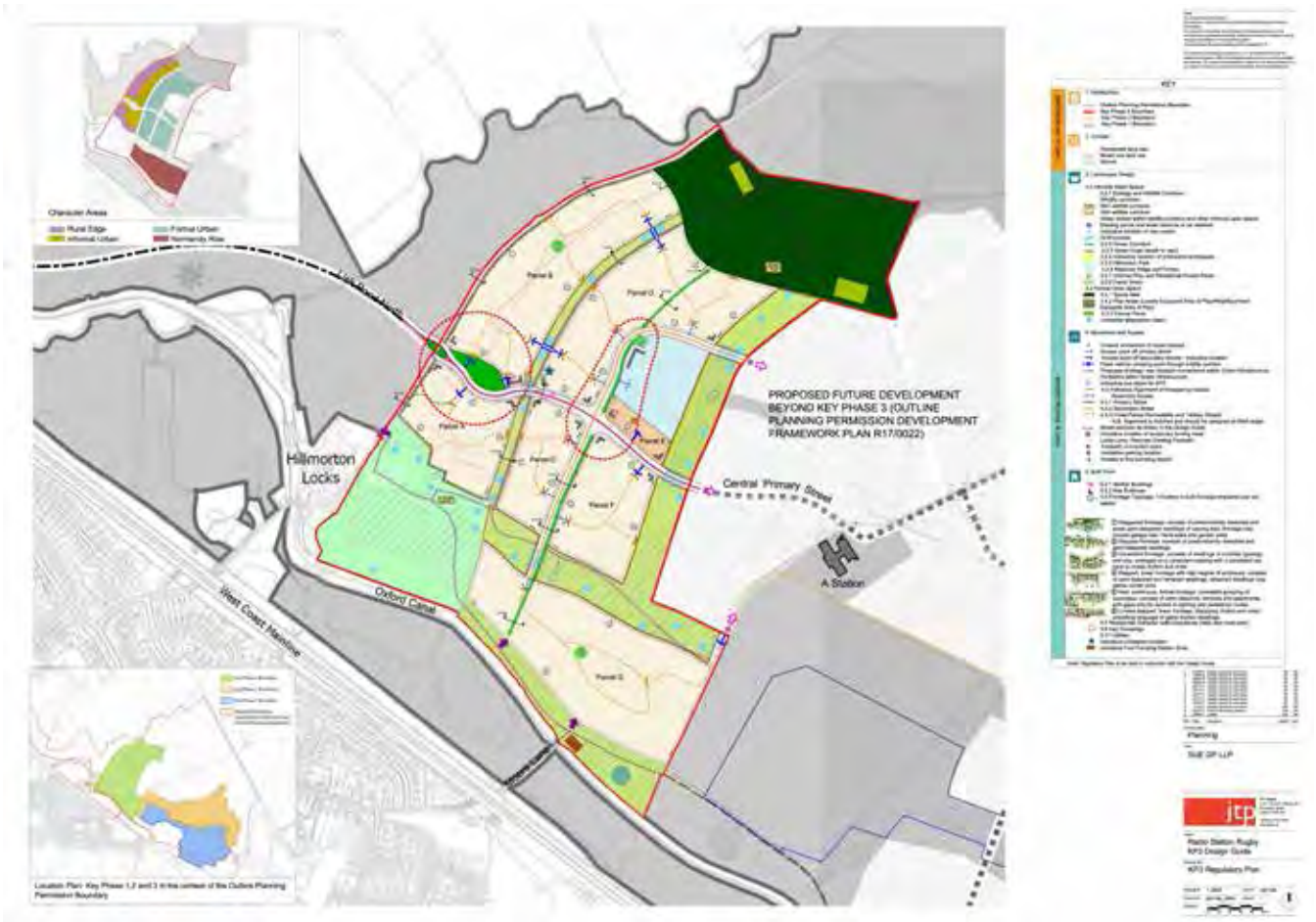


Fig 1.8: Extract of KP3 Design Guide Regulatory Plan (Please refer to full size A0 plan in inside sleeve of report)

The Regulatory Plan sets out the overall development concept and establishes the key parameters and mandatory elements of the design of KP3 for specific parcels within that phase. The structure of the Guide follows the structure of the Regulatory Plan key, therefore the Regulatory Plan must be read in conjunction with the Design Guide.

This Figure provides a series of steps which explain the process through which individual development parcels are to be designed using the Regulatory Plan and the Design Guide. Each step is set out as follows:

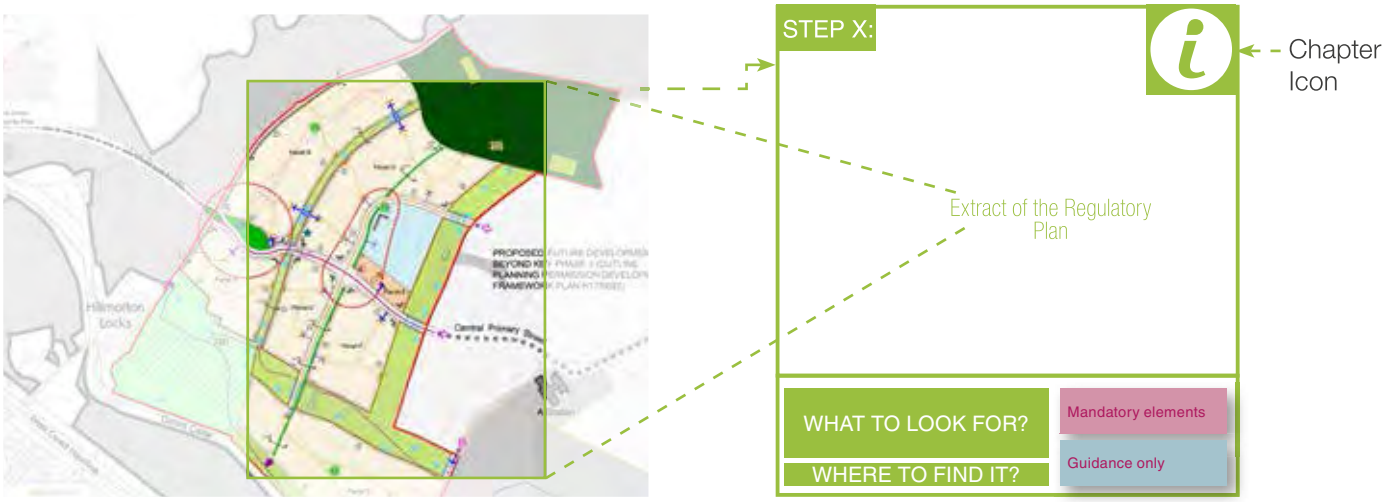


Fig 1.9: How to use the Regulatory Plan

STEP 1: LAND USES

1. Land use type
2. Parcel reference

Refer to the Regulatory Plan

Land use and parcel size / location

STEP 2: LANDSCAPE DESIGN

1. Types of Landscape Design

Chapter 3

Size, scale, facilities and character

Detailed design

STEP 3: ACCESS AND MOVEMENT

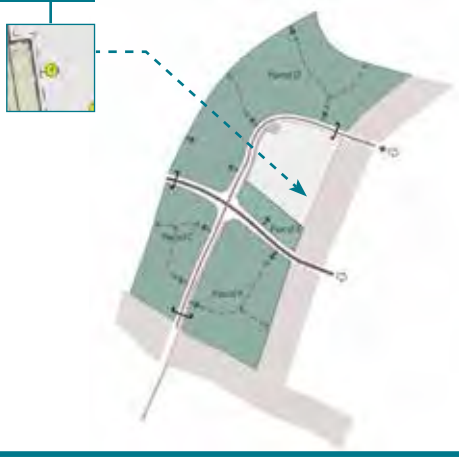
1. Access points
2. Street types and sections
3. Footpath / cycleways and bus stops

Chapter 4

Street types, access, footpaths/cycleways

Indicative tertiary streets, bus stop location

STEP 4: FRONTAGE CHARACTER



1. Location of mixed use and commercial groupings
2. Residential groupings for residential character

Chapter 5

Design principles

Detailed design

STEP 5: CHARACTER AREAS

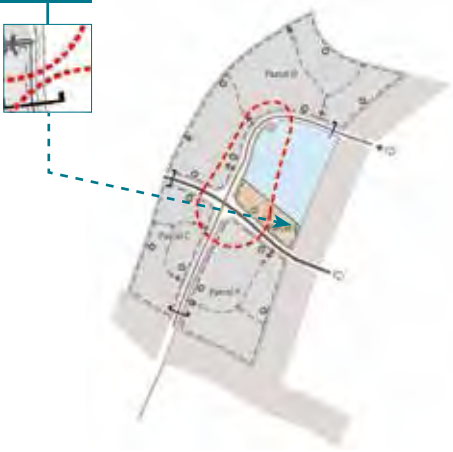
1. Character area boundaries, descriptions of character areas set out in detail in the Design Guide

Chapter 5

Location / description of character area

Detailed design

STEP 6: MIXED USE & KEY GROUPINGS



1. Character area boundaries, these relate to residential material palettes

Chapter 5

Material palettes for each character area

Detailed design

1.7 Design Guide Compliance Checklist

Reserved Matters planning applications must be accompanied by a completed Compliance Checklist showing how proposals accord with the Design Guide.

Any substantive differences from the principles within the Design Guide should be identified and justified.

The Compliance Checklist lists the mandatory elements from the Design Guide.

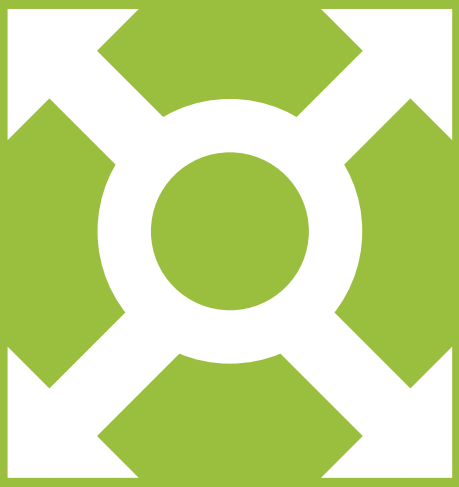
1.8 Design Guide review

Refer to Appendix 1 for a full version of the compliance checklist, an illustrative extract is presented in Fig 1.10. In the future a review of the Design Guide may be required to reflect changing and unforeseen circumstances, including updates to national and local policies and the results of site and ground investigations. Any review would be undertaken by mutual agreement between the master developer and RBC.

Fig 1.10: Design Guide Compliance Checklist, extract. See Appendix 1 for full version.

Chapter 2

Context



2.1 Introduction, Location & Scope of KP3

To create a sense of identity and place, it is vital to understand and appreciate the context for the Design Guide and the KP3 area that it covers. Critically, this needs to reflect not just the existing surroundings of the area but also how the KP3 Design Guide fits within the wider vision and aspirations that have been established for the RSR site as a whole. This chapter of the Design Guide therefore considers the existing wider, local and site specific KP3 context.

2.2 Wider Context

Rugby as shown on Fig 2.1, is uniquely positioned at the centre of England. The influence of the natural geographical characteristics of the area on Rugby's historic origins and subsequent development cannot be understated. Six lines of national communication, including the Roman Watling Street (A5), the Oxford Canal, the West Coast Main Line and the M1 run through or adjacent to Rugby, see figures 2.1 and 2.2. The confluence of these routes at a central location within England, with the addition of the M6 to the north of the town and M45 to the south, constitutes one of the most significant reasons for Rugby's steady growth and prosperity. From its early role as a staging post through to the success of Daventry International Rail Freight Terminal (DIRFT), the town's economic story continues to be intrinsically anchored to its central location.

This context is significant to the design of RSR and the composition of the development. In particular the relationship of the development with DIRFT, the adjacent railway lines and the A5, demand a master plan response which mediates between economic advantage and the creation of a high quality living environment.

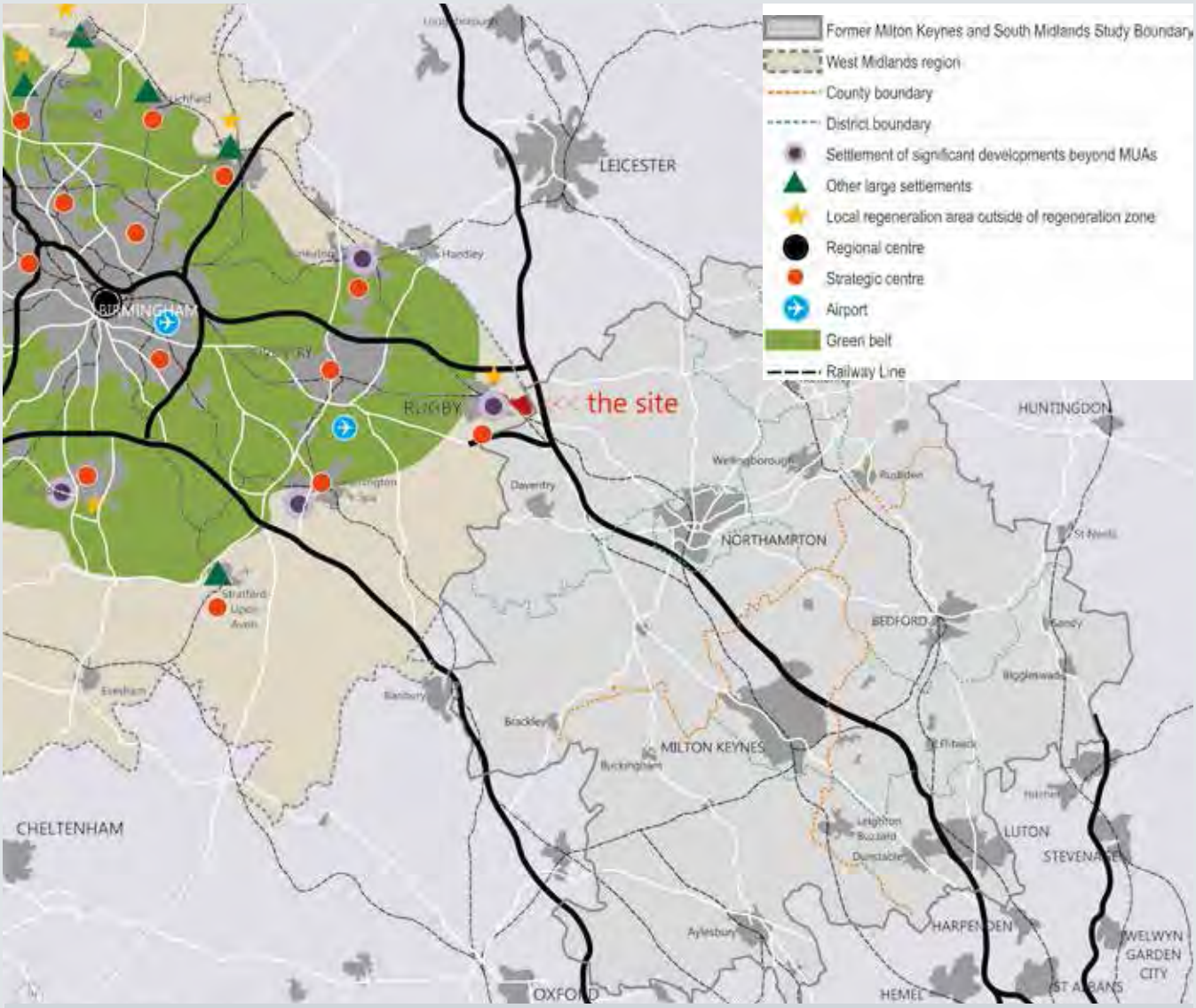


Fig 2.1: RSR Wider Location Plan

2.3 Local Context

Figure 2.2 illustrates the position of RSR set in the local context of the town of Rugby to the west, and the strategic road connections of the M1 and A5 to the east.

Town context of Rugby

Rugby is host to significant achievements in education, engineering and technology. Early industrialisation, enhanced by the construction of the Coventry and Oxford Canals, began with the extraction of natural materials and led to sizeable employment at the cement works. Advancements in railway construction and manufacturing brought further influxes of skilled workers and a wave of house building. Diversification followed; the success of Rugby School led to growth in the professional and service sectors. Substantial success in electrical engineering and telecommunications, including Rugby Radio Station, made Rugby a noteworthy town. In the latter part of the Twentieth Century, Rugby's advantageous connection to the country's strategic highway network led to the successful growth in light industrial, office and commercial businesses and more recently logistics and distribution.

Radio Station Rugby

As the most enigmatic and powerful symbol of Rugby's technological status, the Radio Station was developed in the first half of the 20th Century in response to the Government's desire to establish a chain of wireless radio stations for communication across the British Commonwealth. The 12 main masts became important landmarks for the town and the radio station, subsequently being clearly recognisable from the M1 and surrounding landscape.

Less visible from the outside, but of significance is the key building associated with transmission; C Station. The C Station lies within the site and is a listed building of substantial scale and height. Whilst all of the 12 masts have been removed, C Station remains and can be embedded in the new development, to continue the connection with the history of the site and its role in British history.

Outline Planning Application Site

The RSR Outline Planning Application covers a site of 473.2 hectares (1,169 acres). KP3 has an area of approximately 56.5 ha, both are illustrated in Figure 2.2, below.

Fig 2.2: Aerial Photograph with Development Framework Plan

2.4 Existing KP3 Context

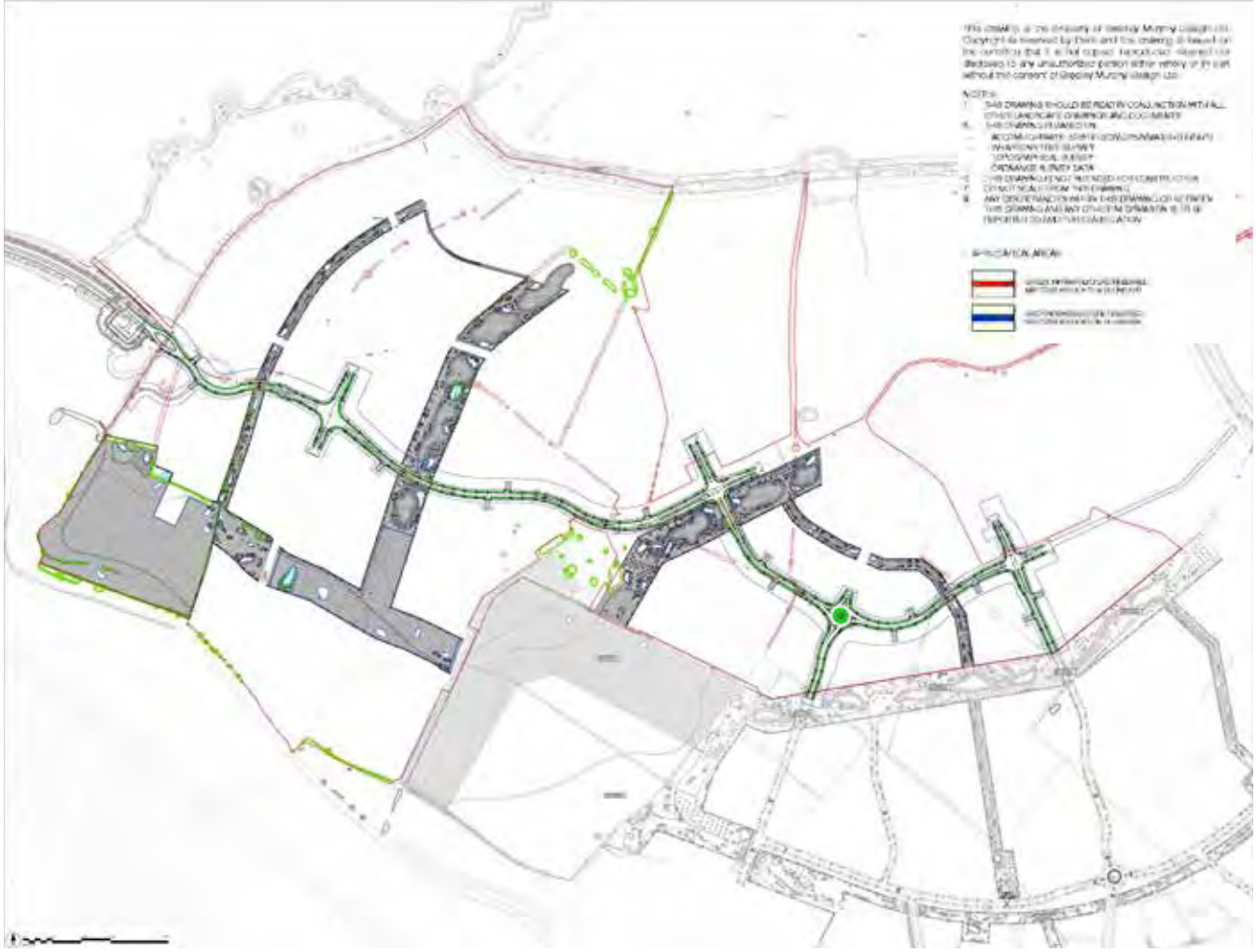
KP3 is located within the western part of the SUE as illustrated in Figure 2.3. Acting as the western edge of the development area, KP3 extends from Locks Lane to the west, to the Oxford Canal and Moors Lane to the south, the access road to the east of KP3 (adjacent to Normandy Hill) and the easternmost 60m wildlife corridor to the east and the area of informal open space associated with the Clifton Brook floodplain to the north (as identified on the Development Farmework Plan).

To the south west of KP3 is Hillmorton Locks, the existing community and Conservation Area adjacent to the canal. The curtilage listed A Station and listed C Station buildings are located to the east of this Key Phase. The Link Road North (approved via reserved matters application R16/1638) is under construction and will be located immediately to the west of KP3, ultimately providing a connection to Butlers Leap and Rugby town centre. The proposed Central Primary Street, that will connect the Link Road with the street network provided within KP1 and KP2 will run through the centre of KP3. Future residential parcels will be located to the east of KP3, between it and the District Centre associated with the C Station.

Fig 2.3: KP3 Aerial Photograph

The site is currently vacant and utilised as managed pasture and farmland associated with Normandy Farm. Existing field boundaries within the site are predominantly delineated by ditches and hedgerows, some of which are identified as important and worthy of retention. The site also contains some small ponds which are known to provide habitat for great Crested Newts. The site also contains part of the existing access road to A Station and the Normandy Farm buildings.

Fig 2.4: Central Primary Street Green and Grey Infrastructure proposals



2.5 Existing KP3 Site Features Overview

Existing KP3 site features are listed below and illustrated on Figure 2.5, these include:

Topography:
- Local topography is illustrated in Figure 2.5, notable for highest ground to the north of Normandy Farm, falling south towards the Oxford Canal.
- The remainder of the site has more gentle rolling topography, marked on the ground in parts by the presence of areas of Ridge and Furrow, ditchcourses trees, hedgerows and occasional ponds.

Landscape:
- The predominant ground cover is rough grass that has been used for grazing.
- Ridge and Furrow earthworks are a feature of the KP3 site. The figure opposite illustrates the area that is to be retained as part of the Preservation Areas.
- Hedgerows of varying degrees of quality exist within KP3. This includes identification of existing hedgerows, hedgerows to be retained and hedgerows to be removed. Refer to section 3.5 for more detail.
- A number of trees are present within the KP3 site. Where possible these trees will be retained.
- Ponds are a feature of KP3. Existing ponds to be retained are identified on the Regulatory Plan and these features have been key considerations in the creation of the green infrastructure framework.

Heritage:
- Three areas of heritage interest / Ridge and Furrow have been identified by the updated Site Wide Heritage Management Plan as Preservation Area.
- Potential to retain some mast concrete anchors.
- KP3 lies immediately to the west of the curtilage listed A Station and east of the Conservation Area at Hillmorton Locks.
- See section 3.6 Heritage for further details.

Access:
Access and movement considerations for KP3 and the local context include features listed below and illustrated on Figure 4.2:
- The vehicular points of access to the KP3 site will be via the Link Road which will connect to Butlers Leap and Rugby town centre to the west and the forthcoming Central Primary Street that will run through the Key Phase eastwards, to make the connection with the Primary Streets within KP2, KP1 and the A428.
- Pedestrian access will be taken via the strategic footpath connecting from Normandy Hill to the east and via Locks Lane and Moors Lane which will be downgraded to pedestrian only access in due course.
- The Oxford Canal and West Coast Main line lie immediately to the south of KP3.

Built Form:
Existing built form considerations for KP3 include features listed below and illustrated on Figure 2.5 opposite:
- Mast concrete anchors currently remain within KP3. These structures were associated with the Radio Station, but are now redundant and in varying states of repair.
- Former Radio Station buildings include the listed C Station building, a prominent landmark visible from KP3, located to the east. The A Station building is located between KP3 and C Station.

Views and vistas:
- Important views from and through KP3 include:
  - From the west, when approaching the SUE from the Link Road.
  - Along the corridor of the Oxford Canal to the south.
  - From the Conservation Area at Hillmorton Locks.
  - In all directions from the high ground around Normandy Farm.

Utilities:
- An 11KV Electricity cable extends east-west through KP3 and an existing foul sewer runs along the southern boundary of KP3 just north of the canal and along Moors Lane.
- A short extent of an overhead telecoms cable extends from Moors Lane to Normandy Farm.
- An 8m easement (to be confirmed) associated with the proposed Severn Trent foul sewer runs along the southern edge of the residential parcel that fronts the Oxford canal.

Fig 2.5: Existing site features

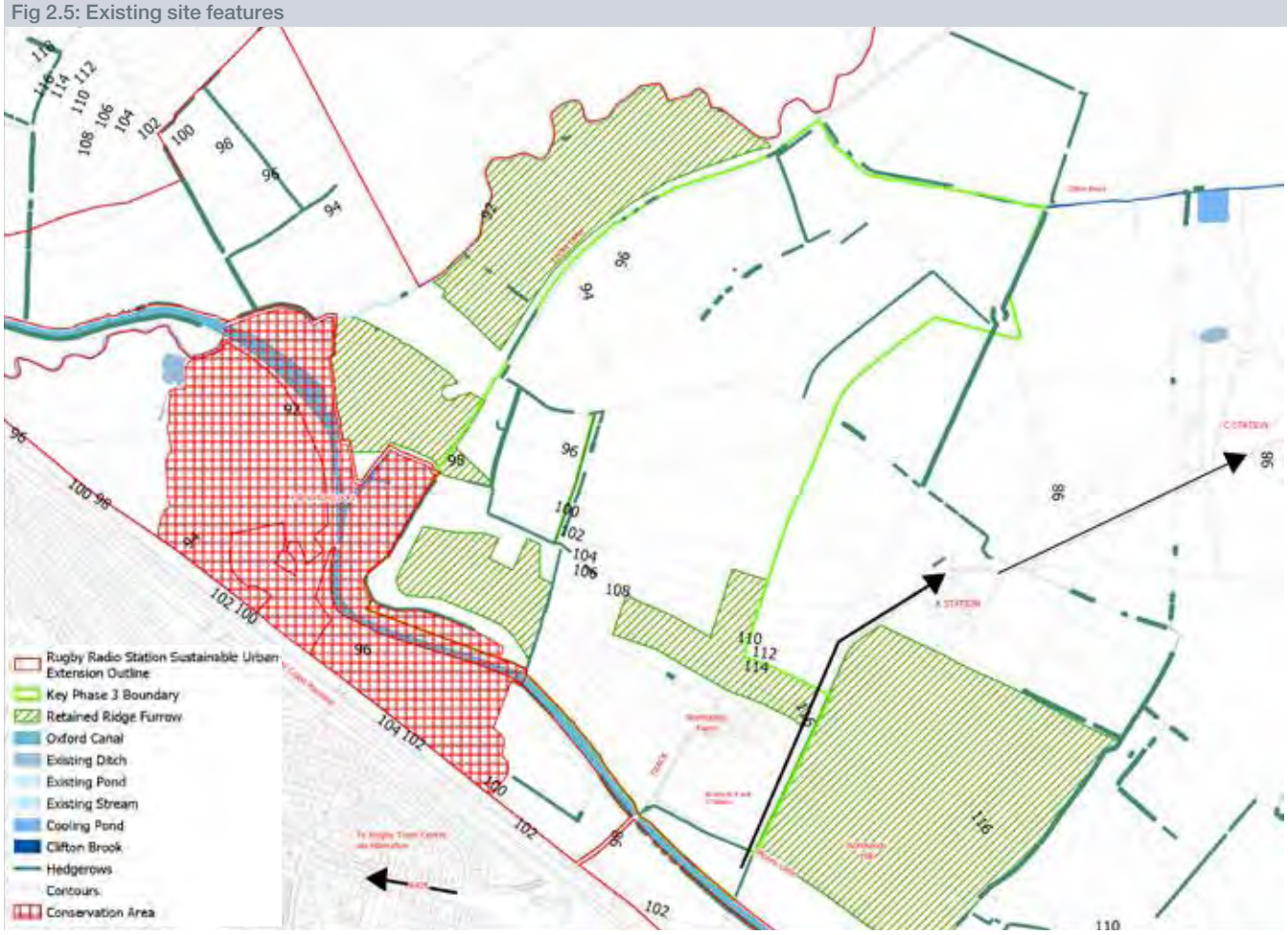


Fig 2.6a: KP3 Site Photographs

Fig 2.6b: KP1 As Built Photographs

2.5.1 Planning Context:

Outline Planning Application

OPP was issued for the RSR Sustainable Urban Extension (SUE) (see Fig 2.7) in May 2014 by RBC and a S.73 Application, resulting in a new Outline Planning Permission was approved for the site in June 2017 (ref: R17/0022). The OPP approved the broad quantum and disposition of land uses for the site. Condition 5 of the outline permission identifies all of the formally approved plans and documents including the Parameter Plans, the Development Specification and the design principles contained within the Design and Access Statement (DAS) and DAS Addendum (2017). Together these provide the development framework for the site. Under Condition 5, the development must be substantially in accordance with this framework.

This Development Framework, which has been subject to Environmental Assessment in both the original outline and through the S.73, establishes the key design principles and mitigation measures with which KP3 must be consistent and seek to incorporate as part of its detailed design.

2.5.2 Outline Planning Application Parameter Plans

Fig 2.7: OPA DFP Parameter Plan with OPA and KP3 Boundaries

Fig 2.8: KP3 area context: OPA DFP Parameter Plan with OPA and KP3 Boundaries

Development Framework Plan (DFP), Parameter Plan

The DFP sets a framework for future development land uses within the RSR site. An inset plan of the OPA DFP is presented in Figure 2.7. Within KP3 (see Fig 2.8) these land uses include:

Residential

Up to 1,000 dwellings can be accommodated within KP3, distributed within residential and mixed use areas.

Mixed Use

Parcels for mixed use development are included within the centre of KP3 adjacent to the main north-south primary street.

- **KP3 Local Centre Land Uses:**
  - To ensure vibrancy and viability a mix of uses should be provided in the KP3 Local Centre.
  - The Local Centre in KP3 is part of an area of mixed use defined in the OPA as Local Centre 1.
  - The land uses within OPA Local Centre 1 as defined by the outline can include up to the following:
  - A1 (retail) - up to 500sqm;
  - A3/A4/A5 (restaurants, pubs/bars) - up to 250sqm;
  - C3 (residential) up to 45 units
  - D1 (non-residential institution not including Primary/ Secondary School) - up to 300sqm;
  - D1 (schools) - up to 3,600sqm;
  - Sui Generis - up to 100sqm.
- **TOTAL of above listed mixed use land uses:**
  - Up to 4,650 sqm floorspace (non- residential)
  - Up to 45 homes

Fig 2.9: Access & Movement Parameter Plan with OPA & KP3 Boundaries

Fig 2.10: KP3 area context: Access and Movement Parameter Plan with OPA and KP3 Boundaries

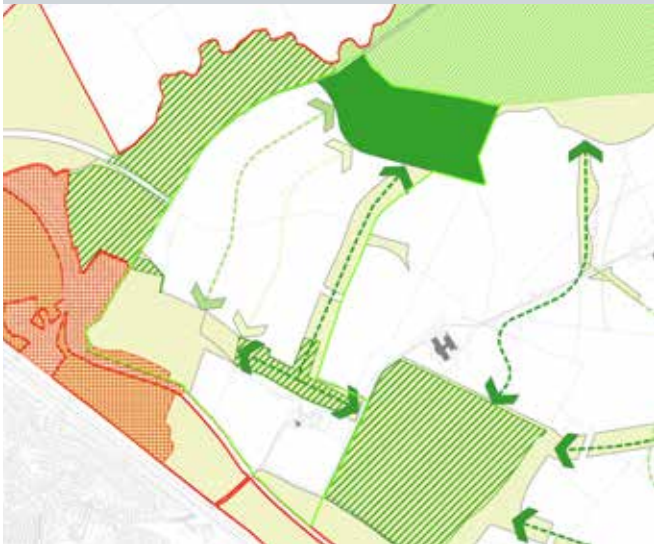
Access and Movement Parameter Plan

The extent of KP3 is illustrated in the context of the Access and Movement Parameter Plan in Figures 2.9 and 2.10.

KP3 will continue the internal road structure established in KP1 and KP2 and its reserved matters applications for 'grey infrastructure'. The movement structure is provided via the Central Primary Street (CPS) which runs east-west through KP3 and connects to the approved Link Road. Secondary and tertiary streets will flow from the CPS serving the development parcels and providing for a hierarchical street network. The CPS will connect to KP2 and the full length of street is applied for via a reserved matters outside of a Key Phase which will also provide future connections to the C Station and District Centre.

Fig 2.11: OPA Green infrastructure Parameter Plan with OPA and KP3 Boundaries

Fig 2.12: KP3 area context: Green infrastructure Plan Parameter Plan with OPA and KP3 Boundaries



Green Infrastructure Parameter Plan

The Green Infrastructure parameter plan (with OPA and KP3 boundaries for context) is illustrated in Fig 2.11 and 2.12.

KP3 accommodates a range of green infrastructure components identified on the Parameter Plan, including:

- Wildlife corridors: noted by the large dotted line arrows on the Parameter Plan these corridors sweep across the site creating an interconnected network of wildlife corridors. There are two scales of wildlife corridor: 60m and 20m wide.
- Smaller blocks of informal open space to be distributed throughout KP3.
- A significant area of retained ridge & furrow to the west of Normandy Hill and to the south-west of KP3 adjacent to Hillmorton Locks.

Fig 2.13: OPA Housing Density Parameter Plan with OPA and KP3 Boundaries

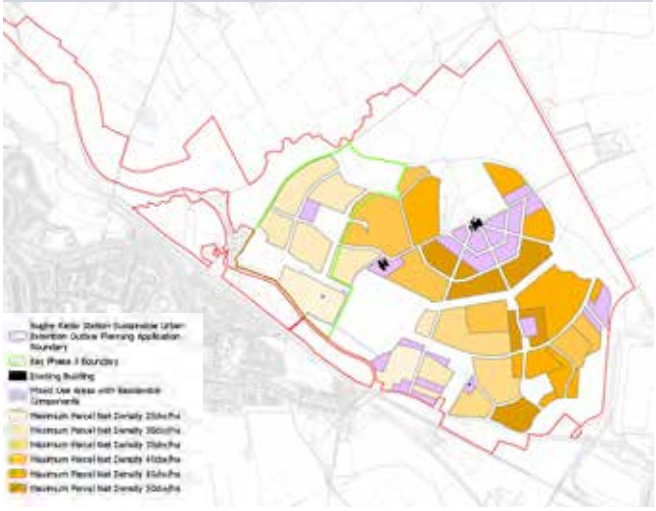


Fig 2.14: KP3 area context: Housing Density Parameter Plan with OPA and KP3 Boundaries

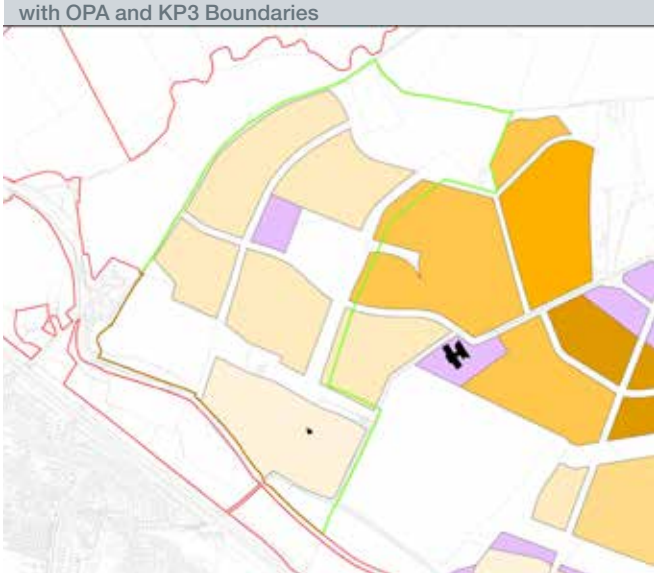


Fig 2.15: OPA Building Heights Parameter Plan with OPA and KP3 Boundaries

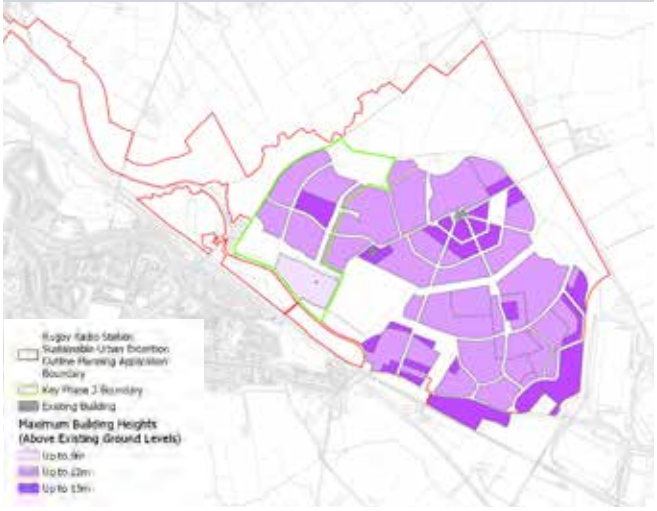
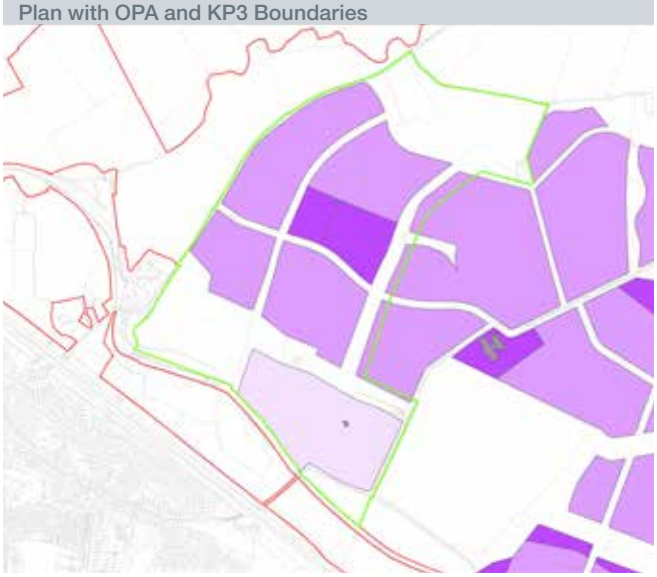


Fig 2.16: KP3 area context: OPA Building Heights Parameter Plan with OPA and KP3 Boundaries



Housing Density Parameter Plan

The outline planning application parameter plans include housing density, as illustrated in Figures 2.13 and 2.14. These considerations are illustrated on the above plans - extracts and key considerations include:

- Opportunity to integrate a range of residential densities across the site;
- Areas of higher density associated with areas of mixed use development, including aspects facing towards local centres.

Building Heights Parameter Plan

Extracts of the building heights parameter plan are presented in Figures 2.15 and 2.16, considerations include:

- Buildings heights within KP3 are predominately to be up to a maximum of 12m;
- Some opportunities for building heights of up to 15m in certain areas;
- The limits for building heights are based upon:
  - measurements above existing ground;
  - all heights are specified to ridge level but exclude any point features, e.g. spires.

2.5.3 Design & Access Statement Principles Compliance

Parameter Plans

The OPA established the framework for the planning and design of the RSR, including KP3. The Parameter Plans establish the design approach for the site. Further design principles and guidance have been set in the OPA Design and Access Statement.

Design & Access Statement

The Design and Access Statement conveys the design intentions for the full RSR site including principles, concepts, strategic design and intended character of the proposals. Whilst Design Guides will accompany each Key Phase of development it is important that these are understood in the context of, and be read alongside, the Design and Access Statement for the whole RSR site.

This Design Guide for KP3 seeks to build upon the established design principles and guidance, taking forward the site-wide design guidance set out in the Design and Access Statement and elaborating upon this with further Guiding Design Principles for KP3.

Design Principles

The Design and Access Statement includes a set of key design principles that underpin the development framework and OPA. These principles for design and development are separated into two groups:

- **Higher Order Principles**, which reflect the traditional principles of good design; and
- **Context Sensitive Principles**, which are specific to the place that Rugby Radio Station will become.
- These principles have been carried forward into the KP3 Design Guide, as listed over the page:

High Order Principles

"Walkable neighbourhood and permeable network of streets"
The Regulatory Plan establishes a network of permeable streets, which is further explained in the Design Guide:

Chapter 4 Movement & Access with reference to how the network of streets, footpaths and cycle routes provide the opportunity for sustainable healthy modes of travel. Indicative locations for bus stops are also noted on the Regulatory Plan to facilitate access to public transport.

Chapter 3 Landscape Design, complements the theme with illustration of how leisure routes of footpaths and cycleways permeate through the network of landscape spaces.

"Active frontage streets"
Land uses and streets as set out on the Regulatory Plan are arranged to ensure that streets and spaces are actively fronted by development with activity and interest addressing and interacting with the public realm. Further guidance in support of the Regulatory Plan layout is provided in:

Chapter 3 Landscape Design, with reference to the distribution of important landscape spaces and public realm;

Chapter 4 Movement & Access, with illustration of street sections (including buildings framing streets) and edge sections (how the edge of development parcels interact with adjacent public realm streets and spaces);

Chapter 5 Built Form, with details regarding plot layout rules including active frontages.

"A green infrastructure setting"
The Regulatory Plan creates a framework for development set within the network of streets and spaces: the green infrastructure is central to this with a network of interconnected landscape components.

Chapter 3 Landscape Design, sets out the design approach to establishing a rich green infrastructure setting for KP3, with details on both the network and individual components including formal open space, informal open space, wildlife corridors, residential pocket parks etc.

"Vibrant mixed communities"
Locations for mixed uses and play are set on the Regulatory Plan, expanded upon in:

Chapter 5 Built Form, with further details for each mixed use location, illustrating potential mix of uses and the form in which development should be established.

Chapter 3 Landscape Design, includes play provision with locations and walking distance thresholds.

"Sustainable Design"
Sustainability is incorporated into the proposals for KP3 at both the macro scale (for instance establishing a permeable network of streets and routes to allow for sustainable transport choices) and micro scale of technical efficiencies in:

Appendix 2, KP3 Sustainability Statement, which sets out guidelines for energy, waste and water.

"Distinctive urban form"
The Regulatory Plan provides a clear pattern of streets, spaces and places, creating a setting for quality architecture. This is expanded upon in:

Chapter 4 Movement & Access, further detail on the street hierarchy.

Chapter 5 Built Form, comprehensive Design Principles to control architectural quality set in typologies and matrices.

Chapter 5 Built Form, sets important design rules for locations of mixed use development which will be particularly distinctive urban form.

Context Sensitive Principles

Context sensitive principles from the DAS are listed in bold italics as follows. Under each principle an explanation is given to state how the Design Guide takes account of principles.

"Consider key influences"
The structure of the Regulatory Plan responds to key influences, notable opportunities for access and connections, and respects existing landscape and ecology features.

Chapter 2 Context, gives further detail of the existing site context for KP3 with reference to topography, landscape features, access, heritage, existing built form etc.

Chapter 3 Landscape Design, illustrates how the network of landscape spaces should utilise and respond to existing features including Normandy Hill, ponds, hedgerows etc.

Chapter 4 Movement & Access, identifies points of access and connection with the existing road network and how new features can integrate with the existing road network established in KP3.

"Ensure positive connections to DIRFT"
This context sensitive principle is particularly important with regard to the proposed DIRFT III development and the relationship across the A5 between the RSR site and DIRFT III:

Given the sites location away from DIRFT this context sensitive principle is discussed in detail in other Key Phases. Notwithstanding this the CPS, once completed, will provide connections to KP1 and KP3 which are well connected to DIRFT.

"Utilise key assets"
The Regulatory Plan creates a scheme layout that is partly structured around key assets of the site that are to be retained as part of the proposals; such key assets include:

Ecology & settlement related earthworks and ridge & furrow – as detailed in **Chapter 3 Landscape Design**;

Heritage features – as detailed in **Chapter 2 Context**;

Existing landscape features – as detailed in **Chapter 2 Context**;

"Facilitate community cohesion"
The Regulatory Plan creates a structure and layout that supports community cohesion with connections to the approved Link Road which leads towards Rugby town centre, Locks Lane which leads to Hillmorton Locks, parcels for mixed uses, formal and informal open spaces in well connected locations, linked by a permeable network of street and footpaths. Community facilities are further considered in:

Chapter 5 Built Form, gives definition of areas of mixed use development that will be focuses for community activity.

"Cultural programming"
The Regulatory Plan incorporates connections to the heritage of the site, with areas retained to show the Ridge & Furrow along with settlement related earthworks.

Chapter 2 Context;

Heritage features – as detailed in **Chapter 2 Context**;

Chapter 4 Movement & Access;

"A logical extension to Rugby in relation to morphology and connections"
The Regulatory Plan is structured by a comprehensive network of streets, footways and cycle paths creating a variety of connections through, KP3 linking beyond the site to Hillmorton Locks, the Link Road and the proposed CPS.

Chapter 4 Access & Movement, presents further detail on the Regulatory Plan Design Principles for access points, street hierarchy, cycleways and bus stops.

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PART B:

Spatial

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PART B Spatial

Part B of the KP3 Design Guide presents design principles and guidance in support of the content of the Regulatory Plan.

Layers of the Regulatory Plan are explained in more detail with identification of design principles under each spatial topic area, supported by indicative illustrations where appropriate.

The spatial development framework for KP3, as illustrated on the Regulatory Plan is set out in the following spatial design chapters:

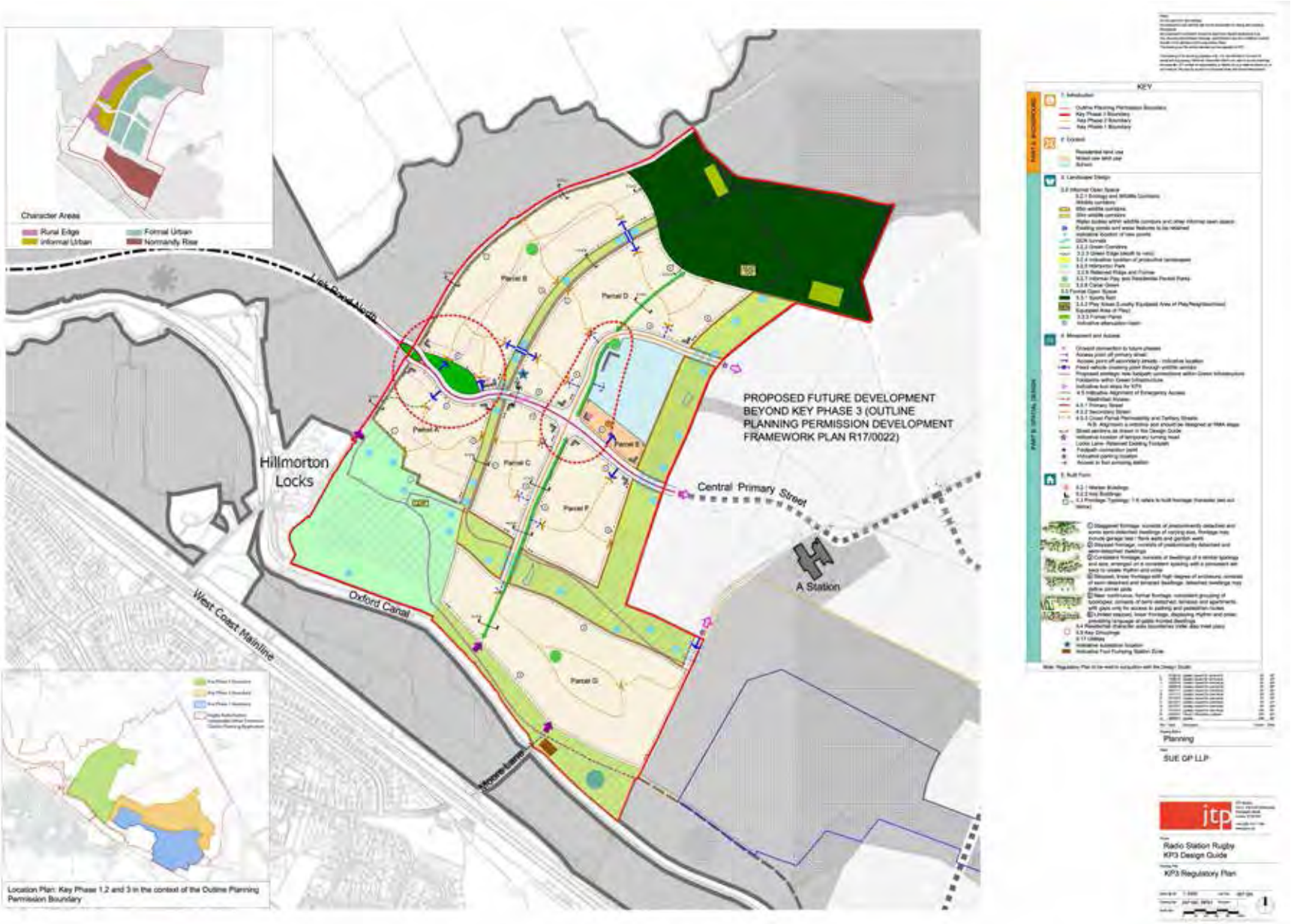
3. Landscape Design;

4. Movement & Access; and

5. Built Form.

The guiding design principles for each spatial element are summarised at the start of each chapter.

The design principles are summarised in the Compliance Checklist in Appendix 1.



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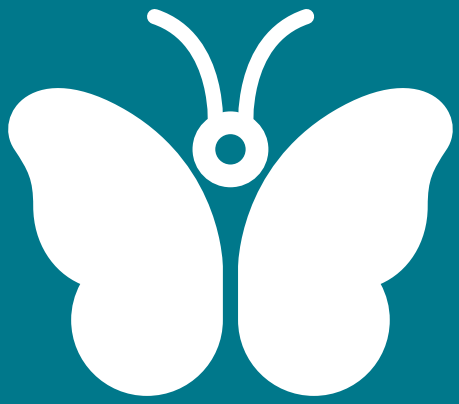
Chapter 3

Landscape Design



3.1 Green Infrastructure 'Guiding Design Principles' Overview

A connected Green Infrastructure network will be provided within KP3 in accordance with the Regulatory Plan (Figure 3.1), and is composed of a range of complementary open space typologies, including:

- A multifunctional **wildlife corridor network** that has been developed primarily to preserve and protect the existing population of Great Crested Newts (GCN) within the site, but also provides wider biodiversity and informal recreation opportunities.
- The **Green Edge** will ensure residential development will provide an attractive frontage and appearance which responds to the rural characteristics to the west of KP3.
- **Productive landscape** elements that may include community orchards, allotments and informal 'on-street' strategies where possible.
- **Formal play** areas that are provided in accordance with the Outline Permission that are easily accessible and well connected to the residential development.
- Opportunities for **informal play** within residential pocket parks and incidental open spaces that are distributed throughout the development parcels.
- Retained areas of historic **Ridge and Furrow** landscape to the west of Normandy Hill and to the south-west of KP3 adjacent to Hillmorton Locks.
- Larger **parks and gardens**, including the 'village green' that are sited to relate well to community hubs and tie into the wider play, biodiversity and movement strategies.
- **Private amenity spaces** that supplement the public open space network and contribute to the character of the street scene.
- **'Green Streets'** where the highway network of Primary, Secondary and residential streets include the planting of street trees as both formal avenues and informal groupings depending on the scale and context of the street.

KP3 provides a range of formal and informal open spaces, as illustrated in the overview at Figure 3.1.

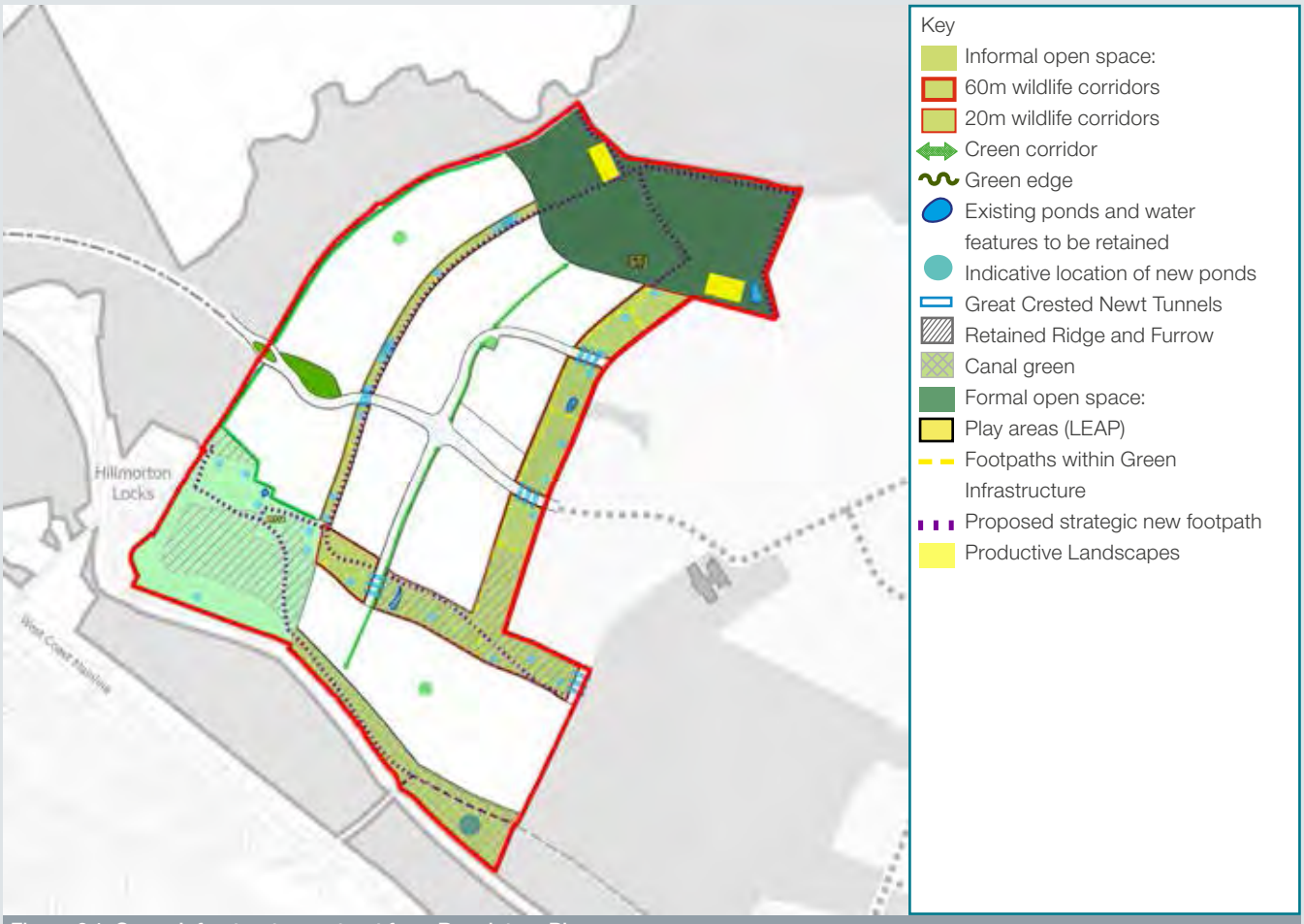


Figure 3.1: Green Infrastructure extract from Regulatory Plan

3.2 Informal Open Space

Informal open spaces help to create the landscape setting for KP3 and will tie into the wider Radio Station Rugby open space strategies, including the areas established as part of the KP1 and KP2 development works.

Whilst the wildlife corridors form the key structural 'backbone' of the informal open space network, a range of complementary landscapes will be developed to create a strong green network across the Phase. These will include informal play opportunities, civic spaces, productive landscapes and an area of retained 'Ridge and Furrow'.

These informal open spaces will be delivered and developed in accordance with the Regulatory Plan (see Figure 3.2).

Informal open space will comprise:
- Wildlife corridors and ecology (see 3.2.1),
- Green corridors (see 3.2.2),
- Green edge (see 3.2.3),
- Productive landscapes (see 3.2.4),
- Hilmorton Parl / Retained Ridge and Furrow (see 3.2.5),
- Informal play and residential pocket parks (see 3.2.6),
- Canal green (see 3.2.7).

Precedents (above) - Wildlife corridors implemented in KP1

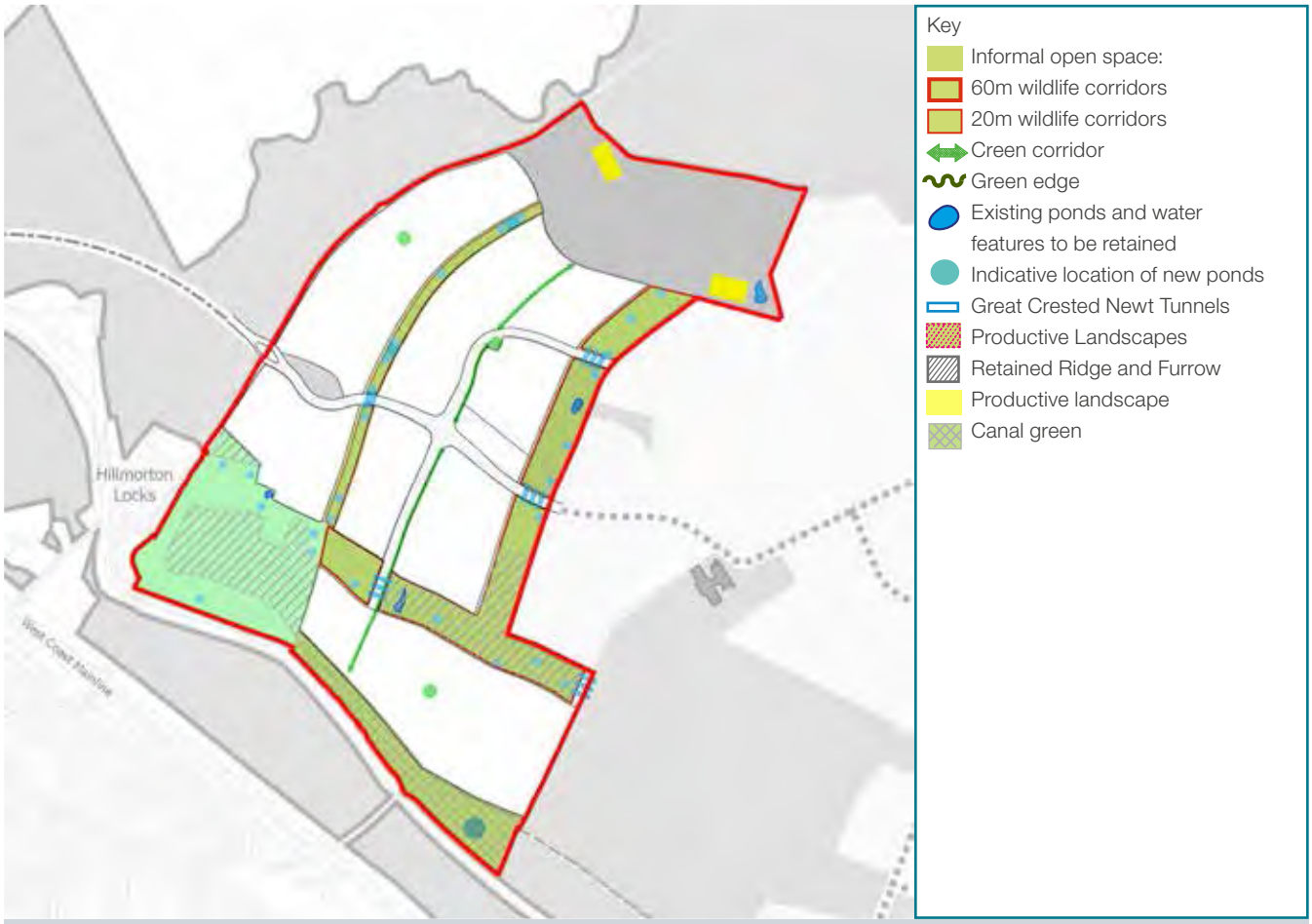


Figure 3.2: Informal and Formal Open Space Highlighted on Regulatory Plan

3.2.1 Wildlife Corridors & Ecology

Great Crested Newt (GCN) Mitigation Strategy

The dedicated Green infrastructure network for KP3 has been designed with a site-wide focus, ensuring that the extent and design of wildlife corridors will retain and enhance opportunities for biodiversity overall, not least GCN. Indeed the locations of existing GCN habitat have been of primary importance in forming the Green Infrastructure strategy for KP3.

A reserved matters scheme has been submitted to and approved by RBC (ref: R17/1297) and comprises a series of primary (60m wide) and secondary (20m wide) wildlife corridors. These are designed principally as habitats for the GCN but also to provide new and enhanced opportunities for the range of other protected and notable species present on site. Fundamentally, the wildlife corridors will also accommodate a range of complementary features and activities - including sustainable drainage elements and publicly accessible walking routes (see Figure 3.3).

A scheme for the mitigation of impacts on GCNs within KP3 has been developed in accordance with the site wide mitigation strategy which ties into the completed KP1 and KP2 Green Infrastructure scheme.

The wildlife corridors include new and retained enhanced ponds and associated hibernacula's set within expansive areas of wet and dry meadow grassland habitat. Additional hedgerow, native shrub and woodland planting areas are to be created throughout the corridors to ensure a mosaic of species-rich habitats.

The form and arrangement of the wildlife corridors is consistent between the KP3 Regulatory Plan and the Green Infrastructure reserved matters scheme (as approved for the CPS proposals). Moreover, this scheme accords with the site-wide strategy for Green Infrastructure creation and will ensure site wide ecological connections are delivered post-development.

A Natural England license has been obtained to facilitate KP3 Green Infrastructure delivery. Under this licence newts trapped within KP3 will be translocated to the KP3 holding area whilst the remainder of the KP3 Green Infrastructure is implemented.

The translocated newts will then remain within the holding areas for 2 years, at which time the population will be released into the wider Green Infrastructure network (Including habitats created in KP1 and KP2).

Delivery of the wildlife corridors and other ecological mitigation measures within KP3 will be via implementation of the Green Infrastructure reserved matters consent, in accordance with the Natural England license approved for the scheme.

Figure 3.3: KP3 - Overview of the CPS Green Infrastructure general arrangement

3.2.2 Green Corridors

Green corridors are similar to wildlife corridors but smaller in scale and not specifically designed as GCN habitat. The green corridors provide an additional form of green landscape route through development parcels that supplement the network of landscape connections in the wildlife corridors and public spaces.

Design Principles

- The Green Corridor is to be between 5 and 10m in width, although this may vary further in some areas to allow for the incorporation of pockets parks etc.
- The Corridor should include footpath and cycle path routes that are separate from the roads to form a safe green link running east-west through the Key Phase.
- The Green Corridor is defined by overlooking residential dwellings and deep front gardens that complement the wide, green public open space.
- Front gardens will generally be defined by informal shrub and tree planting. This should be designed to give the impression that frontages spill out onto the Green Corridor. To introduce variation, and where dwellings require more direct screening, hedges could also be used.
- Hard surfacing materials are selected to reinforce a shared-surface approach through 'informal' tones and arrangements.
- The Green Corridor includes a range of informal landscape elements including informal play opportunities, seating areas, community orchards, outdoor gyms/trim trails etc. to create a well-used, safe and welcoming public realm resource.

Figure 3.4: Green Corridor locations highlighted on Regulatory Plan

Precedent: Green corridor footpath connection

Green Corridor - Pedestrian Route

Green Corridor - Vehicular Route

Figure 3.5 Sketch concept for the Green Corridor

3.2.3 Green Edge

The Green Edge is located on the western boundary of KP3. This boundary is a particularly important frontage (as noted in the KP3 Objectives and Design Responses, see section 1.1) because it is highly visible on the approach to the site from the west, when viewed from western side of the RSR site, the Link Road the Oxford Canal and Hillmorton. The design of Green Infrastructure in this location needs to reflect this visually prominent location and the landscape design should help the transition of the Green Edge as an important threshold space, marking a change in character from the open landscape to the west of KP3 to the development area within KP3.

Along the western edge of the development runs 'Locks Lane' is an existing route that marks the north/western edge of KP3. This route will be retained to which will provide a pedestrian and cycle leisure route along this edge, linking between the Hillmorton Locks and Oxford Canal to the south and link to the sports pitches towards the north of KP3.

Figure 3.6: Green Edge locations highlighted on Regulatory Plan

Design Principles

- A strong landscape design approach to the north/ western edge of KP3 to create a high quality landscape setting for development and to help manage the transition from the predominantly open landscape to the west and the area of development proposed within KP3.
- Landscape features including tree planting and other soft landscaping to create a green edge to KP3.
- The effect of the landscape design for the green infrastructure will be to break up the mass of the development when viewed from the west.
- To ensure the 'Western Gateway' to KP3 and the wider RSR development area has a strong landscape character, including:
  - o Retention of access from north to south for pedestrians and cyclists via an informal tree lined avenue.
  - o Vehicular access along some sections of this edge to provide direct access for small groups of homes.

Figure 3.7: Precedents for the Green Edge

3.2.4 Productive Landscapes

Productive landscapes will be woven into the KP3 Green Infrastructure scheme, which includes a range of initiatives such as orchard planting within the informal open spaces.

Design Principles

- Productive landscape should be provided in a flexible and creative way that reflects the most sensitive and appropriate approach to the character of the areas being developed.
- Indicative locations for allotment areas are identified within KP3 as shown on figure 3.8.
  - Community Orchards: limited areas of orchard planting are provided within the wildlife corridors and can also form parts of the parks and informal open spaces.
  - Community Gardens: design of pocket parks and other residential area open spaces could incorporate communal kitchen gardens and vegetable plots.
  - Foraging Hedgerows: open spaces can be developed with hedges that include safe foraging species such as blackberries, sloes etc.
  - Productive Streetscapes: design of the roads and streets within KP3 could include easily accessible fruiting trees and other species.

Figure 3.8: Indicative Productive Landscape locations highlighted on Regulatory Plan

Precedent: Orchard planting implemented in KP1

Figure 3.9 Precedent: KP1 orchard planting within 'Dollman Common'

3.2.5 Hillmorton Park / Retained Ridge and Furrow

Areas of existing Ridge and Furrow on Hillmorton Park are to be retained as part of the CPS approved Green Infrastructure scheme to ensure preservation of this historic landscape feature in accordance with site-wide strategies developed alongside Historic England.

Within Hillmorton Park, the following principles will be observed:

Design Principles

- Limit interventions to retain the existing character and protect the Ridge and Furrow features.
- Mown grass routes will be 'suggested' to facilitate public access whilst limiting widespread trafficking of the features.
  The routes should be slightly altered seasonally to avoid excessive wear and tear across one defined route.
- Existing vegetation around the periphery will be retained and reinforced with appropriate hedgerows, native shrub and woodland planting.
- Provision of interpretation boards will help to provide information on the history behind the landscape.
- Implement a long-term land management strategy to ensure retention of Ridge and Furrow in a new field pattern that is sustainably managed and grazed.
- Incorporate habitat enhancement and provision of new and existing GCN ponds and hibernacula's.

Figure 3.10: Hillmorton Park and retained Ridge and Furrow locations highlighted on Regulatory Plan

Precedent: Existing ridge and furrow at RSR

Figure 3.11: Sketch overview of Hillmorton Park and retained ridge and furrow

3.2.6 Informal Play and Residential Pocket Parks

Additional play and recreation elements are to be located throughout the development in the form of natural play elements and pocket parks, as shown on the Regulatory Plan and in accordance with the following design principles.

Design Principles

- Smaller, naturalistic areas located within residential parcels. These are more are intimate spaces for local residents and benefit from the natural surveillance of surrounding dwellings.
- Provide a visual break in the built development with a design that is compatible with and proportionate to the surrounding dwellings.
- Characterized by native tree and shrub planting, areas of open space and natural play features that may include trim trails, outdoor gyms and exercise features.
- Incorporate seating and other distinctive features to provide identity and assist in wayfinding.

Figure 3.12: Pocket Park locations highlighted on Regulatory Plan

Precedent: Informal play opportunities within the KP1 'Pocket Park'.

Figure 3.13 Pocket Park Concept illustration

3.2.7 Canal Green

Running alongside the existing canal, south of Parcel H, this area of informal open space should soften the edge of the residential plot, whilst providing an additional opportunity to access nature. The area should provide links into the wider green infrastructure of Key Phase 3. An existing foul sewer rising main runs through the canal green and as a result there is an 8m easement either side of the main. Development and planting is restricted within the easement which will require careful consideration at the detailed design stage so that the Design Principles can be achieved.

Figure 3.14: Canal Green location highlighted on Regulatory Plan

Canal Side Precedent

Design Principles

Within the 'Canal Green' the following principles will be observed:

- Built form set back from canal edge.
- Linear park that softens the edge of the development.
- Formal tree planting following the alignment of the canal.
- Pedestrian only route running alongside the canal providing links to the residential plots and connecting into the wider networks.
- Provision of interpretation boards will help to provide information on the history behind the landscape.
- 8m offset from canal edge to the built development.
- Retention and enhancement of a naturalistic bank adjacent to the Oxford Canal.

Figure 3.15: Sketch concept for Canal Green

3.3 Formal open space

Formal open space in KP3 comprises play areas, formal parks and formal sports pitches.

3.3.1 Play Areas

Play, and the provision of facilities for children and young people, is a key element of a successful place.

KP3 incorporates both formal play provision as well as a strategy of informal 'play on the way' that runs throughout the open spaces. Formal play areas are to be provided to meet the play requirements of the OPP and to ensure that all homes are in the required walking distance of formal play provision.

Figure 3.16: Play Areas locations highlighted on Regulatory Plan

Design Principles

- One Neighbourhood Equipped area for play (NEAP) and Two Locally Equipped Areas for Play (LEAP's) are to be provided within KP3.
- The NEAP and LEAP 1 is located within the sports pitches sited to the north of KP3 and should strike a balance between provision of 'formal' equipment - swings etc - and reflecting the natural, informal nature of the development play strategies.
- LEAP 2 is located in the open space area to the south west of KP3, set within Hillmorton Park (in accordance with the Regulatory Plan). This should be a relatively informal, naturalistic play space to reflect the setting adjacent to the wildlife corridors. (see Figure 3.9)
- Each LEAP will have a minimum activity zone of 400m2 with at least 6 play experiences with the NEAP providing at least 1000m2 and 9 play experiences.
- Each LEAP and NEAP should observe a 20m buffer zone to the boundary of the nearest dwelling and 30m to the nearest habitable room.
- Informal boundary treatments are preferable although use of gates and fences may be considered.

Precedent - Formal Play at Alconbury Weald

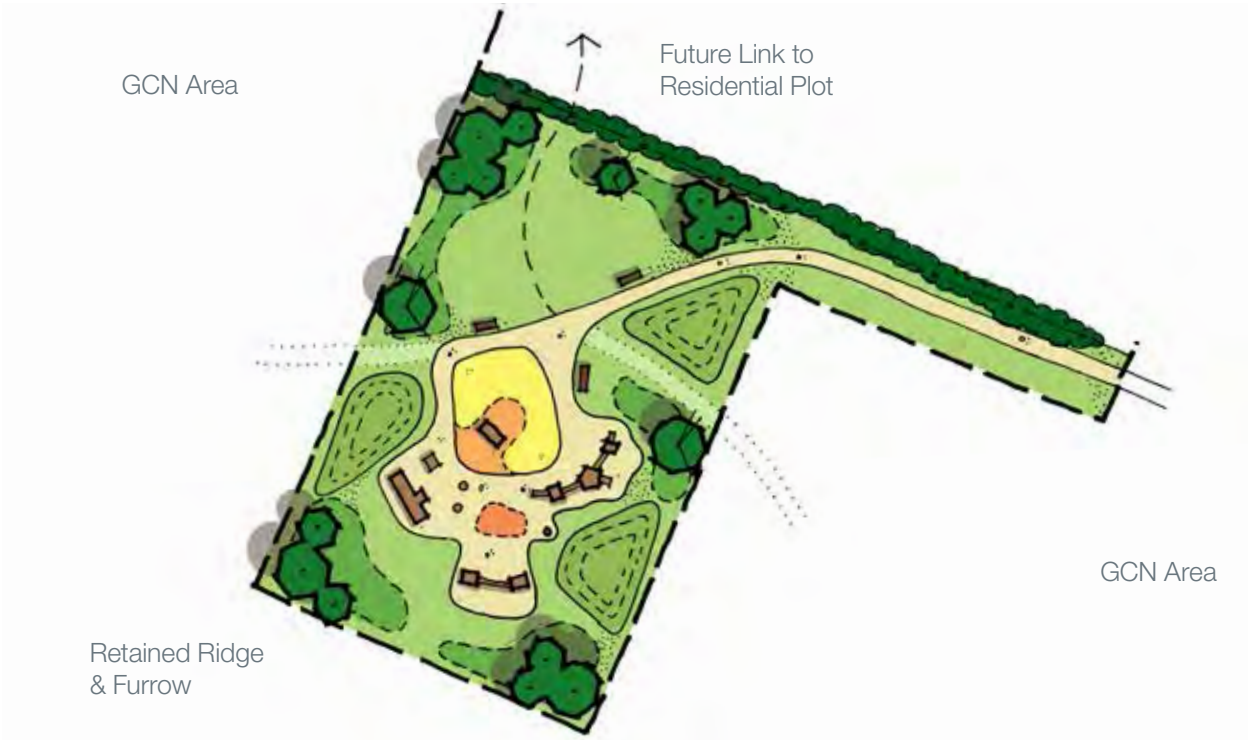


Figure 3.17: Sketch concept for LEAP within Hillmorton Park area

3.3.2 Formal Parks

KP3 will provide park areas alongside the informal open space network.

The formal park forms part of the village green at the 'Western Gateway' to the development. It will provide a green link between the green corridors whilst providing a flexible space for community events.

The Formal Park area will provide an area for a range informal recreational activities that can take place in accordance with the following principles:

Design Principles

- Footpaths and cyclepaths to provide clear, safe routes through the spaces.
- Incorporate a large open green space for a variety of activities.
- Retain the existing Oak tree to form a central focal point.
- Use formal hedge and tree planting to structure the space and direct key views.
- Planting to provide seasonal interest and additional structure to the space.

Figure 3.18: Formal Park locations highlighted on Regulatory Plan

Precedent - Formal layout with distinct open space

Figure 3.19: Sketch concept for the Village green

3.3.3 Sports Pitches

Formal sports pitch provision is located to the north of KP3 (see adjacent plan).

This area will be designed in accordance with the following principles:

Design Principles

- Provision of a range of sports pitches to encourage a range of users; range of sports pitches to encourage a range of users.
- Formal tree planting to help strengthen the structure of the space, distinguish different areas within the sports pitches, and distinguish it from the wildlife corridors.
- Provision of footpath connections, both through the wildlife corridors and within the street network that enable direct, safe routes to the sports pitches.
- Consider appropriate use of signage to identify routes to the pitch area.
- Retention of naturalised edges to sports pitches to enhance connectivity between areas of Green Infrastructure.

Figure 3.20: Sports pitches location highlighted on Regulatory Plan

Precedent - Sports provision

Figure 3.21: Sketch concept for the Sport Pitches and NEAP.

3.4 Foul and Surface Water Management Strategy

The Foul and Surface Water Management Strategy for KP3 is based on the creation of a network of SuDS and will adopt the following principles:

Design Principles

- SuDS features in KP3 will respect the site drainage patterns and seek to protect, restore and enhance natural wet areas.
- Residential design will include initiatives to reduce surface water run-off and improve water quality, with the priority being to collect, treat and store storm water through measures that utilise the Green Infrastructure whilst protecting residential amenity. Where residential design exceeds 50% contributing impermeable area, additional SuDs will be prepared to capture the run-off.
- Capture rainwater as close to source as possible in Water Sensitive Urban Design (WSUDS) features.
- SuDS features are to be designed to enhance the character of the local areas whilst integrating planting and hardscapes in accordance with the wider KP3 strategies.
- Provide SuDS features in communal spaces and courtyards to capture and treat excess runoff.
- Provide connections to convey water to SuDS features in open spaces or to storage for use in landscape irrigation.
- Implement permeable paving on shared and un-adopted surfaces with filtering substrates to treat and store water for reuse.

Figure 3.22: Indicative Water Management Strategy

SuDS features

SuDS features will be chosen as appropriate from a palette of SuDS options including:

- ***Swales***: broad, shallow channels covered by grass and vegetation. Designed for both dry or wet conditions they contribute to the wider Green Infrastructure network.
- ***Ponds***: basins with permanent pools of water. Acting as a SuDS feature, they also have a biodiversity and recreational value.
- ***Filter Drains***: trenches filled with permeable material into which runoff is collected, stored and conveyed.
- ***Permeable paving***: designed to allow rainwater to infiltrate through the hard surface into an underlying storage layer.
- ***Detention Basins***: depressions designed to detain runoff for a period of time to meet both volume objectives and water quality criteria. They differ from wet ponds in that there is no large permanent pool of water in the basin.
- ***Rain Gardens***: Small garden areas that capture rainwater from roofs, assisting with controlled infiltration or re-use for garden irrigation, vehicle washing and other non- potable applications.

Residential Design

Areas of residential design will be required to attenuate excessive runoff where site control SuDS cannot be accommodated within green infrastructure corridors. The areas are identified on the CPS Green Infrastructure Surface Water Strategy (extract below). The required storage volumes to be provided in residential parcels are set out in the table included in the Green Corridor Surface Water Strategy(extract also below), and the KP3 Foul and Surface Water Strategy. Please refer to RMA (R17-1297) drawing 60051619/CIV/PD/CPR/006 P6).

Figure 3.23: Extract from CPS Green Infrastructure Surface Water drainage strategy (ref 60051619-CIV-PD-CLR-006)

Catchment Areas						
Catchment Ref. No	Total Area (h)	Imp. Area (m2)	Max Allowable Discharge (l/s)	Max. SUDS Storage Required (m3) *	Storage provided in green corridor (m3)	Approximate storage to be provided on plot (m3)
Catchment 1	3.11	1.56	6.8	1160	N/A	350
Catchment 2	2.34	1.17	5.1	870	470	400
Catchment 3	3.37	1.69	7.4	1255	1255	0
Catchment 4	3.33	1.66	7.3	1230	1230	0
Catchment 5	0.76	0.38	1.7	280	280	0
Catchment 6	2.12	1.06	4.6	790	790	0
Catchment 7	3.23	1.62	7.1	1200	1200	0
Catchment 8	2.35	1.18	5.2	875	875	0
Catchment 9	1.44	0.72	3.3	535	300	235
Catchment 10	0.62	0.31	1.4	230	230	0
Catchment 11	1.62	0.81	3.6	600	600	0
Catchment 12	1.39	0.70	3.1	520	290	230
Catchment 13	1.11	0.55	2.4	410	230	180
Catchment 14	1.68	0.84	3.7	625	625	0
Catchment 15	2.47	1.23	5.4	910	515	395
Catchment 16	2.21	1.10	4.9	815	460	355
Catchment 17	1.94	0.97	4.3	720	720	0
Catchment 18	2.69	1.34	5.9	995	995	0
Catchment 19	3.96	1.98	8.7	1470	1470	0
Catchment 20	3.36	1.68	7.4	1245	1245	0
Catchment 21	1.64	0.82	3.6	610	610	0
Catchment 22	1.13	0.56	2.4	420	420	0
Catchment 23	1.67	0.84	3.7	625	625	0
Catchment 24	1.71	0.85	3.7	630	340	290
Catchment 25	1.47	0.74	3.3	550	295	255
Catchment 26	1.12	0.56	2.5	415	225	190
Catchment 27	2.68	1.34	5.9	995	N/A	395
Catchment 28	2.09	1.05	4.6	780	420	360
Catchment 29	1.63	0.82	3.6	610	325	285

Water Design and Management of Risk

- The following will be taken into account in the design of water bodies:
  - ***SuDS features will be predominantly dry*** - it is reasonable to expect - in times of high water - that people will stay out of / away from the water.
  - Safe play within these dry or shallow SuDS features is to be expected in supervised conditions.
  - ***Proximity:*** where possible ponds are to be set away from footpaths and widely used areas.
  - When set close to paths or busy places then ***informal barriers*** - including dense and thorny plant species should be used to keep people away from the edges.
  - ***Visibility:*** the public must be made aware of the ponds either because they are visible from distance or - where screened by planting - signage is provided.
  - ***Construction*** – New ponds will have shallow, sloping sides and no vertical edges to help with exit from the water.
  - ***Signage***, lifesaving equipment and fencing is to be provided where it is deemed necessary and appropriate.

3.5 Trees and Hedgerows

Throughout KP3, wherever possible, existing hedgerows, trees and significant vegetation will be retained where it does not clash with areas required for crucial infrastructure or residential parcel works.

Where possible existing hedgerows are and trees to be incorporated into the KP3 open space proposals and retained/replenished and reinforced.

Some of the existing hedgerows and trees are scheduled for removal however, as retention is not compatible with the master plan design of streets, spaces and development parcels.

To offset the loss of these hedgerows and trees considerable new hedgerow planting is proposed in mitigation, as was the case for KP1 and KP2.

Figures 3.12 and 3.13 opposite set out the existing and proposed hedgerows in the context of KP3.

Design Principles:

- Target a 10% increase in the amount of hedgerow and trees in KP3 as part of the overall Green Infrastructure design.
- Provide new hedgerow planting to define the edges of the wildlife corridors and provide a connective habitat element.
- Retaining existing hedgerows and trees where possible.

Indicative figures are provided on the plan opposite to give and overview of the length of existing, retained and proposed hedgerows within KP3.

It should be noted that these figures preceded detailed design of many of the key areas and will inevitably be subject to change but provision within the approved wildlife corridor scheme alone is well in excess of the target figure for KP3.

Existing KP2 Hedgerow

Example of retained Hedgerow within KP1 proposals

Newly implemented KP1 Hedgerows to Wildlife Corridors

Figure 3.24 KP3 Existing Hedgerows

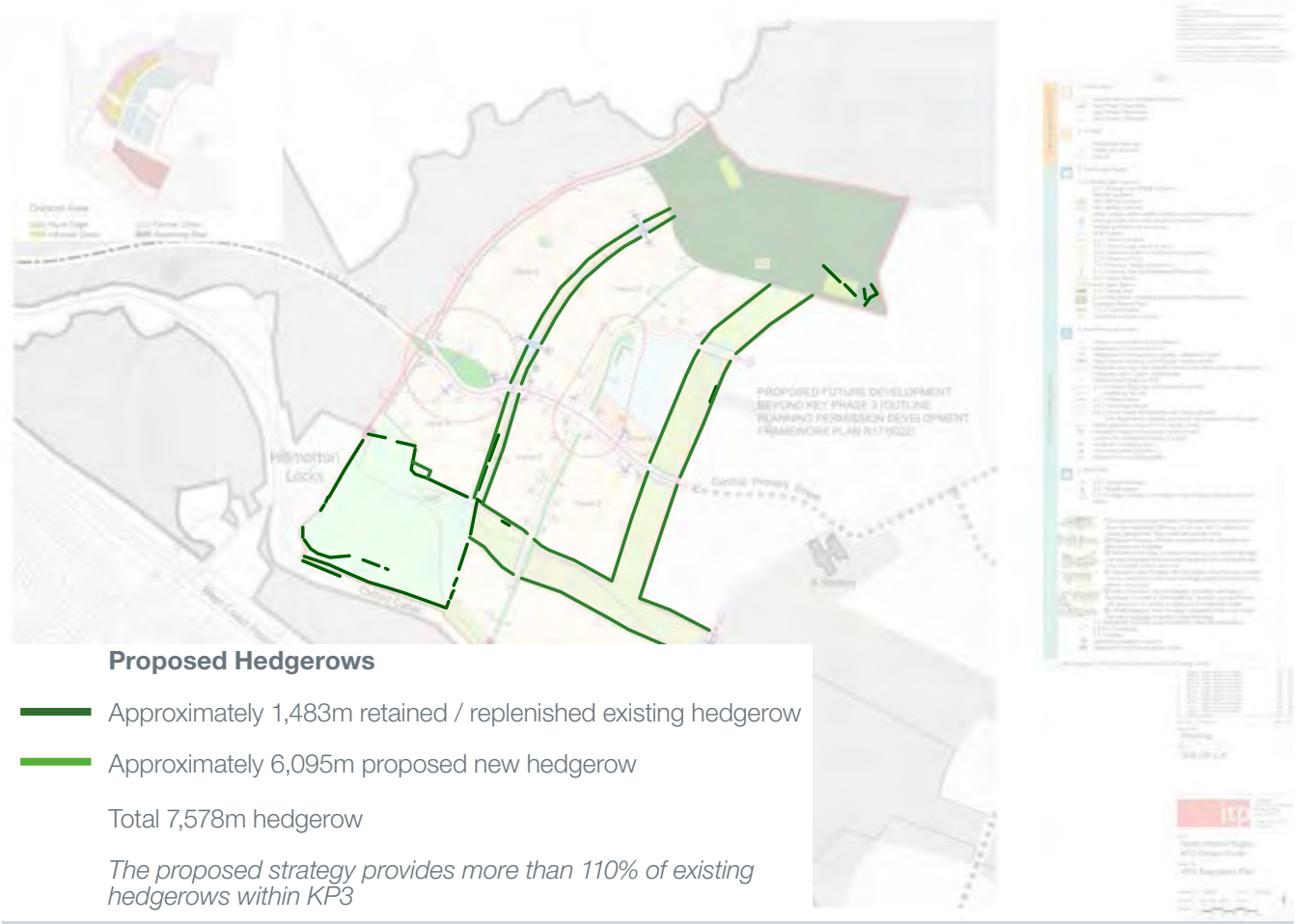


Figure 3.25 KP3 Retained Existing and Proposed New Hedgerows

3.6 Heritage

3.6.1 Former Rugby Radio Station

The former Rugby Radio Station occupies the majority of the outline application site. The principal buildings and structures include 'C' Station and 'A' Station together with contemporary ancillary buildings and structures including a copper earthing mat and aerial systems. Within KP3 there are a number of 1920s and late 20th century mast bases and anchors associated with the various aerial systems. The copper mat that once earthed the 1920s aerial system has disintegrated.

The conservation of mast bases and anchors within KP3 and wider outline site is detailed in the Heritage Management Plan submitted and approved under Condition 6 (revised September 2017). In accordance with the HMP, KP3 accommodates the retention of a number of late 20th century mast bases and anchors within Wildlife Corridors. All mast bases and anchors have been recorded within KP3 and the wider site. Following the construction of all Key Phases the heritage interest of these assets will be detailed in an appropriate archaeological journal or monograph.

3.6.2 Ridge and Furrow Earthworks

The site wide Heritage Management Plan (revised September 2017) accommodates the preservation and management of approx. 36.48 hectares of earthwork ridge and furrow. KP3 accommodates the preservation of approx. 5.6 hectares of earthwork ridge and furrow. The revised Heritage Management Plan accommodates an additional Preservation Area at Hillmorton Locks where geophysical survey recorded ridge and furrow and earthworks suggesting evidence of house platforms and garden plots.

The site wide Heritage Management Plan and Code of Construction Practice for KP3 provide guidance on the protection of this heritage asset. In addition, in accordance with the HMP, the ridge and furrow earthworks have been recorded and researched in the Ridge and Furrow Stage 1 Assessment. In advance of construction on KP3, field investigations will be carried out on the earthworks.

Figure 3.26: Lidar images of Ridge and Furrow earthworks in KP3

3.7 Public Realm Materials

3.7.1 Streetscape Materials Palette

The specification of hard materials and furniture must ensure that the new development has a recognisable character and is constructed to adoptable standards where required.

Detailed applications for KP1 and KP2 have begun to set out the principles for material and furniture selection and these will continue to be applied to later phases. However, it is also recognised that standards and guidance are likely to change over the duration of the project.

Therefore, the materials and the furniture palette will be reviewed and agreed with the relevant planning authorities at the detailed design stage of each particular phase.

Ultimately a consistent 'family' of materials will create consistency and legibility across KP3 and the wider development.

To guide future detailed applications, the following overarching principles are set out and future applications, must demonstrate how these principles have been observed:

- Emphasise the pedestrian links along the connecting residential streets.
- Use materials that suggest a pedestrian friendly environment but have a 'traditional' refuge from the road.
- Use a simple palette with a coordinated range of colours, textures and tones to reinforce the street hierarchy and legibility.

The follow materials represent a preferred outline palette for the public realm areas:

- **Primary Roads:**
  Preference for higher quality surfaces to footways and vehicular cross overs to signify importance in the street hierarchy (e.g. potential use of stone flag and block work, with macadam / black top asphalt option for footways). Macadam / asphalt surface to carriageway. Block paving to shared surface sections of carriageway.

- **Residential streets:**
  Block paving or asphalt to footways with 'black top' asphalt to carriageway surface.

- **Shared surfaces:**
  Concrete block/stone sett paving.

- **Parking:**
  Dark/contrasting sett paving.

- **Footpaths in Public Open Spaces:**
  Preference for bound gravel/spray and chip finish macadam but this is subject to further discussion and agreement with WCC (Note: County Highways preference for block paving / black top asphalt).

- **Civic Spaces:**
  A range of bound and unbound footpath materials, stone flags, block paving and small unit pavers. Materials in areas put up for adoption wuill be agreed with WCC.

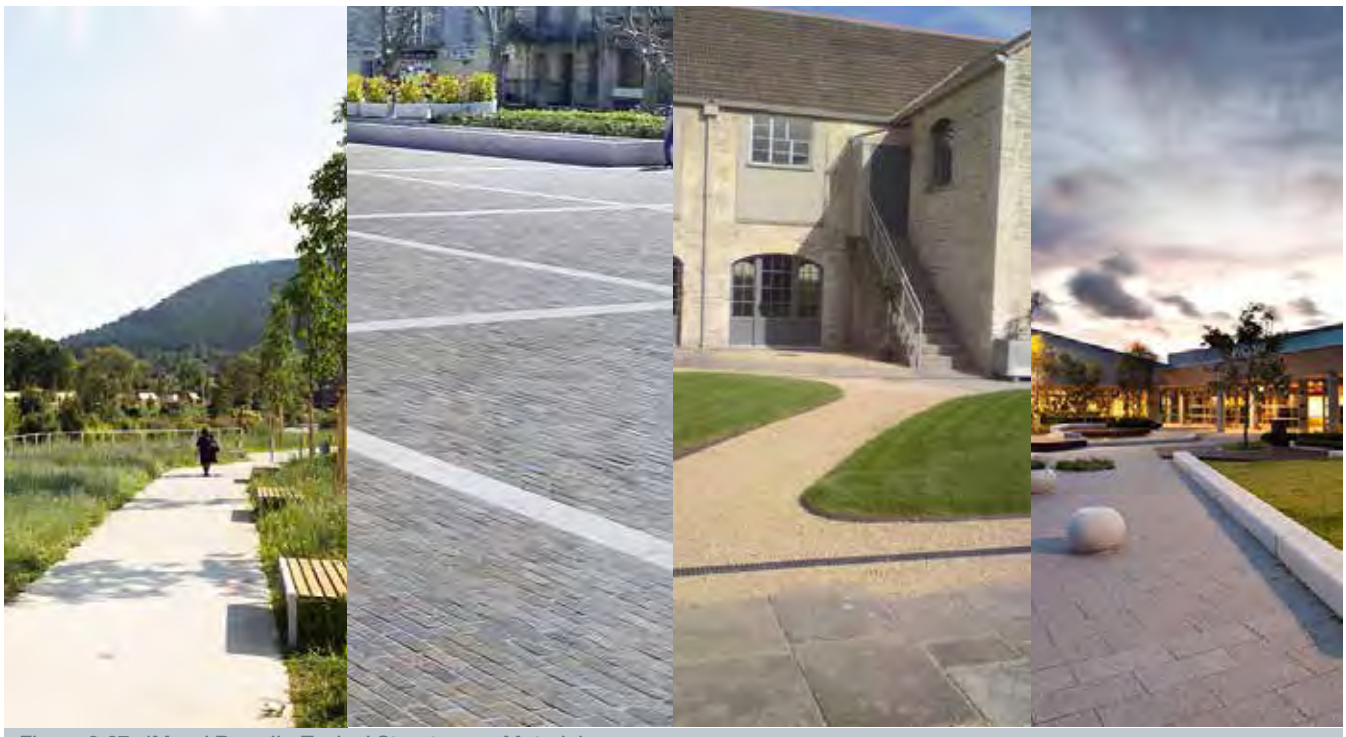


Figure 3.27: 'Mood Board' - Typical Streetscape Materials

3.7.2 Street Furniture

- Street furniture will have an emphasis on simple, contemporary design with consistent product types to be used across the development.
- Furniture is to be sited to ensure an uncluttered streetscape and footways that are as free from obstruction as possible.
- Proposed elements are to be durable and sourced from recognised suppliers to ensure a reliable procurement and replacement process.
- Furniture along roads and streets should always be located within an approximately 1500mm wide zone that is set 450mm from the road kerb to lessen the scope for obstruction of routes.
- Where this is not possible, careful consideration must be given to the siting of elements to ensure an uncluttered streetscape. Elements will generally be grouped together or treated as combined elements to avoid 'standalone' items and clutter.
- It is anticipated that the development will generate a great deal of cycle traffic and therefore bike parking facilities will be incorporated into the streetscape, generally set in spaces between trees or in more open areas of paving near junctions or commercial frontages.
- Bollards are generally to be avoided, as appropriate to a low-speed, pedestrian friendly scheme.
- Electric vehicle charging points may be accommodated where appropriate, Possible locations may include parking for mixed use or commercial areas.
- A detailed signage and wayfinding strategy will be developed with elements combined where appropriate (mounted on lighting columns etc.) to reduce street clutter. Additionally, public art strategies should also consider integrated bespoke features as part of the street furniture palette.

Figure 3.28: 'Mood Board' - Typical Street Furniture Elements

3.7.3 Public Art

Public art provision within KP3 will relate to the interpretation of existing heritage features and animation of the public realm. It will comprise:

- **Heritage:** As required by the Heritage Mitigation Strategy interpretation panels will be provided within the retained Ridge and Furrow within KP3.
  Other heritage features may be identified with signage or interpretation panels.

Public art will be considered within the design of the landscape and public spaces and opportunities may include:

- **Landscape:** creating features within the Green Infrastructure through planting, landforms, signage (including locating past heritage features) and street furniture.
- **Play:** play space design to create added visual and tactile interest.
- **Civic Spaces:** these spaces will be focal points for public activity or meeting places and will contain a greater proportion of hard surface landscape.
- **Key Buildings:** It may be possible to integrate features into the detailed building design – for instance providing heritage references on new buildings that are located on, or close to, the location of the site specific heritage features that are to be removed (e.g. radio masts).

3.7.4 Lighting

The lighting proposals are to be prepared with due reference to the 'Rugby Radio Station Lighting Strategy' (August 2013) prepared by Roger Griffiths Associates.

Roads and streets will be lit using column mounted luminaries. In some cases it may be possible to use wall/building mounted luminaries (subject to WCC agreement) to help reduce street furniture within the pedestrian corridors.

Private and semi-private courtyards, shared surface links and mews areas will be lit using the same family of column lighting as for streets and wall/building mounted luminaries where possible to minimise clutter in restricted spaces.

Positioning of lighting units will require careful consideration alongside the landscape proposals to avoid being obscured by tree planting and other features.

Commercial facades, notably along main streets, may benefit from additional wall mounted bulkhead lighting and/or feature lighting to highlight frontages.

Formal and Civic public open spaces will utilise a mix of column lighting (to provide safe illumination along key routes) and feature lighting elements (uplighters, in ground spots etc) to highlight key features and add day-round interest and animation.

Informal open spaces - with special reference to habitat corridors - will utilise low level bollard lighting with carefully directed light outputs onto paths only to ensure habitats are not affected and create dark corridors for foraging bats. Other areas of informal open space (e.g. Hillmorton Park) where there are no pedestrian pathways will not be lit.

Note: alternative designs may be appropriate if agreed with WCC Highways.

The five overall principles for the lighting strategy are:

- Principle 1: promote safe and efficient movement around the site during night time conditions.
- Principle 2: ensure all lighting specified is essential, appropriate and has mitigation in place where necessary.
- Principle 3: take precautionary and sensitive measures where wildlife is present and utilise low heat output lights, minimum spread lamps and downward pointing lights.
- Principle 4: optimise energy use through energy efficient luminaries, dimmed and timed systems, recyclable products, re-use of components at the end of their life and renewable energy as a power source where possible.
- Principle 5: create an uncluttered landscape with a sensitive approach to the landscape character of the site whilst utilising best practice for lighting design.

Descriptions of light fittings:

Column Lighting
- Columns to be finished in a dark colour to reduce their visibility in the night time environment.
- Column heights should be at minimum heights and maximum spacing to fulfil their function.
- The luminaire fitting should be a design which reduces light spill and glare, with the minimum wattage required for safety purposes.
- The finish of columns where they are situated within highway which will be adopted as publicly maintainable highway should be agreed in writing with the Highway Authority.

Bollard Lighting
- Bollards to be finished in a dark colour and complementary in design to the columns chosen. They should be of the minimum wattage required, at maximum spacings and with a shielded light source.

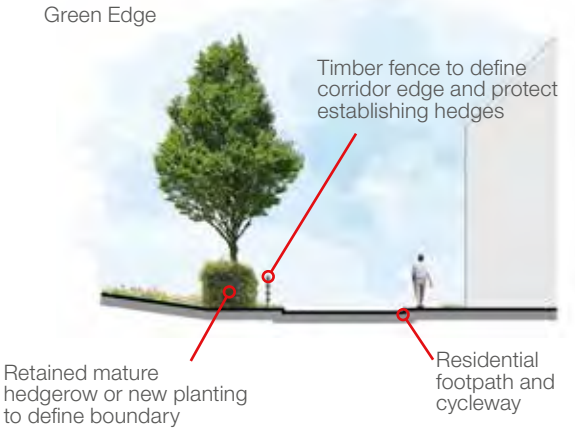
In-ground Lighting
- Should also be finished in a dark colour and be complementary in design to the other products used. The in-ground light should be shielded in order to avoid upward light spill.

3.7.5 Public Realm Boundaries

Illustrative Sketch Sections (not to scale):
A series of indicative illustrations showing the interface between public realm and development parcels:

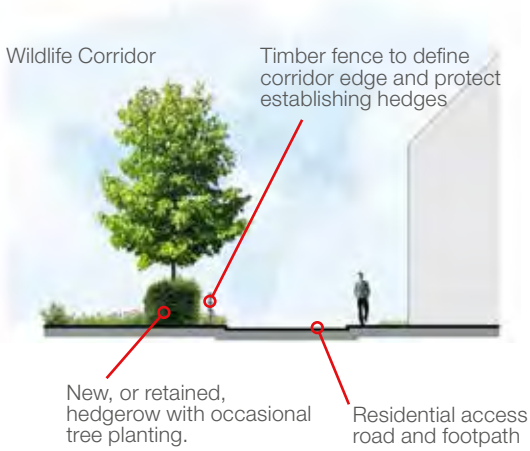
Figure 3.29: Illustrative sketch sections (not to scale)

Section A: Green Edge - Use of informal green boundaries to define the western edges of the development.



Location of illustrative sections

Section B: Typical condition - Residential adjacent to Green corridor - Use of fences and hedging to clearly define the extent of GCN habitat.



Section C: Residential adjacent to parks - Use of hedgerow and tree planting to enclose park and create a well defined boundary.

Section D: Typical condition - Residential either side of Green corridor - Informal tree and shrub planting to loosely define frontage boundaries.

3.7.6 Planting Palette/Strategy

The layout of the streets and residential parcels provides the opportunity to create a strong network of street tree planting. The following pages provide an overview of the proposed strategy:

Street Trees

- Tree stock is to be of predominantly native species although some non-native stock will be used to provide aesthetic/seasonal interest or respond to specific design requirements.
- Sizes at implementation will range from mature stock to smaller 'Standard' size trees in private gardens. Tree stock must be specified as appropriate to their setting - balancing considerations of implementation, establishment and resistance to damage or vandalism.
- Trees are to be planted in appropriately sized pits with structural soils specified where required. Root barriers will be required to safeguard services and foundations in some areas.
- Planting within streets will employ, as required, an engineered tree pit solution to expand rooting space and ensure optimum growth conditions whilst supporting traffic loads, accommodating adjacent utilities and managing storm water on site.

Formal Open Spaces

- The key parks and public spaces will incorporate a mix of retained and proposed trees as well as shrub, annual and grassland habitats.
- The strategy is to improve the biodiversity of the area through wildlife friendly planting as part of the public realm improvements.
- Planting will also include more ornamental, non-native stock as appropriate to the context.
- Where appropriate, orchard and fruiting trees may be planted within public open spaces to reinforce the overall development strategy for productive landscapes.

Informal Open Space & Wildlife Corridors

The informal spaces are generally focused on habitat creation measures - specifically through new planting that will create a mosaic of wooded areas, hedgerow, scrub and wildflower grassland. Planting in these areas will include:

Grassland:
Species-rich grassland will be provided throughout the informal spaces as overseeding or as newly sown for areas that require re-profiling or reinstatement.

Mixes including Emorsgate Seeds EM2 will be suitable and must include herbaceous species such as Yellow Rattle, Common Bird's-foot Trefoil, Common Knapweed, Oxeye Daisy and Red Clover. Wet meadow grassland in areas surrounding the new ponds will also be established using Emorsgate Seeds EM8 or similar.

Trees:
Tree planting will be of primarily native stock, appropriate to the site and context. Species may include some of the streetscape palette as well as the following core species:

- Acer campestre
- Alnus glutinosa
- Betula pubescens
- Prunus avium
- Quercus robur
- Salix alba
- Salix fragilis
- Sorbus aucuparia
- Tilia x europea 'Pallida'

Scrub and shrub planting:
Composition will include native species that are of known value to wildlife such as Blackthorn, Holly, Hawthorn, Field Maple, Guelder-rose, Dogwood etc. Thorny species such as Blackthorn and Holly in areas adjacent to the newt ponds will help prevent disturbance and restrict access.

Hedgerow planting:
Existing hedgerows are to be retained where possible with gapping up and reinforcement as required. Significant new hedgerow planting is to be undertaken to enclose and link the habitats and provide structure to the open spaces.

Structural Planting:
Some focused areas of woodland style mixes will be planted to reinforce hedgerows, provide screening and shelter and dense habitat within informal landscape areas.

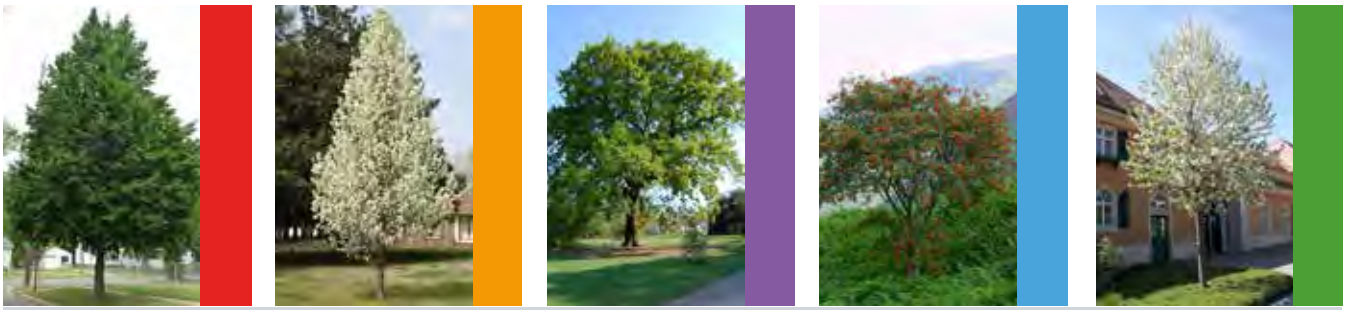


Figure 3.30: Tree Planting - Outline Typical Species

Private and Semi-Private Spaces

The way in which private gardens and semi-private parking courts etc, are treated is central to the biodiversity and planting strategy:

- Significant areas of varied habitat will be established throughout the development by clustering gardens and courtyard planting.
- Shrub and other planting stock will be partly (at least 30%) drawn from a palette of native species and specifically include plants that have interest for local fauna.
- Planting may also include more ornamental, non-native stock as appropriate to the context.

Tree removal/replacement

Existing stock is to be retained as much as is practical and possible and all retained vegetation must be protected in accordance with BS5837 Trees in Relation to Construction (2012) throughout the course of construction works.

SPECIES AND CULTIVAR	COMMON NAME	GIRTH (CM)	HEIGHT (CM)	NOTES
Primary Streets - Avenue Tree Planting				
Corylus colurna	Turkish Hazel	30-35	600-650	
Platanux X hispanica	London Plane	30-35	600-650	
Tila cordata 'Greenspire'	Small-leaved Lime	30-35	600-650	
Secondary and Tertiary Streets - Informal Tree Spacing				
Alnus incana 'Aurea'	Golden Alder	20-25	Min 500	
Prunus avium 'Plena'	White Flowering Cherry	20-25	500-550	
Prunus sargentii 'Rancho'	Cherry	20-25	500-550	
Pyrus calleryana 'Chanticleer'	Ornamental Pear	20-25	500-550	
Ulmus 'New Horizon'	Elm	20-25	500-550	
Parkland and Formal Open Space				
Alnus incana 'Aurea'	Golden Alder	20-25	Min 500	
Betula pendula 'Tristris'	Weeping Birch	20-25	Min 450	
Corylus colurna	Turkish Hazel	20-25	500-550	
Fagus sylvatica	Common Beech	25-30	500-550	
Quercus Petraea	Sessile Oak	20-25	500-550	
Quercus robur	Common Oak	20-25	500-550	
Tilia cordata	Small-leaved Lime	30-35	600-650	
Informal Open Space and Pocket Parks				
Acer campestre	Field Maple	16-18	400-450	
Alnus glutionosa	Common Alder	12-14	350-425	
Betula pubescens	Downy Birch	10-12	300-350	
Carpinus betulus	Common Hornbeam	16-18	400-450	
Prunus avium	Wild Cherry	16-18	400-450	
Quercus robur	Common Oak	16-18	400-450	
Salix alba	White Willow	10-12	300-350	
Salix fragilis	Crack Willow	10-12	400-450	
Sorbus aucuparia	Rowan	12-14	350-425	
Sorbus tominalis	Service Tree	12-14	350-425	
Ulmus 'New Horizon'	Elm	16-18	400-450	
Fruit Trees to Orchard Areas				
Malus	Apple		Min 200	2 year old straight lead
Prunus insititia	Damson		Min 200	2 year old straight lead
Pyrus	Pear		Min 200	2 year old straight lead
Back Gardens				
Acer campestre	Field Maple	10-12	300-350	Garden trees to be supplied with a 1.75m clear stem.
Acer griseum	Paperbark Maple	10-12	300-350	
Crataegus persimilis 'Prunifolia'	Broad-leaved Cockspur Thorn	10-12	300-350	
Malus 'Laura'	Crab Apple 'Laura'	10-12	300-350	

Figure 3.31: Tree Planting - Outline Palette of Typical Species

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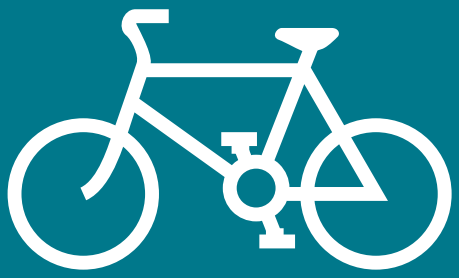
Chapter 4
Movement & Access



4.1 Movement and Access Guiding Design Principles

The Guiding Design Principles for Movement and Access collectively seek to create a network of safe and secure streets forming walkable neighbourhoods. The Guiding Design Principles for KP3 Movement and Access are set out below:

- To establish a safe and legible network of streets and pedestrian/cycleways.
- To provide a coherent hierarchy of streets consisting of primary, secondary and tertiary streets.
- To ensure appropriate provision is made to connect KP3 to the existing and planned pedestrian and cycling networks and bus services which link to Rugby town centre and DIRFT I, II and III.
- To prioritise the movement and safety of pedestrians and cyclists through the provision of safe and direct routes.
- To deliver the appropriate level of vehicular and cycle parking but to ensure it does not dominate the built environment.
- To design carriageways to the appropriate standards and incorporate speed restraint and clear signage measures where necessary.

Figure 4.1 uses an extract from the Regulatory Plan to demonstrate how the above principles could be applied. The secondary and tertiary street alignments, minor access points and cross parcel permeability shown on this plan are indicative only. Developers will be required to design layouts which are permeable and include horizontal alignments and speed restraint measures which achieve the required design speed and are acceptable to WCC Highways. **As such, housebuilders are encouraged to seek pre-application advice with WCC / RBC early in the design process.**

Figure 4.1: Movement and Access: Extract from the Regulatory Plan

4.2 Access Points

Points of vehicular access in to KP3 are illustrated on the Regulatory Plan and Figure 4.2, and the following principles should be followed:

- The CPS will run east-west through the centre of KP3.
- A secondary street will provide access to the west of the Local Centre and to a residential parcel to the south of the CPS. A signalised crossroads will be delivered at the intersection of the secondary street and the CPS;
- Four priority access junctions on the CPS will serve tertiary streets providing access to residential development parcels;
- An emergency access will be provided from the southern part of KP3 to Locks Lane.

Figure 4.2: Site Access Plan

4.3 Connecting the Assets

KP3 will deliver an extensive area of residential development, a primary school and a mixed use Local Centre. This will be interspersed with community assets including areas of green open space providing play facilities and other amenities. The assets will be connected by a network of streets and pedestrian/ cycleways as described in this chapter.

The network of routes through KP3 will provide onward connections to community assets beyond KP3, including:

- Links to earlier key phases to connect with the residential units with community assets delivered within KP1 and KP2 including the Primary School, Sports Pitches, Play Areas, Dollman Farm community facilities, Dollman Common and site access points from Crick Road;
- A connection to the Clifton Brook / Butlers Leap link road and the new access from Hillmorton Lane which is connected via the new CPS;
- Connections to subsequent development phases to the east which will provide access to the District Centre, Secondary School, main mixed use area and accesses on the A5.

See Figure 4.3, below. The tertiary streets and cross parcel permeability shown on this plan are indicative but the Central Primary Street alignment is fixed as per the CPS Grey Infrastructure RMA.

Highway Design

Streets serving KP3 will be designed to achieve the required design speed relevant to the purpose and the classification of each street. Street layouts will include sinuous horizontal alignments and the use of speed restraint bends to encourage lower vehicle speeds. Where vehicle speeds cannot be controlled by the alignment alone, complementary speed restraint measures will be required. With respect to the type of measures, these are summarised in section 4.4, and the use of horizontal features (such as chicanes) will be prioritised before the use of vertical features is considered.

All traffic-calming measures will be in accordance with LTN 1/07 speed control measures. Measures will be provided at approximately 60-90m intervals on streets with a 30mph design speed (primary streets) and at 60-70m intervals on streets with a 20mph design speed (secondary and tertiary streets).

Figure 4.3: Connecting the Assets

4.4 Traffic Restraint Features

Speed restraint measures will be provided in locations where design speeds cannot be achieved solely through horizontal alignment and design. A hierarchy of possible measures is set out in the table below, ordered from most favourable at the top to least favourable at the bottom. It is intended that developers will take a creative and innovative approach to incorporating these measures into their street design and that a mix of measures appropriate to the built form will be used, as set out in Figure 4.4.

All measures set out would be subject to traffic regulation orders and, safety audits and, in the case of roundabouts, junction modelling.

Figure 4.4: Traffic Restraint Features

Traffic Calming Measure	Image	Description
Horizontal Carriageway Shifts		• Where possible, streets should be designed to achieve the required design speed without the need for additional speed restraint measures. • Speed restraint bends should be incorporated, where appropriate, to control vehicle speeds. Tertiary streets should be sinuous and designed to minimise the need for additional speed restraint measures. • Appropriate planting could be incorporated to manage forward visibility and give the illusion of narrowing.
Central Islands / Lozenges		• Lozenges can be used to narrow the carriageway to control vehicle speeds and movements. • Central traffic islands could be used in locations where they can also act as a pedestrian refuge to enable crossing the carriageway in two stages (subject to carriageway widths). • Central islands could also include planting to soften the urban scene and create visual interest. • Lozenges on lower order streets can be used to reinforce the road space allocated to different users.

Traffic Calming Measures continued over page.

Traffic Calming Measure	Image	Description
Gateways / Entry Treatments		• Gateways could typically include a change in road surface and / or carriageway narrowing to alert drivers that they are entering a lower traffic speed area, and should be situated where they are visible to approaching drivers to give them sufficient time to adjust their speed. • Strategically positioned priority road junctions could be used to effectively control speeds by requiring vehicles to give way to priority traffic. • Gateways could also be provided on tertiary streets to make drivers aware they have left a primary or secondary street.
Build Outs (narrowing and chicanes)		• Build outs and chicanes could be constructed to narrow lane widths and would be used to force drivers to deviate from their path and reduce their speed. • Where possible, build outs and chicanes would be used in locations where they can also act as a pedestrian refuge to enable crossing the carriageway in two stages (subject to carriageway widths). • Build outs and chicanes could also include planting to soften the urban scene and create visual interest. • Build outs and chicanes can be viewed as retrofit design and do not encourage consistent vehicle speeds so should only be used where horizontal carriageway shifts cannot be achieved.
Raised Junctions		• Raised junctions could be constructed in selected locations with high demand for pedestrian movement, such as outside schools and local centres, and can allow for easier pedestrian crossing by raising the carriageway level with the footway (subject to a minimal kerb upstand). • Raised junctions can help enhance the appearance of a road and cause drivers to reduce their speed by the use of vertical deflection. • Raised junctions will not be used on primary streets or bus routes. They are most appropriate for street types with a design speed of 20mph and their use should generally be restricted to tertiary streets where horizontal measures are unsuitable.

Traffic Calming Measure	Image	Description
On-Street Parking		• On-street parking could be used as a positive speed restraint measure in selected locations by reducing capacity and encouraging lower vehicle speeds. However, parking is transient and should only be used as a supplementary measure to reinforce other features. • On-street parking would only be implemented on streets with sufficient width to ensure vehicles would not park on footways or verges. • On-street parking will be discouraged within areas likely to be popular for children's play or where there is likely to be a high demand for pedestrian / cycle movement across the carriageway.
Surface Treatments		• A change in carriageway colour and / or texture (such as block paving) could be used to emphasise a change in environment such as at zone entrances. • Familiarity reduces surface treatments effectiveness at speed control so it should only be used to complement other measures such as gateways and raised tables in selected locations.

4.5 Street Hierarchy

KP3 is designed to provide a well-connected network of streets of different character within the site. Variety in character and degree of enclosure of streets will be key to ensuring legibility and identity. Streets, in combination with green infrastructure, provide the framework for development parcels within KP3. The streets are arranged to facilitate ease of movement and access into development plots and parcels and these streets are ordered in a hierarchy, as illustrated in Figure 4.5.

The role and function of individual streets will differ depending upon their position within the development and the areas which they transect. The street type is integral to the character of the surrounding built form which will reflect the level that the particular street holds in the hierarchy and its significance within the SUE. This has a direct impact on the level and type of traffic that the street will accommodate and has influenced the design criteria of the different types of route.

There are four main street types within the street hierarchy. To ensure that the character of the street responds appropriately to the adjacent land uses, tertiary streets have been sub-divided into three categories to enable a tailored response to either built development or landscape. The different street types include:

Figure 4.5: Street Hierarchy Plan

1. Primary Streets
- highest order street providing the main connection through KP3 to adjacent phases (the CPS);
- to include dedicated cycle and footpaths alongside one side and accommodate bus routes;
- lined with street trees and wide grass verges.

2. Secondary Streets
- function as distributor routes also providing direct access to homes and the Local Centre;
- to include dedicated cycle and footpaths alongside one side;
- to accommodate tree planting, grass verges, and footpaths where appropriate;
- potential to accommodate public transport on the secondary street routing north past the Local Centre.

3. Tertiary Streets
- streets providing cross-parcel permeability through development parcels and access to dwellings;
- tertiary streets are accessed from primary and secondary streets;
- typically only used by those living or visiting that parcel;
- narrower and less formal in character than the higher order streets;
- could contain street trees and areas of on-street parking;
- must include horizontal alignments and speed restraint measures which achieve a 20mph design speed and increase safety for pedestrians and cyclists;
- can include dropped kerbs and no road markings to reduce speeds and promote pedestrian priority;
- three options for tertiary street types:
  - o Tertiary streets with standard highway design;
  - o Tertiary streets next to landscape and open space;
  - o Tertiary streets with shared surface design.

4. Tertiary Streets as Spaces
- Further guidance provided for areas of public realm where tertiary streets have the opportunity to wrap around small public spaces (for instance pocket parks or formal parks);
- In these instances the design of the streets around spaces can widen the area of usable public space and help manage speed through the use of design features such as shared surface design.

5. Private Drives
- the lowest order streets providing access for a small number of dwellings (to be determined at Detailed Design Stage);
- not through routes;
- opportunity to use different surfacing treatments including bonded gravel; and
- need to consider appropriate bin collection.

An emergency access connection from Parcel A to Locks Lane (which leads to Hillmorton Locks) will be provided. This is a temporary arrangement as per the CPS Grey RMA but a permanent connection to Locks Lane in the form of a tertiary street will be provided by the housebuilder for Parcel A.

Restricted access will be provided along Moors Lane only for servicing the pumping station within KP3 and an existing substation.

Design guidance for each street type is provided in the tables presented on the following pages. These street type tables provide design details, technical requirements, and accompanying street section drawings that illustrate the form of the street. The specifications have been developed to be consistent with KP1 and KP2 whilst incorporating best practice and lessons learnt from earlier phases.

The detailed design of streets will be the subject of Reserved Matters Approvals and Section 38 approvals which will require a Road Safety Audit of the proposed layout. **It is recommended that early engagement is sought with the Highway Authority to ensure that vehicle speeds are appropriately controlled and contained through design of the street.**

Note regarding refuse and emergency vehicles: Turning areas will be provided as appropriate for refuse and emergency vehicles, some turning heads will be temporary interim measures, awaiting future connections towards other parts of KP3 and the wider RSR site.

4.5.1 Primary Street

General Information	
Street Type	**Primary**
Location	CPS through KP3. Main route running east-west past the Local Centre, connecting to the Clifton Brook / Butlers Leap link road and KP2 Primary Street (remainder of CPS outside of KP3)
Character	Formal in character, the widest street corridor
Direct Access to Homes?	Limited direct access in select locations
Street Design	
Total Corridor Width	15.9 – 20.7m
Footpaths	3m shared one side, 2m other side
Cycleways	3m wide shared on one side
Carriageways	6.7m
Public Transport Route	Yes
Traffic Calming	Design speed to primarily be achieved through horizontal alignment. To be complemented, as required, with speed restraint measures including pedestrian refuges and horizontal shifts in carriageway spaced at 60-90m intervals.
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	• Blacktop asphalt as standard. Block paving to shared surfaces and crossing points. • Other bound aggregate and stone/ concrete paving finishes at points of interface with key Public Open Spaces.
Street Furniture	• Bench seating and litter bins provided at strategic 'resting points' and coordinated with adjacent public open spaces where possible. • Provision of dog waste bins subject to LPA requirements.
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1/KP2
On-Street Parking	No
Technical Details	
Design Speed	30mph
Road Markings	Centreline, and junction road markings
Junction Spacing (centreline – centreline)	30m
Junction Radii	8 – 15m
Forward Visibility	43m
Visibility Splays	43m
Centreline Radii	12.7 – 21.7m
Street Landscaping	
Verge Width	2.1 – 4.5m
Street Trees	Planted within landscape verge
Planting Palette	General varieties that do not restrict visibility
SuDS	Not applicable

Figure 4.6: Primary Street locations

Figure 4.7: Primary Street Indicative Section

4.5.2 Secondary Street

General Information	
Street Type	**Secondary**
Location	Intersects with the CPS running north-south past the Local Centre and providing the main point of access into residential parcels to the south.
Character	Neighbourhood distributor routes providing direct access to homes and tertiary streets.
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	14.7 – 15.5m (15.3-16.1m where PT route)
Footpaths	3m shared one side, 2m other side
Cycleways	3m wide shared on one side
Carriageways	5.5-6.1m (PT route)
Public Transport Route	On secondary streets that are 6.1m wide
Traffic Calming	Design speed to primarily be achieved through horizontal alignment. To be complemented, as required, with speed restraint measures including pedestrian refuges and chicanes spaced at 60-70m intervals.
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	• Blacktop asphalt as standard. Block paving to shared surfaces and crossing points. • Other bound aggregate and stone/ concrete paving finishes at points of interface with key Public Open Spaces.
Street Furniture	• Bench seating and litter bins provided at strategic 'resting points' and coordinated with adjacent public open spaces where possible. • Provision of dog waste bins subject to LPA requirements.
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1/KP2
On-Street Parking	No
Technical Details	
Design Speed	20mph
Road Markings	Centreline and junction road markings
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	12 - 14m
Street Landscaping	
Verge Width	2.1 – 2.5m
Street Trees	Planted within landscape verge
Planting Palette	General varieties that do not restrict visibility
SuDS	Not applicable

Figure 4.8: Secondary Street locations

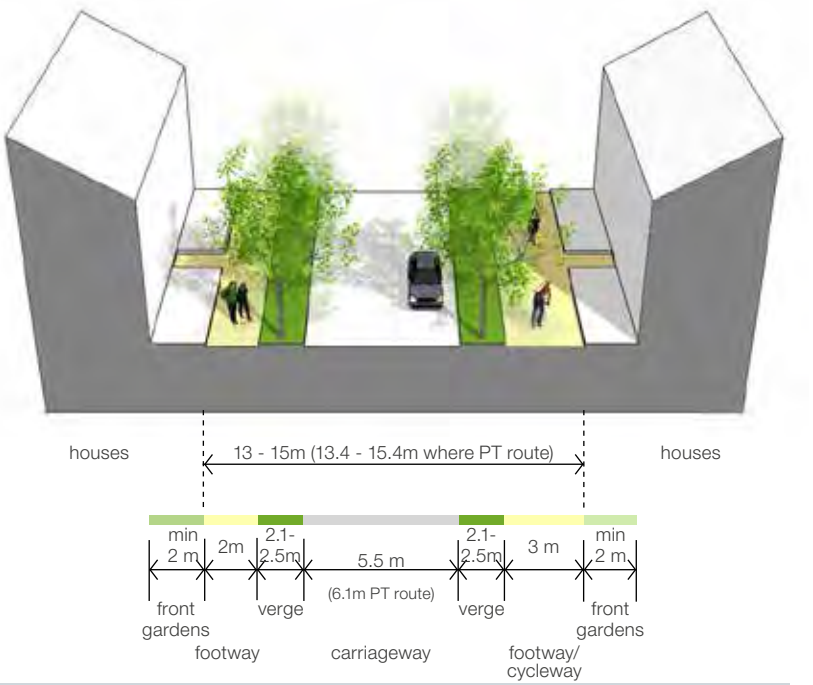


Figure 4.9: Secondary Street Indicative Section

4.5.3 Cross Parcel Permeability and Tertiary Streets

Design Principles:

- Individual development parcels will provide cross-parcel permeability mainly through a network of tertiary streets and pedestrian/cycle routes to create a legible block structure.
- Key cross parcel connections are identified on the Regulatory Plan and will be delivered as part of this network.
- Additional tertiary streets will be provided to serve dwellings within KP3.
- The alignment and design of the tertiary streets will be fixed by future Reserved Matters Applications.
- Indicative access points to parcels, which will likely connect to tertiary streets, are illustrated on the Regulatory Plan.
- Tertiary streets provide cross-parcel permeability through development parcels and access to dwellings.
- Typically, tertiary streets will only be used by people living or visiting that area, and will therefore be narrower and less formal in character than secondary streets.
- Longer tertiary streets should be provided with trees on at least one side and could contain areas of on-street parking.
- They must be designed to include horizontal alignments which encourage lower vehicle speeds. This can be complemented with traffic calming measures, as required, to increase safety for pedestrians and cyclists.
- Pedestrians and cyclists should have priority of movement in tertiary streets with shared surfaces and they should only serve a small number of homes.
- Short tertiary streets may have a dropped kerb line and no road markings to reduce speeds and allow for pedestrian priority.
- Detailed proposals will be expected to utilise more than one of the three Tertiary Street types within layouts.

There are three options for tertiary street types with guidance for each provided as follows:

- Tertiary streets with standard highway design – see Design Principles for this street type in section 4.5.4;
- Tertiary streets next to landscape and open space – see Design Principles for this street type in section 4.5.5;
- Tertiary streets with shared surface design – see Design Principles for this street type in section 4.5.6.

Tertiary Streets as Spaces

In addition to the three tertiary street type options there is further guidance for tertiary streets as spaces - where tertiary streets have the opportunity to wrap around small public spaces (for instance pocket parks or formal parks). – see Design Principles for this street type in section 4.5.7.

Private Drives

The lowest order level of street is private drives, used to access a small number of dwellings (to be determined at Detailed Design Stage). – see Design Principles for this street type in section 4.5.8.

4.5.5 Tertiary Streets: Standard

General Information	
Street Type	**Tertiary Street: Standard**
Location	Within residential development parcels
Character	Smaller scale residential streets providing access to homes
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	9 – 12.5m
Footpaths	2m
Cycleways	No
Carriageways	5 – 5.5m
Public Transport Route	No
Traffic Calming	Design speed to primarily be achieved through horizontal alignment. To be complemented, as required, with speed restraint measures spaced at 60-70m intervals.
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	Bitumous surface and concrete edging include concrete block / stone sett paving / block paving
Street Furniture	None (will be provided in Public Open Space if relevant)
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1/KP2
On-Street Parking	Potential provision for on-street parking, to be confirmed at detailed design.
Technical Details	
Design Speed	20mph
Road Markings	No
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	13 – 13.5m
Street Landscaping	
Verge Width	0 – 1.5m
Street Trees	No
Planting Palette	N/A
SuDS	To be determined within detailed design

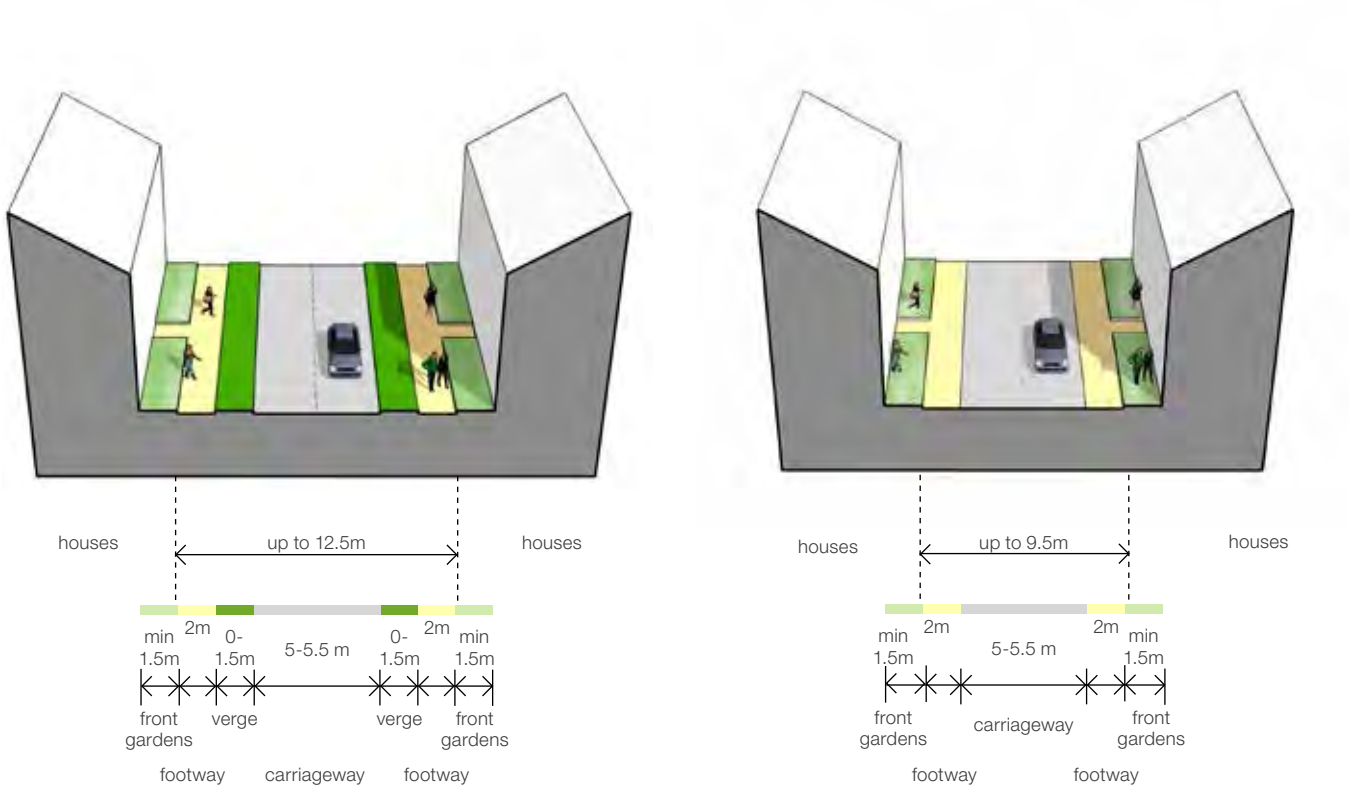


Figure 4.10: Tertiary Street Standard, Indicative Sections: example with full verges (left) and example with no verges (right)

4.5.5 Tertiary Streets: next to landscape

General Information	
Street Type	**Tertiary Street: next to landscape**
Location	Within residential development parcels next to landscape features including wildlife corridors and green corridors.
Character	These streets typically have landscape features and low vehicular speeds.
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	8.5m
Footpaths	2m, minimum of one side
Cycleways	No
Carriageways	5m
Public Transport Route	No
Traffic Calming	Design speed to primarily be achieved through horizontal alignment. To be complemented with speed restraint measures at 60-70m intervals.
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	• Surface dressed tarmac to standard carriageway treatment. Block paving to shared surfaces and crossing points. • Other bound aggregates and stone / concrete paving finishes at points of interface with key Public Open Spaces.
Street Furniture	• Seating, bins, etc. provided within adjacent landscape spaces.
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1/KP2
On-Street Parking	Potential provision for on-street parking, to be confirmed at detailed design.
Technical Details	
Design Speed	20mph
Road Markings	No
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	13m
Street Landscaping	
Verge Width	1.5m service margin
Street Trees	No
Planting Palette	N/A
SuDS	To be determined within detailed design.

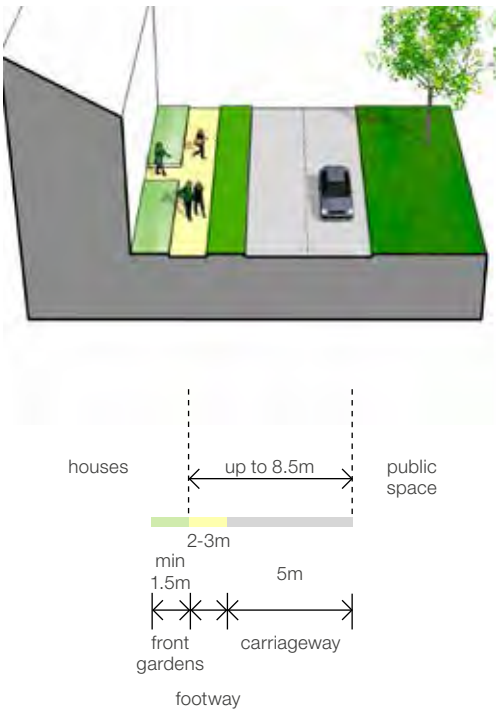


Figure 4.11: Tertiary Street (next to landscape) Indicative Section

4.5.6 Tertiary Streets: shared surface

General Information	
Street Type	**Tertiary Street: shared surface**
Location	Within residential development parcels
Character	Less formal than other tertiary street options with very low speeds and shared surface design approach to ensure pedestrians and cyclists have priority of movement.
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	8-8.5m
Footpaths	No, shared surface
Cycleways	No, shared surface
Carriageways	5m
Public Transport Route	No
Traffic Calming	Designed to ensure approaching drivers are aware of low speed and pedestrian / cyclist priority. Consistent design speed to primarily be achieved through horizontal alignment. To be complemented with speed restraint measures at 60-70m intervals, as required.
Utilities Corridor	Yes, 2m corridor either side of shared surface.
Surface Finishes	• Surface dressed tarmac to standard carriageway treatment. • Block paving to define pedestrian refuges and crossing points.
Street Furniture	None (will be provided in POS if relevant).
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1/KP2
On-Street Parking	Potential provision for on-street parking, to be confirmed at detailed design.
Technical Details	
Design Speed	20mph
Road Markings	No
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	13m
Street Landscaping	
Verge Width	0m
Street Trees	No
Planting Palette	N/A
SuDS	To be determined within detailed design.

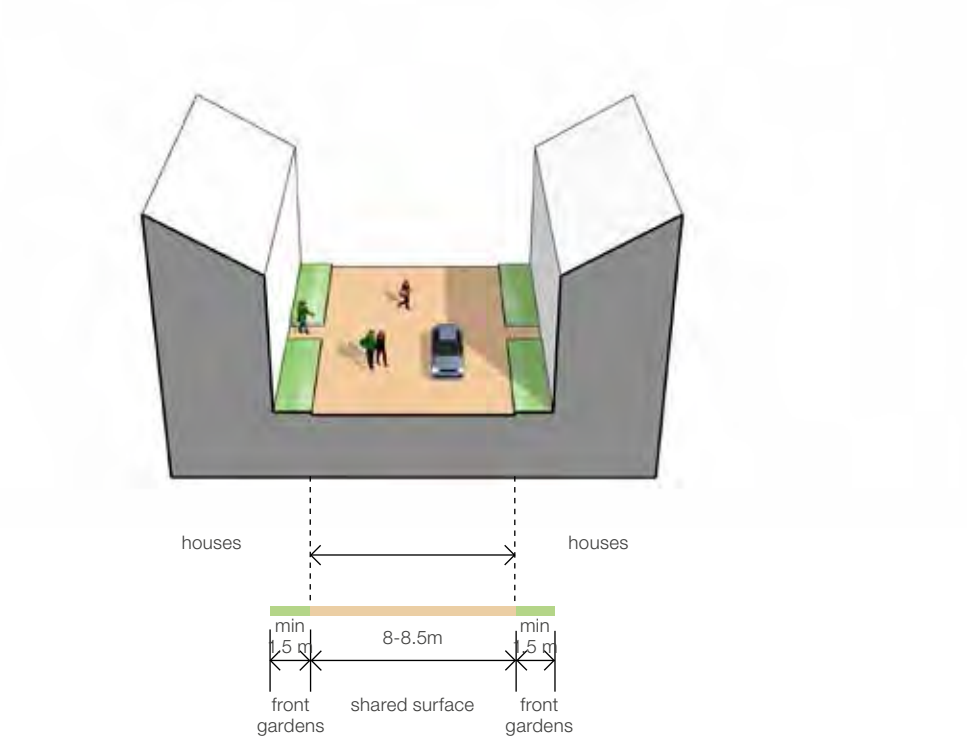


Figure 4.12: Tertiary Street (shared surface) Indicative Section

4.5.7 Tertiary Streets as Spaces

Tertiary streets will be designed as spaces within which vehicles, pedestrians and cyclists share equal priority. This form of tertiary street is appropriate for streets that provide access to dwellings within the centre of development parcels, i.e. away from the primary movement network of KP3.

Where tertiary streets are also intended to function as spaces, the following design principles will be followed:

a.	parking areas will be demarcated in a low key manner, through the use of materials.
b.	where street parking is provided, the number of spaces will not exceed four in a row.
c.	parking areas will be defined by landscaping.
d.	buildings surrounding the space will create enclosure through the appropriate use of boundary walls and dwelling frontages.
e.	central drainage channels will be provided to drain surface run off within spaces, whilst also acting as a traffic calming measure.
f.	high quality surface materials will be used to create an attractive environment for pedestrians, cyclists and vehicles
g.	the carriageway does not require definition through materials and should merge with the surrounding spaces. If a tertiary street as a space is to be adopted by the Highway Authority, the minimum width of the whole corridor will be 8-8.5m with a carriageway allowance of 5m is required
h.	a minimum of 6m clear width will be provided to allow cars to access parking spaces.
i.	street furniture, such as benches and cycle parking, will be provided as necessary to encourage informal use by residents to encourage activity within spaces

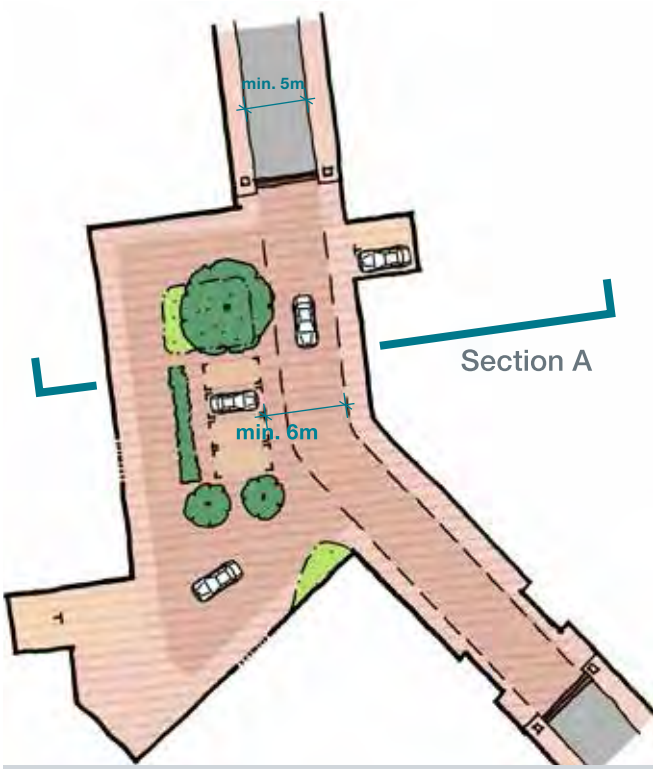


Figure 4.13: Example plan A of adopted tertiary street as space

Figure 4.14: Street section A through plan A (above)

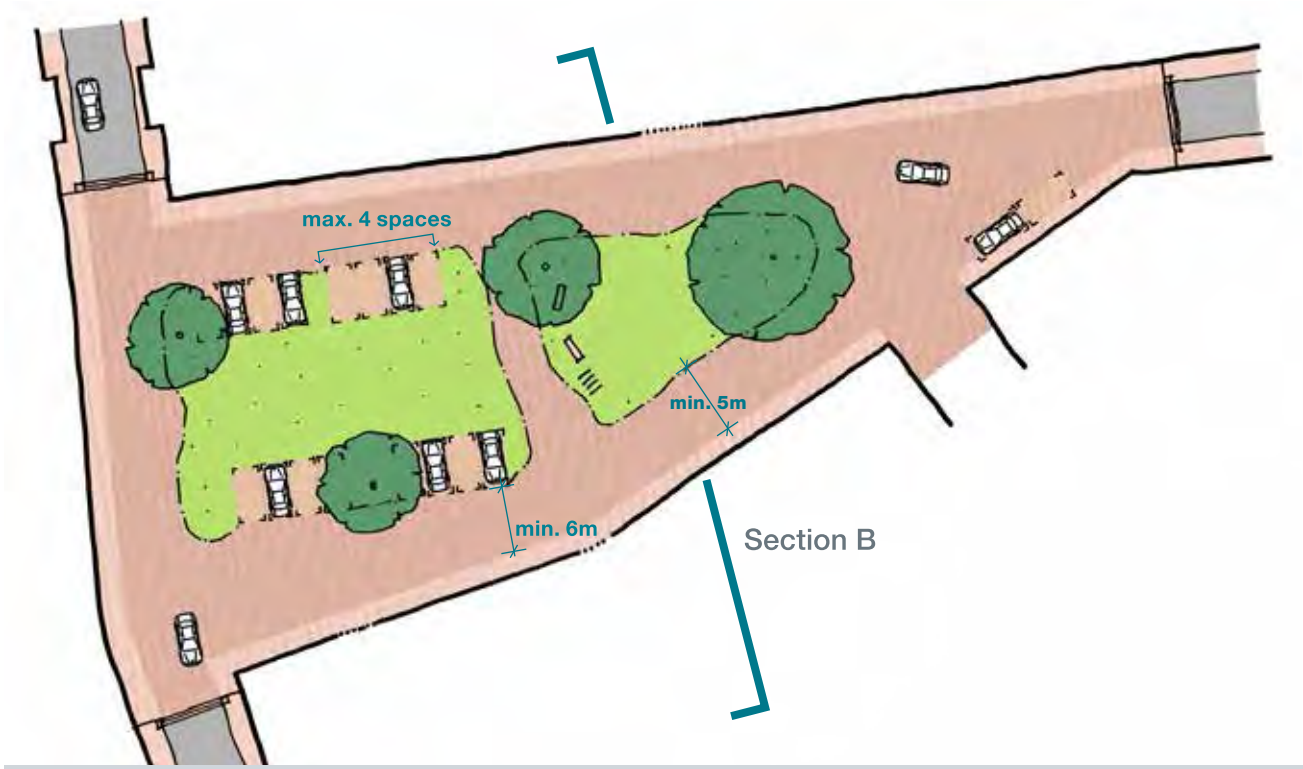


Figure 4.15: Example plan B of adopted tertiary street as space

Key:

- 1-2m defensible space
- shared surface
- parking area

Figure 4.16: Street section B through plan B (above)

4.5.8 Private Drives

General Information	
Street Type	Tertiary Street: private drives
Location	Within residential development parcels
Character	Less formal than other tertiary street options with low speeds and shared surface design approach
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	To be agreed at detailed design stage
Footpaths	To be determined at detailed design state
Cycleways	No
Carriageways	• Single dwelling – 3m for a minimum length of 5m. • More than one unit – 5m for a minimum length of 7.5m from the back of carriageway
Public Transport Route	No
Traffic Calming	Dependent on the design of the private drive, speeds will need to be restrained to the required design speed
Utilities Corridor	Yes, under private drive

Surface Finishes	Surface dressed tarmac / concrete block / stone sett paving / block paving
Street Furniture	No
Street Lighting	No
On-Street Parking	No
Technical Details	
Design Speed	10mph, on the basis that appropriate features to restrain speeds are proposed
Road Markings	No
Junction Spacing (centreline – centreline)	17m
Junction Radii	6m
Forward Visibility	11m
Visibility Splays	11m
Centreline Radii	9 – 11.5m
Street Landscaping	
Verge Width	0m
Street Trees	No
Planting Palette	No
SuDS	To be determined within detailed design

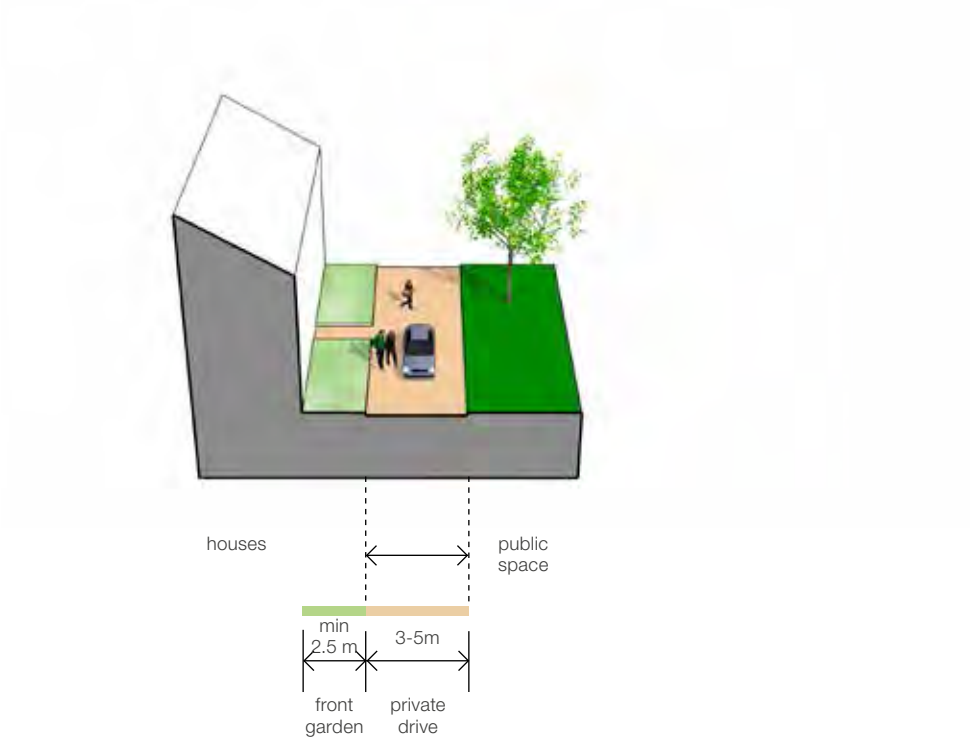


Figure 4.17: Private Drives Indicative Section

4.6 Cycle and Pedestrian Network

A comprehensive network of routes for pedestrians and cyclists must be provided to facilitate ease of movement by walking and cycling, both as part of the street design and as separate leisure routes through green infrastructure.

Primary and secondary streets will have footways along one side and dedicated footway/cycle tracks along the other to accommodate cyclists. Lower order tertiary streets will have sufficient width to accommodate vehicles and cycles on the carriageway. The following principles apply to cyclist / pedestrian provision as part of streets:

Design Principles

- Pedestrian footways will be provided adjacent to all of the roads (except shared surface access roads) at a minimum width of 2m, with wider footways in areas of high pedestrian volumes.
- Pedestrian footpaths will be constructed between individual development plots to encourage walking as a meaningful mode of transport.
- Footpaths and cycleways will be constructed along key desire routes between land uses to ensure that walking and cycling are considered as a real choice.
- Pedestrians and cyclists will be given priority wherever possible over all other forms of traffic with crossing facilities taking the form of signalised crossings, Zebra crossings or shared surfaces depending on the location and volumes.
- Cycleways will be provided either as shared facilities with pedestrians (at a minimum width of 3m) or as dedicated facilities. Cycle parking will be provided in key locations in accordance with minimum standards as set out in relevant RBC policy guidance. Cycle parking will also be provided within public areas for general use and within individual plots as these are developed out.
- Developers of individual plots will submit details with Reserved Matters planning applications identifying the numbers and locations of cycle parking along with links to walking and cycling facilities.
- Careful location of crossing points and cycleways to achieve effective connectivity.

The Regulatory Plan illustrates suggested routes for leisure paths for walking and cycling through the network of green infrastructure. These off-road leisure routes connect with the comprehensive network of connected streets which make provision for walking and cycling. This network of leisure routes (footpaths, cycle tracks) provide access for pedestrians and cyclists through green infrastructure and should be designed in accordance with the following principles:

- Surface: bitumous surface, bonded gravel or self binding gravel.
- Edging: Concrete or timber edging.
- Width: subject to detail design but minimum of 3m if shared cycletrack/footway.

The combination of off-road leisure routes and streets are illustrated in Figure 4.18: Indicative Walking and Cycling Network.

Figure 4.18: Indicative Walking and Cycling Network

4.7 Bus Network

Public Transport Services

The overall strategy envisages the introduction of new routes through the site connecting it with KP1, KP2 and beyond to DIRFT and Hillmorton along with Rugby town centre and railway station.

New buses will be introduced on new routes, primarily to link the site with Hillmorton and beyond to Rugby town centre via the link road north. The exact details of these routes will be detailed in the emerging Public Transport Strategy which will be agreed by the Transport Review Group (TRG). The strategy will detail the key principles of public transport provision at the site whilst retaining sufficient flexibility to react to site specific demands and take account of opportunities to serve nearby areas and maximise patronage levels.

Bus provision will be delivered within the constraints of the overarching bus strategy to ensure that planning conditions are discharged. However, the routing and frequency of services along with size of buses will be reviewed on an ongoing basis throughout the build programme with the aim of ensuring that the bus service provision meets the needs of the development.

Public Transport Infrastructure

The public transport measures will be reviewed on an ongoing basis throughout the build programme with changes made as and when necessary.

Bus stops will be located at key locations throughout the wider Development Site with the objective that no individual plot should be more than around 400m from a bus stop in line with the Site Wide Travel Plan. Bus stops will be provided on the CPS at regular intervals. These bus stops will be on street bus stops and laybys will not be required. It is envisaged that the secondary street adjacent to the school will form part of the wider bus network and as such, provision for bus stops on this street will be required, and will be informed by the emerging site wide public transport strategy.

The stops will be constructed to be accessible and will include shelters to the appropriate standard. See Figure 4.19, below illustrating new stops at the site entrance and possible future stops (lighter shade) within a 400m / 5 minute walking distance radii.

Figure 4.19: Indicative future bus route

4.8 Parking

Standards for both residential and non-residential use vehicle parking should follow the Transport Assessment that accompanied the Outline Planning Application.

The maximum levels of parking are set out in Appendix 2 of Rugby Borough Council's Local Development Framework, Planning Obligations, Supplementary Planning Document, March 2012

Residential

Residential parking will be designed in accordance with the following design principles:

- Overall residential parking ratio in the order of 1.5 spaces per dwelling across the site, unless otherwise agreed by RBC, with a range from no parking for some apartments up to a maximum of 3 spaces for some larger units;
- Not all units will necessarily be allocated dedicated parking bays;
- Parking will be provided within the overall plots on the adjacent highway;
- Houses will be provided with garages and/or allocated parking bays in accordance with RBC standards;
- Details of the parking layout will be submitted with the relevant Reserved Matters planning applications; and
- Visitor parking will typically be provided on-street within laybys or within communal parking areas. Details will be submitted with the Reserved Matters planning applications.

Retail

The adopted parking standards set out maximum standards for retail land uses based on the type of retail and accessibility level as follows:

- Car parking from a maximum of 1 space per 20sqm for A1 non-food retail and general retail development in areas of low accessibility through to;
- a maximum of 1 space per 10sqm for A5 hot food take away units in highly accessible areas;
- Disabled parking to be provided at a minimum of 5% for the first 100 spaces plus 3 spaces per 100 parking spaces thereafter; and
- Parking for commercial vehicles to be determined on a plot by plot basis.

Education

- Will be accessed from the secondary street;
- Provision of 2 spaces per classroom for staff and visitors and zero spaces for parents to reflect adopted parking standards;
- Use of appropriate treatments and measures on streets surrounding the school to discourage vehicular pick-ups / drop-offs and maximise pedestrian / cycle safety; and
- Detailed parking and access arrangements will be submitted with the Reserved Matters planning applications.

Cycle Parking

Cycle parking will be provided in accordance with RBC standards as follows:

- Houses – a minimum of 1 space per unit in a secure and undercover location;
- Apartments with less than 3 bedrooms - a minimum of 1 space per unit in a secure and undercover plus 1 loop/hoop per apartment for visitors;
- Apartments with 3 or more bedrooms - a minimum of 2 spaces per unit in a secure and undercover plus 1 loop/hoop per apartment for visitors;
- All residential units will be provided with secure parking for bicycles. Parking for the apartments will be provided internally for residents with spaces within the curtilage for visitors;
- Parking for houses is proposed within the garages (where provided and should allow for both cars and bikes to be stored in the garage) or alternative locations within the curtilage as approved;
- Cycle parking will be provided within public areas for visitors.

Figure 4.20: Car and Cycle parking precedent photographs

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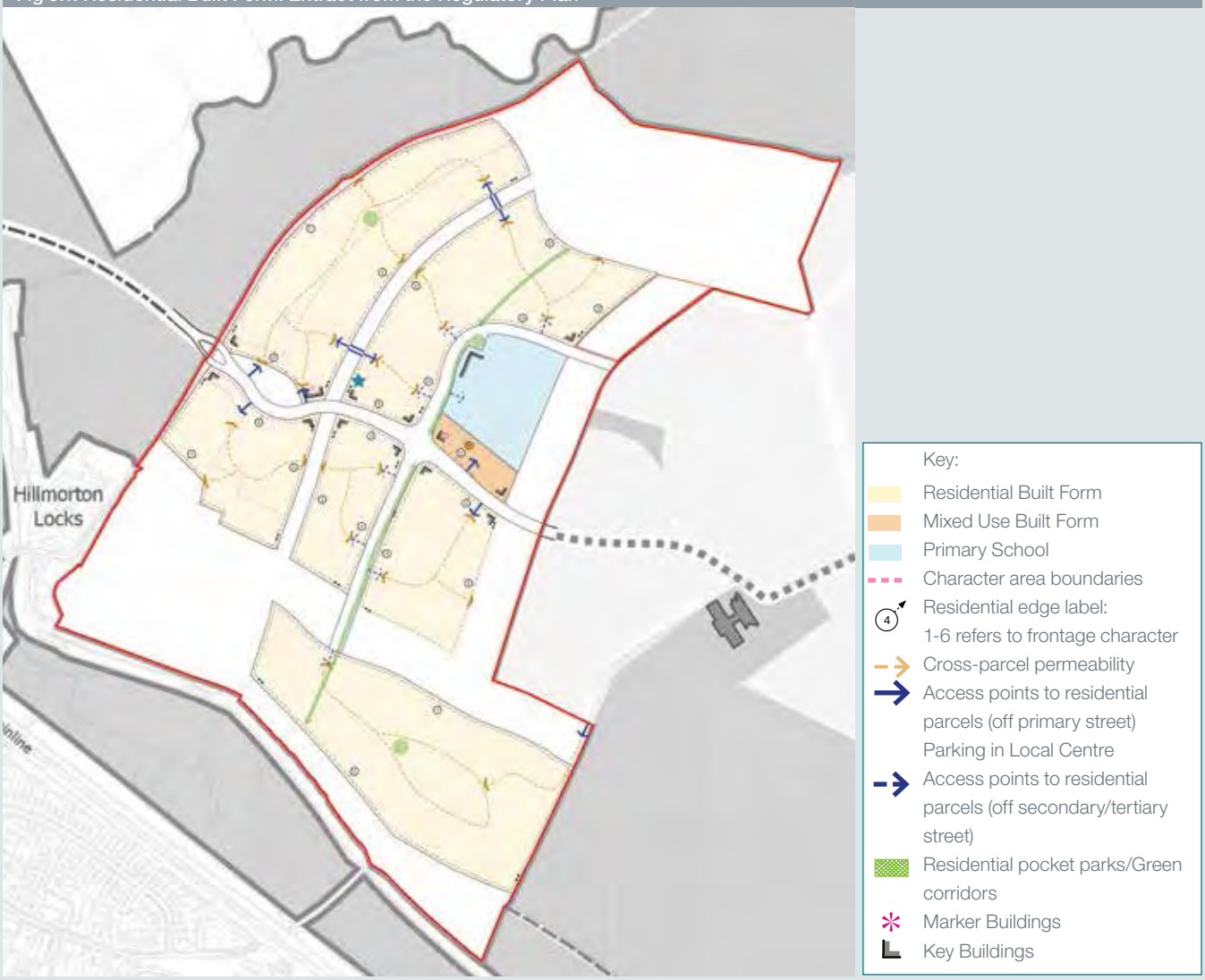
Chapter 5
Built Form

Fig 5.1: Residential Built Form: Extract from the Regulatory Plan



5.1 Built Form Guiding Design Principles

KP3 has the potential to deliver up to **1,000 homes and up to 4,650 m2 in mixed use floorspace**. The following Guiding Design Principles have been established:

- To continue the **layout structure of the former Radio Station site** so residential parcels maintain views to and from the existing built form within RSR.
- To ensure the design of KP3 **responds to its local setting** to reinforce the characteristics of residential areas of Rugby as well as the site's former uses as the Radio Station site.
- To provide a block structure that is a continuation of that set within KP1 and KP2 and a transition to a more **urban character** to reflect the proximity to the C Station.
- To ensure the block structure provides **active frontages** facing onto streets and green infrastructure.
- To establish a residential density level that complies with the OPP and creates a more urban feel due to the proximity to the C Station.
- To locate **affordable dwellings** to ensure they integrate with market dwellings.
- To provide a mixed use area as defined in the Regulatory Plan.
  - The Local Centre in KP3 is part of an area of mixed use defined in the OPA as Local Centre 1.
  - The land uses within OPA Local Centre 1 as defined by the outline can include up to the following:
  - A1 (retail) - up to 500sqm;
  - A3/A4/A5 (restaurants, pubs/bars) - up to 250sqm;
  - C3 (residential) up to 45 units
  - D1 (non-residential institution not including Primary/ Secondary School) - up to 300sqm;
  - D1 (schools) - up to 3,600sqm;
  - Sui Generis - up to 100sqm.
- **TOTAL of above listed mixed use land uses:**
  - Up to 4,650 sqm floorspace (non-residential).
  - Up to 45 homes.

5.2 Introduction

This chapter of the design guide builds on the residential design principles set out in the RSR SUE Outline Planning Application and Parameter Plans.

KP3 has the potential to deliver up to 1,000 homes. The key objective for the RSR SUE is to create a network of safe and secure streets forming walkable neighbourhoods, and the layout of residential streets plays a major part in this.

This chapter of the design guide refers closely to the Regulatory Plan and will set out the following;

Frontage Character	*This table explains how residential parcels will address key streets and open spaces, as set out in the Regulatory Plan.*
Character Areas	*The KP3 site divides into four distinct character areas. These determine factors such as housing typologies and materials allowed for the development within them. They set out illustrative frontage examples, and a series of samples which illustrate how the rules within this chapter could be applied to design a grouping of buildings to create an appropriate streetscene within the character area. Precedent images for each character area are shown to guide the future development.* *Proposals should demonstrate a gradual transition between character areas. Proposals should demonstrate consistency and gradual transition of materiality and typology selection for buildings on both side of streets either where a street passes through a parcel and across character areas, or where the parcel faces another character area or completed parcel across a street.*
Key Groupings	Two key groupings have been identified and are essential components in creating distinctiveness within KP3. Design Principles for each of the groupings summarises and provides a more detailed design brief in addition to the requirements of the Regulatory Plan.
Residential Density	*Guidance on appropriate density ranges across the extent of KP3.*
Building Heights	*Guidance on the building heights permitted across the extent of KP3.*
Built Form Principles	*Residential plot layout rules and architectural principles for residential and mixed use built form guide developments to achieve a coherent framework of well-designed streets and spaces and a coherent, yet distinctive chatacter for architectural design.*
Private Amenity Space	*Guidance on the appropriate amenity space required for dwellings.*
New Utility Supplies	*Guidance on the utility supplies, provision and location across KP3.*
Refuse & Recycling	*Guidance on the provision, location and design principles for bin storage and refuse collection.*
Noise Mitigation	*Preliminary noise mitigation design guidance for KP3.*

5.2.1 Marker Buildings

Marker Buildings of high importance are identified at the most important locations on the Regulatory Plan. Marker Buildings will be distinctive, providing legibility and identity. The design of Marker Buildings will respond to key views and vistas and to the open space and public realm they address. Marker Buildings will be constructed in the highest quality materials and finishes. Marker Buildings may deviate from compliance with the Guide if doing so is demonstrably beneficial to their purpose.

5.2.2 Key Buildings

Key Buildings are identified at a number of locations on the Regulatory Plan. They frame key views, address open space and public realm. The frontage of Key Buildings will address the important locations as identified on The Regulatory Plan.

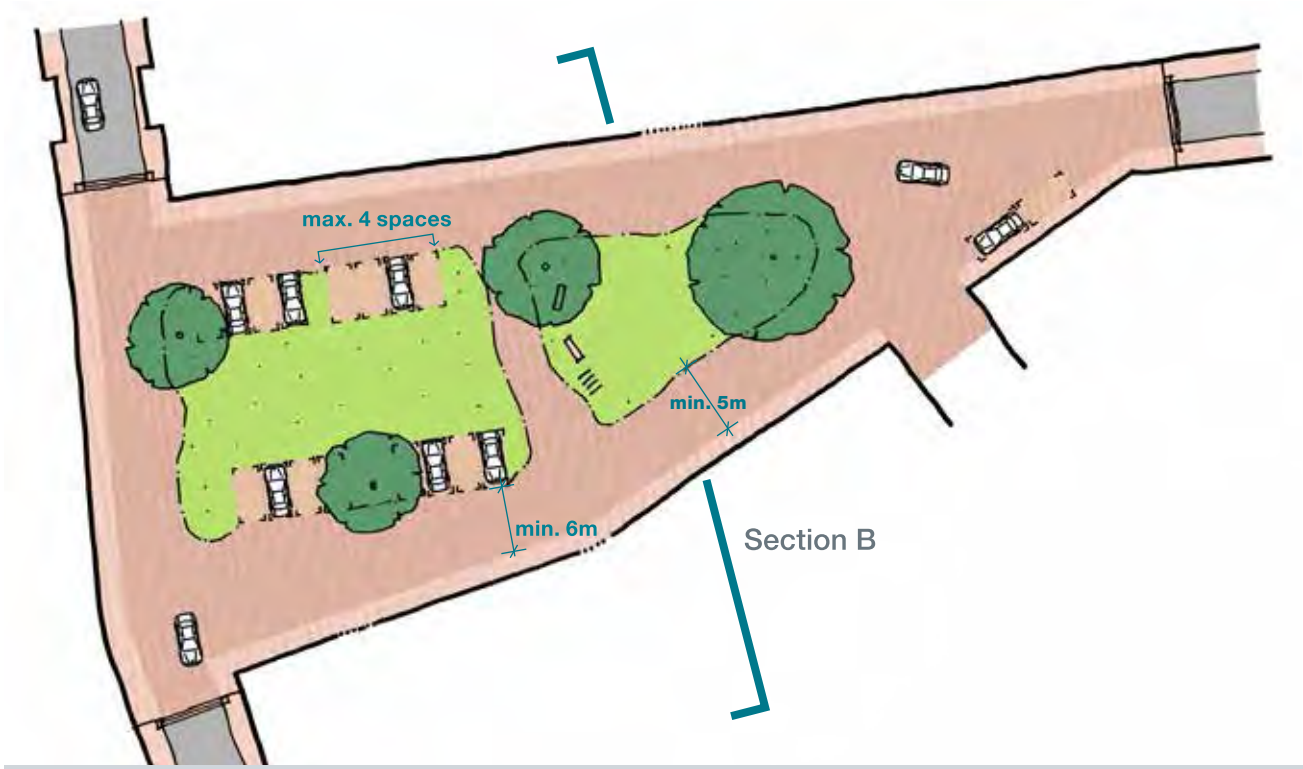


Figure 4.15: Example plan B of adopted tertiary street as space

Key:

- 1-2m defensible space
- shared surface
- parking area

Figure 4.16: Street section B through plan B (above)

4.5.8 Private Drives

General Information	
Street Type	Tertiary Street: private drives
Location	Within residential development parcels
Character	Less formal than other tertiary street options with low speeds and shared surface design approach
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	To be agreed at detailed design stage
Footpaths	To be determined at detailed design state
Cycleways	No
Carriageways	• Single dwelling – 3m for a minimum length of 5m. • More than one unit – 5m for a minimum length of 7.5m from the back of carriageway
Public Transport Route	No
Traffic Calming	Dependent on the design of the private drive, speeds will need to be restrained to the required design speed
Utilities Corridor	Yes, under private drive

Surface Finishes	Surface dressed tarmac / concrete block / stone sett paving / block paving
Street Furniture	No
Street Lighting	No
On-Street Parking	No
Technical Details	
Design Speed	10mph, on the basis that appropriate features to restrain speeds are proposed
Road Markings	No
Junction Spacing (centreline – centreline)	17m
Junction Radii	6m
Forward Visibility	11m
Visibility Splays	11m
Centreline Radii	9 – 11.5m
Street Landscaping	
Verge Width	0m
Street Trees	No
Planting Palette	No
SuDS	To be determined within detailed design

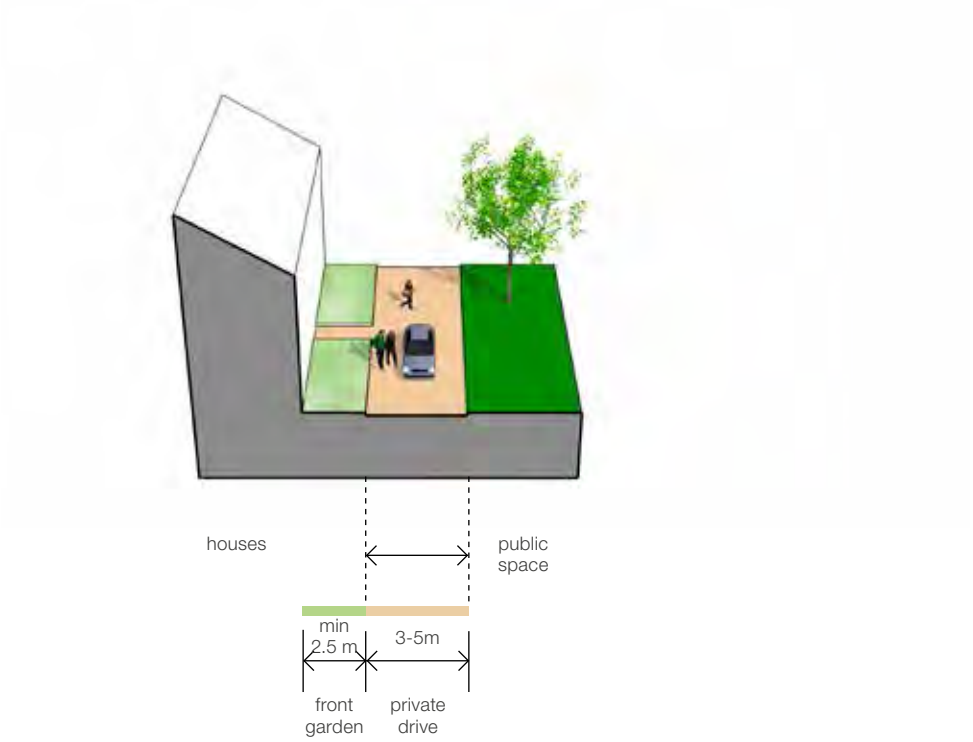


Figure 4.17: Private Drives Indicative Section

4.6 Cycle and Pedestrian Network

A comprehensive network of routes for pedestrians and cyclists must be provided to facilitate ease of movement by walking and cycling, both as part of the street design and as separate leisure routes through green infrastructure.

Primary and secondary streets will have footways along one side and dedicated footway/cycle tracks along the other to accommodate cyclists. Lower order tertiary streets will have sufficient width to accommodate vehicles and cycles on the carriageway. The following principles apply to cyclist / pedestrian provision as part of streets:

Design Principles

- Pedestrian footways will be provided adjacent to all of the roads (except shared surface access roads) at a minimum width of 2m, with wider footways in areas of high pedestrian volumes.
- Pedestrian footpaths will be constructed between individual development plots to encourage walking as a meaningful mode of transport.
- Footpaths and cycleways will be constructed along key desire routes between land uses to ensure that walking and cycling are considered as a real choice.
- Pedestrians and cyclists will be given priority wherever possible over all other forms of traffic with crossing facilities taking the form of signalised crossings, Zebra crossings or shared surfaces depending on the location and volumes.
- Cycleways will be provided either as shared facilities with pedestrians (at a minimum width of 3m) or as dedicated facilities. Cycle parking will be provided in key locations in accordance with minimum standards as set out in relevant RBC policy guidance. Cycle parking will also be provided within public areas for general use and within individual plots as these are developed out.
- Developers of individual plots will submit details with Reserved Matters planning applications identifying the numbers and locations of cycle parking along with links to walking and cycling facilities.
- Careful location of crossing points and cycleways to achieve effective connectivity.

The Regulatory Plan illustrates suggested routes for leisure paths for walking and cycling through the network of green infrastructure. These off-road leisure routes connect with the comprehensive network of connected streets which make provision for walking and cycling. This network of leisure routes (footpaths, cycle tracks) provide access for pedestrians and cyclists through green infrastructure and should be designed in accordance with the following principles:

- Surface: bitumous surface, bonded gravel or self binding gravel.
- Edging: Concrete or timber edging.
- Width: subject to detail design but minimum of 3m if shared cycletrack/footway.

The combination of off-road leisure routes and streets are illustrated in Figure 4.18: Indicative Walking and Cycling Network.

Figure 4.18: Indicative Walking and Cycling Network

4.7 Bus Network

Public Transport Services

The overall strategy envisages the introduction of new routes through the site connecting it with KP1, KP2 and beyond to DIRFT and Hillmorton along with Rugby town centre and railway station.

New buses will be introduced on new routes, primarily to link the site with Hillmorton and beyond to Rugby town centre via the link road north. The exact details of these routes will be detailed in the emerging Public Transport Strategy which will be agreed by the Transport Review Group (TRG). The strategy will detail the key principles of public transport provision at the site whilst retaining sufficient flexibility to react to site specific demands and take account of opportunities to serve nearby areas and maximise patronage levels.

Bus provision will be delivered within the constraints of the overarching bus strategy to ensure that planning conditions are discharged. However, the routing and frequency of services along with size of buses will be reviewed on an ongoing basis throughout the build programme with the aim of ensuring that the bus service provision meets the needs of the development.

Public Transport Infrastructure

The public transport measures will be reviewed on an ongoing basis throughout the build programme with changes made as and when necessary.

Bus stops will be located at key locations throughout the wider Development Site with the objective that no individual plot should be more than around 400m from a bus stop in line with the Site Wide Travel Plan. Bus stops will be provided on the CPS at regular intervals. These bus stops will be on street bus stops and laybys will not be required. It is envisaged that the secondary street adjacent to the school will form part of the wider bus network and as such, provision for bus stops on this street will be required, and will be informed by the emerging site wide public transport strategy.

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Education

- Will be accessed from the secondary street;
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Cycle Parking

Cycle parking will be provided in accordance with RBC standards as follows:

- Houses – a minimum of 1 space per unit in a secure and undercover location;
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Figure 4.20: Car and Cycle parking precedent photographs

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Chapter 5
Built Form

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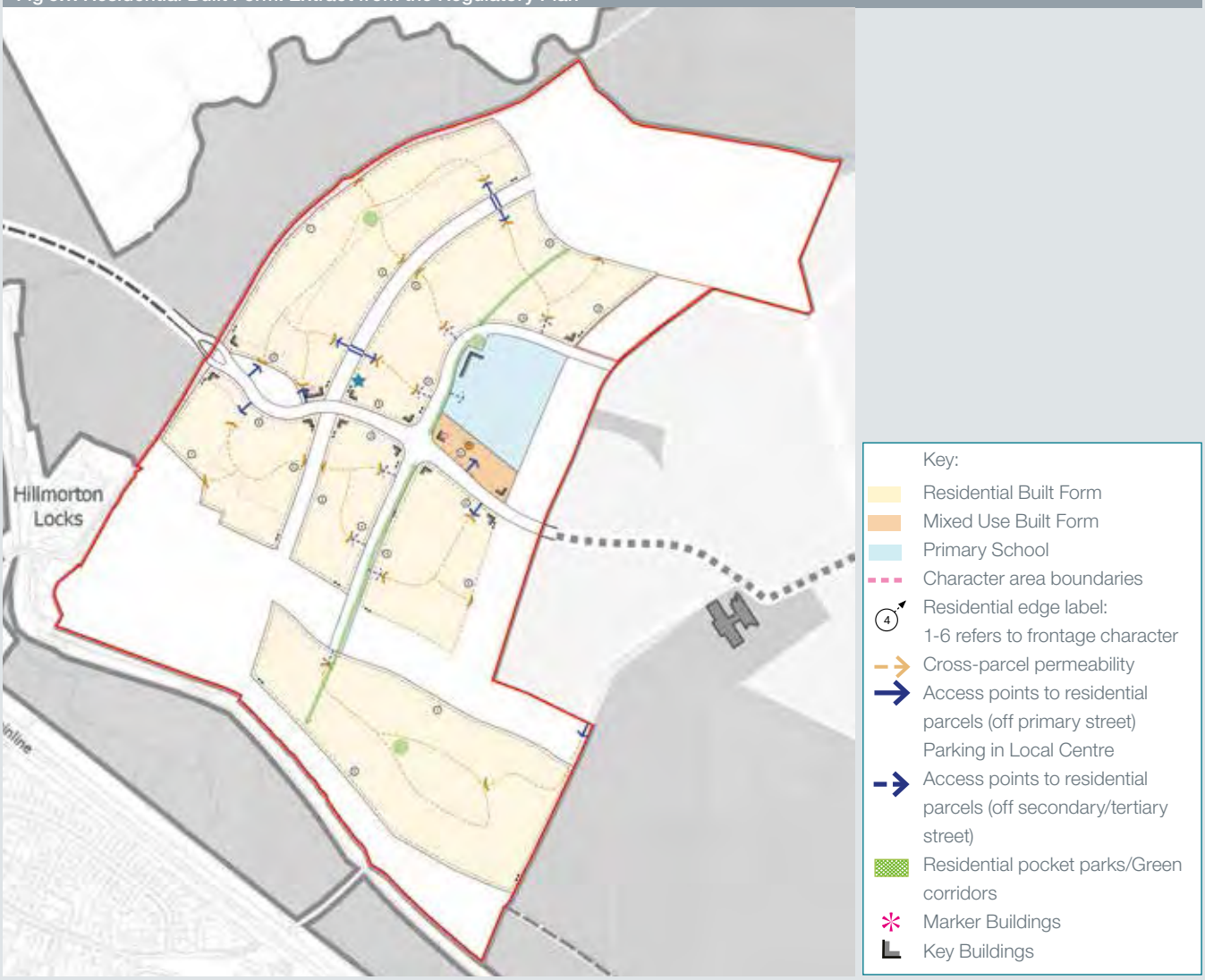

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- **TOTAL of above listed mixed use land uses:**
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Character Areas	*The KP3 site divides into four distinct character areas. These determine factors such as housing typologies and materials allowed for the development within them. They set out illustrative frontage examples, and a series of samples which illustrate how the rules within this chapter could be applied to design a grouping of buildings to create an appropriate streetscene within the character area. Precedent images for each character area are shown to guide the future development.* *Proposals should demonstrate a gradual transition between character areas. Proposals should demonstrate consistency and gradual transition of materiality and typology selection for buildings on both side of streets either where a street passes through a parcel and across character areas, or where the parcel faces another character area or completed parcel across a street.*
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Private Amenity Space	*Guidance on the appropriate amenity space required for dwellings.*
New Utility Supplies	*Guidance on the utility supplies, provision and location across KP3.*
Refuse & Recycling	*Guidance on the provision, location and design principles for bin storage and refuse collection.*
Noise Mitigation	*Preliminary noise mitigation design guidance for KP3.*

5.2.1 Marker Buildings

Marker Buildings of high importance are identified at the most important locations on the Regulatory Plan. Marker Buildings will be distinctive, providing legibility and identity. The design of Marker Buildings will respond to key views and vistas and to the open space and public realm they address. Marker Buildings will be constructed in the highest quality materials and finishes. Marker Buildings may deviate from compliance with the Guide if doing so is demonstrably beneficial to their purpose.

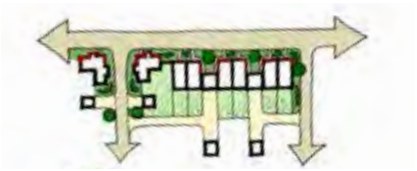
5.2.2 Key Buildings

Key Buildings are identified at a number of locations on the Regulatory Plan. They frame key views, address open space and public realm. The frontage of Key Buildings will address the important locations as identified on The Regulatory Plan.

5.3 Frontage Character

The following types of frontage character will be demonstrated along key routes and spaces throughout the KP3 site. The residential frontage label on the Regulatory Plan, as shown below, prescribes which frontage character will be used along a given edge.

Fig 5.2: Frontage Character Plan

Plan Example	Frontage Character Types
1 	• Staggered frontage • Consists of predominantly detached dwellings of varying size • Frontage may include garage rear/flank walls and garden walls
2 	• Stepped frontage • Consists of predominantly detached and semi-detached dwellings • Subtle variation in set-back from public realm
3 	• Consistent frontage • Consists of dwellings of a similar typology and size, arranged on a consistent spacing with a consistent set back to create rhythm and strong building line
4 	• Wider verge inbetween road and dwellings • Stepped, linear frontage with a high degree of enclosure • Consists of semi-detached and terraced dwellings • Detached dwellings may define corner plots
5 	• Near continuous, formal, linear frontage • Consistent grouping of typologies • Consists of semi-detached, terraced dwellings and apartments, with gaps only for access to parking and pedestrian routes
6 	• Limited stepped, linear frontage • A strong streetscene elevation displaying rhythm and order with a prevailing language of gable-fronted dwellings

5.4 Character Areas

The residential and mixed-use components of KP3 have been categorised into four Character Areas. These areas will be defined by their housing typologies, layout of parcel frontages, and materials used in their design, and are important as part of the method by which the Design Guide seeks to ensure coherent development across neighbourhoods. The edges of areas of built form, or parcel frontages, play a key role in defining character and coherence, and the design principles focus on these edges. Significantly greater flexibility is provided within the inner areas of parcels that do not face main public routes or spaces. The four areas are described briefly below.

Fig 5.3: Character Areas Plan

Rural Edge

At an interface between the new neighbourhood and extensive open space to the west and the south, this is an area characterised by low-density, predominantly detached housing in an informal arrangement where spacing between dwellings varies in width, and variety in the positioning of buildings relevant to the route or space they face occurs. Further variety will be expected between houses, expressed through building form and material selection. The objective is a rural character of development, avoiding formality in the arrangement of dwellings and landscape areas. Plots will vary in size but should feature generous rear gardens and occasional planted front gardens or courts.

Proposals for housing development in this character area will be required to show how, along with the layout and spacing of built form, the introduction of structural planting and landscaped spaces will visually break the outer edges of the parcel into discernible clusters of housing. Unrelenting and linear arrangements of dwellings will not be compliant with the objectives of the Design Guide.

Informal Urban

This area serves as a transition between the low-density, informality of the Rural Edge area towards the higher-density, Formal Urban Character Area to its east. It will comprise predominantly detached and semi-detached houses of 2 or 2.5 storeys but should also feature mews spaces or shared courts defined by terraced and semi-detached homes. Whilst the objective is overall to achieve a formal pattern of streets and spaces, occasional areas of looser housing layout should feature in response to green links or incidental landscape.

Formal Urban

This character area will feature a balanced mixed of housing types arranged in a predominantly orthogonal layout of 2 and 3 storey buildings. Terraced homes should be used to provide enclosure and definition to primary routes and spaces, with detached, semi-detached homes arranged in coherent, regularly-spaced alignments with limited stepping in the building line. The objective is to achieve a coherent environment of formally laid out streets and spaces accommodating a range of housing types - with emphasis provided to prominent corners and parcel frontages.

Apartment blocks should be considered in locations where Marker Buildings are shown on the Regulatory Plan, and where ground floor non-residential uses feature in the Local Centre.

Normandy Rise

The southern area of KP3 features a large residential parcel the climbs and then descends the pronounced slopes that exist in this part of the site. A ridge line runs broadly east-west through the parcel, whilst to its south a green corridor will provide its immediate setting alongside the canal. The topography and relationship to the canal are defining characteristics of the site in this location, to which the layout and architecture of the new neighbourhood must directly respond. To the north, the housing will enjoy a long interface with one of the major wildlife corridors running through KP3, and an informal layout of dwellings will respond to this element of green infrastructure. To the south a distinctly more formal character will be demonstrated, with dwellings designed to create a strong streetscene elevation displaying rhythm and order.

5.4.1 Steps for using Chapter 5.4

Each character area is described over 2-4 pages, containing guiding principles and explanatory images. The images on this page and the one opposite, explain the steps to interpreting the guidelines laid out in this chapter.

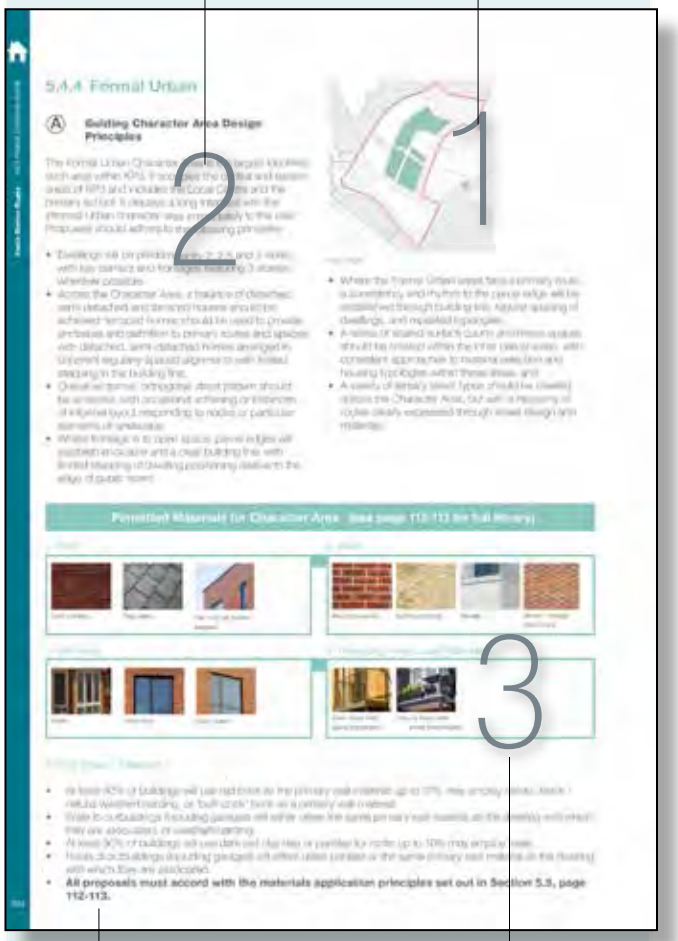
Character Area Wide

Step Ⓐ

Determine which Character Area(s) designation the respective parcel falls under.

1. Identification of Character Area in the context of Key Phase 3

2. Description of Character Area and the guiding principles which are applicable to its entirety.



Guiding Design Principles

3. List of permitted materials and the principles of their application. These pertain to the entire Character Area.

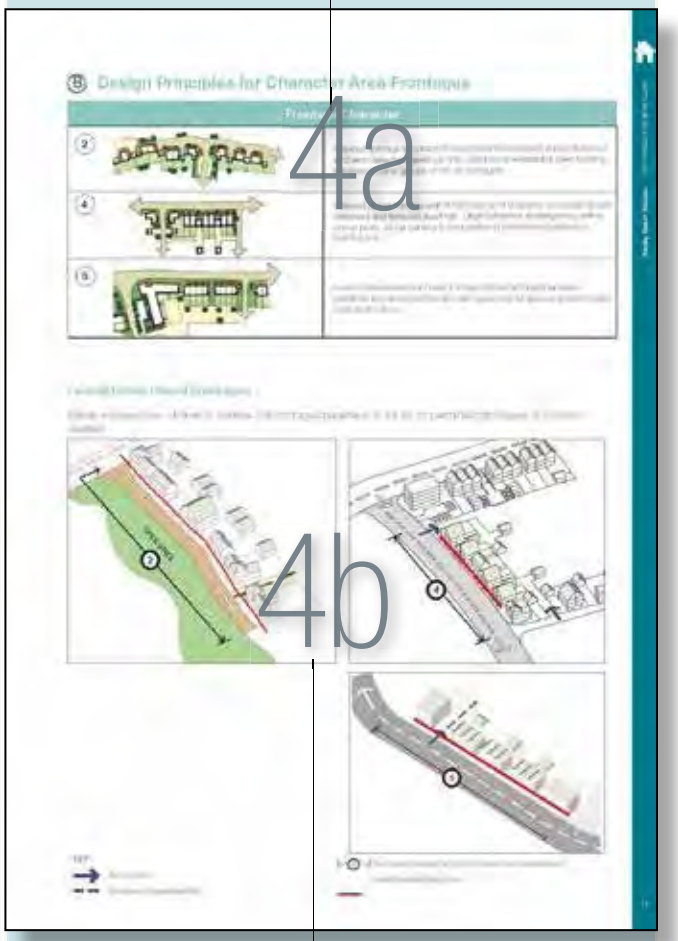
Parcel Frontage

Step Ⓑ

Determine which Frontage Characters are applicable to the respective parcel.

4a. Frontage characters set the street scene and define how dwellings are organised along the street and the degree of enclosure to be achieved. Multiple frontage characters may be applicable to any given character area.

The subsequent permitted dwelling typologies, parking typologies and boundary treatments are specific to each frontage character contained within the character area.



4b. Illustrative sketches show suitable configurations of permitted housing typologies particular to this Character Area. The full list of permitted dwellings, parking typologies and boundary treatments are contained in the following 3 tables on the next page of the character area.

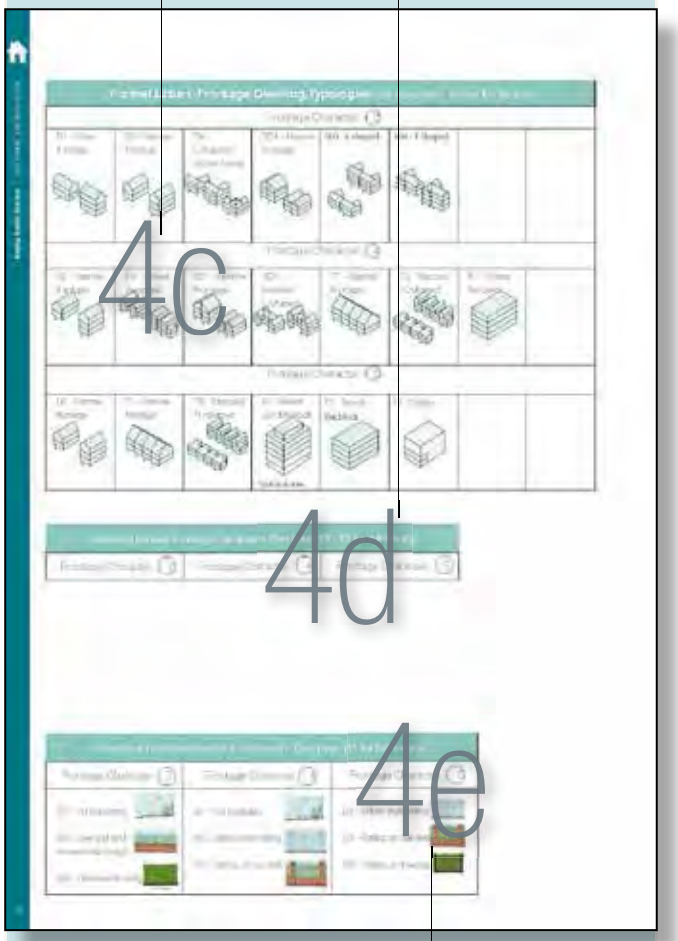
Character Area Wide

Step (B) Continued

Determine which plot components are permitted in each frontage character.

4c. List of permitted dwelling typologies (specific to each frontage character)

4d. List of permitted parking typologies (specific to each frontage character)



4e. List of permitted boundary treatments (specific to each frontage character)

Step (C)

Refer to illustrative groupings appropriate for the Character Area(s)

5. Illustrative Groupings enrich character within neighbourhoods and suggest how dwellings, boundary types and parking types can be arranged within a framework of streets and green spaces. Step 5 is to study the example illustrative groupings and consider how these could be incorporated into layouts in the relevant Character Area.

6. Precedent images demonstrate suitable features which are applicable in the character area.

5.4.2 Rural Edge

Ⓐ Guiding Character Area Design Principles

The Rural Edge Character Area forms an important frontage to the countryside north-west of RSR. As an important interface between the wider residential neighbourhood and the expansive open spaces it faces, this area should be characterised by low-density housing to create a soft development edge. Proposals should adhere to the following principles:

- Dwellings will be predominantly detached and 2 storey - with some 2.5 or 3 storey elements to emphasise key corners and frontages;
- Where frontage is to open space a varied, gently staggered building line to the parcel edge will be established;
- The introduction of structural planting and landscaped spaces will visually break the outer edges of the parcel into discernible clusters of housing;
- Gaps between buildings should vary in width;
- Where linkage between buildings occurs this should be achieved by walls, car barns and garages;

Key Plan

- Generous rear gardens should feature, alongside occasional, varying sized front gardens or forecourts;
- Roads and shared private drives should achieve a shared surface rural / informal character wherever possible, utilising block paving / bound gravel / spray and chip finish macadam;
- Incidental pockets of green space and tree planting should be incorporated, accentuating the informal and low-density characteristics of the layout, and
- Materials will be selected from the Character Area palette below, but variety from one dwelling to the next will be appropriate.

Permitted Materials for Character Area (see page 112-113 for full library)

1. Roof


Orange/red tiles

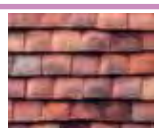

Dark red tiles


Grey slate

2. Walls


Red stock brick


Black horizontal timber boarding


Clay tile hanging


Red brickwork with blue headers


Brown / orange stock brick

3. Windows


White


Grey Green


Timber

4. External Balustrading


White painted


Stained timber

Rural Edge - Materials

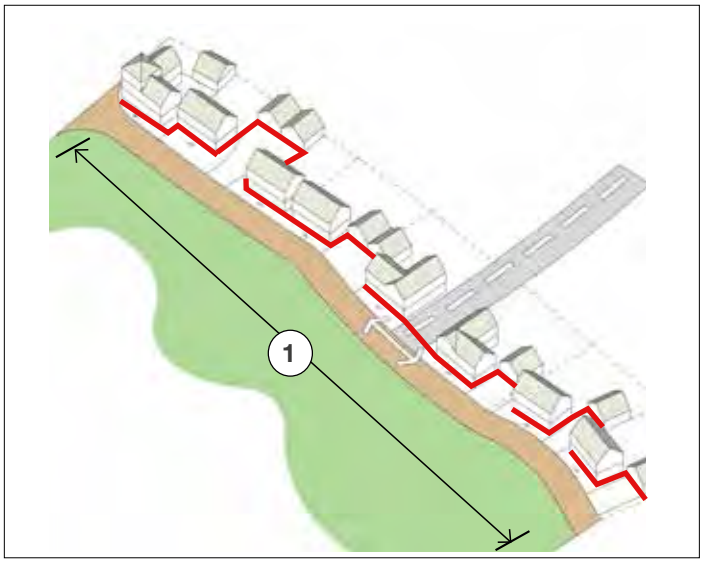
- Dwellings in this character area may utilise a variety of wall materials but with red stock brick as a primary choice and the remainders being selected from the permitted palette above.
- At least 90% of buildings will use dark red clay tiles or pantiles for roofs; up to 10% may employ orange/red or slate tiles.
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding.
- **All proposals must accord with the materials application principles set out in Section 5.5, page 112-113.**

Ⓑ Design Principles for Character Area Frontages

Frontage Character	
1 	Open, staggered frontage to consist of predominantly detached and some semi-detached dwellings of varying size: frontage may include garage rear/flank walls and garden walls. Dwellings may be positioned at varying distances from the edge of the route they face, and at subtly differing angles.

Rural Edge Parcel Frontages

Below is one example of how to achieve the frontage character. A full list of permitted typologies is provided overleaf.



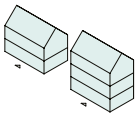
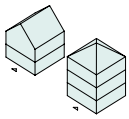
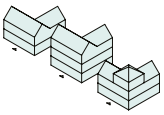
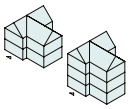
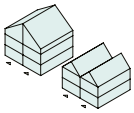
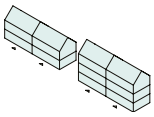
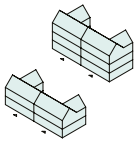
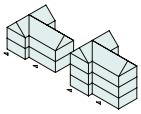
KEY:

Cross parcel permeability

Frontage typology and plot components (see opposite page)

Rural Edge Frontage Dwelling Typologies (See page 114-115 for full library)

Frontage Character (1)

D1 - Wide frontage	D3 - Villa	D4 - L-shaped / corner house	D6 - T-shaped	SD1 - Narrow frontage	SD2 - Wide frontage	SD3 - L-shaped	SD6 - T-shaped
							

Permitted Frontage Parking Typologies (See page 116-118 for full library)

Frontage Character (1)

P2 - On-plot corner

P3 - On-plot between dwellings

P8 - Forecourt

Permitted Frontage Boundary Treatments (See page 119-121 for full library)

Frontage Character (1)

B1 - No boundary 

B5 - Low wall and Hedge 

B6 - Ornamental hedge 

B7 - Planted zone 

B9 - Picket fence 

C 5.4.2a - Rural Edge Illustrative Grouping 1

Dwellings address meandering informal lanes and shared surface routes. Varied built form addressing linear or informal landscape. Variety in set back of dwellings and size of front gardens with low enclosures results in a village character.

Precedents - Suitable Design Solutions

5.4.3 Informal Urban

Ⓐ Guiding Character Area Design Principles

The Informal Urban Character Area is a transition area between the Rural Edge area to its west and Formal Urban area to its east. It includes interfaces with primary Green Infrastructure and the CPS. It serves as a transition between the low-density, informality of the Rural Edge area towards the higher-density Formal Urban area. It accommodates important green routes linking through these different Character Areas and to the Local Centre. Proposals should adhere to the following principles:

- Dwellings will be predominantly 2 or 2.5 storey - with some 3 storey elements to emphasise key corners and frontages;
- Across the Character Area, detached and semi-detached houses should predominate, with occasional groups / clusters of terraced homes defining mews spaces or courts within parcels and achieving a variety in density;
- There should be greater formality in layout as compared to the Rural Edge character, but without resulting in a fully orthogonal street pattern: softening of building lines along green links or at incidental green spaces is encouraged;

Key Plan

- Where frontage is to open space, parcel edges will establish a clear building line, with some stepping of dwelling positioning relative to the edge of public realm;
- Where the Informal Urban areas face the CPS, a consistency and rhythm to the parcel edge will be established through building line, regular spacing of dwellings, and repeated typologies;
- A series of shared surface courts and mews spaces should be created within the inner parcel areas, with consistent approaches to material selection and housing typologies within these areas.
- A variety of tertiary street types should be created across the Character Area, but with a hierarchy of routes clearly expressed through street design and materials.

Permitted Materials for Character Area **(see page 112-113 for full library)**

1. Roof

Orange/red tiles

Dark red tiles

Grey slate

2. Walls

Red stock brick

Render

Brown / orange stock brick

3. Windows

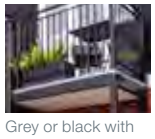
Dark Grey

Grey Green

White

4. External Balustrading

Dark metal with glass balustrade

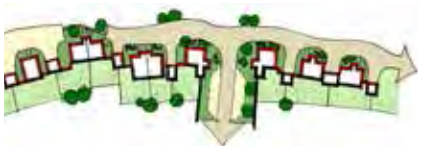


Grey or black with metal balustrades

Informal Urban - Materials

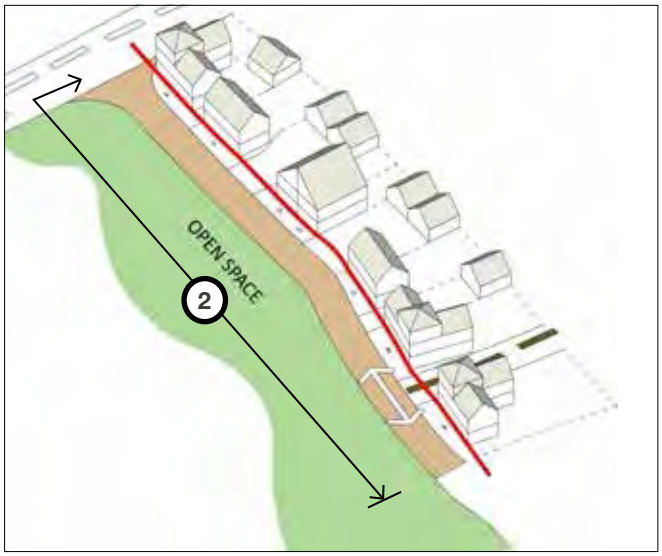
- At least 90% of buildings will use red brick as the primary wall material: up to 10% may employ render, black weatherboarding, or brown/orange brick as a primary wall material;
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding;
- At least 90% of buildings will use dark red clay tiles or pantiles for roofs; up to 10% may employ orange/red or slate tiles.
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.
- **All proposals must accord with the materials application principles set out in Section 5.5, page 112-113.**

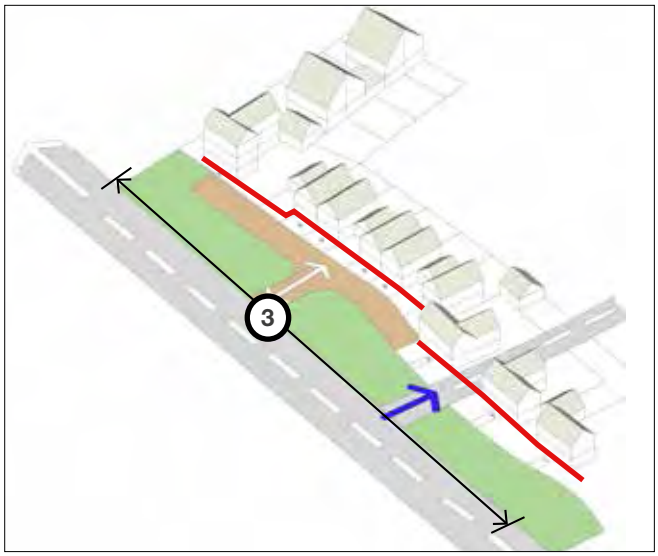
Ⓑ Design Principles for Character Area Frontages

Frontage Character		
2		Stepped frontage to consist of predominantly detached, linked detached and semi detached dwellings only. Dwellings to establish a clear building line across pairs/ groups of two or more plots.
3		Consistent frontage to be formed by dwellings of matching or of similar typology and size, arranged at regular spacing with a consistent set back to create rhythm, order and a strongly defined building line.

Informal Urban Parcel Frontages

Below are examples of how to achieve the frontage characters. A full list of permitted typologies is provided overleaf.

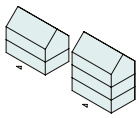
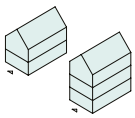
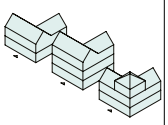
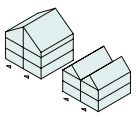
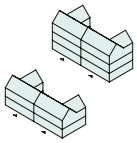
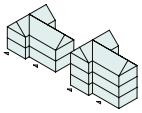
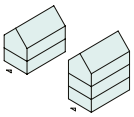
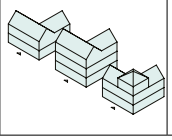
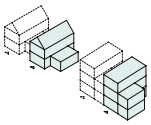
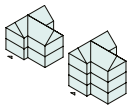
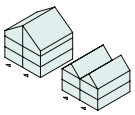




KEY:

- Access point
- Cross parcel permeability
- Frontage typology and plot components (see opposite page or next page)
- Established building line

Informal Urban Frontage Dwelling Typologies (See page 114-115 for full library)

Frontage Character 2							
D1 - Wide frontage 	D2 - Narrow frontage 	D4 - L-shaped / corner house 	SD1 - Narrow frontage 	SD3 - L-shaped 	SD6 - T Shaped 		
Frontage Character 3							
D2 - Narrow frontage 	D4 - L-shaped/ corner house 	D5 - Linked detached 	D6 - T-shaped 	SD1 - Narrow Frontage 			

Permitted Frontage Parking Typologies (See page 116-118 for full library)

Frontage Character 2	Frontage Character 3
P2 - On-plot corner P3 - On-plot between dwellings P5 - Mews P7 - Rear parking courts P8 - Forecourt	P2 - On-plot corner P3 - On-plot between dwellings P6 - Front access drive through

Permitted Frontage Boundary Treatments (See page 119-121 for full library)

Frontage Character 2	Frontage Character 2
B5 - Low wall and ornamental hedge 	B1 - No boundary 
B6 - Ornamental hedge 	B6 - Ornamental hedge 
B7 - Planted zone 	B7 - Planted zone 

5.4.3a - Informal Urban Illustrative Grouping 1

Informal grouping of houses laid out along a green finger creates a green landscape, reed beds, informally laid out trees, play spaces and water features. Lower density with some deep set backs and clear gaps between dwellings.

5.4.3b - Informal Urban Illustrative Grouping 2

Tree lined green verges frame the secondary route with regular rhythm of terraces. Parking to the rear in mews over looked by frontage of dwellings.

Precedents - Suitable Design Solutions

5.4.4 Formal Urban

Ⓐ Guiding Character Area Design Principles

The Formal Urban Character Area is the largest identified such area within KP3; it occupies the central and eastern areas of KP3 and includes the Local Centre and the primary school. It displays a long interface with the Informal Urban character area immediately to the west. Proposals should adhere to the following principles:

- Dwellings will be predominantly 2, 2.5 and 3 storey, with key corners and frontages featuring 3 storeys wherever possible;
- Across the Character Area, a balance of detached, semi-detached and terraced houses should be achieved: terraced homes should be used to provide enclosure and definition to primary routes and spaces, with detached, semi-detached homes arranged in coherent regularly-spaced alignments with limited stepping in the building line;
- Overall an formal, orthogonal street pattern should be achieved, with occasional softening or instances of informal layout responding to nodes or particular elements of landscape;
- Where frontage is to open space, parcel edges will establish enclosure and a clear building line, with limited stepping of dwelling positioning relative to the edge of public realm;

Key Plan

- Where the Formal Urban areas face a primary route, a consistency and rhythm to the parcel edge will be established through building line, regular spacing of dwellings, and repeated typologies;
- A series of shared surface courts and mews spaces should be created within the inner parcel areas, with consistent approaches to material selection and housing typologies within these areas; and
- A variety of tertiary street types should be created across the Character Area, but with a hierarchy of routes clearly expressed through street design and materials.

Permitted Materials for Character Area (see page 112-113 for full library)

1. Roof

Dark red tiles

Grey slate

Flat roof set behind parapet

2. Walls

Red stock brick

Buff stock brick

Render

Brown / orange stock brick

3. Windows

White

Dark Grey

Grey Green

4. Projecting, Inset, Juliet Balconies

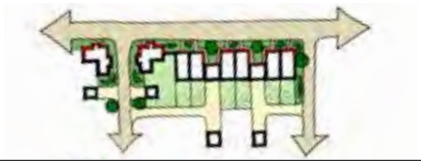
Dark metal with glass balustrade

Grey or black with metal balustrades

Formal Urban - Materials

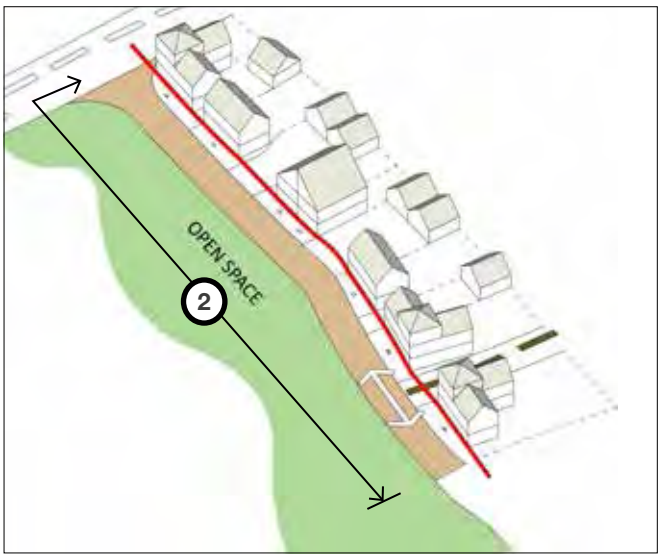
- At least 90% of buildings will use red brick as the primary wall material: up to 10% may employ render, black / natural weatherboarding, or 'buff stock' brick as a primary wall material;
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding;
- At least 90% of buildings will use dark red clay tiles or pantiles for roofs; up to 10% may employ 'slate.
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.
- **All proposals must accord with the materials application principles set out in Section 5.5, page 112-113.**

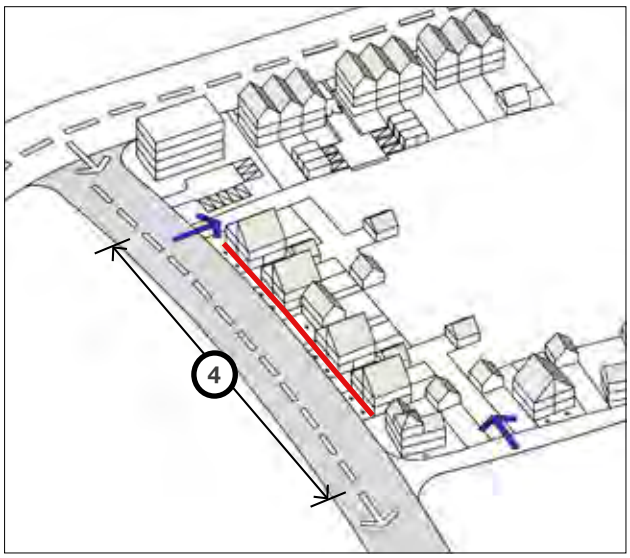
Ⓑ Design Principles for Character Area Frontages

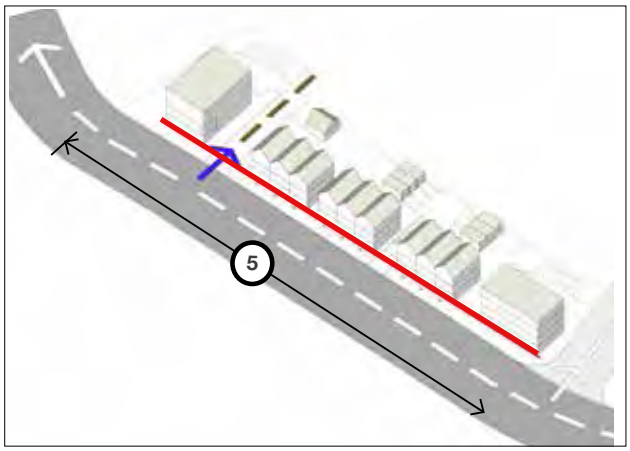
Frontage Character		
2		Stepped frontage to consist of predominantly detached, linked detached and semi detached dwellings only. Dwellings to establish a clear building line across pairs/ groups of two or more plots.
4		Stepped, linear frontage with a high degree of enclosure to consist of semi detached and terraced dwellings. Large Detached dwellings may define corner plots. All car parking to be positioned behind the established building line.
5		Near continuous formal, linear frontage of predominantly terraced dwellings and apartment blocks, with gaps only for access to parking and pedestrian routes.

Formal Urban Parcel Frontages

Below are examples of how to achieve the frontage characters. A full list of permitted typologies is provided overleaf.







KEY:

Access point

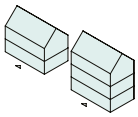
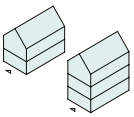
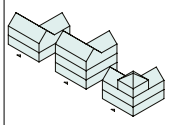
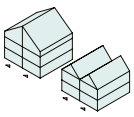
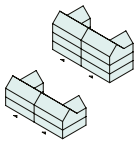
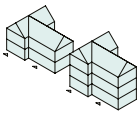
Cross parcel permeability

Frontage typology and plot components (see above)

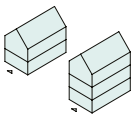
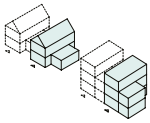
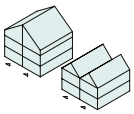
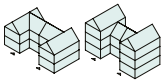
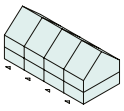
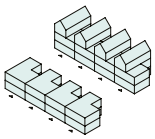
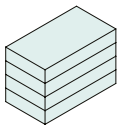
Established building line

Formal Urban Frontage Dwelling Typologies (See page 114-115 for full library)

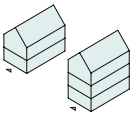
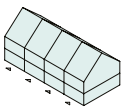
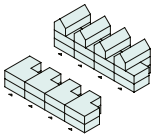
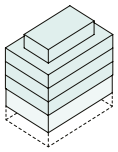
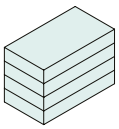
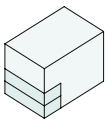
Frontage Character 2

D1 - Wide frontage	D2 - Narrow frontage	D4 - L-shaped / corner house	SD1 - Narrow frontage	SD3 - L-shaped	SD6 - T Shaped		
							

Frontage Character 4

D2 - Narrow frontage	D5 - Linked detached	SD1 - Narrow Frontage	SD4 - Inverted L-Shaped	T1 - Narrow Frontage	T3 - Stepped / L-shaped	F2 - Typical flat block	
							

Frontage Character 5

D2 - Narrow frontage	T1 - Narrow frontage	T3 - Stepped / L-shaped	F1 - Mixed use flat block	F2 - Typical flat block	F3 - Duplex		
							

Permitted Parking Frontage Typologies (See page 116-118 for full library)

Frontage Character 2	Frontage Character 4	Frontage Character 5
P2 - On-plot corner P3 - On-plot between dwellings P8 - Forecourt	P2 - On-plot corner P3 - On-plot between dwellings* P5 - Mews P6 - Front access drive through* P7 - Rear parking court * Limited front access to keep continuity of the green corridor	P2 - On-plot corner P5 - Mews P7 - Rear parking courts

Permitted Frontage Boundary Treatments (See page 119-121 for full library)

Frontage Character 2	Frontage Character 4	Frontage Character 5
B1 - No boundary 	B1 - No boundary 	B2 - Urban style railing 
B5 - Low wall and ornamental hedge 	B2 - Urban style railing 	B3 - Railing on low wall 
B6 - Ornamental hedge 	B3 - Railing on low wall 	B4 - Railing and hedge 

5.4.4a - Formal Urban Illustrative Grouping 1

Set piece grouping to enclose a formal landscape setting; terraced or semi-detached houses set frame and contain the space. Parking is provided as integral parking, or in small groupings to the corners of the grouping.

5.4.4b - Formal Urban Illustrative Grouping 2

Dwellings addressing green space; consistent frontage with high degree of enclosure; Dwellings plotted to create formality rhythm and order.

Precedents - Suitable Design Solutions

5.4.5 Normandy Rise

Ⓐ Guiding Character Area Design Principles

The Normandy Rise Character Area will be one of the most prominent parts of the RSR development. This characteristic, plus the significant climb in topography northwards away from the Oxford Canal, must directly inform the proposed arrangement of new dwellings, routes and spaces. Proposals should adhere to the following principles:

- Dwellings will be a variety of 2 and 2.5 storeys, with 2.5 storeys on key frontages and corners wherever possible;
- Across the Character Area, a balance of detached, semi-detached, linked-detached and terraced houses should be achieved: terraced homes should be used to provide enclosure and definition to key routes and spaces, with detached and semi-detached homes arranged in coherent regularly-spaced alignments with limited stepping in the building line;
- The 'silhouette' of the built form along the ridge line must be carefully considered such that visual breaks and planted trees contribute to its profile;
- Softened building lines will be informed by the topography, with a prevailing grain along existing contours;
- A variety of tertiary street types should be created across the Character Area, but with a hierarchy of routes clearly expressed through street design and materials;
- A series of shared surface courts and mews spaces should be created within the inner parcel areas, with consistent approaches to material selection and housing typologies within these areas;
- To the west, dwellings facing the existing hedgerow and Hillmorton Park will be set back to create a landscape buffer between the hedgerow and residential development;
- To the north, along the interface with one of the major wildlife corridors running through KP3, an informal layout of dwellings will respond to this element of green infrastructure; and
- To the south a distinctly more formal character will be demonstrated, with dwellings designed to face south and create a strong streetscene elevation displaying rhythm and order, with limited stepping in the building line.

Key Plan

Permitted Materials for Character Area (see page 112-113 for full library)

1. Roof

Dark red tiles

Grey slate

Flat roof set behind parapet

2. Walls

Red stock brick

Horizontal weatherboarding

Render

Brown / orange stock brick

3. Windows

Dark Grey

Grey Green

White

4. Projecting, Inset, Juliet Balconies

Dark metal with glass balustrade

Grey or black with metal balustrades

Normandy Rise - Materials

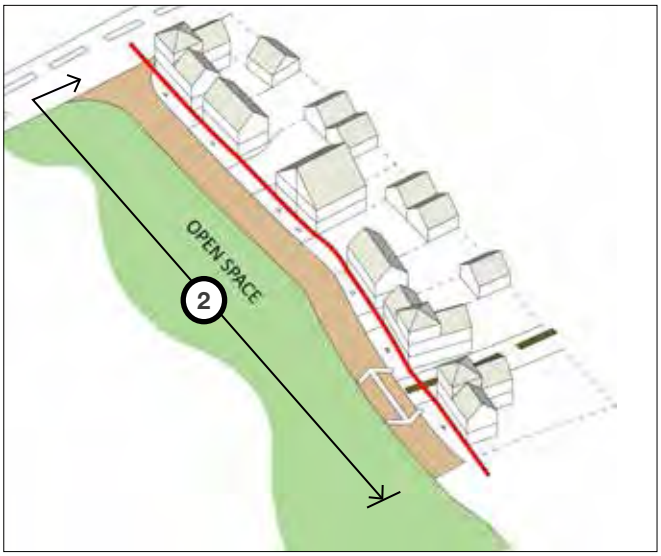
- At least 90% of buildings will use red brick as the primary wall material*: up to 10% may employ render, black weatherboarding, or brown/orange brick as a primary wall material;
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding;
- At least 90% of buildings will use dark red clay tiles or pantiles for roofs*; up to 10% may employ orange/red or slate tiles;
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.
- * The southern edge of the Normandy Rise Character Area offers a location for a variation to these percentage were, for example, a greater proportion of weatherboarding may be appropriate: however **all proposals will remain subject to the Materials Application Principles set out in section 5.5, pages 112-113.**

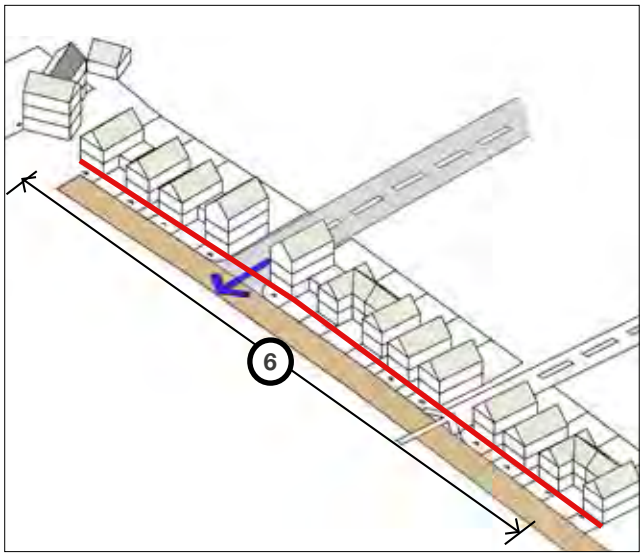
Ⓑ Design Principles for Character Area Frontages

Frontage Character	
2 	Stepped frontage to consist of predominantly detached, linked detached and semi detached dwellings only. Dwellings to establish a clear building line across pairs/ groups of two or more plots.
6 	A formal character will be demonstrated, with dwellings designed to face south and create a strong streetscene elevation displaying rhythm and order. Stepping in the building line will be limited, with a consistent building orientation and a prevailing language of gable-fronted dwellings facing over the open space and towards the canal.

Normandy Rise Parcel Frontages

Below are examples of how to achieve the frontage characters. A full list of permitted typologies is provided overleaf.



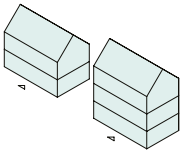
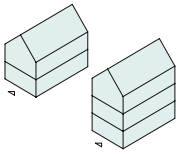
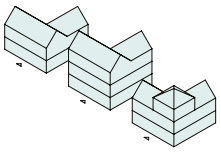
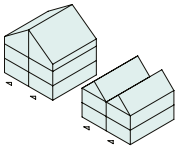
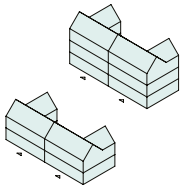
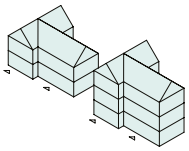


KEY:

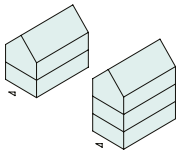
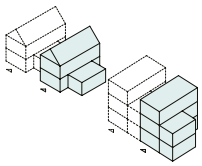
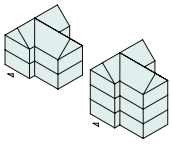
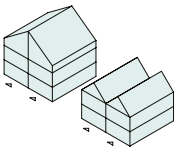
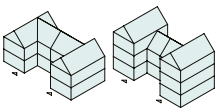
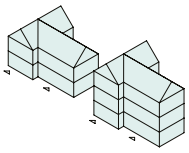
- Access point
- Cross parcel permeability
- Frontage typology and plot components (see above)
- Established building line

Normandy Rise Frontage Dwelling Typologies (See page 114-115 for full library)

Frontage Character 2

D1 - Wide frontage	D2 - Narrow frontage	D4 - L-shaped / corner house	SD1 - Narrow frontage	SD3 - L-shaped	SD6 - T Shaped
					

Frontage Character 6

D2 - Narrow frontage	D5 - Linked detached	D6 - T-shaped	SD1 - Narrow Frontage	SD4 - Inverted L-Shaped	SD6 - T Shaped
					

Permitted Frontage Parking Typologies (See page 116-118 for full library)

Frontage Character 2	Frontage Character 6
P2 - On-plot corner	P2 - On-plot corner
P3 - On-plot between dwellings	P3 - On-plot between dwellings
P5 - Mews	P5 - Mews
P7 - Rear parking courts	P7 - Rear parking courts
P8 - Forecourt	

Permitted Frontage Boundary Treatments (See page 119-121 for full library)

Frontage Character 2		Frontage Character 6	
B5 - Low wall and ornamental hedge		B1 - No boundary	
B6 - Ornamental hedge		B6 - Ornamental hedge	
B7 - Planted zone		B7 - Planted zone	

5.4.5a - Normandy Rise Illustrative Grouping 1

Set piece grouping to enclose an informal pocket square leading to linked and semi-detached dwellings consistent in orientation of gables and formality. Parking is provided on plot between dwellings, or on plot to the corners.

Precedents - Suitable Design Solutions

5.5 Residential Materials

An index of permitted materials has been carefully selected for the residential built form within KP3, covering walls, roofs, windows and balconies. This is shown on the facing page. From this, a palette of a select few materials has been specified for each Character Area, to ensure that neighbourhoods within KP3 have their own identity whilst reading coherently within the wider development. All proposals will demonstrate adherence to the Material Application Principles set out below. Certain materials will be seen across all Character Areas.

Reserved Matters Applications will only use materials specified in the relevant Character Area palettes (Section 5.4). A proposed materials specification will be submitted with each Reserved Matters Application, along with samples, for approval by RBC.

Certain locations within the development could support the introduction of contrasting, 'code-breaking' architecture, where a design rationale is developed for a particular building or cluster of buildings. This may extend to the introduction of materials not permitted elsewhere in that character area. Reserved Matters Applications including 'code-breaking' elements must include clearly written design justification for those elements.

Materials Application Principles:

The following principles for the application of materials will be adhered to throughout KP3:

1. Proposals are to demonstrate consistency in material selection and usage, utilising only materials specified* in the relevant Character Area palette(s);

2. Parcels for Reserved Matters Applications which cover more than one Character Area will demonstrate a carefully considered transition between differing materials palettes;

3. Where materials for individual buildings that contrast with materials of neighbouring buildings are proposed an accompanying design justification will be submitted as part of the Reserved Matters Application;

4. Materials will be consistent along a row of terraced dwellings or linked dwellings, including dwellings linked by garages;

5. No more than two materials will be used across walls of any given dwelling or block, and where this includes coloured render only one colour will be used;

6. Generally only one brick colour/type is to be used on any building (except where a contrasting blue/grey brick is used as a plinth level, up to a maximum of eight brick courses); and

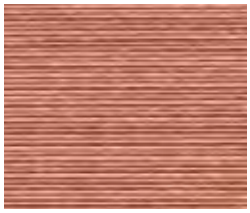
7. Proposals will be required to demonstrate consistency of material selection for buildings on both sides of streets, either where a street passes through the parcel itself, or where the parcel faces another completed / consented parcel across a street.

** Marker buildings (see sub-chapter 5.2.1) may feature materials from outside the relevant palette, but will require the submission of specific design justification for approval by RBC and the master developer.*

RESIDENTIAL MATERIALS INDEX

1. Roofs


1.1 Grey slate


1.2 Orange / red tiles


1.3 Dark red tiles


1.4 Flat roof set behind parapet

2. Walls


2.1 Red stock brick

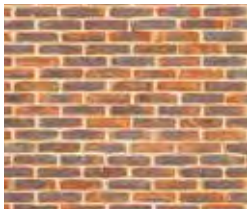

2.2 Buff stock brick


2.3 Horizontal weatherboarding


2.4 Clay tile hanging


2.5 Render


2.6 Red brickwork with blue headers


2.7 Brown / orange stock brick

3. Windows


3.1 White


3.2 Dark grey


3.3 Grey green


3.4 Timber (colour to be agreed)

4. Balconies / juliette balconies


4.1 White painted


4.2 Stained timber


4.3 Dark metal with glass balustrade


4.4 Grey / black with metal balustrades

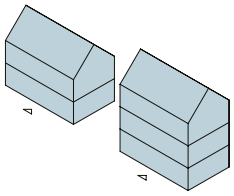
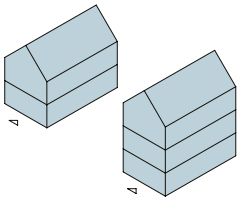
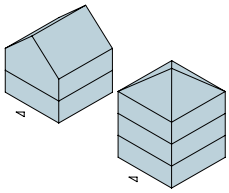
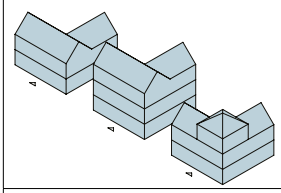
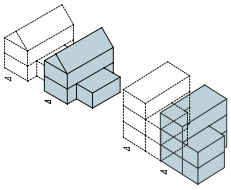
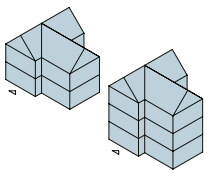
5.6 Dwelling Typologies Library

The appropriate dwelling typologies for residential development at KP3 are described here.

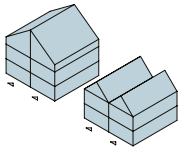
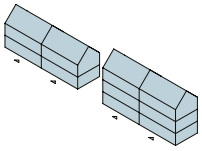
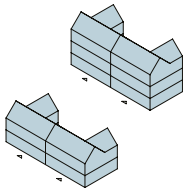
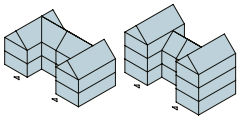
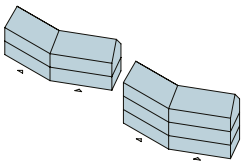
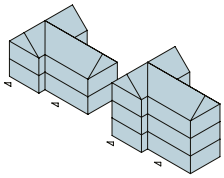
The Character Area pages in sub chapter 5.4 set out the appropriate dwelling types for the frontages within each Character Area.

In addition to the described dwelling typologies, innovative typologies can be submitted for approval.

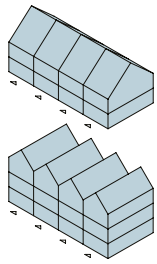
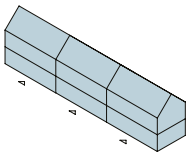
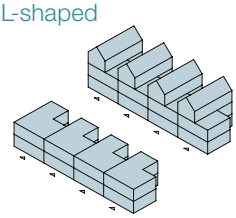
Detached Dwelling Typologies

Typology	Description
D1 - Wide frontage 	• The principal frontage width is greater than the depth of the primary building form. • The principal frontage is more than 8m wide. • The ridge line is parallel to the principal frontage.
D2 - Narrow frontage 	• The principal frontage width is less than the depth of the primary building form. • The principal frontage is less than 8m wide • The ridge line is perpendicular to the principal frontage.
D3 - Villa 	• The principal frontage width is between 90-110% of the depth of the dwelling. • The principal frontage is more than 8m.
D4 - L-shaped/corner house 	• The dwelling has two principal frontages at 90 degrees to one another. • Both principal frontages are more than 8m wide.
D5 - Linked detached 	• The mass of the secondary building form is less than 60% of the mass of the primary built form. • When the secondary building form includes a garage, the frontage of the dwelling is more than 7m wide.
D6 - T-shaped 	• The dwelling has gable end on two principal frontages at 90 degrees to one another.

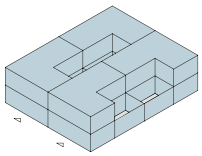
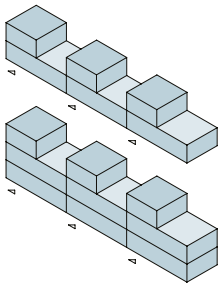
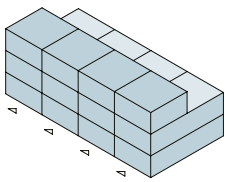
Semi - detached Dwelling Typologies

Typology	Description
SD1 - Narrow frontage 	• The principal frontage widths are less than the depth of the primary building forms. • The principal frontages are less than 8m wide. • The ridge line is perpendicular to the principle frontages and forms a combined pitched roof over both dwellings.
SD2 - Wide frontage 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The ridge lines are parallel to the principal frontages and are adjoining.
SD3 - L-shaped 	• The dwellings have two principal frontages at 90 degrees to one another. • Both principal frontages are more than 8m wide. • Two dwellings are attached to form a U-shape.
SD4 - Inverted L-shape 	• The dwellings have two principal frontages at 90 degrees to one another. • Two dwellings are attached to form a U-shape.
SD5 - Cranked 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The ridge lines are parallel to the principal frontages and are adjoining. • The dwellings are cranked at an angle of between 30-45 degrees.
SD6 - T-shaped 	• The T consists of a wide frontage (D1) and a narrow frontage (D2) adjoined. • The wide frontage unit's principal frontage is more than 8m wide. • The ridge lines are perpendicular to each other and are adjoining. • The dwellings are set perpendicular to each other.

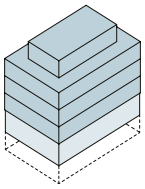
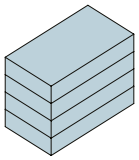
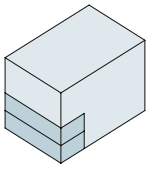
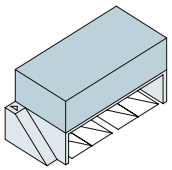
Terraced Dwelling Typologies

Typology	Description
T1 - Narrow frontage 	• The principal frontage widths are less than the depth of the primary building forms. • The principal frontages are less than 8m wide.
T2 - Wide frontage 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The ridge lines are parallel to the principal frontages and are adjoining.
T3 - Stepped / L-shaped 	• The mass of the secondary building form is less than 60% of the mass of the primary built form. • When the secondary building form includes a garage, the frontage of the dwelling is more than 7m wide.

Urban Dwelling Typologies

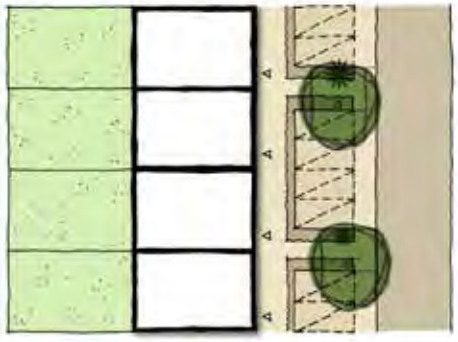
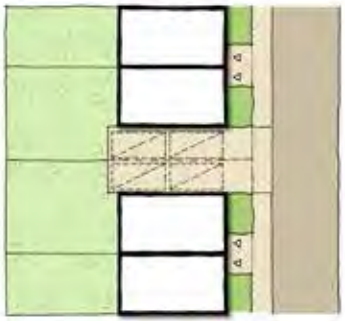
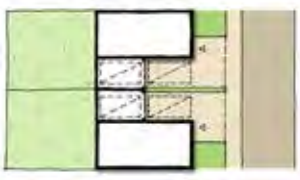
Typology	Description
U1 - Courtyard 	• The principal frontage is more than 7m wide. • Courtyard is created using L-shaped building footprints, connected in back to back terraces. • Courtyards are more than 4x3m in size.
U2 - Side terrace 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The uppermost floor must consist of at least 40% amenity space in the form of a terrace.
U3 - Rear terrace 	• The principal frontage widths are less than the depth of the primary building forms. • The principal frontages are less than 8m wide. • The uppermost floor must consist of at least 40% amenity space in the form of a terrace.

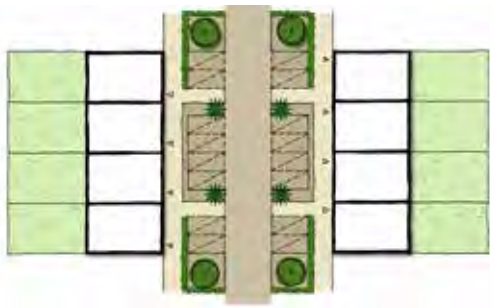
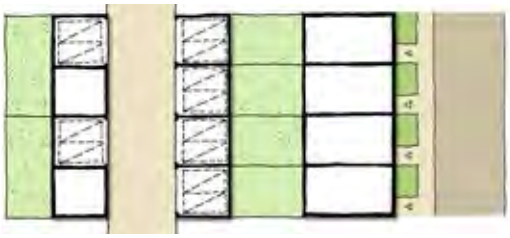
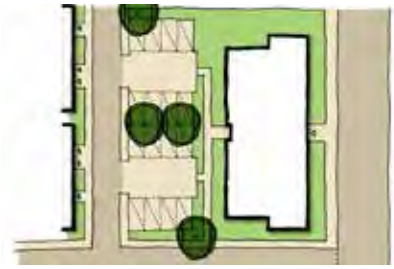
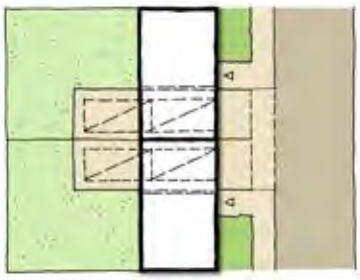
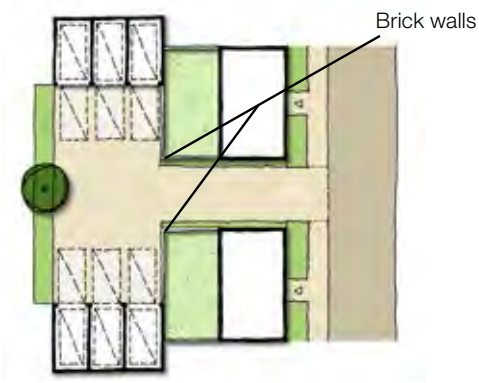
Flats Dwelling Typologies

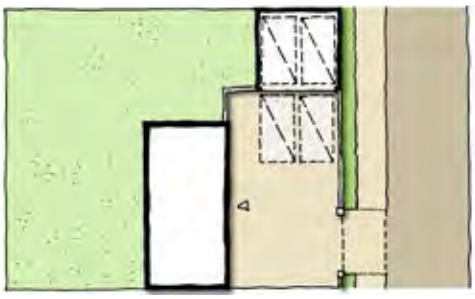
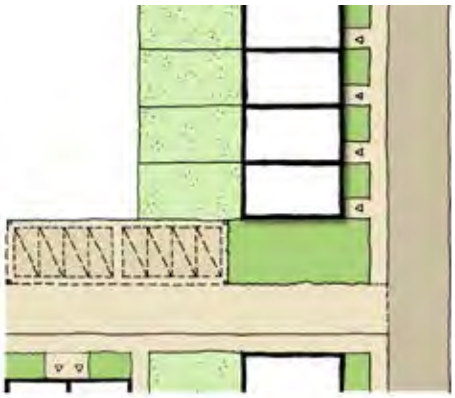
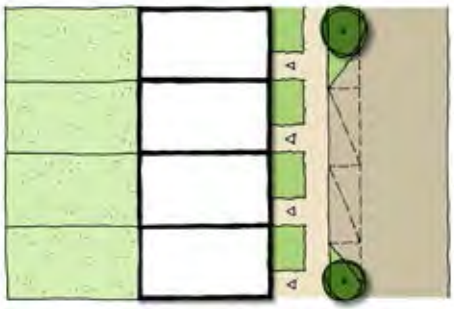
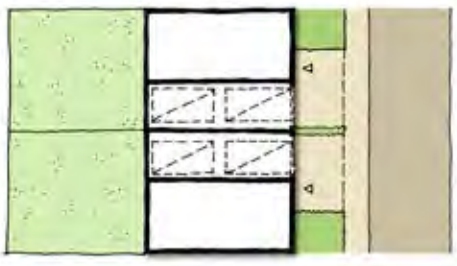
Typology	Description
F1 - Mixed use flat block 	• The block is at least three storeys in height with a depth of no more than 12m • The internal layout does not include single-aspect north facing flats • Mixed uses may be provided at ground level
F2 - Typical flat block 	• The block is at least three storeys in height with a depth of no more than 14m • The internal layout does not include single-aspect north facing flats
F3 - Duplex 	• A flat within the block which is distributed over two storeys • A private entrance may be provided directly from the street at ground level • The duplex flat is not single-aspect north facing
F4 - Coach house / mews 	• Accommodation is provided above garages within a mews or parking court arrangement • The flat provides natural surveillance to the mews or court • The flat is no more than one storey in height

5.7 Parking Typologies Library

Acceptable parking solutions are illustrated below. Reserved Matters Applications for KP3 must demonstrate which parking solutions are used within the design, as appropriate to the relevant descriptions as set out in the following tables. Details of parking standards are provided in sub-chapter 4.8: Vehicular Parking.

Typologies	Description / notes
P1 - On-plot frontage 	• A maximum of four spaces in a row separated by landscape • Not to serve more than 8 dwellings on any one side of the street • A minimum landscape break of 1.5m wide to accommodate tree or specimen shrub planting; (this may be omitted if a large tree is planted in its place, with a limit of 8 spaces in a row) • Shrub or tree to be set sufficiently close to the road to minimise car door damage to plant stems • Medium-sized tree species to be planted no closer than 7m to the dwelling • A hard landscape treatment provides a clear space to readily manoeuvre around the parked cars  = Specimen shrub set in gravel or medium sized trees
P2 - On-plot corner 	• A maximum of four spaces • Enclosure will be provided through the use of brick walls enclosing parking bays
P3 - On-plot between dwellings 	• Parking spaces must be set behind the building line • Spaces will be designed so as not to allow for tandem parking projecting forward of the building line • Width of parking between buildings will not exceed two spaces as shown in each example sketch Alternative layout options:  

Typologies	Description / notes
P4 - Courtyard 	• No more than four spaces landscaping • The courtyard will be designed as a whole, to create a coherent space • Hedging and landscape will be used to assist in defining the spaces • A minimum landscape break of 1.5m wide to accommodate a tree or specimen shrub planting; (this may be omitted if a large tree is planted in its place, with a limit of 8 spaces in a row) • The layout of the parking to be formed to create a rhythm to the landscape • A hard landscape treatment provides a clear space to readily manoeuvre around the parked cars  = Specimen shrub set in gravel or medium sized trees
P5 - Mews 	• Parking will be overlooked for security Alternative layout for apartments: 
P6 - Front access drive through 	• An openable screen or gate with visual permeability must be used to access parking spaces to ensure that gardens are not open to the street. Gates will be a minimum of 5.5m from the back of the footway and will not open out towards the highway. • Solid garage doors must not be used for drive through parking spaces (except for a flat over garage where this will be permitted).
P7 - Rear parking courts 	• Courts to serve no more than 12 dwellings. For apartment blocks this may be increased, but courts must be sensitively designed. • Enclosure will be provided to define the access of at least 5.5m, through the use of walls, where landscape strips are provided, these will be at least 600m in widt.h • Any gates to the car park should be set back 5.5m from the back of the footway and will not open out towards the highway. • Courts will be designed as a whole to create a coherent space. • To include an area of space where a medium or large tree can be located in view from the streetscene (and planted no closer than 7 or 10m to the nearest building respectively). Alternative layout for apartments: 

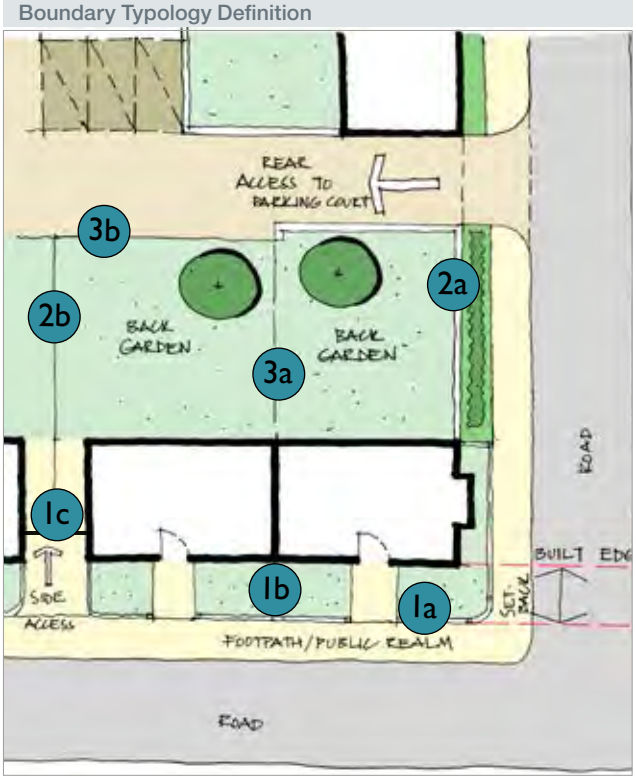
Typologies	Description / notes
P8 - Forecourt 	• Applies to large dwellings only • The front boundary will be walled (this must be complied with, regardless of the permitted boundary typologies set out in the typology matrices within sub chapter 5.6)
P9 - Detached car barns 	• No more than eight spaces in a single structure • Solid roof to be constructed from materials matching nearby properties or garages • Natural surveillance required from proximate dwellings
P10 - Visitors parking on street 	• A maximum of two spaces before landscaping occurs • Medium-sized tree species to be planted no closer than 5m to the dwelling • Parking and adjacent landscape treatments will be designed to prevent unauthorised parking
P11 - Integral garage  	• Spaces will be designed so as not to allow for tandem parking projecting forward of the building line • There should be clear delineation between driveways for adjacent properties.

5.8 Boundary Typologies Library

Dwelling boundaries play an important role in establishing a coherent streetscape. The choice of boundary type will depend on its location within the site, and its relationship with the public realm. The coherence of boundaries that address primary streets and spaces is of key importance.

This section of the Design Guide relates to front, side and rear dwelling boundaries. The following diagram sets out the different boundaries referred to in this section:

Boundary Typology Definition



1a

1a, 1b

1c

Front boundary

1a. Front boundary addressing public realm

1b. Front boundary to demarcate property line

1c. Front boundary as linking element between dwellings

Tables on the following pages set out the appropriate front boundary typologies (1a) for residential development addressing the public realm:

B1 - No boundary
B2 - Urban-style railing
B3 - Railing on low wall
B4 - Railing and hedge
B5 - Low wall and ornamental hedge
B6 - Ornamental hedge
B7 - Planted zone

The tables explain the appropriate property demarcation treatment (1b) within the notes column. This is mandatory and must be adhered to link the front boundary treatment (1a) and property demarcation treatment (1b).

The Character Area pages in sub-chapter 5.4 set out the appropriate front boundary typologies for each specified key edge within that character area.

The following design criteria will be adhered to:

- The use of treated timber fences and high solid walls (unless enclosing forecourt parking) and high hedge (more than 1.5m high) as front boundaries will not be permitted.
- Close-board fencing will not be used in front gardens/ set backs (1a) or to demarcate property boundaries (1b).
- Brick walls or close-board fencing could be used as a linking element between two dwellings (1c) but must be set back from the face wall of the dwelling by a minimum of 1m.
- Gates for pedestrian or vehicular access must be co-ordinated with the suitable adjoining front boundary treatment.
- Where there is rear access to multiple rear gardens this access needs to be gated at the front of the building line and with a self-closing spring, and a snap shut lock, that needs a key to release.
- Boundaries between gardens should be 1.8-metre-high close boarded fencing, but where gardens back onto parking courts or open space, 2m high walls – or 1.8m high walls topped with 0.2m trellis – should be used.
- All walls and railings are to be stepped to match slope / gradient.

Side boundary

2a Side boundary facing public realm

2b Side boundary between dwellings

- Side boundaries which address a street, public realm or mews, must be constructed of brick to provide continuity with the main built form (2a). The wall must not be more than 2.1m high and brick should match the dwelling, including its bonding and mortar details. Coping stones or a 'brick on edge' detail is considered appropriate. Walls will be of a consistent height. Brick boundary walls must be stepped if following a slope.
- A 500mm wide minimum planting zone is to be provided alongside the boundary wall to the back edge of the footpath. Where this is proposed alongside a public pedestrian path not associated with a highway, a minimum of 1.5m wide verge is to be incorporated to meet 'Secure by Design' requirements, and to limit opportunities for concealment.
- Timber fencing or brick walls will be used alongside boundaries between gardens or side access of dwellings (2b). This will not be more than 1.8m in height. Timber should be stained using a suitable and sustainable treatment.

Rear boundary

3a Rear boundary between back gardens or courtyard

3b Rear Boundary between back gardens and rear access parking courts

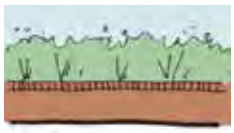
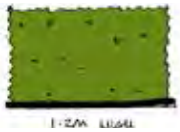
- 1.8m high timber close or featherboarded fencing may be used along rear boundaries between gardens (3a). Timber should be stained using a suitable and sustainable treatment.
- Brick walls must be used to define rear boundaries that back onto courtyard parking areas (3b). Such walls will be between 1.8 - 2.1m high and stepped to match the slope profile.

2a, 2b

2b

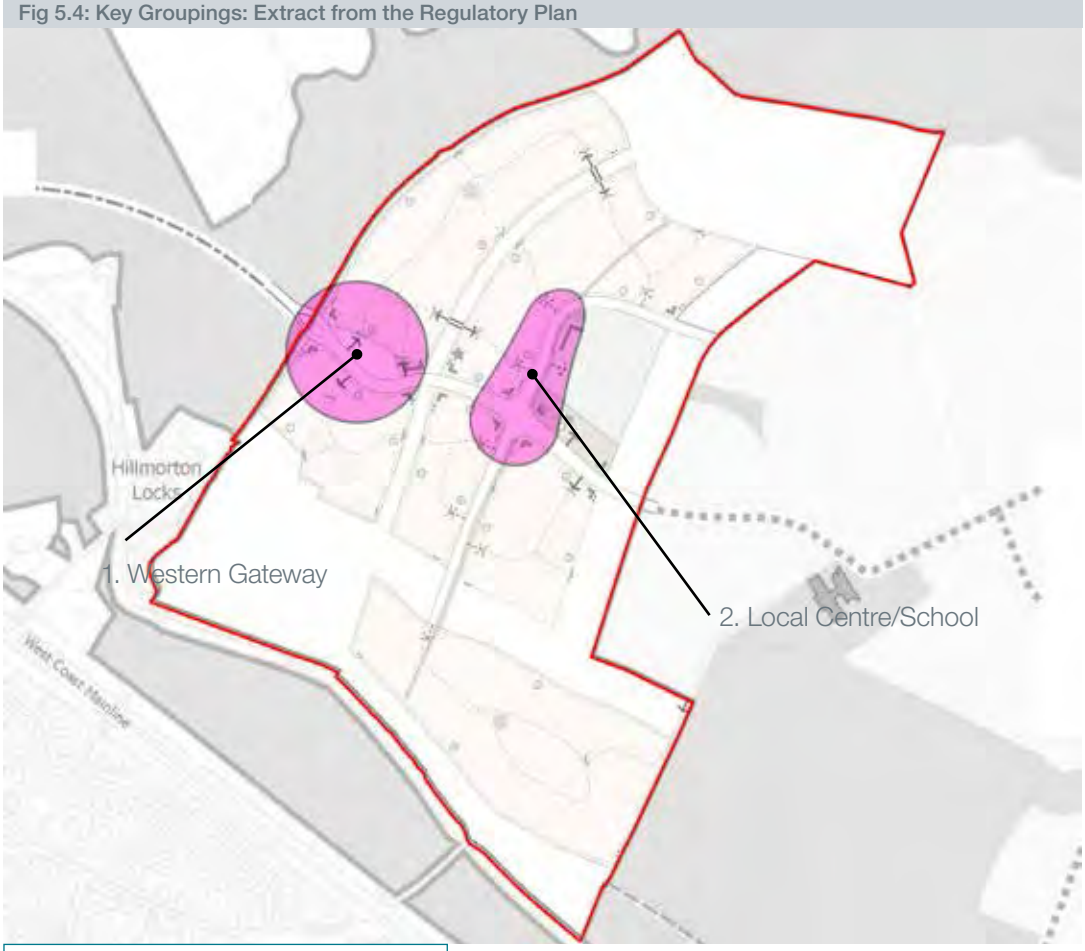
3a

3b

Typologies	Illustration	Description	Notes
B1. No boundary	Plan:  Plan:	• Set back is less than 1m (minimum 800mm to be maintained) • Hard-surface finish preferable for urban character areas • Material / surface finish should be contrasting to adjoining pavement material to differentiate ownership and demarcate defensible space • Where soft finish is provided, area should be finished with 450mm depth of topsoil to allow for low evergreen shrubs • Grass or gravel or loose materials as surface cover are not acceptable	
B2. Urban-style railing		• Height – 1.2m max • Set back minimum 1.5m • Black / grey metal, painted • Soft landscape to allow for shrubs planting • Contemporary and in character with the street scene • Stepped	Property demarcation (1b) to be created through the same design of urban-style railing or ornamental hedge
B3. Railing on low wall		• Height – 1.5m max • Set back minimum 1.5m • Up to 300mm high brick wall, Brick wall with brick piers & coping to match dwelling • Powder coated black or grey railings • Privacy zone – hard or soft landscape finish, to allow for shrub planting, maintained at a height of 1.5 m • Stepped • Gates to match railings	Property demarcation (1b) to be created through a same low height brick wall with the same railing OR ornamental hedge
B4. Railing & hedge		• Height – 1.2m max • Set back minimum 1.5m • Black metal painted (or grey) • Clipped hedge of continuous species • Gates to match railings	Property demarcation (1b) to be created through same railing OR ornamental hedge
B5. Low wall & ornamental hedge		• Set back minimum 1.5m • 600mm brick wall with brick coping, clay tiles creasing, bricks to match dwelling • Hedge to grow not more than 900mm high • Stepped	Property demarcation (1b) to be created through same height low-brick wall with hedge OR ornamental hedge only.
B6. Ornamental hedge		• Height – 0.9 / 1.2 m max • Set back minimum 2m • Post and wire fence integral to the hedge while it establishes	Property demarcation (1b) to be created through ornamental hedge of similar species and height
B7. Planted zone	Plan: 	• Height – maximum 600mm • Low-clipped hedge with shrub planting	Property demarcation (1b) to be created through ornamental hedge of at least 600m in height

5.9 Key Groupings

Fig 5.4: Key Groupings: Extract from the Regulatory Plan



KEY

Key groupings

Two key groupings have been identified and are essential components in creating distinctiveness within KP3. The plan above shows their locations. The following pages in this section explain the key principles of each of the groupings.

Design Principles for each of the groupings summarises and provides a more detailed design brief in addition to the requirements of the Regulatory Plan. This includes the relationship of the built form to the public realm, building alignment, vehicular and pedestrian access, entrance locations, location of parking and service areas, key views and vistas. The incorporation of these principles is mandatory.

5.9.1 Western Gateway

This area serves as the point of arrival from the West for the whole of the RSR development as well as a transitional space between open countryside, residential development and the development beyond. As such, the design of the landscaping and built form of the residential buildings are vital to creating a distinct, high quality setting.

The design principles listed below describe the layout, massing and composition of this key area. All design principles will be adhered to; the illustrations describe how this can be achieved.

Design Principles

- Focal buildings will be designed on key corners, as highlighted on the Regulatory Plan, positively addressing the street and green spaces onto which they front and enhance long range views;
- The design of the two corner, gateway buildings which form the entrance into the site requires special consideration;
- Residential dwellings are to front onto and positively address the landscape setting, with entrances fronting the green space, to provide natural surveillance; and
- Residential buildings need to form a strong edge around the green space, characterised by consistent rhythm and order.

Fig 5.5: Western Gateway - Design Principles Plan

Fig 5.6: Western Gateway - Illustrative perspective view

5.9.2 KP3 Local Centre & Primary School

Situated centrally within the KP3 development, the Local Centre is highlighted as a key grouping. The design of the local centre mixed use, residential and school buildings will be key in the creation of a vibrant and successful place.

The following design principles describe the layout, massing and composition of the key grouping. All design principles will be adhered to; the illustrations describe how this can be achieved.

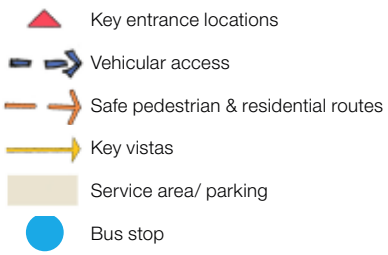
The position of the local centre area is fixed on the Regulatory Plan.

Land Uses:

The KP3 Local Centre has the potential to include:

- A1 (retail) - up to 500sqm;
- A3/A4/A5 (restaurants, pubs/bars) - up to 250sqm;
- C3 (residential) up to 45 units;
- D1 (non-residential institution not including Primary/ Secondary School) - up to 300sqm;
- D1 (schools) - up to 3,600sqm; and
- Sui Generis - up to 100sqm.

Key Plan



Design Principles (Local Centre)

- Building height for mixed use buildings should be limited to 15m in total.
- Buildings should comprise mixed use ground floor with residential flats above, to a maximum height of 15m.
- Mixed use, residential and school buildings will positively address the junction of the CPS and the north-south secondary street by appropriately turning the corner.
- Buildings located at key vistas will increase in height to create focal buildings.
- Safe crossing points will be located at the junction to provide pedestrian access to the primary school and mixed uses.
- The primary street will be tree lined and include safe pedestrian and cycle routes, eventually connecting to the primary streets designed within KP1 and KP2.
- A North / South Green Corridor of varying width intersects the Central Primary Street.

Design Principles (Primary School)

- Building height for the school should be limited to 15m in total.
- The primary entrance of the building should address the street and its elevation create an identifiable focal point.
- The building materials should be consistent between building and boundary treatment.
- Structural landscape planting should ensure privacy between school grounds and residential properties.
- Ensure safe pedestrian crossing and provided along the primary and secondary streets.
- The school should provide sufficient open space between the junction and the building itself, i.e. the school should not be built right up against the junction.

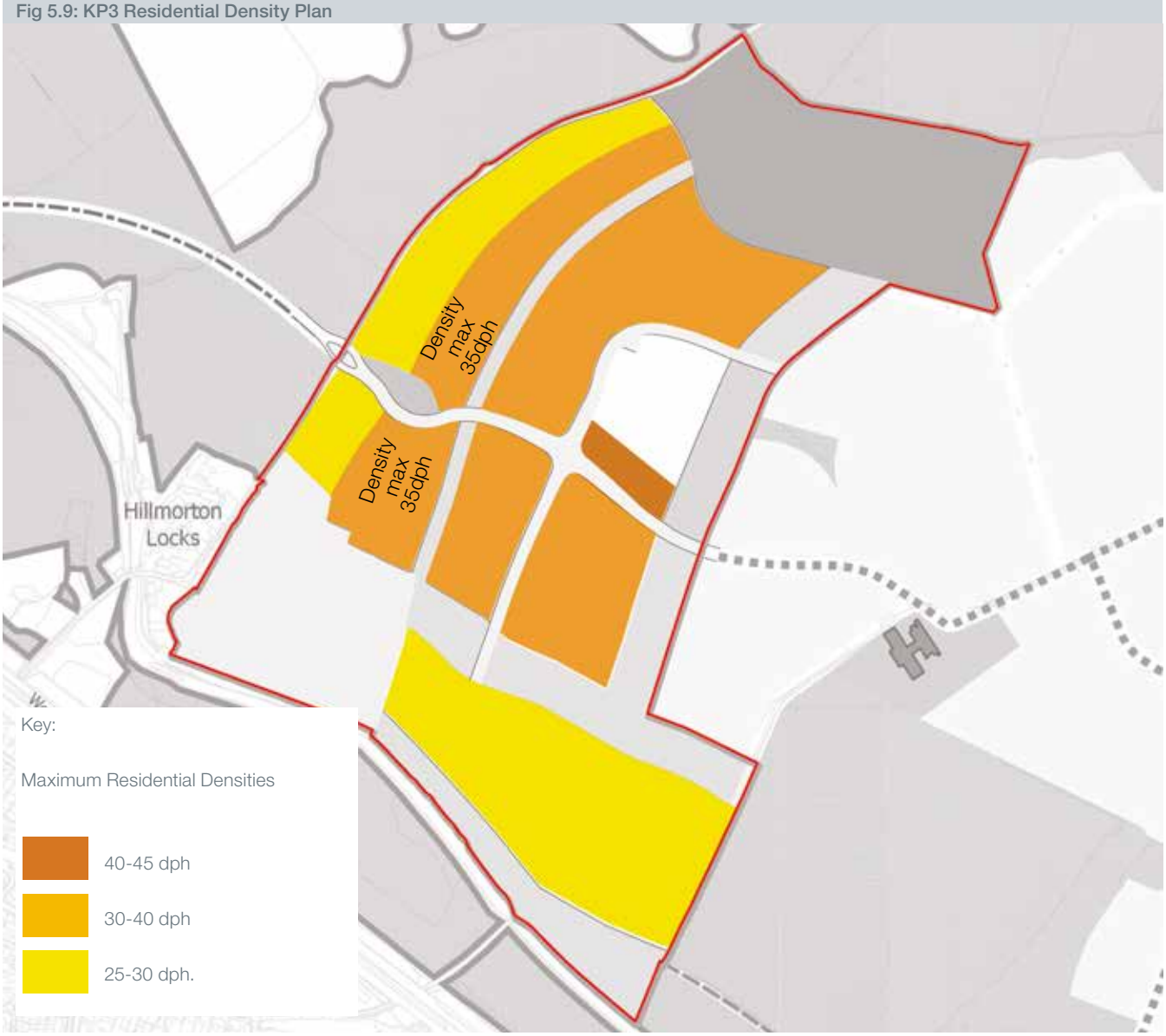
Fig 5.7: Local Centre - Design Principles Plan

Fig 5.8: Local Centre - Illustrative perspective view

5.10 Residential Density

KP3 will display a gentle transition across its extents, from a looser, lower density western edge (Rural Edge Character Area) to areas of higher density in the central part of the phase and around the Local Centre. The plan below illustrates this by providing density ranges as dwellings per hectare across each of the parcels. Areas of green infrastructure and key roads are excluded from the developable areas used as the basis for these calculations. Density levels will be informed primarily by dwelling typology and the character of layout – a more orthogonal development form is envisaged in the higher density areas around the Local Centre and in the Formal Urban Character Area.

Fig 5.9: KP3 Residential Density Plan



5.11 Building Heights

Maximum building heights within KP3 area shown in Figure 5.10 Building Heights Plan.

The maximum building height within KP3 is predominantly up to 12m. Areas of 15m are permitted within the Mixed Use Local Centre. The maximum height for the southern parcel is 9m, however some buildings increase to 12m. Most of the buildings within the southern parcel are up to 9m high with occasional 12m high buildings along the southern edge facing the canal. The higher buildings will form a focal points and will address the key views that will potentially create a distinct area in approaching the development from the railway

All heights specified are to ridge level but exclude any point features (e.g. spires).

Fig 5.10: KP3 Building Heights

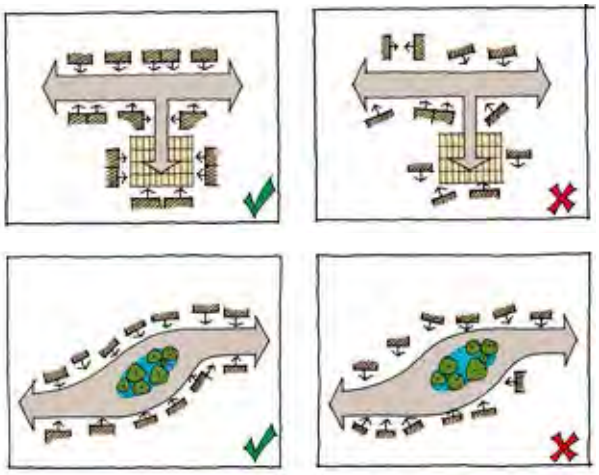
5.12 Residential Plot Layout Rules

The following plot layout rules are to be adhered to in reserved matter applications in order to achieve a coherent framework of well-designed streets and spaces.

Plot Layout Rules

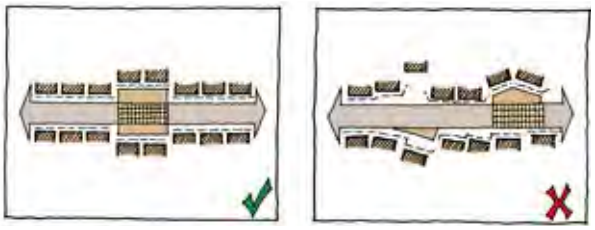
Building orientation will relate to routes and spaces

- Buildings must address routes and spaces such that their primary frontage is parallel to the edge of that route or space.
- For informal arrangements dwellings must still align to the immediate edge of the route or space it faces.
- Primary entrances to buildings must be visible from the public realm.



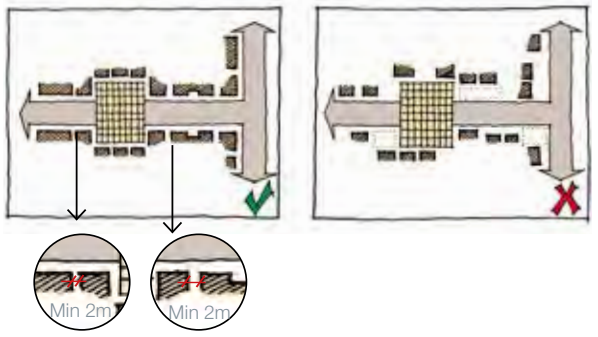
Building alignment will be coherent

- Building frontages must establish a common building line where they face routes or linear spaces (except in areas of lowest density where departure from this principle is permitted).
- Rear and flank walls of garages and outbuildings may be considered as components in establishing a common building line, although this must be limited.
- Along tighter streets where the distance between building frontage and back of footpath is reduced, a buffer privacy strip of at least 800mm must be maintained.
- Set-backs from an established building line will be in accordance with the permitted dimensions specified by the Character Area.



Continuity and enclosure will be achieved

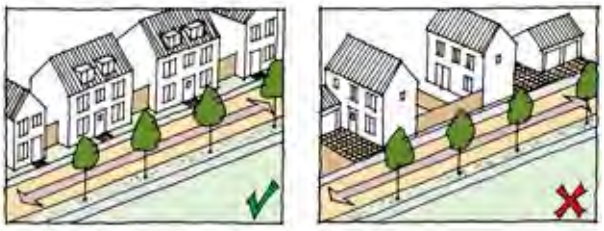
- All frontages along streets and spaces must be designed to create clear definition through legible continuity of building form, linkage and positioning.
- Public and private space must be clearly distinguished through continuity of frontage.
- 'Semi-public' space arising from lack of continuity or enclosure must be avoided.
- Dwellings must be clearly separated, with a minimum of 2.0 metres clear between flank walls. This minimum dimension applies to detached, semi-detached dwellings and terraces (as shown opposite).



Plot Layout Rules

Routes and spaces will be addressed by active frontage

- Routes and spaces must be overlooked by windows to habitable rooms at ground and first floor levels, providing natural surveillance.
- Blank elevations largely devoid of windows must be avoided where they face or are clearly visible from the public realm.
- Active frontage must be enhanced through the use of balconies at first floor level, glazing within or alongside primary entrances, and full height projecting bays on flank elevations where appropriate.

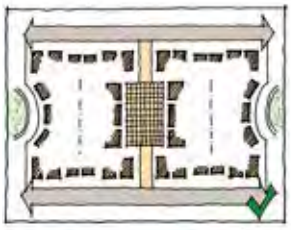


Corners and plot sides will be positively resolved

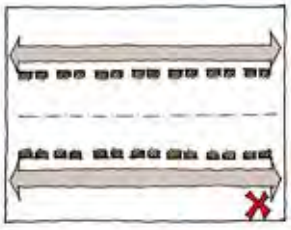
- All buildings located on identifiable corners must positively address both directions through positioning of entrances, generous windows to habitable rooms and upper level balconies where appropriate.
- Building form must respond to defined corner locations through the largest element of the building being located directly on that corner.
- Where a corner plot forms the end of a row of street-facing dwellings, the dwelling on that corner plot may have its primary entrance positioned on its flank elevation, but must ensure active frontage on both elevations. Interest can be created through projected windows and upper level balconies.
- Simply introducing one or two windows on a flank elevation will not represent an acceptable solution of a building addressing a corner.

Groupings will form components of the Layout

- Within development parcels, dwellings are to be configured in identifiable groupings that define spaces of a certain character and function.
- Groupings will be discernible either as ‘clusters’ of buildings around a shared space, or configurations that address and define a particular space.



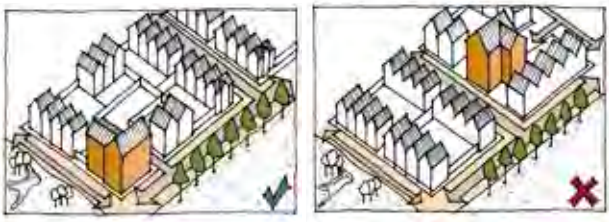
Identifiable groupings add character and function and creates a sense of place



No variation of dwelling typologies, massing or enclosure does not add character and creates no sense of place

Apartments will address key frontages

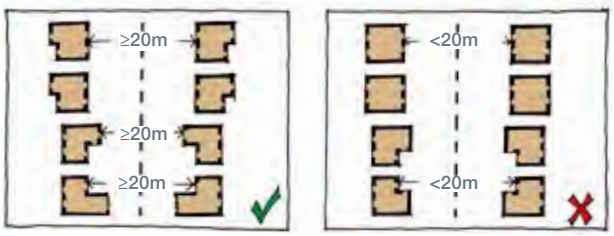
- Apartment buildings of three or more storeys must be positioned to address key streets and spaces on parcel edges.



Plot Layout Rules

Privacy will be maintained

- Direct views from dwellings into dwellings through windows on their rear and flank elevations will be avoided, either by separation of >20 metres (properties back-to-back) or through appropriate design measures.
- For apartment blocks, a minimum distance of 10m must be provided between facing windows on side elevations of two apartment buildings.
- Appropriate design measures in higher-density areas include use of opaque glazing or louvres, the angling or positioning of windows to avoid direct sight lines, and the use of full-height screening to courtyards or terraces.
- No habitable room will be served only by windows comprising of opaque glass.

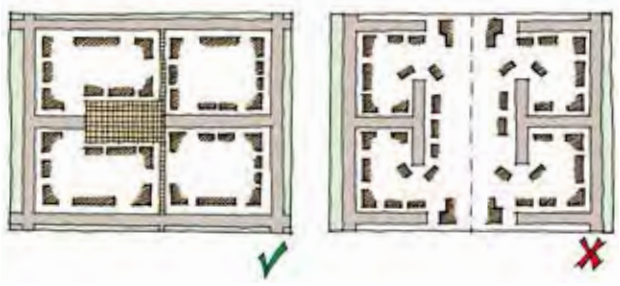


Car parking will have minimal visual impact

- All development parcels must utilise a variety of parking solutions and not rely on just one or two methods of accommodating cars.
- On-plot parking must be positioned such that parked cars do not sit forward of the common or the projected building line in areas of high enclosure where a layout has established street continuity or any lane within a parcel. This may be permitted along areas of lower density with larger set backs and in internal lanes / mews / courtyards.
- All private parking spaces must be located with easy access to the dwellings they serve.
- Further guidance on parking courts is set out in the Parking Typologies section.

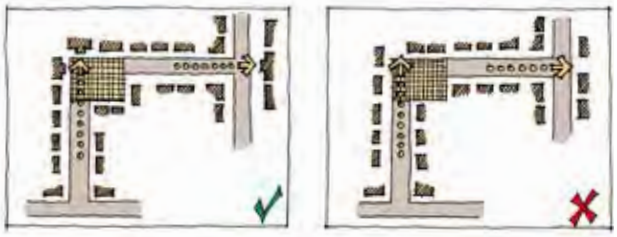
Connections and permeability will be integrated throughout the layout

- Pedestrian and cycle routes must be interconnected and not lead to dead-ends.
- Where vehicular routes reach a terminating space pedestrian routes must continue beyond that space and connect to the nearest public route or space.
- Rigid 'hammerhead' road arrangements must be avoided.



Visual stops will be established

- Where linear spaces or routes establish a vista, that vista must either end in a defined public open space or be terminated by a 'visual stop.'
- A 'visual stop' may be a carefully positioned marker or key building or a prominent landscape feature.
- Vistas must not terminate in a view of a private driveway or garage door, or the side boundary wall to a plot.



5.13 Architectural Principles for Residential Built Form

The following ten architectural principles will be adhered to, in order to achieve a coherent, yet distinctive character to the architectural design of dwellings.

1. Recognisable Form

- Proposals will follow the gradation between urban, suburban and rural as set out in the character area plan in sub-chapter 5.2. This will be achieved by using appropriate and recognisable forms that relate to the relevant character.

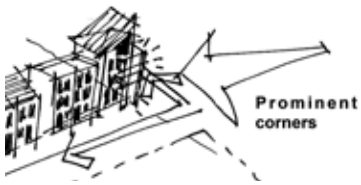
2. Silhouette

- Dwellings will create unified and interesting silhouettes through repetitive roof forms within terraces and groupings of dwellings. This can be achieved, for example, through the use of chimneys or gables.

3. Landmark

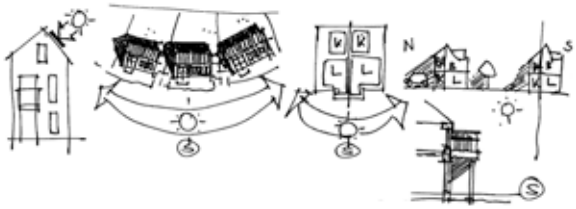
Landmark buildings will:

- Mark the end of vistas or long views.
- Address prominent corners.
- Frame key views.
- A landmark building can contain features such as projecting bays, large window openings, balconies and expressive roof forms



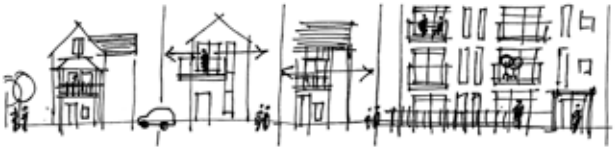
4. Aspect & Orientation

- Dwellings will maximise the potential for roof pitches to face south.
- Where possible, dwellings will maximise potential for south/south west facing habitable rooms.
- Dwellings will show consideration of solar shading principles to provide a comfortable living environment.



5. Frontage Addressing the Public Realm

- Dwellings which front the public realm will maximise the potential for active frontages and provision for balconies.
- This will provide natural surveillance and assist in creating activity within the street scene.



6. Express individuality of Linked & Terraced Dwellings

- Dwellings which form part of a terrace or grouping of buildings will express individuality through celebrating the entrance and openings.
- This can also be achieved, for example, through alternating features such as projecting elements or set-back elements within the composition of dwellings.

7. Create Order & Unity

- Variety will be achieved through handed, framed and repeated elements but groupings of dwellings and street scenes must achieve order and unity within their overall layout and composition.

8. Celebrate Entrances

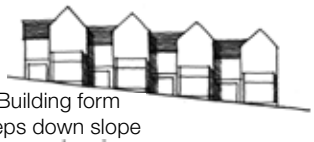
- Entrances to dwellings will add definition and create interest to the front elevation.
- Entrances will be provided with some form of shelter.

Porch 'cut-out' of plan to create interest & 'protection' and provide shelter at entrance

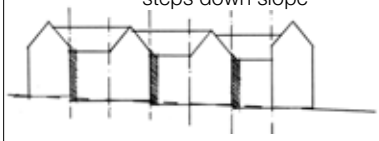
Double height porch & loggia with gable highlighting entrance

9. Respond to Topography

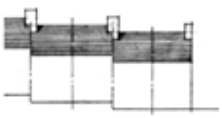
- Design to respond to changes in topography
- Forms reflect changes in level
- Consistent stepping
- Avoid significant retaining walls



Building form steps down slope



Topography expressed through stepped footprint and massing



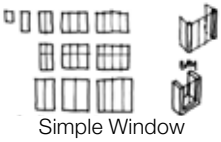
Terraced form has distinctive stepped breaks

10. 'Honesty'

- Dwellings will match the description of their typology as set out in Chapter 5.
- Dwellings will utilise simple forms and masses both individually and within a grouping of buildings.
- Dwelling features will be simple and honest to the purpose they serve, e.g. usable balconies.
- The use of materials will demonstrate a rationale and may distinguish key elements of the dwelling such as projecting bays.

Simple wide fronted units with subsequent elements e.g. garage, bay etc.

Gable used to provide shelter to Loggia and bay



Simple Window Palette; Used to form other elements

5.14 Building Features for Residential Built Form

The following principles relating to the various building features on residential built form will be adhered to. Where appropriate, building features include a list of unacceptable design details which are not permitted for residential built form.

1. Doors and Entrances

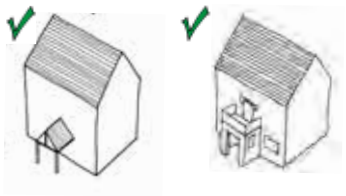
- All front doors will be recessed a minimum of 75mm from the brick / finished face.
- All garage doors will be recessed to a minimum of 90mm from the brick / finished face.
- High quality, robust doors will be used.
- If the door does not contain any glazed aperture, then this should be incorporated elsewhere within the main threshold to the house.

Unacceptable Design Details

No uPVC doors will be permitted on elevations which are on a street frontage.

2. Porches

- Porches will be designed as integral to the entire elevation.
- Porches will either be flat roof or pitched roof.
- Porches will be not be made of GRP.
- Porches need to be sufficiently deep in order to provide shelter.
- Flat-roof porches will have a roof finish of lead, zinc or copper standing seam.
- Pitched-roof porches will match the materials used on the roof of the dwelling.
- Glazed porches are acceptable.
- Porches can be formed by a recessed entrance within the primary elevation.
- Small-scale enclosed porches are not permitted.



Entrances will be celebrated and designed as integral to the elevation and porches will provide sufficient shelter.

Unacceptable Design Details

- No GRP will be permitted for flat roof or pitched porches.
- Porches will be designed so as not to dominate the building.
- Small scale porches with insufficient depth so as to provide shelter will not be permitted.

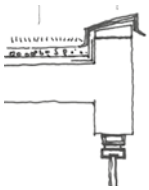
decorative, built porches are not permitted.

3. Roofs

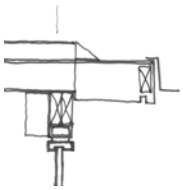
- Roofs need to be designed with due consideration of the character area in which they are located.
- Pantiles will predominantly be used for single storey dwellings.

Flat Roofs

- Flat roofs will be concealed behind a parapet, or the depth of fascia and profile of leading edge carefully detailed.
- Green roofs are encouraged.



Flat roof concealed behind parapet



overhanging flat roofs that are carefully detailed are acceptable

Pitched Roofs

- Roofs will be between minimum pitch of 37.5 degrees and maximum pitch of 52 degrees.
- The roof pitch should be of a consistent angle along a terrace or group of buildings.
- Roofs to garages will be pitched.
- Pitched roofs to apartment buildings may show a pitch lower than 37.5 degrees, when using standing seam metal finishes or a similar contemporary material.

All terraces should have a consistent roof pitch

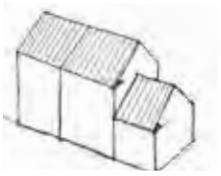


Photo-voltaics

- The installation of Photo-voltaics must be designed into the elevation and consistent along any terrace or group of buildings on street.
- Photo-voltaics panels will be designed / installed to read coherently with the building elevation and form.

4. Walls

- A maximum of two materials can be chosen for exterior walls of any given building. A single material is preferable.
- When using brick, only one brick colour will be used on a single dwelling.
- When using render, only one render colour will be used on a single dwelling.
- Brick detailing will be simple and match the main brick colour.

5. Eaves and Verges

- Eaves will be clipped / parged or use a shallow depth black fascia/barge board. If brick detailing is used as an alternative, the detailing will be simple and in the same brick colour as the dwelling.

Clipped / parged eaves

Shallow, black fascia / barge board on eaves

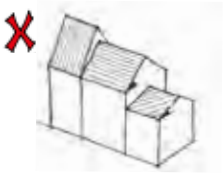
clipped / parged

parapet

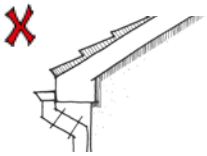
shallow, black fascia / barge board

Unacceptable Design Details

- There will be no mix of both hips and gables on any single building.
- Interruption of eaves by dormers.
- Boxed eaves. No white uPVC.
- Concrete tiles will not be permitted.



Inconsistent roof pitches along terraces should be avoided



Boxed eaves are not permitted

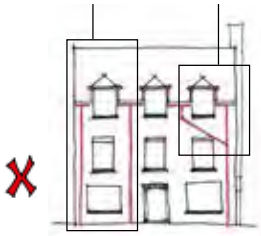
6. Rainwater Goods

- Rainwater goods will not detract from the overall composition of the building elevation or street elevation.
- Rainwater goods including guttering and rainwater pipes will preferably be black in colour or a brushed metal finish.

The visual impact of any rainwater goods must be minimised so as not to detract from the overall appearance of the elevations.

Unacceptable Design Details

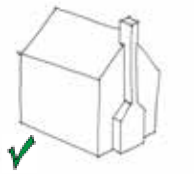
- Rainwater downpipes dominate the composition of the elevation due to ill positioning of dormer windows



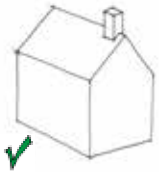
Rainwater downpipes diagonally crossing the building elevation

7. Chimneys and Vents

- Chimneys and vents will match the primary elevation material.
- Chimneys will be placed symmetrically to the ridgeline.
- Chimneys should rise above the roof to aid an interesting ridge line.
- Lead, zinc and metal can be used.
- Chimneys on end elevations should reach the ground.



Chimneys need to be appropriately proportioned and detailed.



Chimneys symmetrically positioned on ridgeline.

Unacceptable Design Details

- Chimneys, the sole purpose of which is decorative, will not be permitted
- The use of GRP will not be permitted

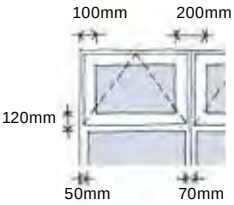
Chimney inappropriately articulated on gable end

Chimney positioned asymmetrically to ridge.

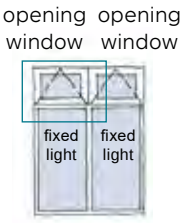
8. Windows

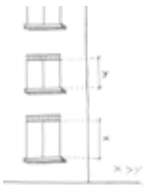
- Colour, thickness of frame, quality and design of windows must be consistent on all elevations of a dwelling/apartment building.
- All windows will be recessed a minimum of 90mm from the face of the building elevation.
- Ground level fenestration should be distinctly taller than fenestration on above levels.
- The size of glazed openings in the Formal Urban and Formal Suburban areas will be maximised and the number of mullions and transoms minimised.

Consistent windows across elevations ✓

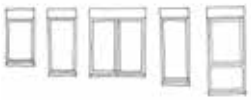


Maximum frame dimensions ✓



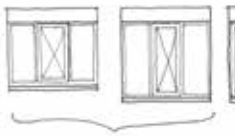


Ground Level openings will be taller than those on upper floors ✓

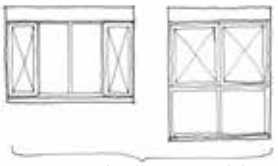


Simple, vertical fenestration ✓

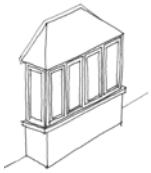
Symmetrical Window Configurations:



Centrally openable ✓



Symmetrically openable ✓

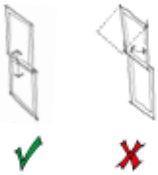


Repeated vertical windows make up composite elements. ✓

Unacceptable Design Details

Inconsistent window treatment on different elevations ✗

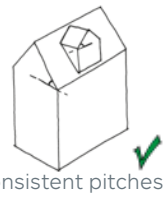
Asymmetrically openable window configurations ✗



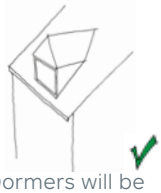
Decorative sash windows are not permitted ✗

9. Dormer Windows

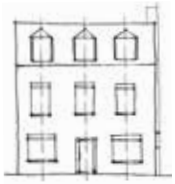
- Dormer windows will be integral to the composition of the main facade in terms of design and positioning.
- Dormer windows will maintain overall vertical proportions, i.e. be taller than they are wide.
- The number and proximity of dormers which break the eaves line will be limited to prohibit unnecessary rainwater goods within the building elevation.
- GRP roofing will not be permitted.
- Gabled / hipped dormers will use a consistent pitch and material to that of the main roof.
- Hipped dormers will be carefully detailed to avoid oversizing of ridge tiles and hip tiles.
- Flat roof dormers will use standing seam lead, zinc or copper roof materials.



Consistent pitches ✓

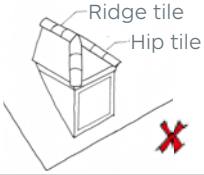


Dormers will be designed to avoid interruption of eaves. ✓



Dormer windows need to complement, and align with, the fenestration of the facade.

Unacceptable Design Details



Ridge and hip tiles that are disproportinately large are not acceptable ✗

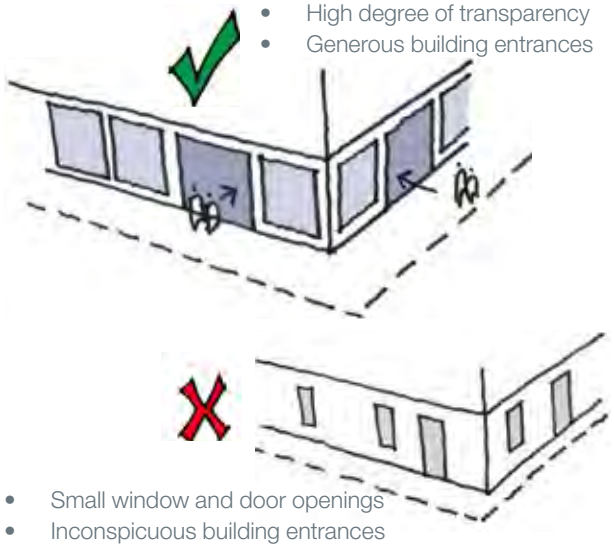
10. Bay Windows

- Bay windows are appropriate if considered as part of the whole elevation.
- No GRP roofing to bay windows will be used.
- Frame members and corner posts should be carefully considered to ensure they are neither too bulky nor too flimsy.
- The roofing material of bay windows needs to match the selected material of the main roof.
- The roofing material of flat roof bay windows will be standing seam lead, zinc or copper.

Bay windows designed as part of overall composition of elevation. ✓

5.15 Principles for Mixed Use Built Form

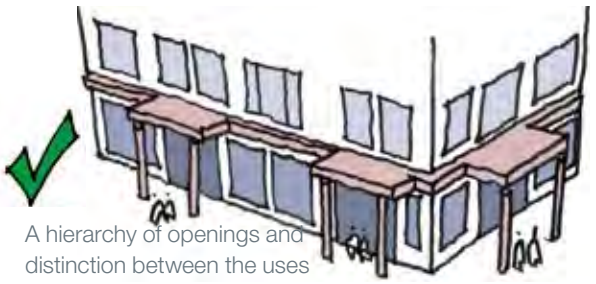
1. Non Residential Active Frontages



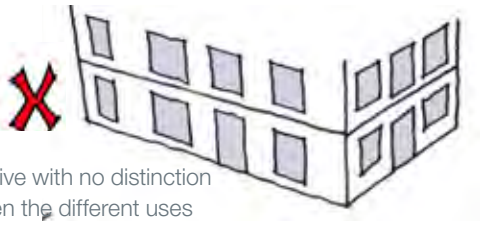
- High degree of transparency
- Generous building entrances

- Small window and door openings
- Inconspicuous building entrances

2. Distinction Between Uses



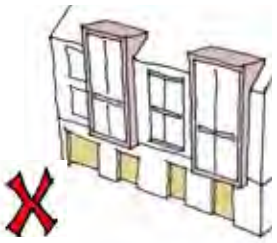
- A hierarchy of openings and distinction between the uses



- Repetitive with no distinction between the different uses

3. Design Coherance Between Uses

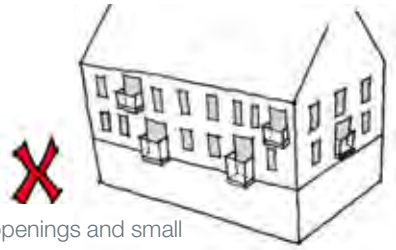
- Building facades designed in unison
- Building elements interrelate over floor levels



- Building facades designed in isolation
- Lack of interrelation over floor levels

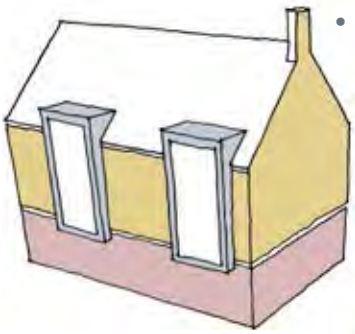
4. Windows and Balconies

- Generous openings and balconies on primary facades

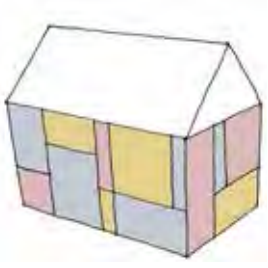


- small window openings and small balconies on primary facades

5. Form and Materials



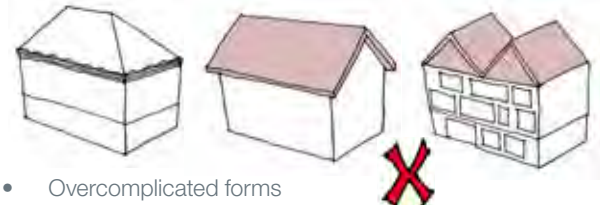
- Clear materiality logic with material changes for specific built elements



- Illogical and random material changes

6. Roof Form

- Simple and coherent roof forms which relate to the building form.



- Overcomplicated forms
- Overly decorative or excessively overhanging eaves

5.16 Private Amenity Space

Private amenity space will be provided appropriate to the dwelling it serves. As a minimum, dwellings will be expected to have direct access to private amenity space according to their size and likely number of occupants, as below:

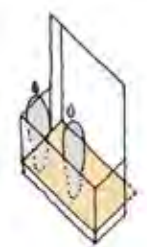
- Detached or semi-detached family homes with three or more bedrooms must have gardens capable of comfortably accommodating outdoor seating for the family, space for children's play, planting beds, space for drying clothes, and room to unobtrusively accommodate a shed or greenhouse.
- Where area for covered bin and bike storage is to be accommodated within private garden areas, it must be in addition to the minimum areas quoted below, and must be directly accessible from the street serving the property.
- Compact two- and three-bedroom houses should have sufficient ground-level private amenity space to accommodate activities of a couple or young family.
- Courtyards and upper-level terraces will be considered to contribute towards the requirements of private amenity space.
- If apartments are provided without sufficient amenity space directly accessible from the dwelling, then communal gardens, private to the block, may be considered to make up the shortfall.
- Where there is rear access to multiple rear gardens this access needs to be gated at the front of the building line and with a self-closing spring, and a snap shut lock, that needs a key to release.
- Boundaries between gardens should be 1.8-metre-high close boarded fencing, but where gardens back onto parking courts or open space, 2m high walls – or 1.8m high walls topped with 0.2m trellis – should be used.
- Garden fences between properties should preferably be hedgehog friendly. Hedgehog friendly fencing for rear garden fences will include for 13cm squares gaps at the base of fencing. One such gap in each boundary of the garden will be sufficient"

Figure 5.10 presents guidelines for minimum standards for amenity space for different types and sizes of residential homes. A relaxation in any of these minimum standards will only be considered in those circumstances where it is clearly demonstrated that this aids the generation of a well-designed layout which respects the residential amenities of the occupiers of the proposed dwellings having regard to acceptable levels of privacy, daylight/sunlight and any potential overbearing impact.

Fig. 5.10: Minimum standards for amenity space provision guidance

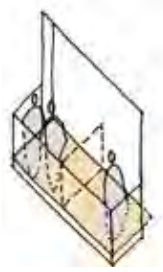
Apartments

1 BED/ 2 PERSON



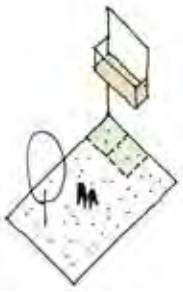
5sqm Private Balcony

2 BED/ 3 PERSON



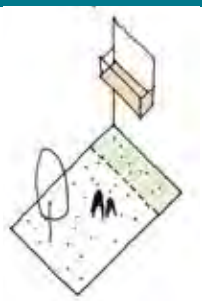
6sqm Combination of Private Balconies

2 BED/ 4 PERSON



8sqm 6sqm of private balconies & 2sqm communal space

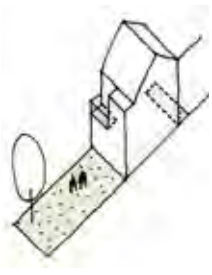
3 BED/ 5 PERSON



10sqm 6sqm of private balconies & 4sqm communal space

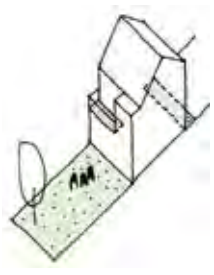
Houses

2 BED/ 3/4PERSON



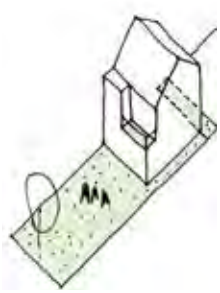
50sqm front/back/side gardens & terraces

3 BED/ 4/5 PERSON



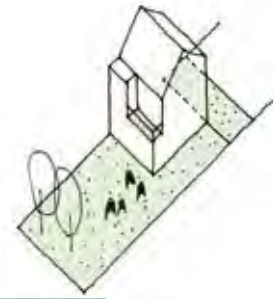
60sqm front/back/side gardens & terraces

4 BED/ 6/7 PERSON



85sqm front/back/side gardens & terraces

5 BED/ 7/8 PERSON



100sqm front/back/side gardens & terraces

5.17 New Utility Supplies

The proposed development (KP3) will be supplied with utility infrastructure (electricity, gas, potable water and telecommunications) connected to the incumbent utility provider's networks and distributed below ground across the proposed development phasing parcels.

Electricity Substations

- 2 Substations to serve KP3.
- Locations: one substation to be positioned near the local centre and one at western edge of KP3, see the Regulatory Plan for indicative locations.
- 4m x 4m Footprint.
- Designed in accordance with the ENA Engineering Recommendation G81 "Framework for Design and Planning, Materials Specification and Installation and Record for Low Voltage Housing Development Installations and Associated, New, HV/LV Districbution Substations" – Part 2 Materials Specification.
- Appearance: materials to match those of neighbouring built form, notably choice of bricks and roofing material to be same specification as adjacent buildings.
- See precedent photos below that illustrate examples of substations that sensitively integrate with surrounding built form.

Gas

- To be served from Gas Governor in KP1.

Telecommunications (BT)

- To be served from KP1.

Potable Water

- Severn Trent Water (STW) are installing the potable water from Rugby along route agreed with RSR project team.

Foul Water

- Will be designed in accordance with the site wide strategy as agreed with STW

Precedent photographs illustrating integration of substations with material palettes to match neighbouring built form.

Utilities within highways (adoptable) layouts

Predominantly the new infrastructure will be installed within the proposed highway (adoptable) layouts:

- Utilities under footways, drainage under roads and in accordance with National Joint Utilities Group (NJUG) guidelines.
- Figure 5.11 (see right) illustrates the NJUG recommended minimum depths of cover to the crown of the apparatus within a 2 metre wide footway.
- Where the utilities are installed outside of the adopted highways (e.g. green spaces) then wayleaves and easement to allow for future access will be agreed with the relevant utility provider.

Note: The same positioning should apply in the carriageway/service strip (if safe and practical to do so) where a development has no footway(s) available for services and/or the boundary of the property is on the carriageway.

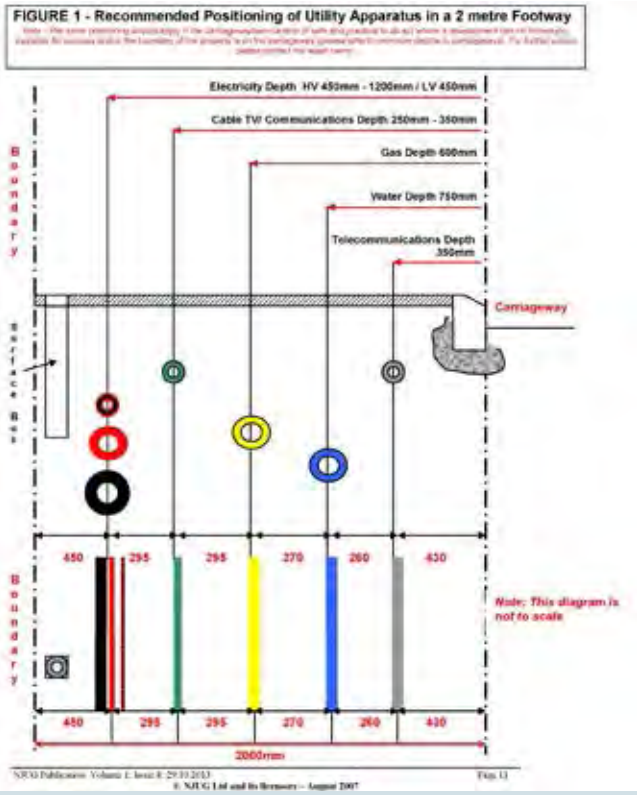


Figure 5.11 NJUG diagram

5.18 Affordable Housing

The principles for affordable housing are set out in the KP3 Delivery Plan.

The creation of a residential development that delivers a good housing mix with a range of dwelling types and tenures, including affordable housing, is integral to delivering the principles of sustainable development and to creating a sustainable community. Mixing tenures, particularly to include affordable housing, promotes social diversity and encourages social inclusion.

All affordable housing is to be tenure blind, i.e. it should not be possible to distinguish between the design and appearance of affordable housing and market sale housing.

Affordable housing should be distributed in appropriate sized clusters within KP3.

5.19 Refuse & Recycling Strategy

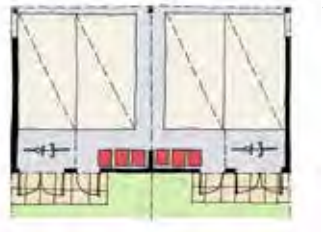
Residential

The proposed development will comply with the below residential bin storage principles:

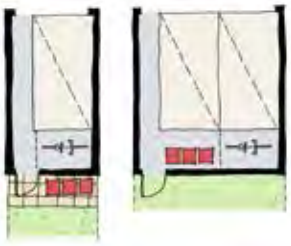
- In line with the Building Regulations municipal waste collection bins are to be located within 30 metres of a home's entrance and refuse bins should be within 25 metres of a waste collection point.
- RBC operate their own waste collection fleet. Under this strategy each property is provided with 3 wheeled bins. Dwellings are to be provided with suitable bin storage.
- Apartment blocks are to be provided with communal bin stores, which are to be designed within the apartment block or grounds away from public realm and primary entrance.
- Appropriate bin storage must be provided to ensure bins are not dominant on the street scene.
- Enclosure as well as screening should be considered in the design of the bin storage.

The storage and collection strategy will vary between the different types of dwelling. This is illustrated in the following diagrams. Suggestions as to how bins can be incorporated into car barns are also illustrated opposite.

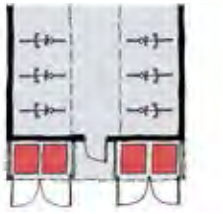
Car barns:



1. Car barns can provide bin storage areas at the rear of the shelter, to be wheeled to the collection point on specific days.



2. Garages for dwellings can also provide a storage area for bins, or bins can be stored against a wall on a paved area within the private amenity space, however this should be not be placed fronting onto the main entrance area /drive.



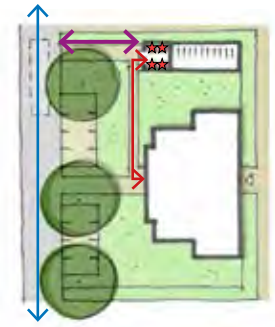
3. Apartment blocks are provided with communal bin stores. This can be designed as part of the bike store within the grounds of the apartment block or separate bin stores integrated with the building. This must not face the public realm or main pedestrian entrance to the block. Open bin storage areas should never be placed along the main approach to the parking court of the block.

Fig 5.13: Residential refuse collection options

Key

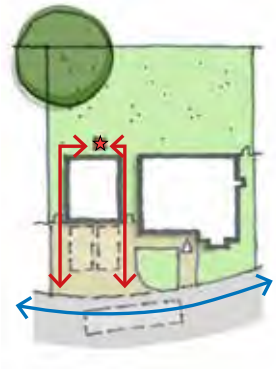
- Waste bins location
- Waste bin communal collection point
- Occupier route to collection point
- Refuse collectors walking route
- Refuse collection vehicle route

Apartments:



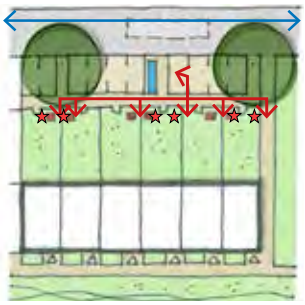
Semi-detached dwellings:

Detached dwellings:

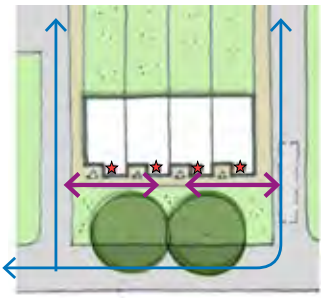


Terraced example 1:

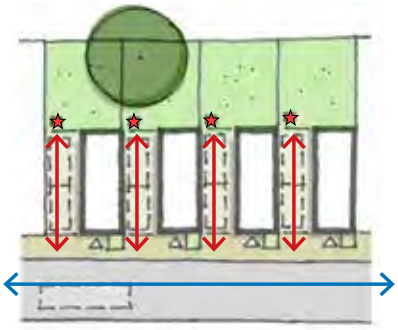
Terraced example 2:



Terraced example 3:



Terraced example 4:



5.20 Noise Mitigation

5.20.1 Introduction

A separate Technical Note has been prepared to provide preliminary noise mitigation design guidance for proposed residential properties on the site within the KP3 Design Guide boundary potentially affected by noise from road traffic, industrial sources at DIRFT sites and adjacent railway lines. A summary of the key points is provided as follows.

Recommendations for internal and external noise criteria for proposed residential dwellings have been provided, as per Noise Mitigation Table 1, 2 and Figure 5.13.

Example configurations for glazing and ventilation have been provided in order to mitigate against external ambient noise and to inform the detailed design stages. Final building facade configurations should be determined during detailed design stages.

5.20.2 Mitigation Options

Figure 5.13 presents a KP3 site plan showing zoned areas where certain levels of facade glazing/ventilation configurations should be considered as a design basis. Example configurations are detailed in Noise Mitigation Table 2, below.

Noise Mitigation Table 1:
BS8233:2014 indoor ambient noise levels in dwellings

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35dB $L_{Aeq,16h}$	-
Dining	Dining room/ area	40dB $L_{Aeq,16h}$	
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq,16h}$	30dB $L_{Aeq,8h}$

Noise Mitigation Table 2:
External noise levels and outline design strategies for proposed developments

External Noise Levels Daytime (07:00-23:00)	External Noise Levels Night-time (23:00 – 07:00)	Mitigation Level	Example Mitigation Configuration
72 – 75 dB LAeq,T	> 66 dB LAeq,T	Mitigation Option A	External garden areas not recommended in these areas. Façades leading to habitable uses feasible, but these will require high performance acoustic double glazing (e.g. High performance acoustic double glazing (e.g. 16.8 mm glass/6-20 mm argon filled cavity/16.8 mm glass, Rw 48 dB) and alternative ventilation provision. Façades facing away from rail lines may comprise enhanced double glazing (e.g. 10 mm glass/12 mm air gap/6 mm glass, Rw 37 dB) and alternative ventilation provision.
63 – 72 dB LAeq,T	57 – 66 dB LAeq,T	Mitigation Option B	Façades leading to habitable uses feasible but these will require mitigation design. Enhanced double glazing (e.g. 10 mm glass/12 mm air gap/6 mm glass, Rw 37 dB). Windows would be required to be closed to achieve internal noise criteria; as such alternative forms of ventilation will be required to be provided.
55 – 63 dB LAeq,T	45 – 57 dB LAeq,T	Mitigation Option C	Façades leading to habitable uses will be feasible with standard thermal double glazing units (e.g. 6 mm glass/6-16 mm air gap/4 mm glass, Rw 31 dB) and alternative ventilation provision. Windows would be required to be closed to achieve internal noise criteria; as such alternative forms of ventilation will be required.
Up to 55 dB LAeq,T	Up to 45 dB LAeq,T	Mitigation Option D	Façades leading to habitable uses feasible with standard thermal double glazing units (e.g. 6 mm glass/6-16 mm air gap/4 mm glass, Rw 31 dB) and ventilation provided by partially open windows.

5.20.3 Conclusion

While predicted noise levels at this stage indicate that differing levels of mitigation will be required across KP3, it should be noted that predictions have not taken into account the layout of building massing to be constructed on site. Once erected, building massing will provide mitigation of noise levels through screening. The effects of screening should be assessed during detailed design stages as it is anticipated that some facades may resultantlyrequire less mitigation.

Fig 5.14 Indicative Noise Mitigation Plan

APPENDICES

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APPENDIX A1

KP3 Compliance Checklist

Rugby Radio Station - Key Phase Three Design Guide Compliance Checklist

Reserved Matters Application details:

Phase	
Parcel reference	
Developer	
Design team	

Notes:

Wherever **'No'** is answered to any compliance question, an explanatory statement justifying non-compliance is required.

Explanatory statements will be submitted in support of the completed Compliance Checklist.

This Design Guide Compliance Checklist will be completed and submitted with all Reserved Matters Planning Applications.

Tick boxes as appropriate: **Yes** ☑ **No** ☐ **N/A** ☐

REGULATORY PLAN

	Are proposals compliant? Yes	No	N/A
Proposals have referred to the Regulatory Plan	☐	☐	☐
Submitted material includes a layout plan that is in accordance with the Regulatory Plan (proposal overlaid on Regulatory Plan)	☐	☐	☐

PART A: BACKGROUND

1. Introduction

		Are proposals compliant? Yes	No	N/A
1.1 - 1.7	Compliance with the Design Guide:			
	Does the proposal fully comply with the Design Guide?	☐	☐	☐
	If the above is answered '**No**', has a statement of justification been provided?	☐	☐	☐
1.7	Have 'Code Breaker' elements been included in the proposals?	☐	☐	☐
	If the above is answered '**Yes**', has a statement of justification been provided?	☐	☐	☐

2. Context

	Yes	No	N/A
Applicant has read and fully understood the contents of this chapter.	☐	☐	☐

PART B: SPATIAL

3. Landscape Design

Are proposals compliant?

	Yes	No	N/A
Location of Landscape Design components as illustrated in the Regulatory Plan	☐	☐	☐
3.1 Landscape Design 'Guiding Design Principles' Overview	☐	☐	☐
3.2 Informal Open Space			
3.2.1 Ecology & Wildlife Corridors	☐	☐	☐
3.2.2 Green Corridors	☐	☐	☐
3.2.3 Green Edge	☐	☐	☐
3.2.4 Productive Landscapes	☐	☐	☐
3.2.5 Hillmorton Park / Retained Ridge and Furrow	☐	☐	☐
3.2.6 Informal Play and Residential Pocket Parks	☐	☐	☐
3.2.7 Canal Green	☐	☐	☐
3.3 Formal open space:			
3.3.1 Play Areas	☐	☐	☐
3.3.2 Formal Parks	☐	☐	☐
3.3.3 Sports Pitches	☐	☐	☐
3.4 Foul and Surface Water Management Strategy	☐	☐	☐
3.5 Trees and Hedgerows	☐	☐	☐
3.6 Heritage	☐	☐	☐
3.7 Public Realm Materials			
3.7.1 Streetscape Materials Palette	☐	☐	☐
3.7.2 Street Furniture	☐	☐	☐
3.7.3 Public Art	☐	☐	☐
3.7.4 Lighting	☐	☐	☐
3.7.5 Public Realm Boundaries	☐	☐	☐
3.7.6 Planting Palette/Strategy	☐	☐	☐

4. Access & Movement Design Fixes

Are proposals compliant?

	Yes	No	N/A
4.1 Movement and Access 'Guiding Design Principles'	☐	☐	☐
4.2 Access Points	☐	☐	☐
4.3 Connecting the Assets	☐	☐	☐
4.4 Traffic Restraint Features	☐	☐	☐
4.5 Street Hierarchy	☐	☐	☐
4.5.1 Primary Street	☐	☐	☐
4.5.2 Secondary Street	☐	☐	☐
4.5.3 Cross Parcel Permeability & Tertiary Streets	☐	☐	☐
4.5.4 Tertiary Streets: standard	☐	☐	☐
4.5.5 Tertiary Streets: next to landscape	☐	☐	☐
4.5.6 Tertiary Streets: shared surface	☐	☐	☐
4.5.7 Tertiary Streets as Spaces	☐	☐	☐
4.5.8 Private Drives	☐	☐	☐
4.6 Cycle and Pedestrian Network	☐	☐	☐
4.7 Bus Network	☐	☐	☐
4.8 Parking	☐	☐	☐

5. Residential Built Form Design Fixes

		Are proposals compliant? Yes	No	N/A
Location of residential development parcels		☐	☐	☐
5.1	**Built Form Guiding Design Principles**	☐	☐	☐
5.2	**Introduction**			
	5.2.1 Marker Buildings	☐	☐	☐
	5.2.2 Key Buildings	☐	☐	☐
5.3	**Frontage Character**	☐	☐	☐
5.4	**Character Areas**			
	5.4.1 Steps for using Chapter 5.3	☐	☐	☐
	5.4.2 Rural Edge	☐	☐	☐
	5.4.3 Informal Urban	☐	☐	☐
	5.4.4 Formal Urban	☐	☐	☐
	5.4.5 Normandy Rise	☐	☐	☐
5.5	**Residential Materials**	☐	☐	☐
5.6	**Dwelling Typologies Library**	☐	☐	☐
5.7	**Parking Typologies Library**	☐	☐	☐
5.8	**Boundary Typologies Library**	☐	☐	☐
5.9	**Key Groupings**			
	5.9.1 Western Gateway	☐	☐	☐
	5.9.2 KP3 Local Centre & Primary School	☐	☐	☐
5.10	**Residential Density**	☐	☐	☐
5.11	**Building Heights**	☐	☐	☐
5.12	**Residential Plot Layout Rules**	☐	☐	☐
5.13	**Architectural Principles for Residential Built Form**	☐	☐	☐
5.14	**Building Features for Residential Built Form**	☐	☐	☐
5.15	**Principles for Mixed Use Built Form**	☐	☐	☐
5.16	**Private Amenity Space**	☐	☐	☐
5.17	**New Utility Supplies**	☐	☐	☐
5.18	**Affordable Housing**	☐	☐	☐
5.19	**Refuse & Recycling Strategy**	☐	☐	☐
5.20	**Noise Mitigation**	☐	☐	☐

APPENDIX A2

KP3 Sustainability Statement

KP3 Sustainability Statement

This Sustainability Statement sets out sustainability targets for Key Phase 3 in terms of Energy, Waste and Water. Development proposals will be encouraged and expected to incorporate energy and water efficient design considerations into the design for buildings. The specific proposals will be assessed on a plot by plot basis.

The key principles of the approach to energy efficiency and generation for (KP3 follow the principles of design to reduce energy demand set out in the Energy Statement (Peter Brett Associates, August 2013) submitted with the outline application and seek to maximize renewable energy sources included in the suite of effective solutions set out in the Energy Statement. These principles are:

1. To optimise energy-efficiency of urban structure to maximise daylight and passive heat from the sun through:
   - Orientation to the sun; and
   - Optimisation of distances between buildings.

2. To minimise energy demand of buildings. The building envelope for the homes within KP3 will be constructed to be highly efficient so that the amount of energy which is typically required in homes is minimised. Minimise heat losses through a very good building envelope (walls, roofs, windows) and a high compactness of the buildings (good ratio of surfaces to volume). Maximise passive solar gains with windows facing south.

3. Maximise efficiency of energy supply and share of renewable energy sources. In accordance with Condition 16 of the Outline Application, all development shall aim to achieve an improvement of 10% above the Target Emission Rate (TER) set out in Part L of the Building Regulations (2013). However, this needs to be considered at the Reserved Matters stage in light of the recent Housing Standards Review. To achieve this, KP3 will meet high levels of fabric energy efficiency as set out in the Energy Statement submitted with the outline application. The measures considered below will also aim to achieve compliance with Part L 2013 standards and meet the local authority target; however, this should be further confirmed through a modelling exercise during more detailed design stages.

Passive design and energy efficiency measures

This section below aims to capture various opportunities associated with the expected fabric and servicing performance of the proposed uses.

- **Building Massing and Orientation** – The orientation and distance between buildings will be optimised in order to ensure maximum daylight and optimum solar gains levels.

- **Promoting Natural Daylight** – The final design will promote natural light throughout to reduce the energy use and CO2 emissions by minimising the use of artificial lighting.

- **Fabric Design and Building Envelope** – Improved U-values of the thermal elements and controlled fittings and enhanced building air-tightness over the minimum Building Regulations ADL A 2013 requirements, will be proposed. Such an improved specification can lead to the reduction of the buildings' heating loads by minimising unnecessary heat losses through the shell of the façade.

- **Glazing Performance** – The proposed window area will aim to strike the appropriate balance between minimising heat losses and optimising natural daylight penetration to promote optimal energy performance and occupant comfort. Double glazed window units will be incorporated with reduced solar transmittance (g- value) parameters, especially in the south, west and east orientations in order to prevent the unnecessary summer excess solar gains. The light transmittance (LT-value) will aim a relatively high value in order to guarantee the occupiers' visual comfort.

- **Efficient Lighting** – Lighting can usually account for a substantial proportion of the energy consumption, especially for non-residential uses. Thus, attention will be paid to the specification of efficient lighting fittings and controls, such as giving preference to high efficiency LED lighting. Furthermore, lighting controls such as daylight dimming sensors and absence detection sensors can ensure that artificial lighting is turned off when there are increased levels of natural lighting or when spaces are unoccupied, particularly in non- domestic uses. Supplementary task lighting could also form part of the design.

- **Building Controls and Metering** – Energy metering of all major plant equipment shall be implemented in the design in order to record and improve the overall energy consumption of all areas in the buildings. Systems monitoring regulated uses such as heating, hot water, cooling, lighting, auxiliary and equipment energy will be proposed, to allow for sub-metering. This information can then be collated via a central Building Management System (BMS) which would assist in optimising the building's energy management.

- **Ventilation Strategy** – Due to the energy associated with the operation of fans, pumps and motors of a mechanical ventilation system, attention will be given to the ventilation strategy proposed for both domestic and non-domestic elements. Natural ventilation will be promoted in all the houses and the potential of Mechanical Extract Ventilation (MEV) as additional back-up support will be considered. Mechanical ventilation is likely to be required for the non-residential buildings. The final design will aim to achieve reduced Specific Fan Power (SFP) factors as well as increased heat recovery. Variable speed drives shall also be specified in all fans and pumps in order to reduce their speed when the demand is low and consequently save energy.

- **Energy Efficient Equipment** – A large part of the buildings' energy consumption lies with the unregulated loads. Energy efficient equipment and white goods will be promoted to reduce the associated unregulated loads. Lifts could be specified using latest energy conservation methodologies.

Low and Zero Carbon (LZC) technologies

Consideration will also be given to the inclusion of Low and Zero Carbon (LZC) energy technologies within KP3. A list of the technologies that will be further investigated during the reserved matters stage, has been included below.

- **Combined Heat and Power (CHP)** – A CHP is a low carbon technology which effectively uses waste heat from the electricity generation process to provide space and water heating. CHP systems have the potential to offer optimum CO2 emissions and cost savings when matched to the site electricity and heat load profiles; if this can be achieved, the units can be highly utilised and make a significant contribution to the site's annual energy demands. Moreover, they are found to yield higher efficiencies in high density developments with low distribution heat losses. This option will be further investigated once more information about the massing, scale, phasing and density of the residential units becomes available.

- **Ground source heat pumps (GSHP)** – GSHP technology exploits seasonal temperature differences between the ground and air. Fluid is pumped through pipes laid in the ground, taking up heat which is then extracted by the heat pump and released at a higher temperature to drive a space heating system. The pipework is placed either horizontally or vertically in the ground, requiring a detailed geological survey, including test boreholes, to verify the suitability of ground conditions and to accurately estimate the potential capacity of a GSHP scheme. A GSHP installation is usually associated with significant installation costs. As with the CHP option above, further parameters will need to be made known in order to properly assess the viability of such a system.

- **Air source heat pumps (ASHP)** – A heat pump is a device for transferring heat from a lower temperature heat source to a higher temperature heat sink. Apart from the high efficiencies ASHPs can achieve in heating mode, their main advantage is that they do not require gas supply, ventilation or flue arrangements. ASHP systems may be considered to serve the space conditioning demands of the Proposed Development, especially for the non-domestic buildings on-site.

- **Wind power** – The potential of fitting micro wind turbines on the roofs of the Proposed Development buildings or positioning mast-mounted wind turbines in an open area away from obstructions could be investigated at later design stages. However, according to the Energy Saving Trust, wind turbines are not recommended in areas where the wind speed is lower than 5m/s. Moreover, a report by BRE2 has highlighted inherent problems and poor performance to date of urban micro wind installations. The predicted wind speed on the site at 10m above sea level is expected to be lower than the proposed threshold and therefore it is unlikely that this technology will be considered viable for the Proposed Development.

- **Biomass technology** – Biomass boilers work on the principle that the combustion of wood chip or pellets can create heat for space heating and hot water loads. There are, however, a number of factors that disadvantage this technology and these include on-site fuel storage space requirements, the impact on local air quality, traffic movement and access arrangements for regular fuel deliveries, regular ash removal and maintenance requirements. Due to the above considerations, this technology is not likely to be proposed further.

- **Solar Hot Water (SHW) technology** – SHW or solar thermal technology harnesses solar energy to generate heat. This technology will be considered further at later design stages and following the development of the mechanical design details of the Proposed Development.

- **Photovoltaic (PV) technology** – Photovoltaic (PV) technology involves the conversion of the sun's energy into electricity. The availability of the building's roof area will be investigated with regards to any significant obstructions or potential overshading. A more detailed analysis will be carried out during detailed design stages.

Sustainability recommendations

All development proposals will be encouraged and expected to incorporate waste and water efficient design principles into the design of the buildings. The specific proposals will be assessed on a plot by plot basis at the reserved matters stage; however the overarching guidelines have been presented below.

Waste guidelines

The waste guidelines for Rugby KP3 will follow the directions set out by Rugby Borough Council.

Sustainable waste management procedures will be adopted during both the construction and operational phases to enable waste minimisation and recycling.

During construction, opportunities will be taken to minimise and reduce waste; appropriate measures such as a Resource Management Plan (RMP) could be proposed to identify the waste arising and shall aim to minimise waste as well as record and report accurate data on waste generation and handling. Where possible, materials needed for the construction process will be obtained firstly from re-use and recycling schemes before seeking fresh material.

Due consideration will also be given to waste generated by the Proposed Development during its operation to ensure that the waste management methods and procedures will be developed in line with the Council's requirement. The intention is to provide residents and users with adequate facilities for segregation of waste and recycling.

Specifically, for each dwelling, three wheeled bins should be provided within each property's private garden space. Bin stores shall be accessible and convenient for the occupier and for collectors. Bin stores should be hard floored, and if covered, should be of sufficient height to open bin lids. All bins shall be able to be removed individually from the store for presentation at the back of the footway for collection. Storage locations should be at the kerb side, adjacent to the public highway and containers shall not have to be moved through a building to the point of collection. The distance between the collection vehicle and the bin should not exceed 10m. If the distance is greater than 10m, reasonable justification will be provided to the planning officer.

If a more centralised above ground storage area for bins is required (associated with communal facilities), these areas shall be designed in such a way so as:

- Allow direct access for the refuse collection vehicle, and shall be in a central and convenient location for users and collectors where possible. If this is not possible then the store should be located at the main entrance of the development or by providing more than one bin store within the site;
- The distance for each resident to carry their refuse shall be kept consistent across the development;
- To prevent cars parking and inaccessibility for collections consideration shall be given to "Keep Clear" marking in front of bin stores and at designated vehicle access/loading points;
- The bin store shall be large enough for residents to gain access to all bins and each bin shall be able to be removed individually from the store;
- Covered bin stores shall allow full opening of the lid (with a 2m minimum working height where compound is covered) and 150mm clearance space between containers should allow ease of movement; and
- Collectors shall not have to move wheeled bins down gradients exceeding 1:14. In addition, collectors shall not have to move wheeled bins up or down steps. For both single dwellings and communal facilities, overhead service cables/pipes shall be at least 6m from ground level to allow operation of the lifting gear on the collection vehicle.

With regards to highway layout, highways shall also be designed in such a way so that they have a minimum width of 4m and will be accounted for to accommodate a maximum reversing distance of max 12 metres. A minimum working area of 4m width and 4m in length should also be available where containers are emptied, and a minimum of 4.5m vertical clearance shall be provided.

With regards to commercial waste collection and infrastructure, until such point as the occupants are known of each commercial unit, the development of a generic waste collection infrastructure or strategy is not considered appropriate. Rugby Borough Council or a licensed waste contractor will define necessary infrastructure as part of waste collection contracts.

Water guidelines

The design of the Proposed Development will aim to minimise internal potable water consumption through the specification and installation of water efficient fittings and plumbing. Measures that will be considered as the design develops will include the following:

- **low and dual flush toilets** – limiting new toilet maximum flush volume to 6 litres.
- **waterless urinals** – waterless urinals could save significant amounts of water especially for non-domestic buildings with high occupancy rate. Having no flushing mechanism means that these systems can be easier to maintain and that the lack of water can reduce hygiene and odour concerns;
- **taps** – water efficient options will be considered such as spray, aerated, low flow self-closing and infrared controlled appliances, as well as the installation of flow restrictors;
- **bathing** - aerated and low flow showerheads will be considered. Installation of volume baths may also further contribute to reducing water consumption for this type of water use; and
- **white goods** - washing machines can vary from between 6 litres and 20 litres of water per kilogramme of washing and dishwashers can use as little as 10 litres of water per wash; therefore, where white goods are specified, low water consumption models would be considered, or provision of relevant information to future residents will be made, to explain the benefits of selecting low water use white goods.

In addition, residential and commercial buildings shall be fitted with water meters to encourage the reduction of water consumption by allowing metering, managing and monitoring of water usage.

Residential uses shall aim to meet a water consumption rate of 105 litres or less per person per day, a benchmark equivalent to a Code for Sustainable Homes Level 4 rating.

Where relevant, the Proposed Development will aim to minimise unregulated water demand for landscape irrigation through the consideration of implementing the following, where relevant:

- working with the existing natural vegetation;
- selecting drought-resistant plants;
- using water-retaining mulches;
- using automatic drip irrigation systems which are also cost-effective solutions that provide regular watering as required depending upon weather conditions and control and optimise the amount of water use through soil moisture sensors;
- designing closed system recycling water features, where these are included; and
- using rainwater harvesting techniques such as installing water butts to collect water from rainwater downpipe outlets to use on gardens.

The use of comprehensive rainwater reuse system will be considered by the designers during the later design development stages and its feasibility and practicality will be assessed. If deemed practical, rainwater could be collected from all suitable roofs and impermeable surfaces and stored for reuse. The rainwater harvesting system could be designed to water landscaping and top up water features, flush toilets, general cleaning and clothes washing.

For both the residential and commercial development, water conservation will be in accordance with the current core strategy policy (CS16) and will meet water conservation policy standards applicable at the time Reserved Matters applications are submitted.

APPENDIX A3

KP3 Indicative Sequencing

Appendix 3 KP3 Indicative Sequencing

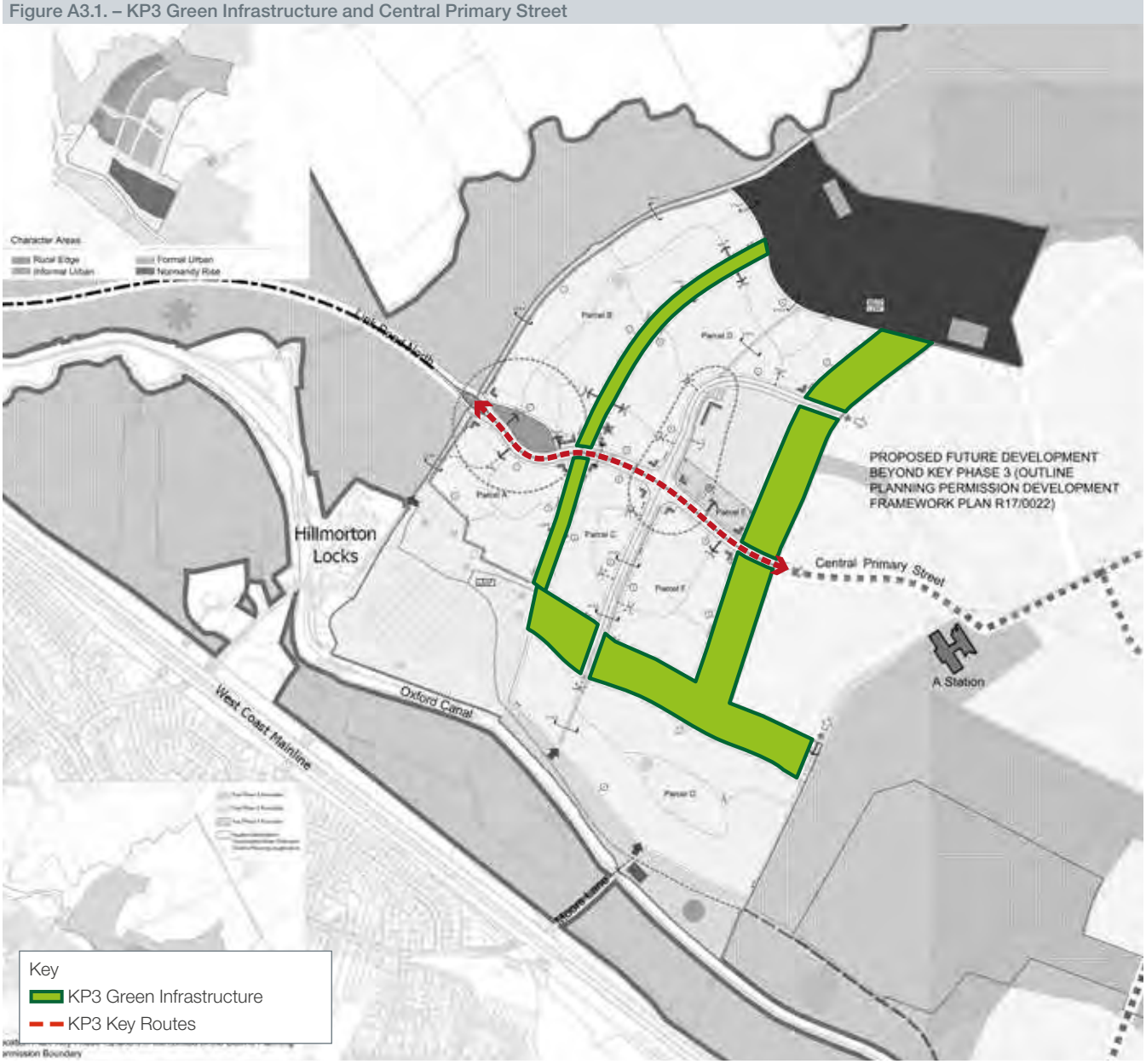
Indicative sequencing is illustrated in Figures A3.1, 2 & 3. The broad approach to sequencing is as follows, with further details listed below:

1. Green Infrastructure and the Central Primary Street are the first elements of KP3 to be progressed in line with the need to address ecological considerations including Great Creasted Newts.
2. The remaining Grey Infrastructure is the second element with the creation of secondary streets to provide access into through KP3.
3. Residential development parcels can then be progressed, with access from the CPS and secondary streets.
4. Mixed uses, a Primary Schooland the remaining areas of open space will be brought forward to support residential development.

KP3 Green Infrastructure and Central Primary Street:

- See diagram in Figure A3.1.
- The wildlife corridors will be the first component of KP3 to be implemented for ecological mitigation purposes to ensure early establishment of habitats for Great Crested Newts (GCN).
- The green infrastructure strategy will re-locate the GCNs temporarily into dedicated holding areas while the wider wildlife corridor network is constructed.
- The wildlife corridors permeate KP3 and provide public footpaths that will create a network of leisure routes through green spaces from KP3, connecting to similar networks within KP1 and KP2 to the south east.
- The CPS will be delivered to connect to the Link Road North and the remainder of the development area.

Figure A3.1. – KP3 Green Infrastructure and Central Primary Street



KP3 Remaining Grey Infrastructure and Residential:

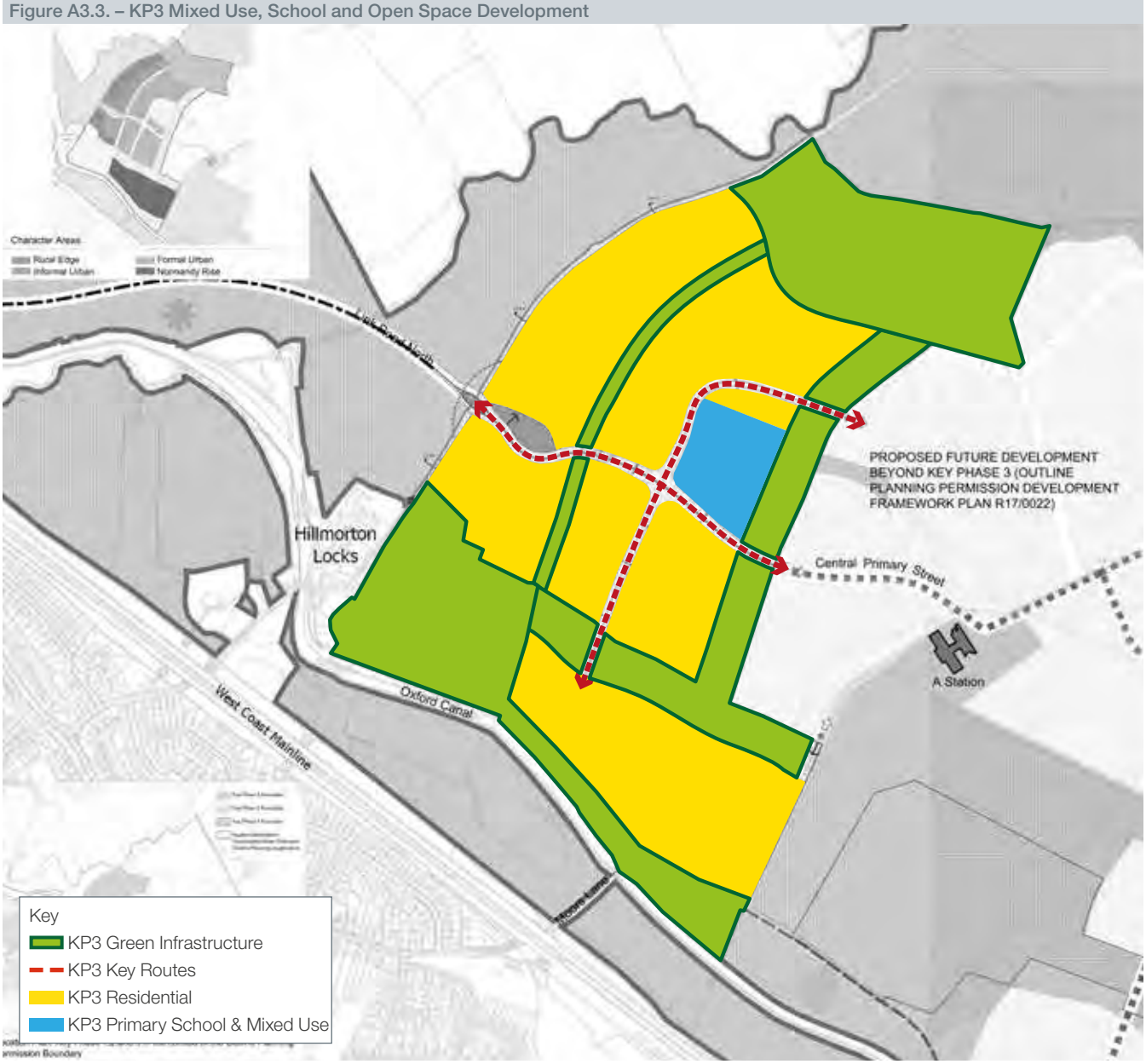
- See diagram in Figure A3.2.
- A grey infrastructure Reserved Matters applications will seek approval for the secondary streets connecting to the CPS, providing access into the residential parcels to the north and south.
- The grey infrastructure movement network will provide access to development parcels enabling the submission of residential Reserved Matters applications.
- Reserved Matters applications for residential development will be brought forward by the developers of individual parcels.
- Residential areas will incorporate pocket parks where identified on the Regulatory Plan.

Figure A3.2. – KP3 Remaining Grey Infrastructure and Residential

KP3 Mixed Use, School and Open Space Development:

- See diagram in Figure A3.3.
- Mixed uses and local / community facilities will be brought forward in the Local Centre within KP3.
- The Primary School will be brought forward north of the Local Centre, at the heart of KP3.
- The remainder of the Green Infrastructure, including the Formal Open Space and play areas will be delivered to provide facilities for local residents.

Figure A3.3. – KP3 Mixed Use, School and Open Space Development



APPENDIX A4

List of Figures