



LD&DESIGN

MONKERTON & HILL BARTON MASTERPLAN STUDY

NOVEMBER 2010



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FIGURE 1.1: SITE LOCATION

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FIGURE 1.2: AERIAL PHOTO WITH STUDY AREA BOUNDARY

1.0 INTRODUCTION

1.1 THE BACKGROUND

■ The current population of Exeter City is around 120,000 and, together with East Devon, it serves a population of almost 250,000.

Exeter Core Strategy Proposed Submission sets out the vision, objectives and strategy for the spatial development of the city up to 2026. The Core Strategy makes provision for 60 hectares of employment land, 12,000 dwellings and 40,000 square metres of net retail floorspace during this period. Monkerton and Hill Barton plays a fundamental strategic role in the delivery of this projected growth and has good opportunity to deliver homes early and contribute to a process of place-making which could build a new sustainable community on the eastern edge of Exeter. The development of this area is also vitally important to providing the infrastructure needed to deliver the Exeter Science Park and further strategic growth to the east of the M5.

The Monkerton and Hill Barton Masterplan was commissioned by Exeter City Council, Devon County Council, the Exeter and East Devon Growth Point Team, Highways Agency, Hill Barton Farm Consortium, Barratt Homes and Strategic Land Partnership in June 2009. The Masterplan has been prepared by LDA Design with support from Parsons Brinckerhoff (transport and infrastructure), GVA Grimley (property) and Gardiner and Theobald (cost and delivery).

1.2 THE STUDY AREA

The Study Area, illustrated in Figures 1.1 and 1.2, is located on the eastern edge of Exeter, around 4 miles from Exeter city centre and in close proximity to Junction29 of the M5 motorway. It sits between the main rail line to Waterloo to the north, the M5 to the east, the A3015/Honiton Road and Exeter-Exmouth rail line to the south and the City's outer bypass (the B3181) to the west.

Much of the study area comprises greenfield land, however it also includes a number of existing land-uses that need to be positively integrated into the Masterplan, including residential development, a Sainsbury superstore, St Luke's Secondary School and Exeter Business Park, including the headquarters of the Met Office.

The residential areas of Pinhoe and Whipton are adjacent to the study area to the north and west and the large industrial estate of Sowton to the south. Beyond the M5 to the east lies relatively undeveloped farmland. There are however major strategic development proposed for this area including the Exeter Science Park and the new community of Cranbrook (see Figure 2.1).

1.3 MASTERPLAN STATUS AND PROCESS

The Monkerton Masterplan will form an important part of the evidence base for the Core Strategy currently being prepared by Exeter City Council. It will also be important as a guide for future planning applications and in determining applications for the site.

The Masterplan has been prepared through a collaborative approach and overseen by a Steering Group comprising members of Exeter City Council, Devon County Council, Exeter and East Devon Growth Point Team, the Highways Agency and representatives of the Hill Barton Farm consortium and Barratt Homes.

3 Stakeholder workshops have underpinned and informed the preparation of the Masterplan. (See Appendix document for a summary of the workshops) These workshops were attended by a range of organisations and individuals with an interest in the area including the Council's, public bodies and landowners/agents. The first workshop established the vision and aims for the growth area that sets out the 'bigger picture' and describes the sort of place that the Monkerton/Hill Barton area should become in the future. The second workshop agreed the aims that came out of the first workshop and tested a number of development options that looked at where the centre/s should be focused. The third workshop allowed the design team to feed back progress to the stakeholder group and included an open time of discussion to help inform the completion of the draft Masterplan.

The draft Masterplan was then the subject of a six week public consultation exercise. A key part of the consultation was to seek public views on the potential for a Gypsy and Traveller site to be delivered within the Masterplan area. Following public consultation the Masterplan has been revised and the recommended location for a Gypsy and Traveller site shown.

The Masterplan has been approved for development management purposes and it is intended that the Masterplan be adopted by the City Council as a Supplementary Planning Document in due course.



FIGURE 2.1: PROPOSED GROWTH AREAS TO THE EAST OF EXETER



- 1. EXETER SCIENCE PARK
- 2. INTERMODAL FREIGHT TERMINAL
- 3. SKY PARK
- 4. AIRPORT TERMINAL
- 5. CRANBROOK NEW TOWN

2.0

THE CONTEXT

2.1 POLICY CONTEXT

■■■■■ The future development of the Monkerton/Hill Barton area will need to respond to regional and national government objectives along with current and emerging national, regional and local policy requirements.

NATIONAL CONTEXT

National Planning Policy

Below is a summary of the key national planning policies that need to be considered in the growth of Monkerton/Hill Barton.

PPS1 Delivering Sustainable Development

PPS1 (2005) sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system. The principles set out in PPS1 (and PPS Planning and Climate Change – supplement to PPS1) complement and inform all other PPS documents and need be consulted when considering other aspects of national planning policy. The Government believes that climate change is the greatest long term challenge facing the world today. Addressing climate change is therefore the Government's principal concern for sustainable development. The Planning White Paper '**Planning for a Sustainable Future (2007)**' has emphasised the fundamental importance of planning in delivering sustainable development in a changing global context.

PPS1 and its climate change supplement state that the planning system should support the delivery timetable for reducing carbon emissions to zero for new homes by 2016 as set out in the '**Building a Greener Future: Towards Zero Carbon Development**' policy statement (2007). It is proposed to achieve this in three steps: moving first, in 2010 to a 25% improvement in the energy/carbon performance set in building regulations; then second, in 2013, to a 44% improvement; then, finally, in 2016, to zero carbon. Zero carbon means that, over a year, the net carbon emissions from energy use in the home would be zero.. These requirements are well within the delivery timetable for the development of Monkerton/Hill Barton and will be an important consideration in the design of housing and their delivery.

PPS3 Housing

PPS3 Housing (June 2010) sets out the approach to planning for housing and the roles of regional planning bodies and local planning authorities in delivering the Government's housing objectives.

The principal aim of PPS3 is to underpin the Government's positive response to the challenge of housing supply. It seeks to make planning more responsive to the housing market to ensure the delivery of the right quantity, variety and choice of housing to meet the needs and demands of an area, thereby ensuring that communities are sustainable, mixed and inclusive. To achieve this, the statement puts forward five key housing policy objectives, as follows:

- high quality housing that is well-designed and built to a high standard;
- a mix of housing, both market and affordable, particularly in terms of tenure and price, to support a wide variety of households in all areas, both urban and rural;
- a sufficient quantity of housing taking into account need and demand and seeking to improve choice;
- housing developments in suitable locations, which offer a good range of community facilities and with good access to jobs, key services and infrastructure;
- a flexible, responsive supply of land – managed in a way that makes efficient and effective use of land, including re-use of previously developed land, where appropriate.

Another key objective of PPS3 is to achieve high quality housing. The document states that good design is fundamental to the development of high quality new housing and that design which is inappropriate in its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions, should not be accepted. Local planning Authorities are to encourage applicants to bring forward sustainable and environmentally friendly new housing developments that reflect the approach outlined in PPS on climate change and the Code for Sustainable Homes.

The development of Monkerton needs not only to ensure that the required housing numbers are delivered, but that the housing provision meets the current and future needs of the local population. Affordability is therefore a key issue.

PPS4: Planning for Sustainable Economic Growth

PPS4 sets out the Government’s key planning policies relating to the economy in both urban and rural areas. PPS4 emphasises government priority for sustainable economic growth and the need for Local Planning Authorities to take a positive approach to identifying sites, and determining applications. It also is clear that proposals which fail to adopt a sequential approach, or which would have a ‘significant’ impact, should be refused. The statement recognises the importance of shops and services in local centres and directs main town centre uses towards existing centres.

The statement covers a range of policy objectives and agendas: climate change; social inclusion; accessibility and inclusive design all feature alongside the need for an efficient, competitive and innovative retail and leisure sector.

The policy statement sets out two tests for development proposals; the sequential approach and the impact test. The Guidance is supportive of new development, but requires that edge or out of centre proposals including ‘town centre’ uses are properly supported by sequential site assessments, and a thorough assessment of impact.

PPS5: Planning for the Historic Environment

PPS5 sets out the Government’s planning policies on the conservation of the historic environment. This is supported by a Practice Guide to assist local authorities, owners, applicants and other interested parties in its interpretation and implementation. The new PPS 5 replaces PPGs 15 and 16, that dealt separately with the built environment and archaeology. Bringing these together into one policy statement provides an integrated approach to the historical environment both above and below ground.

The Government’s over-arching aim is that the historic environment and its heritage assets should be conserved and enjoyed for the quality of life they bring to this and future generations. The Policy Statement introduces a ‘values’ approach to inform decision-making which focuses on what is significant in a ‘heritage asset’ to determine the impact of a proposed development. It encourages a constructive approach to conservation and highlights the importance of the historic environment in place-making and sustainable development.

The PPS establishes the responsibilities and requirements on developers/ applicants and the Local Planning Authority to identify and assess the particular significance of any element of the historic environment that may be affected by proposed development.

The Masterplan should ensure that areas of historic and archaeological importance and value are protected and positively integrated into design wherever possible.

PPS9 Biodiversity and Geological Conservation

PPS9 (2005) and its associated Circular 06/05 highlight the importance of preserving biodiversity and geological conservation interests and what measures should be put in place to manage development that interacts with these interests.

PPS4 is clear that development that would significantly harm areas of biodiversity interest should not be permitted unless the development cannot reasonably be located on any alternative sites that would result in less or no harm, that adequate mitigation measures are put in place to reduce negative impacts and that appropriate compensation measures are sought. The document highlights the importance of maintaining networks of natural habitats as they can link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. The PPS states that development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design which can preserve and enhance these natural habitat networks and connections.

PPG13 Transport

PPG13 (2001) sets out the Government’s objectives to integrate planning and transport at the national, regional, strategic and local level and to promote more sustainable transport choices both for carrying people and for moving freight. It also aims to promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling and to reduce the need to travel, especially by car. To deliver these objectives, the guidance says that local planning authorities should actively manage the pattern of urban growth, locate facilities to improve accessibility on foot and cycle. Land use planning has a key role in delivering the Governments integrated transport strategy. By shaping the pattern of development and influencing the location, scale, density, design and mix of land uses, planning can help to reduce the need to travel, reduce the length of journeys and make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking, and cycling.

PPG17: Planning for Open Space, Sport and Recreation

PPG17 highlights the importance of leisure provision in underpinning people’s quality of life. Open Space, Sport and Recreation is fundamental to delivering broader Government objectives. These include:

- **supporting an urban renaissance** - local networks of high quality and well managed and maintained open spaces, sports and recreational facilities help create urban environments that are attractive, clean and safe. Green spaces in urban areas perform vital functions as areas for nature conservation and biodiversity and by acting as ‘green lungs’ can assist in meeting objectives to improve air quality;
- **promotion of social inclusion and community cohesion** - well planned and maintained open spaces and good quality sports and recreational facilities can play a major part in improving people’s sense of well being in the place they live. As a focal point for community activities, they can bring together members of deprived communities and provide opportunities for people for social interaction;
- **health and well being** - open spaces, sports and recreational facilities have a vital role to play in promoting healthy living and preventing illness, and in the social development of children of all ages through play, sporting activities and interaction with others;
- **promoting more sustainable development** - by ensuring that open space, sports and recreational facilities (particularly in urban areas) are easily accessible by walking and cycling and that more heavily used or intensive sports and recreational facilities are planned for locations well served by public transport.

PPG24: Planning and Noise

PPG 24 outlines the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities which generate noise. It explains the concept of noise exposure categories for residential development and recommends appropriate levels for exposure to different sources of noise.

It also advises on the use of conditions to minimise the impact of noise. The Study Area is immediately adjacent to the M5, railway lines, other strategic roads and is under a flight path. Guidance within PPG24 will be needed to assess and deal with noise issues relating to this.

PPS25: Development and Flood Risk

PPS25 sets out Government policy on development and flood risk. It’s aims are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas of highest risk.

ODPM Circular 01/2006 Planning for Gypsy and Traveller Caravan Sites

This Circular provides updated guidance on the planning aspects of finding sites for gypsies and travellers and how local authorities and gypsies and travellers can work together to achieve that aim. The circular has a range of intentions including to create and support sustainable, respectful, and inclusive communities where gypsies and travellers have fair access to suitable accommodation, education, health and welfare provision; where there is mutual respect and consideration between all communities for the rights and responsibilities of each community and individual; and where there is respect between individuals and communities towards the environments in which they live and work. It also seeks to increase significantly the number of gypsy and traveller sites in appropriate locations with planning permission in order to address under-provision over the next 3 – 5 years. There is a need to provide new Gypsy/traveller sites within Exeter and Monkerton/Hill Barton provides the opportunity to achieve this. The guidance in this circular needs to inform the positioning of this site.

REGIONAL CONTEXT

The Draft Regional Spatial Strategy (RSS)

The RSS has been revoked.

LOCAL CONTEXT

Devon Structure Plan 2001-2016 (adopted October 2004)

Under the provisions of the Planning and Compulsory Purchase Act 2004 the majority of policies of the adopted Devon Structure Plan have been saved. These include policies giving overall strategic direction, dealing with infrastructure provision and guides that the principal urban areas are to be the primary focus for strategic development. Policy ST10 sets out the key priorities for Exeter over the plan period and these are: developing and diversifying the economy, particularly to the east of Exeter; providing for a significant scale of additional housing; and improving local transport networks. It also deals with levels of Housing and employment growth and requires, inter alia, the provision of 6,700 dwellings and

85 Ha of employment land within Exeter in the period 2001 to 2016 and defines broad Landscape Character Zones. There are a number of policies in the Structure Plan that give guidance on transport and travel and sets out a transport strategy and hierarchy of transport modes.

Gypsy and Traveller Accommodation Assessment (GTAA)

As required by government, the City Council has participated in a County wide Gypsy and Traveller Accommodation Assessment (GTAA). Recent advice from central government is that following abolition of the Regional Spatial Strategies Local Councils will be best placed to assess the needs of travellers and that the GTAA is a good starting point for determining requirements. The Devon wide GTAA concluded that there is a need to provide 12 residential pitches in Exeter up to 2011. A further 13 residential pitches may also be needed by 2026 in view of national estimates of likely growth in the number of gypsy households. Following the examination in public the RSS panel recommended that 5 transit pitches will also be needed in the City.

New growth at Monkerton and Hill Barton provides the opportunity to deliver a residential site in a position that takes into account the needs of gypsies and travellers and the interests of local residents and other occupiers of land.

Adopted Exeter Local Plan First Review 1995-2011 (2005), Exeter City Council

Until the Core strategy is completed the adopted Exeter Local Plan still provides the basis for land-use planning and the assessment of planning applications in the City. The Local Plan, adopted in 2005, sets out the land use policies and proposals for the plan period to 2011. The Plan sets out a range of objectives and policies on housing, employment, landscape setting and nature conservation, environment and design guidance all of which need to be considered in developing proposals for growth.

Apart from some potential for employment growth, The Monkerton/Hill Barton area was not identified within the local plan as a growth area. The emerging RSS has however led to a review of how the city should grow which has formed part of the emerging LDF Core Strategy.

Emerging Exeter LDF Core Strategy

Exeter City Council is currently preparing the LDF Core Strategy. An Issues and Options Report was prepared in 2005 followed by the Core Strategy Preferred Options Report (October 2006) which set out guidance on the spatial development of the City up to 2021. This report identified the need to develop greenfield land to the east of Exeter’s outer bypass, including the Monkerton/Hill Barton area.

The ‘Exeter Core Strategy Plans for the Growth of Exeter’ (Consultation Documents October 2009) was a further stage of consultation in the preparation of the new development plan for Exeter. It sought views on matters that had arisen since the earlier report including: extension of the plan period to 2026 in order to respond to guidance and development requirements set out in the RSS; advice in the RSS that more houses should be built in Exeter up to 2026 than previously envisaged; and new government guidance on Core Strategies. The report identifies the areas to be allocated as strategic sites, and provides a broad outline of the infrastructure that will be needed to deliver the level of growth now proposed.

The Exeter Core Strategy Proposed Submission was subject to pre submission representation in July and August 2010. This identifies that the Monkerton/Hill Barton area needs to accommodate around 2,500 dwellings and about 5 hectares of employment land set within a green infrastructure framework.

MASTERPLANNING AND MOVEMENT

In addition to some of the high level policies and drivers that are increasingly shaping the way we plan for and grow our settlements, over the past decade there have been major developments in masterplanning and design. One area of change in masterplanning in recent years is a far closer integration of urban design and transport planning. The change of emphasis is evident in a range of guidance documents that have been issued by bodies such as the Commission for Architecture and the Built Environment, Department for Communities and Local Government and the Department for Transport.

The greatest change of emphasis has been a move away from an approach which seeks to plan for the car towards planning for walking, cycling and public transport, in that order. Although there is still a case to be made for major highways schemes, in general there has been a move away from the idea of single-purpose roads in urban areas back to the idea of streets which are integrated with development. There are many examples of guidance on this issue from ‘Better Places to Live’ (Cabe 2004) to ‘A Manual for Streets’ (DfT 2006). Masterplanning is increasingly focused on the creation of flexible frameworks that can guide change and accommodate anticipated traffic movements allied to design codes which set out the ‘rules’ that should be followed in implementing a masterplan over a long timeframe.

2.2 LANDSCAPE

WIDER CONTEXT

Monkerton/Hill Barton is located on the eastern edge of Exeter. The area is situated on 'Lower Rolling Farmland and Settled Slopes', as described in 'East Devon and Blackdown Hills Areas of Outstanding Natural Beauty and East Devon District Landscape and Management Guidelines. (Draft), February 2008. The site itself is elevated and straddles an east-west running ridgeline.

The City Wide Plan (figure 2.2 adjacent) conceives Exeter as a compact city with a clear distinction between the urban area and the countryside within which it sits.

Its key elements are defined as:

- The ridgelines that define the city to the north, west and south;
- The Exe Valley and the associated valley parks and linkages that help to structure the city and provide routes to the coast and countryside;
- The Clyst Valley, associated biodiversity reserves and linkages that provide connections between the settlements to the east of Exeter to the city;
- The network of routes allowing for easy sustainable accessibility between the urban area of Exeter and the surrounding countryside and, in particular the 'satellite' compact settlements;
- The high quality countryside within which the compact settlements sit; and
- Sustainable accessibility between the compact settlements and the countryside within which they sit.

The study area is located within the Exeter area with the Clyst Meadows to the east and countryside and compact settlements beyond.

Although the site sits on a ridgeline it is not critical to defining the wider setting of Exeter and well conceived development will not compromise the wider landscape setting or character of the city. North facing slopes form part of the local setting of Pinhoe whilst south and south east facing slopes relate to the south of the city and the Clyst Valley. Development will need to respond positively to its elevated position and to defining the eastern edge of the City and how it links to satellite settlements to the east.

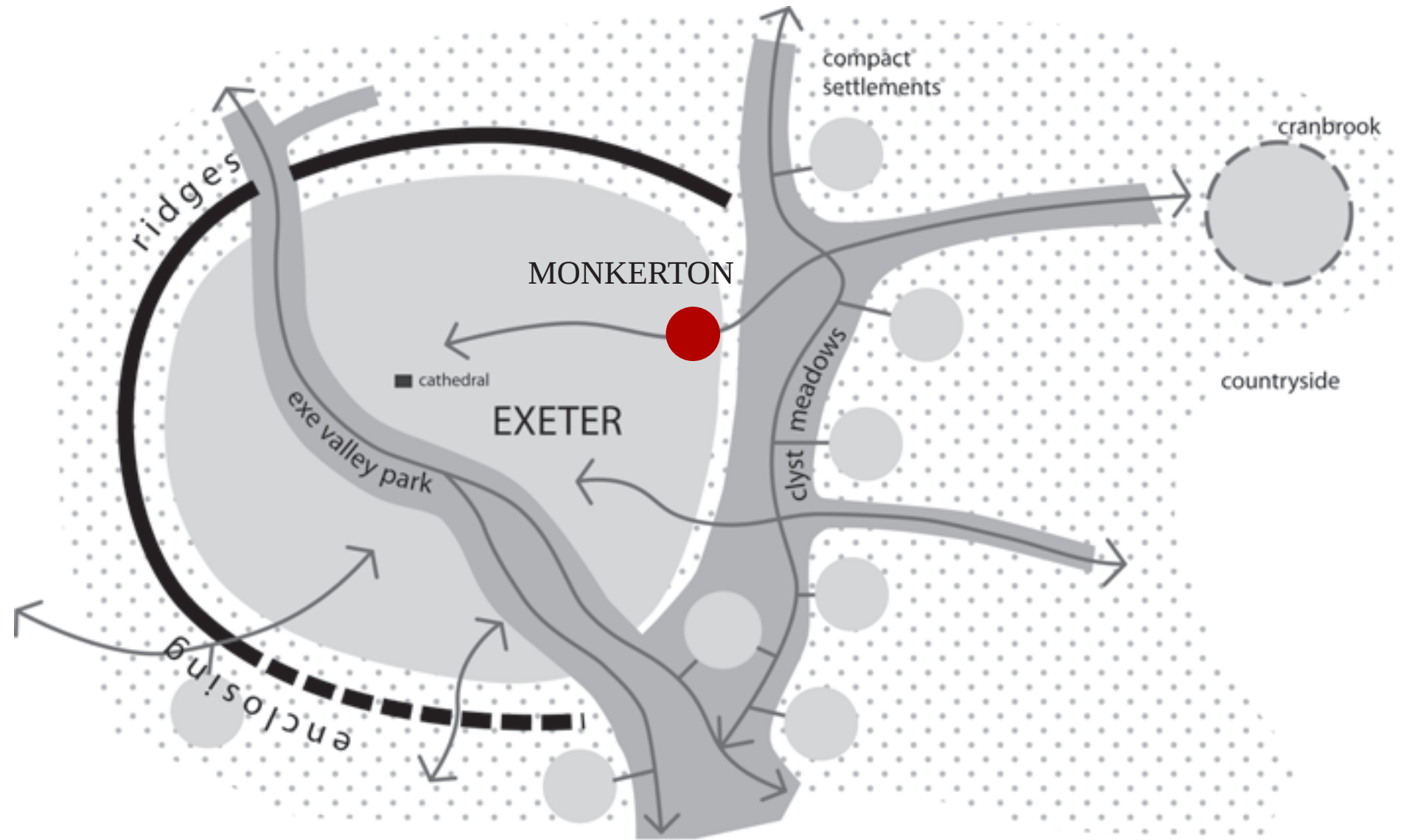


FIGURE 2.2: CITY WIDE SPATIAL PLAN

CHARACTER

Responding to existing topography, aspect, landscape character, patterns and features is a fundamental element to creating places that reinforce local identity and that maintain cultural and ecological qualities despite significant change. Even if an area is to be substantially changed through development there will be attributes that should inspire or guide the nature of that change and create a richer environment.

Topography is a strongly defining element within the study area (as displayed in figures 2.3 and 2.4) and fundamental in shaping the varying characters within the landscape. In broad terms, an east-west ridgeline divides the study area in two. North facing slopes extend down to Pin Brook and relate strongly to Pinhoe and Monkerton. To the south of the ridge the landscape slopes to the south and south-east, relating more strongly to the Clyst Valley and Exeter Business Park/Sowton/Middlemoor.

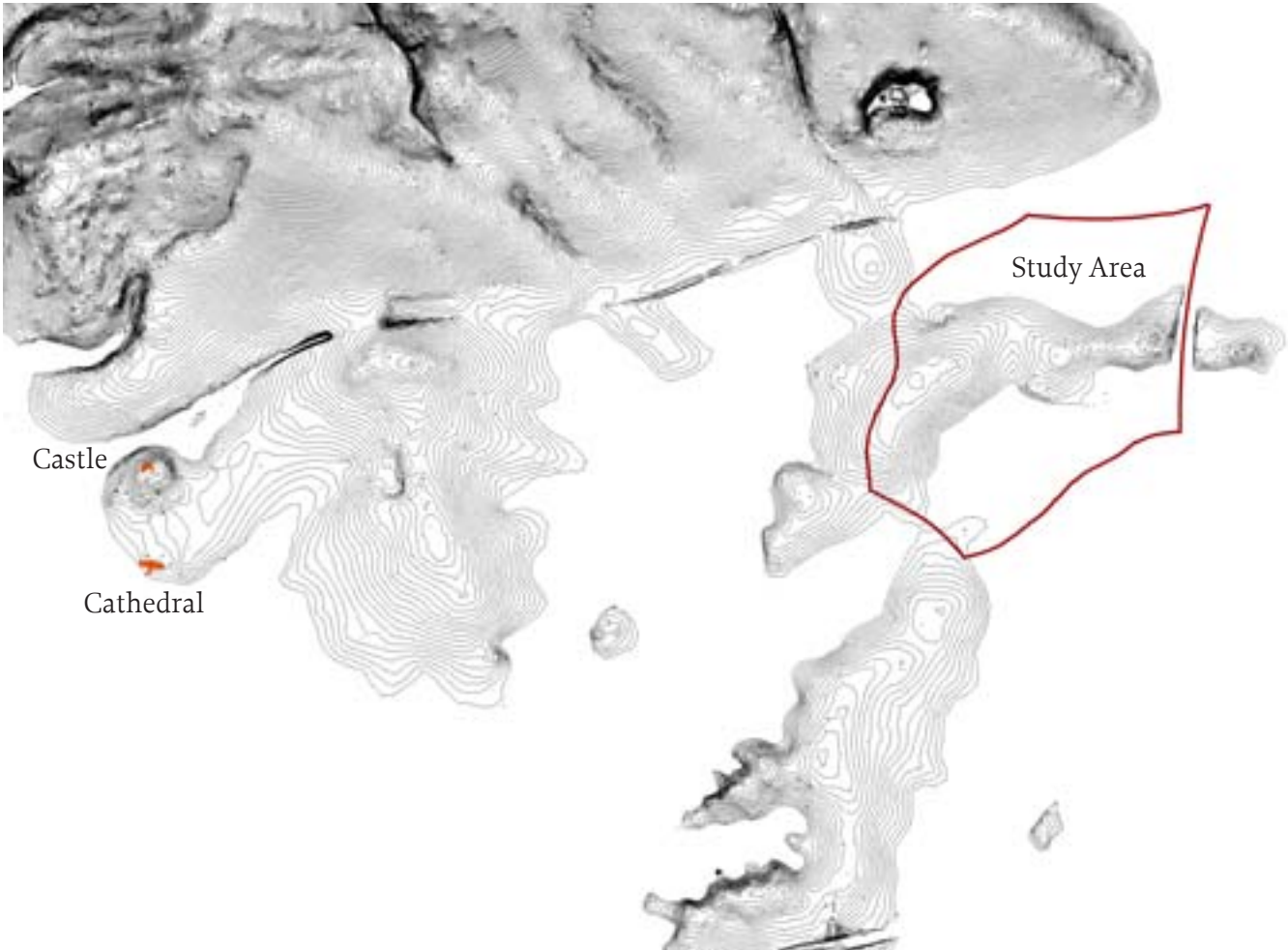


FIGURE 2.3: TOPOGRAPHY PLAN – CONTOUR LINES ABOVE 40 AOD ILLUSTRATING THE SIGNIFICANCE OF THE RIDGELINE IN THE WIDER SETTING OF EXETER



FIGURE 2.4: SITE TOPOGRAPHY

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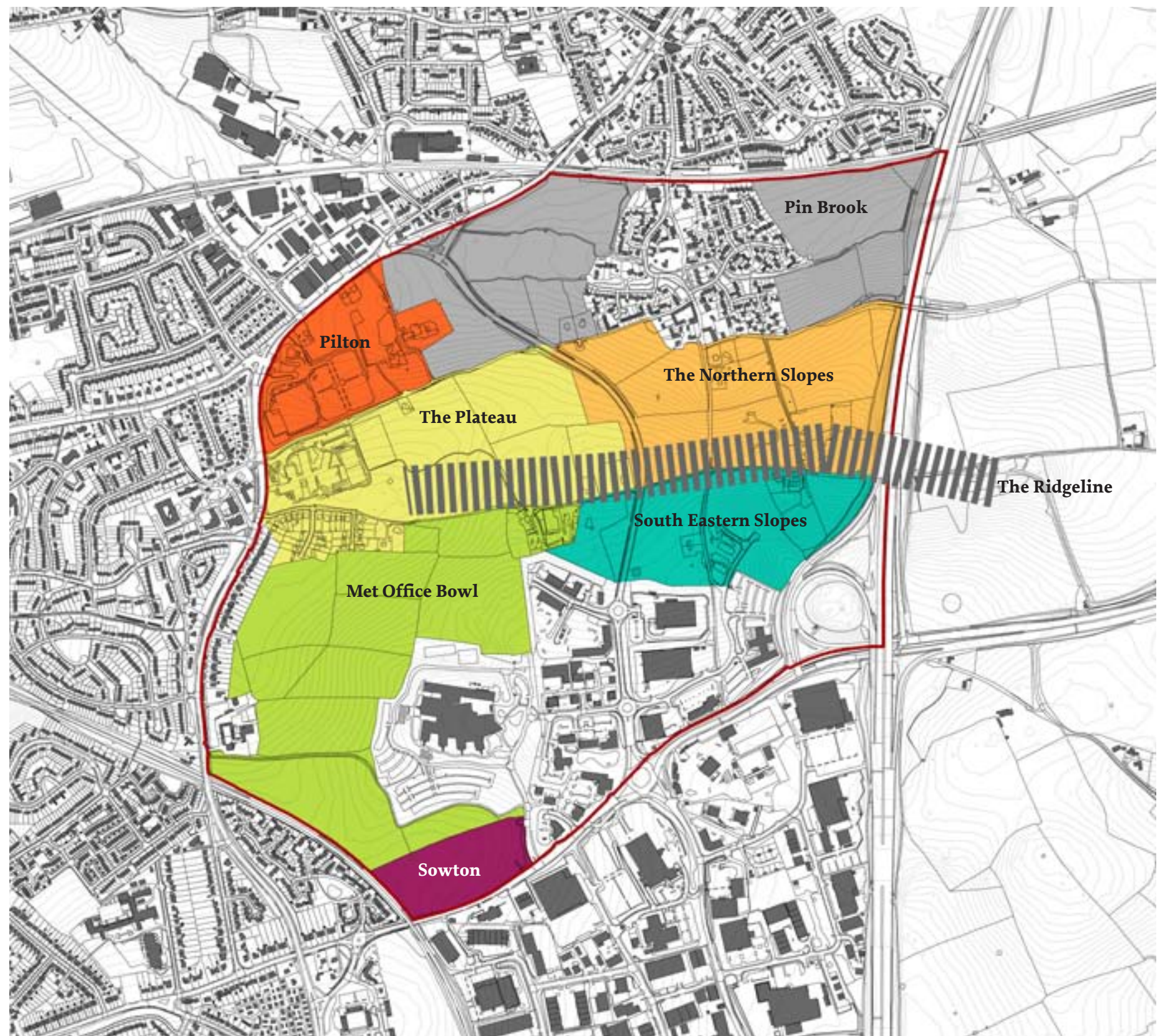


FIGURE 2.5: SITE CHARACTER AREAS

The landscape can be divided into 7 distinct character areas which are shown in figure 2.5 and summarised below.

- 1. The Plateau** - Flat to gently sloping elevated land comprising school sports pitches and medium scale fields bounded by hedgerows/hedgebanks. Generally open character with panoramic views.
- 2. The Met Office Bowl** – The Met Office has been developed in a distinctive bowl shaped landform, creating a strongly defined setting to the building. Minor valleys create a subtle rolling landform within the bowl. Fields are relatively large and the upper slopes have an open feel with extensive views to the south and east. The area becomes slightly more enclosed on lower slopes where landform and tree planting create greater containment.
- 3. The Northern Slopes** - north facing valley slopes extending between the ridgeline and Monkerton, comprising predominantly small-medium pasture/semi-improved grassland fields. The area generally has a rural and semi-enclosed character with a high proportion of mature hedgerows and trees. Mature parkland planting associated with the Gypsy Hill Hotel is a notable landscape feature. Noise and traffic associated with the Motorway and Cumberland Way impacts upon the tranquillity of the area.
- 4. The South Eastern Slopes** - south facing slopes with a gentle slope in the western part of the area becoming more steep to the east. This area strongly relates to Exeter Business Park and the M5/Junction 29.
- 5. Pin Brook** - lower slopes of the Pin Brook valley. To the east of Monkerton this area is relatively open with gently sloping medium-large fields of grassland/pasture and a mix of well cut and treelined/scrubby hedgerows and tree planting on the M5 embankments. A number of mature specimen trees and tree planting associated with the M5 embankment gives this area an almost Parkland character. To the west of Monkerton this area has a more semi-enclosed character with smaller fields and mature treelined hedgerows. The area is influenced by noise and traffic on the M5 and Cumberland Way and relates strongly to development at Pinhoe and Monkerton.
- 6. Pilton** - lower lying area with an enclosed and disparate character with a mix of uses that lacks cohesion. Pilton Lane and house have a strong rural and intimate character with a strong landscape structure. Sainsbury Supermarket is located within the western part of the site, enclosed and contained within buffer tree planting.
- 7. Sowton** - small character area comprising one large south/southwest facing arable field that relates strongly to the A3015 corridor and the Sowton Industrial Estate rather than the rest of the study area.

The Monkerton Ridgeline - overlaying these character areas is the distinctive east-west ridgeline that divides the study area in two and continues to the east of the M5 through the proposed Exeter Science Park. This is a unifying element although varies in its character along its length. The ridgeline in the east of the area is strongly defined and wooded. It becomes less defined to the west, opening out into the plateau.



The Plateau



Met Office Bowl



Northern Slopes



South Eastern Slopes



Pin Brook



Pilton



Sowton

The varying character of each of these areas provide a guide to how each part of the study area should be developed in order to create a distinctive and diverse development that responds to the areas unique location and character.

A successful response to character will include:

- i. Retaining and positively incorporating elements that define the character and identity of the area. This includes:
 - a. emphasising the Monkerton Ridgeline through the study area and its continuation into the adjacent landscape. The ridgeline should read as a unifying element through the area although should respond to the varying character areas that it passes through;
 - b. retaining and positively integrating the sunken green lanes as a unifying network within development;
 - c. retaining and enhancing the integrity of Pin Brook;
 - d. positively incorporating mature trees and hedgerows/hedgebanks as a part of development or green infrastructure, helping to create a permanence and richness to the environment.
2. Careful consideration and positive response to the conditions found in each character area including slope, aspect, microclimate, vegetation, landscape features, enclosure and tranquillity/noise.
3. Ensuring form, massing, heights and design of development relate and respond to key views and vistas into and out of the area, strengthening the way that development and Exeter is seen to relate to its wider setting and context. (see Section 2.3).
4. Drawing inspiration from the surrounding landscape and setting in developing a colour, textures, pattern and material palette for development and the public realm.

2.3 VIEWS

The Monkerton and Hill Barton study area occupies an elevated and prominent position along an east-west ridgeline which extends from the eastern edge of Exeter. Generally, the ridgeline divides the study area into north facing valley sides, which offer extensive views over Monkerton, Pinhoe and landscape to the north, and south/southeast facing valley sides which offer extensive views of the Clyst Valley, Exe Estuary, Exeter Business Park, Sowton Industrial Estate and distant landscape to the south and east of Exeter.

The prominence and aspect of the ridgeline makes the study area visible in views from surrounding areas. Northern slopes of the site are clearly visible from the north and forms part of the visual setting of Pinhoe. Views from the south are limited by existing development at Sowton Industrial Estate and seen in the context of existing business development. The ridgeline does form part of the skyline within many southerly views.

Views from the west are typically limited because of the built up area of Exeter’s suburbs. From the east the site is seen within the context of existing development and close views are limited by the low lying landform of the Clyst Valley. The eastern part of the site is however clearly visible from the M5. The site is seen in the wider context of Exeter in more distant views from the southeast

The study area is usually viewed within the context of either existing residential areas of east Exeter, Pinhoe or the larger buildings within Sowton Industrial Estate and Exeter Business Park. Therefore the majority of the site is not particularly sensitive in visual terms. The ridgeline often appears in views of the site and either forms part of a distinctive skyline or appears as a landscape feature defined by the distinctive mature vegetation along the top of the ridge.

The design response will need to take account of this landscape feature, any development on the ridgeline will need to reflect and build on the strong aspects of the existing landscape structure.

The photographs on the following pages represent some of the key views of the site from surrounding areas, their locations are referenced on the adjacent plan (Figure 2.6).

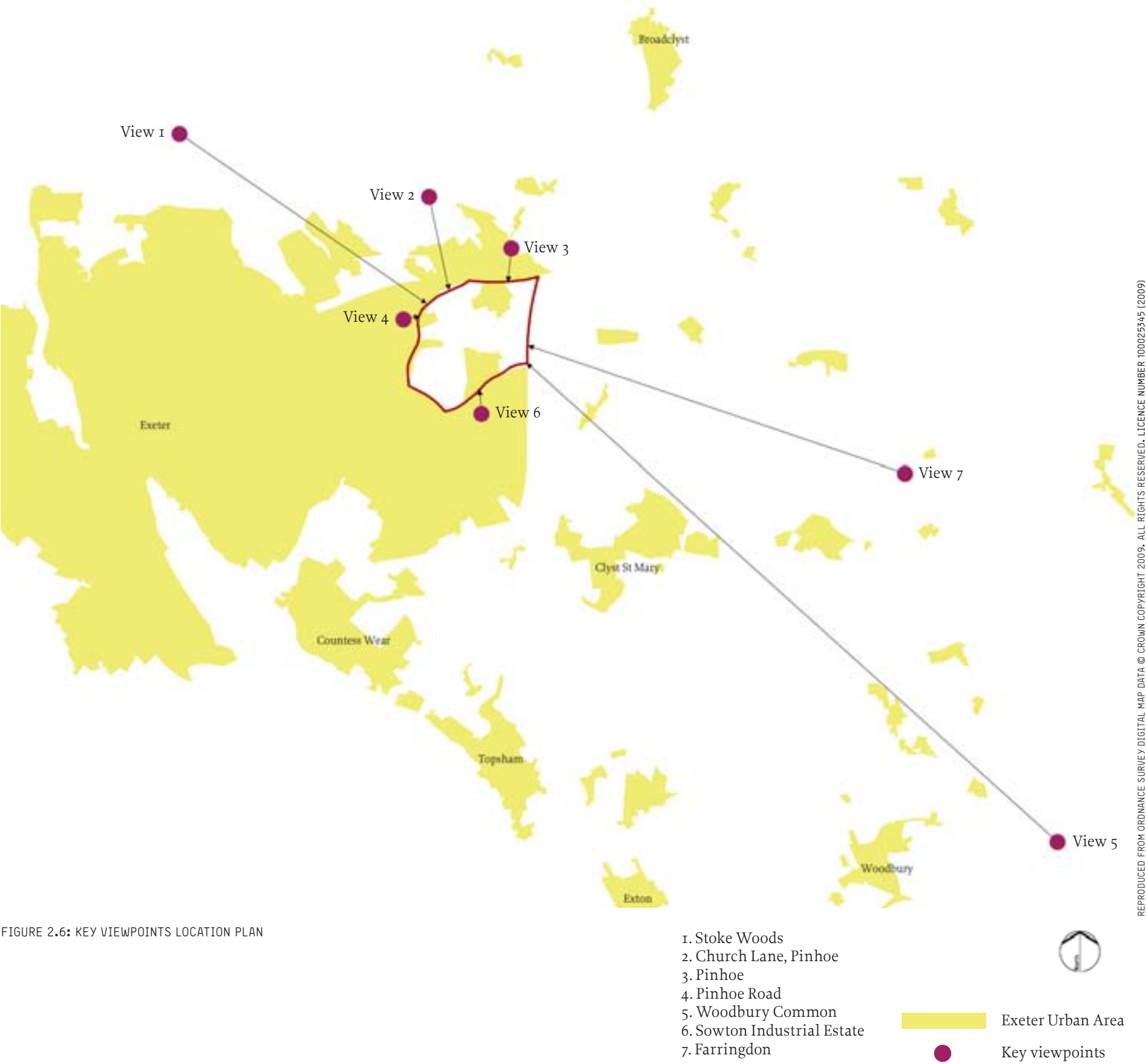


FIGURE 2.6: KEY VIEWPOINTS LOCATION PLAN



View 1. Stoke Woods

The study area forms an intermediate ridgeline behind development and extends eastwards into what appears to be open countryside due to Pinhoe and Monkerton being partially hidden by undulating landform. The landscape structure along the top of the ridgeline forms a relatively significant landscape feature in this view.



View 2. Church Lane, Pinhoe

Pinhoe and Monkerton are partially hidden by undulating landform in this view from Church Lane. As a result the study area appears to extend beyond the existing limits of Exeter, into what is currently a predominantly rural view. The ridgeline and north facing valley sides are prominent from south facing slopes above Pinhoe and form part of its landscape setting.



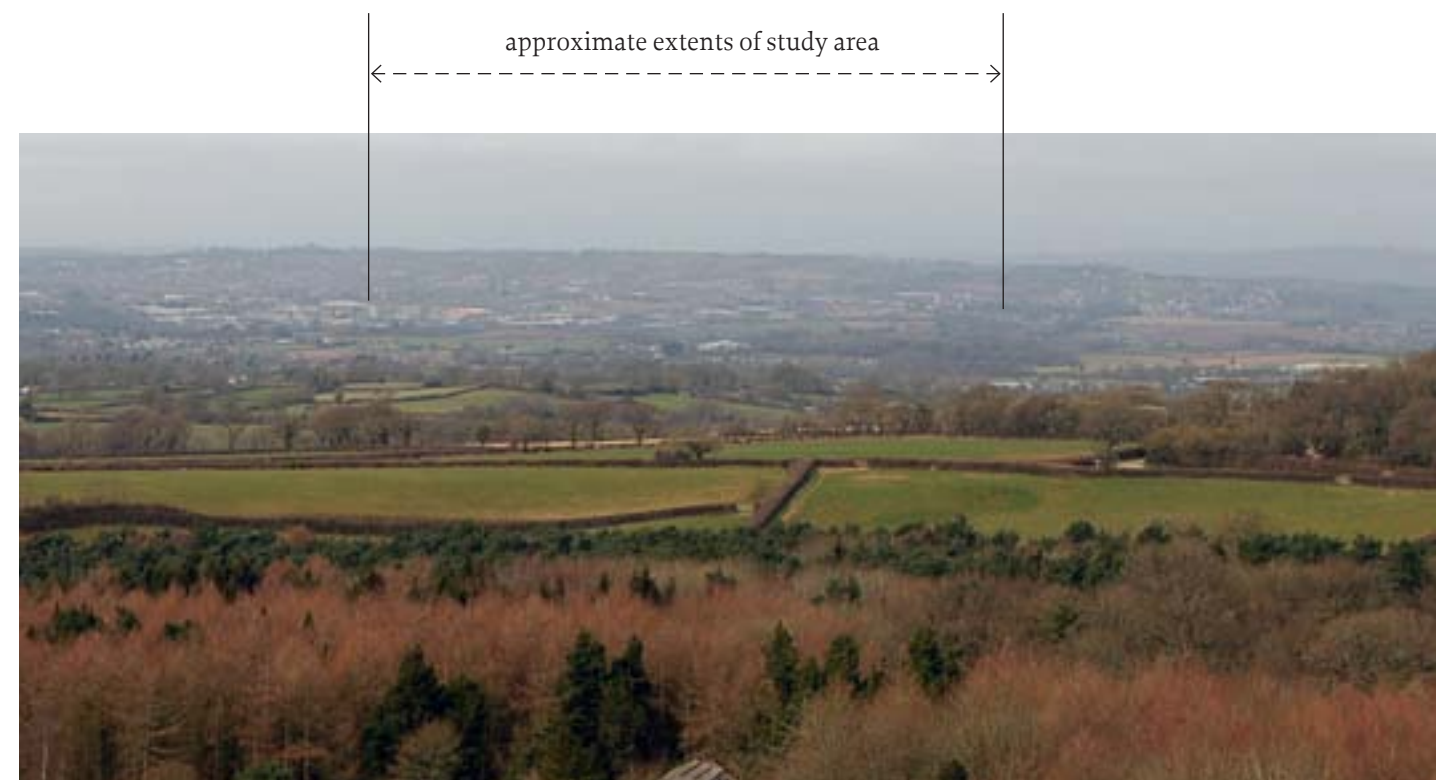
View 3. Pinhoe

This view clearly shows the prominence of the ridgeline in views from existing residential parts of Pinhoe.



View 4. Pinhoe Road

This view is taken from Pinhoe Road looking towards Pilton and the entrance to Sainsbury. The view displays the lack of cohesion and identity in the area, which lies at the junction of several strategically important connections.



View 5. Woodbury Common

Distant views of the study area are possible from Woodbury Common. Views from this direction show how the study area sits within the context of existing development in the east of Exeter, including the Exeter Business Park, Sowton Industrial Estate and Pinhoe.

Cumberland Way

Gypsy Hill Hotel

Exeter Science Park site



View 6. Sowton Industrial Estate

Views from Sowton Industrial Estate are limited due to large buildings in the area and the mature vegetation along road corridors. Where views are possible the ridgeline forms part of the skyline, this views clearly displays the existing landscape structure of the ridgeline.



View 7. Farringdon

Views from this direction show how the study area sits within the context of existing development in the east of Exeter, including the Exeter Business Park, Sowton Industrial Estate and Pinhoe. The top of the ridgeline and south facing valley sides above Exeter Business Park are particularly noticeable.

2.4 EXISTING VEGETATION

The majority of the study area comprises a mix of arable and pasture fields. To the south of the ridge many of the fields are arable whilst to the north there is a higher proportion of pasture and semi-improved grassland, particularly associated with Pin Brook.

There are two notable areas of amenity grassland managed for formal recreation at St Luke's School and Pinhoe Station Road Playing Fields.

Buffer tree planting is a feature of the area, evident around Sainsbury Supermarket, the Met Office and large building plots in Exeter Business Park. A linear band of tree planting is also evident along the Motorway embankments.

There is a network of hedgerows and hedgebanks across the study area, many of which have historic importance and act as biodiversity corridors. Historic routeways along Hollow Lane, Gypsy Hill Lane and Harts Lane are enclosed within distinctive high hedgebanks. Hedgerows/hedgebanks vary in their landscape amenity value with some well cut whilst others are prominent and lined with mature trees. The area around Monkerton, Gypsy Hill and Sandrock Nursery has a high proportion of mature hedgerow trees creating a more enclosed environment. Semi-natural broadleaved woodland planting is also evident along the Pin Brook to the west of Monkerton creating a strong landscape structure.

The implications and principles of existing vegetation for the Masterplan include:

- as far as possible retaining, protecting and positively incorporating hedgerows and hedgebanks into development - in particular those with a high proportion of mature, healthy trees to give a richness and permanence to the environment. If possible these should be retained within the public realm to ensure their on-going protection and maintenance, however, recognising that this is not always possible;
- respecting and retaining the more wooded, intimate, smaller scale character of the landscape around Gypsy Hill/Nursery site/south Monkerton;
- retaining areas of mature trees, strong landscape structure and riparian character along the Pin Brook;
- ensuring appropriate arboricultural/vegetation surveys are undertaken at the more detailed level of design and to ensure the findings are positively incorporated into the development.

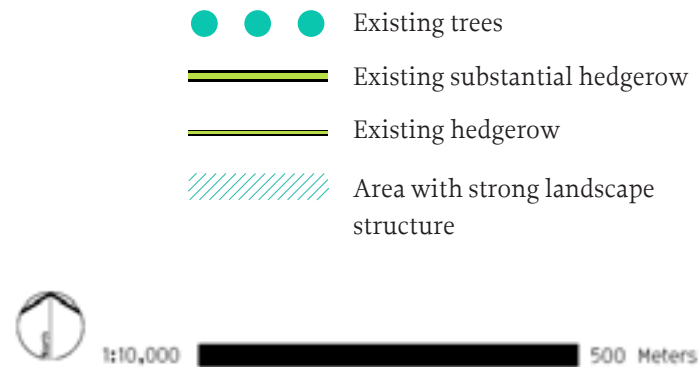


FIGURE 2.7: EXISTING VEGETATION

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2.5 AGRICULTURAL LAND AND GROUND CONDITIONS

AGRICULTURAL LAND

Figure 2.8 illustrates the Agricultural Land Classification (ALC) for the study area. ALC provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system.

Much of the western half of the study area, around Hill Barton, St Lukes School and Pilton is Grade 1, excellent agricultural land. Fields around Monkerton are also generally Grade 1 with some pockets of 3b. (moderate quality agricultural land.) Land to the west of Monkerton adjacent to Pin Brook is identified as Grade 3a (good quality agricultural land). The southeastern part of the study area is a mix of Grade 2 (very good quality agricultural land) and Grade 3b.

The need for housing, employment, retail and community facilities will mean that the majority of the study area will be developed and there will be little opportunity to protect valuable farmland. The ALC can however be useful in allowing allotments, community gardens and any other productive landscape associated with development to be located on the best quality soil.

GROUND CONDITIONS

There are no recorded historic or current landfill sites within the study area and there is no history of mining, mineral extracting, ground instability, potential for shrinkage or buried explosives within the developable area.

There have been no major pollution incidents and there is no history of hazardous materials being stored or having been encountered. Ground investigation work undertaken for the Cumberland Way scheme did not highlight any abnormal conditions. Infiltration rates were poor. Excavated material was generally acceptable as fill material and slope stability in cuttings varied between 1 in 1.5 and 1 in 2.5.

In summary it is not anticipated that any abnormal constraints or costs will be encountered arising from existing ground conditions. Further ground investigation work will however be necessary at the more detailed level.

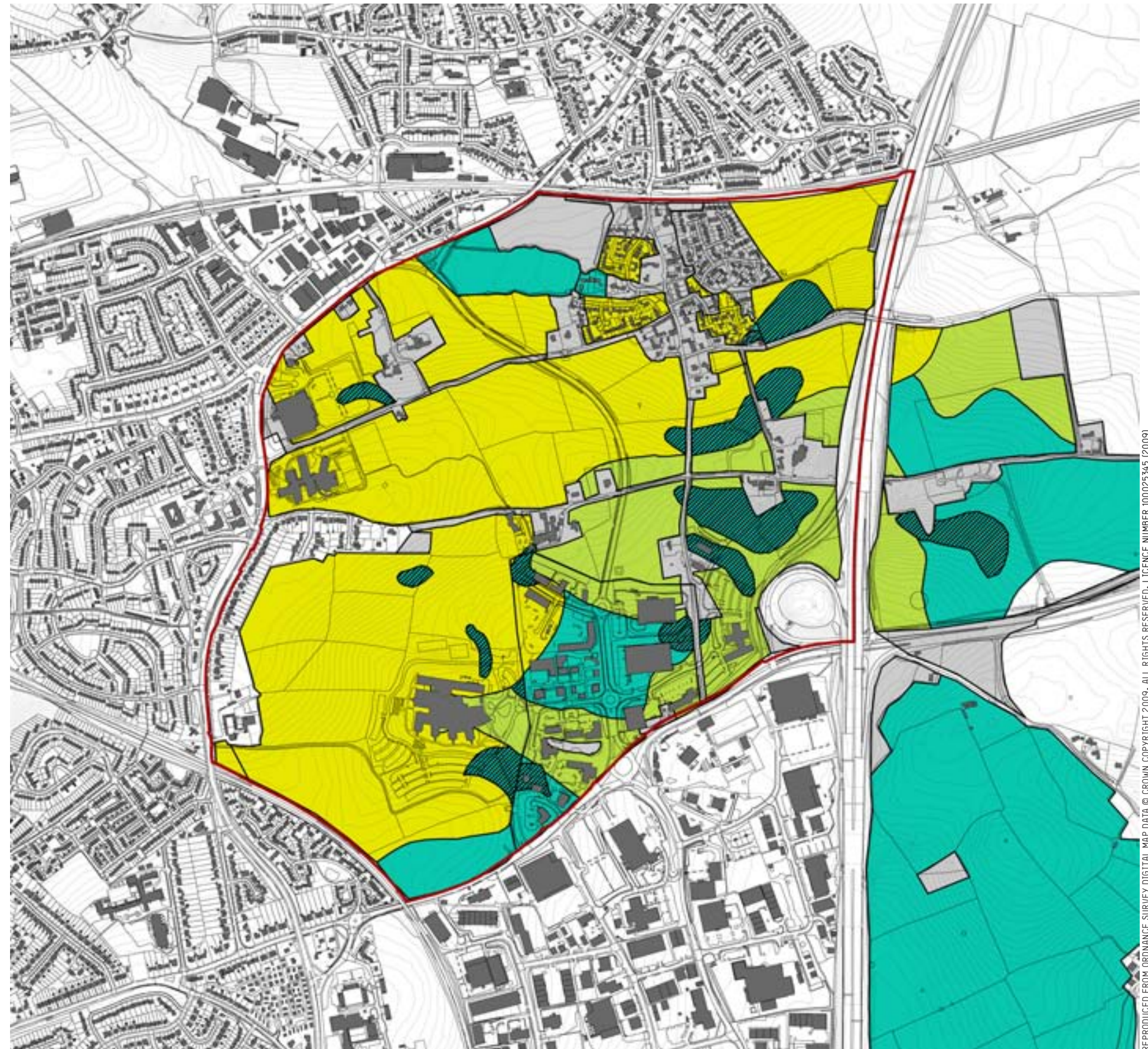


FIGURE 2.8: AGRICULTURAL LAND CLASSIFICATIONS

2.6 BIODIVERSITY

Figure 2.9 shows the location of the biodiversity designations within and around the study area.

HABITATS

The Monkerton/Hill Barton study area does not contain nationally or regionally significant habitats, however, it does have areas of local wildlife and biodiversity value.

There are a number of **Sites of Local Interest for Nature Conservation** associated with the network of green lanes, Pin Brook and vegetated embankments adjacent to the M5. These sites have nature conservation value at a local level within the City. Their importance is influenced by the proximity of residential or community facilities and their accessibility (actual or potential) to people. In other words their value is derived from a combination of, usually moderate, wildlife interest and the community value of the site.

There are a number of areas along the Motorway and to the west of Monkerton identified as part of the **Biodiversity Network**. These are areas of semi-natural habitat that are likely to make a significant contribution to the overall movement/dispersal of species within the local landscape as wildlife ‘stepping stones’ or corridors. The best habitats are described as **Key Network Features** which include the railway lines along the northern and southwestern edges of the study area.

The network of hedgerows and trees within the study area provide important habitats and would act as a valuable wildlife corridor network.

There are also a number of areas of wildlife and biodiversity value within 1km of the study area which also need to be taken into consideration in preparing the masterplan and in retaining/establishing wildlife corridors. These are summarised as:

- **Coastal and Floodplain Grazing Marsh** - Pin Brook to the east of the study area. A nationally important priority habitat in the UK Biodiversity Action Plan. It is a type of grassland found on alluvium along floodplains of rivers and is defined as periodically inundated pasture or meadow, with ditches to maintain the water level. It supports a wide range of plants, invertebrates, birds and animals. Grazing Marsh is under threat from agricultural improvement;
- **County Wildlife Site** - Beacon Hill to the northwest of Pinhoe: a herb-rich semi-improved neutral grassland;
- **Other Sites of Wildlife Interest** (OSWI) - Pinhoe Marshes, a secondary broadleaved woodland to the east and Heath Barton to the northwest, a semi-improved neutral grassland. These are sites of significant wildlife interest within a local context that have been surveyed but do not reach the criteria for County Wildlife Sites.

SPECIES

A data search undertaken by Devon Wildlife Trust (28/7/09) identified 21 protected/notable species within the study area with a further 60 species within 1km. Protected species that have been found within the study area include otter, badger, bats, common shrew and common frog. (See Appendix document for more detail)

HABITAT LINKS

Habitat links/wildlife corridors are continuous ‘green routes’ along which wildlife can move between habitats. This often comprises a continuous network of hedgerows, trees and river corridors and help to connect wildlife populations separated by human activities (such as roads or development), allowing healthier species populations and greater resilience to disease or species loss.

The Exeter Green Infrastructure Study (Exeter Area and East Devon Growth Point – April 2009) identifies 2 ‘habitat links’ that should be maintained through the study area. The first extends along the Pin Brook corridor linking the ‘Clyst Valley’ habitat reservoir to the east with the North Exeter Wooded Hills and Meadows Habitat reservoir to the northwest. The second link connects the Clyst valley habitat reservoir into the Monkerton area and has potential to link into the railway line to the south of the study area, which itself acts as a wildlife corridor into the city centre.

Creating wildlife corridors must be an important objective of the Masterplan, in order to minimise habitat fragmentation and to link into the wider city Green Infrastructure.

AERODROME SAFEGUARDING AREA

The study area falls within the Exeter Aerodrome Safeguarding Area which seeks to protect flight paths and airspace around Exeter Airport from potential hazards. This means that development which has the potential to increase the number of birds or bird hazard risk will not be permitted. This may have some implications on any proposals for significant habitat enhancement or creation within the study area.

EUROPEAN SITES

Consideration needs to be given to the indirect impacts that development at Monkerton/Hill Barton may have upon sites valued at a European level for their wildlife and habitat value. Exeter Core Strategy Habitats Regulations Assessment (Exeter City Council - March 2008) examines how proposals within the Core Strategy for the growth of Exeter may impact upon the Exe Estuary SPA and Ramsar site; Dawlish Warren SAC; and the East Devon Pebblebed Heaths SAC/ East Devon Heaths SPA. Impacts considered range from the increase in traffic and emissions, additional recreational pressure placed on the areas from an increased population and impacts of water abstraction, increased water discharge and sewerage.

Increased housing provision could result in an increase in population in Exeter which in turn could result in an increase in demand on recreation in the Exe Estuary, Heaths and Dawlish Warren and an increased demand on recreational

facilities. Management Plans are in place for the Exe Estuary SPA and the East Devon Heaths SPA which include measures to control and manage access and recreation in order to limit adverse impacts on these sites. The assessment recommends that there needs to be a joint agreement with neighbouring local authorities on a funding levy on new developments to fund implementation of the Management Plan and that the Core Strategy should identify the intent to seek contributions in the form of a levy. The Exeter LDF Core Strategy will introduce a planning policy basis for contributions towards management of these sites.

The implications and principles for the Masterplan regarding Biodiversity include:

- the green lanes, Pin Brook corridor and areas adjacent to the M5 designated as Sites of Local Interest for Nature Conservation should be retained and enhanced as far as possible and positively integrated within development;
- as far as possible areas that are part of the Biodiversity network should be retained and incorporated as part of wildlife corridors;
- continuous wildlife corridors and networks should be retained/created through the Masterplan area linking to wider habitat reservoirs. Pin Brook and the Railway lines are existing wildlife corridors which should be enhanced and linked into. Wildlife corridors to surrounding areas of identified wildlife value should be encouraged;
- any habitat enhancement or creation proposals need to consider implications of the Aerodrome Safeguarding Area;
- any development will require a more detailed ecological study.



- SLINC
- Biodiversity Network
- Key Network Features
- Coastal and floodplain grazing marsh
- County Wildlife Sites
- Other Sites of Wildlife Interest



FIGURE 2.9: BIODIVERSITY DESIGNATIONS

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2.7 HERITAGE AND CULTURE

HISTORIC LANDSCAPE CHARACTER AND USE

The Historic Landscape Character Plan identifies the majority of the study area as ‘Medieval enclosures based on strip fields’. There is a high degree of survival of field boundaries of medieval origin, reflecting strip field system enclosed in the medieval period. This area was probably first enclosed with hedgebanks during the later middle ages and the curving form of the hedgebanks suggest that earlier it may have been farmed as open strip-fields.

Land adjacent to Junction 29 is defined as modern enclosures that have been created by adapting earlier fields of probable post-medieval date.

Sites of former orchards are scattered across the area which were removed in the 20th century - an element of lost character within the landscape.

The route of the historical parish boundary between Pinhoe and Heavitree runs along part of Hollow Lane and southwards between the Business Park and the Met Office. There is opportunity to retain, reinforce and celebrate this boundary within the Green Infrastructure network as a cultural and community asset. The historic route of the parish boundary between Heavitree and Sowton runs along the route of the A30. This too could be recognised although more difficult to emphasise due to the nature of this road.

Evidence of post-medieval extractive industries are evident within the study area. A former quarry is located to the north of Quarry House, now part of St Lukes School playing fields. A former Sand Pit (quarry) was located in the southeastern part of the study area, now part of the employment - sandpits, brickworks, quarries.

HISTORIC ROUTES

A number of strongly defined narrow lanes within high hedgebanks cross the study area. East-west running routes are particularly evident. Pinn Lane forms a single, direct north-south connection from Monkerton southwards. This network of lanes, including Hart’s Lane, Pilton Lane and Pinn Lane reflect a medieval system connecting settlements and fields.

Hollow Lane and Black Horse Lane is the possible route of a Roman Road into Exeter. The A30 to the south of the area is also the possible route of the Roman Road from Dorchester to Exeter.

THE BUILT ENVIRONMENT

Monkerton, Pilton and Hill Barton are historic medieval settlements. Monkerton first appears as a manor in the Domesday Book and was an established settlement by the 15th century. Monkerton House and Monkerton Farm are 17th/18th century Listed Buildings within the settlement core.

Pilton was first documented in the 14th century and was probably more extensive in the medieval period than now. Pilton House is 19th century and formerly a Listed Building. The Garden wall to Pilton Lane is still Listed.

Hill Barton Farm to the southwest of the study area is potentially of medieval origins and was documented in the 14th Century. The current farm building is post-medieval with later additions.

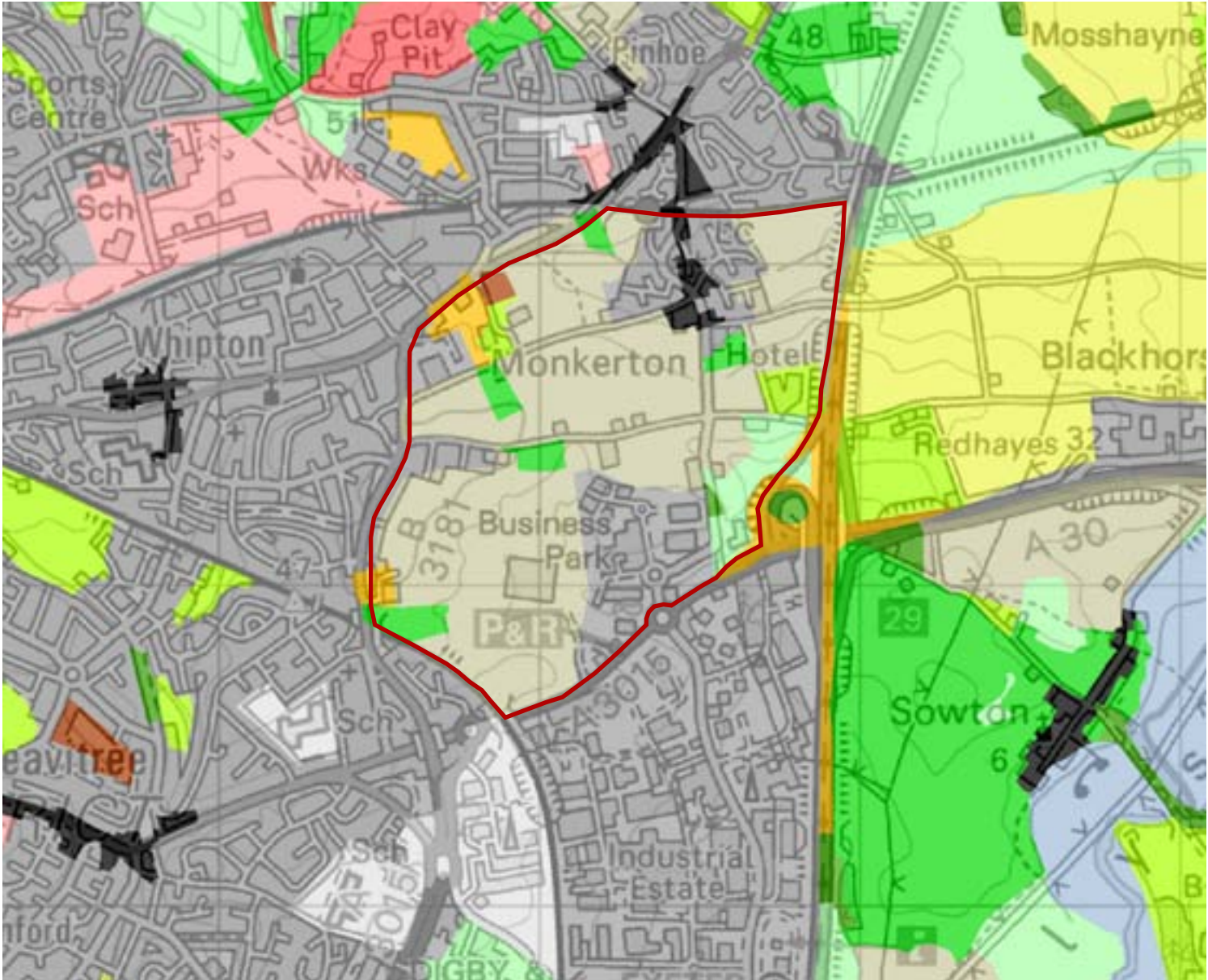
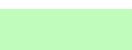


FIGURE 2.10: SIMPLIFIED HISTORIC LANDSCAPE CHARACTER (DERIVED FROM DEVON COUNTY COUNCIL HISTORIC LANDSCAPE CHARACTER ASSESSMENT (2005))

KEY FOR AREAS WITHIN STUDY AREA

	Medieval enclosures based on strip fields		Orchards and Horticulture
	Former Orchard		Rough Ground
	Modern enclosure		Historic Settlement
	Park/Garden		Modern Settlement and Industry
	Woodlands		

The Gypsy Hill Hotel and grounds are of 19th Century origin. The core of the existing Ellen Tinkham School was the Heavitree Isolation Hospital in the 19th Century.

ARCHAEOLOGY

Monkerton ridge has high potential for late prehistoric, Romano-British and medieval archaeological evidence to be found during development. Archaeological fieldwalking has revealed finds including prehistoric flint tools and medieval pottery.

Metal detectorists have found prehistoric, Roman and particularly Medieval finds on Monkerton Farmland (between Hart Lane and Hollow Lane) including Roman coins and a concentration of medieval coins/metalwork possibly suggesting that this was a medieval fair site. Pilton may be a shrunken medieval settlement - possibly linked to this medieval fair.

Excavations at St. Luke's School site recorded a Bronze Age settlement site and fields and evidence of subsequent Iron Age and Romano-British activity.

There is a possible prehistoric ring-ditch (ploughed-flat burial mound) visible as archaeological cropmark in the field to the north east of Hill Barton Farm along with former field boundary visible as an archaeological cropmark.

Archaeological monitoring at the Met Office and Holiday Inn developments recorded the presence of prehistoric flint tools and monitoring of the Business Park recorded the presence of a medieval hollow-way (sunken track).

None of these sites/areas are currently protected as scheduled monuments. However, consideration of the impact of development upon them is a material planning matter, and some of the more significant ones may therefore have a bearing on the detailed design of a development. Prospective developers should therefore identify and assess the relative significance of any potential sites and historic land boundaries early on in the detailed design process, before layouts are finalised, and submit this as supporting information with planning applications. This may involve arranging survey work and, where necessary, limited site investigation. Where it is subsequently agreed that the less significant or well preserved sites and remains can be destroyed by development, appropriate archaeological excavation and recording will be ensured via a planning condition.

This area is to be developed and therefore the character will change significantly. However retaining and emphasising traditional and historic patterns and features within development will contribute to creating a place with a distinct sense of place and identity and one that has a richness and integrity. New growth should be seen as a continuing evolution of this area. Principles include:

- using the traditional movement network and historic green lanes as part of the Green Infrastructure network;
- retaining and positively incorporating hedgerows of historic value;
- emphasising and celebrating parish boundaries where possible;
- protecting listed buildings and structures and their setting;
- respecting and responding positively to historic groupings/settlements at Hill Barton, Pilton and Monkerton;
- appropriately responding to archaeological remains if identified at the more detailed stage.

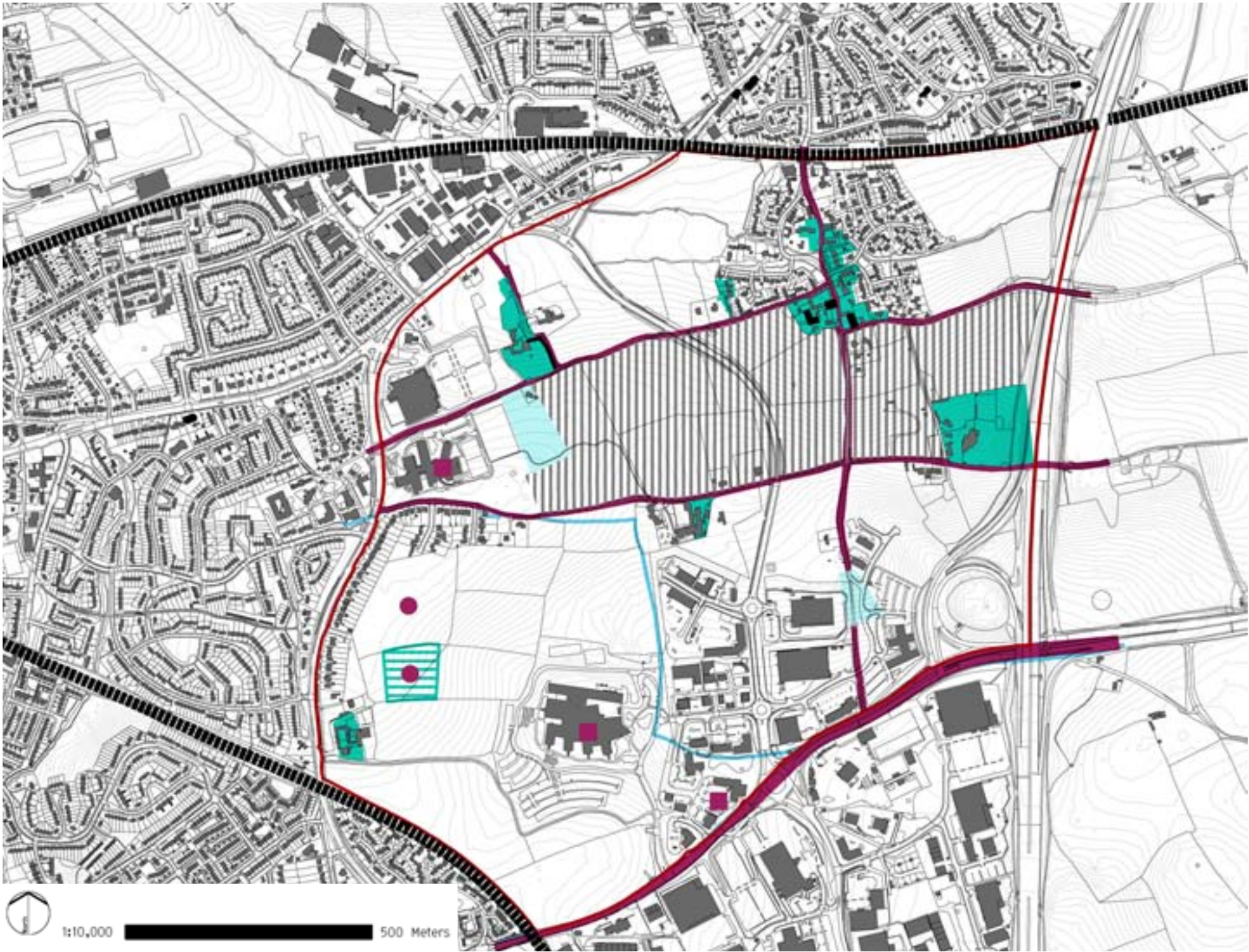
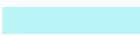


FIGURE 2.11: HERITAGE AND CULTURE

- | | |
|---|--|
|  Former quarry sites |  Historic parish boundary |
|  Historic farms, settlements and buildings |  Historic routes |
|  Railway |  Historic features visible in crop marks |
|  Listed building |  Archaeological finds |
|  Potential medieval fair site |  Possible pre-historic ring ditch visible as archaeological crop mark |

2.8 SURFACE WATER AND FLOODING

FLOODING

Pin Brook flows west to east through the northern part of the study area and is a tributary of the River Clyst approximately 1.5km further east. The Brook is classified as a ‘main river’ and is managed by the Environment Agency. There is a further drainage ditch to the south of the Pin Brook which rises near Pilton Lane to the west before travelling east to join the Pin Brook at Pinn Lane.

The site is affected by the flood zone of the Pin Brook watercourse. The Environment Agency’s latest approved flood maps show approximately 6.5 hectares of the masterplan area within the flood zone. Exeter City Council have commissioned both a Strategic Flood Risk Assessment (2008) and a Pin Brook hydraulic modelling exercise to further define the flood risk and model the extent of flooding. Although not yet approved by the Environment Agency the hydraulic modelling undertaken predicts that during a 1 in 25 year storm the banks of the Pin Brook will not be breached. In the 100 year scenario less than 1 hectares of the masterplan area would be subject to flooding, contained within the area between Pinn Lane and Cumberland Way. The 1 in 1000 year analysis predicts that the flood area would increase by 1 hectare over the 100 year flood and an additional hectare immediately adjacent to the M5 would also flood.

Development should not take place within the floodplain and it would not be appropriate to construct right up to the flood zone boundaries without some protection or flood relief works. Consideration also needs to be given to potential development areas which would be accessed from Pinn Lane and other roads within Monkerton which are within the floodplain.

The modelling shows the flooding to be caused primarily by culverts with insufficient capacity in storm conditions. It would be expected that improvements would be required by the Environment Agency to these constrictive culverts as part of the drainage strategy. It would negate the need for flood protection measures and also increase the usability of the public open space in these areas.

SURFACE WATER

The area north of the ridgeline currently drains to the Pin Brook water course. Surface water run-off from the southern portion of the site drains to the Great Moor Stream which is also a tributary of the River Clyst.

The Environment Agency have advised that the Great Moor stream is at critical capacity and no additional discharge to this watercourse from the proposed development would be acceptable. Similarly the Pin Brook exceeds capacity during storm conditions causing flooding within the masterplanning area. A direct outfall to this watercourse is also unlikely to be granted, although an emergency overflow may be justified.

With no available discharge, a comprehensive site wide SUDS strategy to control 100% of surface water at source will need to be developed. Unfortunately infiltration rates are known to be poor within the masterplanning area which when combined with the likely requirement to accommodate a 100 year storm plus 20% for climate change will require a combination of large scale storage/attenuation systems and infiltration basins.

Design of open bodies of water will need to be carefully considered to avoid attracting waterfowl within the vicinity of Exeter Airport. Infiltration basins are generally acceptable provided they are predominately dry but storage ponds would either need to be covered or designed in such a way to discourage waterfowl.

With limited open areas to accommodate SUDS infrastructure, permeable surfaces should be used wherever possible and green roofs/rainwater harvesting system to minimise storage areas. Overland flood routes will need to be provided for instances where storms exceed the design criteria.

The southern portion of the site is classified as a major aquifer which has some potential for water extraction for public drinking water. There are a few abstraction licenses which would need to be protected from any contamination that might arise from the proposed developments surface water infiltration.



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FIGURE 2.12: FLOOD MODELLING



2.9 NOISE AND AIR QUALITY

NOISE

The main source of noise affecting the area are strategic roads, in particular the M5 which forms the eastern edge of the study area. This may result in areas adjacent to the motorway being considered unsuitable for housing. An assessment in line with PPG24 will be needed to quantify the spread of traffic noise across the area. Depending on local topography, bunding may be effective in reducing traffic noise levels. Acoustic barriers may also be appropriate to reduce impact. Planting will not be effective in significantly reducing noise levels. Increase of traffic on other existing local roads may also result in an increase in noise. Site access design should aim to minimise increases in traffic volumes on local roads, encouraging use of existing and proposed major routes. At the more detailed stage further assessment will be needed of traffic noise impacts on the local road network.

Railway lines run along the northern and southwestern edge of the area. An assessment in line with PPG24 will need to quantify rail noise and how this will impact upon the proximity of housing to the lines.

Aircraft passing over the study area will be a source of noise although not to such levels to prohibit development.

AIR QUALITY

The area is currently outside of the Air Quality Management Area (AQMA) although sits right on the boundary. There are also Exeter City Council diffusion tubes monitoring at the edge of the AQMA but have no exceedences.

Air Quality is an issue for development in this area due primarily to its close proximity to the M5 and the impact that will have on proposed development. A sample location at Gypsy Hill Lane, approximately 100 metres from the M5 carriageway, within the study area gave a low averaging concentration for nitrogen dioxide (low 20 micrograms per cubic metre). The close proximity to the M5 needs to be further explored through NO2 diffusion tube monitoring upon existing building facades and at locations equivalent to the proposed residential developments. This monitoring would confirm the current impact on air quality from vehicle emissions on the M5.

There are measures that can be employed to help mitigate air quality issues. This may include the use of barriers such as vegetation which are in place at the moment across much of the embankments adjacent to the study area. This provides a reduction in direct dispersion of pollutants from carriageway to sensitive receptor. Current guidance on mitigation also includes a speed management programme for motorways. Other non motorway potential mitigation needs to be explored through a green travel plan and avoidance of additional traffic onto the local network (AQMA in Exeter).

Though there is a notable reduction in pollutant concentration with increased distance from the road carriageway as well as emissions improvements with time, this does always occur with particulates (PM10)and PM10 could pose a problem in the future.

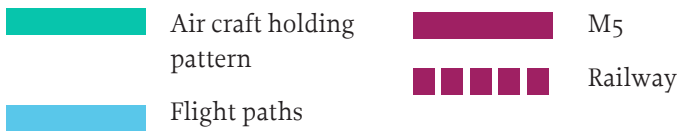


FIGURE 2.13: NOISE

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CURRENT INFRASTRUCTURE PROPOSALS

In order to deal with existing transport issues and the proposed growth to the east of the city there are a number of infrastructure proposals that are currently being considered/progressed within and in proximity to the study area. These include:

- New strategic highway link between Cumberland Way and Tithebarn Lane bridge. This will be required to mitigate congestion of Junction 29 and Moor Lane Roundabout from traffic generated by both the development itself and the other Exeter and East Devon Growth Point developments. It will also form part of the HQPT and local bus route improvement proposals and enable development of the second phase of the Exeter Science Park development;
- improvements to Tithebarn Lane bridge;
- New cycle/footbridge over the M5 from Gypsy Hill Lane to Blackhorse Lane - connecting Exeter to the proposed Science Park and new communities to the east;
- a High Quality Public Transport HQPT Link 1 between Cranbrook, City Centre and new development to the southwest. This is likely to include a bus only route from the Sainsbury junction to Cumberland Way;
- M5/ Junction 29 Improvements;
- new Junction 29 to Blackhorse Link Road;
- Improvements to Honiton Road Park and Ride Interchange;
- New Park and Ride to the east of Junction 29;
- a new railway station on the Exeter to Exmouth Line near the Met Office. A new station in this location would provide easy rail access for the Sowton Industrial Estate, Exeter Business Park, Met Office and the existing Beacon Heath residential area as well as new development.

The implications of these proposals need to be considered as part of the Masterplan.

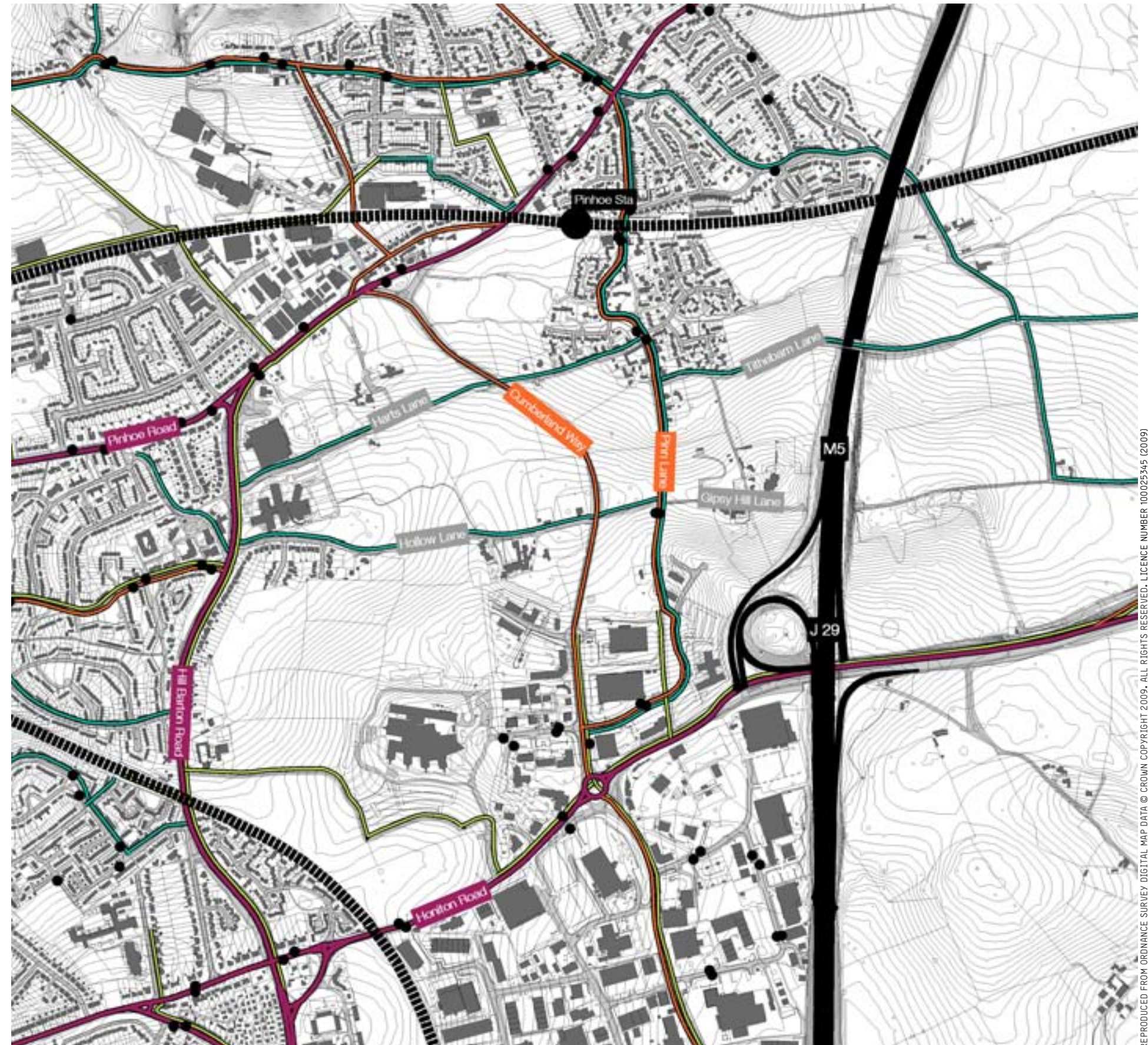
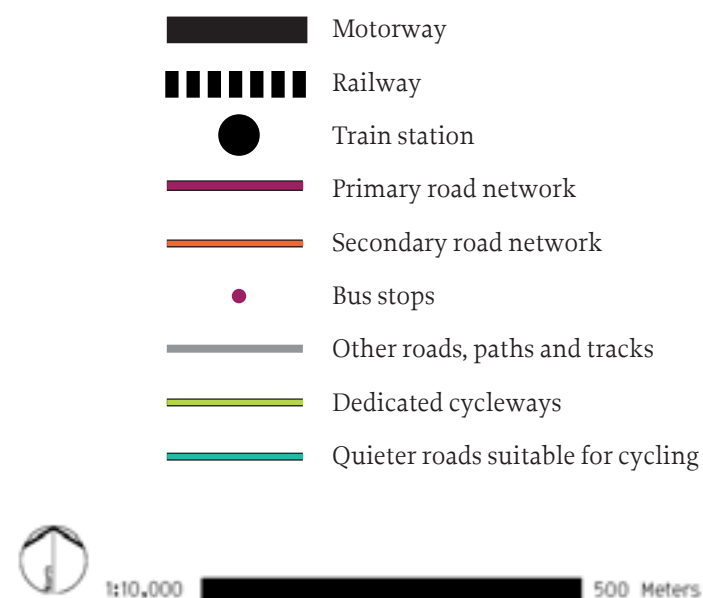


FIGURE 2.15: EXISTING MOVEMENT NETWORK

2.11 OPEN SPACE AND GREEN INFRASTRUCTURE

A number of documents have been prepared by or on behalf of Exeter City Council which set out the Open Space, recreation and allotment context for the study area. These are:

- Public Open Space Supplementary Planning Document; LDF (2005) Exeter City Council;
- Audit of Outdoor Recreation Space; LDF (2005) Exeter City Council;
- Exeter Allotment Strategy 2007-2011 (2008), Exeter City Council;
- Green Infrastructure Study - Exeter Area and East Devon New Growth Point. (April 2009)

GREEN SPACES

The study area currently includes a number of formal sports facilities. Pinhoe Station Road Playing Fields is located on flat ground on the northern edge of the study area. This includes an adult and junior football pitch, equipped facilities for ages 0-12 including an equipped play ground, a skate board ramp, basket ball court and a Multi Use Games Area. (MUGA) providing informal youth facilities.

St Lukes Science and Sports College includes a range of formal indoor and outdoor sports facilities including tennis courts, hockey and football pitches.

There are also a number of formal recreation spaces in close proximity to the study area as shown in Figure 2.16, including Library Fields Playing Fields to the north, Exeter Arena to the northwest and Middlemoor Recreation Ground to the south.

OPEN SPACE REQUIREMENTS

The masterplan needs to meet the following Open Space Standards :

- Formal Sports facilities - A minimum of 1.6-1.8 ha of playing fields should be provided per 1000 population together with any further space necessary to enable the City to serve as the sporting centre for its sub-region effectively. Of this 1.2 ha per 1000 should be playing pitches. Formal Sports facilities should be readily accessible on foot or cycle;
- Informal Recreation Areas - 0.4-0.5 ha of informal recreation space should be provided per 1000 population. Dwellings should be no more that 250 m by a convenient and safe pedestrian route from an informal recreation area which is a least 500 sq m in extent and in no place less than 10 m wide;
- Informal Youth Facilities – Multi-use Games Areas should be within 1500m easy walking distance of all dwellings
- Equipped Children’s Play Areas –0.2-0.3 ha equipped/designated children’s play space should be provided per 1000 population depending upon site conditions and the proportion of family housing in the area.
 - Children of 12 years old and under should live within 1000m of a play area equipped to meet the needs/interests of their age group and be able to reach it safely and conveniently on foot;
 - Children of 8 years and under should live within 500m of a play area equipped to meet the needs/interests of their age group and be able to reach it safely and conveniently on foot;
 - Play areas meeting the needs of different age groups up to and including 12 year olds should be provided as far as possible on the same site;

- Where practicable all residential areas to be within 1500m of a major informal youth facility such as a multi-use games areas and 1000m of other facilities for this age group.

FOOTPATH AND CYCLE LINKS

The study area is relatively well connected and surrounded by dedicated cycle routes although there is currently not a dedicated cycle route linking the area into the city centre. The Monkerton Masterplan is pivotal to delivering the key landscape and Green Infrastructure proposals for the east of Exeter and to creating a new strategic footpath and cycle link between Exeter City to the west and the proposed Exeter Science Park, SkyPark, Airport and Cranbrook New Settlement to the east. The Green Infrastructure Study (Exeter Area and East Devon New Growth Point) identifies ‘The East Exeter, Cranbrook and Feniton Green Way’ running along Hollow Lane and Gypsy Hill Lane and across the proposed M5 footbridge to the Science Park and beyond.

As well as Hollow Lane the Devon County Council Cycle Map also shows Harts Lane, Tithebarn Lane, Pilton Lane and Pinn Lane as currently being ‘quieter roads suitable for cycling.’ A dedicated cycle path links Hill Barton Road to the Met Office and Honiton Road through the study area. Dedicated cycle lanes also run along Hill Barton Road, part of Pinhoe Road and Honiton Road. Ambassador Drive has dedicated cyclepaths becoming on-road cycle lanes along Cumberland Way.

WILDLIFE CORRIDORS

The design and management of Green Infrastructure within the masterplan needs to enhance and promote biodiversity through protection, enhancement and creation of wildlife habitats and establishment of wildlife corridors, allowing species to travel between biodiversity reservoirs. These have already been discussed within Section 2.6. Key wildlife corridors that need to be retained as movement corridors and linked into are the Pin Brook, the railway lines and the network of hedgerows/hedgebanks. These corridors will need to form an important part of the Green Infrastructure Framework.

ALLOTMENTS

Exeter City has well above the average number of allotment plots per household when compared nationally. Despite this however, demand cannot be met. Most allotment sites in Exeter have full occupancy and hold a waiting list, currently estimated at between one to four years.

Pinhoe currently has no allotment provision, nor has Whipton Barton ward east of Hill Barton Road. There is a small allotment site (9 plots) at Hospital Lane approximately 100 m to the west of the study area. A number of larger sites are located further to west at Hamlin Lane, Whipton Lane and Sweetbrier Lane.

There is a need for allotments to be located within the study area as a means to promote a sustainable and healthy lifestyle. Exeter City Council has recommended 1 x 5 rod plot per 10 new dwellings.

Ideally allotments should:

- be in close proximity to existing or proposed housing;
- have good accessibility;
- be on uncontaminated land with adequate soil quality and drainage;
- not be too steep;
- have good aspect and adequate shelter;
- have opportunity for a good water supply;
- have opportunity for good security;
- have opportunity for toilet facilities.

In summary the Monkerton Masterplan should respond to Green Infrastructure through:

- creating a continuous Strategic ‘Greenway’ (cycle/footpath) through the area, acting as the key Green Infrastructure artery that contributes to connecting Exeter with future strategic growth to the east, across the proposed M5 footbridge;
- retaining and incorporating the existing laneways and creating new footpath/cycle links to form a network of routes through the area that link surrounding communities into the ‘Greenway’;
- creating continuous ‘wildlife corridors’ through the area, in particular linking into the Pin Brook corridor to the north and the railway line to the south;
- providing appropriate formal and informal recreational space to serve the new and existing community, linked by safe pedestrian and cycle routes, promoting activity and healthy living;
- provision of adequate allotments/community gardens that are easily accessible.

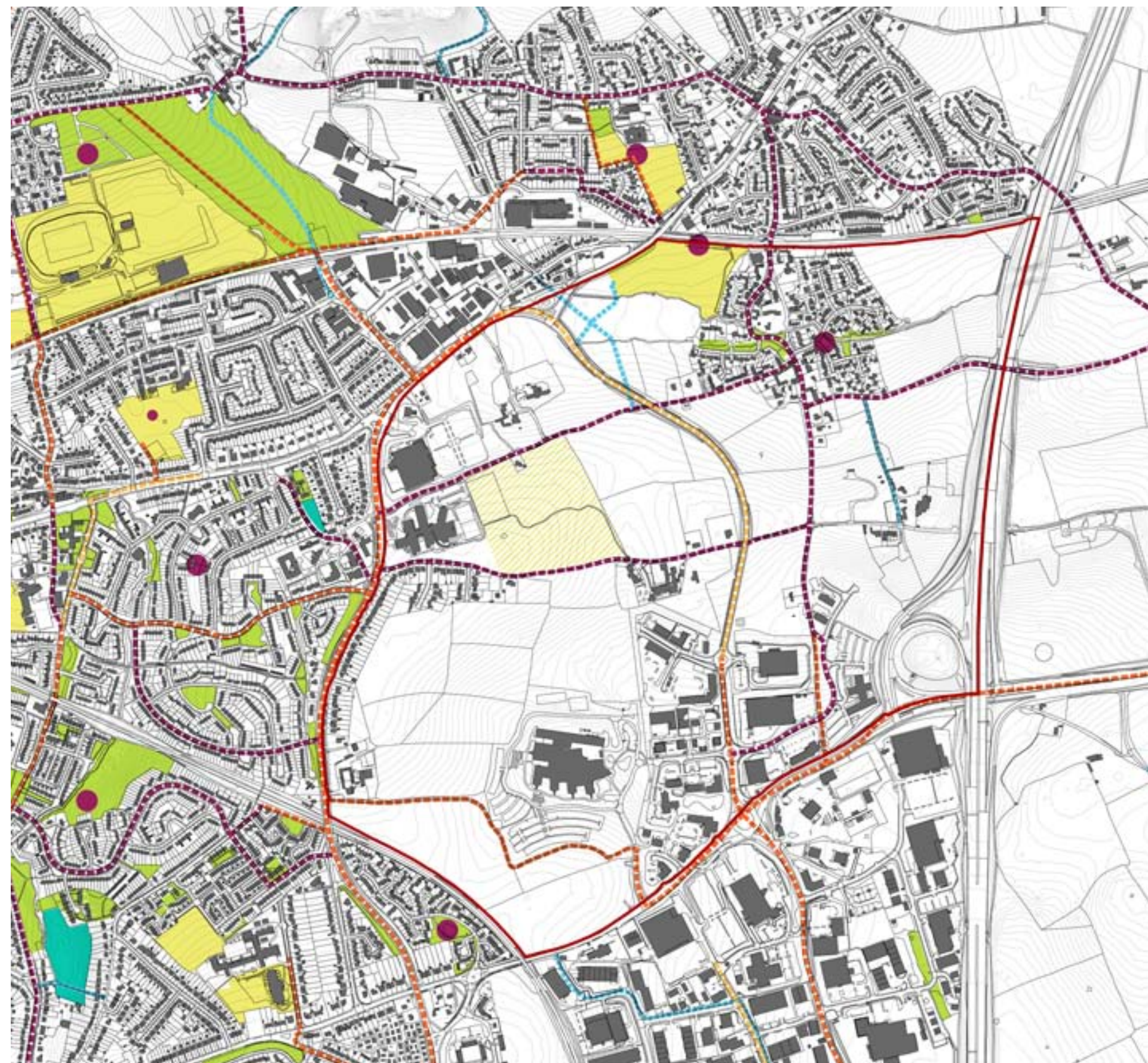
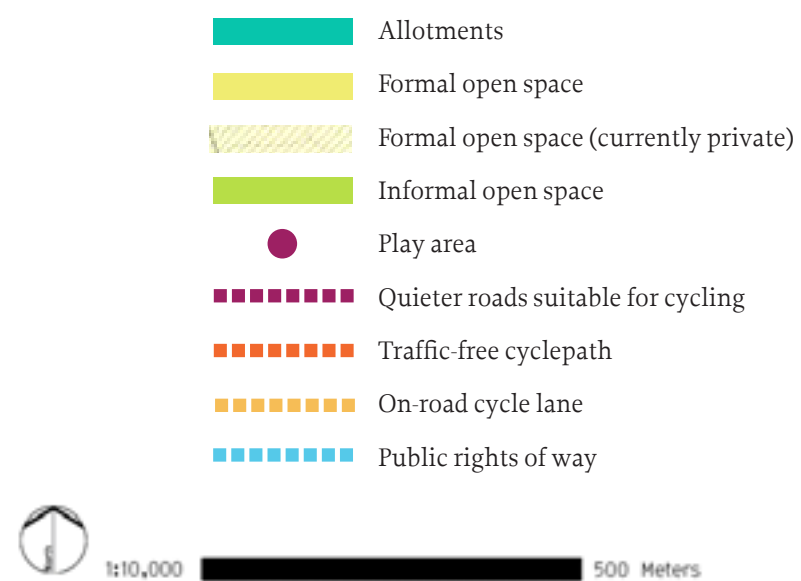


FIGURE 2.16: EXISTING OPEN SPACE AND GREEN INFRASTRUCTURE

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2.12 BUILT CONTEXT AND COMMUNITY

The eastern edge of Exeter is currently a fragmented and disjointed area that lacks a strong structure. New development offers the opportunity to create a more cohesive edge and bring together the various uses and communities.

Figure 2.17 illustrates how the Masterplan area relates to the key existing neighbourhood/district centres. Centres are typically located along strategic routes into and out of the city centre. This is particularly noticeable along Pinhoe Road extending from St James area out to Pinhoe. Figure 2.18 illustrates the local neighbourhood context to the Masterplan and Figure 2.19 highlights existing key community facilities, services and destinations.

Pinhoe is located to the north of the area. This was once a village dating back to around 926AD when the first church was probably built. Although still partly retaining its own identity Pinhoe is now a suburb of Exeter and is split by a busy road into and out of the city.

Pinhoe centre provides a small range of community facilities including a Spar store/post office, newsagents, bank, medical centre, pharmacy, butcher, hairdressers, petrol station, church and small library. It also has a couple of public houses - The Heart of Oak and The Poltimore Arms, a Chinese takeaway and restaurant. It has a Community Centre (America Hall and Sunnylands Room) that can seat up to 200 people. Pinhoe is recognised as having a strong community and has its own Community Association. Pinhoe also has a railway station on the Exeter to London (Waterloo) main line which provides a useful link into Exeter and beyond.

Monkerton within the study area has a core of old buildings surrounded by modern housing development set in cul-de-sacs with a suburban feel. Densities within Monkerton are relatively low at around 31 dwellings per hectare.

Whipton and Barton to the west and south west is largely characterised by housing estate developments of relatively low densities with some older, higher density streets. The community core of Whipton is concentrated around Whipton Village Road, Summer Lane, Hill Lane and Pinhoe Road and includes a small range of shops and facilities and a Community Hall. The area to the south west of the study area feels separate and cut off from Monkerton/Hill Barton by the railway line.

Exeter Business Park in the southern part of the study area is a modern 'out of town' office and business park. The area is low density with large areas of landscape structure and parking around individual buildings. It includes a range of users including the Headquarters of the Met Office and the regional office for EDF Energy and a Holiday Inn Express (122 beds). It lacks a clearly defined centre although there are a few facilities for the business community including a restaurant. The new large office buildings have been developed with their own internal facilities. The Met Office has a Gym/fitness suite, shop and cashpoint facilities, two coffee shops and a restaurant. This adds to the rather introverted character of this type of development with a lack of wider community interaction.

Sowton Industrial Estate is the most established distribution, manufacturing and business base in the area and also includes a range of commercial outlets, the Devon Records Office and the Honiton Road and Sowton Park and Ride. The area lacks a centre or focus and has very few facilities for the business community.

Pinhoe Trading Estate is approximately 9ha in size and has a mixture of commercial, light industrial, warehouse and office usage.

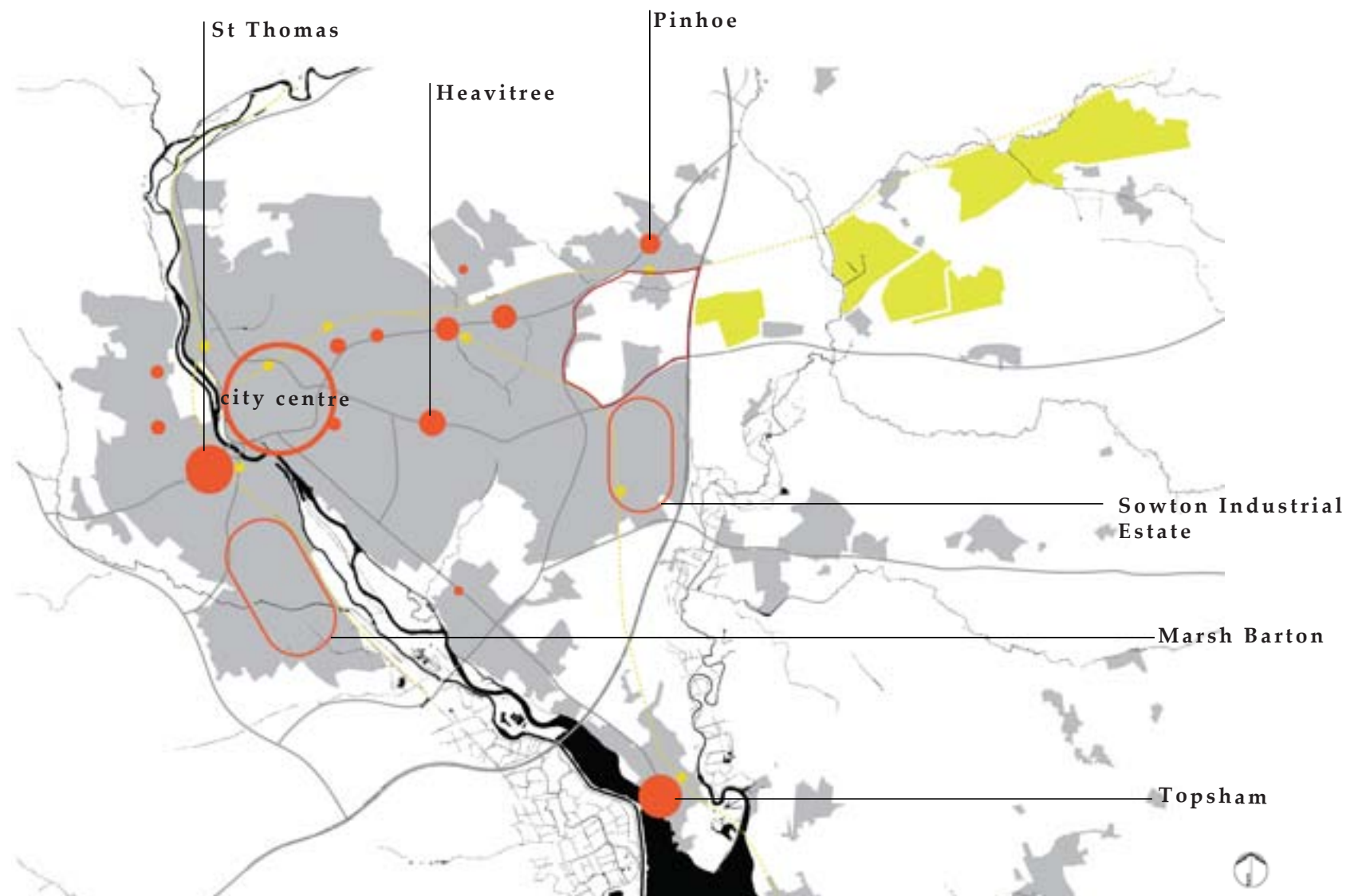


FIGURE 2.17: KEY EXISTING NEIGHBOURHOODS/DISTRICT CENTRES

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1:10,000



500 Meters

-  Residential neighbourhoods
-  Business neighbourhoods



FIGURE 2.18: EXISTING NEIGHBOURHOODS

Proposed Science Park - The context to the east of the study area is likely to see substantial change over the coming years with the development of the Exeter Science Park, connected to the study area by a new foot/cycle bridge. This will create a new business community to the east of the study area. The Science Park has the potential of creating some 2,000 – 3,700 jobs in the first 15-20 years. Uses will be specialist scientific and technological businesses. The proposed Science Park will benefit communities at Monkerton/Hill Barton by making accessible the Redhayes ridge as public space and allowing access (via the new bridge) to the countryside to the east of Exeter. Development within the Science Park will provide some ancillary uses to support the business community including retail, leisure facilities (gym) and a hotel.

Within the study area itself there are a number of existing community facilities and services. A large **Sainsbury** Supermarket and associated car park and petrol station is located in the northwestern part of the area. This is a busy and well used shopping destination to the east of the city.

St Lukes School (Secondary School) is also located in the northwest of the area, adjacent to Sainsbury. Currently accommodating just under 1000 students the school has been designed to allow it to be expanded when needed.

Ellen Tinkham School is located on Hollow Lane. It is a Community Special School for children and young people aged 3-19 years, who have severe learning disabilities. Ofsted (2007) have identified Ellen Tinkham as an ‘outstanding’ school. Its services are very popular and they are unable to accommodate the demand for places at the school. The school is looking to redevelop or relocate to increase capacity and improve facilities. The school also suffers from poor accessibility.

Brookhayes - is an Intervention Centre for the Devon County Council Children's Services and is accessed from Pilton Lane.

COMMUNITY FACILITIES REQUIREMENTS

Devon County Council has prepared a draft Exeter SSCT Community Infrastructure Strategy (May 2009). Exeter City Council have also prepared an Exeter Infrastructure Schedule (June 2009). These documents set out what community facilities need to be provided within the Monkerton/Hill Barton area. Below is a summary of facilities that should be included within the Masterplan area.

Education

- 1 x 420 place new primary school. Once 2000 new homes have been developed it is likely that this primary school will need to be expanded by a further 210 places. There is no available primary education capacity in the Monkerton area and Pinhoe Primary School is ‘at capacity’;
- 52 part time places at the primary school for early years provision. Again, once the threshold of 2000 new homes is reached this will require expansion;
- the potential expansion of St Lukes Secondary School;
- enhancement or relocation of Ellen Tinkham School;
- a 14-19 skills centre (Exeter College/Devon County Council).

Community Facilities

- a new GP’s practice;
- potential location for a new library;
- a community hall/space;
- additional community facilities (not identified within studies but that would help build and support the new community.) This may include a dentist/polyclinic, small gym and place of worship.

Ongoing work on the Exeter and East Devon Growth Point Infrastructure Study may identify further requirements in the area.

GYPSY/TRAVELLER SITE

The City Council has participated in a Gypsy and Traveller Accommodation Assessment (GTAA) on a county wide basis. Recent advice from central government is that following abolition of the Regional Spatial Strategies Local Councils will be best placed to assess the needs of travellers and that the GTAA is a good starting point for determining requirements. The Devon wide GTAA concluded that there is a need to provide 12 residential pitches in Exeter up to 2011. A further 13 residential pitches may also be needed by 2026 in view of national estimates of likely growth in the number of gypsy households. Following the examination in public the RSS panel recommended that 5 transit pitches will also be needed in the City.

The provision of authorised sites for Gypsy and Travellers will help to ensure that informal unauthorised and unmanaged sites are less likely to occur.

Following a city wide site search process that did not result in a suitable site being identified, and in accordance with national guidance, it has been determined that the need for residential sites can best be met within the Newcourt and Monkerton & Hill Barton strategic allocations. The Exeter Core Strategy Proposed Submission includes Monkerton and Hill Barton as a strategic development of 2500 dwellings and around 5 hectares of employment land together with key infrastructure that includes a residential site for gypsies and travellers of up to 13 pitches.

To be considered suitable sites will be tested against the following criteria as set out in the Exeter Core Strategy Proposed Submission and included here. Sites should be of a size and in a location that takes into account the needs of gypsies and travellers and the interest of local residents and other local occupiers of land, and that has minimal landscape impact. Sites should:

- be well located on the highway network;
- be well located within a reasonable distance of local facilities, including schools and health centres;
- have adequate levels of privacy, security, storage space and residential amenity; and
- provide adequate parking, including parking for visitors and for commercial vehicles related to any business activities likely to be carried out.

In addition to this the following criteria also need to be considered in locating the gypsy/traveller site within the study area:

- location – sites should only be located in areas where bricks and mortar housing would be considered;
- access - dedicated access from a primary or secondary road is preferred;
- social environment - residential sites should have an opportunity to mix cohesively with the neighbouring communities;
- adjacent land use – ensuring a safe environment for residents. In the past sites have been located next to railways, refuse sites, motorways (although ease of access to main travelling routes is required when locating transit and/or temporary stopping places), sewerage works etc and this has impacted upon the way the sites are viewed and used by Gypsies and Travellers;
- a site with appropriate slope and ground conditions;
- not on floodplains and in places that lend themselves well to good surface drainage.

1. Brookhayes
2. Whipton Hospital
3. Pinhoe Library
4. Pinhoe Train Station
5. Gypsy Hill Hotel
6. Met Office
7. Holiday Inn Hotel
8. Police Training College
9. Exeter Arena
10. St Lukes Science and Sports College
11. Ellen Tinkham School
12. Sainsbury Superstore
13. Pinhoe Centre
14. Whipton Centre
15. Honiton Road Park and Ride
16. Jubilee Hall
17. America Hall
18. Hill Barton Farm

- Secondary School
- Special Needs School
- Primary School
- Place of worship
- Health centre/surgery
- Local centre
- Food Store
- Other

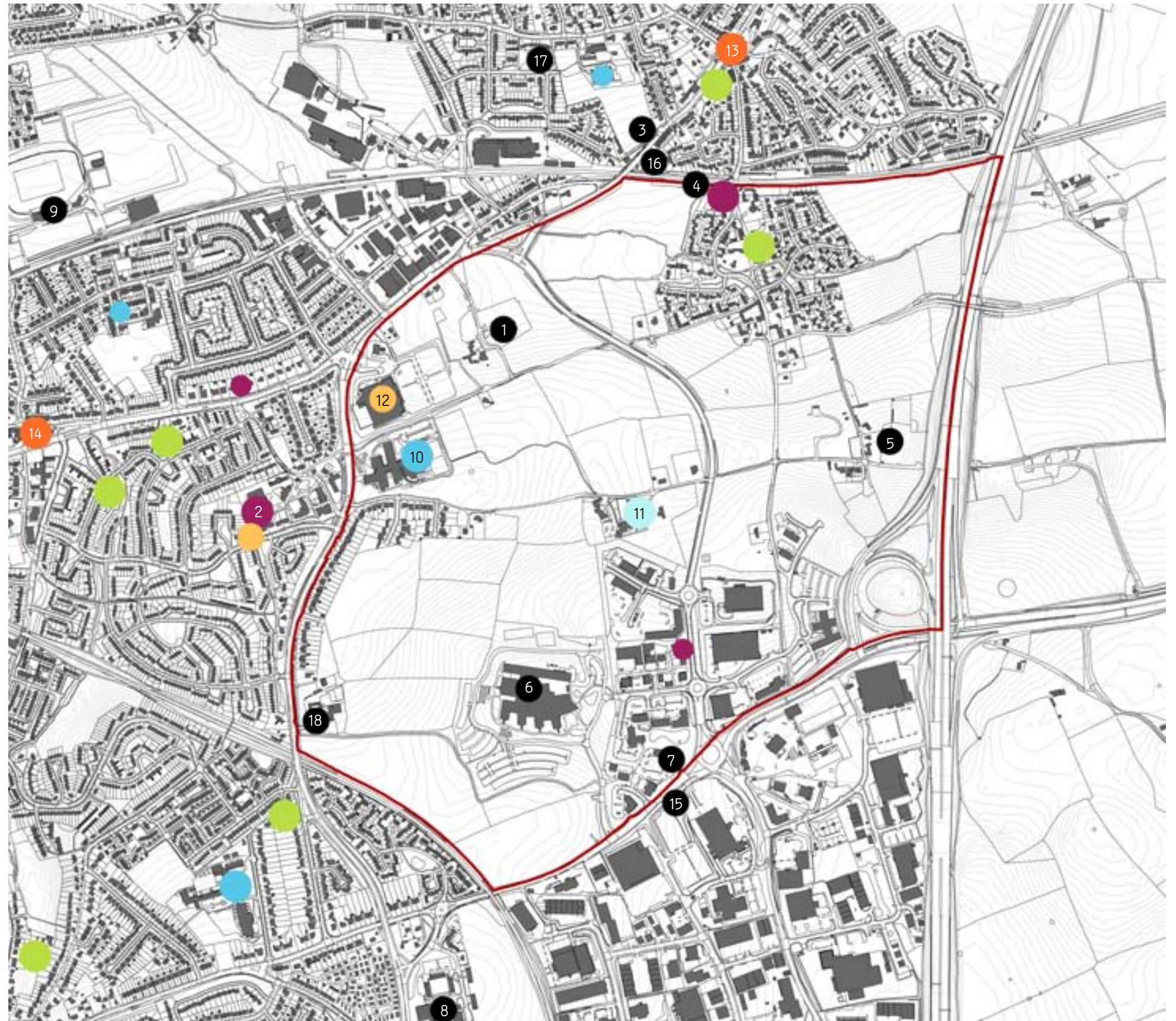


FIGURE 2.19: EXISTING COMMUNITY FACILITIES

2.13 LAND OWNERSHIP

The Study Area is divided into a number of land ownerships (or those with options on land) as illustrated in Figure 2.20.

Landownership needs to inform the preparation of the masterplan in respect to creating development parcels which can be established within landownership boundaries. This however is not always possible and should not be done at the expense of creating a high quality, well structured urban area.

The number of landowners across the area has implications on how the masterplan is delivered. This is discussed within a separate document.

		AREA (Hectares)
	Mr G Heywood	5.02
	Vranch House.	0.34
	Hill Barton Consortium (Persimmon Homes, Eagle One Homes & P E Salter) .	22.91
	Defence Estates	9.63
	Mr D Scoble, Mr R Scoble & Mrs M Gothard	5.96
	Ellen Tinkham School	1.35
	Devon County Council	32.32
	Sainsbury's Supermarkets	4.28
	M Baker	3.4
	Mr D Williams	0.21
	Barratt Homes Exeter	4.39
	Exeter City Council	2.93
	Mr D Pope, Mr J Bussell and Mr B Ashplant	2.21
	Bovis Homes Ltd.	0.26
	Mrs G Carleton	1.08
	Mr & Mrs Stockman	0.77
	White Rajah Co Ltd.	10.58
	Mr Wesley Down	0.39
	Mr and Mrs Thompson	1.04

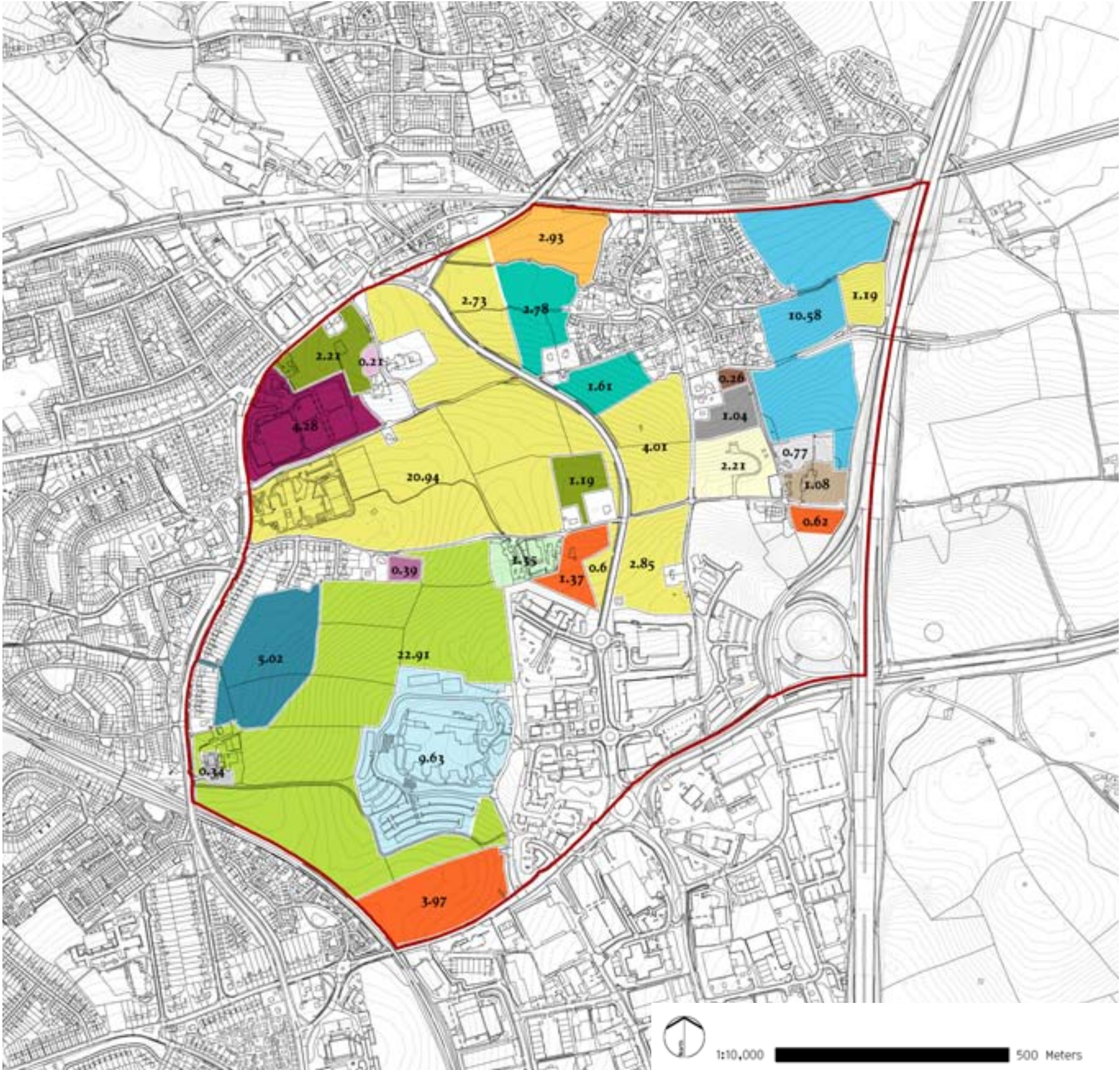


FIGURE 2.20: LAND OWNERSHIP

2.14 UTILITIES, SERVICES AND ENERGY

The study area is connected by all essential utilities as illustrated in Figures 2.21 to 2.25.

WATER SUPPLY

A trunk water main follows the route of Cumberland Way north from the Exeter Business Park before diverting towards Pinhoe at Harts Lane. A distribution main runs the length of Cumberland Way and there is a main running east to west across the site along Hollow and Gipsy Hill Lanes. There are also multiple mains serving the existing properties within the masterplanning area.

It is anticipated that capacity currently exists to supply the development, but with other developments planned within and adjacent to Exeter infrastructure improvements be will necessary if all are realised.

FOUL WATER

There are existing gravity foul sewers serving the existing developments in the north and west of the site and combined sewers are present within the Exeter Business Park in the south. Those private properties on the ridgeline are not served by public foul water systems and are assumed to have septic tanks.

Both foul sewers run to the Countess Wear Sewage Treatment Works, whilst the combined sewer heads to the Blue Ball pumping station before being transferred to the Countess Wear facility. The Countess Wear Sewage Treatment is the main plant serving Exeter and is already under pressure from expansion within the city boundary.

Both the capacity of Countess Wear Works and the existing sewers serving it are a constraint to the development of circa 2500 homes within the study area. Approximately 5km of either new or upsized foul sewer would need to be installed between the development and Countess Wear at considerable expense and disruption.

Due to the proposed Exeter and East Devon Growth Point developments SWW have submitted and received planning permission for a new Sewage Treatment Works north of Blackhorse approximately 1.5km east of the M5. Originally planned to cater for the proposed Cranbrook development the works are modular in design and capable of being expanded as demand increases. Although the works have planning consent the land is not owned by SWW.

Assuming that the new Sewage Treatment Works is provided it is anticipated that an existing gravity sewer in the north east of the site, that passes beneath the M5, could be upsized to accommodate all foul water from the development before being extended to the new Sewage Treatment Works. A pumping station would be required in the south of the site with a rising main taking the flow north over the ridgeline to a gravity sewer.

Some limited development in either the southwest or northwest corners of the site are likely to possible with connections to the existing foul sewers with minimal reinforcement of the network. The extent of this development would need to be confirmed by a study of the available capacity undertaken by SWW.

GAS

Low pressure gas mains serve the existing developments and medium pressure mains run east-west along Harts Lane and north-south along Pinn Lane. Capacity to serve the development is believed to be available, although should a gas fired Combined Heat and Power plant be proposed for the site reinforcement of the existing network would likely be required.

ELECTRICITY

A network consisting of a combination of underground and overhead 11kV cables exists within the site to provide electrical power to the existing development. A 33kV cable follows the route of Cumberland Way and a 132kV underground cable runs from Honiton Road to the Met Office via Fitzroy Road.

The Sowton sub-station does not have sufficient capacity at present to supply the development. The sub-station is due to have a new transformer installed later this year as a result of a an order from the Met Office for an additional 9MVA. It is expected that WPD will upgrade by a minimum 15MVA as a result of the Met Office's order. Allowing for the current planned extensions to the Exeter Business Park it could be assumed that the substation will have 4MVA spare capacity without further upgrade. Depending on the percentage of renewable energy and sustainable energy use criteria of the development 4MVA may be sufficient to service the proposal.

The Met Office has a 1.5MW gas fired CHP plant within their site. At present this is not used as gas prices are high and they have no use for the heat generated and they primarily require cooling. There is potential for the heat demands of the proposed residential development to balance the Met Office's cooling requirement improving the efficiency and economics of the existing CHP plant.

There are also strategic plans to install another CHP plant at the Met Office that could produce a combined power of 4MW and a similar heat output. Heat from these CHP plants could be utilised by the proposed development if a district heating network was constructed and if the Met Office were to use less power from the sub-station as a result further spare capacity could be available for the development.

TELECOMMUNICATIONS

British Telecom, Virgin Media and Cable & Wireless both have all speed fibre optic cable networks within the masterplanning area that would be capable of being extended to provide voice and data telecommunication services. Current bandwidth available for this area ranges between 10 and 20 Mbs.

Detailed infrastructure needs will be identified as the masterplan is taken forward. A key aim of the masterplan is to achieve low or zero carbon development. This requires the development of an energy infrastructure and masterplan that will achieve this objective.



FIGURE 2.21: SEWERS



FIGURE 2.22: ELECTRICITY



FIGURE 2.23: TELECOMMUNICATIONS



FIGURE 2.24: WATER



FIGURE 2.25: GAS



3.0

SITE CAPACITY & THE MASTERPLANNING CHALLENGE

3.1 SITE CAPACITY

■ The Monkerton Study Area covers an area of 172 ha. Within this there are areas of already developed land (that are not intended to be redeveloped) and playing fields that due to their location and occupying flat ground would remain. This leaves an area of 88 ha.

The flood plain is an absolute constraint to development which removes a further 3 ha of developable land, leaving 85 ha.

Sites of Local Interest for Nature Conservation, although not an absolute constraint to development, are important to retaining and promoting biodiversity and the creation of wildlife corridors as well as offering a valuable resource to the local community. Removing these from the study area leaves a final developable area of 81ha.

Within this remaining area there are a number of further constraints that needs to be considered and ideally retained and positively integrated as part of development. These include:

- the network of 'green lanes' (in addition to those identified as SLINC's);
- Pin Brook - retaining a continuous wildlife corridor along its length;
- hedgerows and trees of significant landscape, cultural and/or ecological value;
- providing an adequate buffer between development and the M5;
- providing a buffer around the Met Office for security reasons.



FIG. 3.1: STUDY AREA - 172HA



FIG. 3.2: STUDY AREA MINUS ALREADY DEVELOPED LAND THAT IS UNLIKELY TO BE REDEVELOPED AND RECREATION/OPEN SPACE THAT WOULD BE RETAINED - 88HA

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FIG. 3.3: AS FIG 3.2 ALSO REMOVING THE FLOODPLAIN - 85HA

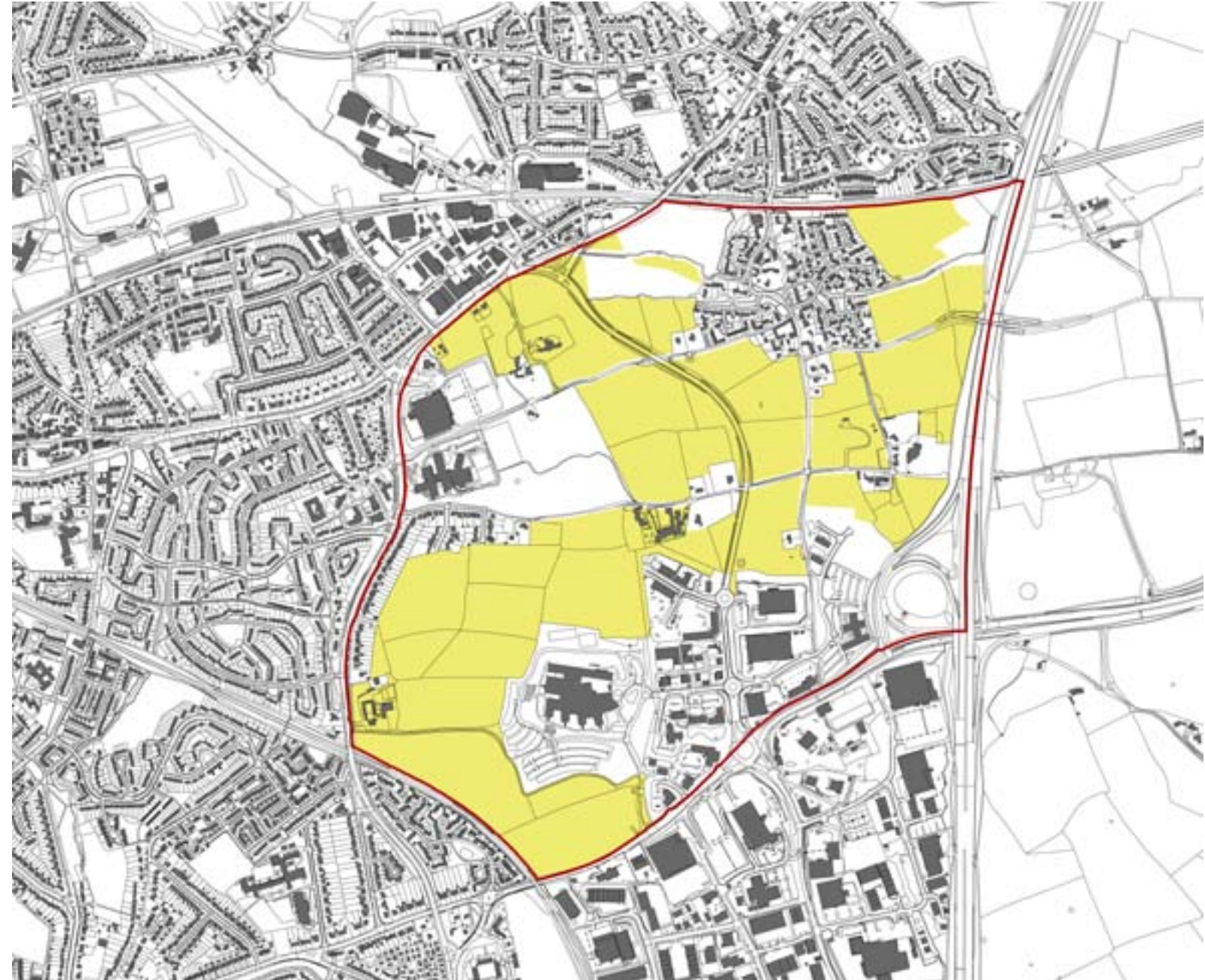


FIG. 3.4: FINAL DEVELOPABLE AREA - AS FIG 3.3 ALSO REMOVING THE SITES OF LOCAL INTEREST FOR NATURE CONSERVATION (SLINC) - 81HA

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3.2 THE MASTERPLANNING CHALLENGE

The environmental, social and economic context, along with the issues raised through collaboration with stakeholders, sets a wide range of complex challenges that need to be addressed by the Masterplan in an integrated and holistic way.

Although there are many issues that need to be tackled, there are three key challenges that, in addressing, have fundamentally shaped the masterplan . These challenges are summarised below.

What design approach should be taken to the Ridgeline?

The ridgeline is recognised as an important landscape feature and as having a vital green infrastructure role which will further increase once the proposed footbridge across the motorway is constructed. Three options were considered as to how the ridgeline should be integrated into the Masterplan.

- 1. **The Green Ridge** - leave the plateau and ridgeline undeveloped. After consideration this option was rejected as it would take out a significant area of land for potential development and not leave sufficient space to meet housing and employment demands;
- 2. **The Urban Ridge** - focus high density development along the ridge transforming the ridge into an urban street. This option was eventually rejected as it did not sufficiently emphasise the important landscape and green infrastructure function of the ridgeline and would compromise the existing relatively well vegetated nature of this ridge to the east of Cumberland Way;
- 3. **The ‘Picturesque Ridge’** - exceptional, set piece buildings set within a strong landscape structure. This option was chosen as it reinforces and celebrates the ridgeline as an important landscape feature and allows uses to be located along its length in a way that creates a strong and defining character and identity.

How many ‘Centres’ should be created, and where should they be located?

Following consideration by the consultant team as to the number and location of centres within the study areas, 3 options were taken forward for testing and consideration at a stakeholder workshop (workshop 2). These broad option were:

- 1. regeneration of Pinhoe as the main community centre to the north of the

- ridge and creating a new community centre to the south of the ridgeline;
- 2. creating a new community centre in the northwestern part of the area (near Sainsbury) and a new community centre to the south of the ridgeline;
- 3. creating a new community centre on the ridgeline that serves as the focus for development to both the north and south.

Following testing Option 1 was discounted as there are considerable access and movement difficulties in integrating new development into Pinhoe, Pinhoe centre is also some distance from the development area and there is currently limited opportunity for growth and enhancement within the centre itself which would limit the ability to deliver a successful centre for the new community. It should however be noted that Pinhoe centre should remain and be supported as the local centre and will be used by new residents in Monkerton.

Placing the centre on the ridgeline (option 3) was carefully considered as it has a number of advantages. It was however decided that this option would compromise the vision for the ridgeline and it’s desired green infrastructure function due to the density of development that would be necessary and the requirement for vehicular/servicing access. Viability advice also suggested that it would be difficult to establish a successful retail offer on or near the ridgeline when the existing Sainsbury in relatively close proximity would compete for custom.

Following the outcomes of the workshop and property/viability advice a broad options appraisal was undertaken on three further revised options, based around variations of Option 2 above. All three options assumed that an additional local centre would be created at Hill Barton in association with the proposed railway station:

- 1a. New ‘local’ centre in the north west of the site adjacent to Sainsbury and incorporating employment, retail and community facilities;
- 1b. New ‘local’ centre in the northwest of the site, adjacent to Sainsbury and incorporating retail and community facilities;
- 2. New ‘local’ centre just to the north of the ridgeline and to the west of Cumberland Way incorporating retail and community facilities. (Viability advice suggests that this location could not support the same level of retail as Option 1a due to the competition of Sainsbury and therefore this centre would be smaller than 1a).

This appraisal is set out in Section 4 of the Appendix. Option 1a was finally chosen as it is in a location with the greatest opportunity to create a viable centre that can start to be delivered from day one. It is situated at the meeting of strategic routes, a natural hub with high profile and visibility. It has potential to have a greater mix of uses than the other options, creating an active and vibrant centre that can meet the needs of both the existing and new community. It provides needed office space for companies that may be looking for a different offer than the Business Park or Science Park and it has the greatest opportunity to act as a catalyst to the regeneration of Pinhoe Trading Estate and surrounding areas.

How do we promote sustainable modes of transport over the use of the car?

Promoting walking, cycling and the use of public transport has a wide range of benefits from improving health and encouraging social interaction to reducing road congestion and helping to move towards low carbon living, tackling issues of climate change and pollution. Through the stakeholder workshops, baseline context and recognition of national and international policy the need to actively encourage sustainable means of movement has clearly emerged as a fundamental issue to be tackled within the Masterplan. In a car-orientated society the layout and design of the Masterplan needs to actively discourage car ownership and use.

The masterplan has taken this challenge head-on and it has fundamentally shaped the nature and structure of the plan. It has led the plan away from the traditional ‘gridded’ vehicular urban street pattern to one where development plots are orientated around a network of footpaths, cycleways and open spaces’. It is this ‘green infrastructure’ that forms the permeable movement network through the area, linking homes with key destinations and public transport hubs. The road network, although still allowing access to homes by car, is less permeable and seeks to discourage people using their car for short journeys such as to the local shops, school or into the City.

Providing high quality public transport both by bus and rail is also a fundamental part of the masterplan.

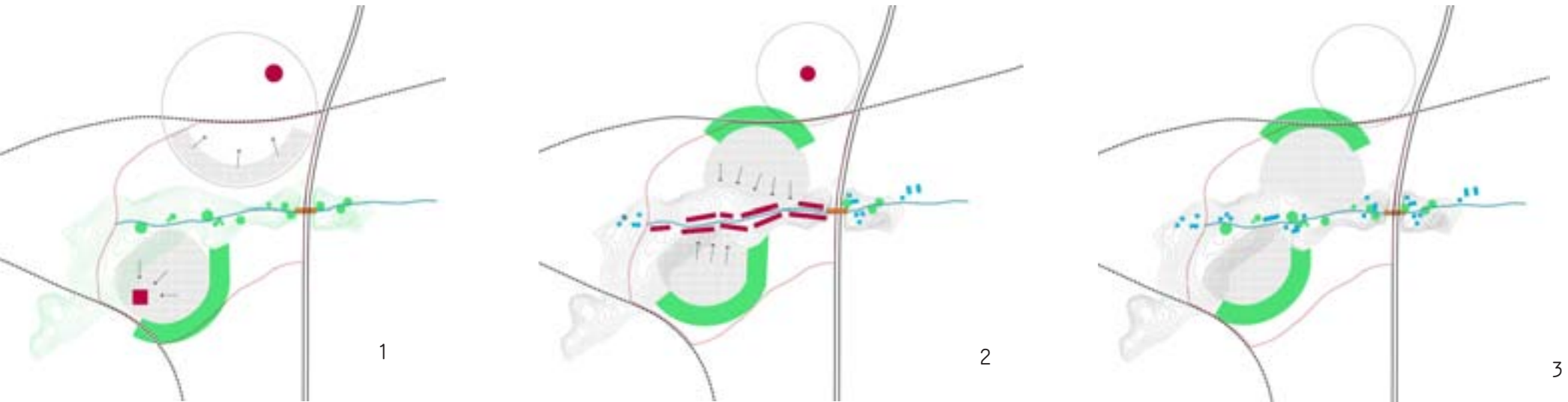


FIGURE 4.1 APPROACHES TO THE RIDGELINE
1. THE GREEN RIDGE
2. THE URBAN RIDGE
3. THE PICTURESQUE RIDGE

Many other design challenges have been addressed as part of the masterplanning process and are set out within the Framework plans within Section 5.

Bringing together the implications of the key design challenges a broad spatial growth model for the area can be developed as a starting point to delivery. This provides a conceptual model for the development of the area to create a cohesive urban area which responds to its natural and cultural setting. It comprises:

- a strongly defined ridgeline with set-piece buildings in a strong landscape structure;
- protection and integration of Pin Brook;
- creation of a new ‘district’ centre focused in the northwestern part of the area;
- development of a more local centre focused at Hill Barton;
- a strong, permeable green infrastructure network and high quality well defined public open spaces;
- excellent public transport links.

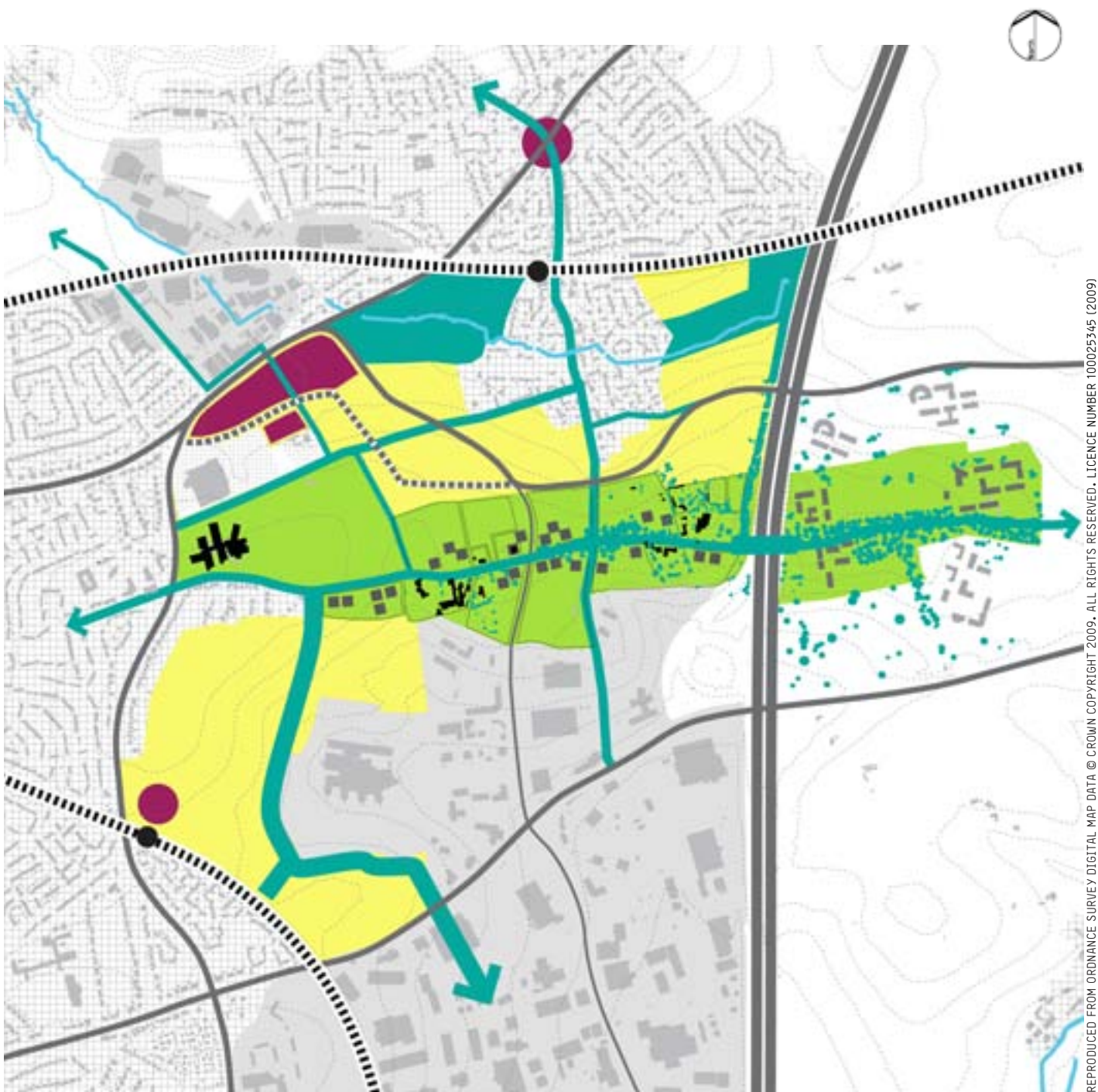


FIGURE 4.2 SPATIAL GROWTH MODEL



THE AIMS AND VISION FOR GROWTH

■ Critical to ensuring that the Monkerton and Hill Barton area becomes a well planned, coherent and high quality new part of the city is the establishment of a clear vision and set of aims for its growth.

This section sets out the aims and vision for the study area, providing the 'bigger picture' and establishing the aspirations as to the kind of place Monkerton/Hill Barton should be in the future. A vision is needed to give clear direction and to guide planning, development and investment decisions towards the achievement of an agreed aim. The vision and aims ensure that different developments and initiatives that come forward within the Masterplan area are all moving in the same direction and support each other towards a common goal.

In order for the vision to be deliverable it needs to be underpinned by a set of aims that address the social, economic and environmental priorities identified in the Section 2.

The vision and aims of the Masterplan have been developed through a process of collaborative working between the partners to the project, the consultants and stakeholders. A workshop was held with key stakeholders expressly to identify the key objectives/aims that should underpin the vision. (See appendix document) 4 groups worked to identify key objectives under 4 broad headings, based upon Government sustainable development objectives:

- How should the masterplan provide opportunities for employment and a stronger economy?
- How can the masterplan be prepared to strengthen the community and provide opportunities for everyone?
- How should the masterplan be prepared to protect and enhance the environment?
- How should the masterplan deal with transport and movement?

These objectives were taken and summarised into the 8 key aims set out in section 4.1.

These aims along with the aspirations expressed by the client team and stakeholders and the findings of the baseline context set out in Section 2 were used to establish the vision - described in Section 4.2.

4.1 THE AIMS



The images on these pages are just to give a flavour of the aims for the Monkerton/Hill Barton area. They are not prescriptive..

1 CREATE A PLACE FOCUSED ON ENCOURAGING SUSTAINABLE MOVEMENT ...

...to facilitate and encourage walking, cycling and use of public transport as the primary means of movement within the east of Exeter

- actively encourage a modal shift away from use of the private car to sustainable modes of transport. This means there needs to be obvious advantages to sustainable modes of movement over using the car including cost; the ease of journey/movement; speed of arriving at destination; flexibility; and reliability of public transport;
- ensure easy, safe and convenient access by foot, bicycle and public transport to and from the city centre, other key destinations in the City (including Marsh Barton, Sowton Industrial Estate, the University and colleges) and proposed key destinations to the east of the City;
- reorientate the focus of development onto Green Infrastructure rather than road infrastructure;
- create a hub for community facilities and public transport, well connected to surrounding communities;
- concentrate highest density development in close proximity to public transport hubs;
- provide adequate local facilities to reduce the need to travel by car and create direct routes to these facilities via a continuous network of green routes and open space.

2 CREATE A HIGH QUALITY URBAN ENVIRONMENT...

...where high density, compact mixed use development is within easy access of public open space, community facilities and the countryside

- develop a compact, higher density urban environment whilst maintaining a leafy and attractive living environment with easy access to public open space and the surrounding countryside;
- create an environment that instils a sense of pride, a place recognised for its quality environment and a desirable place to live and work;
- create well defined, high quality streets and spaces;
- ensure high quality architecture that reinforces local identity and creates a strong 'sense of place'.

3 CREATE A PLACE WITH A STRONG IDENTITY...

... using existing characteristics of place to establish a clear image and identity

- reinforce and celebrate the ridgeline as a defining feature;
- enhance and incorporate Pin Brook as an asset;
- retain and positively integrate existing green lanes into the urban form;
- wherever possible retain and incorporate hedgerows and mature trees of landscape and amenity value, adding permanence and richness to development;
- respect the setting of buildings and features of historic, architecture and cultural value;
- develop areas of different densities and character to create neighbourhoods that reflect and respond to the varying site conditions and character;
- draw inspiration from positive local vernacular and character in layout, massing, design and architecture;
- low carbon aspirations and principle - the strong green infrastructure network and use of low/zero carbon technologies - should be a defining part of the areas identity.

4 CREATE COMMUNITY...

... bringing together the mix of existing and anticipated uses to create a strong community

- encourage movement towards self sufficient neighbourhoods with adequate services, facilities and events to meet local need;
- encourage social integration, cohesion and strong physical links with existing communities;
- help to meet the needs of existing communities in Pinhoe, Whipton and Exeter Business Park/Sowton, complementing well-established uses within these communities;
- provide a site for Gypsies and travellers that takes into account their needs and the interest of local residents and other local occupiers of land and that is well integrated into its context;
- encourage interaction, community spirit and a sense of identity and community ownership/governance;
- avoid segregation of communities by large scale infrastructure;
- provide an integrated mix of housing types and tenure;
- promote healthy and happy communities, facilitating a healthy lifestyle and enjoyment of the outdoors and encouraging participation in physical activities of all types (from formal sports to informal play to gardening and walking) for all within the local business and residential community.

5 ESTABLISH QUALITY MULTI-FUNCTIONAL GREEN SPACE...

... ensuring each space achieves a range of different compatible functions and roles

- make the most of each open space as a valuable resource to meet the needs of a compact, high density community;
- ensure open spaces are easily accessible to new and existing residents and workers;
- ensure open spaces and greenways achieve a range of different compatible functions and roles;
- for the design of each space and green corridor consider functions such as leisure and recreation, food production, drainage and flood risk management, renewable energy production, managing microclimate and biodiversity enhancement.

6 PROMOTE BIODIVERSITY...

... through protecting, enhancing and creating wildlife habitats and retaining a network of wildlife corridors

- create a continuous network of hedgerows, vegetation and open space within development to create wildlife corridors linking surrounding wildlife reservoirs;
- enhance Pin Brook as a wetland habitat and establish the brook as a continuous wildlife corridor linking habitats to the east and the Clyst Valley to woodland and meadow habitats to the north of Exeter. This should be done with recognition to the limitations of habitat creation imposed by the Aerodrome Safeguarding Area;
- enhance railway lines as wildlife corridors into the city and ensure new wildlife links connect into these existing corridors;
- wherever possible, retain and enhance mature hedgerows as valuable habitats and wildlife corridor;
- ensure appropriate management of wildlife corridors and habitats can be achieved. (i.e. where possible retaining within the public realm).

7 CREATE A LOW CARBON ENVIRONMENT...

... with layout, design and an infrastructure that allows for low carbon living

- maximise opportunities for a low carbon environment at all planning and development stages, moving towards 'zero carbon' development principles;
- ensure a site-wide approach to achieving a low/zero carbon development;
- deliver sustainable energy sources and harness existing resources and potential energy sources such as the Met Office or proposed Exeter Science Park;
- minimise use of resources and promote energy efficiency within construction and operation of buildings, streets and spaces;
- promote waste minimisation/recycling through design;
- encourage innovative building techniques;
- reduce the need to travel by car, promote sustainable modes of transport and place higher density development in close proximity to local services and public transport hubs;
- use sustainable urban drainage systems;
- encourage self sustaining lifestyles including opportunities to grow food.

8 ENSURE THE MASTERPLAN CAN BE DELIVERED...

.. establishing collaborative working and a flexible framework for growth

- establish a collaborative approach to delivery;
- create a flexible framework for growth that can be delivered over time;
- involve the local community in decision making;
- ensure efficient provision of infrastructure, maximising the capacity of existing infrastructure;
- consider value generation;
- explore all potential funding sources (public, private and third sector) to enable timely delivery of community services and facilities.



4.2 THE VISION

The northeastern edge of Exeter will become a well planned, fully integrated and connected part of the city. New development will bring together what is currently a fragmented and disjointed area into a cohesive edge to the city with a strong identity and mix of uses that serves surrounding and new residents. It will be a high quality urban environment, a place to live and work defined by it's 'picturesque ridgeline' and emphasis on green infrastructure.

The 'Picturesque Ridge' will form the backbone to new development. A corridor of living, learning and leisure, this ridge will be defined by a composition of distinctive buildings set within a strong landscape structure - celebrating and emphasising the ridgeline as a recognisable feature to the north east of the city. A 'Greenway' will extend through Monkerton/Hill Barton along this ridgeline, a dedicated cycle/footpath linking Exeter to the west with the proposed Science Park, the airport, proposed new community at Cranbrook and surrounding countryside to the east.

Radiating out from the ridgeline will be a network of cycle and footpaths, green routes and open spaces that will shape the structure and character of Monkerton and Hill Barton. This environment will actively encourage a shift away from use of the private car towards walking, cycling and use of public transport. Existing and new green corridors will form the primary movement network with housing and employment reorientated to focus on these 'green streets.' The private car will still be accommodated through a careful design-orientated approach to minimise its dominance.

Highest density urban living will be focused around mixed use community centres at 'Pilton' and Hill Barton, where well defined leafy streets and spaces, excellent architecture, local

facilities and public transport hubs create active and vibrant places to live, work or visit. New development will strengthen and support existing communities, encourage interaction and provide facilities and services for Pinhoe, Monkerton, Whipton and business communities to the south. A range of housing types, sizes and tenures will promote a mixed and diverse community.

An innovative and contemporary extension to Exeter Business Park will form a new high quality entrance into the city and form a new focus for the Business Park and Sowton Industrial Estate. New offices and creative workshops within the new 'Pilton' centre will create a new business address within an urban environment and act as a catalyst for the regeneration of the surrounding area.

New and existing communities will embrace sustainable and healthy living and move towards a low carbon environment. Innovations in renewable energy and energy efficiency will allow a shift towards self sufficiency. Food production will be encouraged and car use minimised through a network of cycle and footpath linkages and a High Quality Public Transport link to key destinations.

The Pin Brook corridor will become an attractive wildlife habitat and leisure resource. It will be a place for relaxation, formal and informal recreation and a place for events and community gatherings.

Monkerton/Hill Barton will be known in Exeter as an attractive place to live and work. It will be a place that has the best of both worlds - city living with fantastic links to surrounding countryside.



5.0

FRAMEWORK PLANS

■ This section sets out a series of framework plans to guide development within the study area over the coming years. Each of the framework plans seek to contribute to the delivery of the overarching spatial vision and aims set out in Section 4. The framework plans are:

- Character and Landuse;
- Urban Framework;
- Movement Framework;
- Green Infrastructure Framework;
- Energy Framework.

The framework plans seek to provide a flexible structure for guiding change over the next 16 years. If the principles set out in these frameworks are recognised and planned for coherently then the broader vision and aims will be achieved.

The framework plans are brought together into an illustrative masterplan that demonstrates one way that these frameworks can be delivered.

5.1 CHARACTER & LANDUSE

The study area can be divided into 7 character areas, shown in Figure 5.1, each with its own distinct character and identity.

- The Picturesque Ridge;
- Pilton Centre;
- Pilton;
- Hill Barton Centre;
- Hill Barton;
- Monkerton; and
- Sowton.

The desired character of each of these areas is set out on the following pages. The scale of streets and spaces, uses, density, plot sizes, building heights, architectural treatment and design choices within each of these areas should reinforce its desired character and identity.

Each character area is a response to its existing landscape character: landform, vegetation and aspect, its existing built context and proposed uses.



FIGURE 5.1: CHARACTER AREAS

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'THE PICTURESQUE RIDGE'

Vision

A distinctive arrangement of buildings and landscape, the 'Picturesque Ridge' will form the backbone to new development and have an image and identity that sets it apart within Exeter. The Ridge will be defined by a composition of distinctive, exceptional 'set piece' buildings set within a strong landscape structure - celebrating and emphasising the ridgeline. A corridor of leisure and learning, the ridge will be home to the various educational establishments, allowing interaction and sharing of facilities, and extending to the Science Park to the east, opening future opportunities for relationships between employers and students.

Residential development along 'The Picturesque Ridge' will reinforce the special character of this area. Larger buildings or clusters of buildings within large or communal gardens will create distinctive housing types and provide a strong, generous and memorable landscape structure.

The Greenway - a strategic cycle/footpath will run along the ridgeline and across the proposed landmark bridge over the M5, creating a safe and consistent route for residents and those moving back and forth from the schools/college and Science Park. It will also provide a strategic cycle route linking the city to Exeter Airport and future growth areas further to the east. Buildings will have active frontage onto this pedestrian spine creating an active and well used corridor throughout the day. Buildings will be of innovative and contemporary design set within large, leafy grounds.

Uses

- education;
- housing;
- leisure/recreation;
- hotel

Density and height

Predominantly 35-45 dph rising to 45-55 dph in the western part of the area. Densities should allow for a strong landscape structure to be retained.

Building heights would be subject to detailed design and with consideration to the overall composition of the skyline in views from the north and south. High buildings may be appropriate in specific locations acting as landmarks.



FIGURE 5.2: THE RIDGELINE PLAN





FIGURE 5.3: VISUALISATION OF THE VIEW ALONG THE RIDGELINE

PILTON CENTRE

Vision

Pilton Centre will be a diverse and active hub for the new and existing community to the east of Exeter. It will be a high quality, high density urban centre, incorporating shops, offices, cafe/restaurants, homes and community facilities to create a self sustaining, busy and vibrant centre throughout the day and evening.

Development will form a strongly defined and high quality frontage to Pinhoe Road and Cumberland Way helping to establish a strong sense of identity and enclosure to these streets. Well defined streets and spaces with active ground floor uses within the centre will create a diverse, intimate and pedestrian friendly environment. Pilton Lane will be incorporated into the area as a green route and development will respect and respond to Pilton House.

Pilton will become a desirable office address providing an alternative offer than the Business Park and Science Park, with its more urban, mixed use setting.

Uses

Pilton Centre will have a mix of uses including:

- retail: Sainsbury and mix of complementary retail outlets;
- food and drink: opportunity for cafe, pub and/or restaurant;
- employment: office/employment;
- community facilities: this could include a community hall, doctors surgery, dentist, resource centre, a gym and church;
- residential: high density with mix of apartments and town houses;
- high quality public transport hub/transport interchange.

Densities and heights

- highest density at 65+ dwellings per hectare in addition to employment, retail and community facilities;
- 3- 4 storey buildings.





FIGURE 5.4: VISUALISATION OF THE VIEW FROM SAINSBURY'S CAR PARK TOWARDS THE PROPOSED MIXED USE CENTRE AT PILTON

PILTON

Vision

High density residential neighbourhood with a tight urban form and excellent links to quality green open space. Terraces and town houses, either opening directly onto the street or with narrow privacy strips/gardens, will form consistent frontage and define urban but leafy streets and spaces. Limited through-traffic will create pedestrian/ cycle friendly streets that promote social interaction. Development will also create strongly defined frontage along Cumberland Way establishing this as a busy, urban street.

The high quality public transport route will create a pedestrian and bus only street through development providing excellent access into the city.

Contemporary distinctive architecture will help give the area a strong identity, relating strongly to Pilton Centre.

Uses: Residential

Density and height

- 55-65 dph reflecting the areas close proximity to shops/community facilities, public transport hubs and open space;
- 2-3 storey housing - predominantly terraced.



HILL BARTON CENTRE

Vision

Local neighbourhood centre focused around the proposed railway station and Hill Barton Farm. Hill Barton Farm and associated buildings would become a new employment and residential area with potential for creative workshops and live-work units. The area will have a distinct identity, building on the existing qualities and character of the area, emphasised through its restoration and redevelopment.

A new railway station will create a hub of activity and provide excellent access to and from the Met Office, employment and surrounding communities. A local shop and other potential local outlet ground floor uses adjacent to the railway station will reinforce and support this as a focus of activity and movement and provide facilities for commuters.

Uses

- employment (office, live-work, creative workshops);
- residential;
- local shop/cafe or similar;
- railway station /transport interchange and associated car park.

Density and height

- high density, including 65+ dph within development plots as illustrated in Figure 5.6;
- 2-4 storey buildings



HILL BARTON

Vision

Leafy, high to medium density residential neighbourhood focused around a network green streets and open spaces, creating a permeable and attractive pedestrian and living environment. Limited through-traffic changes emphasis of residential streets from vehicular corridors to spaces for play, to chat and for community interaction. Strongly defined, enclosed streets of 2-3 storey contemporary terraces and town houses along with the strong ‘green streets’ network will give Hill Barton a distinct identity within Exeter. Open spaces will be well overlooked and act as ‘outdoor rooms’, performing a series of functions including children’s play, gardening, informal sports and relaxation.

Uses: Residential.

Density and height

- 55-65 dph in close proximity to Hill Barton Centre and around the park;
- 45-55 dph across the majority of the area;
- lower density 35-45 dph behind existing housing on Hill Barton Road and adjacent to the railway line;
- 2-3 storey terraces and town houses.



MONKERTON

Vision

Lower density, leafy residential area with a more rural feel than to the west of Cumberland Way, integrating and relating closely to Monkerton and the Pin Brook green space. Larger gardens, positive incorporation of existing hedgerows and mature trees and new planting will create a neighbourhood with strong landscape structure and enclosure.

Uses: Residential.

Density and height

- 45-55 dph to the west of the area adjacent to Cumberland Way becoming lower density (35-45dph) to the east;
- higher proportion of detached and semi-detached properties;
- buildings would generally be two storeys although 3-4 storey buildings may be appropriate fronting the new Tithebarn Lane link road and in other key locations.



SOWTON

Vision

Sowton will be a high quality employment area, building on the established identity of Exeter Business Park. Some business community facilities such as a creche, small gym and local shop will provide a centre/focus to the area serving both the proposed development and the wider business community at Sowton Industrial Estate and Exeter Business Park. 3-4 storey development will create a well defined, consistent and high quality frontage onto Honiton Road, recognising and reinforcing this as one of the main entrances into the city.

Uses: Predominantly employment uses with facilities for the business community.

Density and height

- predominantly 2-3 storey buildings.



SUMMARY OF USES

Figure 5.5 summarises the uses as set out over the last few pages.

MIXED USE

2 mixed use centres are located within the Masterplan area.

Pilton Centre is the main mixed use centre including retail, office, community facilities and residential uses. This Centre builds upon the existing draw of Sainsburys and its relationship to existing communities and employment. This centre will serve the existing and proposed community.

Hill Barton Centre is a local centre focused around the proposed railway station and includes employment (including live/work units) residential and a local shop.

RESIDENTIAL

Much of the masterplan area will provide homes, helping to meet the need for housing in Exeter. There are large areas of existing and proposed employment in the surrounding area and housing will allow more people to live in close proximity to work, reducing the need to travel by car. Housing across the masterplan area will be a mix of sizes, types and tenure including the provision of 35% affordable housing which should be spread throughout the development.

EMPLOYMENT

New employment will be provided in three locations within the masterplan area - each with a different character and offer. Exeter Business Park will be expanded westwards along Honiton Road, reinforcing its identity, brand and current uses. New offices within the Pilton mixed use centre will offer a mixed office environment within an urban setting. Hill Barton will offer lower key office, live/work units and/or creative workshops within a distinctive, courtyard environment.

EDUCATION

Education uses are concentrated along the ridgeline, allowing easy and safe pedestrian and cycle access, reinforcing the character and identity of the ridgeline and encouraging good interaction between these facilities.

The new **Primary School** has been located central to the masterplan area, adjacent to HQPT route and the ‘Greenway’ and in close proximity to St Lukes Secondary School to allow good interaction and sharing of facilities where appropriate. Some community facilities could be co-located with the primary school.

Ellen Tinkham School is looking to redevelop or relocate to increase capacity and improve facilities and access. The Masterplan illustrates the potential for the school to relocate to a more accessible location adjacent to Cumberland Way and on the ridgeline. In this scenario the former school site could be redeveloped for housing, including the restoration and reuse of the existing 19th century building. Following further investigation however, it may be considered more appropriate and viable for the school to expand, be provided with new access arrangements and enhanced on its existing site. If this were the case the proposed relocation site could be developed as ridgeline housing.

Proposals for a **Skills Centre** in the location shown have been progressing for some time. This location is in line with the vision and aspirations for the ridgeline. If it is decided that these proposals are not feasible then this area could become an employment area associated with the Business Park or an alternative relocation site for Ellen Tinkham School.

GYPSY/TRAVELLER SITE

The four options presented in the masterplan consultation were selected for consultation by applying the site requirements and the Core Strategy criteria to the land within the masterplan boundaries.

The points raised in the responses to the consultation have been considered, and the four options have been scored against the suitability criteria. The site north of the Met office and west of Oberon Road (consultation site 4) has been selected to be included. This selection was agreed with the All Party Member Working Group in accordance with the process agreed by the Planning Member Working Group in 2008.

This site scored well against the site selection criteria in that safe and convenient access could be provided from the new road link and that this link would be delivered at an early stage, there is good safe access to local facilities including schools. The site is remote from existing dwellings, with is considered to make it more equitable, and adequate physical separation from Ellen Tinkham School and the Met Office can be achieved to avoid potential conflict between different user requirements.

Sites on Tithebarn Lane (No. 1) and Gypsy Hill Lane (No.2) were considered unsuitable without alternative access arrangements to the current situation of narrow lanes fronting residential properties. The delivery of such a road link is not phased to be delivered until later in the development period, around 2018. The sites on Tithebarn Lane and Cumberland Way (No. 3) were considered to have greater landscape impact and sites 2 and 3 were in close proximity to existing dwellings. Responses to the public consultation mainly raised objection to the inclusion of a Gypsy and Traveller site in this area. Of those respondents who differentiated between sites the majority objected to sites 1 and

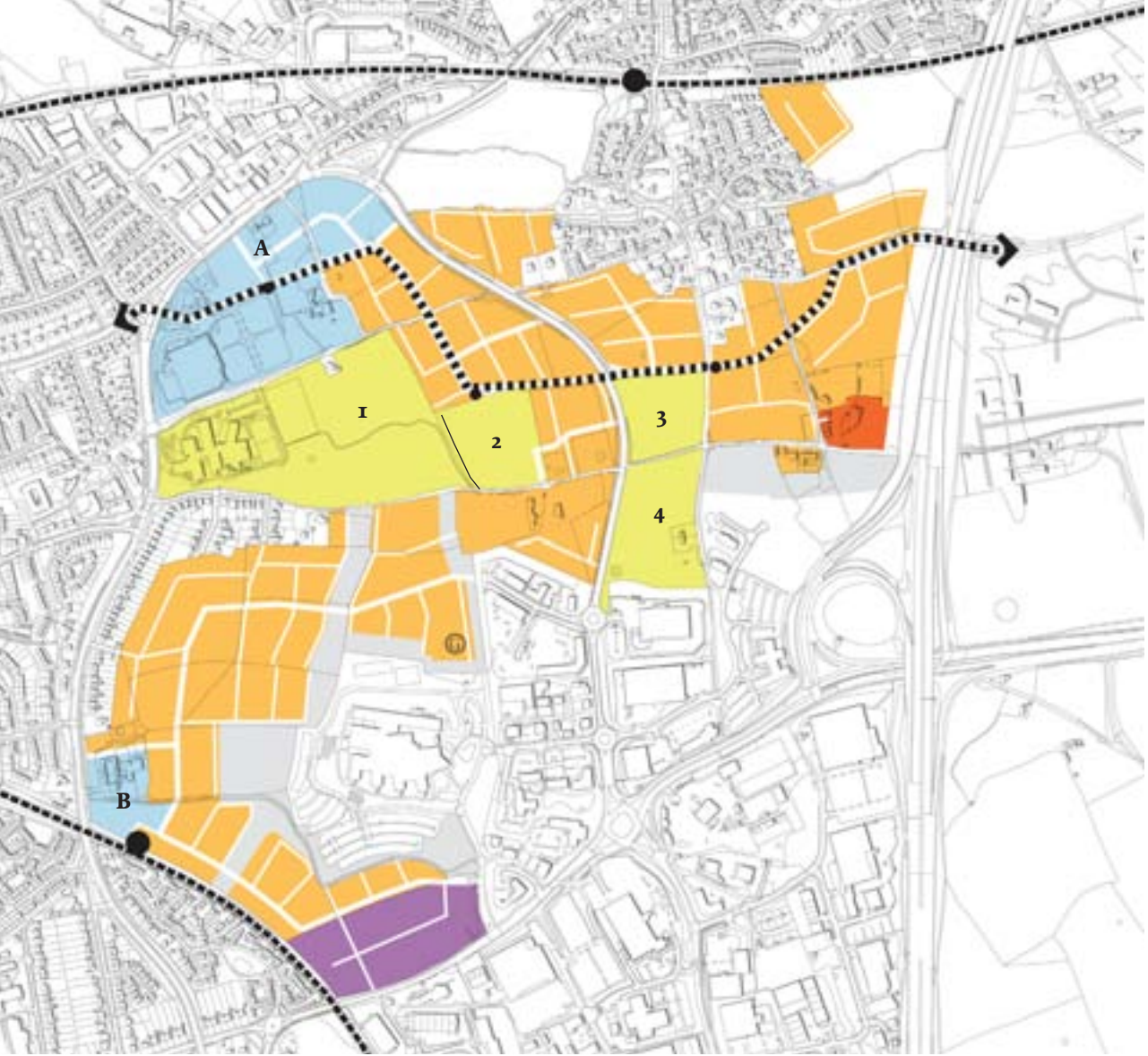


FIGURE 5.5: SUMMARY OF LAND USES

Mixed Use	Education
A. Pilton Centre	1. St Luke's School
B. Hill Barton Centre	2. New Primary School
	3. Relocated Ellen Tinkham School
	4. Skills Centre
Residential	Hotel
Employment with business community facilities.	Gypsy and Traveller residential site

2, whilst site 3 received a balance of responses and site 4 received more support than objection.

This selected option has been incorporated in the masterplan which will be presented to Exeter City Council members for approval and is intended to be adopted, following adoption of the Exeter Core Strategy, as a Supplementary Planning Document.

SUMMARY OF DENSITIES

In order to achieve the design aspirations for this area and help meet housing requirements, housing densities will be relatively high in comparison to its context. (Monkerton has an average density of 31 dwellings per hectare whilst Headland Crescent, Whipton to the west of the area is only 21 dph).

Despite modern housing development often being lower density, high density urban environments make more efficient use of land and can be attractive and desirable living environments. Victorian terraces are a prime example of this within Exeter. East and West Grove Roads in St Leonards have 82 dph and parts of St James are 57 dph - both desirable residential neighbourhoods.

Key to creating successful high density urban environments is to ensure that they are close to and have good access to quality public green spaces, community facilities and shops and good public transport links. High density streets can also be leafy and attractive if well designed.

Within the masterplan area the highest densities are located within the Pilton Centre and Hill Barton Centre, closest to community facilities, on excellent public transport routes and close to public green space and allotments. Densities generally reduce with distance from facilities.

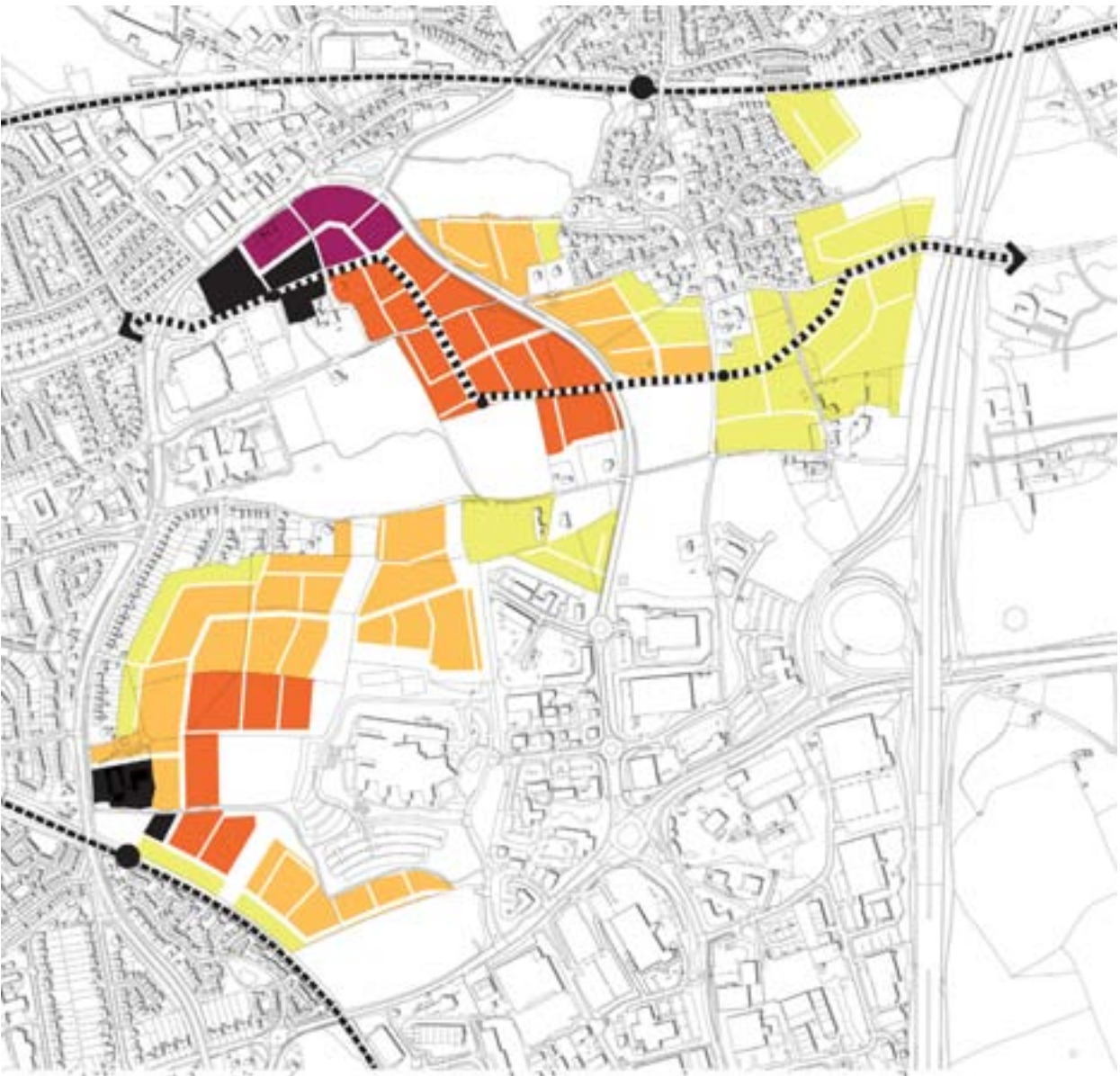
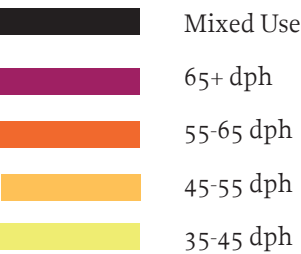


FIGURE 5.6: SUMMARY OF HOUSING DENSITIES



5.2 URBAN FRAMEWORK

The Urban Framework, illustrated in Figure 5.7, sets out the desired structure of the growth area - those elements which will allow people to easily understand the place and find their way around. An area with a clearly expressed urban structure will also have a strong image and identity.

The Urban Framework identifies the proposed main streets and spaces that form the basic skeleton of the masterplan area, landmarks, activity hubs and arrival points. The design of development should respond positively to these elements to create a development with image, identity and legibility. In practice this means:

- ensuring that buildings of an appropriate design, scale and use address the key streets and spaces;
- using landmark buildings to emphasise and create key views and vistas and to reinforce important routes or spaces;
- ensuring that building uses, movement and the treatment of the public realm support activity hubs;
- ensuring that arrival points are well designed, attractive and make it easy for people to orientate themselves.

STRUCTURING CONCEPT

The basic structuring concept for the Urban Framework is illustrated in Figure 5.7. The design and layout of the Masterplan is primarily structured to focus around the green infrastructure network rather than vehicular streets. Secondary Streets (see Section 5.3) provide access to pedestrian priority tertiary streets which act more as spaces for play and community interaction than vehicular routes. Tertiary streets provide direct links into green infrastructure routes which form a permeable network that links into the Ridgeline Greenway.

KEY ROUTES

The key routes are the main routes that residents and visitors use to move through the area and that define the way people understand it. The scale and design of buildings along these routes, and the way these routes are treated in terms of paving and street furniture, should strongly define and strengthen these important connections and their desired character. Buildings should be of sufficient height and have a consistent high quality frontage onto streets to ensure that they form strongly defined urban streets.

KEY ENTRANCES

The places that announce arrival into the city and distinct neighbourhoods. The design and quality of the buildings and public spaces at these entrances and the way they respond to the street should create a strongly defined, positive entrance that leaves a lasting positive impression. The entrances should also be designed to help people to orientate themselves and clearly understand the way to their desired destination.

ACTIVITY HUBS

Areas that will be a particular focus and concentration for activity. Activity hubs will generally have a range of community facilities and or retail/commercial outlets. They will be places where there is a lot of movement, often at the intersection of a number of routes and/or at transport interchanges. Buildings should be designed with active ground floor uses that open onto the street or spaces. The way spaces are treated should ensure that they are uncluttered and allow for a variety of uses.

LANDMARKS

Prominent landmarks contribute to the image and identity of a place, help people to orientate themselves and help identify an area and remember it. Landmarks should be located to attract attention and encourage people to move along the streets to investigate. They should also positively contribute to the quality and interest of public spaces and streets. A number of possible locations for landmark buildings are illustrated in Figure 5.8, located to emphasise key vistas, entrances or key routes. Other locations may well be defined at the detailed design stage. Landmark buildings must demonstrate exceptional levels of design.

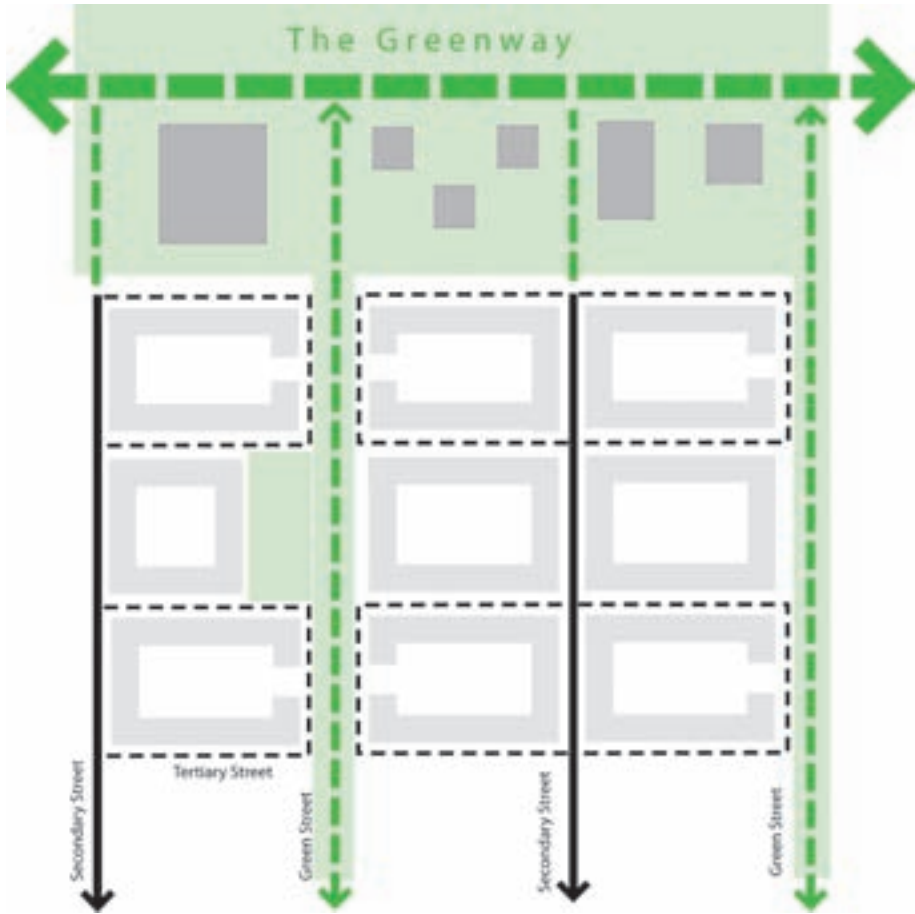


FIGURE 5.7: STRUCTURING CONCEPT

-  Key routes - streets
-  key routes - green
-  Key entrances
-  Activity hubs
-  Landmarks



FIGURE 5.8: LEGIBILITY FRAMEWORK

5.3 MOVEMENT FRAMEWORK

THE PRIMARY OBJECTIVE

The primary objective of the Movement Framework is:

to promote and encourage walking, cycling and use of public transport and to discourage the use of the private vehicle.

The design of the movement framework therefore actively encourages a modal shift away from use of the private car to sustainable modes of transport. The benefits of this are:

- to reduce vehicle emissions and use of fossil fuels;
- to reduce road congestion and minimise the impact of cars on the local and strategic road network;
- to improve health both through reducing pollution and encouraging people to walk and cycle; and
- to encourage much greater social interaction and chance encounters.

In order to achieve this there needs to be obvious advantages in using sustainable modes of movement over using the car, including cost, ease of movement, speed of arrival at destination, flexibility and reliability.

The movement framework seeks to achieve this objective through:

- creating a permeable network of high quality pedestrian and cycle routes, allowing easy and safe movement between homes to desired destinations;
- creating an excellent public transport network that allows regular, convenient and quick access into the city centre and other key destinations;
- where possible reducing permeability for cars and minimising the ability for vehicular through-movement between strategic roads. Although access to homes by car is maintained, using the car to go to local shops, schools or community facilities is discouraged by reducing internal vehicular permeability. This also minimises rat-running through the area creating a safer and more attractive living environment.

VEHICULAR

Internal vehicular permeability is limited in order to discourage use of the car and to encourage people to make local trips on foot or by bike. Vehicular access is however retained throughout the masterplan area recognising that the shift from car to other modes of transport will take time to successfully achieve and that people will still want to directly access properties by car. Layout however seeks to minimise the dominance of the car.

There are numerous pedestrian and cycle links onto Cumberland Way, however, vehicular access points onto this strategic road have been limited. This firstly seeks to encourage residents to make short distance journeys to local shops, school and facilities by foot or cycle, minimising car use. Secondly, given the busy nature of Cumberland Way, limiting junctions will reduce potential queuing which could impact on the operation of adjacent junctions.

Parking will vary from area to area and will be subject to further more detailed work/design codes. Innovative approaches to parking should be sought to minimise the impact of cars within the environment. On-street parking is promoted on primary and secondary streets as this helps to calm traffic and create more colourful and busy streets.

PUBLIC TRANSPORT

Public transport must be enhanced, subject to viability and funding. Excellent public transport links must be made with the city centre, other key destinations within the wider city and other proposed growth areas to the east. This should include the enhancement and integration of existing facilities and the provision of new public transport routes/facilities. The layout of the proposed Masterplan creates priority links for public transport and non motorised users within and through the site.

High Quality Public Transport Route (HQPT)

A HQPT route is proposed from the city centre, through the masterplan area out to Cranbrook and other proposed growth areas to the east of the city. A number of interchanges/stops are proposed within the Masterplan area to allow quick and easy public transport links into the city and other key destinations.

Bus Routes

Existing or new bus services should pass through new development providing a good level of service to the city centre and other local destinations. This is particular important for the area south of the ridge which is more distant from the HQPT route (although still within walking distance of the HQPT route and close to the proposed railway station and the existing Park and Ride.) Options to improve services include extending the frequent A service (currently serving area just west of Hill Barton) or reconsidering how the B service might better serve the area (30 minute orbital service, currently serving MET Office and north towards Pinhoe / Beacon Heath)

Rail

The area is currently served by Pinhoe Station. The significant increase in population in close proximity to the station may allow the enhancement of this station and an increase in the number and regularity of services.

The Masterplan illustrates a potential new railway station on the Exeter to Exmouth branch line in the southwest of the masterplanning area. A new station in this location would provide easy access to rail for the Sowton Industrial Estate, Exeter Business Park, Met Office and the existing Whipton Barton residential area as well as the proposed development. Considering the existing Pinhoe station, should this additional railway station be delivered, the Monkerton masterplannning area would benefit from excellent access to rail with stations in both the north and south of the development.

WALKING AND CYCLING

The Masterplan illustrates a highly permeable footpath and cycle network that can be easily accessed from all homes and that connects to key destinations. This network will encourage sustainable movement patterns. This is covered in more detail within the Green Infrastructure Framework.

One key component to achieving the vision for the Ridgeline is the creation of a consistent dedicated footpath/cycleway along the route of Hollow Lane and Gypsy Hill Lane linking Exeter to the proposed M5 footbridge and beyond. In order to achieve this, consideration needs to be given as to how the path crosses Cumberland Way. Options for this could include a well designed underpass which would allow unbroken movement along the ridge. A bridge would be an alternative option although the need for this to be accessible to bikes could make it difficult to deliver in this position. A pedestrian crossing is an alternative and easily deliverable option although this would not prevent Cumberland Way from breaking the flow of movement along the ridge. Further consideration and testing is needed to establish the best solution for crossing Cumberland Way in a manner that reinforces the role of this primary cycle/footpath link and the vision for the ridgeline.

STREET HIERARCHY

For an area to be legible and easy to navigate it is important that there is a clear hierarchy of streets. The design of these streets, the surface materials and street furniture should clearly reinforce the urban structure, defining the role that the street plays and its desired function.

There are 4 levels within the street hierarchy:

- Primary Streets;
- Secondary Streets;
- Tertiary Streets; and
- Green Streets

The following pages set out the broad street hierarchy for the masterplan area. Photographs and sections have been used to give an indication of the nature and character of each level of the street hierarchy however these are not prescriptive and there will be variations within each level of the hierarchy depending upon the character area it is in and changes in function.

Figure 5.9 shows the proposed street hierarchy.

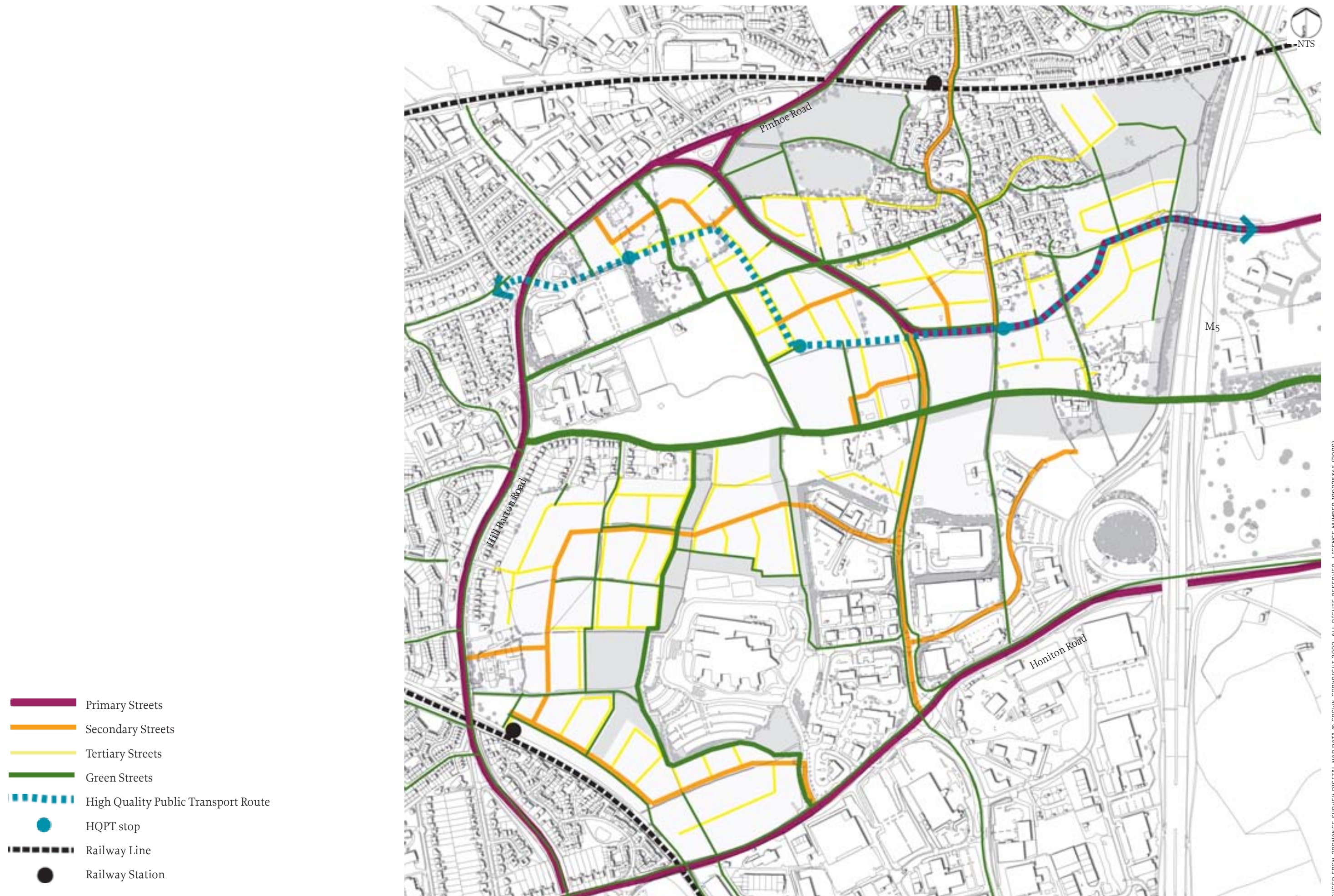


FIGURE 5.9: MOVEMENT FRAMEWORK

PRIMARY STREETS

Description & function Busy, spacious, leafy strategic city streets that link neighbourhoods and provide access into and out of the city for all vehicles. These streets need to accommodate significant vehicular movement whilst maintaining a safe and attractive pedestrian and cycle environment.

Location Hill Barton Road; Honiton Road; Pinhoe Road; Cumberland Way between Pinhoe Road and the new link road; new Link Road between Cumberland Way and Tithebarn Lane Bridge.

Users All vehicles, buses, high quality transport buses, bicycles, pedestrians.

- Typical street cross section**
- two way carriageway (minimum)
 - wide pavements and cyclepaths
 - privacy strip/gardens
 - street tree planting within parking or pavement zone;
 - regular pedestrian crossing points;
 - buildings of sufficient height and with consistent frontage to create a strongly defined street.
- Variations**
- New Link Road between Cumberland Way and Tithebarn Lane Bridge- will include a bus lane.
 - On-street parking should be provided where appropriate to allow parking and as a means to calm traffic;
 - wider streets may include central reservation to allow easier crossing and street trees.

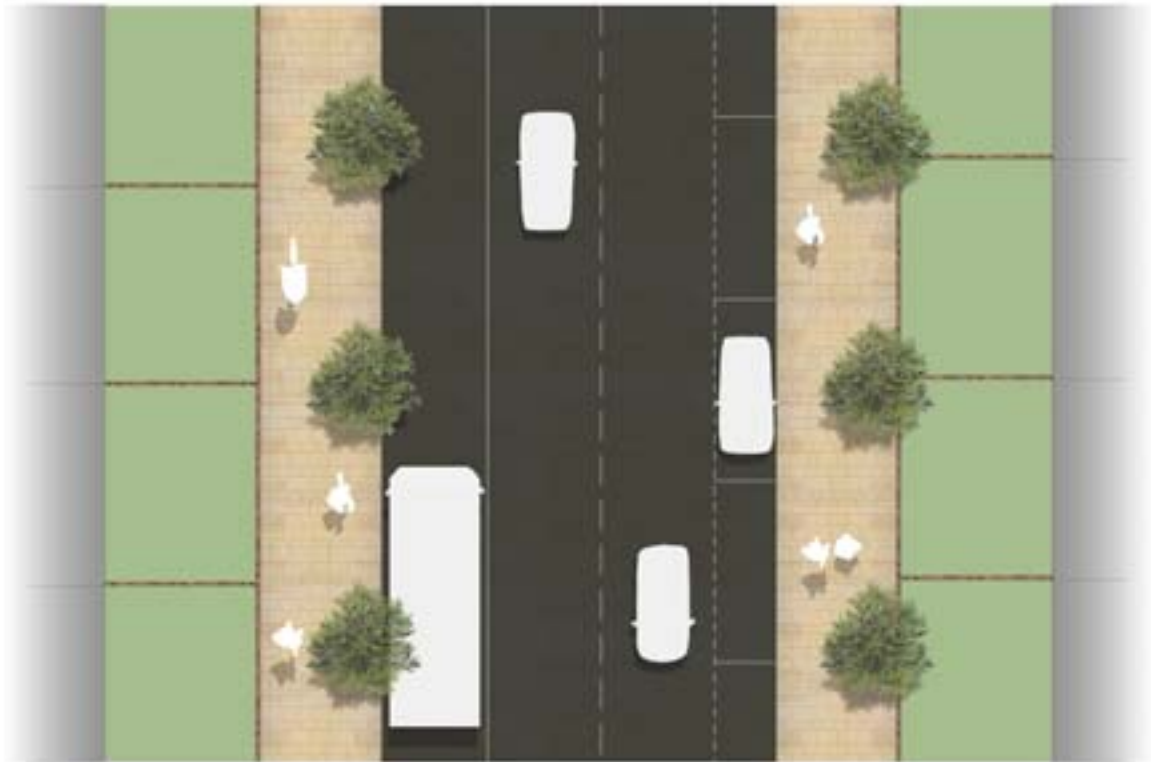


FIGURE 5.10: TYPICAL PRIMARY STREET CROSS SECTION - NEW LINK ROAD BETWEEN CUMBERLAND WAY AND TITHEBARN LANE BRIDGE

SECONDARY STREETS

Description & function	Active, colourful streets providing access to residential and business streets and properties, vital to internal movement across the area but with no wider strategic movement role. These streets are designed to avoid through-traffic and rat-running, creating a more pedestrian/cycle and living environment.
Location	Cumberland Way/Ambassador Drive from Honiton Road to proposed Tithebarn Link Road. Station Road/Pinn Lane between Pinhoe and proposed Link Road. New streets accessed from Primary Streets.
Users	Private vehicles, buses on specific routes, service and emergency vehicles, bicycles, pedestrians.
Typical street cross section	■ two way carriageway; ■ on street parking - parallel or at 45/90 degree; ■ wide pavements with kerb; ■ narrow privacy strip/garden; ■ street tree planting within parking or pavement zone; ■ buildings of sufficient height and with consistent frontage to create a strongly defined street.

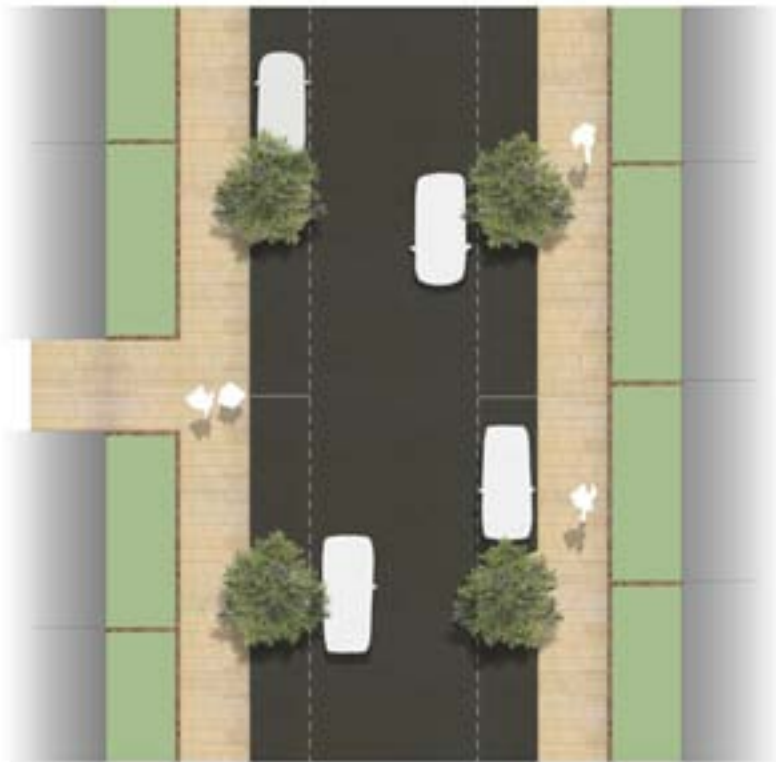
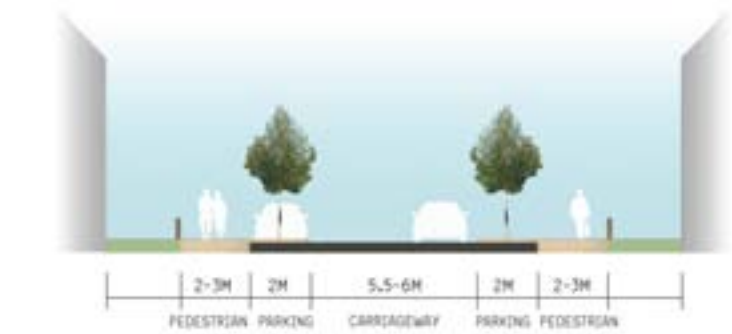


FIGURE 5.11: TYPICAL SECONDARY STREET CROSS SECTION



ABODE, HARLOW



ACCORDIA, CAMBRIDGE



FREIBURG, GERMANY

TERTIARY STREETS

Description & function Quiet, shared surface residential streets, often with no through traffic, creating spaces for interaction and play as well as movement. Many of these streets will link directly into the wider green infrastructure network encouraging residents to make local journeys on foot or by bike without having to use the road network.

Location Throughout area typically between secondary streets and green streets

Users Private vehicles, emergency vehicles, bicycles, pedestrians.

- Typical street cross section**
- shared surface
 - minimal on street parking
 - narrow privacy strip or buildings fronting directly onto the street
 - street tree planting where possible

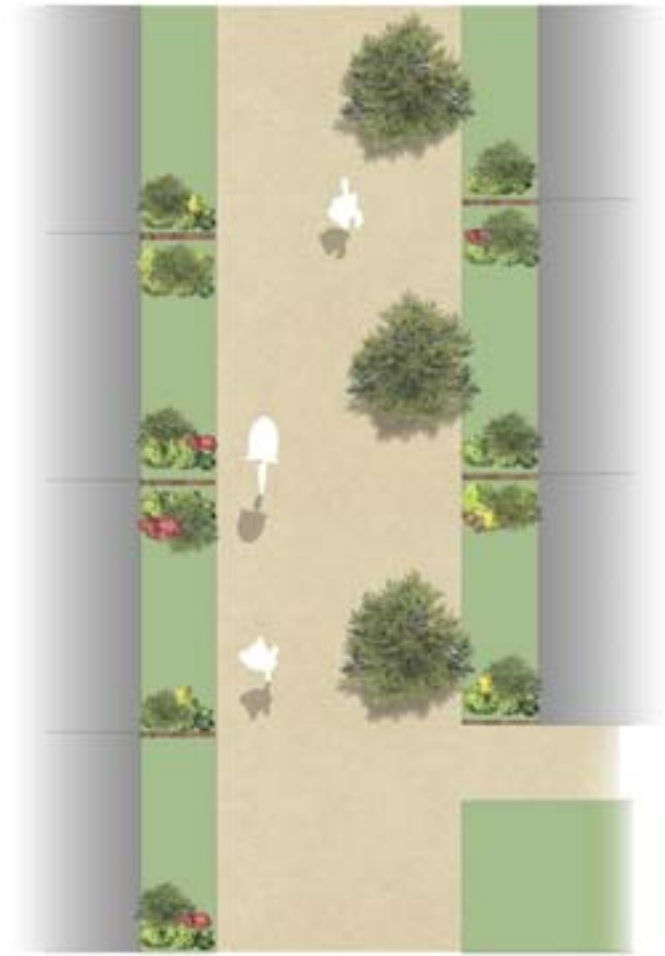
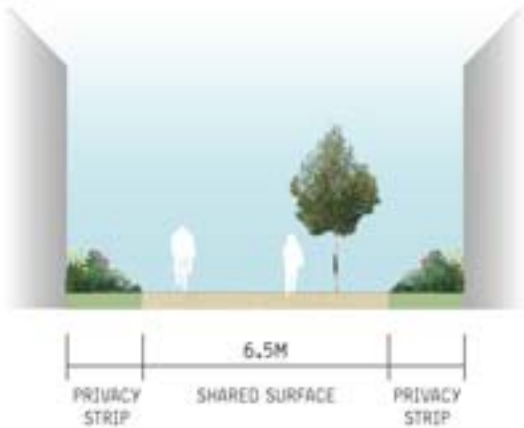


FIGURE 5.12: TYPICAL TERTIARY STREET CROSS SECTION

GREEN STREETS – FOOTPATHS AND CYCLEWAYS

Description & function	Permeable network of footpaths and cycleways linking homes and businesses with key destinations. Will vary in width and character from the strategic wide cycle and footpath along the ridgeline to narrow intimate footpaths between buildings. Often overlooked to create safer links.
Location	Throughout the masterplan area creating a finegrained continuous network of routes.
Users	Pedestrians and cyclists
Typical street cross section	▪ path/cycle route ▪ separation/definition of footpath from cyclepath along busy routes.



5.4 GREEN INFRASTRUCTURE FRAMEWORK

The Green Infrastructure Framework seeks to:

- **encourage sustainable movement** - facilitating and encouraging walking, cycling and use of public transport as the primary means of movement;
- **reinforce local identity and distinctiveness** - celebrating and integrating those elements within the landscape that can strengthen and reinforce local identity, distinctiveness and character, in particular the ridgeline, the green lanes and hedgerows and trees;
- **enhance biodiversity** - protecting, enhancing and creating wildlife habitats and establishing a network of continuous wildlife corridors connecting them together;
- **strengthen community and cohesion** - creating green space and movement networks that encourage social interaction;
- **promote health and well being** - creating an environment that promotes healthy living and a sense of well being for the local business and residential community;
- **establish multifunctional green space** - ensuring each space performs a range of compatible functions;
- **manage the environment** - using Green Infrastructure to manage flood risk, microclimate and mitigate impacts of major infrastructure.

The Framework, illustrated in Figure: 5.13 sets out the key existing and proposed formal and informal green spaces along with desired movement and wildlife corridors that help achieve the above objectives.

FORMAL OPEN SPACE

Station Road Playing Fields - is an existing formal open space asset that should be enhanced to provide improved facilities for the existing and proposed communities.

St Lukes Secondary School - St Luke’s School has a range of formal sports facilities and outdoor pitches. Every effort should be made to make these facilities available to the public for use (with a fee) when not in use by the school. An excellent example of where this works well is at Exeter University where pitches and sports facilities can be hired out when not in use by the University making it a hub of activity and busy well into the evening. This arrangement would benefit both the local community and the School (as an income) and means of achieving this must be actively sought.

Primary School - the proposed primary school may offer opportunity to provide shared formal open space and facilities with the community. Design and delivery of the school should facilitate this as an objective.

Links to Exeter Arena - this citywide sports facility lies approximately 400 metres to the north of the Monkerton area. Pedestrian and cycle links to the Arena should be enhanced and there may be opportunity to improve facilities at the Arena to serve the new and existing communities.

Equipped Childrens Play areas- although not illustrated on the plan, equipped childrens play areas would be scattered through the masterplan area, located within 500 m of all homes.

INFORMAL OPEN SPACE/STRUCTURAL LANDSCAPE

Informal open space and its associated pedestrian and cycle links provide the main focus and structure to development. Informal open spaces can be separated into ‘Parks’ and ‘Ribbons’.

The Parks: are defined, distinct and sizeable open spaces within the development. They will be well overlooked with excellent access and a range of informal recreational facilities. Proposed Parks include:

- Hill Barton Park - urban park providing kick-about and informal space for local residents to the south of the ridge and the business community at the Met Office and Business Park;
- Pin Brook Park - informal open space associated with the brook and retaining existing mature trees;
- Monkerton Park - informal open space associated with Pin Brook and in close proximity to offices and higher density housing at Pilton.

The Ribbons: are linear green spaces, often with a linking function but also with a recreation/leisure function in their own right. The Ribbons are also vital to creating consistent wildlife corridors through development. These ribbons vary in their width along their length, in places being little more than a footpath but widening in places to spaces for activity, play and sitting. The key ‘Ribbons’ include:

- the ridgeline;
- between Hollow Lane and Fitzroy Road both to the west and east of the Met Office;
- between Gypsy Hill and Pin Brook adjacent to the M5.

Other ribbons criss-cross the area along the Green Routes, creating a consistent network of green space.

GREEN ROUTES

The Green Infrastructure Framework establishes a permeable network of green routes (footpaths and cycleways) to promote walking and cycling over use of the car. The routes shown seek to create direct and attractive links between houses and businesses to key destinations.

Key routes include:

- Primary** - strategic, busy pedestrian/cycle routes used by residents, worker, students and visitors/tourists
- The Ridgeline ‘Greenway’ from Hill Barton Road to the proposed new footbridge across the M5 and the Science Park (See Figure 5.3) The establishment of this Primary car-free route will need to be phased over time as vehicular access will need to be retained along some lengths until alternative infrastructure is in place (see Section 6 : Phasing).

Secondary – well used footpath/cyclepaths used to link neighbourhoods and connect into the Primary route.

- key east-west route comprising Harts Lane - linking Hill Barton Road to Monkerton, and Tithebarn Lane linking Monkerton to the proposed link road
- key north-south route from Pinhoe Road to Fitzroy Road incorporating Pilton Lane, new link to the east of St Luke’s School and along the western side of the Met Office;
- Pinn Lane and Old Pinn Lane north-south route linking Pinhoe to the Business Park;
- Gypsy Lane connecting Monkerton to the ridgeline.

Tertiary - local footpath/cycle routes linking homes into the wider green infrastructure network.

BIODIVERSITY/WILDLIFE CORRIDORS

The network of green routes and spaces should be designed and managed in such a way as to promote biodiversity and encourage wildlife movement. Where possible mature hedgerows and trees have been retained and incorporated into the public realm which will help to ensure their protection and appropriate management.

Strategic green corridors that have been established include:

- Pin Brook which has been retained and should be managed as a wildlife corridor;
- the Ridgeline - a key green route with strong landscape structure both private and public;
- north-south green link between the ridgeline and the Exmouth Railway line which is a key wildlife corridor into the city;
- Harts Lane, Pilton Lane and Gypsy Lane.

ALLOTMENTS

4 key locations have been identified for allotments:

- to north of Met Office;
- western edge of Monkerton;
- to north east of Monkerton;
- adjacent to M5 corridor.

A range of criteria have been considered in positioning the allotments. These locations have been selected to be in close proximity to existing or proposed housing and can be delivered in a phased way. Soil quality has been considered along with issues of accessibility and other criteria listed in Section 2.11.

-  Primary footpath/cycleway
-  Secondary footpath/cycleway
-  Tertiary footpath/cycleway
-  HQPT route
-  Public Formal Recreation Space
-  Private Formal Recreation Space (with potential for community use)
-  Informal Open Space
-  Structural landscape
-  Allotments



FIGURE 5.13: GREEN INFRASTRUCTURE FRAMEWORK

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SURFACE WATER DRAINAGE

A comprehensive site wide Sustainable Urban Drainage Strategy to control 100% of surface water at source needs to be prepared as soon as possible to further inform the Masterplan and to establish the area needed within Green Infrastructure to accommodate water storage. Infiltration rates are known to be poor within the masterplanning area which, when combined with the likely requirement to accommodate a 100 year storm plus 20% for climate change, will require a combination of swales and infiltration basins.

The Green Infrastructure network will form an important part of accommodating SUDS systems as part of multi-functional open space and this has been considered in the location of green spaces within development. However, infiltration rates are likely to be inconsistent due to perched groundwater and impermeable clay layers in the subsoil.

There is green space available within each proposed phase of development that has potential to incorporate a basin, but depending on the results of infiltration testing it might be advantageous to relocate and/or enlarge the green space within that phase to take advantage of the best infiltration results and reduce the percentage of the open space that is occasional wetland (although still seeking to meet the wider Green Infrastructure structure, design objectives and principles.) Alternatively Infiltration basins can be covered in some circumstances to provide useable space, but installation and maintenance costs are increased significantly.

To reduce the impact of poor ground permeability on the Masterplan it will be essential to minimise the increase in impermeable areas within the site. To achieve this green roofs and rainwater harvesting/recycling systems should be widely used. Private parking areas, courtyards and gardens should be permeable and where infiltration is poor, underlying cellular systems should be incorporated and linked to recycling systems where possible.

5.5 ENERGY FRAMEWORK

The Government has concluded that the market will not deliver carbon savings from new buildings alone in the timescale needed, so it has proposed regulating a zero carbon homes standard to achieve this. The objective is to have zero net emissions of carbon dioxide from all energy use in new homes from 2016. This is to come from improved energy efficiency of buildings, a renewable low carbon energy supply and other measures equivalent to the remaining emissions.

Since 2006 when the Government announced its zero carbon homes target for 2016 there has been much debate and consultation on both the definition of zero carbon and the incremental tightening of Policies and Regulations in the interim to deliver improved sustainability.

Consultation is ongoing and although the outcome is not certain and could yet be influenced by changes in Government and/or EU legislation there is a developing consensus toward the following implementation timeline:

25% carbon reduction on 2006 Part L Building Regulations from 2010, 44% reduction from 2013, and zero carbon from 2016 increasing the energy efficiency requirement with allowable solutions to cover residual emissions.

Earlier this year the Housing Minister clarified that the Carbon Compliance level would be set at a minimum 70% reduction in regulated CO2 emissions post 2016, with the allowable solutions permitted to account for a maximum 30% residual emission. Some allowable solutions have been announced, these are:

- further carbon reductions on site beyond the regulatory standard;
- energy efficient appliances meeting a high standard which are installed as fittings within the home;
- advanced forms of building control system which reduce the level of energy use in the home;
- exports of low carbon or renewable heat from the development to other developments;
- investments in low and zero carbon community heat infrastructure.

However, it won't be known until 2012 whether any other solutions will join this list, such as a way to invest in properly accredited offsite renewables.

With the proposed development having an indicative delivery timescale commencing in 2010 and concluding in 2026, all phases will be subject to increasingly stringent carbon targets. Without definitive targets and criteria for achieving them it is not possible to determine exactly what infrastructure would be appropriate and most cost effective.

However, it is possible at this stage to broadly assess the viability of the two possible approaches to servicing a large developments such as the masterplan proposed:

- **Individual servicing:** Individual units receive their own dedicated utilities connections, individual gas boilers or electric heating devices are used to heat individual dwellings and the owner or leaseholder takes responsibility for maintaining the equipment inside the dwelling. This is the most common approach used in the UK today with electrical power delivered via the National Grid.

- **Community servicing:** Groups of buildings share generation equipment, heating and in some cases cooling distributed via district heat networks. Servicing multiple buildings with different uses, and therefore different demand profiles, can help to smooth out the overall demand profile, meaning that generation equipment can be operated more efficiently.

Building Regulations and planning policies at every level are seeking to encourage more decentralised energy generation. Furthermore, tighter targets for carbon reductions are making grid delivered electricity a much less attractive option as it has a high carbon content and therefore increases the amount of carbon that must be mitigated via Low and Zero Carbon (LZC) technologies such as Photo Voltaics (PV) which can increase the cost significantly.

When attempting to achieve the more onerous carbon targets, individual servicing approaches to energy provision tend to add a significant cost to individual units. A community-scale approach can be more cost effective in capital terms; but the upfront cost of installing the distribution network in the earlier phases can reduce the attractiveness of cash flow projections. Where development is due to take place across planned changes to the Building Regulations, as is the case in here, it can be even more complicated.

Only the first of the four phases of this development (as set out in Section 6) will evade the zero carbon criteria and therefore has greater potential to meet the lower targets via individual approaches. But, in doing so, it may reduce the viability of a large-scale community approach being delivered in the later stages, thus increasing the cost for the later phases. Spreading this additional cost equitably, particularly as multiple developers are involved in delivering the different phases, will need careful consideration and can only be finalised when the details of the Government's Allowable Solutions scheme are available. However, establishment of a decentralised energy network or networks is a requirement for the strategic allocation.

It is therefore considered that a community system, established during the first phase of the development and then expanded from multiple starting points, would offer the most advantageous method of meeting the carbon reduction targets for the development as a whole. The opportunities for possible community energy infrastructure for each of the phases identified in Section 6 are summarised below.

Phase 1 (2010-2014) – With construction of the phase extending beyond 2013 when carbon emission are expected to be further reduced from 25% to 44%, the potential for stand-alone renewable infrastructure such as PV and geothermal technologies to achieve these reductions is further diminished.

The Zero Carbon Hub, a non profit public/private partnership, has been undertaking studies with regard to carbon efficiencies that can be achieved by improving the 'fabric' of new dwellings to ensure an energy efficient approach to design. Their preliminary findings suggest that the proposed Fabric Energy Efficiency Standard equates to around a 20-25% reduction in carbon dioxide emissions compared to current Part L 2006 compliance.

Early adoption of these principles, prior to interim introduction of the standard in 2013, will reduce the reliance on renewable energy infrastructure.

The density of development proposed for the Hill Barton area in this phase supports the implementation of a district heating network connected to a centralised boiler. The Met Office is in close proximity and has a 1.5MW gas fired Combined Heat and Power (CHP) plant within their site. The CHP plant is not in continual operation due to fluctuating gas prices and serves primarily as a backup generator to keep essential systems operational if mains electrical supply to the site was lost. The Met Office has no use for the hot water generated and this excess heat is currently discharged without benefit.

Early discussions suggest the Met Office would be open to connecting their CHP plant to a district heating network servicing the Monkerton development. In excess of 1.5MW of hot water could be available to the residential dwellings in this scenario. Additionally the Met Office has plans to construct another CHP plant that could increase the electrical power generation to 4MW with roughly equivalent heat generation.

Whether this would qualify as a LZC system, given that heat is a by-product of the Met Office's electrical generation from gas, is questionable at this time, but may be an allowable solution. However, if agreements can be made with the Met Office to connect and operate the plant on a consistent basis Phase 1 of the development could only have to bear the cost of the district heating pipe network and not a CHP plant.

The district heating network could be extended to the Exeter Business Park extension, which is likely to have a minimum carbon reduction target of 20%, which would help to increase the diversity of heat and power demand. The district heating pipe could be laid beneath the route of the eventual road linking the residential and commercial developments.

Further extension of the district heating network to the Pilton Centre is unlikely to be viable due to the low volume of development proposed during this phase. Biomass boilers could be installed in individual buildings to meet the carbon criteria initially. However, the buildings should be designed to be connected to a site wide district heating network at a later date.

Phase 2 (2014-2018) – Phase 2 straddles the introduction of the zero carbon target in 2016, with a minimum of a 44% carbon reduction from the outset in 2014. The heat output from the Met Office's CHP plant will not be able to supply the expanded development with sufficient low carbon energy to meet the applicable targets in this phase. Similarly, individual solutions for plots developed in this phase will not be capable of meeting the carbon reductions unless significant technological improvements increase efficiencies.

A dedicated biomass CHP plant (providing both heat and electrical power) located within the site, and connected to the existing district heating network constructed during the first phase, sized to help mitigate a minimum of 70% of the regulated emissions of the whole development would be appropriate. Increasing the reduction of carbon emissions for the first phase of the development may be valid as an allowable solution for the remaining 30% of the post 2016 zero carbon homes within this phase.

It is at this stage that the development might become attractive to an Energy Supply Company (ESCO) who might contribute to the infrastructure

costs associated with the CHP plant, district heating network and electricity distribution infrastructure. If however, the first phase of the development does not already incorporate a district heating network, or has made no provision (both financial and practical) for retrospective installation, it is quite possible that the remainder of the masterplan may never provide sufficient density to support a commercial community system.

Typically an ESCO would own, or at least control, the new infrastructure supplying heat and power to the development. In this scenario it would be possible for the ESCO to operate the network as a Private Wire system or License Exempt supplier selling electrical power direct to the dwellings whilst avoiding considerable charges of associated with licensed operators. These methods are limited in size by regulations to a maximum generation of 2.5MW to domestic customer, which could serve the approx 2,500 dwellings proposed.

The East of Exeter New Community, Cranbrook, will have an ESCO operating a CHP plant serving the first 2,900 dwelling phase of the development. Construction of the infrastructure, including a district heating network, is due to commence in 2010. Cranbrook will benefit by extending the district heating network to the Skypark commercial development that is in close proximity. Diversity of heat and electrical power loadings produced by both the domestic and commercial buildings will help to balance the production of heat and power whilst maximising the efficient operating times of the CHP plant.

To achieve the best efficiencies it would be beneficial if the Monkerton development can integrate its district heating and power network with commercial and educational developments in addition to those proposed in the masterplan. The potential to supply the Met Office with electrical power in particular should be explored as they have a constant high demand which is primarily attributed to the super computers they operate continually.

Phase 3 (2018-2022) – Zero carbon targets will apply to all development within this phase and it is possible that the minimum 70% reduction in regulated CO₂ emissions could be further increased by new regulations.

The Science Park development, immediately east of the Monkerton masterplanning area over the motorway, is expected to have its own CHP plant and heat and power distribution networks operational by this time.

With the construction of the link road between Cumberland Way and Tithebarn Lane, which is likely to require improvement or replacement of the existing motorway overbridge, there is the potential for the Monkerton and Science Park district heating and electricity networks to be connected to provide a greater demand and more importantly diversity of demand.

Phase 4 (2022-2026) – Developments in the Exeter and East Devon New Growth point are predicted to necessitate the construction of a link road between Tithebarn Lane Bridge and the Cranbrook New Community prior to 2026. Further mixed residential/commercial development east of the Science Park, between Cranbrook is also a possibility.

With the construction of a new road connecting these developments there would be the opportunity to extend and combine district heating and electricity distribution networks still further. Combining these systems would present engineering challenges to efficiently manage heat flow and operational issues in terms of billing, metering and cost distribution. To overcome these obstacles it would be necessary for a single ESCO to operate the entire network.

SUMMARY

Without an awareness of the technological advances that may make individual servicing viable it is considered that the early implementation of a community energy network will be essential to the development. Whilst it might be possible for the first phase to meet the carbon target applicable during the estimated delivery period with an independent LZC energy system, it would reduce the viability of the large scale community system that will ultimately be necessary for the later phases to comply with the Regulations. Failure to impose a community approach to energy in the first phase could jeopardise any further development.

Developing and adhering to a robust energy strategy throughout the 16 year build-out period will be of paramount importance in delivering the masterplan. A piecemeal approach to providing LZC energy in the early phases will have a detrimental effect on the attractiveness of the development to any potential ESCOs who might invest in the upfront infrastructure costs. Similarly, for the development to provide an appealing long term investment opportunity, commitment to an energy strategy through either development agreements or formation of a consortium would be pivotal to any successful negotiations with an ESCO.

When developing the network it will be important to consider future loads and compatibility if and when the network is expanded or combined. Development of the heat and power networks at Cranbrook and Science Park should be monitored at a minimum and the potential for future synergies should be encouraged if possible. It will be also be necessary to begin to identify suitable locations for a CHP plant within the site and the routes of the energy networks to safeguard them from development.

5.6 ILLUSTRATIVE MASTERPLAN

The illustrative masterplan shows one outcome of the application of the framework plans. Other outcomes may be equally valid provided that the fundamental framework principles are adhered to.

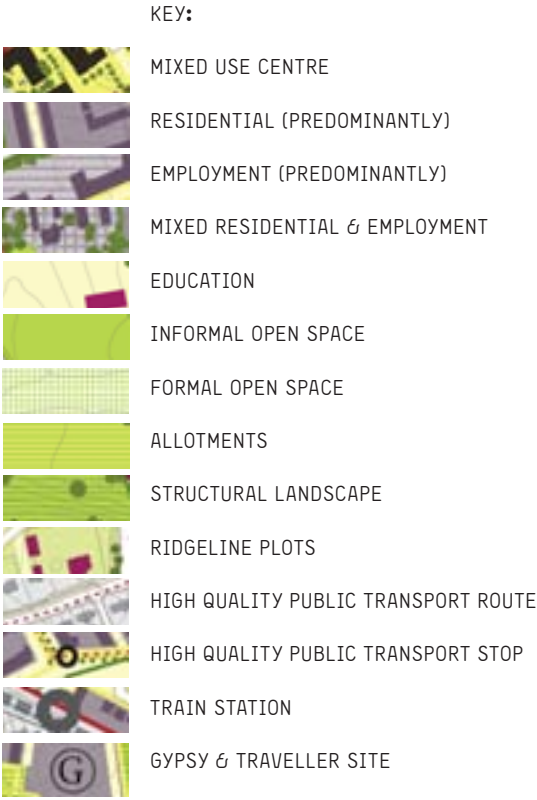


FIGURE 5.14: ILLUSTRATIVE MASTERPLAN



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6.0

PHASING

6.1 DELIVERING THE MASTERPLAN

■ The success of the Masterplan will ultimately be judged by what is delivered and the approach taken to delivery will therefore be key to its success. There are a range of mechanisms to the delivery of this Masterplan which could be considered however, it is essential that development is taken forward in a coordinated and cohesive manner with the bigger picture clearly in mind. This is important in ensuring that the overall vision and aims for the area can be achieved.

The Implementation Plan for the Masterplan is set out in a separate document.

6.2 PHASING

The growth of the Monkerton and Hill Barton area requires a phased approach to aid the viability and deliverability of the Masterplan.

This section sets out one approach to the Phasing of the Masterplan. In very broad terms there are two phases to development - the areas to the west of Cumberland Way are delivered first followed by the areas to the east, around Monkerton.

There are relatively few constraints to developing land to the west of Cumberland Way. The southwestern area in particular would require minimal strategic infrastructure, therefore potentially achieving an early viable phase. The position of Pilton Centre, adjacent to existing retail, business and established communities and accessed by existing strategic roads also means that this could be brought forward relatively early on depending upon market conditions.

Areas around Monkerton are left largely undeveloped until after the proposed Tithebarn Link Road is in place. This is in order to prevent undue pressure being put on existing junctions, particularly in the centre of Pinhoe. Leaving this area until later phases also allows growth to be concentrated in the proposed higher density areas to the west until they have been built out.

This phasing approach has been broken down further into 4 phases which are described in more detail on the following pages.

Although considered the most logical and deliverable sequence of events, this may not be the only order that development could be brought forward. However, any development brought forward out of the sequence suggested will need to be considered carefully to ensure that it does not impact upon the viability of subsequent growth.

Phase 1 (2010-2014)

Phase 1 sees the commencement of development of the Hill Barton residential area. This will include the redevelopment/restoration of the Hill Barton Farm area to create a high quality entrance into the site. The new park and green route linking up to the ridgeline would be delivered as part of this residential development along with an area of allotments/community gardens. This area can commence early on as it has few constraints and requires minimal strategic infrastructure.

Part of Pilton Centre could be commenced within Phase 1 dependant upon market demand. This would comprise retail, office and residential development and the length of the HQPT route and public realm within this area.

The extension to Exeter Business Park could be delivered within Phase 1 with no apparent constraint to its delivery.

Phase 2 (2014-2018)

This phase sees the continuation and completion of the Hill Barton area, taking development southwards to link into the employment area at Sowton and in the area to the north of the Met Office. The new Met Office railway station would be safeguarded and the associated centre would form part of this area enhancing public transport access and facilities for the communities to the south of the ridgeline.

The Pilton Centre will also be completed within Phase 2 with community facilities and residential development along with further delivery of the HQPT route and public realm.

The timing of when the new primary school needs to be developed is dependent on further work but is illustrated here in Phase 2. It would be developed on its ridgeline position connected to Cumberland Way by a new access road. If Ellen Tinkham School was to relocate (or be improved on its existing site with new access) it would commence its redevelopment in Phase 2. Each development along the ridge should contribute to the overall vision and design principles for the ridgeline so that, although developed in stages, the final ridgeline will read as a coherent and unified area and improvements to Hollow Lane achieved..

The Gypsy/traveller site could be delivered as part of Phase 1, provided the necessary infrastructure is also delivered.

Creation of the ridgeline cycle/footpath from Gypsy Hill Hotel to the new M5 footbridge (planned completion 2011) would be undertaken in association with the bridge construction. The means for the ridgeline cycle/footpath to cross Cumberland Way (as discussed in 5.3) should also be delivered at this time to reinforce the link to the new bridge. Some limited improvements to the Ridgeline route along Hollow Lane and Gypsy Hill Lane could be made although these will be limited within Phase 1 as vehicular access will still need to be maintained along both lanes.



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Phase 3 (2018-2022)

The start of Phase 3 will see the delivery of the proposed link road between Cumberland Way and Tithebarn Lane.

Pilton residential area will be developed with its associated HQPT route.

Following the relocation of Ellen Tinkham School its former site will be disposed of and redeveloped along with land to the southwest, linking it to Cumberland Way. New public open space and allotments adjacent to Pin Brook will be delivered for the new high density development to the west.

Following relocation of Ellen Tinkham School Hollow Lane from Bethany (property to east of Woodland Road) to Pinn Lane can become fully car-free.

Phase 4 (2022-2026)

Phase 4 sees the growth to the west of Cumberland Way and adjacent to Monkerton. Pinn Lane will become a footpath/cycle route only from the new link road southward to prevent rat-running between the link road and the Business Park.

The Pin Brook Park would be delivered as part of the development within this area along with the allotments. (although some of these could be brought forward at an earlier date if appropriate.)

Gypsy Hill Lane would become car free (apart from a small section outside Gypsy Hill Mews)- finishing off the Cycle/footpath Greenway along the ridge-line.



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L D Ā D E S I G N

^A Kings Wharf
The Quay
Exeter EX2 4AN
United Kingdom

^T +44 (0) 1392 260430

^F +44 (0) 1392 260431

^W www.lda-design.co.uk

LDA Design Consulting LLP
Registered No: OC307725
17 Minster Precincts, Peterborough PE1 1XX
