

CULTIVATING A NEW SUSTAINABLE COMMUNITY

# BAILRIGG GARDEN VILLAGE

Spatial Masterplan Framework

December 2021





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# THE VIS



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BAILRIGG GARDEN VILLAGE

# CULTIVATING A NEW SUSTAINABLE COMMUNITY

Bailrigg Garden Village will be a distinct community just south of Lancaster, with several thousand new homes to meet all needs and incomes, and opportunities for business creation, the university and growth.

It will be an exemplar of sustainable village design, creating space for communities to thrive whilst meeting local and national commitments for net zero carbon development. Nestled in the unique local landscape, it will be a place where people and nature coexist harmoniously,



“To have a market with locally grown produce, shops and cafes all within walking distance! I’m all for it!”

Nature on your doorstep making areas better for wildlife and for people to enjoy.



Walkable neighbourhoods to promote sustainable travel and connect easily to the city and surrounding areas.



# CULTIVATING A NEW SUSTAINABLE COMMUNITY

- Following the garden village principles (*MHCLG, Aug 2018*), clustered and compact developed areas will be surrounded by a productive and resilient green landscape, comprising pastureland, woodland, orchards and allotments, alongside a network of local waterways, including the valuable amenity of Lancaster Canal.
- People will be able to connect readily with the city, countryside and surrounding settlements, including Galgate and the University, via a series of accessible cycle and walking routes. Low carbon public transport options will be made available for longer journeys and travel by private vehicles will be minimised.
- The living and working environment will be planned and designed with the highest standards of placemaking. All buildings will be designed to use energy and resources as efficiently as possible, in line with Lancaster City Council's commitment to becoming net zero carbon by 2030.
- Settlements will be designed to sit lightly and comfortably within the existing drumlin landscape, with building orientations based on natural resources and the site topography.
- A network of blue and green infrastructure features will create resilience to flooding considering the effects of climate change, manage water resources sustainably and as far as possible alleviate existing flooding issues. Sustainable drainage features will be incorporated into the landscape and provide habitats for local wildlife, and pleasant places for people to spend time.
- Health and wellbeing are at the heart of Bailrigg Garden Village. Sport and outdoor recreation will be encouraged through a range of facilities that could include a village green, cricket pitch, and boating facilities on the canal.







A sustainable lifestyle with food production



Alternative modes of transport



“ Built in the right way, in the right place, new housing can make a positive contribution to nature and the health and wellbeing of people who live there.”

The Wildlife Trust

These universal Garden Village principles will underpin the project specific ones set out above.



Clear Identity a distinctive local identity as a new garden community.



Sustainable Scale built at a scale which supports the necessary infrastructure to allow the community to function self-sufficiently on a day-to-day basis.



Well-Designed Places with vibrant mixed-use communities that support a range of opportunities and facilities



Great Homes offer a wide range of high quality, distinctive homes.



Strong Local Vision & Engagement designed and executed with the engagement and involvement of the existing local community.



Integrated, Forward Looking & Accessible Transport that promotes public transport, walking and cycling to support the economic prosperity and well-being for residents.



Generous, Accessible & Good Quality Green & Blue Infrastructure that promotes health, well-being and quality of life.



Healthy Places designed to provide the choices and chances for all to live a healthy life.



Legacy & Stewardship Arrangements for Benefit of Whole Community should be in place for the care of community assets, infrastructure and public realm, for the benefit of the whole community.



Future Proofed designed to be resilient places that allow for changing demographics, future growth, and the impacts of climate change including flood risk and water availability, with durable landscape and building design planned for generations to come.

Source: Garden Communities (MHCLG, August 2018)

# SUSTAINABILITY OBJECTIVES

The following principles have been used to set the overall sustainability objectives for the development, so that it achieves its sustainability vision:

- **Resilience:** A restored thriving natural environment that is resilient to climate change and flooding
- **Resources:** A series of zero carbon villages embedded in a local and national circular economy
- **Connectivity:** An accessible place which prioritises active travel and low carbon transport
- **Community:** A place where people can live, work, and visit with all the social infrastructure necessary for comfortable and meaningful lives.

On the next few pages a series of objectives and accompanying performance indicators have been set out for each of the four sustainability principles.

## RESILIENCE OBJECTIVES

- Preserve and enhance the existing green and blue features running through the site, maximising their potential for varied ecological habitats, amenity, and flood resilience.
- Surface water runoff from new surfaces will infiltrate to ground in accordance with a revised Sustainable Drainage Hierarchy. Any discharge to the local watercourse will be tightly controlled to be Flood Event Resilient and reduce local flood risk.
- New landscaped ponds integrated within the landform will attenuate surface water runoff and will include a permanent body of water maximising ecological and amenity benefits.
- A sustainable approach to surface water drainage will be weaved into all levels of the development, including swales along main roads, bio-retention systems and permeable pavement systems within development plots to control runoff and diffuse pollution at source.
- Optimise density considering site location and accessibility. Plan for compact and efficient building massing, while providing dual aspect dwellings, wherever possible.
- Protect and enhance existing habitats. Create new biodiversity networks to support migration paths and ensure a resilient local ecology.
- Use seasonal planting and green space to provide useful summer shading and prevent overheating, creating a comfortable external microclimate. The streetscape should welcome solar gains and minimise wind tunnelling to provide a comfortable public realm.



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**KEY PERFORMANCE INDICATORS (KPIs) FOR RESILIENCE OBJECTIVES:**

- NET BIODIVERSITY GAIN
- URBAN GREENING FACTOR

Protect and enhance existing assets and create new biodiversity networks



Landscaped ponds to attenuate surface water run-off as well and maximise ecological and amenity benefits.

# SUSTAINABILITY OBJECTIVES

## RESOURCES OBJECTIVES

### CARBON & ENERGY

- Set a route map to demonstrate how new homes can achieve net zero carbon by 2030. This should be based on passive design and investment in renewable energy sources, and benchmarked to the RIBA 2030 Climate Challenge targets.
- Explore opportunities for renewable farms and sequestration to offset embodied carbon during construction.
- Build homes to the highest energy efficiency standards, to reduce running costs while contributing to energy resilience and climate change mitigation.
- Explore opportunities for local and decentralised energy networks, including the possibility of connecting to Lancaster University's heat network and using the Thirlmere Aqueduct to provide a water source heat pump based heat network.
- Incorporate use of smart technologies with energy networks to maximise opportunities peak demand flexibility and load sharing.
- Plan for higher density and more compact development, to avoid sprawl, protect valued green spaces, and maximise land value, whilst promoting more sustainable lifestyle patterns.

### CIRCULAR ECONOMY

- Consider redistributing and consolidating some private space to provide shared spaces, such as community houses, gardens and co-working. This will maximise the utilisation of resources.
- Eliminate waste and retain materials at their highest value over lifecycle by adopting circular design principles. This includes designing buildings for disassembly and reuse as well as lifelong, flexible occupation, and design for low maintenance, adaptability and disassembly. This reduces material impacts and can deliver cost savings.



**KEY PERFORMANCE INDICATORS (KPIs) FOR RESOURCES OBJECTIVES**

- WHOLE LIFE NET ZERO CARBON BUILDINGS (OPERATIONAL AND EMBODIED, OVER 60 YEAR LIFE SPAN)
- ZERO WASTE DEVELOPMENT
- ZERO WASTE IN OPERATION

Compact development promoting more sustainable lifestyle patterns.



Route map to be zero carbon by 2030. Passive design and investment in renewable energy sources.

# SUSTAINABILITY OBJECTIVES

## CONNECTIVITY OBJECTIVES

- Structure around compact, walkable neighbourhoods which have good access to local amenities, and that deliver health and wellbeing benefits to local communities. Prioritise people over cars.
- Create excellent walking and cycling routes as part of a network of green infrastructure. Ensure streets and pathways follow landscape contours to facilitate ease of cycling, walking and drainage.
- Promote and provide infrastructure to enable a modal shift towards active and low carbon travel.
- Support electrification of transport by providing a network of high-speed charging points.
- Limit vehicle access and choose parking location carefully in order to maximise use of space for homes, as well as green and communal spaces.
- Minimise car parking and give priority to accessible parking and shared transport platforms. Include mobility hubs at the outskirts of each of the Bailrigg Garden Village centres, to provide access to EV car clubs, bike hire, click & collect lockers and logistics/delivery services.
- Provide dedicated east-west and north-south routes for cycling and buses so that cycling, e-bikes and e-scooters are the quickest choice.
- The masterplan design should encourage use of Mobility as a Service (MaaS) and e-mobility services through embedded digital connectivity.



KEY PERFORMANCE INDICATORS (KPIs) FOR CONNECTIVITY OBJECTIVES

- % CAR FREE JOURNEYS
- % PROPERTIES WITH HIGH SPEED BROADBAND

Compact  
20-minute  
walkable  
neighbourhoods



Modal shift towards active and  
low carbon travel



# SUSTAINABILITY OBJECTIVES

## COMMUNITY OBJECTIVES

- Explore alternative routes to procurement and delivery of homes, including community land trusts and self-build models.
- Explore community models for stewardship of green infrastructure and local energy services.
- Provide access to local services to the things we need daily.
- Create local business opportunities and, in particular, encourage those that support the circular food economy.
- Provide a mix of unit sizes to enable a range of different businesses.
- Provide local work hubs to reduce the need for commuting.
- Plan for compact and efficient building massing, while providing dual aspect dwellings, wherever possible, to provide comfortable homes and mitigate impacts of overheating.
- Development should be mixed-use and tenure-blind, providing affordable homes for people at all stages of life.
- Opportunities for local training and employment as part of the construction of the development.





## KEY PERFORMANCE INDICATORS (KPIs) FOR COMMUNITY OBJECTIVES

- £ SOCIAL VALUE
- % RESIDENTS IN EMPLOYMENT OR EDUCATION
- % INDEPENDENT SHOPS / BUSINESSES

Community Stewardship of green infrastructure and local energy services.



Local business opportunities that supports the circular food economy.



# CHAPTER 1



# Background



## 1. BACKGROUND

# INTRODUCTION

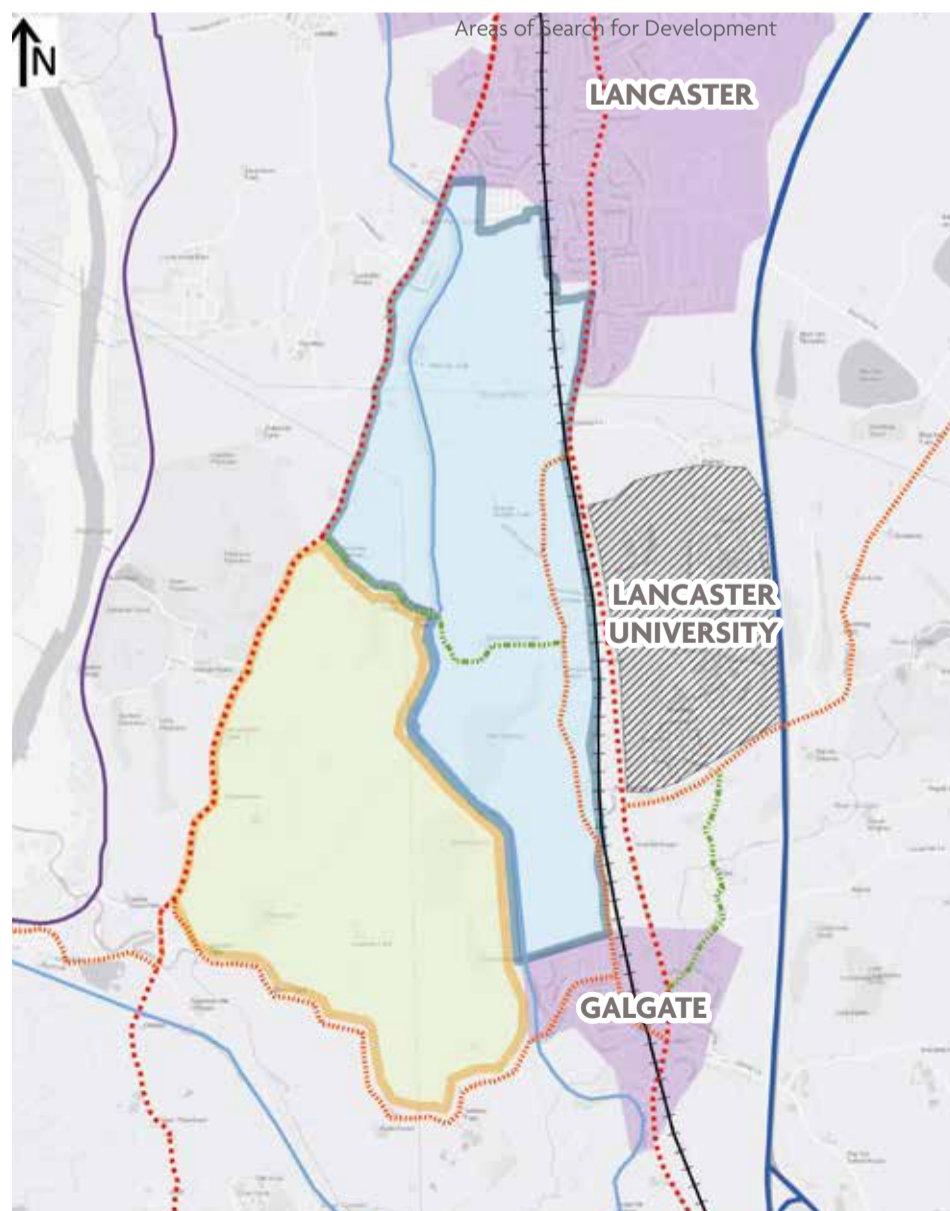
Bailrigg was identified as a site for a Garden Village development in January 2017. It is one of fourteen new settlements designated by the Government in a first ‘wave’ of Garden Villages across England.

In July 2020 Lancaster City Council adopted a new Local Plan. To provide the opportunity for development within the plan period and in the decades beyond the Local Plan identifies a Broad Location for Growth to the south of Lancaster. This Broad Location will include the site of the Bailrigg Garden Village. Other development that is not part of the Garden Village will also happen in the Broad Location for Growth. The Local Plan anticipates that the Garden Village will create a high-quality living environment place and community of at least 3,500 new houses with employment opportunities. This development will contribute positively to the well-being of Lancaster district.

The Council is committed to preparing an Area Action Plan for all the Broad Location for Growth. This will firmly allocate land for development and have policies that will apply when planning applications are being considered on this area.

The Bailrigg Garden Village is conceptualised under the terms of sustainability, seeking to introduce connectivity through sustainable modes of transport. In 2019 the project secured a Homes England Housing Infrastructure Fund (HIF) grant to enable the delivery of housing through sustainable infrastructure

The plan further envisages to incorporate the Lancaster University into the development, with goals to grow the area in a smart and connected manner.



## PROJECT SCOPE & TIMELINE

JTP were appointed by Lancaster City Council to undertake a two-staged masterplanning process to develop a community, landscape and placemaking-led masterplan for the garden village.

### Stage 1 (Jan 2020)

- Two-day workshop to scope the Garden Village in South Lancaster, looking at all contexts, constraints and opportunities.
- Building from the workshop, a two-day workshop focusing on urban design principles and good practise that should help shape the Garden Village.
- Report on overall conclusions for Stage 1 and on directions for Stage 2.

### Stage 2 (Jan-May 2021)

- Community and stakeholder engagement.
- Charrette to inform the preparation of a Draft Spatial Masterplan Framework Document to illustrate and articulate a vision for the Garden Village development.

Within the Bailrigg Garden Village Area Action Plan Issues and Options paper submitted by the Lancaster City Council (2018), three options for the development of Bailrigg Garden Village were set out within the boundary of the site’s broad area of search as outlined by the AAP.

All options stated here focuses the Garden Village on land between the main line railway and the Lancaster Canal due to the following reasons:

- The site of the University campus and the need to provide for some further growth to this precludes significant housing development between the A6 and M6.
- Development potential east of the M6 is very limited due to drainage and flood risk, landscape, habitats and wildlife considerations.
- There are significant challenges to making areas east of M6 a sustainable location for development in travel terms.

Following the Stage 1 consultation, it became clear that the land west of the canal should also be explored and considered as part of the future growth of the garden village. This led to the garden village being considered holistically between two plan periods.

- Current Plan Period (2022-2031)
- Future Plan Period (2031+)

### KEY

Current Plan Period (commencing 2022-2031)	Canal
Potential Future Plan Period (commencing 2031)	Railway
Existing settlements	A Road
Lancaster University Campus	B Road
Cycle track	Unclassified
	M6

# PLANNING POLICY BACKGROUND

## PLANNING POLICY

### Policy SG1 - Lancaster District Local Plan

Lancaster City Council commenced work on the preparation of a new Local Plan in 2014 and, following a series of informal consultation stages, submitted the plan to the government for independent examination in May 2018. The two core documents submitted were:

- A Strategic Policies & Land Allocation Development Plan Document (DPD) which provided a strategic policy framework for future growth in the district and a series of land allocations for where future development would be directed; and
- A review of the 2014 Development Management DPD which set out a series of generic planning policies which are used to determine planning applications.

The Inspector held local hearing sessions during April and May 2019. Consultation on proposed change to the plan was held in autumn 2019 and the Inspector's report found that the plan had been soundly prepared. In June 2020 the Inspector's report stated that the Local Plan provided a sound basis for planning within the district and concluded that, subject to his binding modifications, the Council could adopt the Local Plan. The Council adopted the new Local Plan on 29th July 2020, and, at the same time, resolved to undertake an immediate partial review of the plan to explore how its policies might further address the issue of Climate Change following the Council's declaration of a Climate Emergency in January 2019.



Bailrigg Garden Village Area Action Plan Issues and Options paper

## ENERGY & CARBON POLICY

### DM29 – Key Design Principles

- Consider separation distances, orientation and scale.
- No significant detrimental impact to amenity in relation to overshadowing, visual amenity, privacy, overlooking, massing and pollution.
- Small north facing gardens avoided.
- New development achieves high quality design, layout and landscaping (9.9).

### DM30 – Sustainable Design

1. Measures to reduce energy consumption and carbon dioxide emissions, and water consumption;
2. Opportunities for energy supply from on-site, decentralised, renewable or low carbon energy systems;
3. Opportunities to contribute to local and community-led energy initiatives;
4. Account of landform, layout, building orientation, massing and landscaping to minimise energy, water consumption and water efficiency measures;
5. Use of materials that reduce energy demand (for example, insulation) and increase the energy efficiency of the building/development; and
6. The reuse of existing resources (including the conversion of existing buildings) where this would be 'fit for purpose'.

### DM31 – Air Quality Management and Pollution (EVs)

Suitable level of infrastructure for charging of electric / plug-in hybrid vehicles. Establishment of a low carbon fund to incentivise and fund future households to buy electric / low emissions vehicles.

### DM53 – Renewable and Low Carbon Energy Generation

- The council will support proposals for renewable and low carbon energy schemes.
- Wind turbines will only be supported where they are located within an area identified as suitable for wind energy as shown on the Local Plan Policies Map.
- In line with local and national policy the proposal of a wind farm would need the local support of the community. Developers should work in partnership with the local community to demonstrate how the concerns and requirements of the local community have informed any proposal for a wind farm.

### DM54 – Upgrades to the National Grid

Stakeholder engagement with locals and NSIP to confirm infrastructure routes with regards to AONB, construction, adverse impacts on economics / views.

# PLANNING POLICY BACKGROUND

## WATER POLICY

In relation to sustainable drainage and flood risk, the key strategic principles include ensuring that new developments are resilient and adaptable to the effects of Climate Change, and that surface water runoff is managed to ensure public safety and amenity, with active measures to reduce flood risk to existing and new residents and businesses. Reference is also made to the delivery of green networks as part of a sustainable water management strategy, to reduce flood risk issues associated with the River Conder, Ou Beck and Burrow Beck, with allocation of land for the creation of wetland and balancing ponds. This approach will also aim to deliver water quality improvements and enhance ecological habitats.

The Local Plan for Lancaster District 2011-2031- Part Two: Review of the Development Management DPD adopted in July 2020, includes policies relating to sustainable drainage, flood risk and the wider water cycle:

**Policy DM33: Development and Flood Risk** states that:

- The risk of flooding will be minimised by adopting a sequential approach directing development to areas at lowest risk of flooding.
- The functional floodplain (Flood Zone 3b) will be protected from new development.
- There will be no net increase of flooding beyond the site as a result of development (such as increases in surface water run-off or the reduction in the capacity of flood storage areas).
- There will be no adverse effect on the operational functions of any watercourse or existing flood defence infrastructure.
- All development proposals will take into account the council's most up to date Strategic Flood Risk Assessment

**Policy DM34: Surface Water Run-Off and Sustainable Drainage** states that:

- New development will follow the Sustainable Water Drainage Hierarchy, which promotes in order: infiltration at source, attenuated discharge to a surface water body, attenuated discharge to a surface water sewer and attenuated discharge to a combined sewer.
- The surface water drainage strategy will incorporate where appropriate the following attenuation measures: storage of surface water for later use, infiltration techniques, attenuation of surface water in ponds or open features and attenuation in storage in tanks.
- Sustainable drainage systems will be designed considering to the Department for Environment, Food and Rural Affairs technical standards (2015) or any future replacement

**Policy DM35: Water Supply and Wastewater** states that:

- Adequate water supply, surface water drainage, foul drainage capacity must be available to serve all new developments.
- Water efficiency measures should be incorporated into the development. The design of non-residential building development should enable achievement of the BREEAM 'Excellent' standard.

**Policy DM36: Protecting Water Resources and Infrastructure** states that:

- New development must not have a detrimental impact on surface water and groundwater quantity and quality caused by water run-off into nearby waterways, or a detrimental impact on bathing waters. Where possible these water resources will be improved.
- New development will consider effective and efficient disposal of wastewater.

The policy documents also include Planning Advisory Note 3: Surface Water Drainage, Flood Risk Management and Watercourses, updated in October 2020. This document highlights the significant merits in providing green solutions to surface water management that provide benefits not only to people and places, but also to ecology, local habitat, and biodiversity. It also states that discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield run-off rate (QBAR). Attenuation will be provided for storm events up to and including the 1 in 100 year + 40% allowance for climate change. The drainage design will consider safe exceedance overflow routes, to protect people and buildings.

### Lancaster South Area Action Plan DPD

It is important to note the Local Plan sets a strategic direction on future growth in South Lancaster but it does not set the detail. It provides a broad location in which development opportunities will be explored (but it does not set specific allocations) and it provides key growth principles (but not specific policies to direct development proposals).

To provide this more detailed framework, Policy SGI commits the Council to the production of an Area Action Plan DPD which will provide specific guidance on development in South Lancaster, including the delivery of Bailrigg Garden Village.

The DPD will seek to provide specific guidance for future development and growth in the South Lancaster area, providing a clear design framework for all development proposals in this area. The DPD will look at growth within the current plan period but will also look at opportunities for future growth beyond the life of the current local plan, as highlighted in the plan below.

The Council are at an early stage in the preparation of the Area Action Plan DPD but are seeking to make swift progress to deliver an adopted planning position for growth in this area as soon as possible. A key informant for the plan is this spatial masterplan framework and a design code for Bailrigg Garden Village these will guide the content and direction of the DPD moving forward.

Lancaster City Council will prepare a Lancaster South Area Action Plan that will allocate land for development and help to guide the preparation of future planning applications and against which future development proposals and planning applications will be assessed. The Area Action Plan will be guided by the Masterplan in determining where development will come forward and where it will not.

# PLANNING POLICY BACKGROUND

## FURTHER PLANNING POLICY

In 2019, Lancaster City Council declared a climate emergency and committed to becoming 'net-zero carbon by 2030'. The adopted Local Plan (2011-2031) highlights the strategic importance of carbon mitigation and biodiversity enhancement through all new developments. However, the local planning authority has committed to undertaking an immediate, climate-themed Review of the Local Plan to incorporate the actions and directions of the climate emergency declaration. The scoping consultation took place in 2020. The 2nd Stage consultation is due to take place in 2021 to ensure that the Local Plan includes ambitious mitigation and adaptation measures necessary to address the climate emergency.

The review of the Local Plan is likely to place new expectations on new development in the context of energy, carbon and water policy. The following policies are of relevance to this site and are all being reviewed to explore the potential for enhancing climate change performance:

- SP4 Priorities for Sustainable Economic Growth
- SP8 Protecting the Natural Environment
- SP9 Maintaining Strong and Vibrant Communities
- SP10 Improving Transport Connectivity
- SC4 Green Space Networks
- SC5 Recreation Opportunity Areas
- T2 Cycling and Walking Network
- DM2 Housing Standards
- DM27 Open Space, Sports and Recreational Facilities
- DM29 Key Design Principles
- DM30 Sustainable Design
- DM31 Air Quality Management and Pollution
- DM33 Development and Flood Risk
- DM34 Surface Water Run-Off and Sustainable Drainage
- DM35 Water Supply and Wastewater
- DM36 Protecting Water Resources and Infrastructure
- DM43 Green Infrastructure
- DM45 Protection of Trees, Hedgerows and Woodland
- DM53 Renewable and Low Carbon Energy Generation
- DM57 Health and Well-Being
- DM58 Infrastructure Delivery and Funding
- DM59 Telecommunications and Broadband Improvements
- DM60 Enhancing Accessibility and Transport Linkages
- DM61 Walking and Cycling
- DM63 Transport Efficiency and Travel Plans
- DM64 Lancaster District Highways and Transport Masterplan

The Climate Change Act was amended in 2019, so that the UK Government is committed to end its contribution to global heating by 2050, by bringing all greenhouse gas emissions to net zero. In May 2021 the Government committed to cutting carbon emissions by 78% by 2035.

The current policy requirements around sustainability including energy, carbon and water have been extracted from the key policy documents introduced in the previous page. They have been considered within our masterplan framework.

# CHAPTER 2





An illustration of a park scene. In the foreground, a young girl with long brown hair, wearing a white shirt and blue pants, is riding a blue scooter. To her left, another girl with long dark hair, wearing a pink shirt and blue pants, is riding a red bicycle. In the background, a third girl with long blonde hair, wearing a blue shirt and red pants, is walking. The scene is set in a grassy area with various plants, including purple flowers and a large green bush. In the distance, a simple house with a brown roof is visible. The sky is a light blue, and there are some yellow and green abstract shapes in the upper right corner, possibly representing sunlight or foliage. The overall style is flat and colorful.

# Site Context

*It is important to understand and respond to the existing context, all its constraints and assets, in order to design a place that will be a valuable addition to the area. This chapter analyses the physical characteristics of the place we are working with and studies its distinctive character and significance to make sure the design solutions are right for their setting.*

## 2. SITE CONTEXT

# THE SITE

### SITE LOCATION

Bailrigg is located to the south of the City of Lancaster in the Lancashire ceremonial county, North West England.

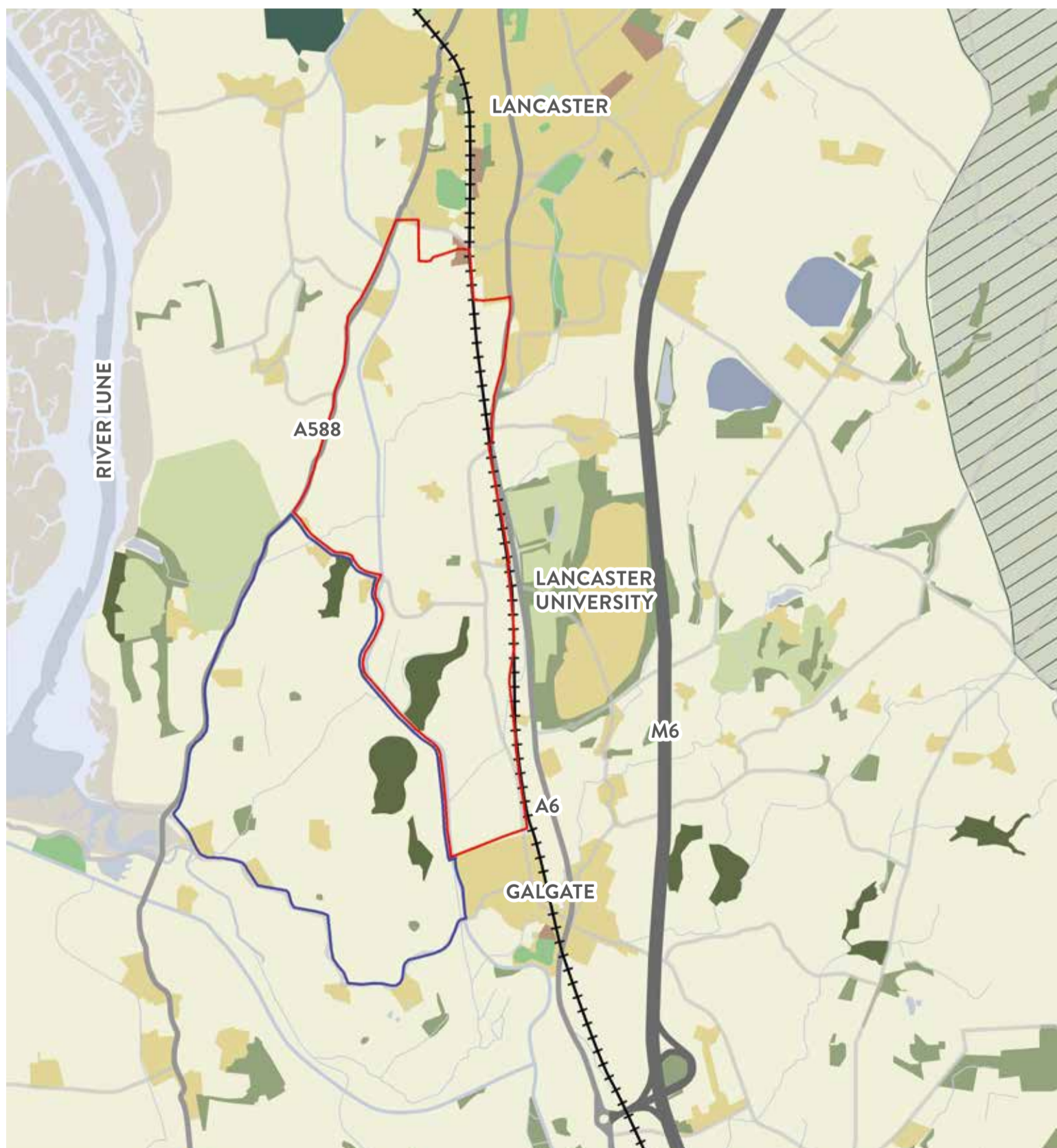
The site is adjacent to major north-south connection routes, including the West Coast Main Line that connects Lancaster to London and Scotland. The site is further bounded by A588 to its west, A6 and M6 to its east that runs to adjacent towns and cities including Preston and Manchester to its south, Kendal and Carlisle to its north.

There are major blue and green assets in the wider area surrounding the site, including the River Lune connecting to the Irish Sea to the west, and the Forest of Bowland Area of Outstanding Natural Beauty (AONB) to the east.

Lancaster is en route to the Lake District and lies three miles inland from coastal town of Morecambe.

#### KEY

- Major settlement area
- National Park / AONB
- Major water bodies
- M6
- Other Motorway/A-Roads
- West Coast Main Line
- Lancashire Boundary
- Bailrigg Garden Village Site Location

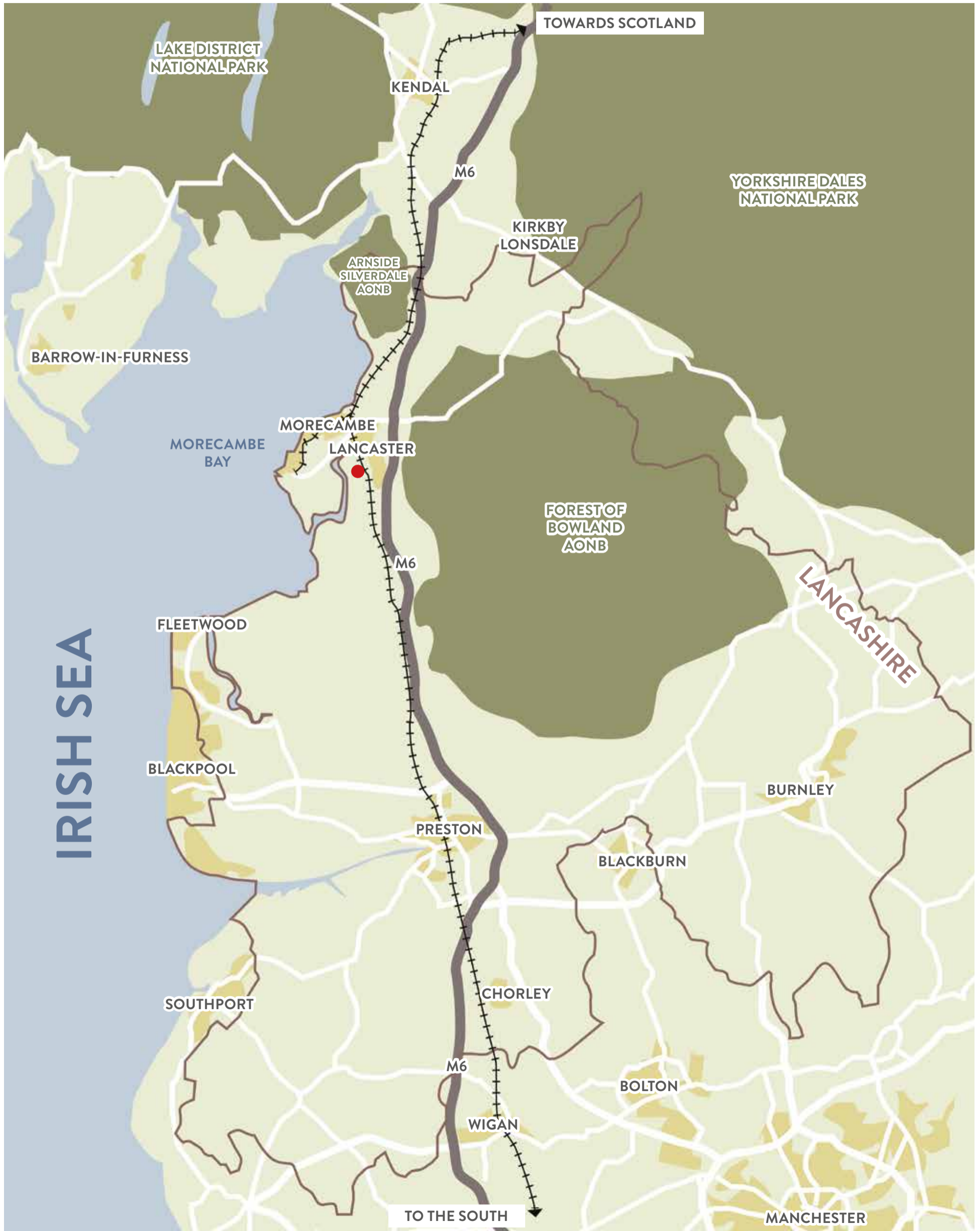


#### KEY

- Existing settlement area
- Ancient Woodland
- Area of Search for development commencing Local plan period up to 2031
- Area of Search for development commencing after 2031
- West Coast Main Line
- Motorway
- A-Road

Local Context

# THE SITE



Regional Context

## 2. SITE CONTEXT

# CURRENT CHARACTER

### SITE TODAY

The majority of the site today is greenfield land, characterised by an undulating topography. Sheltered, tranquil valleys and sweeping views from the tops of windswept drumlins are punctuated with pylons running through the site.

There are strong hedgerows and patches of ancient woodland, which mark the top of the drumlins.

Within the general area of search existing settlements are few. Many of the fields are used for grazing by cows and sheep.

The Lancaster Canal running North South is the site's most important asset, connecting the Garden Village with Lancaster City, Galgate and beyond.

Since the donation of 80 hectares of land in 1963 by Lancaster City Council in 1963, Bailrigg is the home of Lancaster University's campus.

### THE STORY OF THE LAND

This chapter examines the local context, detailing observations from site visits and recounting stories from people familiar with the land. It explores the richness of the landscape and the importance of rooting the emerging vision masterplan in the land and its people.

Today, people, animals and nature are disconnected. The masterplan seeks to revive an integrated and balanced relationship in order to create a place that supports people, animals and nature in the long term, alongside recognising the importance of land management and habitat richness.



“Develop a settlement that sits within the landscape or is brave enough to own it rather than being apologised for with a hillocky privacy curtain”



## WIDER GREEN & BLUE SETTING

### INTRODUCTION

#### Designing for Wildlife

JTP have been collaborating with the Wildlife Trusts on several projects, bringing true biodiversity net gains to schemes and creating natural landscapes and parks that people love.

Designing places for wildlife has the added benefit of bringing nature closer to people, which has been proven to improve mental health and wellbeing.

#### Prioritising Landscape

All too often the design of strategic land projects is led by transport connectivity and optimisation of developable area. Prioritising this has led to places that are homogenous, lacking character and ultimately do nothing to enhance local character, nature or natural assets. Places people do not want to live.

We are offering a different design methodology and solution, with a truly landscape led approach. Putting landscape first leads to places that are distinctively local and improves quality of life for people, nature and wildlife.

#### Landscape-led

1. Understanding and **responding** to the **existing landscape** and **topography**.
2. Reconnecting existing remnants of woodland with a **green necklace** of natural connections for **wildlife**. Improving biodiversity and pollination.
3. Promoting **active lifestyles, health + wellbeing** through improving pedestrian and cycle connections. People will be able to walk out their front door and **immediately access natural connections**.
4. Producing food locally to **celebrate local assets and heritage**. Growing more organic, **local varieties**, and building **healthy soil**. Creating a broader local offer.
5. Interweaving **parks and recreation** for people into the wider natural network.
6. Providing choices in how people move, in order to support a modal shift away from use of the private car.
7. Creating developable parcels that are set within distinctive landscape, building on local character and benefitting from beautiful green links, **connecting the community to the countryside**.

“The key message is a need for more ecological networks and for them to become bigger; better and more joined up.”

“Built in the right way, in the right place, new housing can make a positive contribution to nature and the health and wellbeing of people who live there.”

The Wildlife Trust

# WIDER GREEN & BLUE SETTING

## MAKING SPACE FOR NATURE

### Finding space for homes

The government commissioned The Lawton Review, to review how England's wildlife and ecology network could be improved.

The 'Making Space for Nature' report was published in 2010, concluding that England's wildlife sites, despite their diversity, did not comprise a coherent and resilient ecological network. Isolated nature reserves across England are not sufficient to maintain ecological connectivity as species are unable to move, or adapt quickly enough, in landscapes fragmented by development and intensive agriculture.

To reverse the effects of environmental degradation, the report recommended action at a 'whole landscape' level, interconnecting sites of high quality, which are biologically diverse, and to allow species to move between them.

The UK housing market is faced with an unprecedented crisis, and drastic measures are required for its resolution. 340,000 new homes per year are needed in England to address a shortfall of housing.

In 2015, the Government set out an ambition to build 300,000 new homes every year across the country. The challenge is to build new homes in places people want to live, work and create communities.

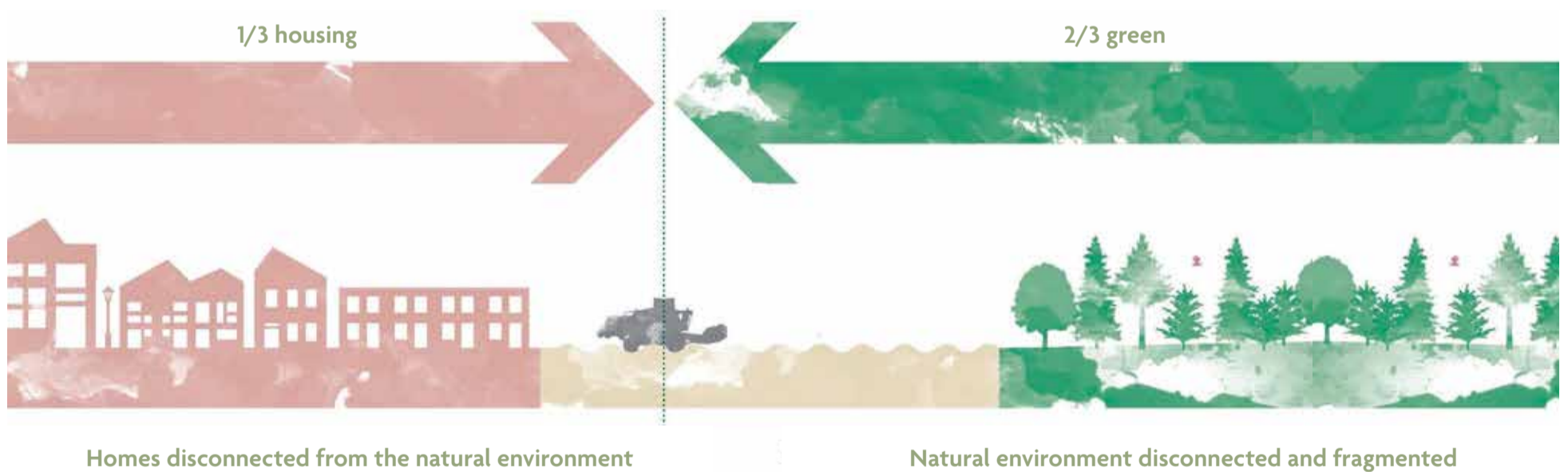
## WEAVING A LIVING LANDSCAPE

### Living with nature: more, bigger, better, joined up - Think Big

We can reverse these declines by thinking big. Establishing a coherent and resilient ecological network is integral to helping wildlife cope with change and for the natural environment to provide for people's needs.

Nature provides food to eat, water to drink and air to breathe – as well as a beautiful natural environment to live in. However one million species globally are threatened with extinction and natural ecosystems have declined by 47% on average. The Government has made a commitment to be the first generation to leave our environment in a better state than we found it.

Today's challenge is to rethink how we live with nature, can we find space for homes and space for nature to coexist. A vision to create spaces which allow wildlife, nature and people to thrive together. A new approach to placemaking, living with nature; a more, bigger, better, joined up nature network.



## 2. SITE CONTEXT

# WIDER GREEN & BLUE SETTING

### ECOLOGICAL DECLINE

#### Woodland Decline

The UK is one of the least wooded areas of Europe, with 13% woodland cover (Forestry Commission 2011) compared to an average of 37% for European Union countries.

Of the approximately 3 million hectares of woodland in the UK around 1 million hectares is estimated to be native woodland.

The history of land-use in the UK means that our woodland resource is generally sparse, fragmented, and ecologically isolated. Small woods from one to 100 hectares make up half the UK's woodland cover.

#### Woodland Habitats

Woodland habitats are extremely important in supporting priority species. Around a quarter of species are associated into woodlands.

This includes wet woodlands as an important habitat for species such as invertebrates.

13%

UK woodland cover compared to 37% for EU countries

1 MILLION

hectares native woodland in the UK

25%

priority species are associated with woodland habitats

50%

of the UK's woodland made up of 'Small Woods'

### ECOLOGICAL DISCONNECT

#### Farming Practices

Poor farming and land management practices are causing pollution of our rivers from run off of sediment, nutrients, chemical fertilisers, pesticides and slurry from agriculture.

Only 14% of rivers in England are classed as healthy. The highest proportion (31%) of all pressures preventing England's waters reaching good health can be attributed to agriculture and land management.

#### Species Decline

Globally populations of freshwater species have declined by 81% since 1970, faster than in any other habitat on the planet.

A widespread loss of pollinating insects and bee species also coincided with the introduction of insecticides. Dramatic drops in insect populations threaten a catastrophic collapse of nature's ecosystems.

#### Growth of Agriculture

Agriculture uses around 70% of land area in the UK covering 17.5 million hectares. Between 2016 and 2017 the area utilised by agriculture increased by 122,500 hectares.

#### Destruction of Habitats

Wild places are becoming more scarce, smaller and more isolated. Hedgerows are removed enlarging fields to enable intensive farming and food production. Most original habitats have been lost and natural ecosystems have become fragmented.

EU farm subsidies support 'greening' measures but basic payment rules rule against wildlife-friendly farming: in Britain, farmers can't receive basic payments for land featuring ponds, wide hedges, salt marsh or regenerating woodland. To claim most farm subsidies, you must keep the land bare.

56%

of all species have declined in the past 50 years

only

20%

of rivers are considered healthy

41%

decline of butterflies since 1976

15%

of all species in the UK are now at risk of disappearing

13%

of freshwater and wetland species face extinction in the UK

Agriculture uses around

70%

of land area in the UK

11%

of woodland species are threatened with extinction from Great Britain

Up to

75%

of all flying insects have been wiped out

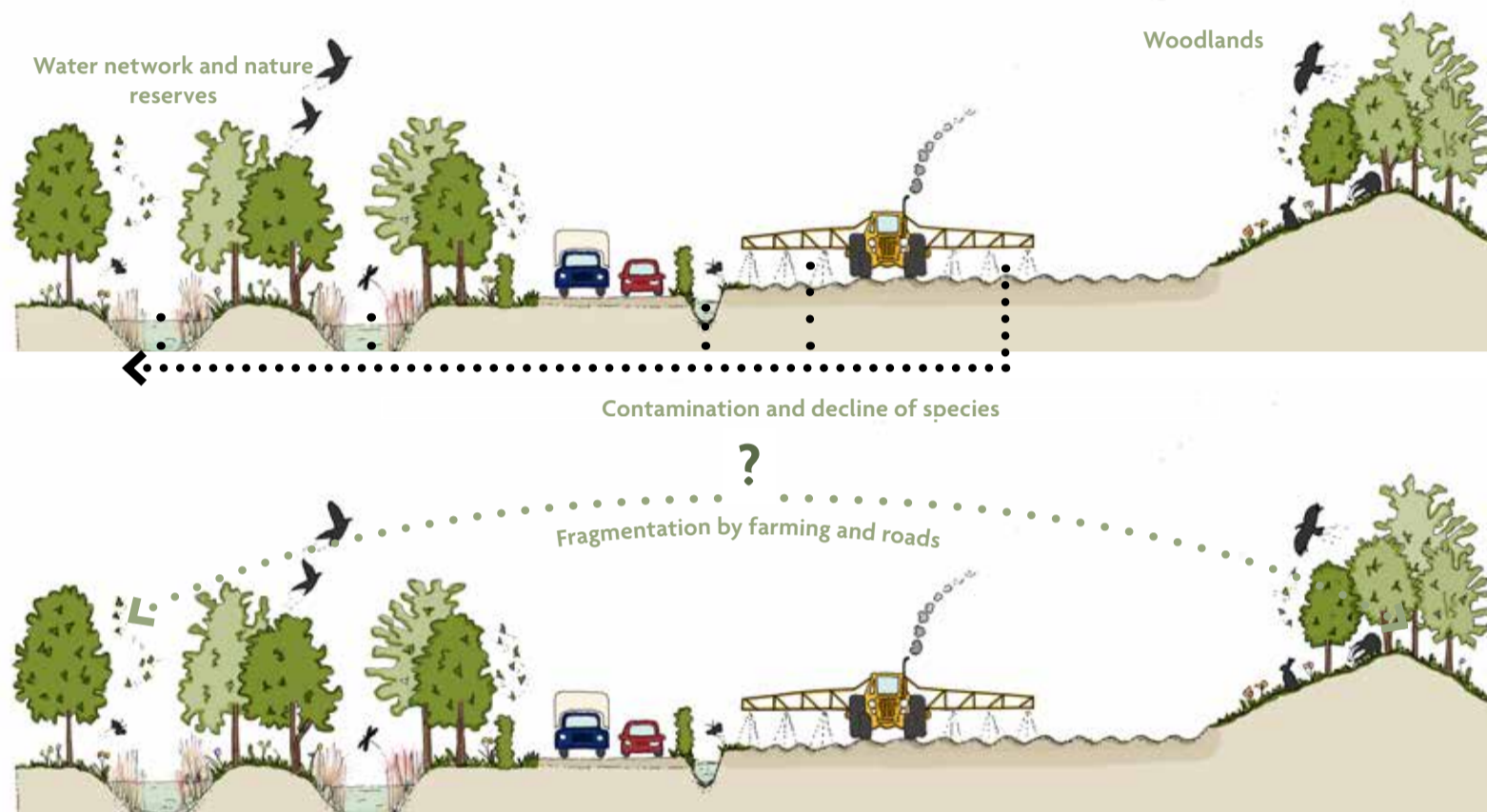


# WIDER GREEN & BLUE SETTING

## GROWING A COMMUNITY: ENRICHING THE NATURAL ENVIRONMENT

### Division of Habitats

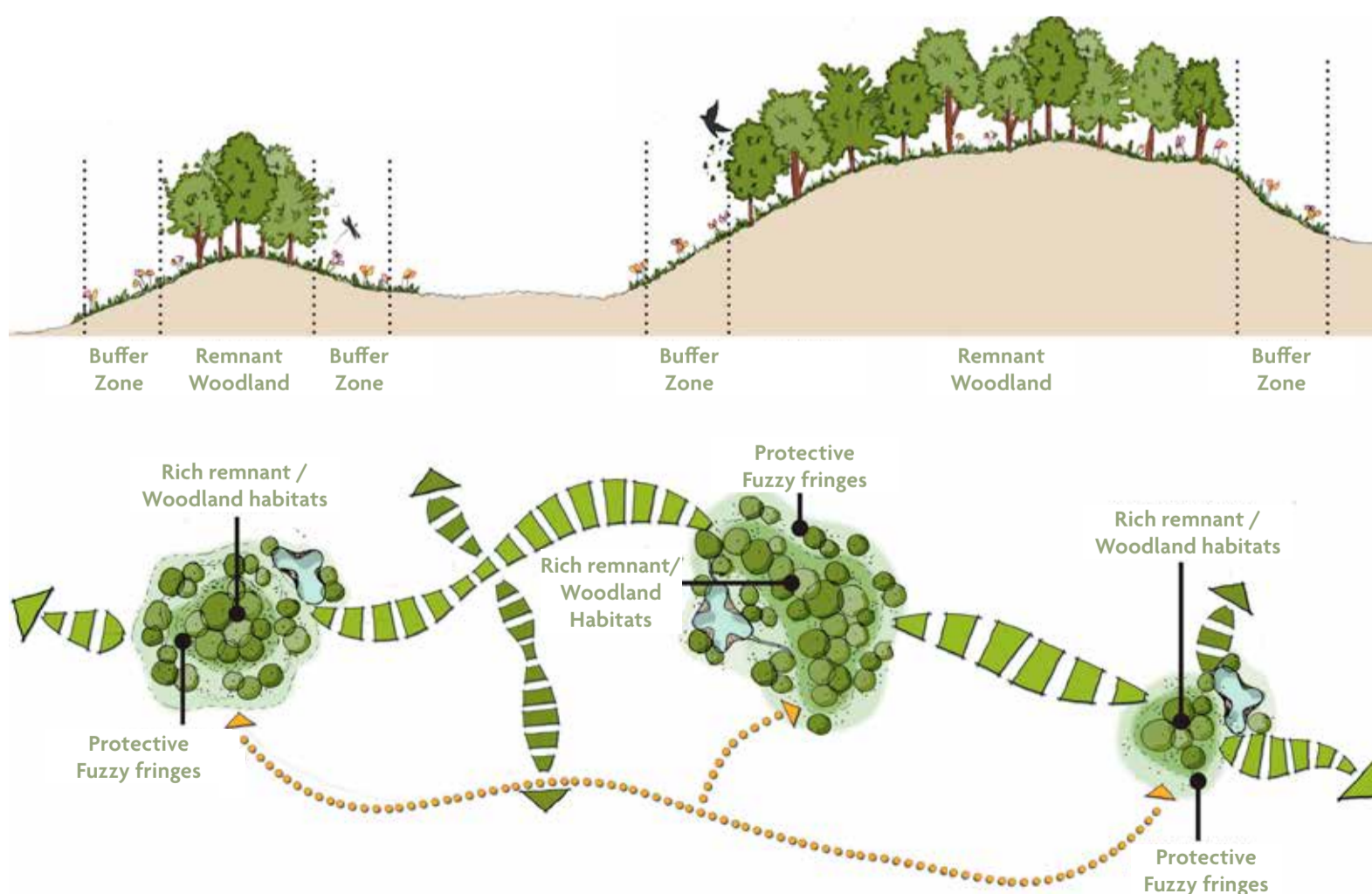
The UK countryside is dominated by agricultural land. Remnant woodlands are fragmented and disconnected. Most original habitats have gone and natural ecosystems are disjointed. Woods, meadows and ponds are becoming fewer and smaller: however, the opportunity exists to protect, enhance, and expand these.



### Nature Recovery Network

The solution is a proposal for a Nature Recovery Network where wild places are protected, natural systems are connected, providing a bigger area for wildlife integrated within the wider landscape.

A network of green fingers and corridors reconnect rich remnant woodlands and habitats re-establishing natural movement routes for wildlife species. Green fingers weave through the landscape, the nature and character of the corridors reflecting the rich habitats they connect.



## 2. SITE CONTEXT

# LANDSCAPE

### NATURAL ASSETS

The site is characterised by its undulating topography (drumlins) forming sheltered valleys and sweeping views from the tops of the drumlins. Little vegetated coverage of the drumlins accentuates the feeling of tranquil valleys and windswept tops.

#### Farming

The land is largely occupied by a small number of families and businesses who have been farming the land and soil for many generations, primarily for crop growing and dairy and sheep farming. The nature of farming has generally reduced soil quality and biodiversity of the land.

#### Drainage

Whilst it is recognised there are localised flooding issues in the area, according to farmers working the land drainage in all areas is good with no acute problems arising from flooding. Further detail on flood risk can be found later in this chapter.

#### Ancient Woodlands

There are four parcels of ancient woodlands on the site (Park Coppice, Old Park Wood, Forerigg Wood and Crane Wood). Ancient woodland are rare and cover only 2.4% of the land in the UK, therefore they are protected and require a amount of offsetting from new development to protect these remnant species.

#### Hedgerows and tree lines

There are a number of existing hedgerows crisscross through the site and mature trees line the edges of the canal, forming important wildlife corridors that are legally protected. The hedgerows are locally distinctive and define the character of this rural site. They provide habitat and food, as well as shelter and windbreaks and mitigate soil erosion.

Hedgerows provide a vital habitat for many species of conservation concerns yet intensification of agriculture has resulted in tremendous losses of them since 1950 (approximately 118,000 miles).

To prevent further decline, the Hedgerow Regulations in England and Wales aim to protect hedgerows more than 20 metres in length and/or forming part of a longer stretch of hedgerow.

#### Waterways

Several watercourses run across or adjacent to the site. The Burrow Beck, a tributary of the River Lune, runs across the norther part of the site. The Ou Beck runs through the southern part of the site, and meets the River Conder downstream of Galgate. The River Conder is also a tributary of the River Lune. An unnamed smaller watercourse runs east to west and also joins the River Conder at Conder Green.

The Lancaster Canal runs north to south and is the longest lock free canal in the UK stretching 41 miles. The canal is either elevated above natural ground levels or within a cutting of the rolling landscape. The Burrow Beck crosses the canal under an aqueduct bridge. The Ou Beck and the unnamed watercourse cross the canal through a siphon.

Existing towpaths and listed bridges along the canal provides leisure routes and offer tranquil and peaceful moments with richness in habitat and wildlife; all of them contribute to the character of their environments.

#### Soil

Composed of minerals, water, air and organic matter, soil provides primary nutrients for plant and animal life. Soil acts as a basis for feed, fuel, fibre and medical products as well as for many critical ecosystem services. Not only are soils critical for food production they also provide a wide range of other functions and ecosystem services e.g. Storing carbon. The soil on our site is classified as Grade 3 - good to moderate quality land.



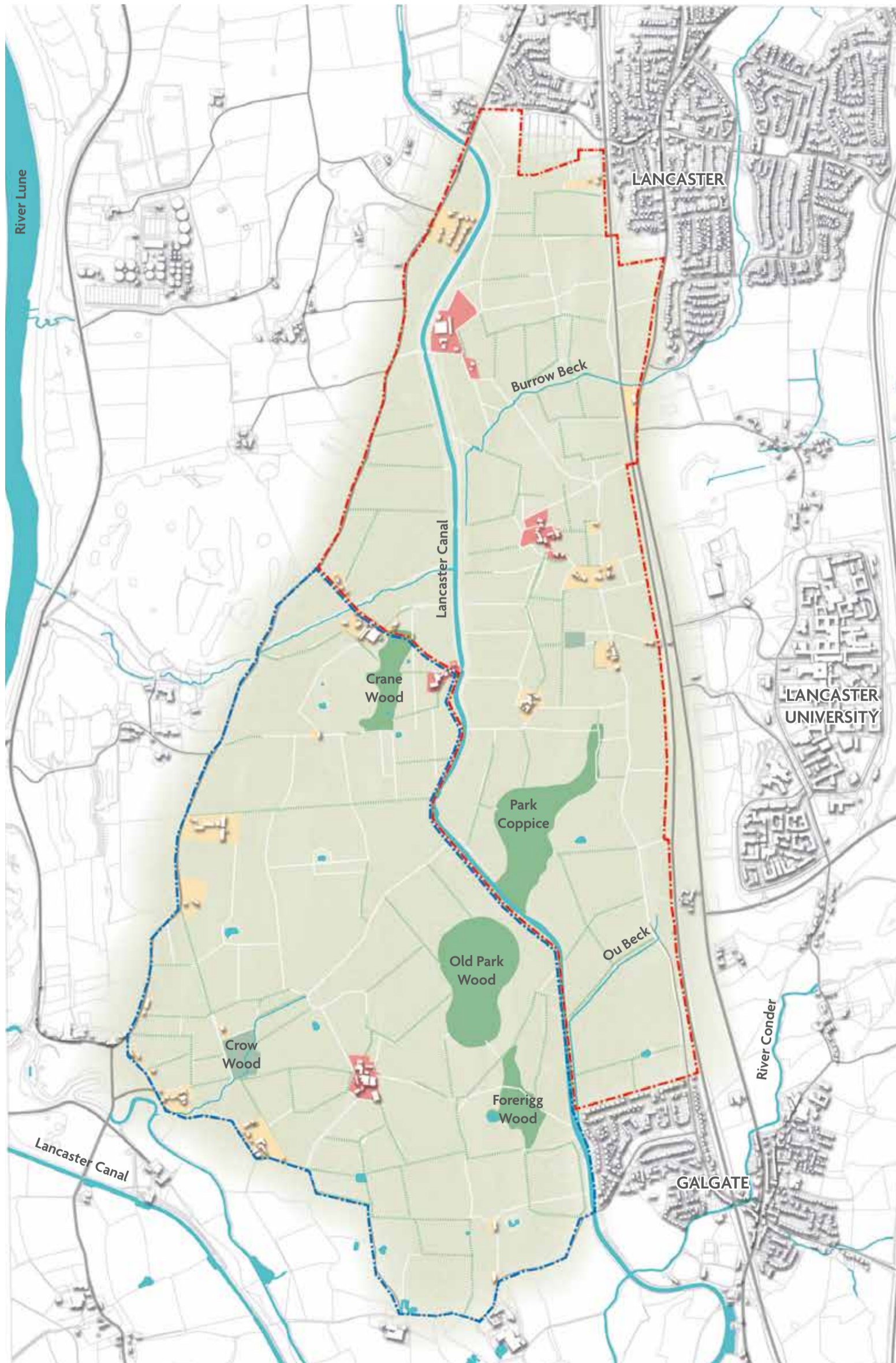
Mature treeline along the Lancaster Canal



Existing ancient woodland, Old Park Wood

## 2. SITE CONTEXT

# LANDSCAPE



### KEY

- - - Area of Search for development commencing Local plan period up to 2031
- - - Area of Search for development commencing after 2031
- Existing settlements
- Existing farms
- Ancient woodland
- Waterways
- Land/ soil
- ⋯ Hedgerows

Existing natural assets

# LANDSCAPE

### KNOWING THE LAND

Knowledge of the land and its soil lies mainly with the people who farm it. When the current generation retires, the likelihood is that farming knowledge, skills, culture and traditions could be lost.

Farming families have been working the land for over 4 generations. Over the last 30 years they have seen intensification (automation and driving down of labour/ costs) promoted as a means to make ends meet. Constant pressure from supermarkets to meet demand and keep margins low has resulted in farmers having to manage more land and have more livestock, yet receive the same return.

Throughout the project's consultation, all farmers voiced their concern about people's ignorance of rural land management, their lack of understanding of their impact on soil and crops, and the associated consequences on the health and wellbeing of livestock.

### BALANCING THE USE OF THE BEST LAND

Traditionally, food was grown on the land with the most sun, level topography and good draining qualities. The drumlin landscape at the site renders many areas less suitable for agriculture or development, and so there is a battle to claim the best land for either purpose.

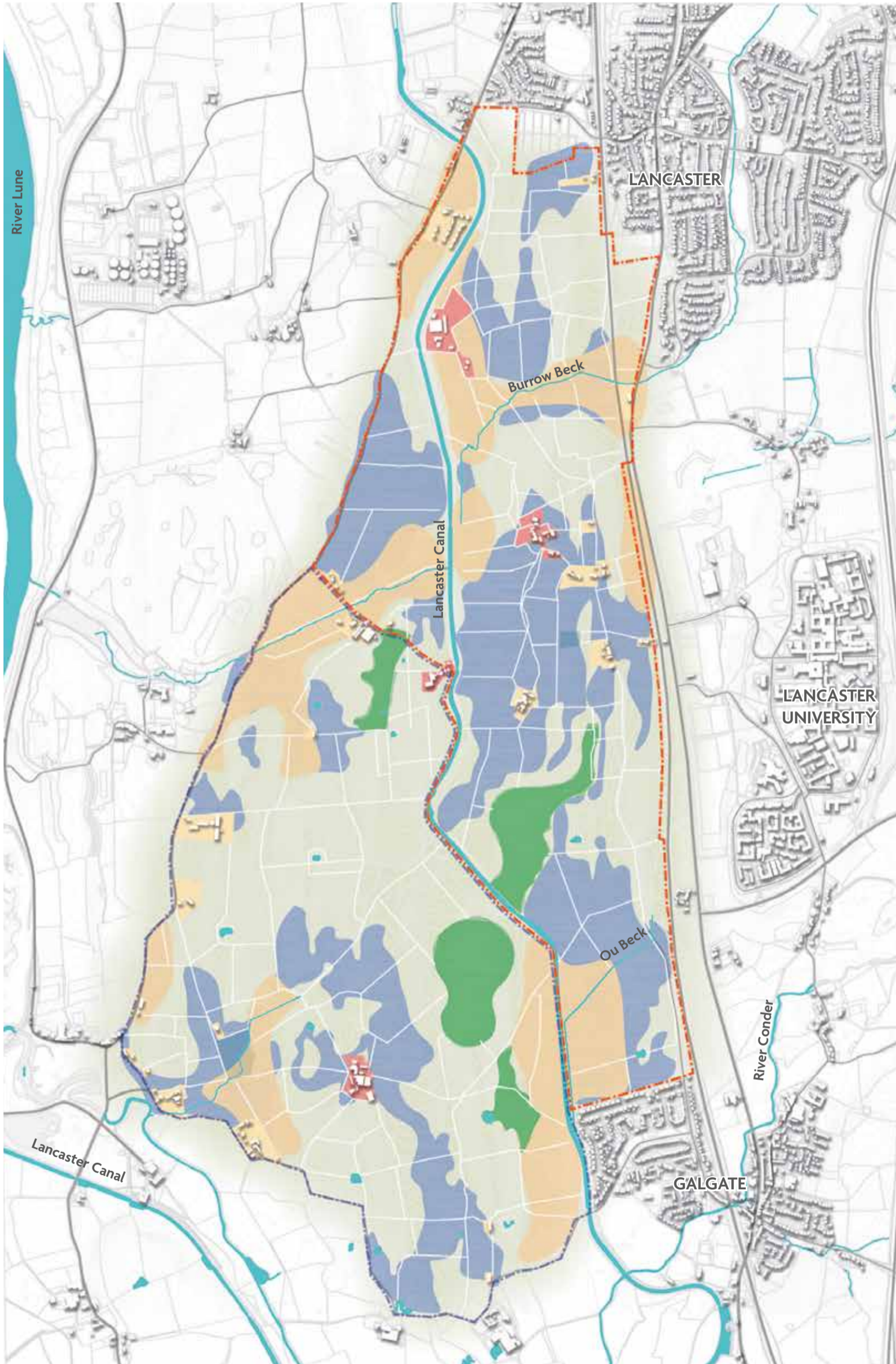
The masterplan proposes a balanced approach in which agriculture and development are appropriately located, achieving their potential without the need to radically alter the landscape, therefore minimising the impact on natural systems and local character.

The masterplan recognises the whole site as significant. It identifies a wide range of opportunities to provide for biodiversity and ecology, and for appropriate enterprises to take advantages of the site's natural qualities. Site visits and engagement events have revealed that it is the people and the land which will shape and influence the landscape themes applied to the masterplan.

The important aspects of the site are:

- Topography and its impact on usable land (sunny/ level).
- Natural assets - soil, ancient woodland, canal and hedgerows.
- Historical remnants of bridges crossing the canal.
- The current use as farming land.

# LANDSCAPE



**KEY**

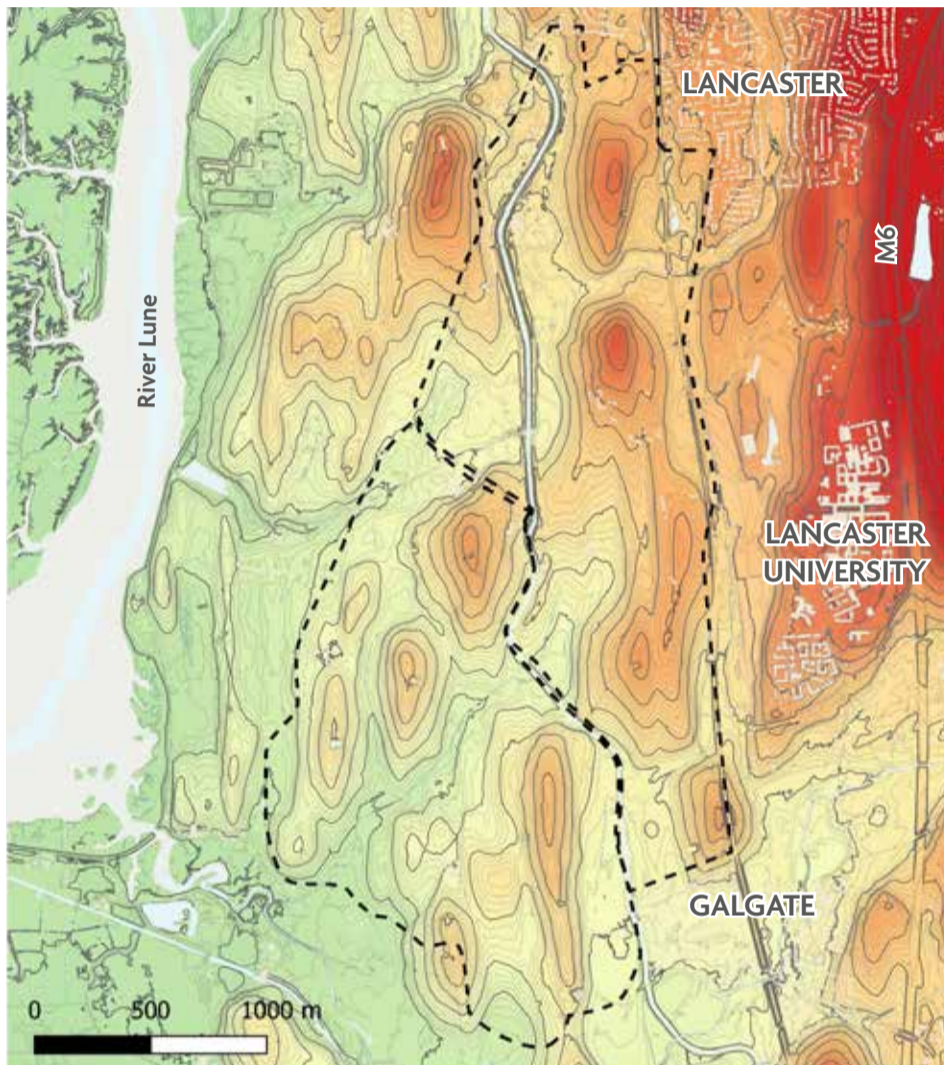
- Ancient woodland
- Land/ soil
- Best aspect (sunny)
- Best topography (level)

## 2. SITE CONTEXT

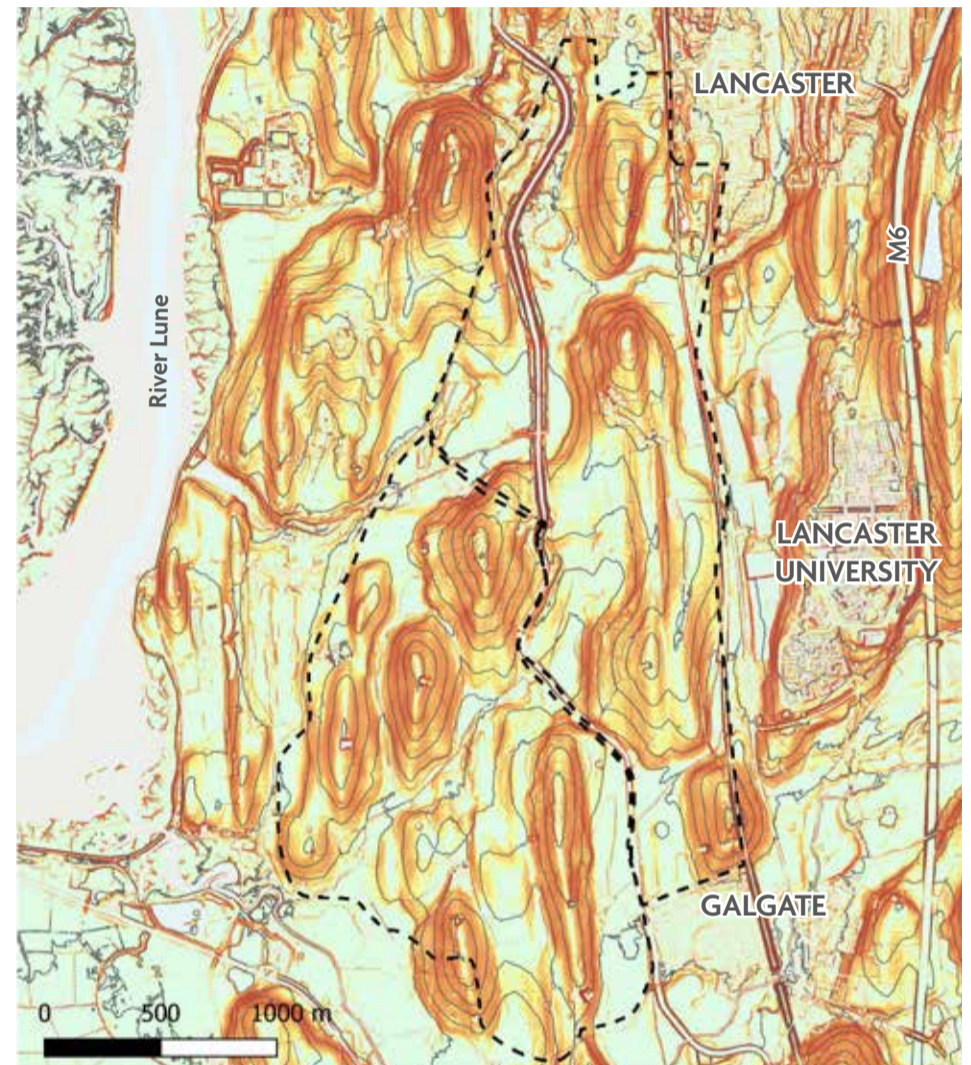
# TOPOGRAPHY

The unique topographical feature of the drumlins provides both a constraint and opportunities. The characterful drumlins topography will drive sustainable water management across the site, the layout and orientation of proposed buildings, the layout of roads and main access routes, the landscape and planting strategy and the energy strategy. The drumlins are relatively steep, with gradients ranging from 1 in 20 to 1 in 5 on the slopes of each hill. Some of the drumlins form local high points

above 50m AOD, offering great views onto the surrounding. The landform will play a key role in defining surface water drainage catchments, and the location of proposed attenuation ponds and wetlands. The existing topography will be a key consideration in defining roads and building layout to minimise earthworks, visual impact on the character of the landscape and maximise opportunities for passive design, good levels of natural light and good views out.



Topography Plan



Topography - slope gradient

### KEY

<span style="display:inline-block; width:15px; height:15px; background-color:#4CAF50;"></span>	0m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#81C784;"></span>	10m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#C8E6C9;"></span>	20m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#FFF176;"></span>	30m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#FFCC80;"></span>	40m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#FF9800;"></span>	50m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#FF5722;"></span>	60m AOD
<span style="display:inline-block; width:15px; height:15px; background-color:#E53935;"></span>	>70m AOD

### KEY

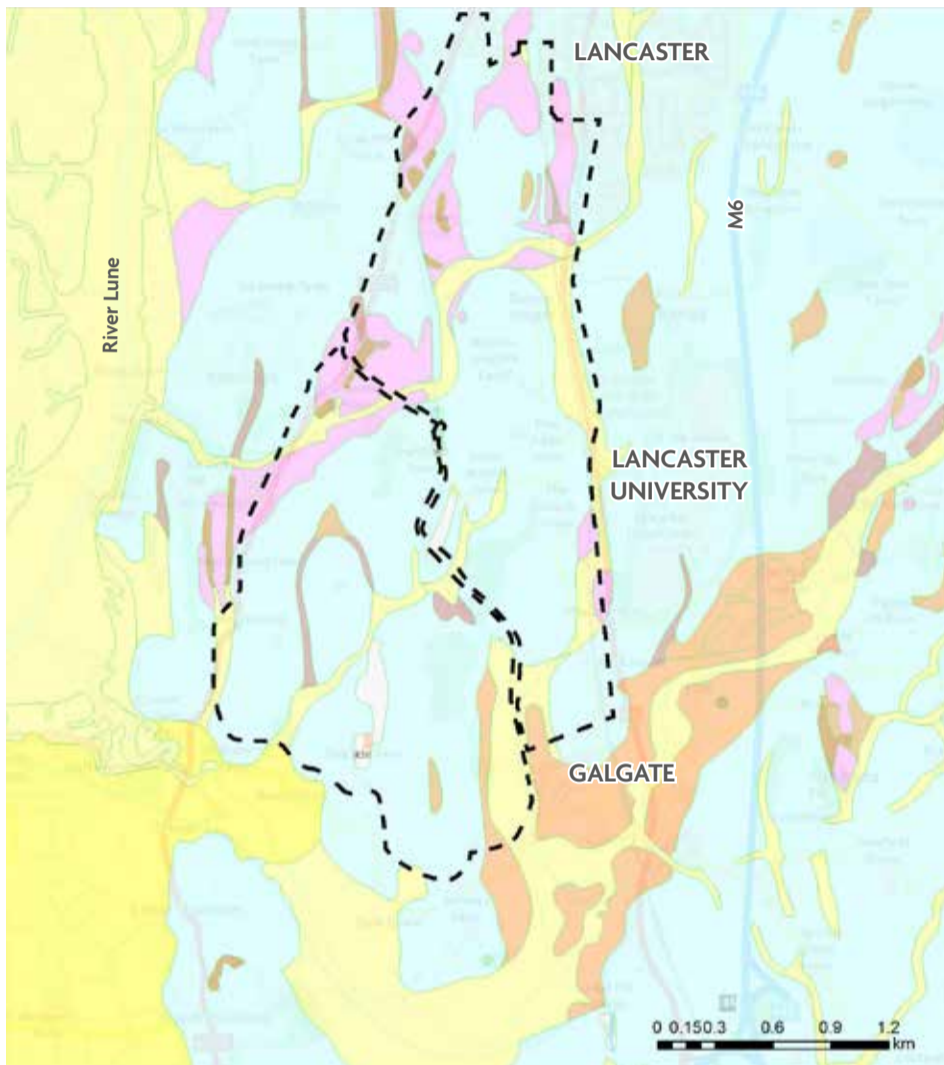
<span style="display:inline-block; width:15px; height:15px; background-color:#E53935;"></span>	1 in 1 slope
<span style="display:inline-block; width:15px; height:15px; background-color:#FF5722;"></span>	1 in 5 slope
<span style="display:inline-block; width:15px; height:15px; background-color:#FF9800;"></span>	1 in 10 slope
<span style="display:inline-block; width:15px; height:15px; background-color:#FFCC80;"></span>	1 in 15 slope
<span style="display:inline-block; width:15px; height:15px; background-color:#FFF176;"></span>	1 in 20 slope
<span style="display:inline-block; width:15px; height:15px; background-color:#C8E6C9;"></span>	1 in 25 slope
<span style="display:inline-block; width:15px; height:15px; background-color:#4CAF50;"></span>	>1 in 30 slope

## 2. SITE CONTEXT

# GEOLOGY












The superficial geology of the site consists predominantly of diamicton (unsorted quaternary glacial deposits including clay, silt, sand and gravels), glacio-fluvial deposits (sand and gravels) as well as alluvium (clay and silt) and river terrace deposits (silty sand and gravels) both along the corridors of local watercourses. Infiltration drainage will likely be feasible in glacio-fluvial deposits and river terrace deposits, subject to groundwater levels.

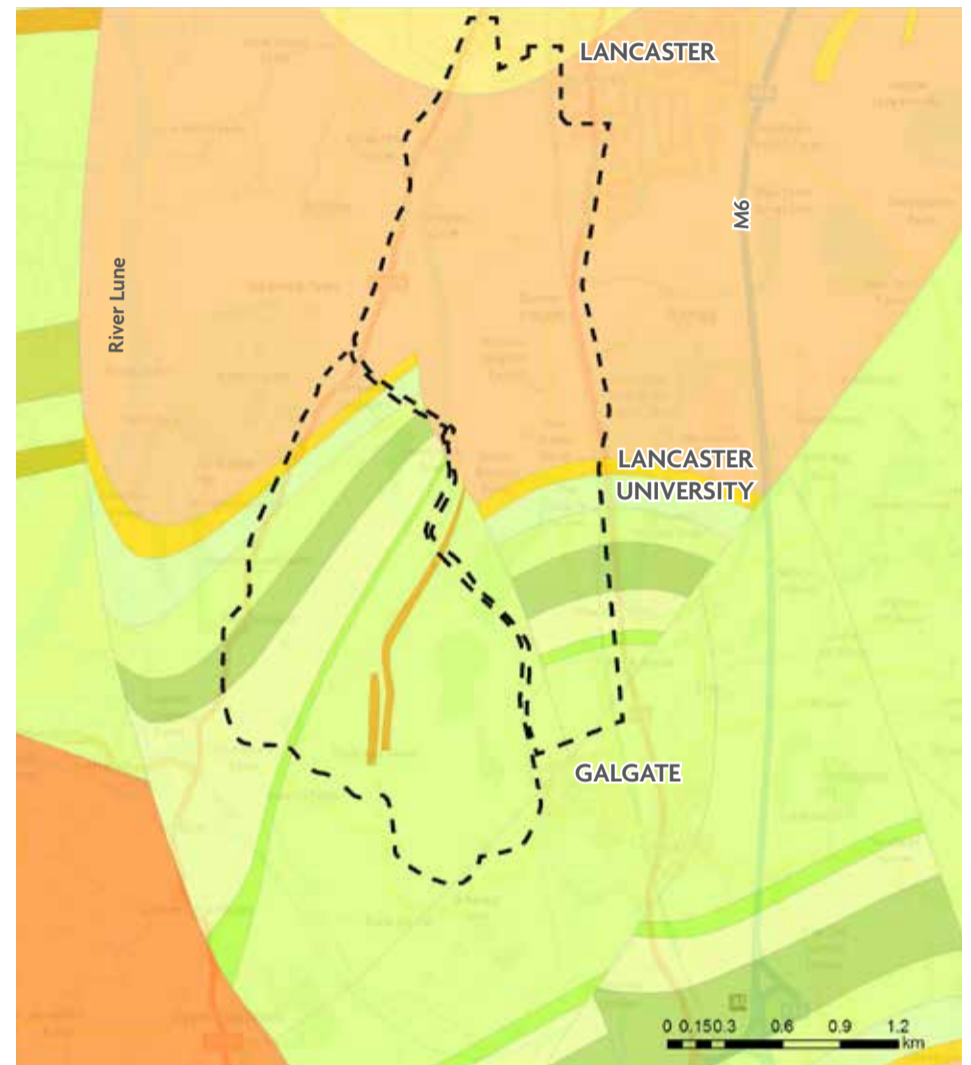
This will help reducing discharge to the local watercourses and alleviate some of the on-going flooding issues. The bedrock includes siltstone, sandstone, and mudstone of different formation.



Site Geology - Superficial deposits

### KEY

 Claciofluvial desopits, Devensian - Sand and Gravel	 Raised storm beach deposits - Gravel
 Till, Devensian - Diamicton	 Alluvial fan deposits - Clay, silt, sand and gravel
 Talus - Rock fragments, angular, undifferentiated source rock	 Lacustrine deposits - Clay and silt
 Alluvium - Clay, silt, sand and gravel	 Tidal flat deposits - Clay and silt
 Blown sand - sand	 Peat - peat
 Head - Clay, silt, sand and gravel	



Site Geology - Bedrock

### KEY

 Crossdale mudstone - Mudstone and siltstone	 Roeburndale member - Sandstone
 Caton shale - Mudstone	 Cumbrian coast group - Mudstone
 Pendle grit member - Sandstone and siltstone, interbedded	 Eldroth grit - Sandstone
 Cocklette scar sandstone - Sandstone	 Accerhill sandstone - Sandstone
 Claughton member - Siltstone and Sandstone	 Ward's stone sandstone - Sandstone
 Sherwood sandstone group - Sandstone	 Ellel Crag sandstone - Sandstone
 Silver Hills sandstone - sandstone	 Millstone grit group (see also Migr) - Sandstone
	 Heysham Harbour sandstone - Sandstone

## 2. SITE CONTEXT

# MICROCLIMATE

The design for Bailrigg Garden Village will be optimised to the local site microclimate, to maximise passive design solutions and provide comfortable public realm spaces.

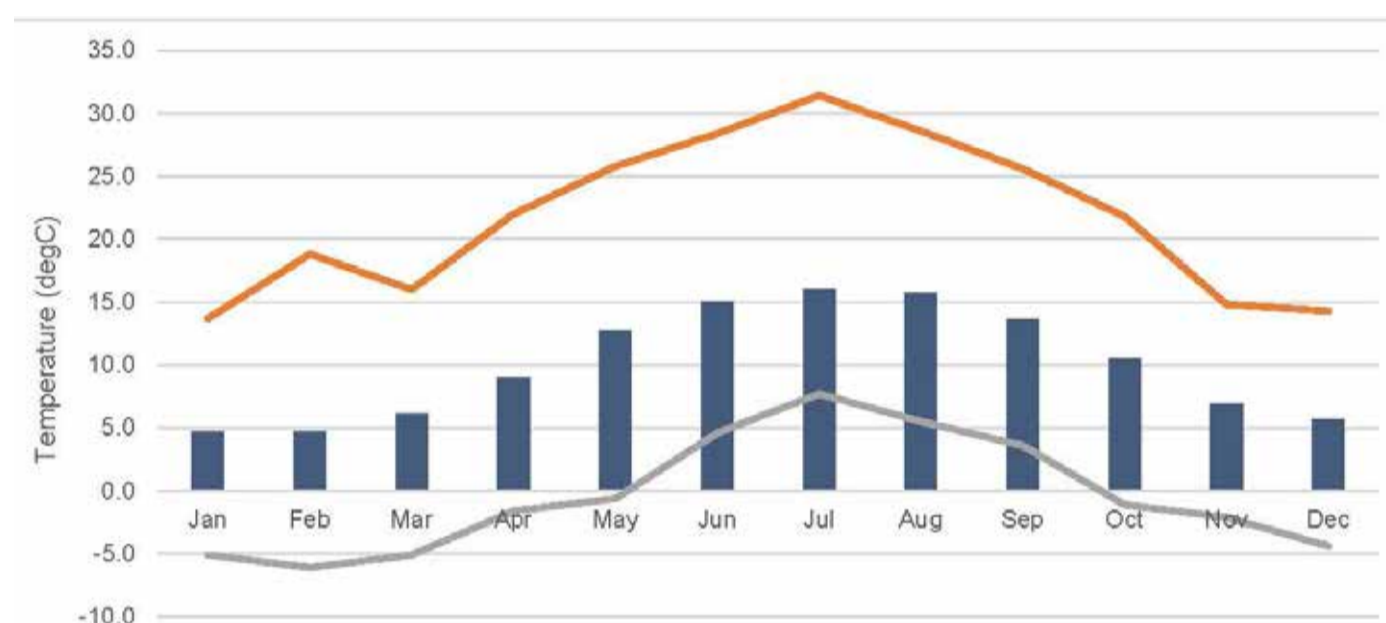
Local weather stations including Hazelrigg and Morecambe have been taken as the nearest stations to estimate weather data for the Bailrigg Garden Village.

The temperature profile shows peak temperatures can reach up to 31°C, with average temperatures in the summer at around 16°C. The temperatures drop to -6°C in the winter months. There are strong south westerly winds, due to the proximity of Bailrigg to the western coastline. The diagram below shows the useful solar insolation available from the sun across the year.

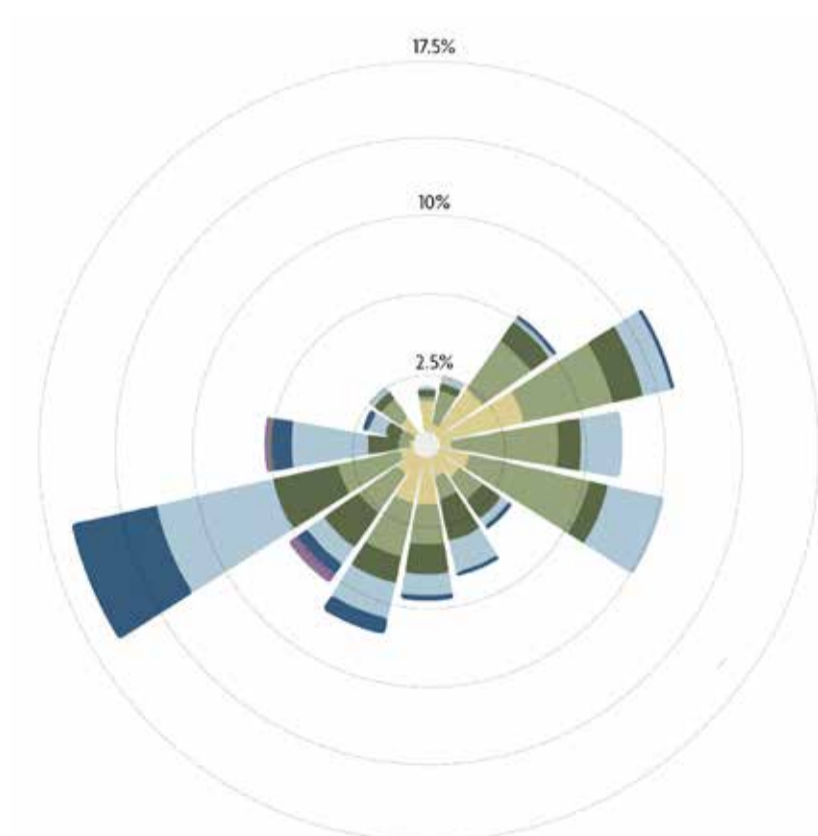
In the winter, when the sun is low in the sky, solar insolation is relatively low but can still provide useful passive heating; this should be incorporated into the massing design. In the summer, passive shading should be provided to minimise overheating risk.

Owing to the topography of the Bailrigg Garden Village site, a detailed sunlight fraction assessment was undertaken to understand how low level areas of the site may be affected when the sun is low in the sky in winter. This shows that to the north of high peaks areas are heavily shaded, but for most of the site it will be possible to design for homes which maximise passive heating.

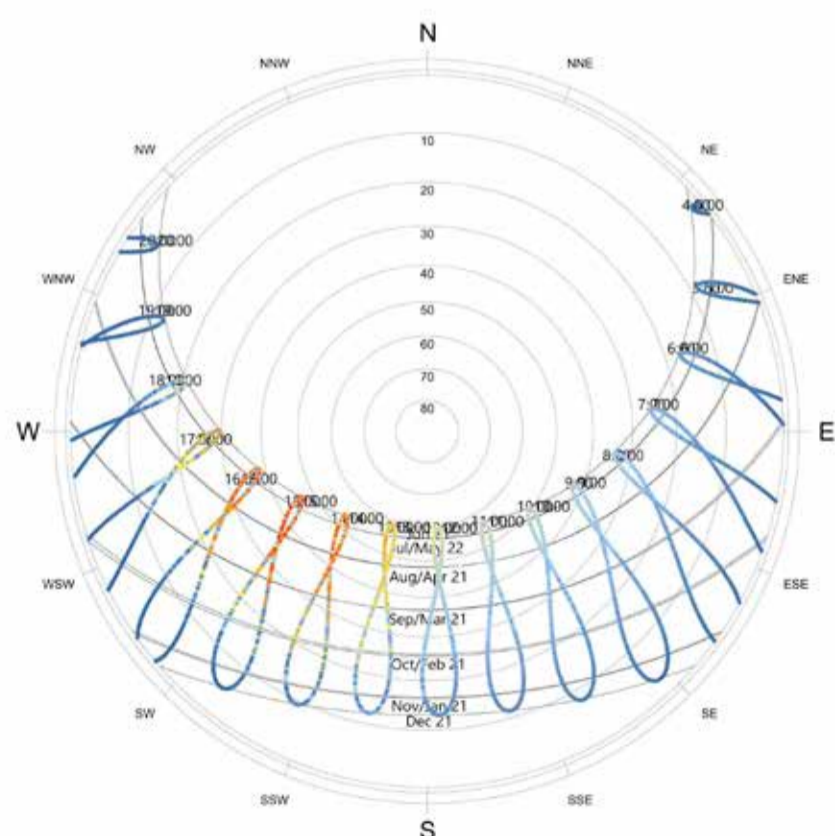
Rain falls at the site all year round. The lowest rainfall occurs in April, with maximum rainfall occurring in August and remaining high throughout autumn and winter.



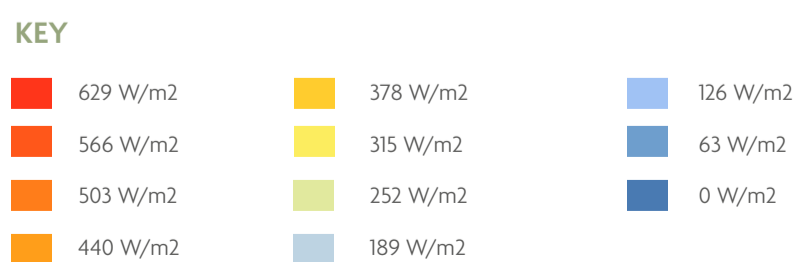
Annual dry-bulb temperatures (°C) based on Hazelrigg Weather Station



Wind Rose diagram, based on Morecombe Weather Station

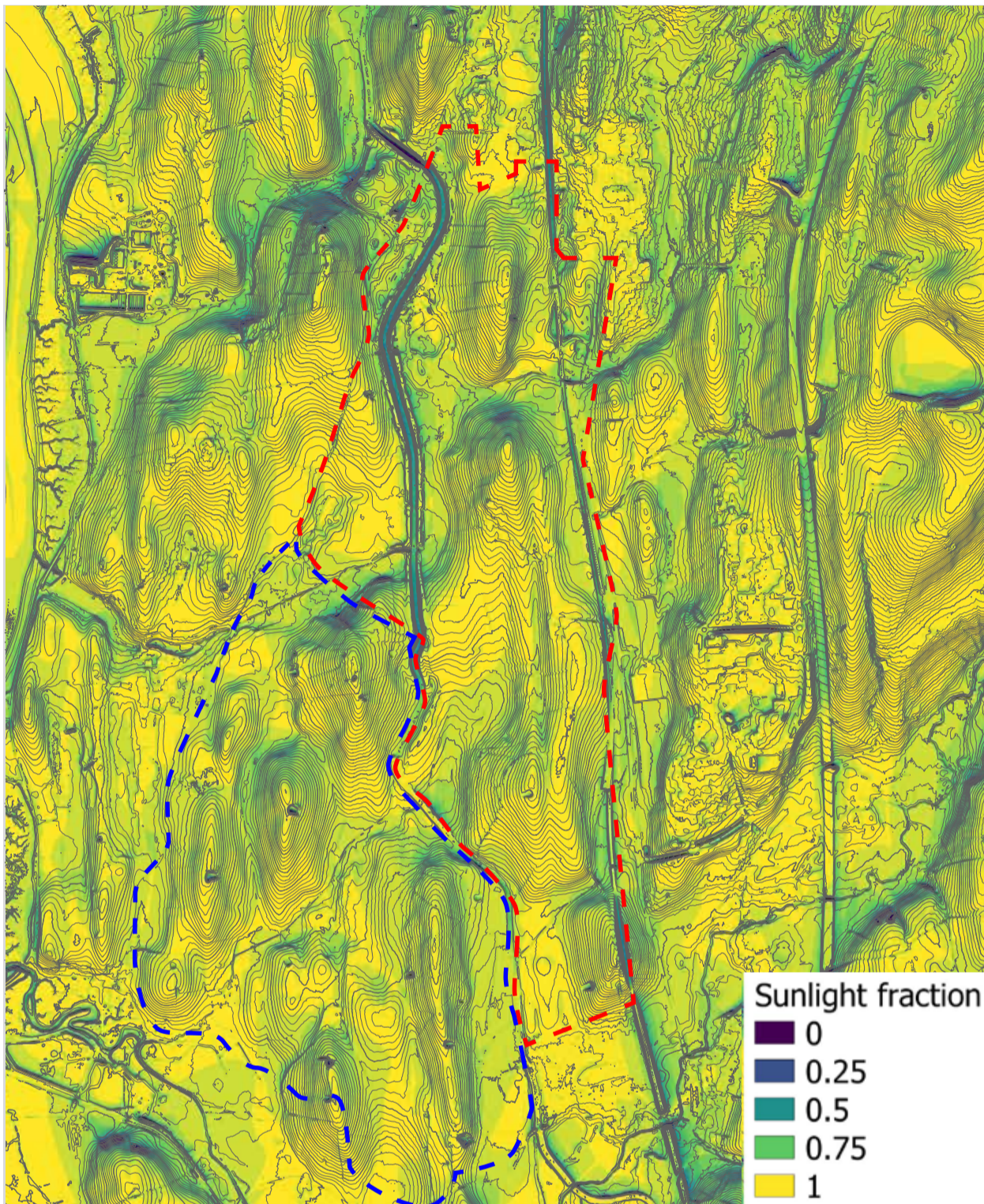


Solar Insolation and Sun Path diagram





# MICROCLIMATE



Sunlight Fraction Assessment for Bailrigg Garden Village



Annual rainfall, based on Hazelrigg Weather Station

## 2. SITE CONTEXT

# FLOOD RISKS

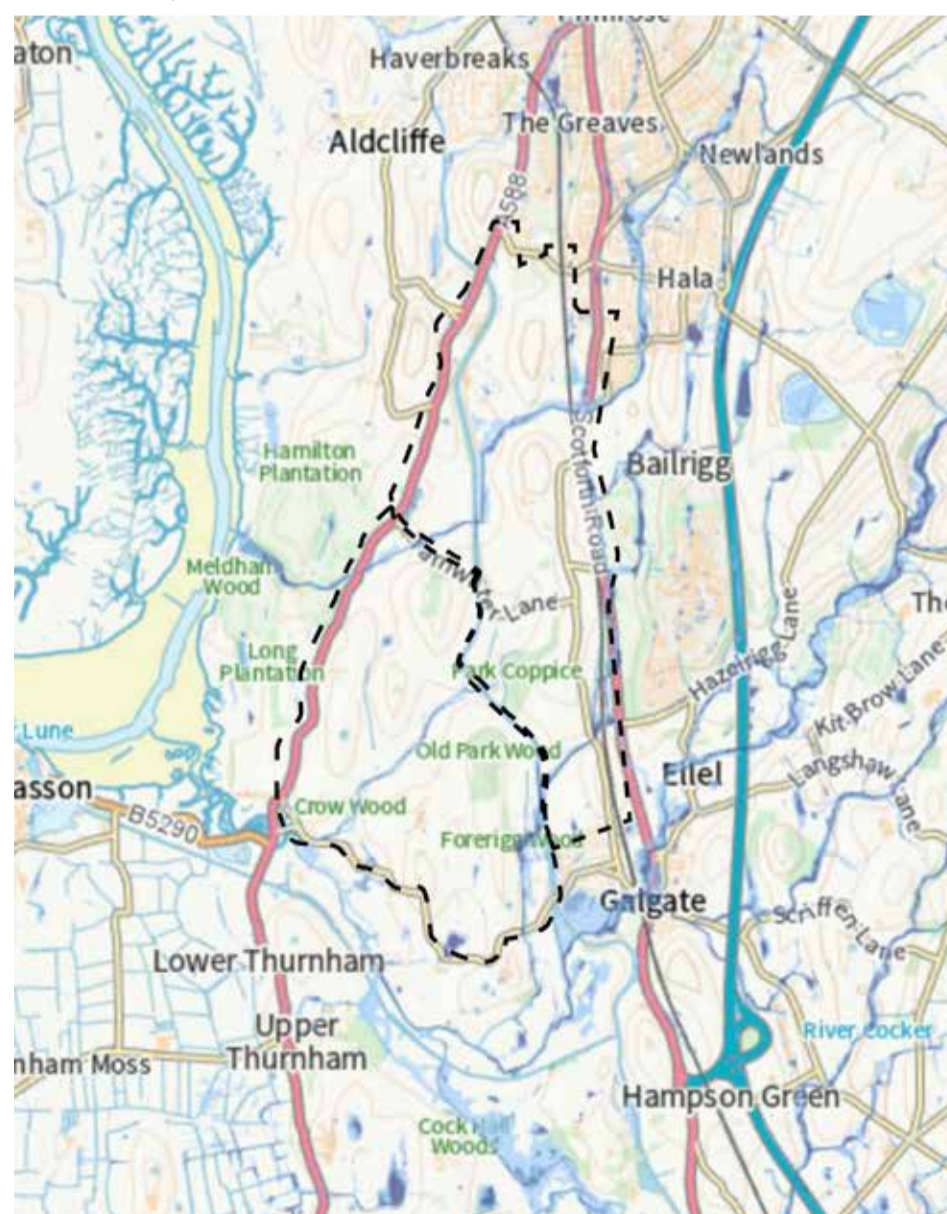
The Environment Agency are responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea. As part of their remit, they devise set of flood maps showing different Flood Zones, which represent different probabilities of flooding from rivers or the sea.

Most of the site falls within Flood Zone 1 on the Flood map (Figure 11), which has the lowest risk of flooding (annual probability of river or sea flooding < 0.1%). Flood Zone 1 has the lowest risk of flooding (annual probability of river or sea flooding < 0.1%). Areas within the relatively narrow corridors of the watercourses are shown to fall in Flood Zone 2 (annual probability of river flooding 1% – 0.1%) and Flood Zone 3 (annual probability of river flooding >1%).

The Lancaster City Council Strategic Flood Risk Assessment (SFRA) (October 2017) differentiates between Flood Zone 3a (annual probability of flooding 1% to 5%) and Flood Zone 3b, which covers the functional floodplain of the watercourses (annual probability of flooding >5%). Only essential and water compatible development is permitted in Flood Zone 3b. The SFRA flood maps 79 and 89 show that most of the Burrow Beck river corridor within the site falls in Flood Zone 3b (see Fluvial Flood Map opposite). A narrow corridor along the Ou Beck within the site also falls within Flood Zone 3b. Significant parts of the floodplain of the River Conder outside of the Area of Search for development also fall within Flood Zone 3b. As set out in policy DM33 of the Local Plan for Lancaster District, the functional floodplain will be protected.



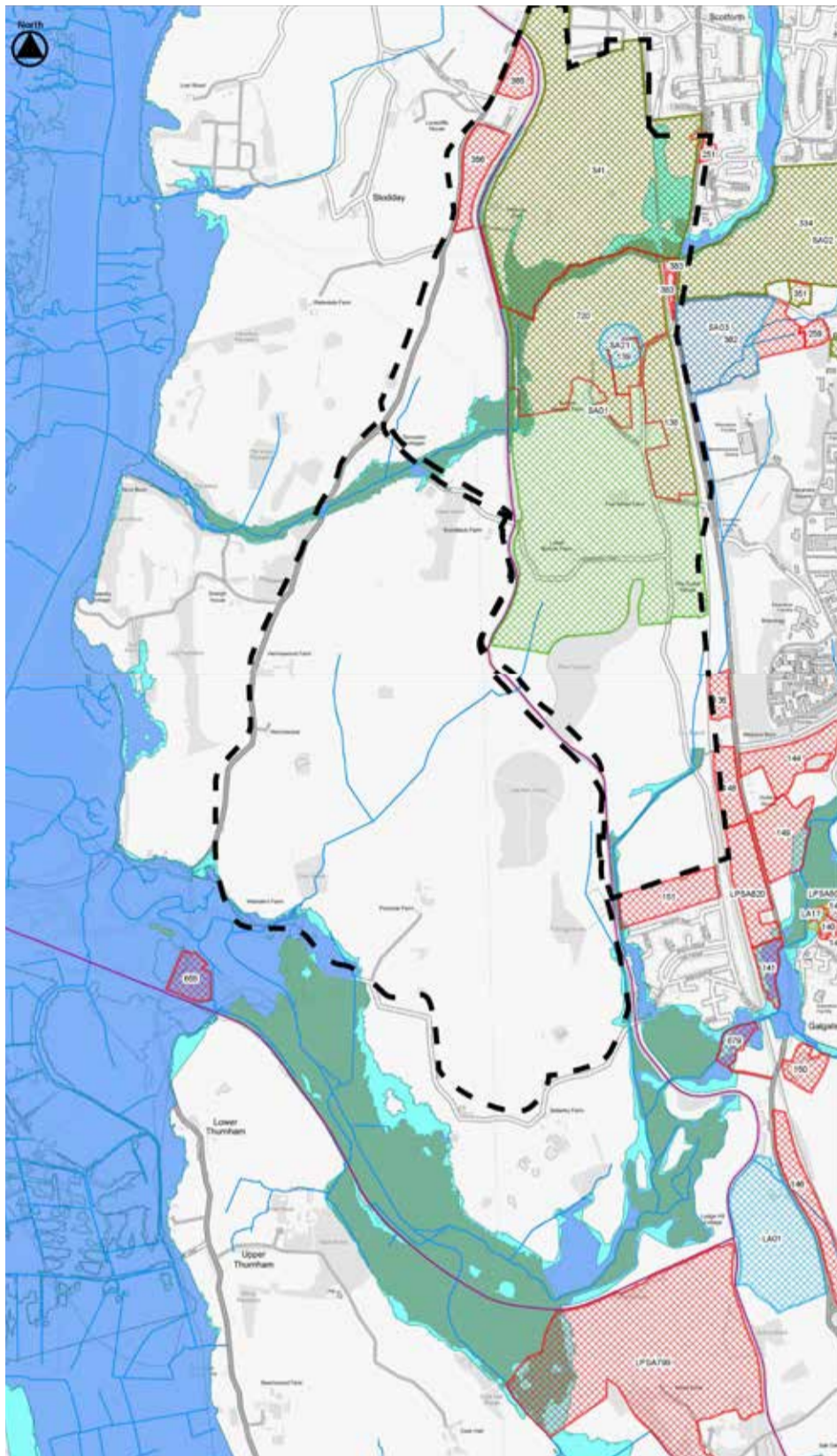
Fluvial Flood Map



Surface Flood Map

## 2. SITE CONTEXT

# FLOOD RISKS



SFRA Map

### KEY

Development Sites	Flood Zones
Employment	Flood zone 3b
LP Strategic Housing Allocation	Flood zone 3a
Mixed-Use	Flood Zone 2
Residential	
LCC Boundary	

The SFRA flood maps show that areas at risk of surface water flooding are also found along the lower lying areas along the corridors of the watercourses, as well as localised low-lying areas along the Lancaster Canal and within some of the dry valleys between drumlins. During extreme storms, overland flows will run down the relatively steep drumlins landform and collect in the valleys along the watercourses. A detailed mapping of surface water overland flow has been carried out by JBA Consulting for a range of storms (Bailrigg Garden Village Outline Drainage Strategy – Final Report, JBA Consulting January 2019).

The SFRA concludes that the risk of groundwater flooding is generally low. There is a localised risk of flooding associated with a breach of the Lancaster Canal where it is raised above ground. This will need to be considered in more in the development of more detailed proposals.

Throughout the consultation process with the local community, residents have raised the issue of localised flooding incidents, for example the flooding of the road at Lower Burrow in March 2021, or at Brantbeck Bridge. These localised issues are understood to be primarily due to poorly performing existing drainage ditches and culverts under roadways. These issues will be investigated further with the aim of addressing them throughout the next stages of the development of the masterplan.

In the wider area, Galgate has a long history of flooding from the River Conder and Whitley Beck and was affected by severe flooding in November 2017. According to the Environment Agency (EA), the existing post and panel concrete flood defences along the River Conder through Galgate are in poor condition and offer a low standard of protection. The Whitley Beck, which joins the River Conder just upstream of Galgate has low capacity and significantly contributes to the flooding. The EA are currently upgrading the fluvial flood defences throughout Galgate and considering upstream flood alleviation storage, in particular on the Whitley Beck.

The Ou Beck joins the River Conder downstream of Galgate, and the EA have advised that this watercourse does not significantly contribute to the flooding in Galgate. The main focus on the Ou Beck is to minimise the risk of blockage of the siphon crossing under the Lancaster Canal.

The Bailrigg Garden Village is outside of the upper catchment of the River Conder (upstream of the junction with Ou Beck) and the catchment of the Whitley Beck, and there are no significant opportunities to alleviate flood risk on these watercourses. There is however an opportunity for flood storage on the Ou Beck within the Bailrigg Garden Village, upstream of the canal crossing. This will not significantly affect the major on-going flooding issues associated with The River Conder and Whitley beck but would generally reduce the risk of flooding along the Ou Beck, the canal crossing and improve long term resilience.

In the wider area, the community of Scotforth and Hala to the South of Lancaster City has also been significantly affected by flooding from the Burrow Beck. The EA are currently considering a number of flood alleviation solutions. As this area is upstream of the A6 and the site there are no significant opportunities as part of the development of the masterplan for the Bailrigg Garden Village to contribute to alleviating these flood issues.

## 2. SITE CONTEXT

# MOVEMENT & ACCESS

### WIDER CONNECTIVITY

Bailrigg Garden Village is vehicularly well-connected to Lancaster and the surrounding coastal towns via the A588 and A6.

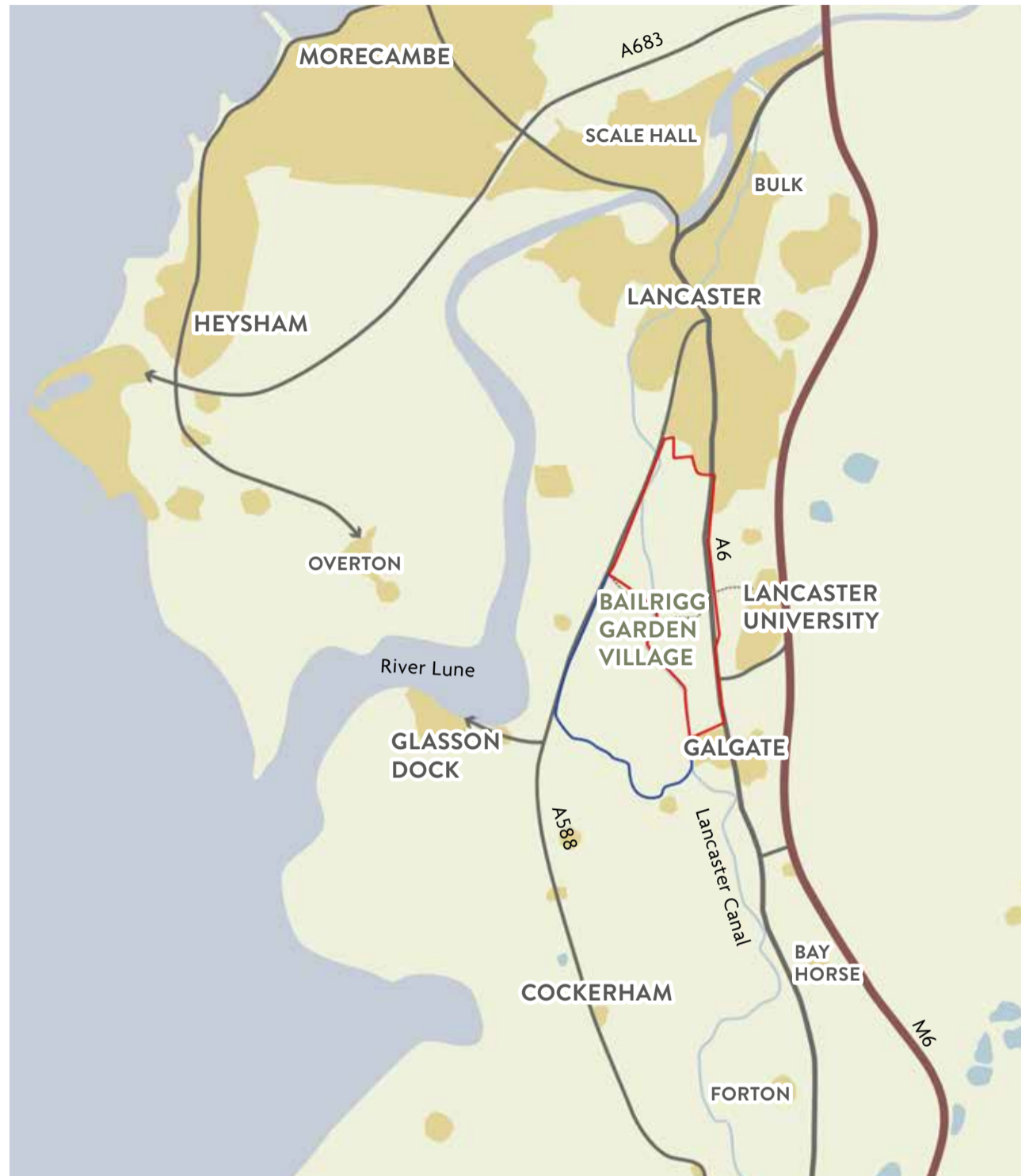
As part of the Housing Infrastructure Fund (HIF) works, there will be a direct access from the M6 which provides a primary access to the Area of Search via Hazelrigg Lane.

Lancashire County Council Highways have publicly consulted on the route options for the M6 link road and are currently working up the preferred route through the garden village, in more detail.

To ensure any new movement connections best serve the existing area, it important to understand where the key destinations are and what are the likely desire lines of movement to, from and through the new garden village.

Key destinations include other areas which provide local amenities, jobs, leisure, and employment. Whilst there is a desire to create a self-sufficient sustainable village with these facilities provided on site, there is a recognition that future residents of the garden village may need to go further afield to access these uses.

These key places include Morecambe, Glasson Dock, Lancaster City Centre, Lancaster University and Galgate. The existing road infrastructure offers two route options by car between these key destinations - the slow route through Lancaster City Centre and the fast route via the M6 and A683.

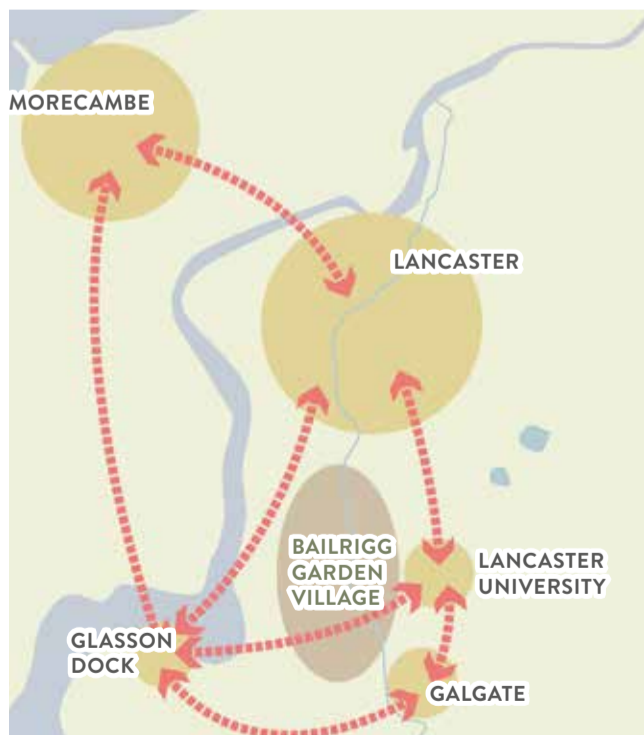


Wider context and existing road infrastructure

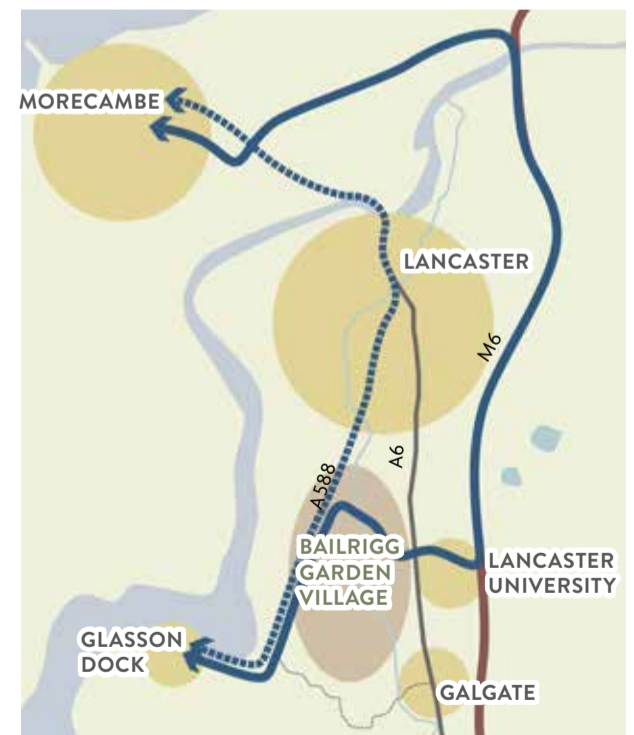
#### KEY

Fast route via M6 and A588

Slow route through Lancaster city centre

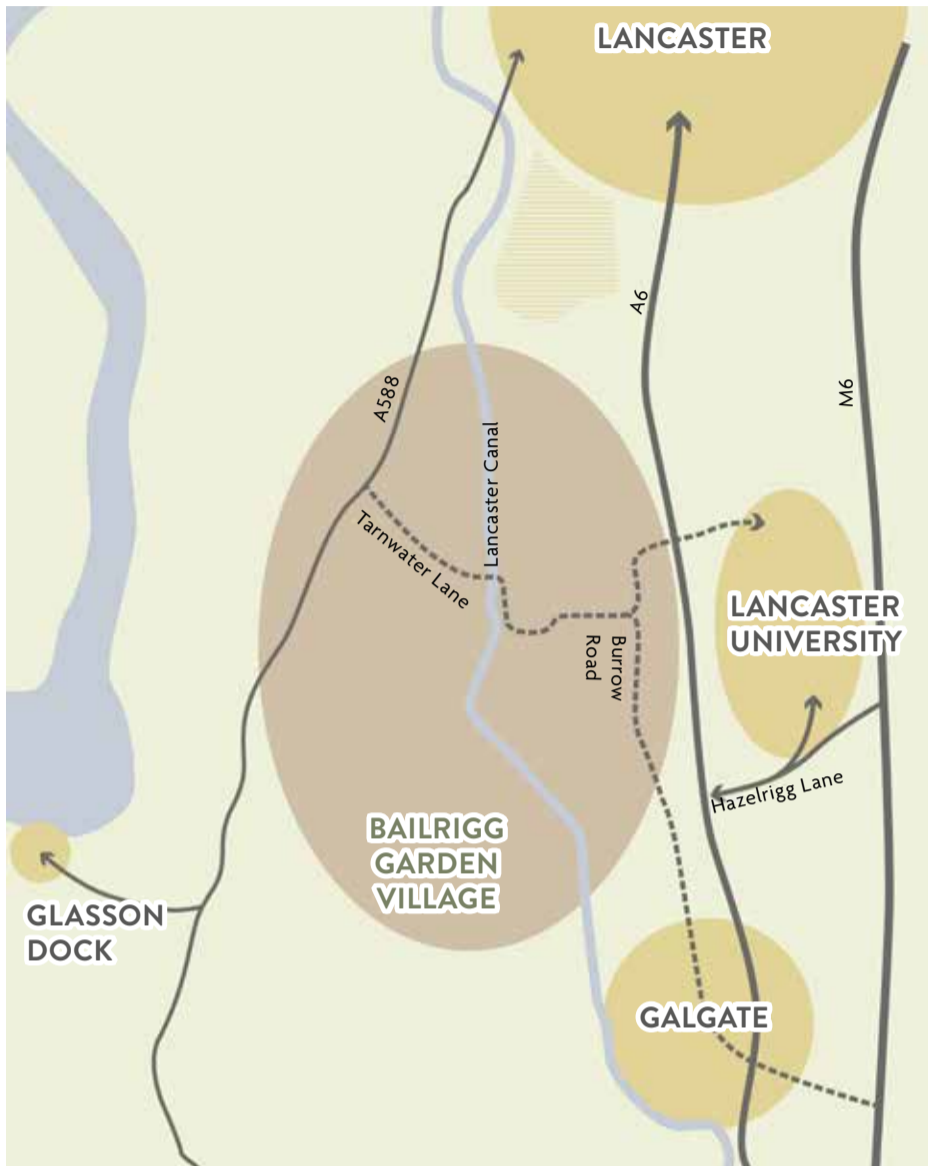


Key wider destinations and desire lines



Existing connections to key destinations

# MOVEMENT & ACCESS



Existing key vehicular connections

## LOCAL CONNECTIVITY

Local commute destinations around Bailrigg Garden Village include Lancaster, Glasson Dock, the University and Galgate. There are four key north-south connections, with A588 on the west, Lancaster Canal Corridor, A6 and M6 on the east.

There is currently a lack of east-west connections providing easy movement between Glasson Dock and the estuary, to Lancaster University and Galgate. There is a good opportunity for the new garden village to provide these connections, enriching the overall movement network for the wider area.

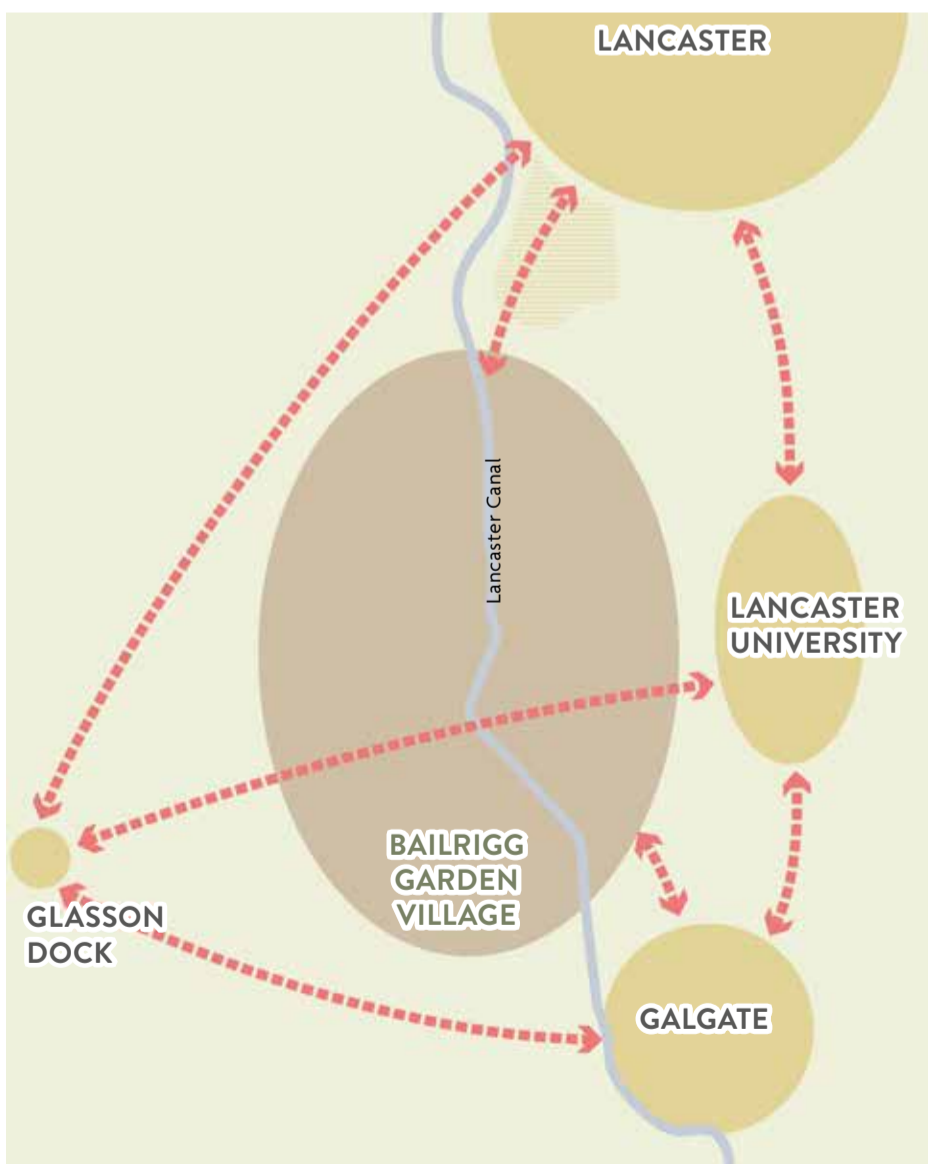
### Cycle and pedestrian movement

There are two national cycle network, Route 6 and Route 90 that runs around the area. There are currently no dedicated cycle routes within the Area of Search for development.

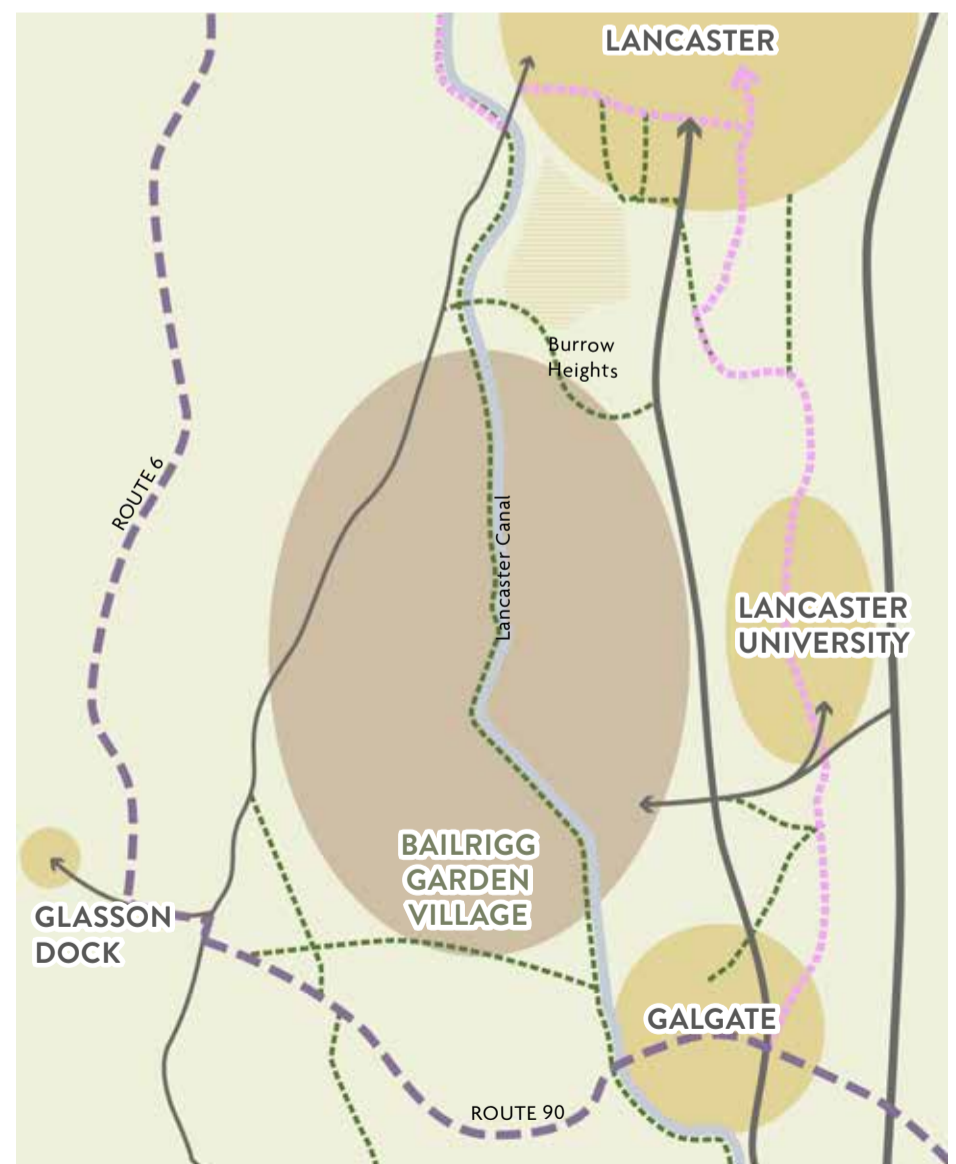
Important pedestrian routes include the public right of way around Burrow Heights and the Lancaster Canal towpath. In particular, Lancaster Canal plays an important role of key pedestrian and cycle connection to Lancaster City Centre and Galgate.

### KEY

- Vehicular road
- - - - Public rights of way and Bridleway
- - - - Cycle Highway
- - - - Cycleway
- - - - Desire lines



Key local destinations and desire lines



Existing key pedestrian and cycle movements

## 2. SITE CONTEXT

# LOCAL FACILITIES

There has been a global trend towards creating a walkable neighbourhood, where people's daily needs can be met within a 20-minute walk or cycle ride. The benefits of the '20-minute neighbourhood' model include improvements to people's health and wellbeing, tackling climate change and increased footfall on local shops and businesses.

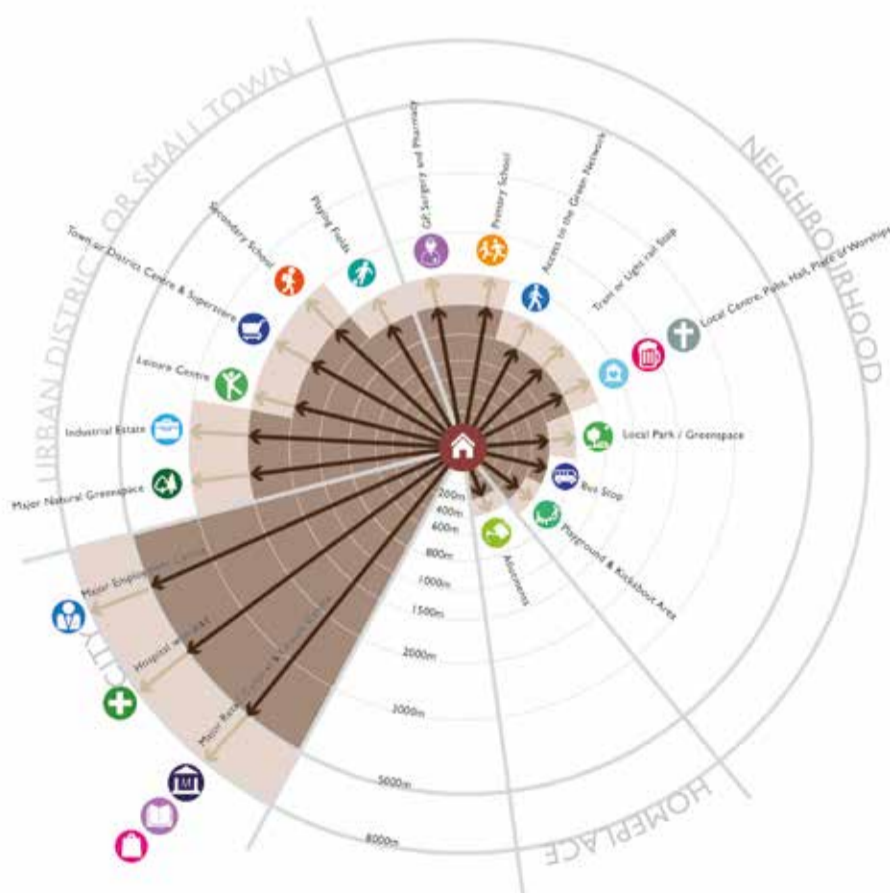
This model has recently gained momentum with COVID-19 and the lockdowns that have significantly increased people's time spent at home and in local premises. The pandemic has resulted in greater value being placed on locally accessible services, public spaces and parks.

The accessibility criteria of sustainable practice guidelines (see Barton, H. S Grant, M. Guise, R. 2010. "Shaping Neighbourhoods for Local Health and Global Sustainability." (2nd Edition) Routledge: Abingdon) help analyse the distances of local services and spaces that is required to create this sustainable and walkable neighbourhood.

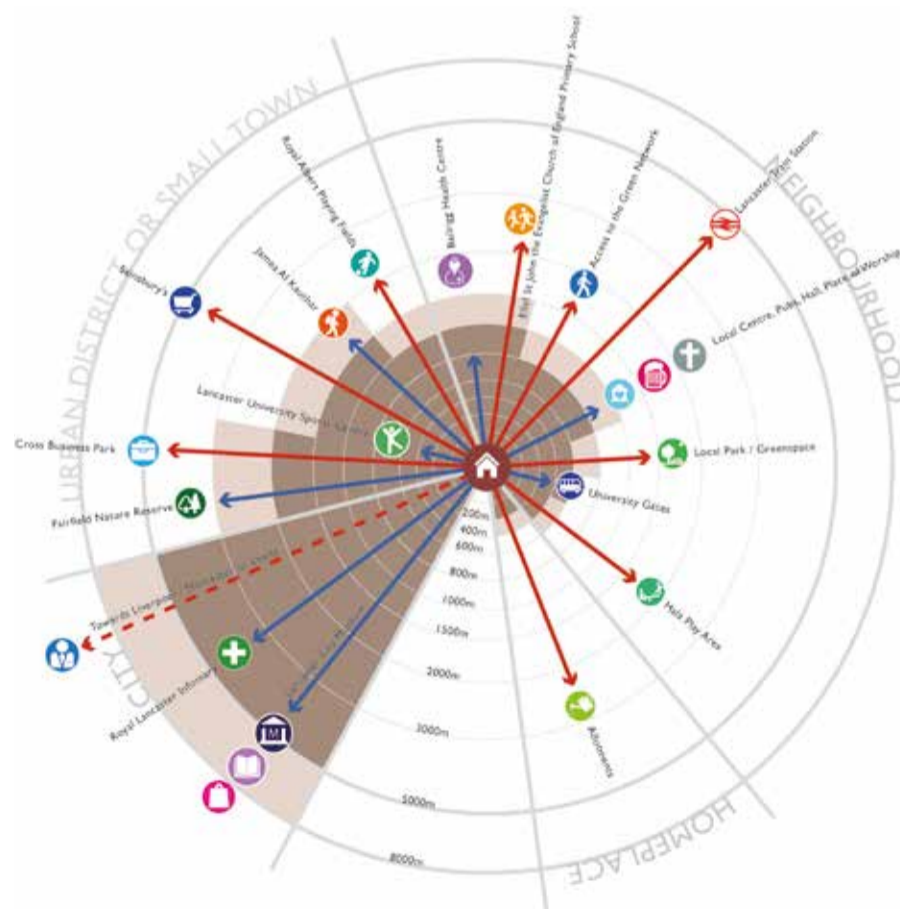
The assessment of current site (see below) offers insight on the crucial necessities that needs to be provided within and around the site in order to build and deliver a walkable neighbourhood. Bailrigg Garden Village must provide Allotments, Playground & Kickabout Areas, Local Park / Green Space, Primary School and a Local Centre to create a healthy neighbourhood.

### KEY

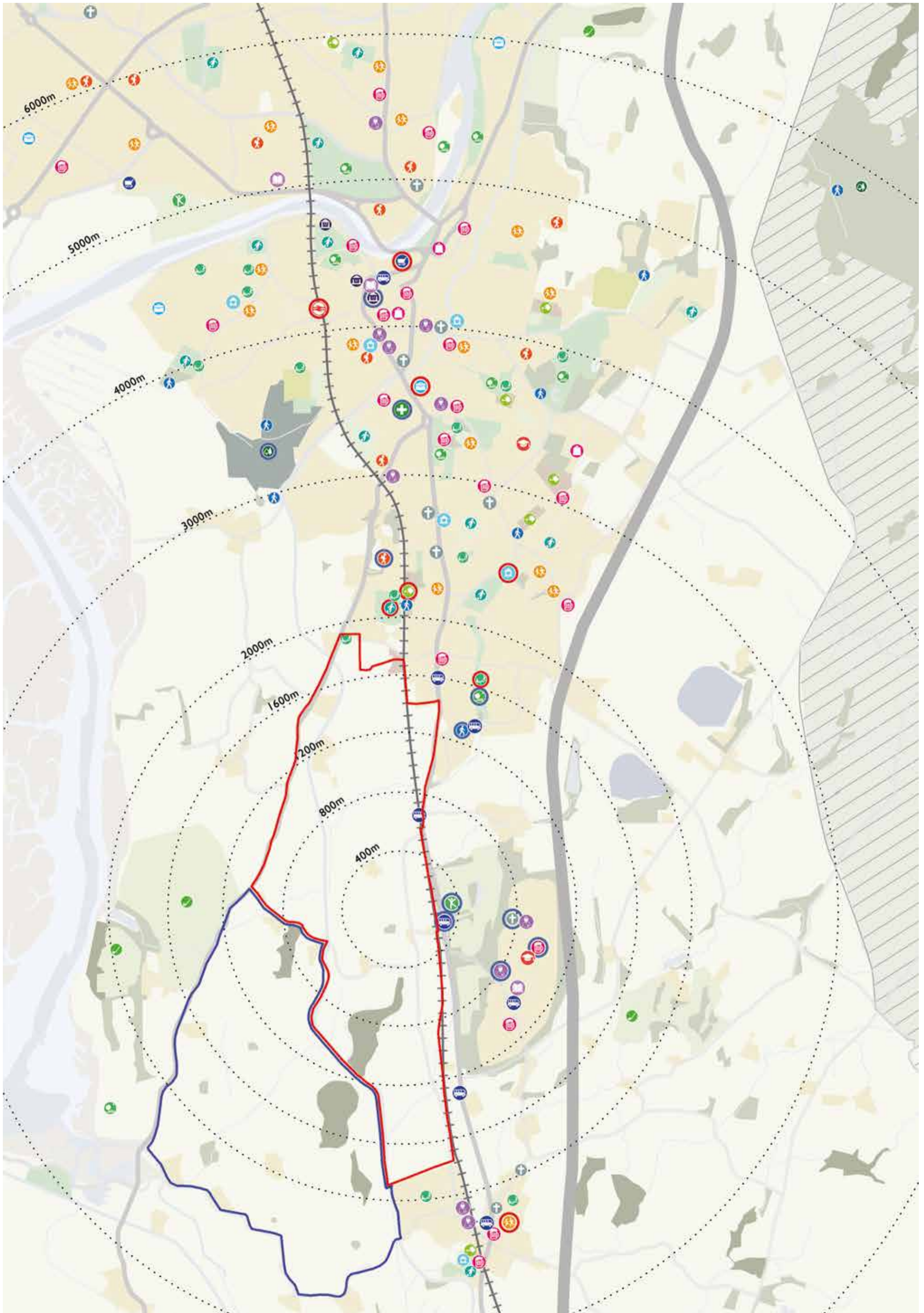
- |  |                          |  |                           |
|--|--------------------------|--|---------------------------|
|  | Allotments               |  | Superstore                |
|  | Play Area                |  | Industrial Estate         |
|  | Bus Stop                 |  | Major Natural Green Space |
|  | Local Park/Green Space   |  | Golf Course               |
|  | Pub                      |  | College/University        |
|  | Rail Station             |  | Hospital with A&E         |
|  | Access to Green          |  | Museum                    |
|  | Community/Village Centre |  | Place of Worships         |
|  | Primary School           |  | Library                   |
|  | GP                       |  | Leisure Centre            |
|  | Playing Field            |  | Ideal Accessibility       |
|  | Secondary School         |  | Strong Accessibility      |
|  |                          |  | Weak Accessibility        |



Illustrative recommended accessibility criteria as adapted from 'Shaping Neighbourhoods for Local Health and Global Sustainability'.



Current accessibility to the nearest relevant facilities from site.



## 2. SITE CONTEXT

# CONSTRAINTS

The site has a number of constraints that shapes the development capacity, and sensitivities that must be considered to building a sustainable and well-connected village. Particularly, the site has multiple north-south restrictions that must be mitigated and planned around, including heavily trafficked and polluted A588/A6 and fast railway; overhead pylons, as well as horizontal restrictions of flood zones around Burrow Beck and Galgate.

Whilst these features physically constrain the development, they can also be seen as opportunities to create mould the garden village and make it a truly unique and characterful place.



- 1 High levels of noise and air pollution from the existing Railway line, A6, M6 and the A588.
- 2 Heavy traffic area in Galgate; the Pointer roundabout; and Junction 33.
- 3 Dangerous and fast existing roads with heavy traffic flow.
- 4 Flood zones and the serious issue of flood risk, particularly in Galgate.
- 5 Pressure on existing local services including retail, health and education.
- 6 Poor sustainable modes of transport and connections between South Lancaster and surrounding settlements i.e. Glasson Dock and the University.
- 7 Overhead pylons



# OPPORTUNITIES

The opportunities of the site are formed around its rich green and blue assets. There is a potential to connect and enhance the existing woodlands and drumlins to create landscape that is unique to Bailrigg. In addition to green links, delivery of new roads, services and houses will deliver an opportunity to connect with surrounding settlements and assets.



- 1 Protect and enhance the woodlands and the drumlins.
- 2 Protect and enhance the Lancaster Canal corridor and explore further opportunities for leisure and transport.
- 3 Respect the existing communities by creating green 'gaps' between South Lancaster and Galgate.
- 4 Keep drumlin tops free of development to protect landscape character and important long views.
- 5 Opportunity to create a lively village centre that benefits both the existing and new residents.
- 6 Provide sustainable transport connections to the city, the University and west to the A558 and towards Glasson Dock.
- 7 New access provided from Hazelrigg Lane towards Burrow Road.

# CHAPTER 3



An illustration of a garden scene. In the foreground, a woman in a white shirt and blue pants is walking towards the right, holding a long, thin, purple flower stalk. To her left, a young girl in a pink shirt is riding a red bicycle. Further back, another child in a blue shirt is walking. The background shows rolling green hills under a blue sky with yellow sunbeams. In the top right corner, there are clusters of purple berries hanging from a branch. In the bottom left, there are stylized green houses with yellow roofs.

# Local Context

*The Area of Search for development has a rolling topography and an iconic Lancaster Canal that runs through its heart. It is important to understand how towns and villages in close proximity and of similar landscape character have developed to guide and inform the design of Bailrigg Garden Village.*

*Additionally, despite the Garden Village being a bespoke development, it must respect the surrounding context and work to integrate the unique character of the area.*

# LOCAL CHARACTER STUDY

## SURROUNDING SETTLEMENTS

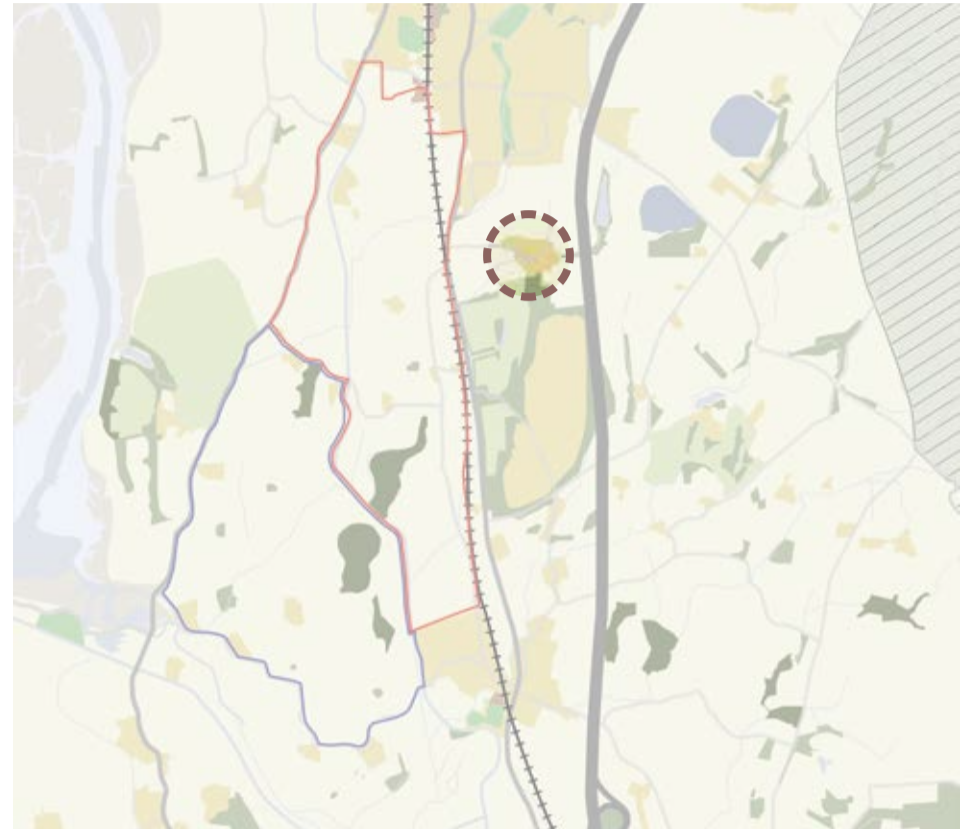
A study of the surrounding villages and settlements within the immediate vicinity was undertaken to analyse the character and densities, to inform the character of the future Garden Village.

## BAILRIGG VILLAGE

Bailrigg village is situated in between Lancaster South and Lancaster University, and to the west of Bailrigg Garden Village. It is a small cluster of detached and semi-detached cottages and farmhouses surrounded by fields and woodland.

The houses along Bailrigg Lane are generally stepped away from the road, with private drives and large front and back gardens that benefit from the rolling topography. The detached and semi-detached houses are relatively contemporary in style, and have a range of material palettes.

However, the built form changes along Bailrigg Chase. Large hamlets are built right up to the streets with minimal defensible space, and are clustered around a shared courtyard. These sets of houses share architectural characteristics, with the use of traditional Lancashire stone, pitched roofs and small windows.



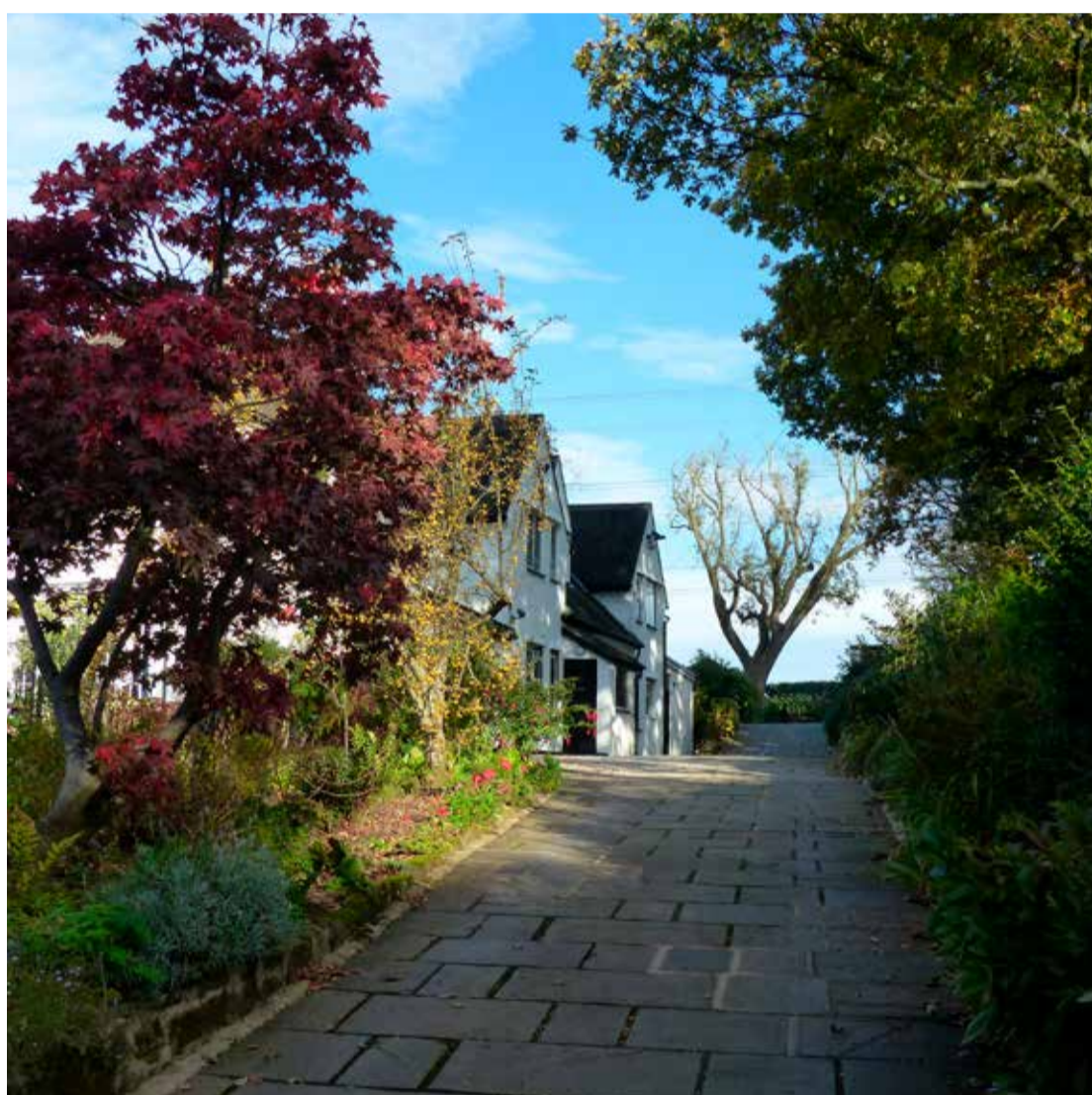
Clusters of hamlets nestled around a shared courtyard



Farmstead buildings and large houses sat along the topography



Green cycle and pedestrian route to Lancaster University



Contemporary hamlets with traditional bricks



Large houses tucked away in private drives

## 2. LOCAL CONTEXT

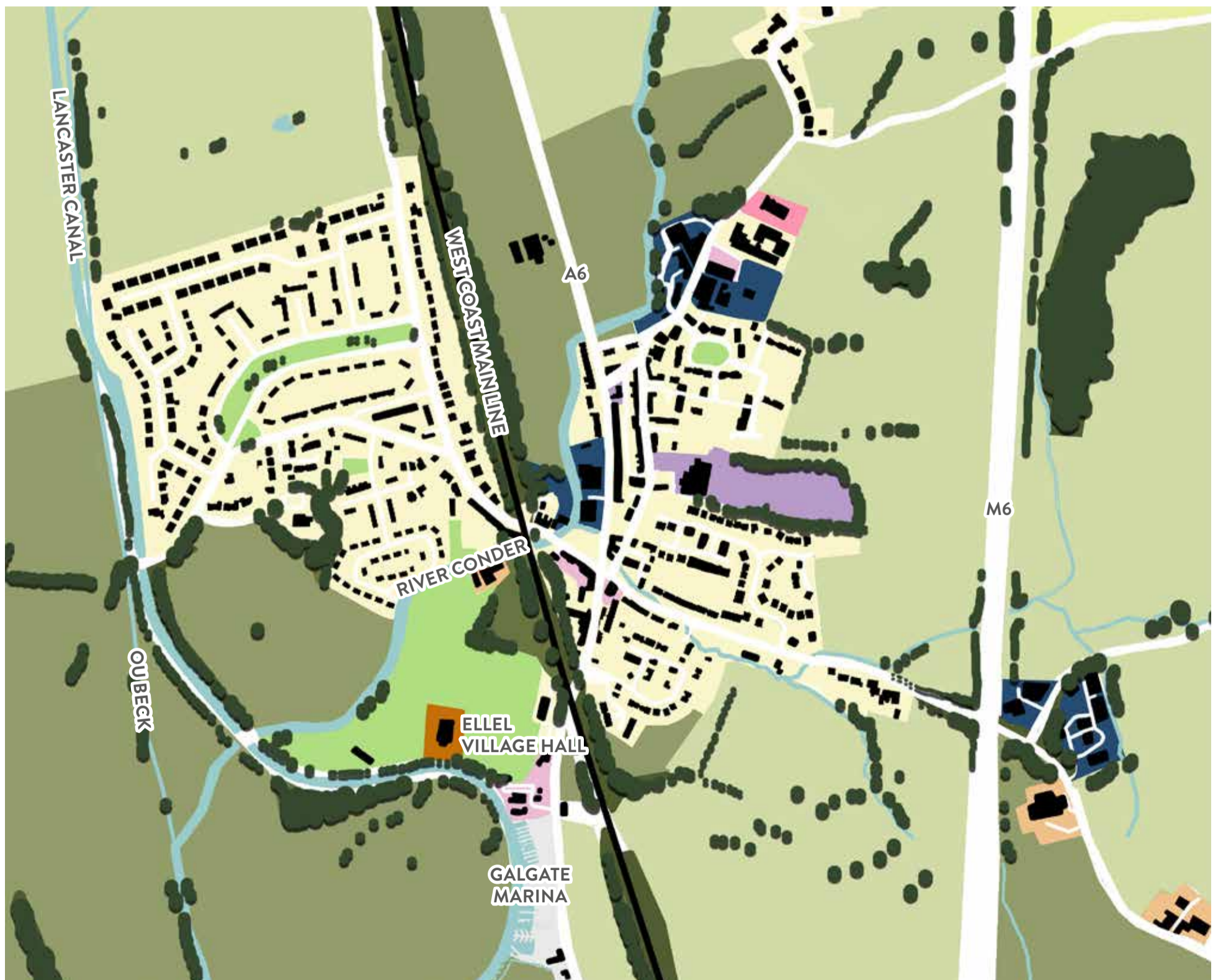
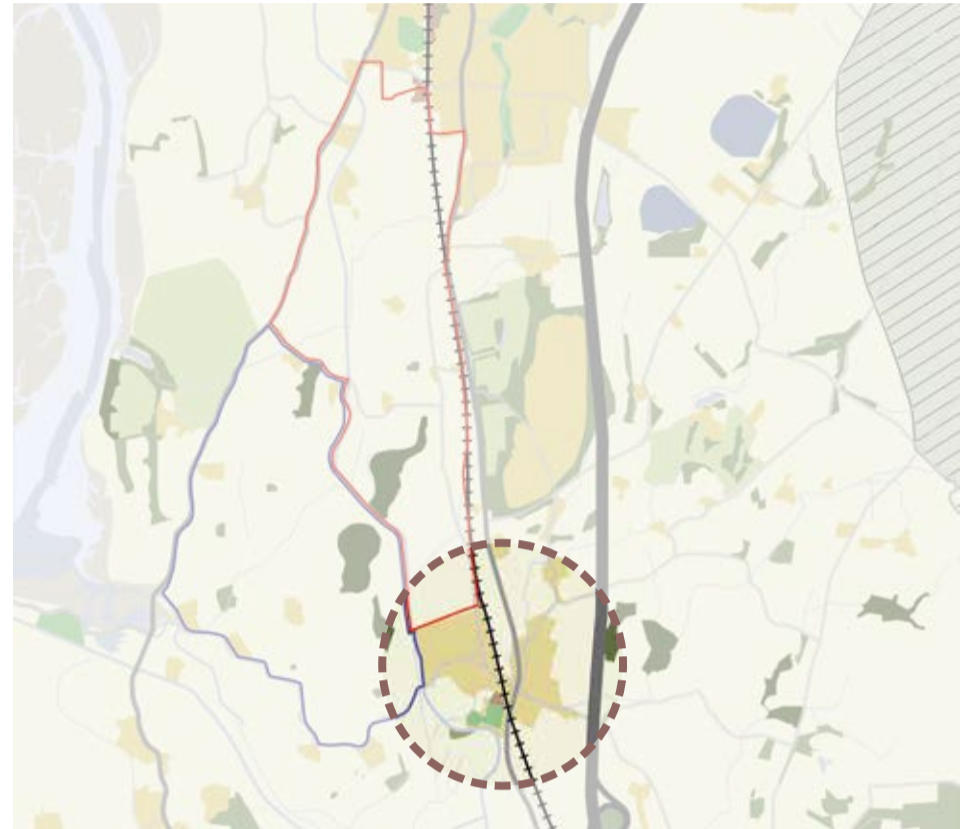
# LOCAL CHARACTER STUDY

### GALGATE

Galgate is a small village, with population of around 2,000 (ONS, 2019), located to the south of the Lancaster University and the Bailrigg Garden Village. It has a busy A6 and West Coast Main Line that splits the village in two. Galgate once had its own station, which closed in 1939.

Despite its population, Galgate does not have a strong offer of mixed-uses. However it has a multi-purpose village hall located alongside football and cricket pitches that are actively used, and the Galgate Marina, which is popular with residents and visitors alike. There are also few employment areas scattered along the River Conder.

The streets along Galgate are not lined with trees, however, many houses have front gardens and/or boundary treatments with hedges that help green up the country lanes. The historic centre is characterised by traditional brick wall terraces, whereas majority of its edges are formed by 2-storeys semi-detached buff brick buildings. Few pocket parks/play spaces divide up the otherwise uniform residential parcels.



**New development**



**The Galgate Marina**



**The canalside walk**



**Large, brick houses along the canal**

## 2. LOCAL CONTEXT

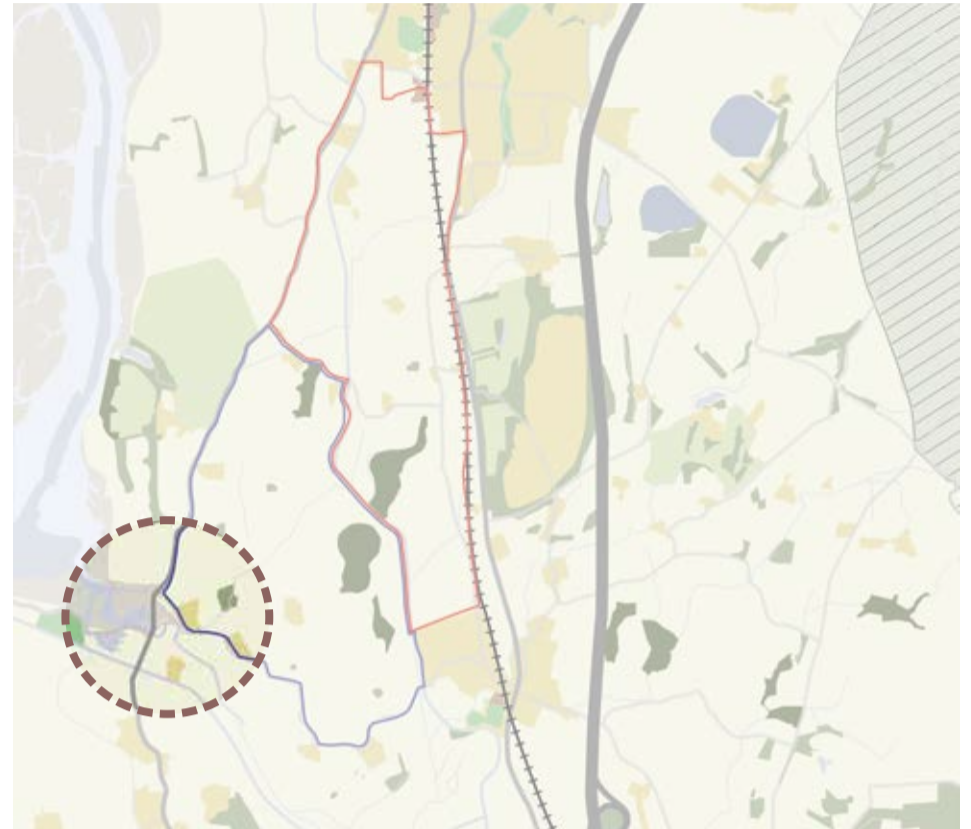
# LOCAL CHARACTER STUDY

### CONDER GREEN

Conder Green is located to the south-west of Bailrigg Garden Village, near the historic seaport of Glasson, and at the beginning of the Lune Millennium Cycleway.

It is a small village within Thurnham civil parish with locally loved focal buildings, such as The Mill and The Stork (currently under reconstruction following the recent fire), a couple of hamlets and cottages and farmhouses. Buildings are lined up along the road or the canal, fronting onto the natural landscape. Whilst majority of the residential buildings are formed along Corricks Lane, few key clusters of farmsteads and mixed-use are dotted along the waterside.

Particularly, the Mill shows an example of successful mixed-use set along the Lancaster Canal. Originally built around 1740, the Mill was bought by the canal company to feed water from the river into the canal from 1824-26. At the state of disrepair, it was sold to Western Railway Company in 1826 to be re-built to the structure you see today (refer to the photos on the right).





**Converted historic building  
to Hotel, Restaurant / Bar**



**Lock No. 6 built  
between 1823-25**



**Long views across the canal  
and fields to the Mill and  
farmhouses**



**Outdoor  
seating area  
for dining.**

## 2. LOCAL CONTEXT

# DENSITY STUDY

### KENDAL

Kendal is a market town of Cumbria which lies within the valley of River Kent, between Lake District and Yorkshire Dales National Park. The town is often seen as the Southern gateway to the Lake District.

Historically, Kendal has been an important centre for trade and commerce, particularly famous for its wool. The town today has a population of approximately 36,014 (ONS, 2019), and is known for its thriving retail sector.

Albeit in a bigger scale to the Bailrigg Garden Village site, Kendal shares many important landscape characteristics to the site, as a village sitting within drumlin landscape and its major waterway running along vertically. Due to its dramatic landscape, the town is naturally formed by a diverse range of densities and housing typologies.

Its mixed-uses are clustered around the main street, which is parallel to the River Kent. Schools are plotted around various character areas of Kendal, with few forming within the dense, town centre core, and others towards lower density residential and landscaped areas. Large number of employment uses are lined along the riverside.



### Kendal town centre is characterised by...



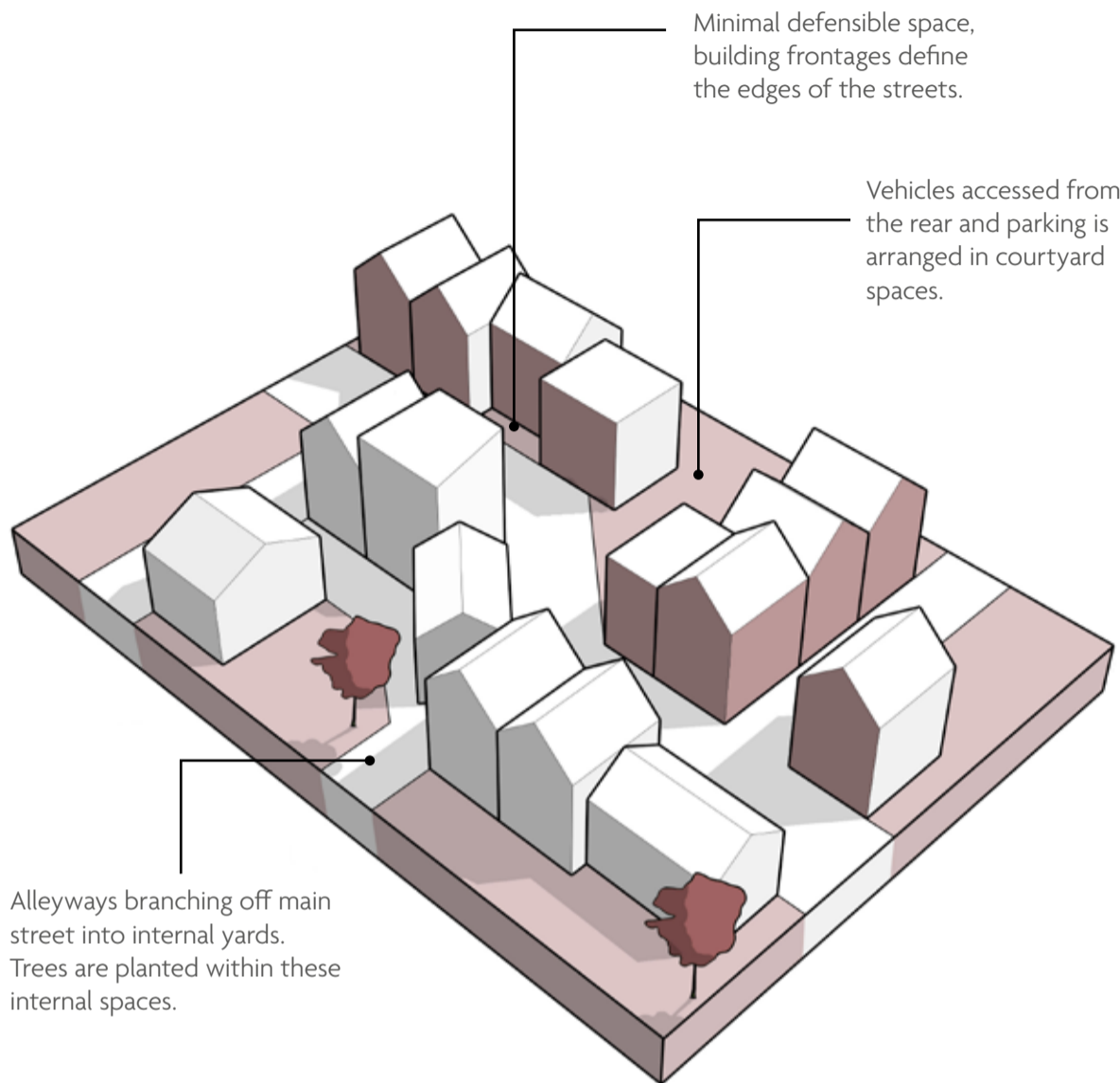
**Tightly knit, tree-free high street with glimpse views out to distance landscape.**

**Secret alleyways leading off a busy high street.**



# DENSITY STUDY

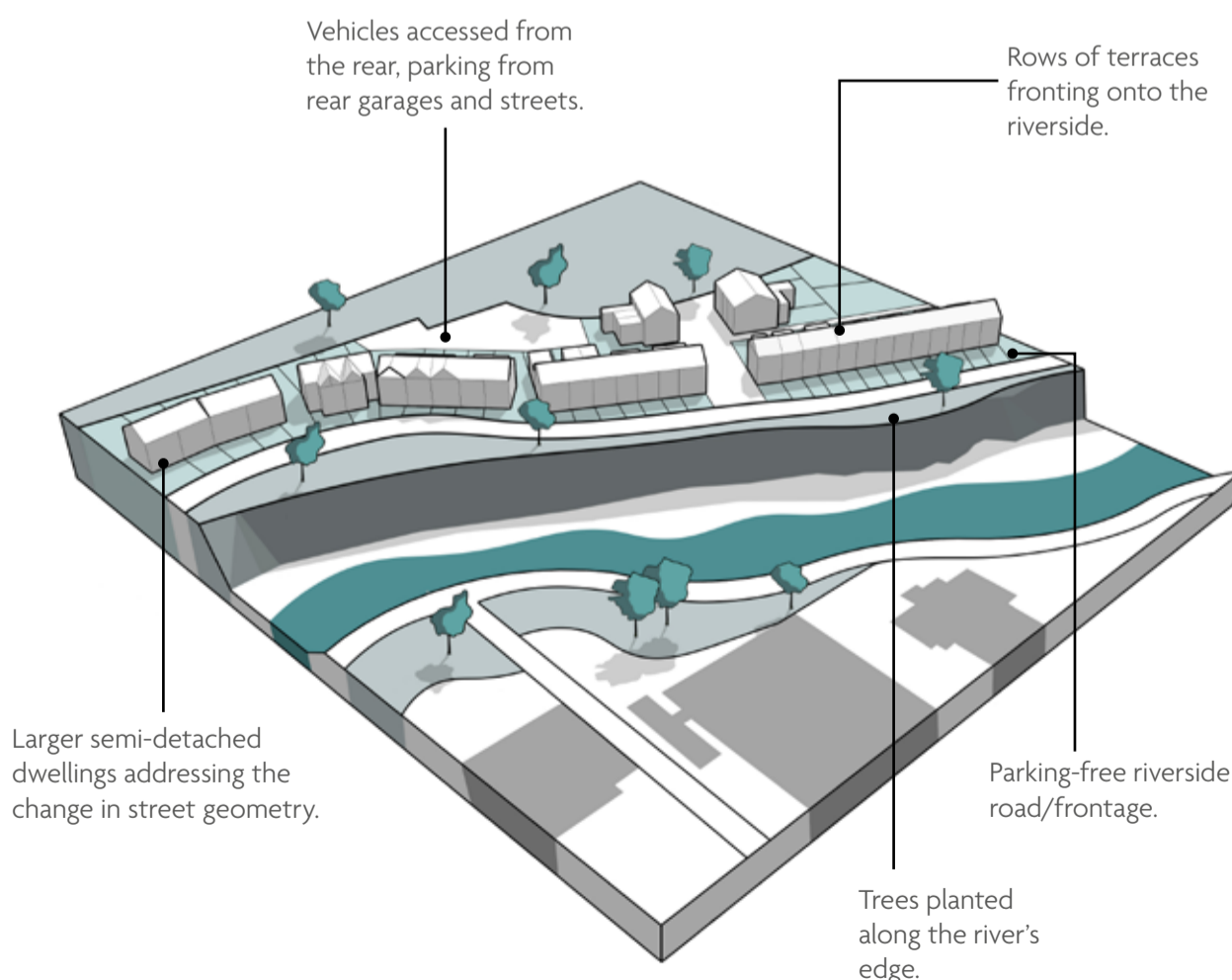
## Town Centre Core



The layout of the town centre core is characterised by the narrow yards and lanes branching off from the main street. Building-to-street ratio is kept to minimal, without green verges, creating streets at intimate scale.

- 80 - 120 dph
- 2 to 4 storeys in height
- Predominantly terraced typology and mixed-uses flat blocks gathered in a dense urban layout
- Parking to the rear courtyard spaces

## Riverside



Houses are lined up along the river's edge, with its frontage lines following the bends of the waterway. No parking and trees along the streets to ensure minimum distances are kept from the houses to the river.

- 60 - 65 dph
- 2 to 3 storeys in height
- Predominantly terraced typology with some semi-detached units
- Parking to the rear of dwellings

## DENSITY STUDY

The edges of Kendal is characterised by...



Views out to the drumlins are always maintained.

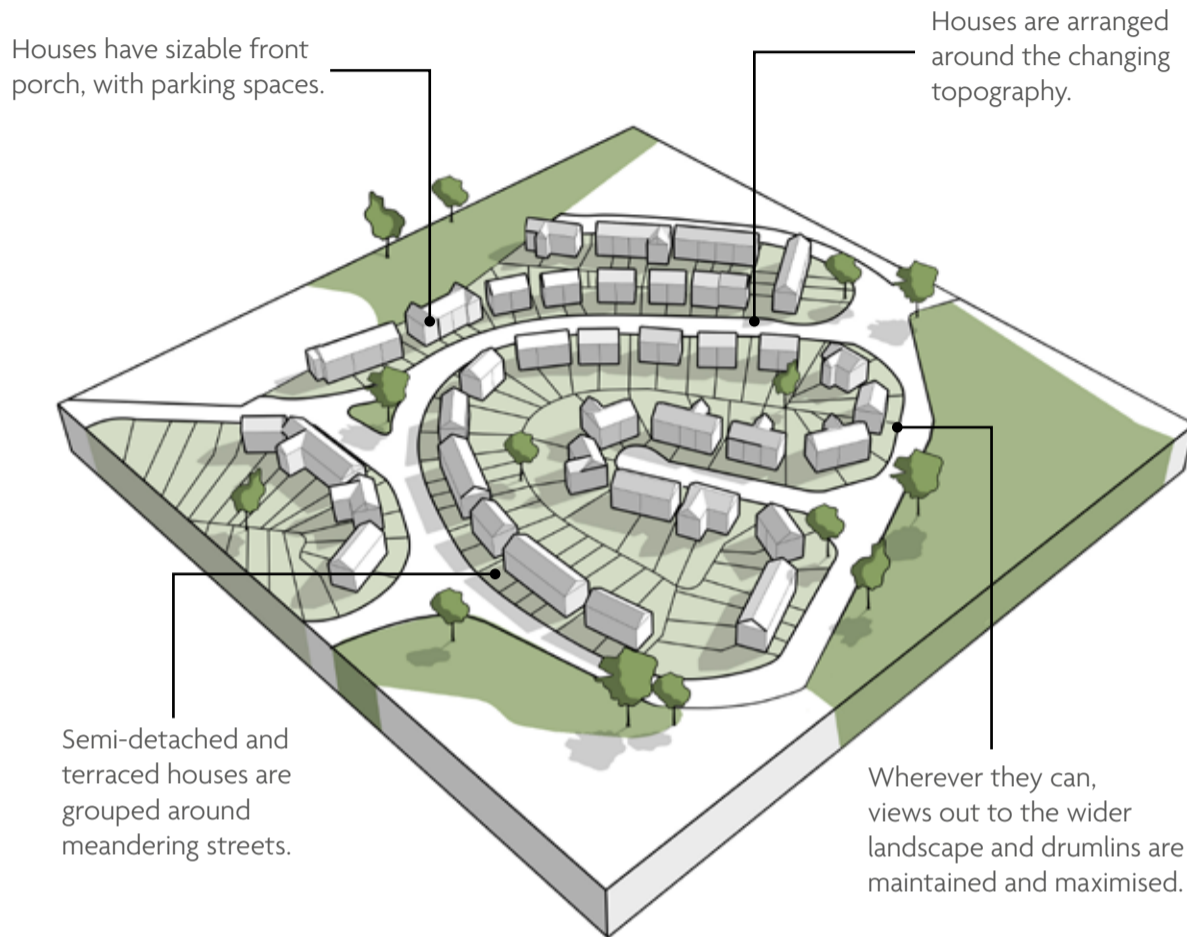
Series of low density semi-detached and detached dwellings stepping down along the contour lines.



A scenic pedestrian path nestled within residential area, leading down the steps to the high street.

# DENSITY STUDY

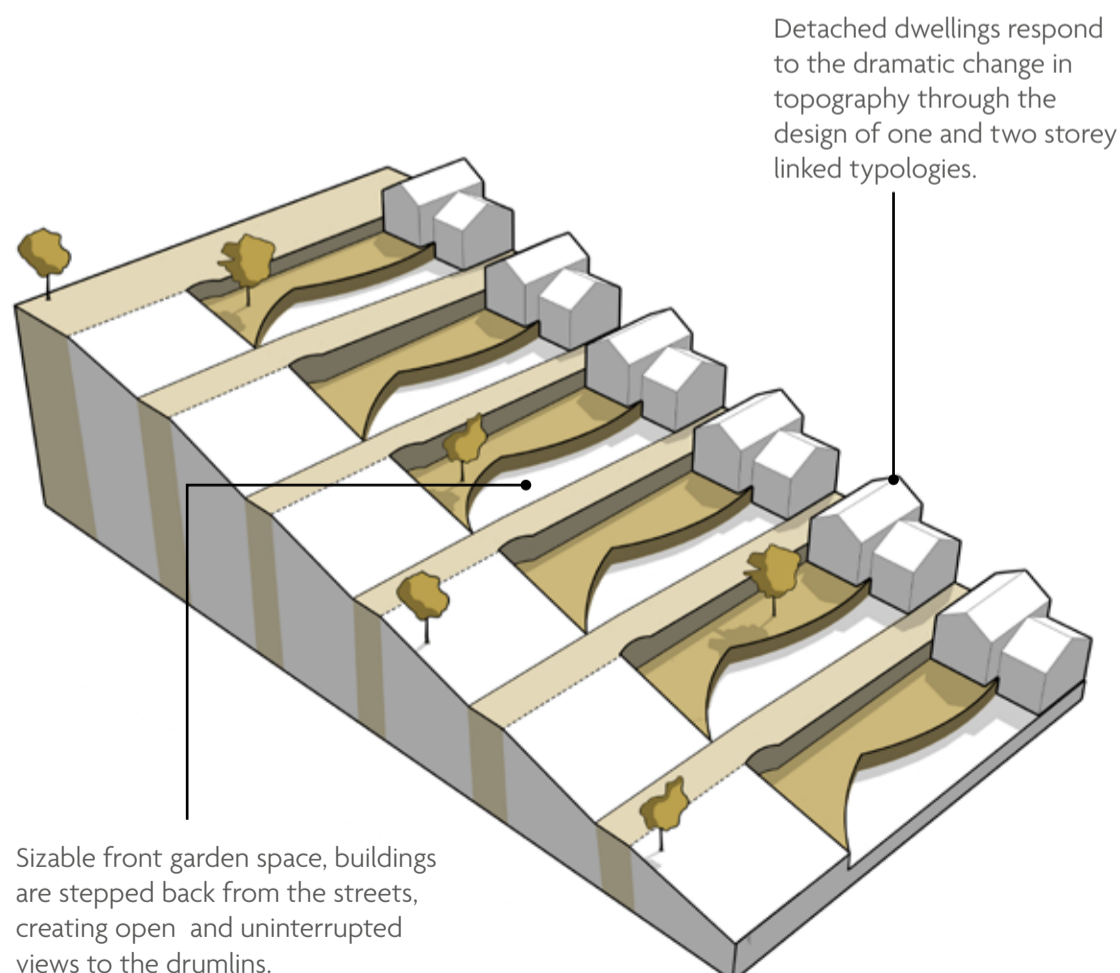
## Town Edge



Towards the edges of the town centre core, the houses are arranged around the changing topography. This leads to small pockets of cul-de-sacs forming.

- 30 - 35 dph
- 2 to 3 storeys in height
- Predominantly semi-detached typology with some small rows of terraces
- Parking to the front
- Sizable back and front gardens

## Housing on the Drumlins



Towards the edges of Kendal, the houses respond to the more dramatic escalation of topography. Here, the buildings are feathered around the edges.

- 20 - 25 dph
- 1 to 2 storeys in height
- Predominantly detached houses that directly respond and adapt to the dramatic topography
- Parking to the front
- Large back gardens

Sizable front garden space, buildings are stepped back from the streets, creating open and uninterrupted views to the drumlins.

## 2. LOCAL CONTEXT

# DENSITY STUDY

### SEDBERGH

Sedbergh is a small town of Cumbria with population of approximately 3,768 (ONS, 2019). It has been a thriving community for decades, with a market dating back to 13th century. The town is characterised by cobbled streets and stone houses, and the beautiful hills of Yorkshire Dales National Park.

Sedbergh today is famous for its public schools set within the parkland southern edge of the town.

The mixed uses in the town are clustered around the high street that is formed of tight streets and historic buildings that date back to 16th century. Few clusters of hamlets and farmsteads are set away from the town centre, linked by country roads.



### Sedbergh is characterised by...



Old stone brick buildings.

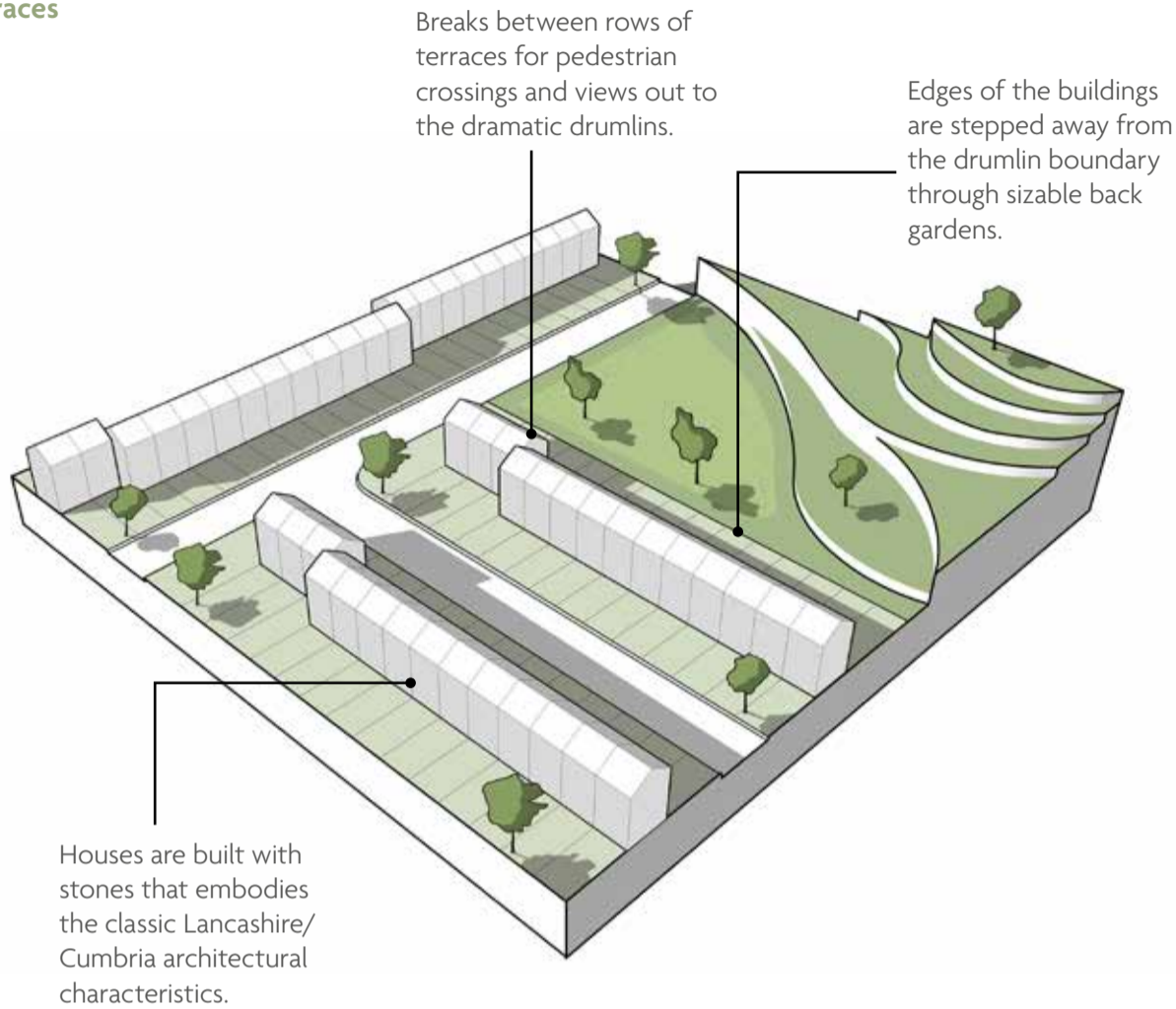
Dramatic views out to the drumlins between rows of houses.



Narrow and winding high street lined with characterful buildings.

# DENSITY STUDY

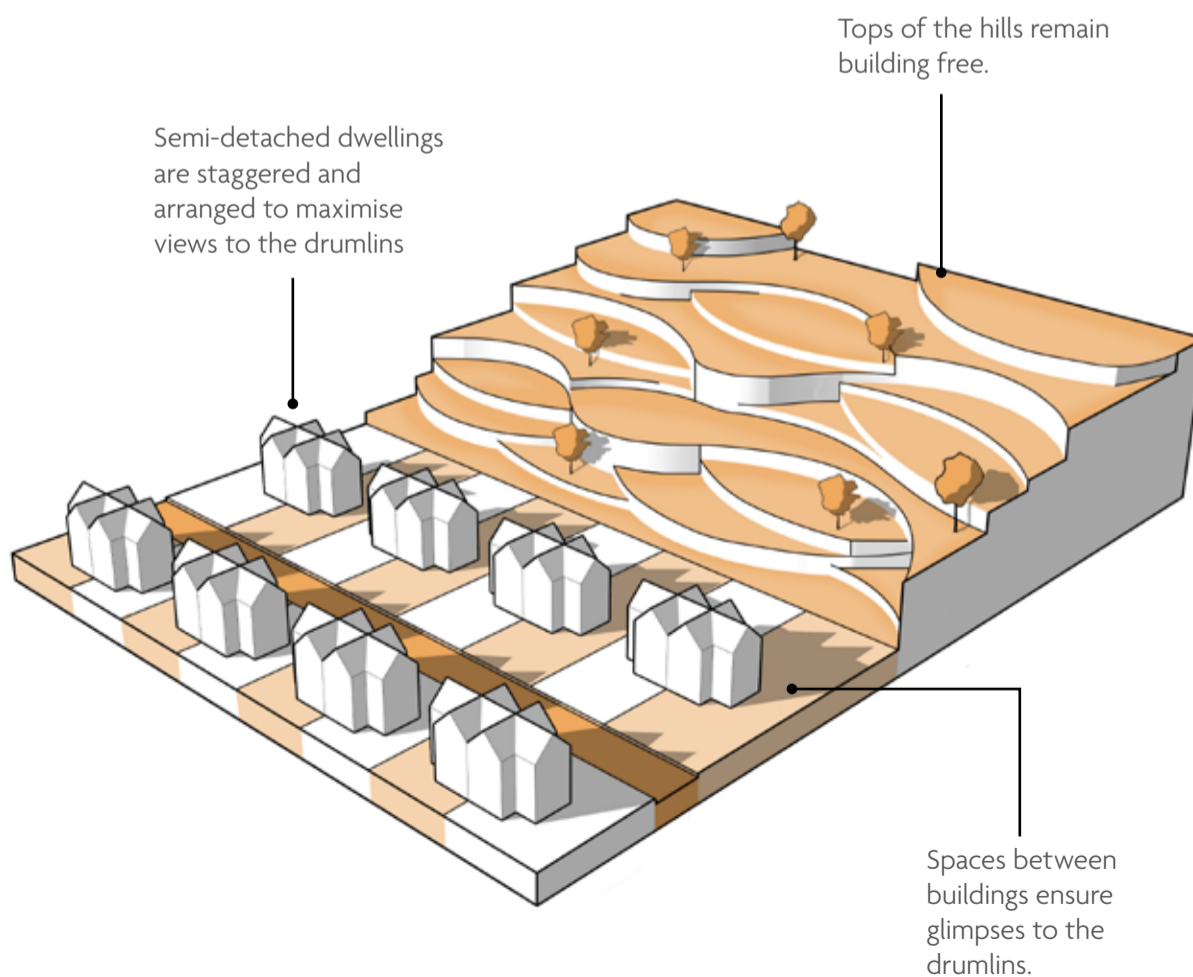
## Terraces



The rows of terraces are arranged in regular form. The gaps between the sets of terraces show glimpses to the drumlins, with scenic pedestrian routes running through them, or have access to the rear courtyard spaces for parking.

- 35-40 dph
- 2 to 3 storeys in height
- Predominantly terraced typology
- On-street or rear courtyard parking

## Semi-Detached Houses



Forming the drumlin edge of the site, semi-detached houses maximises views to the natural landscape from the streets. Its large back gardens ensure that offset is maintained between buildings and the drumlins.

- 25 dph
- 2 storeys in height
- Predominantly semi-detached typology
- Parking to the front
- Sizable back and front gardens

## 2. LOCAL CONTEXT

# DENSITY STUDY

### KIRKBY LONSDALE

Kirkby Lonsdale is a town of Cumbria with population of approximately 7,644 (ONS, 2019). Originally a part of Lancashire, Kirkby Lonsdale's built form is shaped by traditional stone walls.

Majority of the town itself is offset from the river, situated between the steep hills and the River Lune. Its high street runs parallel to the river, and smaller routes that stem out from the main streets exposes long views to the river and the landscape.

Schools are located to the edges of the town centre, nestled amongst the landscape and below the drumlins. There are few low density clusters of hamlets branching off the town centre that embraces the nature and topography.



### Kirkby Lonsdale is characterised by...



Low planted edges that gives colours to the narrow streets.

Old stone houses that bring out the typical Lancashire/Cumbria architectural styles.

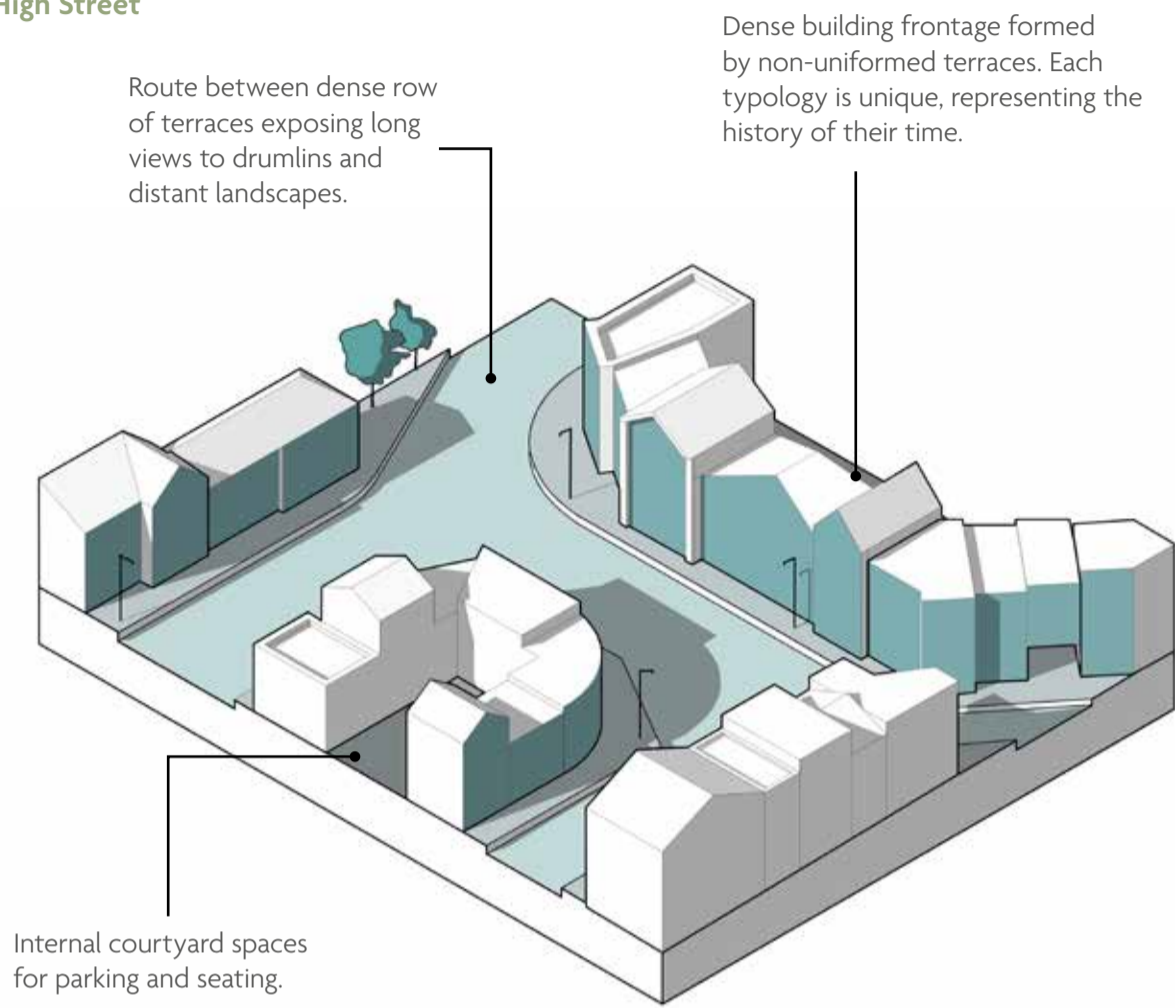


Long views out to the drumlins behind tightly structured houses.



# DENSITY STUDY

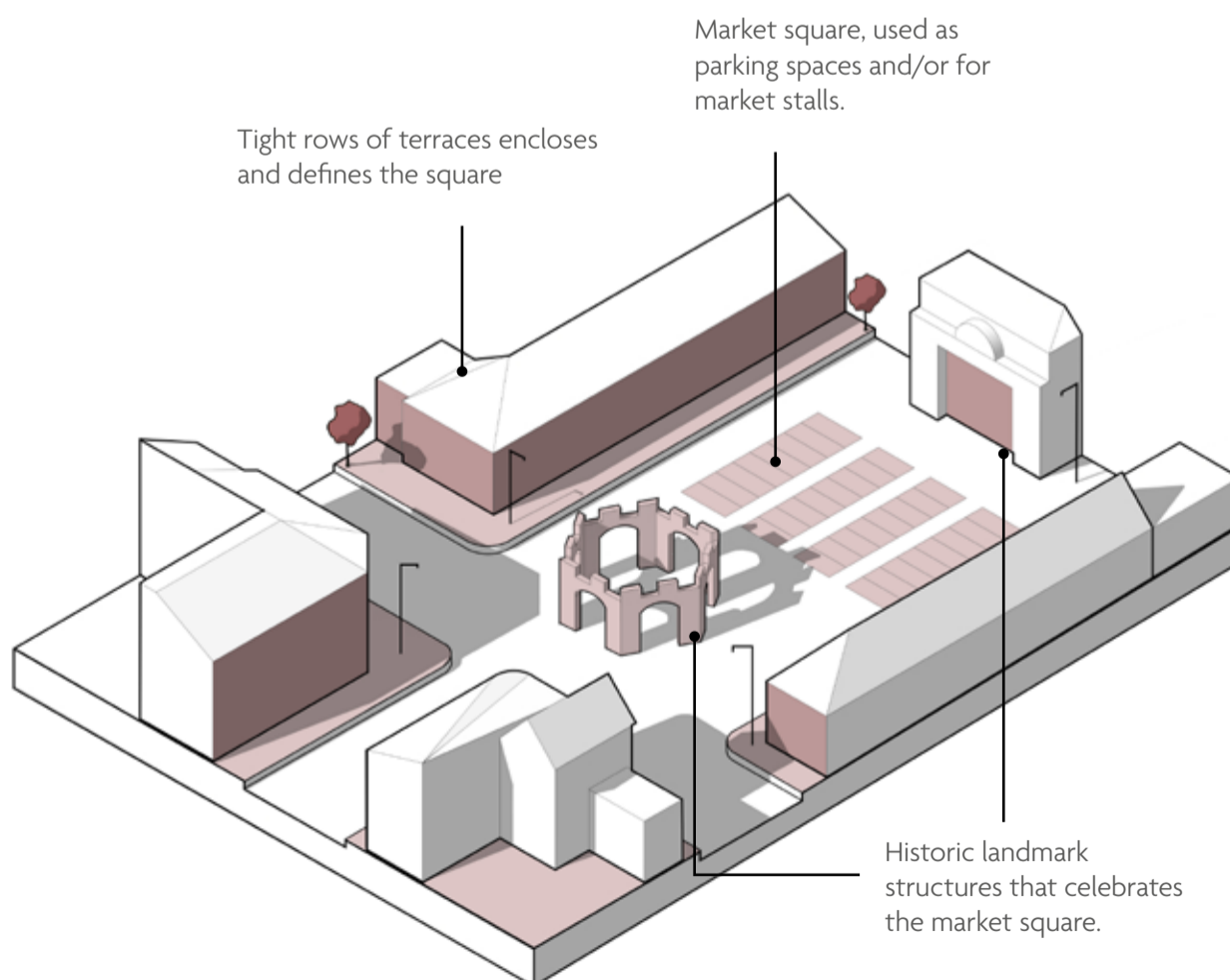
## High Street



The high street is formed by closely knit terraces. Majority of the ground floor units are occupied by various mixed-uses, contributing to the lively street scene of the town.

- 55 - 65 dph
- 1-2 storeys in height
- Predominantly terraced typology with ground floor mixed-uses
- Parking to the rear courtyard spaces

## The Market Square



Kirkby Lonsdale has a Market Square, that is framed and celebrated by historic landmark buildings and has dramatic views out to the drumlins.

- 55 - 65 dph
- 1 to 2 storeys in height
- Predominantly terraced typology with ground floor mixed-uses
- Parking to the rear courtyard spaces or to the parking court

# CHAPTER 4



An illustration of a garden scene. In the foreground, a young girl with long brown hair, wearing a white shirt and blue pants, is riding a blue scooter. To her left, another girl with long dark hair, wearing a pink shirt and blue pants, is riding a red bicycle. In the background, a third girl with long blonde hair, wearing a blue shirt and red pants, is walking. The garden is filled with green foliage and several purple flowers. In the distance, a row of simple houses is visible against a light blue sky. The overall style is flat and colorful.

# Engagement

*Collaborative Placemaking puts people at the heart of the creative process, unearths the real needs of a community, empowers stakeholders, creates goodwill, inspires community spirit and builds consensus. This chapter summarises the outcomes of community engagement process for Bailrigg Garden Village, and how voices from local groups have shaped the masterplan framework.*

## 4. ENGAGEMENT

# INTRODUCTION

The City Council appointed architects JTP to engage with the local community and prepare a detailed masterplan for Bailrigg Garden Village and a design code for future development.

From October 2019 to March 2021 the JTP led master-planning team engaged extensively with local organisations and local communities in a collaborative process to shape and design the Garden Village.

## TIMELINE OF EVENTS



### STAGE 1 APPOINTMENT: STAKEHOLDER CHARRETTE 2019

Lancaster City Council and the JTP led team facilitated a stakeholder charrette in October 2019.

It began with a briefing session and site visit in the first week and continued with workshops in the second week to start producing ideas and themes for the initial Garden Village concept and design framework. The outputs were then reported back to Lancaster City Council.

Attendees included the JTP Team, Lancaster City Council and local stakeholders Lancaster City Council, Lancashire County Council, Environment Agency and Canal & River Trust.

#### Tuesday 22nd October

Briefing in Lancaster City Council, Morecambe

#### Wednesday 23rd October

Site Visit

#### Tuesday 29th October

Workshop Day in Bowland Hall, Lancaster University

#### Wednesday 30th October

JTP Team Working

### STAGE 2 APPOINTMENT: COMMUNITY & STAKEHOLDER ENGAGEMENT 2021

Lancaster City Council is committed to engaging with local stakeholders and the wider community to develop a detailed masterplan for Bailrigg Garden Village.

The JTP led master-planning team engaged extensively with local organisations and local communities in a collaborative process to shape and design the Garden Village masterplan. A staged process of community engagement provided a variety of ways for the community to feed into the preparation of the masterplan.

The engagement methodology ensured hard copy leaflet distribution throughout the process, including publicising a Freepost address and Freephone number which ensured nobody from the community was excluded from the process by lack of access to technical hardware or skills. This ran concurrently with engagement activities via video conferencing platforms, email communication, and the creation of a bespoke project website with an e-comments facility built in. A combined digital and print communications strategy ensured the process remained open, transparent and interactive for all.

# INTRODUCTION

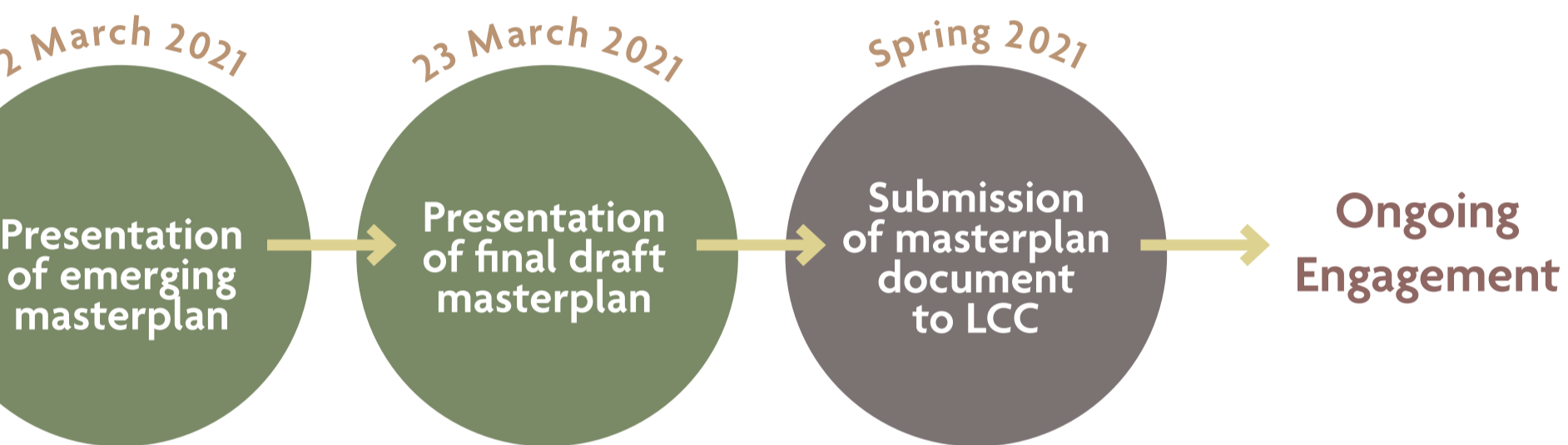
Over the community engagement process up to 23 March 2021 there were:

**15,000 approx.**  
Total newsletters/flyers issued to the local area

**1,116**  
Total comments received

**3,574**  
Total new visitors to the website

**676**  
Total presentation attendees



## COMMUNITY ENGAGEMENT

The engagement programme and timeline above show the key milestones for each consultation stage and more detail can be seen on the following pages.

### CONSULTATION STAGE 1

- Tuesday 19 January 2021 - Launch to stakeholders via Zoom
- Newsletter 1 issued with Freepost questionnaire
- [bailrigggardenvillage.co.uk](http://bailrigggardenvillage.co.uk) project website launch with 'Create Communities' Consultation Platform

### CONSULTATION STAGE 2

- Community feedback from stage 1 analysed and summarised
- Tuesday 9 February 2021 - Vision Report Back via Zoom
- Newsletter 2 issued with summary of the Vision
- Website updated

### CONSULTATION STAGE 3

- Community feedback from stage 2 analysed and summarised
- Tuesday 2 March 2021 - Emerging Masterplan Report Back Presentation via Zoom
- Newsletter 3 issued with Emerging Masterplan
- Website updated

### CONSULTATION STAGE 4

- Community feedback from stage 3 analysed and summarised
- Tuesday 23 March 2021 - Final Masterplan Report Back Presentation via Zoom
- Website updated

### CONSULTATION STAGE 5

- April 2021 - Masterplan Framework submitted

### CONSULTATION STAGE 6

- Late May/Early June 2021 - Next Steps Presentation
- Continuing community & stakeholder engagement

## 4. ENGAGEMENT

# STAKEHOLDER CHARRETTE

### KEY THEMES

The following key themes represent a summary of the ideas to emerge during the two stakeholder charrettes that were used to inform the consensus masterplan overleaf and provide a basis of understanding for the community engagement process in 2021.

#### 1. Separate and Distinctive

The garden village should be separate from but connected to existing settlements it should be a place in its own right not an extension. Local features including the canal, woodland and topography will mean that it will have a unique and distinctive character.

*“The garden village needs to be visually separate but socially connected.”*

#### 2. Landscape-Led

The glacial landscape should be respected and provide the foundation for the sensitive design of the garden village as a sequence of neighbourhoods. There are opportunities to work with the blue green infrastructure to integrate enhanced drainage strategies to the benefit of existing communities and provide a unique setting for people and nature to thrive.

*“The context is telling us that a big urban area is not going to work but the context is going to dictate where you put development.”*

#### 3. Canal

The canal is a beautiful, multi-functional asset and has great potential to act as a focus for the new community and serve multiple functions including travel, leisure, ecology and biodiversity, mental health, heritage, cooling / heating source, and more.

*“The canal from Lancaster to Galgate - it’s a sublime hour!”*

#### 4. High Quality, Zero Carbon

Bailrigg Garden Village is a great opportunity for partners to come together to create a high quality, exemplar carbon zero development that provides homes and jobs for all and is connected to the area’s assets. There should be a broad mix of homes for a balanced community.

*“The garden village should be “great not good!””*



Stakeholder charrette 'Post-it note' workshop



Stakeholder charrette 'Hands-on Planning' workshop

# STAKEHOLDER CHARRETTE

## 5. Movement

Active transport should be a priority rather than cars through designing a number of walkable neighbourhood with efficient, reliable public transport. There is a strong north south grain and east west links will need to be carefully considered to link the university, the garden village and on to Glasson. There is an opportunity to explore a western route option from the motorway junction instead of the current HIF route.

*“The east west connections aren’t particularly good and improving those is something you would want to get out of the development.”*

## 6. Community Infrastructure and Stewardship

A key aspect of the process will be the engagement of existing communities and the development of bespoke community infrastructure to meet the lifetime needs of the whole community. Community governance will deliver a responsive and flexible structure of ownership and management of a range of community assets, including open space management.

*“The garden village should be a whole life place –“hatch, match, dispatch!””*

## 7. Partnership working to deliver the vision

The University could play a key role in creating the exemplar garden village and understanding their aspirations is critical. Breaking down silos and developing productive and trusting relationships between all partners including councils, community, university, businesses and agencies will be key to realising the full potential of Bailrigg Garden Village. The development of a shared Vision through open and broad community and stakeholder engagement will be an important next step.

*“What role does the university see for itself both physical and spiritual?”*

## 8. Delivery

The development should be masterplan led not developer led. It will be important to develop an efficient delivery and development strategy that prioritises and meets the aspirations of local stakeholders and delivers on the garden village principles and the uniqueness of the Bailrigg setting.

*“It’s alright having a masterplan but how do you control its delivery?”*



Stakeholder charrette ‘Hands-on Planning’ workshop



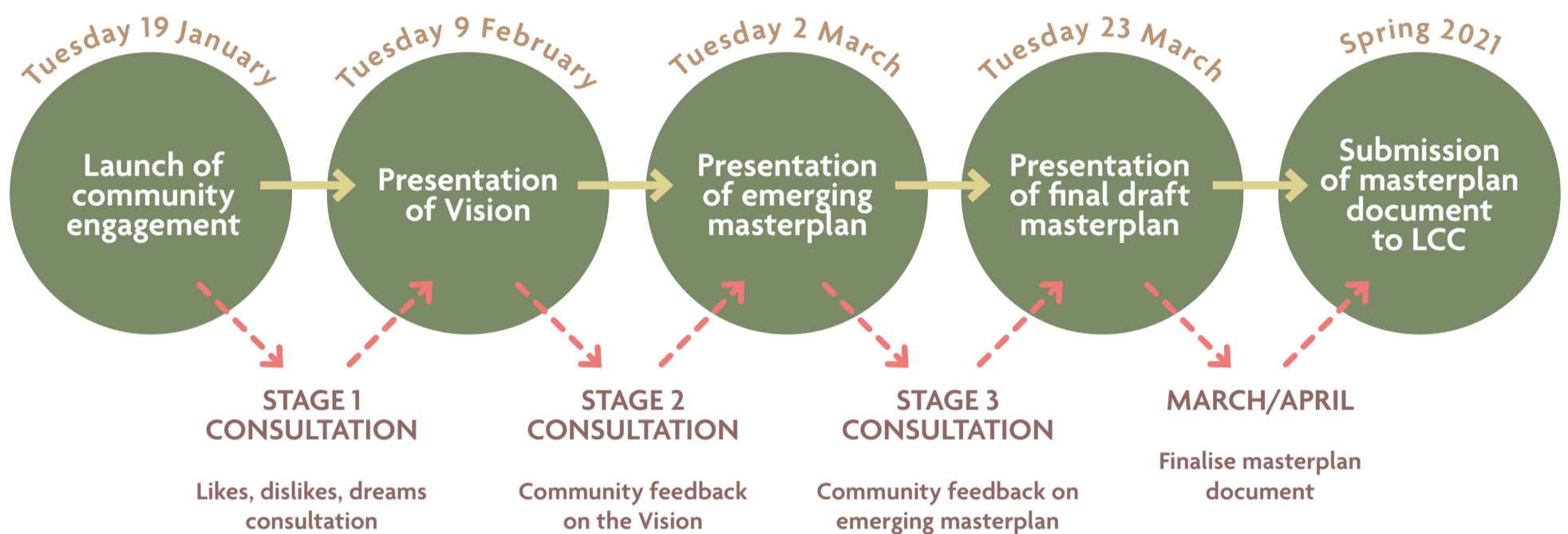
Stakeholder charrette Report Back session

## 4. ENGAGEMENT

# COMMUNITY ENGAGEMENT PROCESS

This community engagement section sets out a summary of the process undertaken with the community and stakeholders over the last few months in 2021. All documents and presentations are available to view online at [bailrigggardenvillage.co.uk](http://bailrigggardenvillage.co.uk). An example of some of the engagement techniques used can be seen on the opposite page and the detailed timeline of events is below. All quotes are from the community and stakeholders received through the process.

## COMMUNITY & STAKEHOLDER ENGAGEMENT TIMELINE, JAN - APR 2021



## MEETINGS & WORKSHOPS

As part of the engagement process, the JTP team held additional meetings and workshops with local stakeholders which fed into the preparation of the Garden Village masterplan. The following local groups and organisations were engaged throughout the process. In addition, meetings have also been held with local land and developer interests and statutory organisations.

- Bailrigg Village Residents Association
- Scotforth Parish Council
- Burrow Heights Residents
- Lower Burrow Residents
- Tarnwater Lane Residents
- CLOUD
- Ellel Parish Council
- Aldcliffe with Stodday Parish Council
- Thurnham with Glasson Parish Council
- Bus Users Group
- Farmers on site
- Flood Action Groups
- Canal & River Trust
- St John's Church, Ellel
- Lancashire Wildlife Trust
- Land Use Consultants limited
- Lancaster University
- Woodland Trust
- Green Lancaster
- Lancaster Civic Society
- Lancaster Vision



# COMMUNITY ENGAGEMENT PROCESS

“Thanks for this opportunity [to complete a Postcard] because I don't do online and can't zoom etc!”



Newsletter and Freepost Postcard



www.bailrigggardenvillage.co.uk website



Extract from Create Communities Platform showing individual community likes and dislikes



Bailrigg Garden Village Final Draft Masterplan Zoom Presentation, 23 March 2021



Geographical spread of responses received to 23 March 2021 by postcode

## 4. ENGAGEMENT

# COMMUNITY FEEDBACK

### CONSULTATION STAGE 1

#### Tuesday 19 January to Tuesday 9 February 2021

A launch event was held on 19 January 2021 to begin publicising and explaining the Bailrigg Garden Village Community Planning process to the local community and stakeholders. There was a presentation with information about the team, the Community Planning process, consultation timeline, the site area and development plans. 117 people attended the presentation.

To coincide with the presentation, the [bailrigggardenvillage.co.uk](http://bailrigggardenvillage.co.uk) project website was launched and over 3,000 newsletters were distributed to the surrounding community. The newsletter provided background information on Bailrigg Garden Village and the community engagement process, and asked local people to submit their views about the South Lancaster area, the places and aspects they like and dislike and their dreams for the future of the Garden Village.

People were able to submit comments by visiting [bailrigggardenvillage.co.uk](http://bailrigggardenvillage.co.uk) to view more background information on the site and click through to the 'Create Communities' platform to make comments or via email. Alternatively, people were able to complete the postcard form on the newsletter, detach it and mail it back to JTP by Freepost - no envelope or stamp required.

Meetings were also held with a range of local stakeholders, including community groups.

A total of 880 responses were received: :

- 60 comments in the Zoom chat function during the Launch Presentation
- 657 comments were made on the Create Communities Platform
- 91 people have sent back completed Freepost postcard with likes, dislikes and dreams
- 29 people sent in comments via the form on the website
- 6 Freephone calls have been responded to
- 40 emails have been received, several with attachments including formal responses from the Canals and River Trust; South Lancashire Flood Action Group; Bailrigg Hamlet Residents Association and Scotforth Parish Council.

Comments received were analysed and summarised and passed to the JTP design team as they prepared the Vision for Bailrigg Garden Village for presentation back to the community on Tuesday 9 February 2021, 6pm via Zoom. 196 people attended the presentation which was the first opportunity for people to see the emerging Vision.

The Launch presentation, Vision presentation and newsletter can be seen on the project website.

### CONSULTATION STAGE 1 SOUTH LANCASTER FEEDBACK SUMMARY

The following key themes represent a summary of the likes, dislikes and ideas arranged into topics that were used to inform the design principles of the Vision for the Garden Village.

#### 1. Principle and size of development

The new Local Plan (July 2020) includes the designation of a Broad Location for Growth in South Lancaster, including the expectation of a new garden village development. Some respondents do not support the principle of development in this location, and there is concern about the scale of the development. Others, however, welcome the opportunity presented by the garden village to create a distinct, high quality and sustainable new settlement to the south of Lancaster. Regardless of views many understand that we are now at the masterplanning stage and, in that spirit, participated in the process sharing their likes and dislikes about the local area and their dreams for the garden village.

***“This is a fantastic opportunity for a development that prioritises sustainability and well-being above profit. Keeping the wild and green aspects of the area should be a priority.”***

#### 2. Landscape, views & heritage

The community places a high value on the countryside south of Lancaster and feels that quality of life is enhanced by the proximity to views, open space and nature. Many fear the loss of green fields, ancient woodlands, access to wild spaces and much-loved areas of local landscape. Individual features have a special significance, such as the 200 year old oak tree, “the windswept tree”, the beauty of rolling drumlin landscape and the panoramic views from Burrow Heights. Many people enjoy walking the network of local paths, particularly during the pandemic. There are however few suitable areas for dog walking and many paths are very muddy. New development should respect existing habitats, especially hedgerows, and there are opportunities for enhanced tree-planting, the creation of wildflower meadows, wetlands and ponds.

***“Develop a settlement that sits within the landscape or is brave enough to ‘own it’, rather than being apologised for with a hillocky private curtain.”***

#### 3. Lancaster Canal - retain character and setting

The Lancaster Canal is an historic and valued feature within the site. Its towpath is well used for walking, running, cycling and just ‘being there’. Respondents were keen for the canal to remain a green corridor with a landscaped buffer and for the towpath to retain its rural character and remain a special place for watching wildlife. The towpath surface needs an improved, year round surface of sensitive design. The historic canal bridges should be carefully integrated into the masterplan and the archaeological significance of the area needs to be investigated appropriately. In certain locations the canal may be built up against, for example a well-designed inn or café, catering for locals and canal users. Water leisure activities were also suggested.

***“The canal is a valuable amenity with its serenity, diversity of wildlife and footpath access to unspoilt open countryside”***

# COMMUNITY FEEDBACK

## CONSULTATION STAGE 1 FEEDBACK SUMMARY (CONTINUED)

### 4. Flooding and drainage

The issue of flooding is a major concern locally with many residents in Galgate having had their homes flooded recently and many fear that the garden village might worsen the situation. New development proposals must design-in sustainable water management and drainage solutions including upstream water retention and wetland areas. Proposals must be shared with the community as they are designed and implemented.

***“Design flood alleviation into the development in such a way that it will reduce runoff for the foreseeable future, AND ensuring that SuDS are properly maintained.”***

### 5. Traffic & movement

Many people are concerned about existing traffic and the potential impact of the garden village putting more strain on village roads and bridges and the more major road network. Dangerous roads, bends and junctions were pinpointed. There are also concerns about the impact of construction traffic. However, there is an opportunity and a necessity for the garden village to develop a sustainable approach to movement and transport, with the construction of segregated cycleways to Lancaster and the University, better walking and cycling connections, and an improved sustainable bus service. Existing residents would welcome safe designated routes for running, cycling and riding horses to and through the garden village. Several respondents suggested space should be set aside in the masterplan for a possible railway station / tramway in the future.

***“Proper design of the sustainable transport system should be an absolute priority for this garden village, focus on how to reduce car traffic, not make more room for it”***

### 6. Community services

There are concerns about the strain on local services, school places, and the local health service. Respondents refer to the maintenance of public realm, blocked drains and litter, and the absence of dropped pavements for prams and wheelchairs. The new garden village must offer high quality community amenities and well managed and accessible public realm.

***“The village needs to address social housing shortage while building a balanced ‘15 minute’ community - it will need schools, GPs etc.”***

### 7. Building design & character

There are negative comments about the design of new buildings in the area, the use of red brick and the impact on views. It is felt that new housing and buildings must respond to the nature and character of the rural environment, taking their cues from historic homes and farmsteads, and local building materials. There should be opportunities for small scale developers and self-build, particularly in locations where development can evolve in a similar way to that of small existing rural settlements.

***“I dream of being able to start a construction company to work on the village. I would like to build quality, well designed homes at genuinely affordable prices and carbon neutral.”***

### 8. Existing communities

Many existing residents would like visual separation and a green buffer between the Garden Village and all existing settlements, including the existing clusters of housing within the “Area of Search” land. Existing communities also want to see investment come their way including an upgrade in internet, drainage, mains sewerage provision, etc so as not to become “the poor relations” and attention and investment should be given to nearby villages, including Glasson Dock. Local communities and businesses must be considered and worked with closely. Bailrigg hamlet residents are particular keen that the garden village is renamed.

***“This is a fantastic opportunity for a development that prioritises sustainability and well-being above profit. Keeping the wild and green aspects of the area should be a priority.”***

### 9. Community Participation

There is some cynicism as to whether the consultation process was just a “tick box exercise”. However, over 800 comments were received, analysed and summarised in Stage One of the consultation process and fed into the design process. In addition, local community groups and stakeholders were met virtually and all appreciated the opportunity for early discussion and follow-on meetings in due course as the masterplan develops. Following the presentation of the resulting Vision for Bailrigg Garden Village there will be two further community consultation periods before the masterplan is finalised in late March.

***“It needs to be sympathetic to the existing community, otherwise it could result in strong opposition.”***

## 4. ENGAGEMENT

# COMMUNITY FEEDBACK

## CONSULTATION STAGE 2

### Tuesday 9 February to Tuesday 2 March 2021

Following the report back of the Vision for Bailrigg Garden Village on 9 February the presentation video and presentation slides (PDF) were uploaded to the project website and over 6,000 summary Vision newsletters were distributed to the surrounding community. During the Stage 2 consultation the community was invited to comment on the Vision via the website, email or by writing to Freepost JTP.

Meetings were also held with a range of local stakeholders and community groups.

A total of 98 responses were received:

- 73 residents
- 17 businesses, developer, community groups, campaign groups, statutory organisations, environmental groups, councillors
- 8 further responses as a result of the meetings

Comments received were analysed and summarised and passed to the JTP design team as they developed the concept masterplan for presentation back to the local community on Tuesday 2 March 2021, 6pm via Zoom. 197 people attended the presentation.

The presentation and newsletter can be seen on the project website.

## CONSULTATION STAGE 2 VISION FEEDBACK SUMMARY

### Support for:

- Landscape and water-led approach to design to mitigate flooding
- Respect for the topography, drumlins, etc
- Clusters of houses forming small settlements within the landscape
- Parcels with own character will introduce variety (residential, communal garden or play spaces, commercial, etc.)
- Support for the heart of the garden village to be near to the canal, which would make it a distinctive settlement with scope for innovative water-led amenities (BVRA and Canal & River Trust)
- Green buffer zones between settlements incl. varied uses such as food production
- Green corridors joining the woodlands and planting new woodlands
- Enhancing biodiversity
- Continuing community participation

### Concerns for

- Who ensures that the original vision is maintained?
- Flooding
- Phasing - landscape infrastructure to be implemented in advance of the house building
- Location of some key roads and use of existing country lanes
- How construction will take place, especially in relation to construction traffic / HGVs
- Detailed mapping alterations and additions e.g. Cinder Nurseries not identified as a settlement and Heronswood House not identified as a settlement
- Ou Beck does in fact continue through Sellerley Farm and enters the River Conder just after the Conder flows under the canal at Galgate
- Practicality of railway underpass re drainage (from Ellet Parish Councillor)
- Light pollution
- Impact on water supply and shortage – need for new reservoir?
- Development encroaching on cemetery in Cinder Lane

### KEY

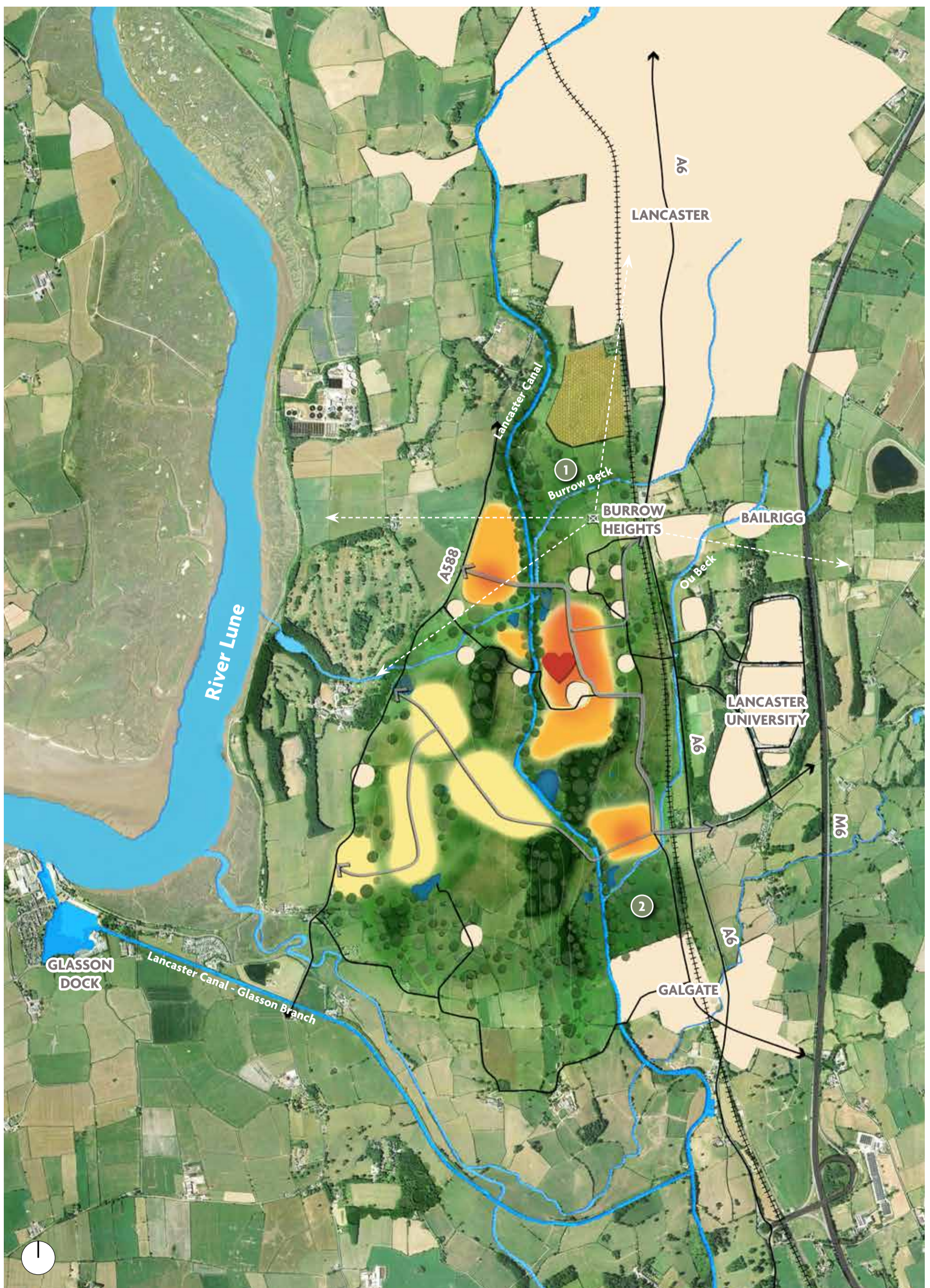
-  Existing settlements
-  Burrow Heights viewpoint
-  Water courses
-  Existing roads
-  Railway line
-  Village development parcels - Current plan period (2022-2031)
-  Residential parcels - Future plan period (commencing 2031)
-  Indicative village centre and areas for denser development
-  Green space, semi-natural and productive land required for the village
-  Key sustainable transport routes through the village
-  Residential development to be considered through the AAP
-  1 Green buffer to South Lancaster
-  2 Green buffer to Galgate

### Notes

All concept development areas are subject to much further refinement and to planning. It does not show all land uses required for the garden village e.g. schools. It does not show all development ambitions to date advanced by third parties. It does not show exact size and locations of proposed tree planting.

**“Local residents want to stay engaged...it is essential that the local residents play a key role in shaping these proposals.”**

# CONSULTATION STAGE 2 CONCEPT MASTERPLAN



## 4. ENGAGEMENT

# COMMUNITY FEEDBACK

### CONSULTATION STAGE 3

#### Tuesday 2 March to Tuesday 23 March 2021

Following the report back of the Vision including the concept masterplan for Bailrigg Garden Village on 2 March the presentation video and presentation slides (PDF) were uploaded to the project website and over 6,000 summary newsletters were distributed to the surrounding community. During the Stage 3 consultation the community was invited to comment on the Vision via the website, email or by writing to Freepost JTP.

Meetings were also held with a range of local stakeholders and community groups.

A total of 138 responses were received:

- 120 residents
- 15 businesses, developer, community groups, campaign groups, statutory organisations, environmental groups, councillors
- 3 further responses as a result of the meetings

Comments received were analysed and summarised and passed to the JTP design team as they developed the emerging masterplan for presentation back to the local community on Tuesday 23 March 2021, 6pm via Zoom. 166 people attended the presentation.

The presentation and newsletter can be seen on the project website.

### CONSULTATION STAGE 3 CONCEPT FEEDBACK SUMMARY

#### Support for

- Support for green / sustainable initiatives e.g. materials, energy, etc
- Support for protection and enhancement of varied green infrastructure
- Gardens should connect to countryside e.g. hedgehog highways
- Need for cycle paths
- Bridleways, mountain biking trails
- Maintain key views
- Support for canal marina/moorings
- Support for waterfront living and recreation
- Community venue with skate park, cafe and playground (like the one at Halton)
- Flexible buildings incl. multi-faith, community space, work hub

#### Concerns for

- How to enforce Garden Village concept
- Concern about flooding, and need for specific info of how SuDS will work
- Avoid polytunnels or planting with elephant grass close to residential areas
- Note route of Roman road near Lower Burrow
- Management and maintenance of landscape
- Phasing, timescale, management of construction

#### KEY

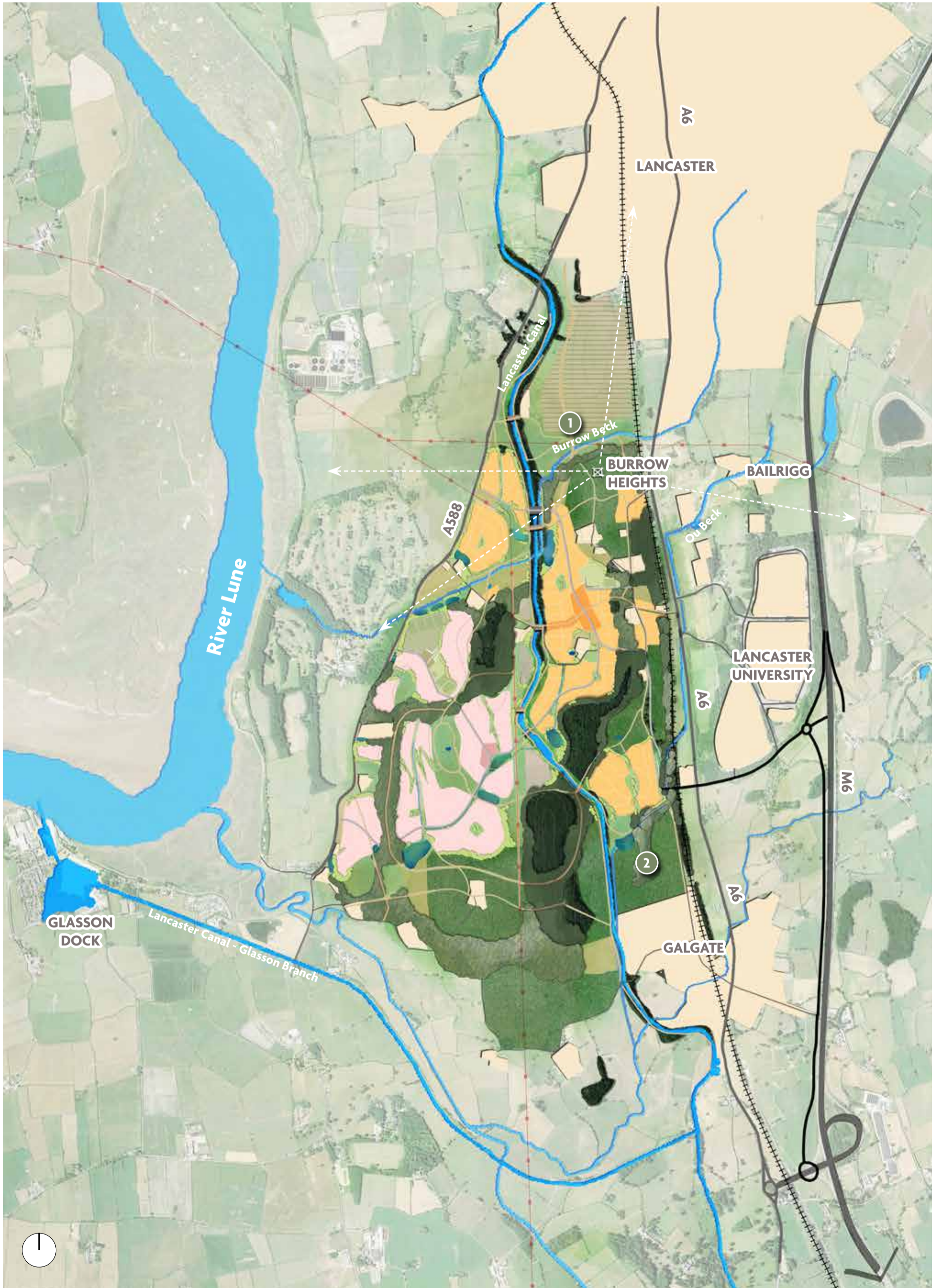
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*“I like your idea to make settlements high density rather than spread out across the landscape taking up green spaces.”*

# CONSULTATION STAGE 3 EMERGING MASTERPLAN



## COMMUNITY FEEDBACK

### COMMUNITY & STAKEHOLDER ENGAGEMENT IMPACT ON FINAL MASTERPLAN

Over the stages of the community and stakeholder engagement process the comments received have been analysed and summarised and fed into the design process to help shape the proposals for the Garden Village masterplan. The following list sets out some of the key impacts made on the masterplan as the proposals have developed. All quotes are from the community and stakeholders received through the process. The design principles and final masterplan framework that were subsequently developed and informed by this list can be seen on the following pages.

#### LANDSCAPE, ECOLOGY & HERITAGE

- Drumlins left free of built development
- Protect and enhance natural assets eg soil health, woodlands, wetlands
- Importance of canal corridor (respect for rural character, seek to improve tow path & added recreation amenities)
- Acknowledgement of heritage – route of Roman road, heritage bridges, buildings

#### SEPARATION

- Separation from existing communities including north & south buffer
- Area of separation around Lower Burrow
- Burrow Heights Lane - separation by green space and primary school fields

#### WATER MANAGEMENT

- Close attention to water management strategy incorporating community comments about specific areas of flooding

*“The banks of the canal have stunning displays of bluebells, wild garlic flowers, flag iris, primroses and are a delight to walk or cycle along.”*

*“An area of separation must be also a visual separation. We do not want to see the buildings.”*

*“The plans must include an effective land drainage scheme that does not depend on water draining into Ou Beck and causing problems for those living downstream.”*



## COMMUNITY FEEDBACK

### MOVEMENT

- Removal of initial proposed road between Park Coppice & Old Park Wood
- Use of many existing lanes as “quiet lanes” and incorporating existing canal bridge crossings
- Network of foot, cycle path and bridleway routes and connections

### COMMUNITY & ECONOMY

- Inclusion of space for faith / community use in village
- Centre and food & drink on canal
- Focus on work
- Future proofing for digital technology – changing education and work patterns

### SUSTAINABILITY & FOOD

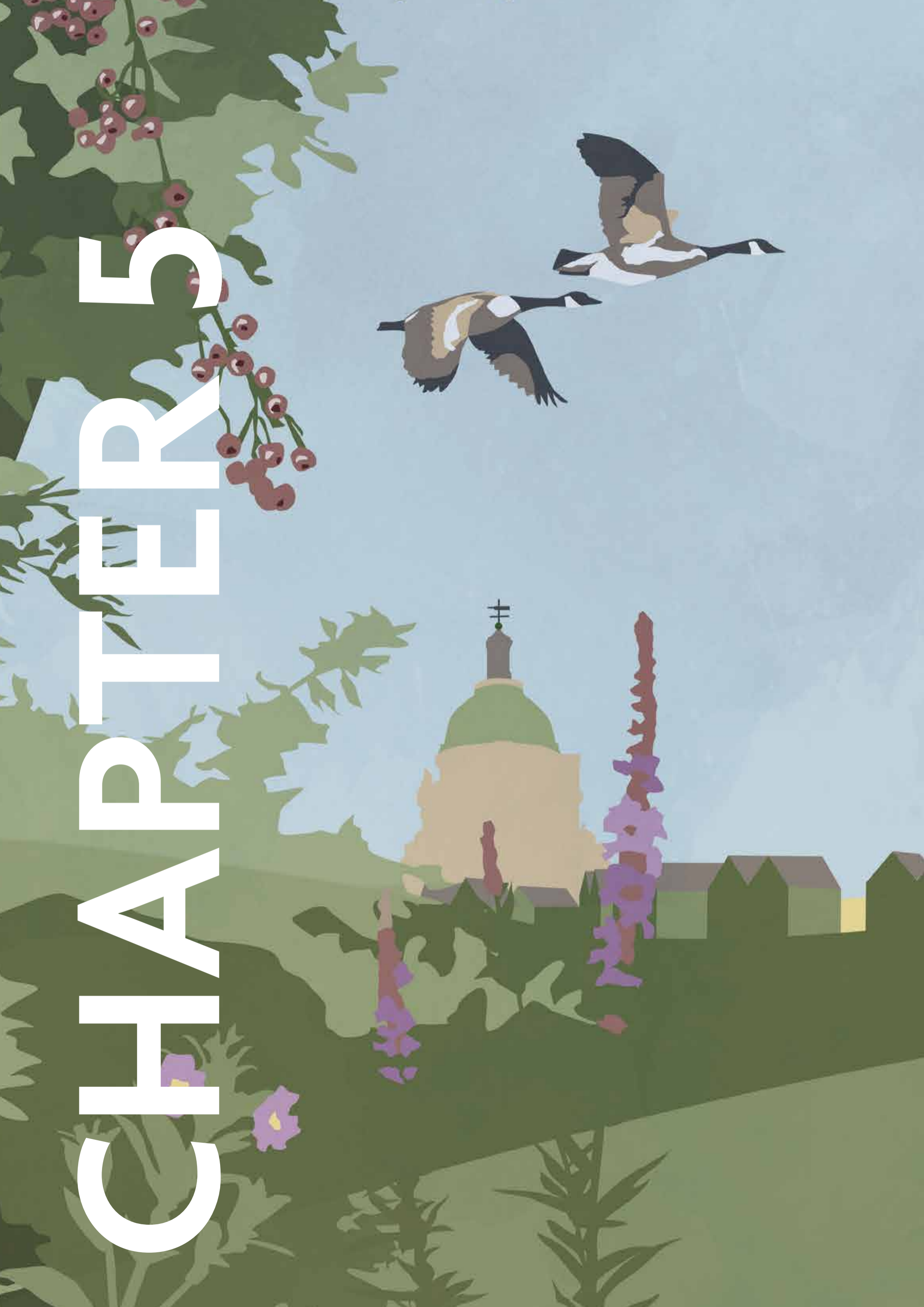
- Focus on opportunities for sustainable approach to energy provision and construction
- Food production, eg moving polytunnels away from residential
- Support for beehives, community orchards, allotments, bigger gardens, links between gardens and countryside

*“We need places to walk, run and cycle away from roads and crowds.”*

*“The profound effects of digital transformation will impact on our ways of working and living. This is obviously a moving target and tricky to plan for but as we’ve seen in the last year things are changing fast.”*

*“To have a market with locally grown produce, shops and cafes all within walking distance! I’m all for it!”*

# CHAPTER 5



# Spatial Masterplan Framework

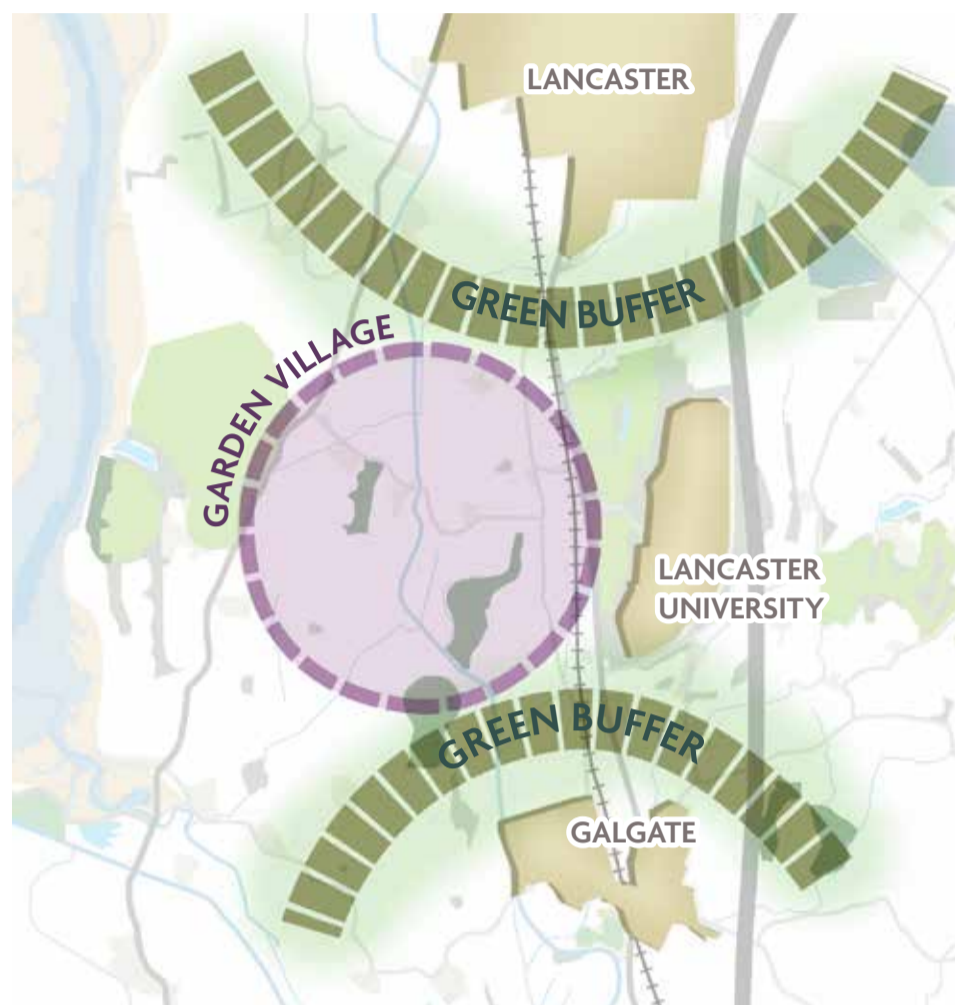


## 5. SPATIAL MASTERPLAN FRAMEWORK

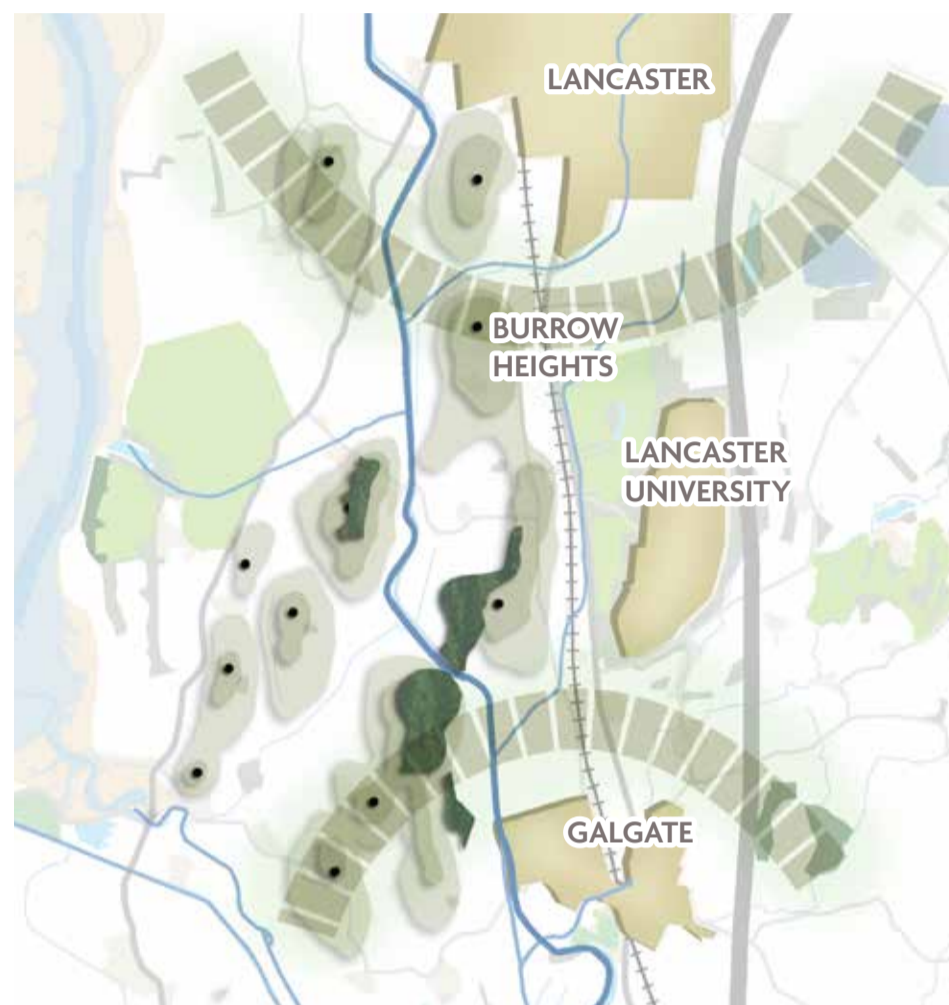
# DESIGN PRINCIPLES

The masterplan design principles have been developed as a response to the site analysis work and feedback from the community engagement process. The masterplan concept identifies key principles which

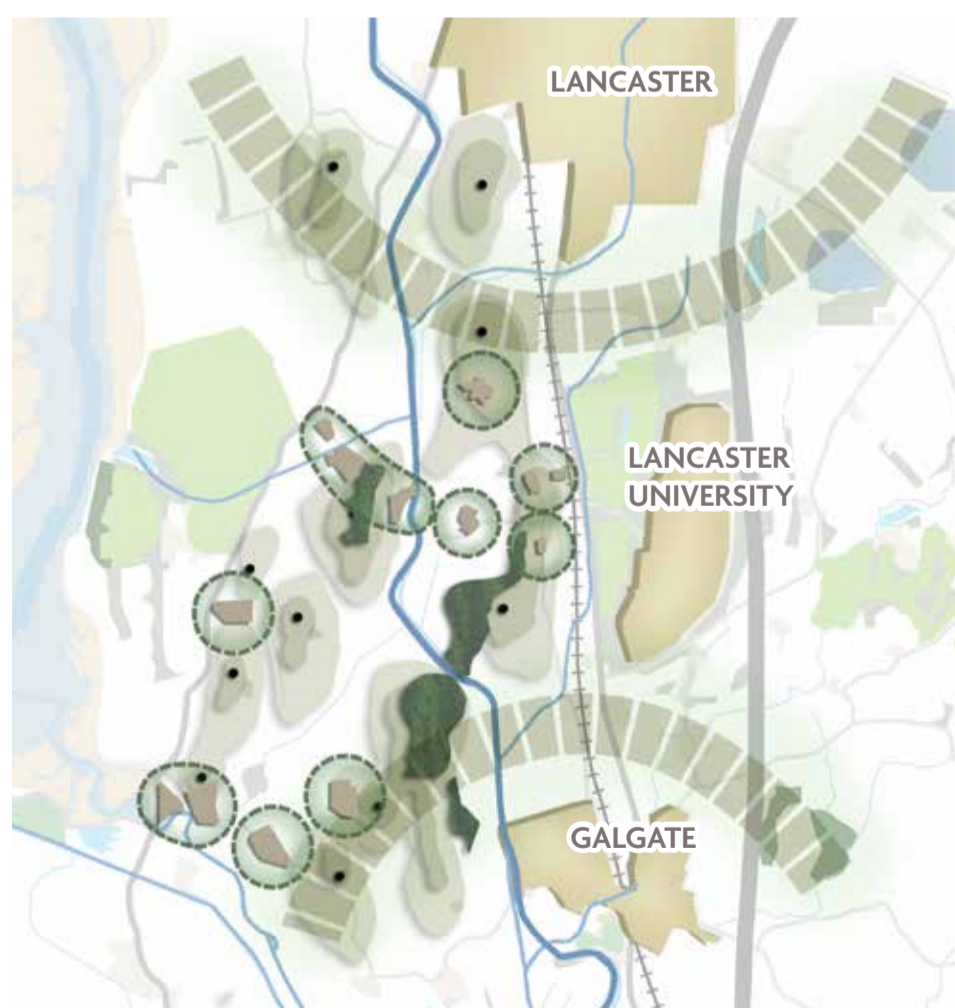
encapsulate the main strategic and physical aspects of the site and come together as an integrated plan which is developed in more detail on the following pages.



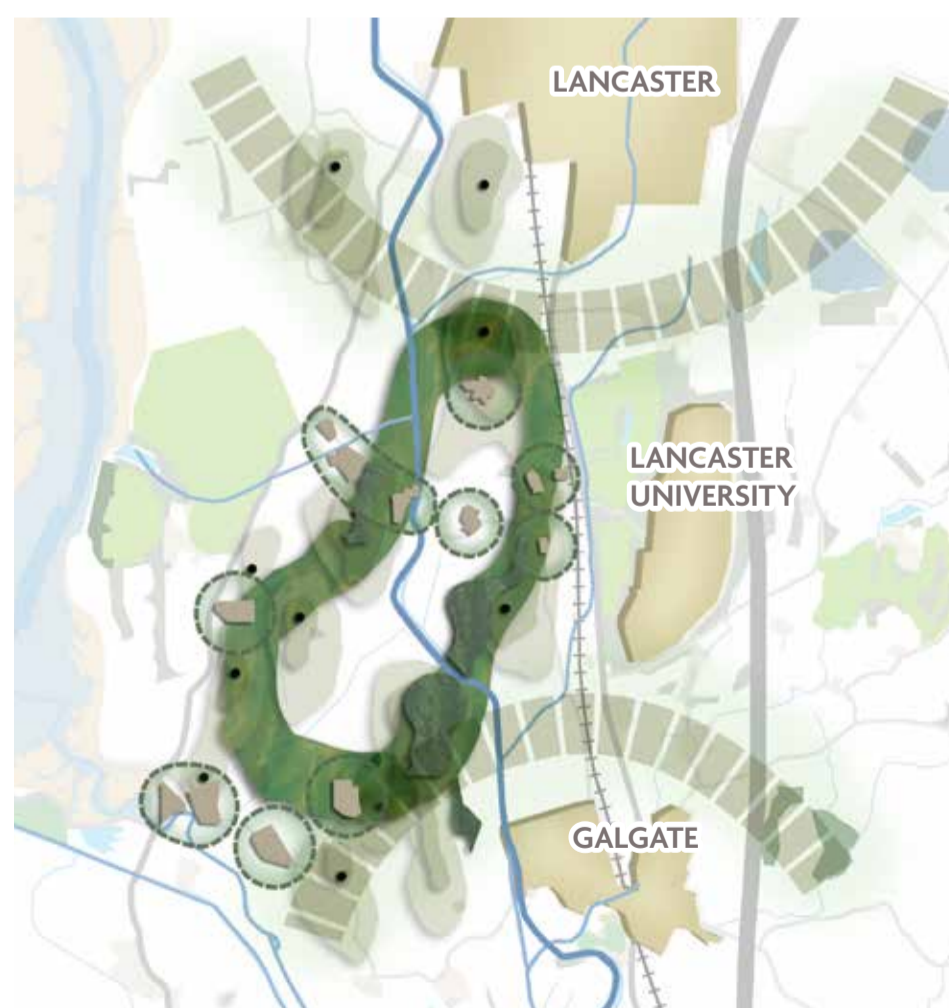
1. Making the Garden Village a distinct place; physically and visually separate from both Lancaster and Galgate with large areas of landscape in between.



2. Protecting the existing character of the landscape including the Lancaster Canal; the tops of the drumlins and the associated views; the ancient woodland areas and other key trees.

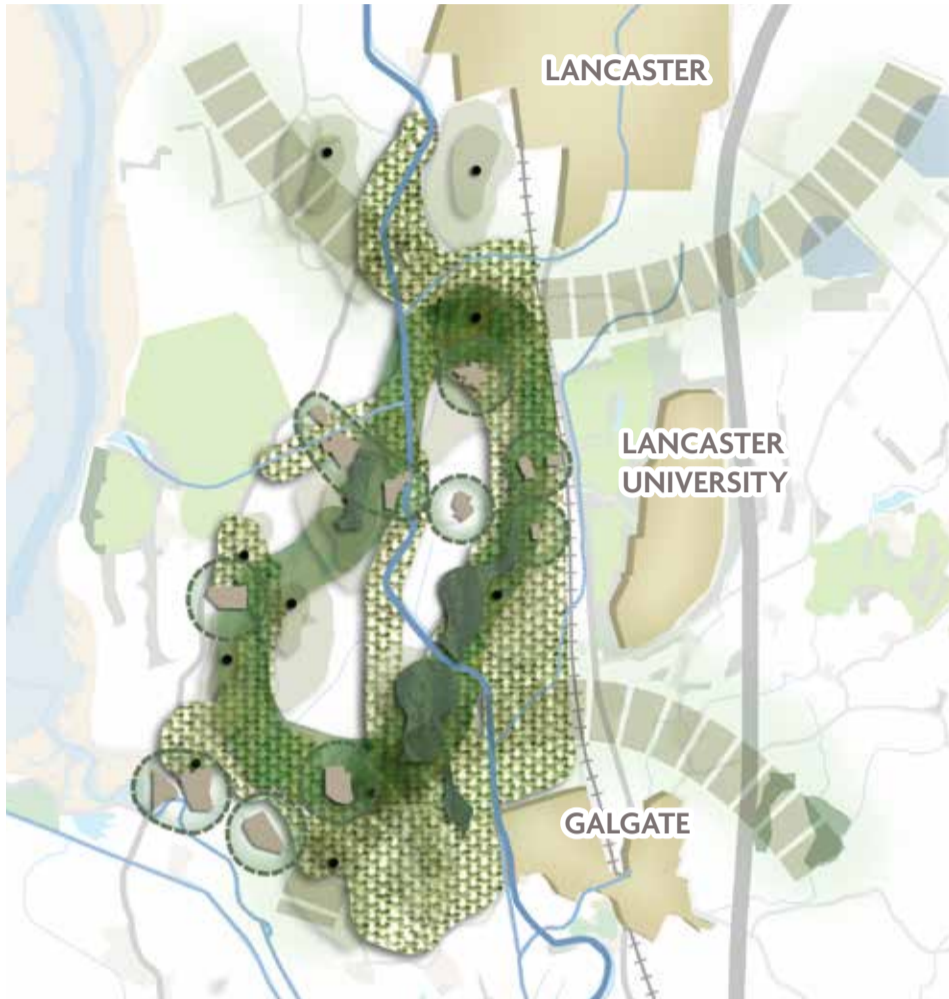


3. Responding sensitively to the interface with other existing dwellings within the 'Area of Search' to retain visual separation and landscape buffers.

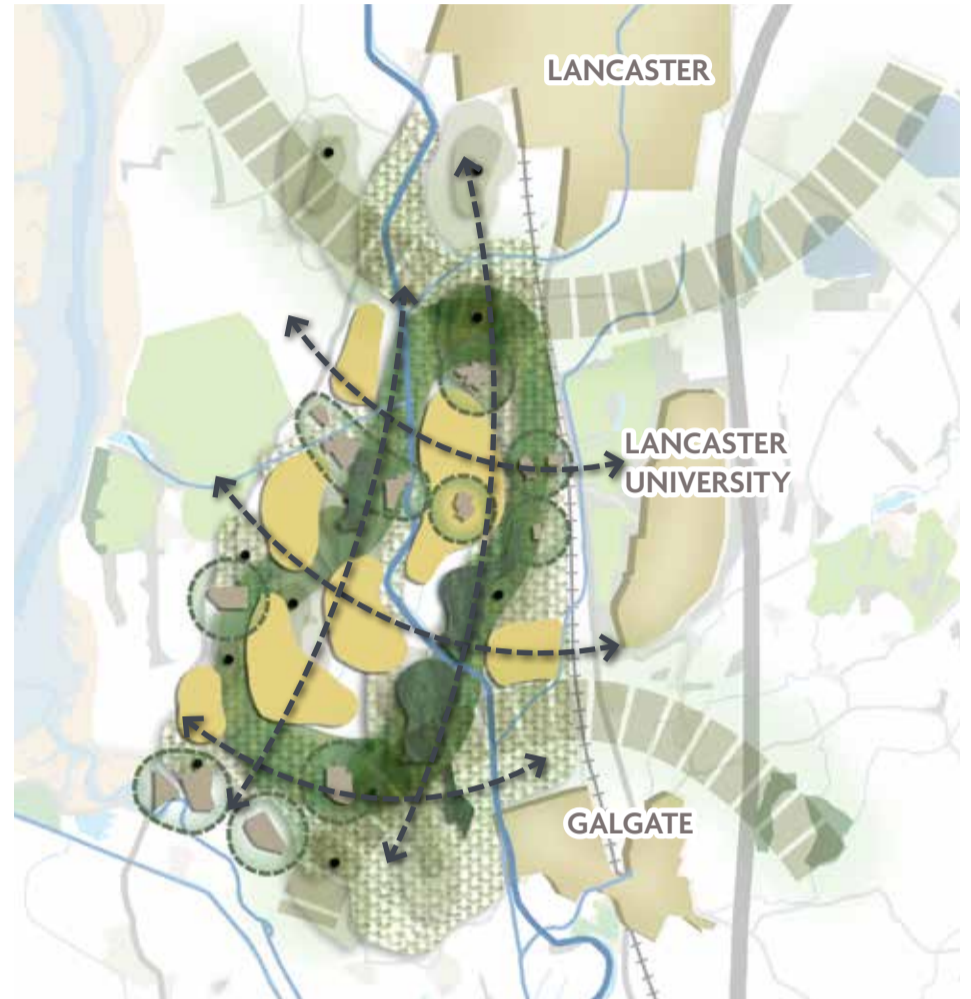


4. Connect existing woodland and creating a 'Green Halo' landscape and biodiversity network around the Garden Village.

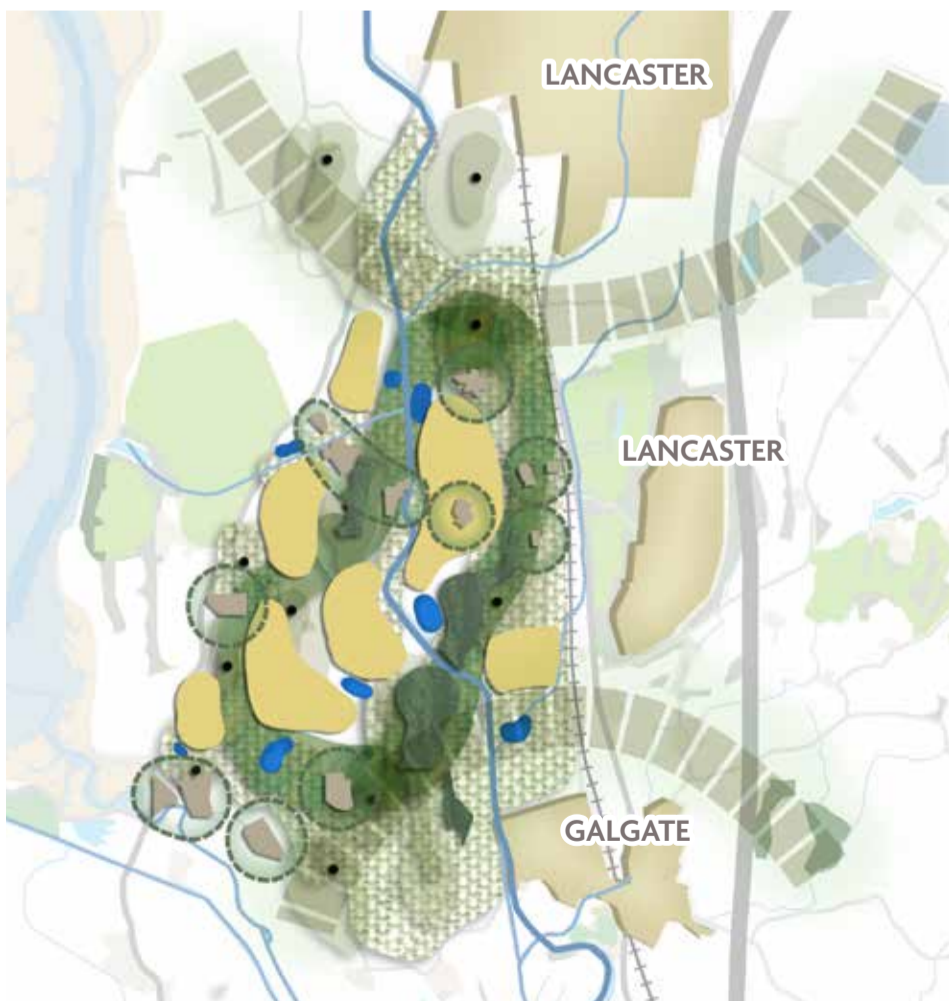
# DESIGN PRINCIPLES



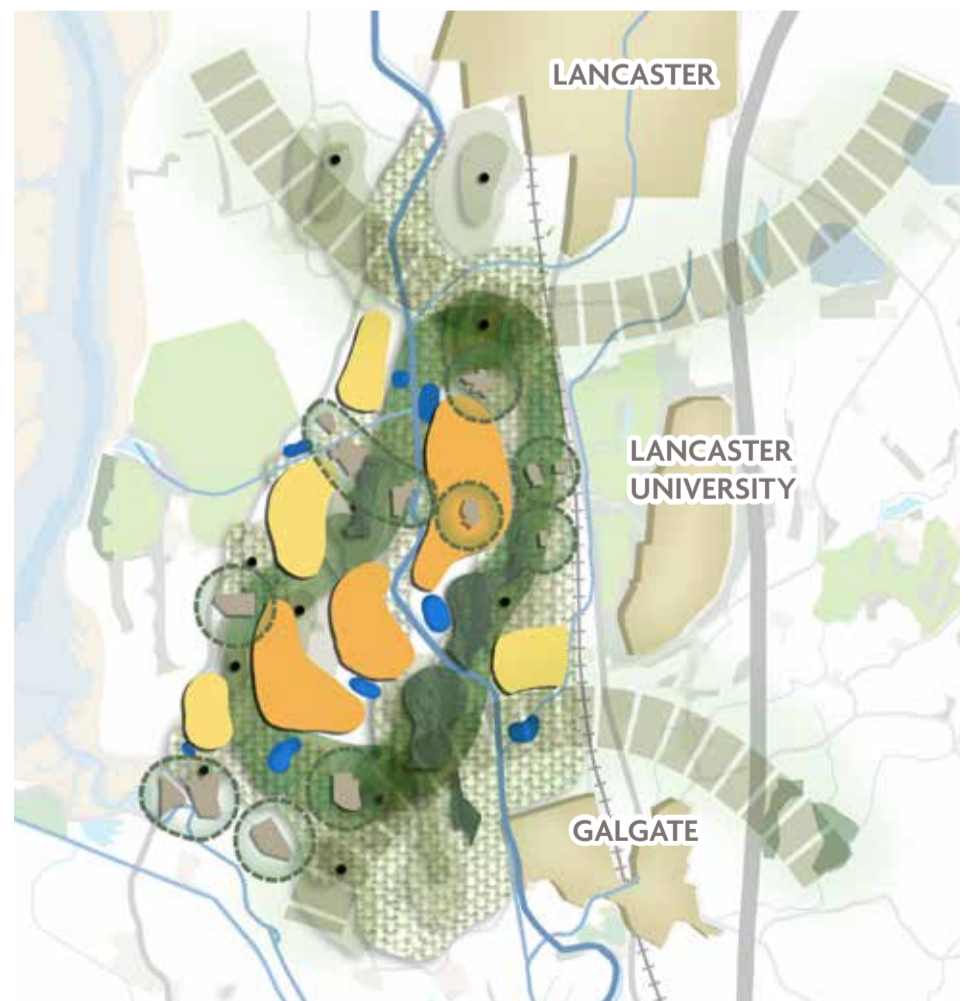
5. Moving the landscape from relative monoculture to permaculture, with a more varied and mixed landscape that offers something to everyone.



6. Sensitive position a cluster of new neighbourhoods to be in harmony with the existing landscape, supported by a network of sustainable routes (ie. bus, pedestrian, cycle and bridle).



7. Integrate a comprehensive drainage strategy across the Garden Village including areas for water attenuation and retention.



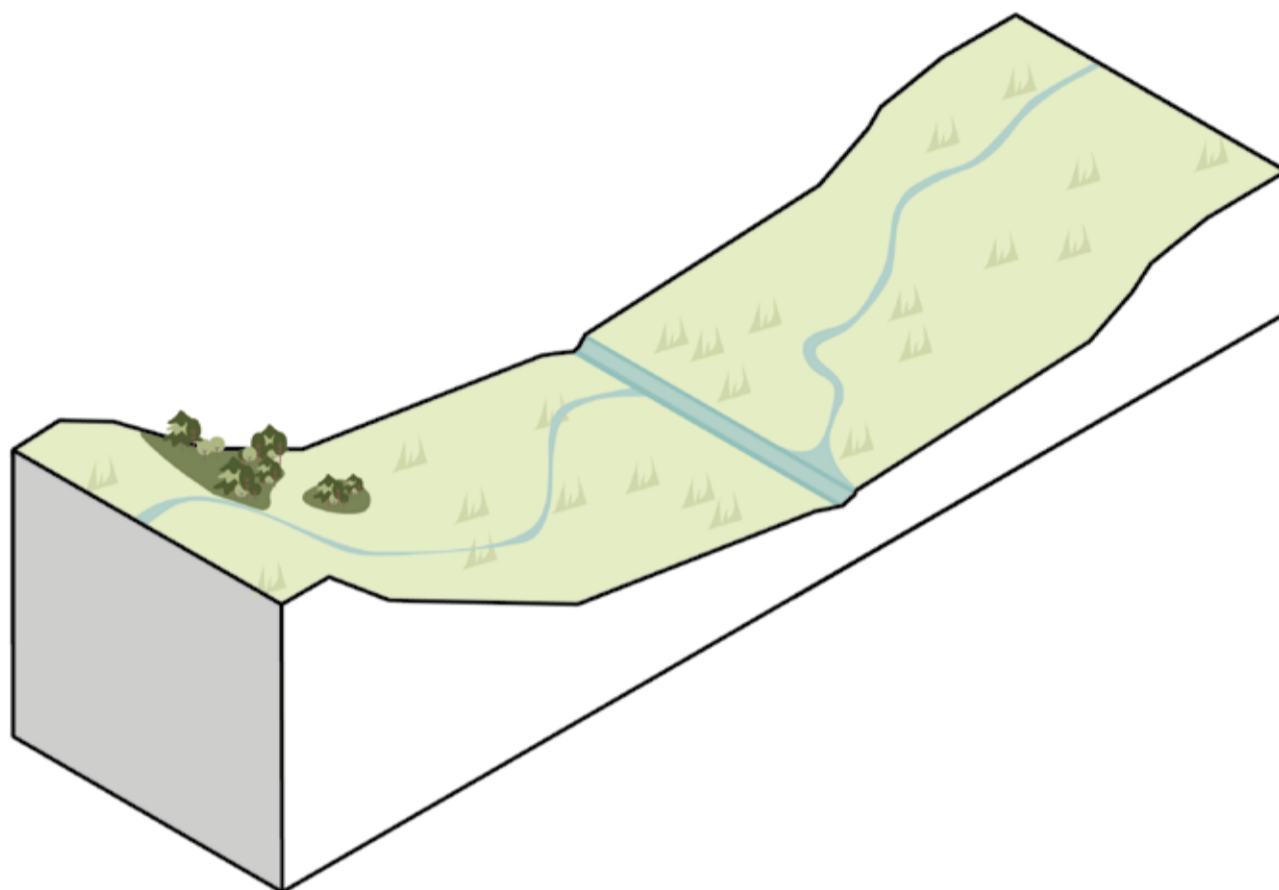
8. Create distinctive character areas with denser and more regular development parcels inside the 'Green Halo' and countryside hamlets outside.

## DESIGN PRINCIPLES

The masterplan will adopt a landscape-led design approach that will support healthy lives and that is sustainable for all. The diagrams below have explored a sample of this unique drumlin landscape to capture the emerging design principles:

1.

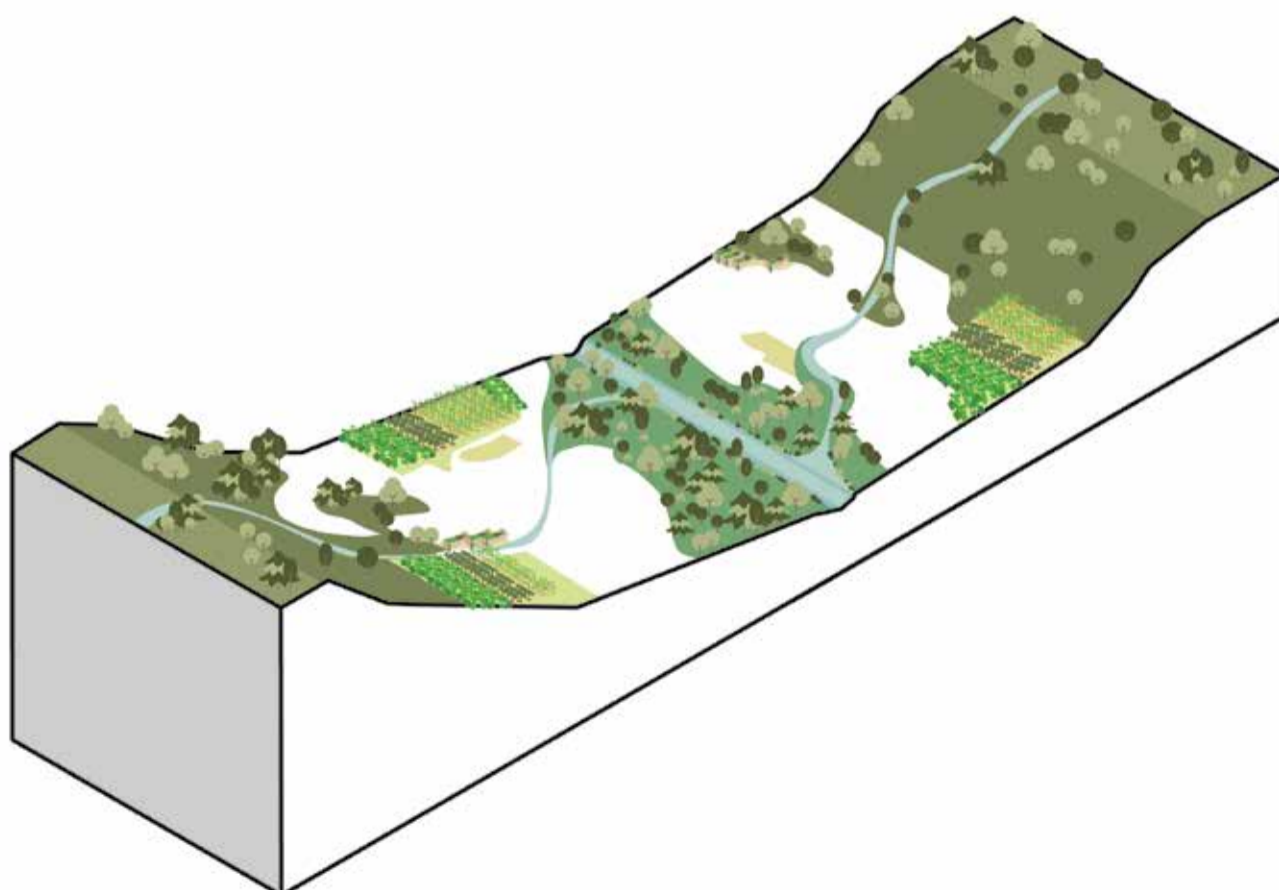
**Protect and enhance the unique landscape character of the wet valley areas and the canal corridor.**



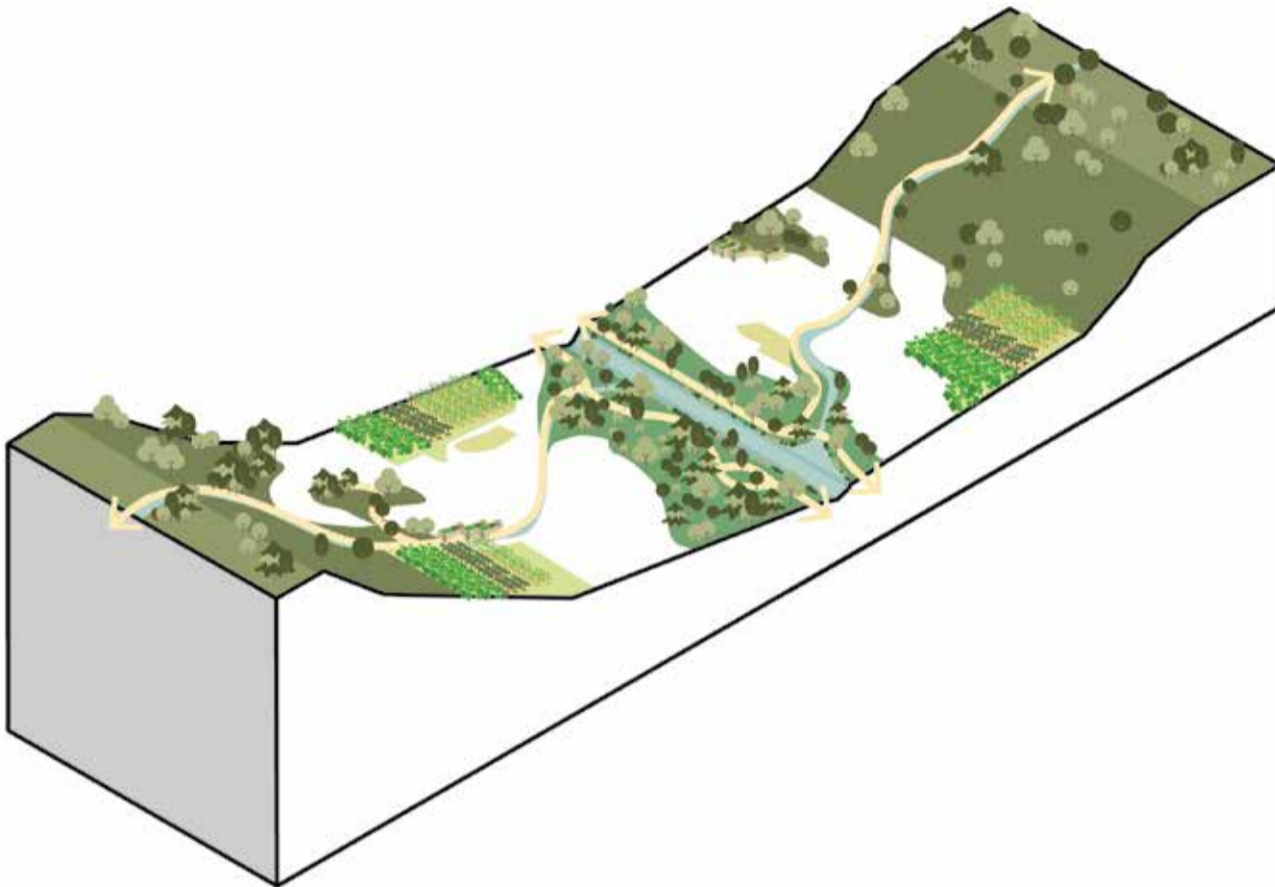
2.

**Integrate food growing opportunities and productive landscape close to new neighbourhoods;**

**Plant new woodland areas maximising ecological and water management value.**

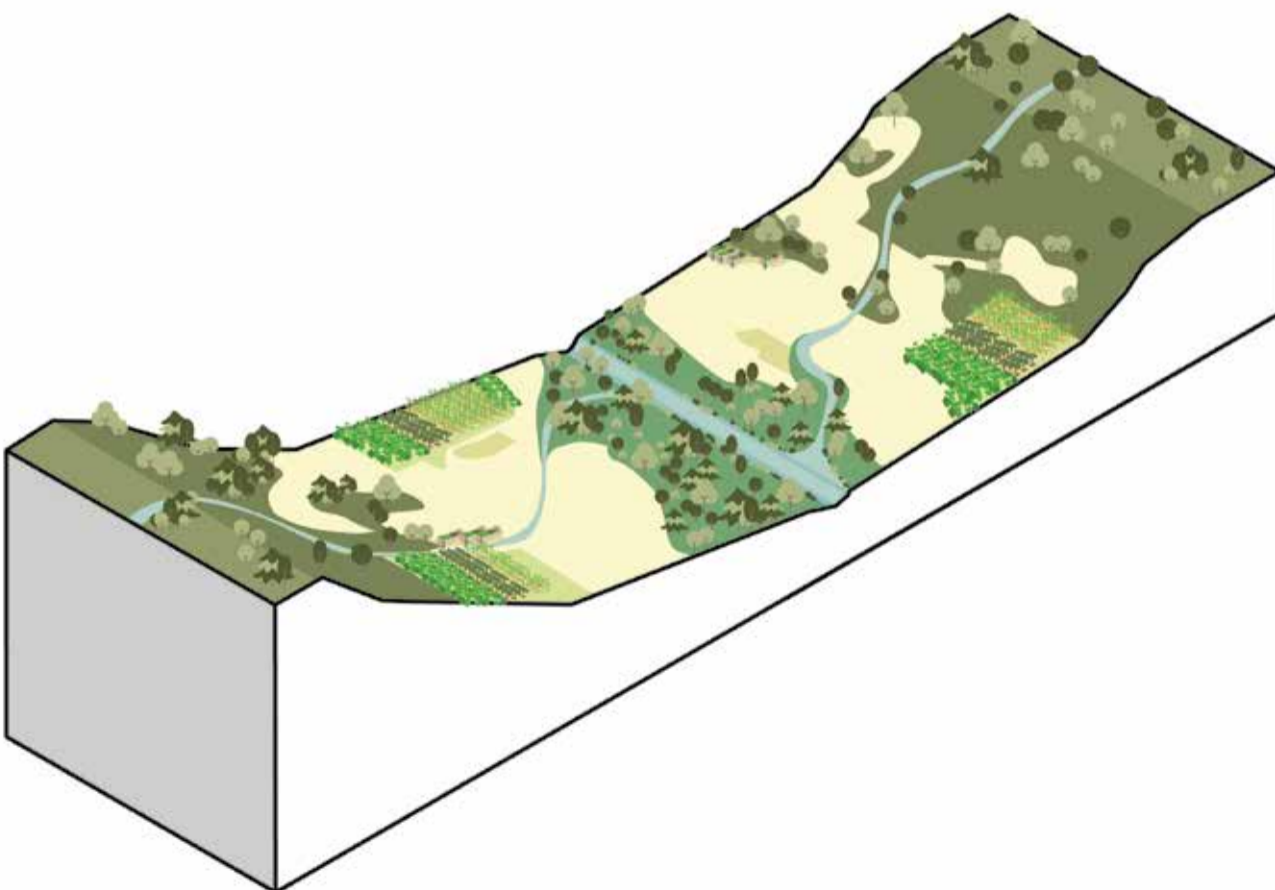


## DESIGN PRINCIPLES



3.

Protect drumlin tops to maintain the character of the landscape and connect with paths to promote access.



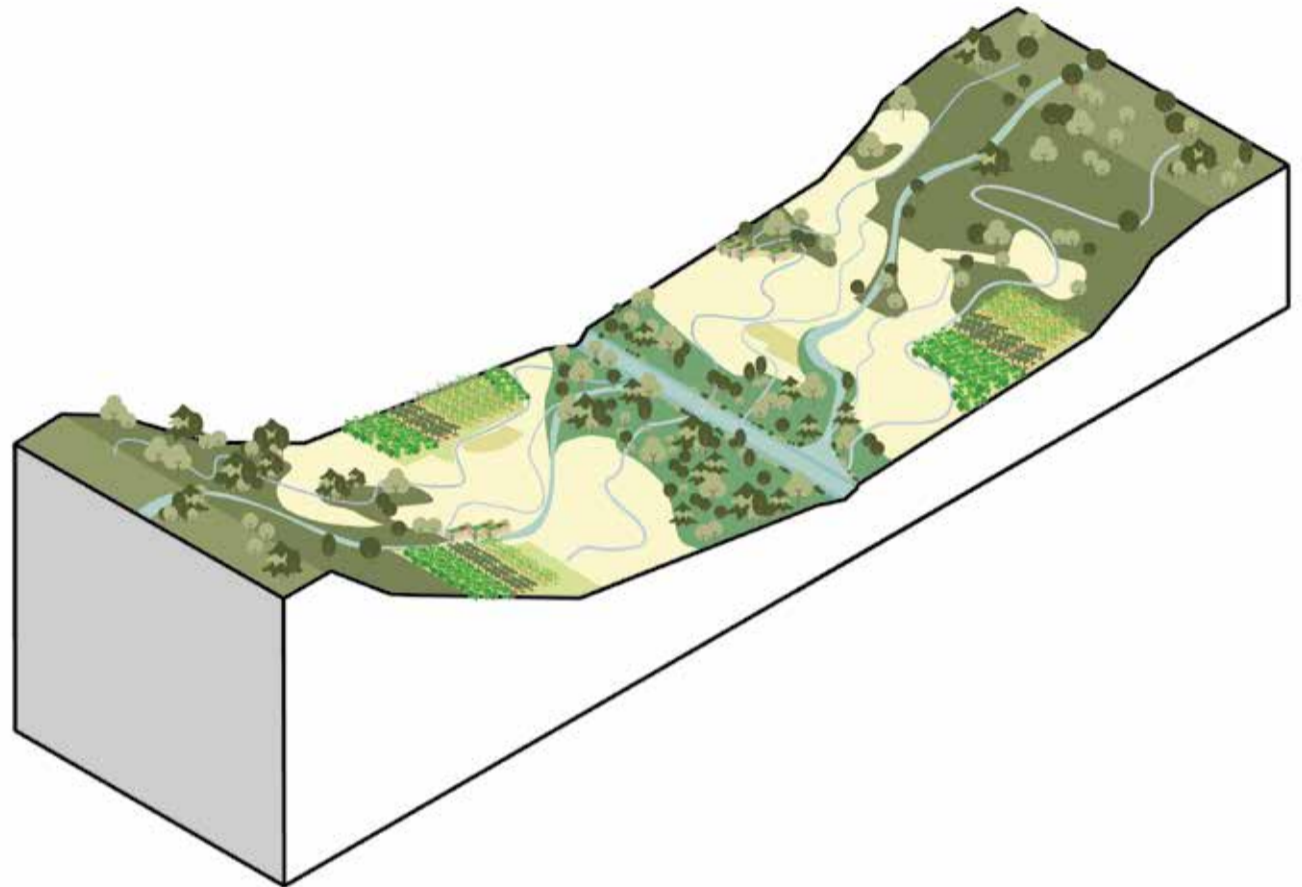
4.

Sensitively integrate new development on the slopes.

## DESIGN PRINCIPLES

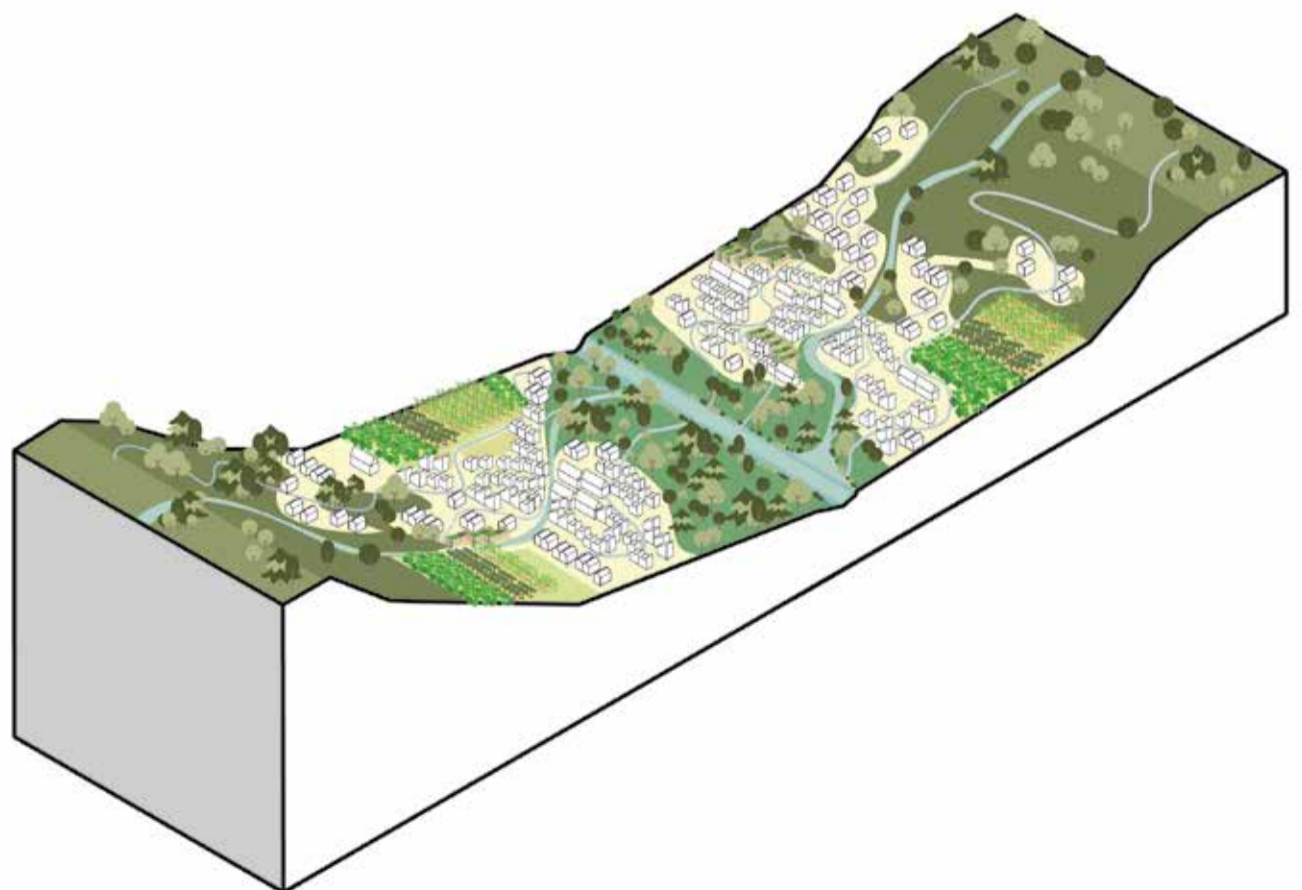
5.

Design-in sustainable drainage strategies to manage water flows and storage.



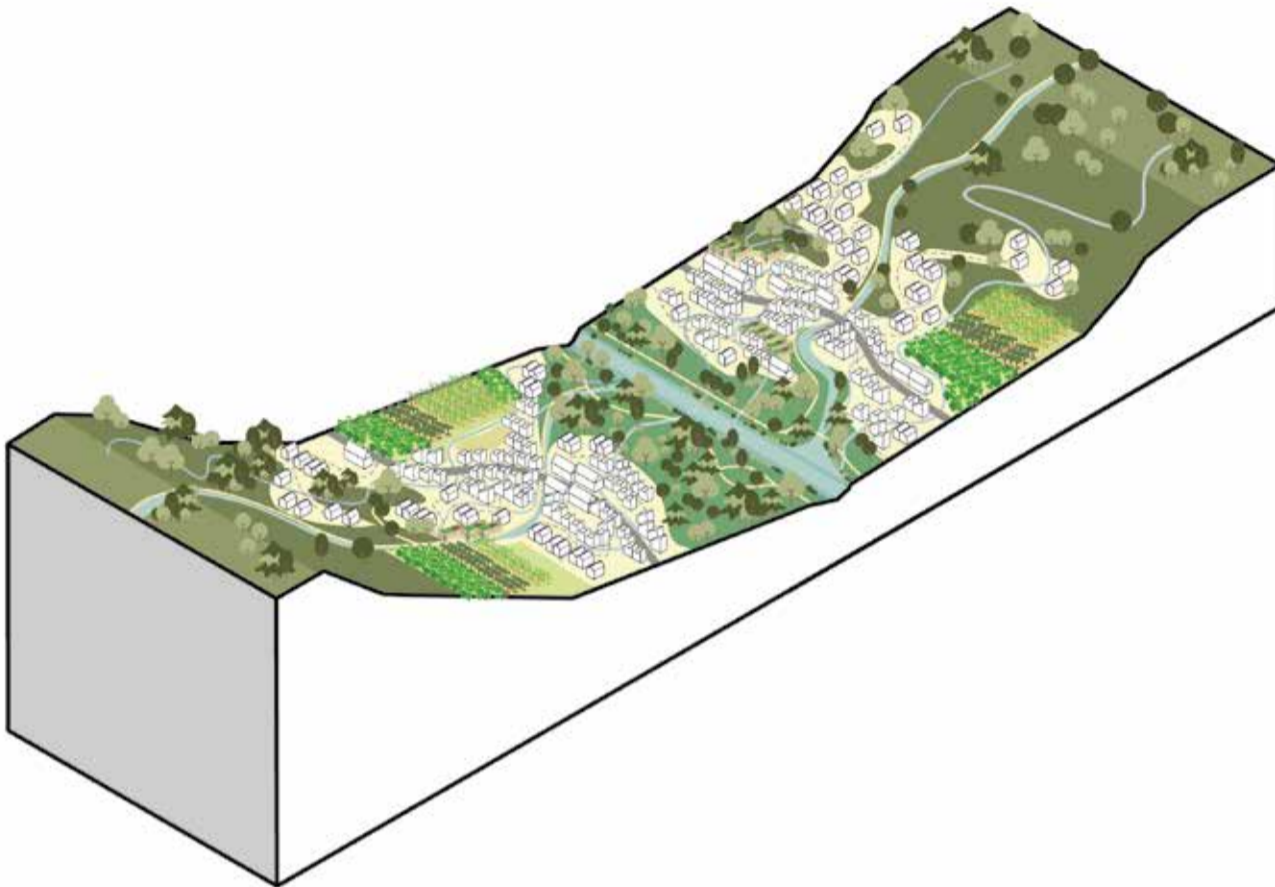
6.

Create tight knit clusters of development that reflect other traditional settlements and protect surrounding landscape character.





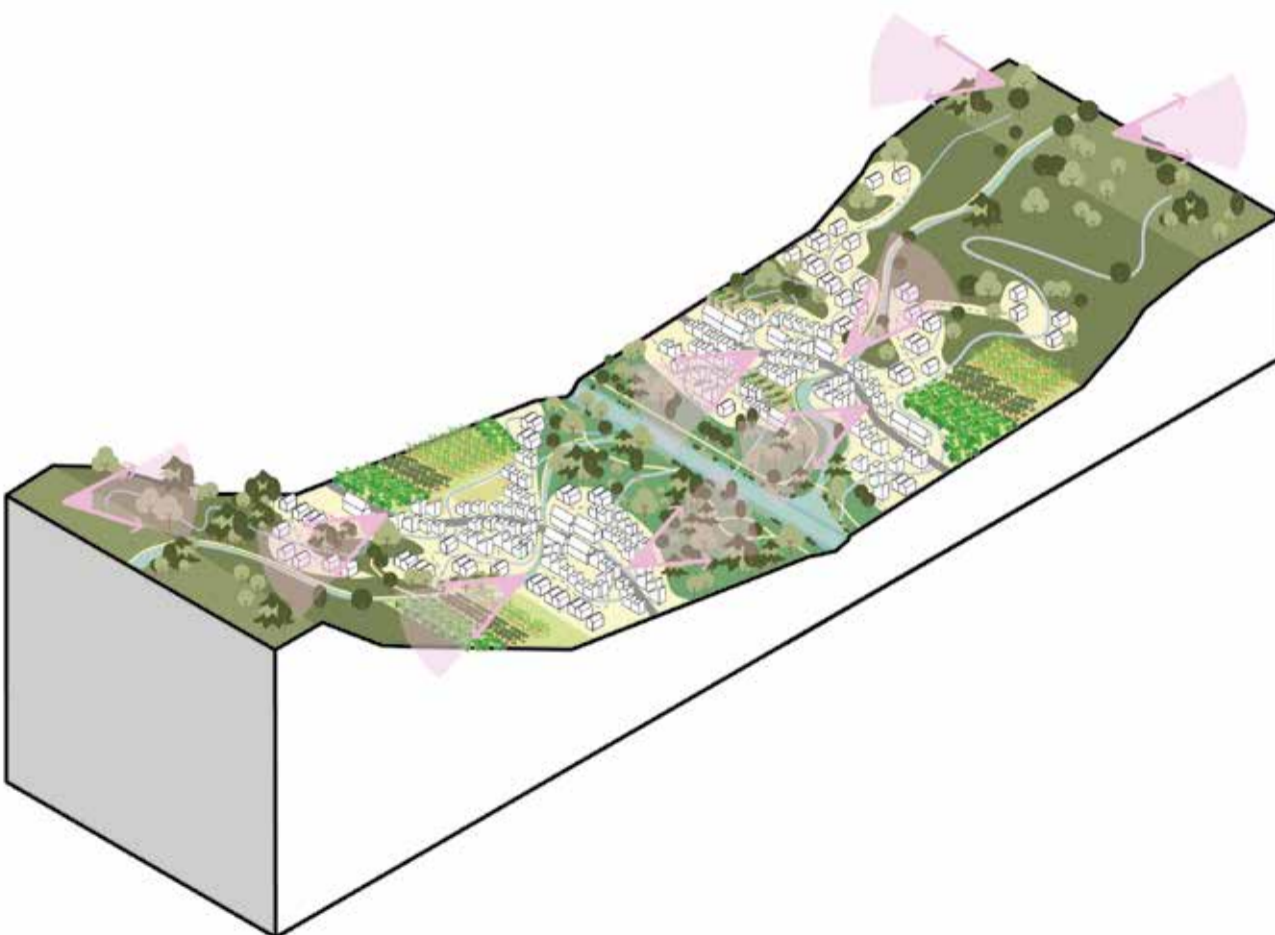
## DESIGN PRINCIPLES



7.

Promote non-vehicle connectivity through new cycle lanes, footpaths and bus routes as well as exploring opportunities for water taxis;

Consider orientation of slopes for passive solar design to minimise carbon footprint.



8.

Run key streets along the contours with views out to the drumlin landscape.

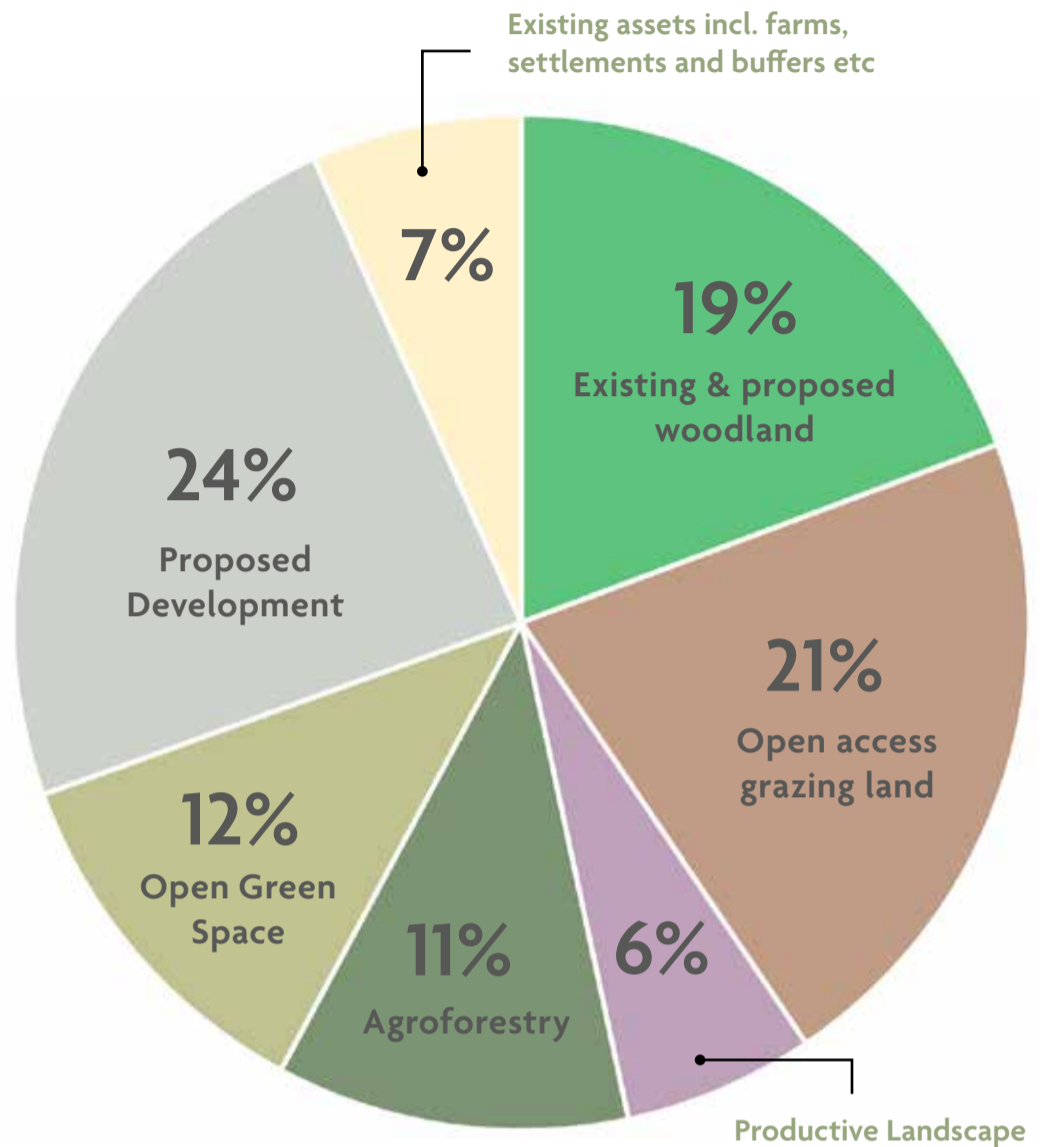
# MASTERPLAN FRAMEWORK

The plan on the facing page has been developed from the vision and design principles. It illustrates how the site could be developed to create an attractive and sustainable Garden Village which include a range of amenities and open spaces.

Key aspects of the plan are explained in more detail on the following pages, but in summary it will deliver:

- Approximately 5,000 mixed-tenure homes in a variety of sizes and typologies;
- A new local centre and a new neighbourhood with a diverse range of public and community amenities to serve both the new and existing residents;
- An upgraded canal towpath - a recreational green corridor along the Lancaster Canal with a walking and cycling route
- A new Link Road through the local centre providing a vehicular and bus link between A6 and the A588 connecting the Garden Village to the key destinations around Lancaster.
- Generous open space areas around the drumlins protecting existing landscape and long views and providing new community recreation areas, productive landscape, play areas and wildlife corridors;
- Developed network of active and leisure cycling and walking routes connecting the Garden Village to Lancaster City Centre, the University, Glasson Dock and Galgate.

The garden village will be developed over time and the illustrative masterplan shown on the opposite page tries to depict a final form of housing numbers, split of land uses, landscape etc which will be achieved over time.



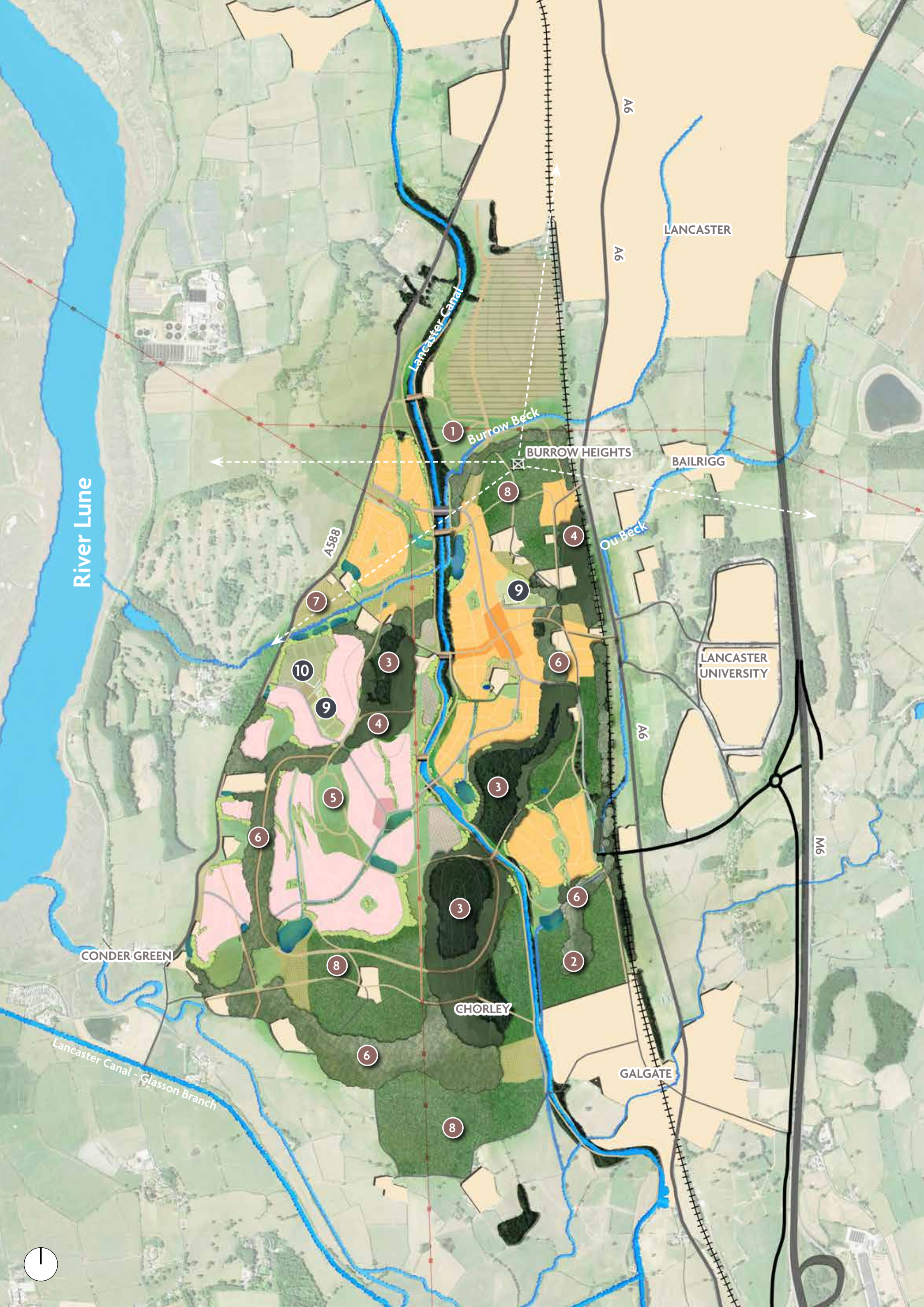
Approx.  
**5,000**  
new homes

Approx.  
**69%**  
of the site is proposed  
green infrastructure

Approx.  
**70%**  
of proposed green  
infrastructure is  
productive

**KEY**

- Existing settlements
  - Burrow Heights viewpoint
  - Water courses
  - Existing roads
  - Junction 33 Link Road Option 1
  - Railway line
  - Overhead power lines
  - Village development parcels:
    - Current plan period (2022-2031) Residential parcels
    - Future plan period (commencing 2031)
  - Indicative village centre and areas for denser development
  - Key sustainable transport routes through the village
  - Key foot/cycle path
  - Indicative attenuation ponds
  - Additional residential potential
- 1** Green buffer to South Lancaster
  - 2** Green buffer to Galgate
  - 3** Retained ancient woodland
  - 4** Proposed woodland
  - 5** Open green space
  - 6** Agroforestry
  - 7** Productive landscape
  - 8** Grazing land
  - 9** Primary school
  - 10** Secondary school



River Lune

Lancaster Canal

LANCASTER

Burrow Beck

BURROW HEIGHTS

BAILRIGG

Ou Beck

LANCASTER UNIVERSITY

CONDER GREEN

CHORLEY

GALGATE

Lancaster Canal - Glasson Branch

A588

A6

A6

A6

M6

1

8

4

9

7

3

6

10

9

4

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6

6

3

CONDER GREEN

8

2

6

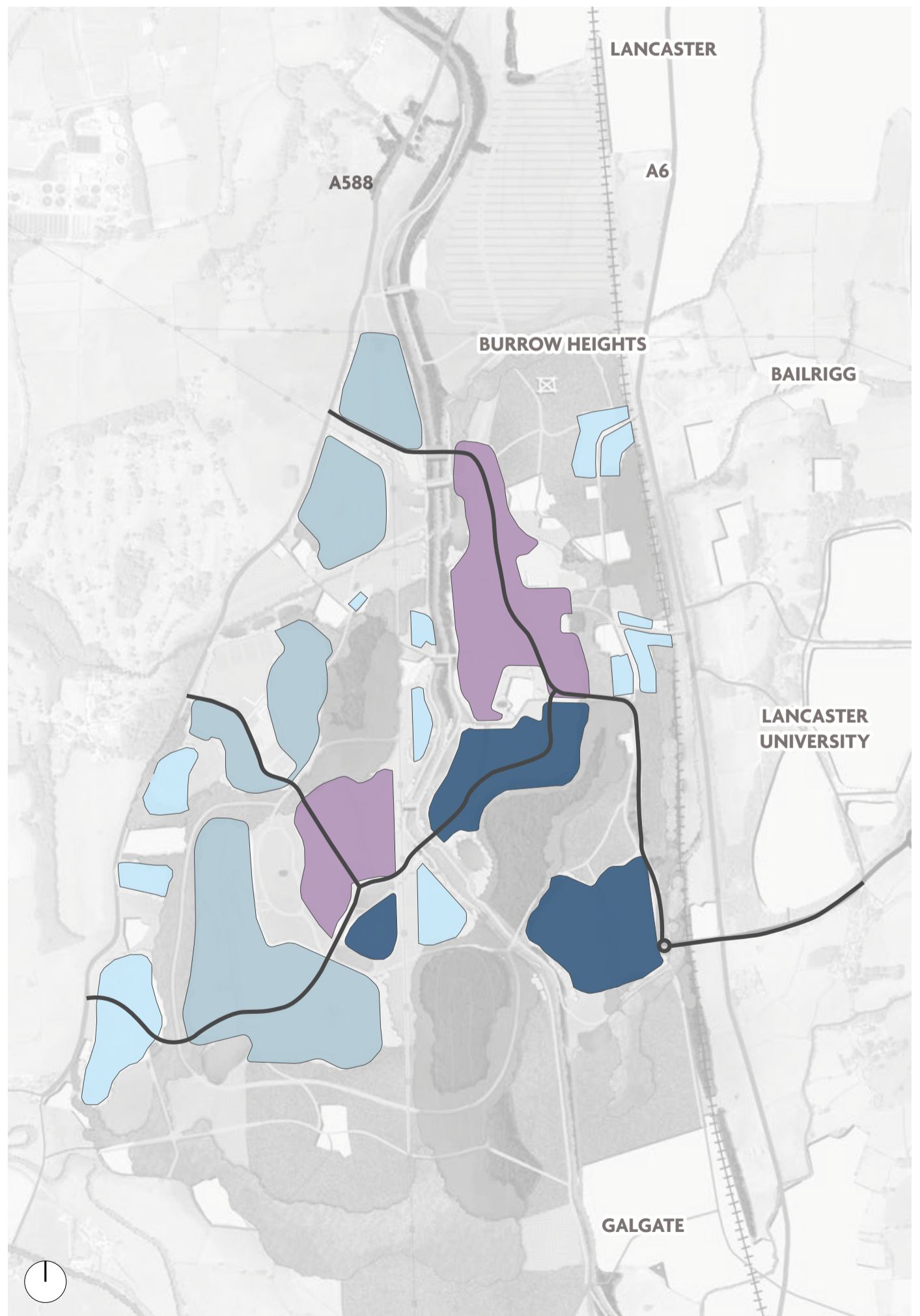
8



## 5. SPATIAL MASTERPLAN FRAMEWORK

# INDICATIVE DENSITY

Drawing on the findings from the density studies of the surrounding area and explained earlier in the document, the plan below indicatively shows how the residential densities could be distributed around the garden village. A range of densities will generate variation in built form and character across the site and thereby create enhanced visual interest. The plan shows indicatively that higher densities could be located along the eastern canal edge, village centre, and along the link road where levels of activity and accessibility will be the highest. Self-build areas along the western edge of the canal and small development parcels on site edges and in close proximity to the existing settlements will have the lowest density.



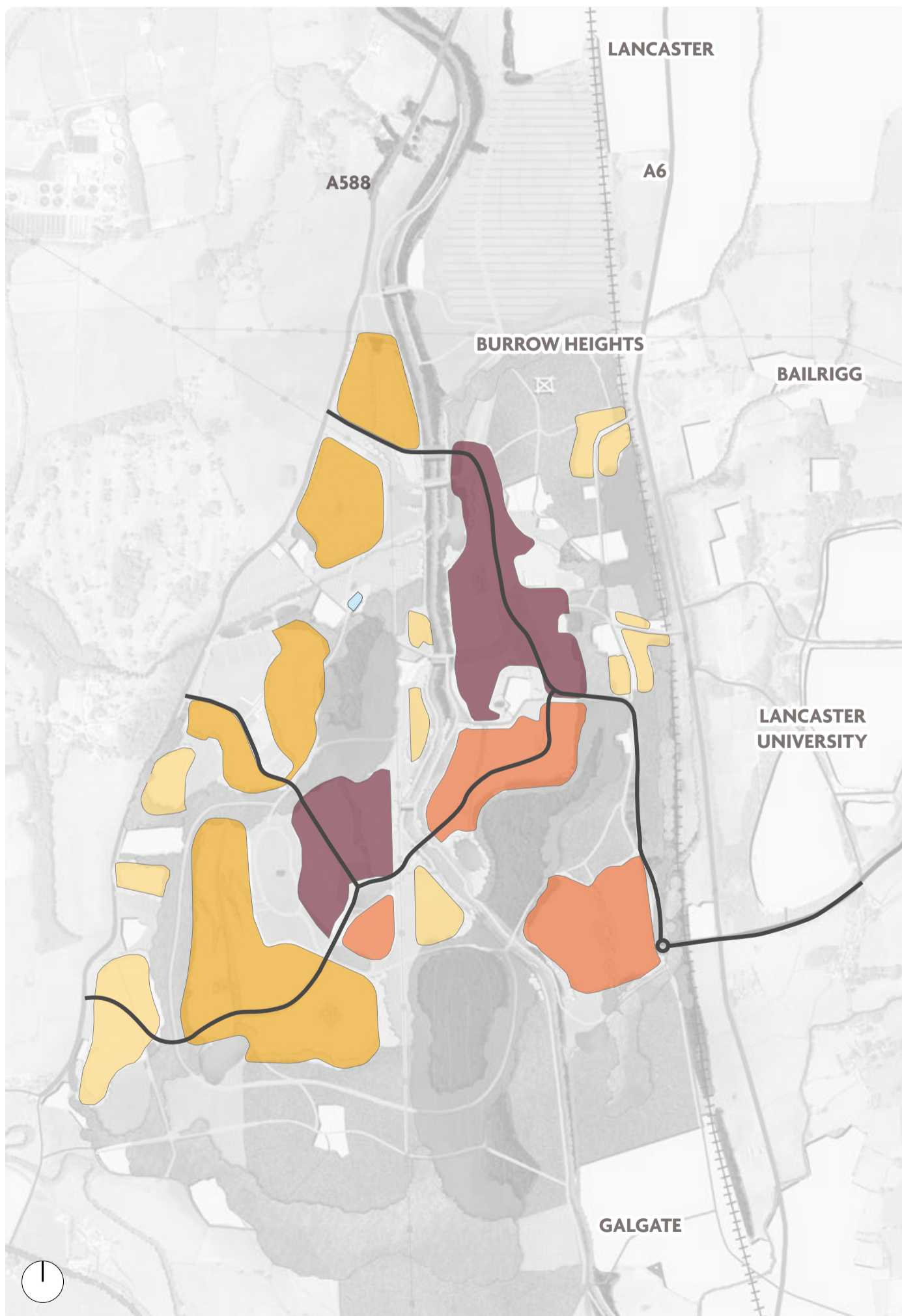
### KEY

- Up to 30 dph
- 30 to 45 dph
- 40 to 55 dph
- 50 to 65 dph

# INDICATIVE BUILDING HEIGHTS

The indicative building heights plan prescribes the maximum number of storeys across the site. These parameters have been carefully considered in response to the existing and proposed landscape characteristics, proposed land uses, and views from the surrounding area.

The plan allows for the provision of residential and mixed-use buildings ranging from two to four storeys in height. Taller buildings are located around the village and neighbourhood centres, and along the primary transport connections, with heights reducing towards the landscape edges and existing settlements.



**KEY**

- Up to 4 storeys
- Up to 3 storeys
- Up to 2.5 storeys
- Up to 2 storeys

## 5. SPATIAL MASTERPLAN FRAMEWORK

# SEPARATION FROM EXISTING DWELLINGS

The masterplan demonstrates a sensitive integration of the existing settlements into the masterplan. The existing farms and villages have been identified on the plan on the left. Generous landscape buffers are introduced in every location where development parcels are proposed in close proximity to the existing buildings. The buffers include productive landscape, water features and agroforestry.

Lower Burrow on Tarnwater Lane is located in the centre of the masterplan. In order to minimise impact of the development on the character and setting of the existing buildings, they are separated from the proposed residential area by a landscape buffer. The buffer includes village green or children's play to the south of the existing lane, and productive landscape to the north. Along the Tarnwater Lane the existing hedge is retained and proposed building frontage is set back.

The existing farm on Burrow Heights Lane is located on the edge of the development parcel in close proximity to the new primary school. A generous landscape buffer including agroforestry, community growing and new planted woodland areas is proposed between the school, the existing lane and the farm buildings.



Existing settlements location plan



Tarnwater Lane



Burrow Heights Lane



Proposed Development

approx. 30m green buffer

Lower Burrow, Tarnwater Lane

approx. 30m green buffer

Proposed Development

## 5. SPATIAL MASTERPLAN FRAMEWORK

# EDUCATIONAL PROVISION



A key component of the Area Action Plan will be the allocation of sites to accommodate schools to serve the emerging community of Bailrigg Garden Village. The number of pupils generated from the development requires the inclusion of a number of primary schools across the site, and one new secondary school.

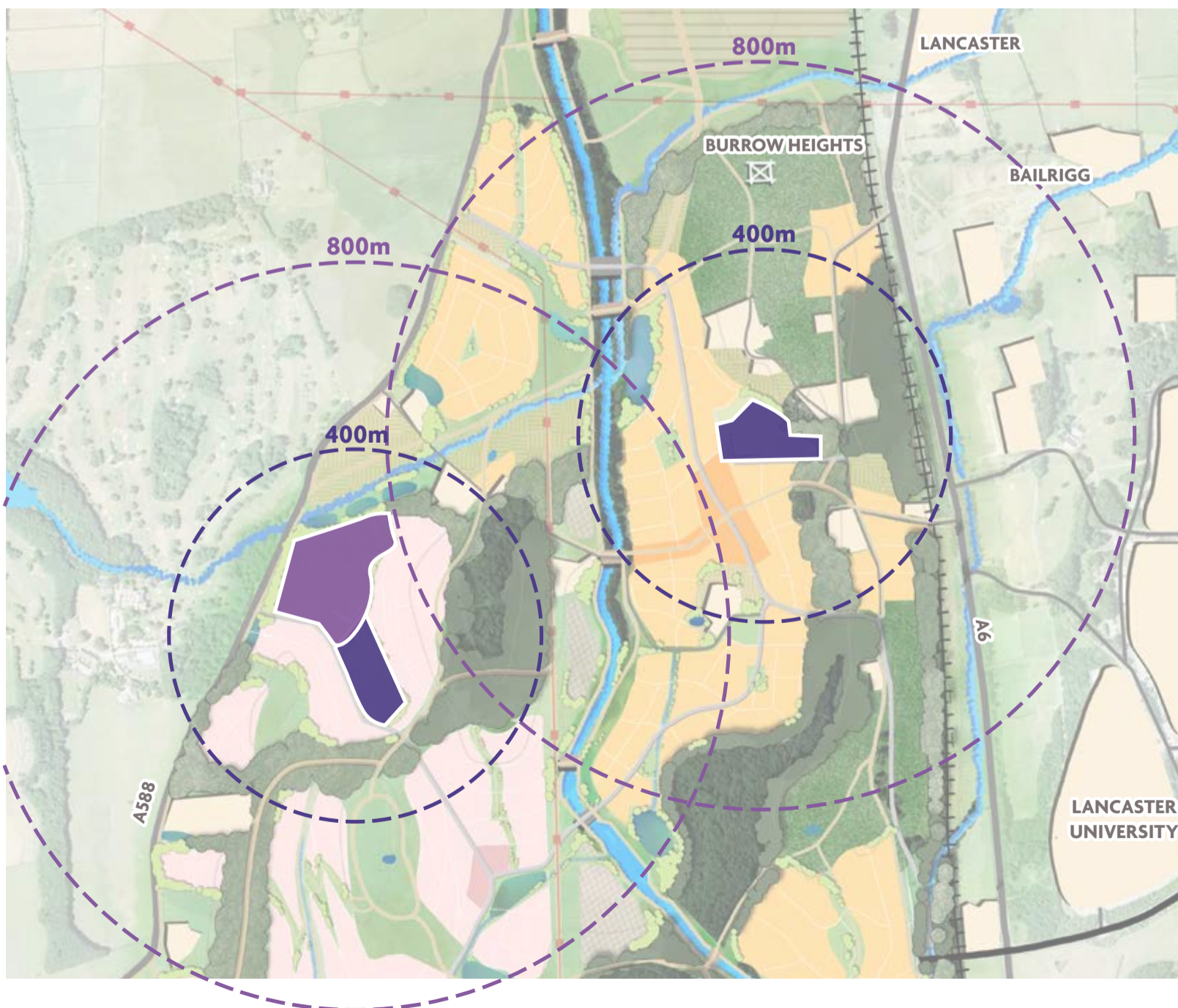
The exact location of the schools has been identified as part of the masterplanning process in connection to other social infrastructure elements. The schools should contribute to creation of accessible local centre including other uses such as retail and leisure.

A new 4 form entry secondary school will avoid the requirement of pupils to travel in to Lancaster City Centre to access secondary schools already reaching capacity and reduces the impact on the highway infrastructure. All proposed schools will be located along bus routes and connected to safe pedestrian and cycle routes within the garden village.

The size of each school and the number of forms of entry are dependent on phasing of housing and the bedroom mix across the site.

The masterplan framework has made a provision for the following:

- 2 x 2 form entry primary schools (including pre-school) within 5-10 mins walk from new homes
- 1 x 4 form entry secondary school within 10-20 mins walk from new homes



- KEY**
- Primary school
  - Secondary school
  - - - 400m access radii
  - - - 800m access radii
  - 1600m access radii

## 5. SPATIAL MASTERPLAN FRAMEWORK

# CONNECTING THE GARDEN VILLAGE

A new linking route, funded by Homes England Housing Infrastructure Fund (HIF) grant can form a highways spine for the garden village. In places this route can take the form of a principle street providing the village heart with its lifeblood and connecting the garden village to the surrounding destinations.

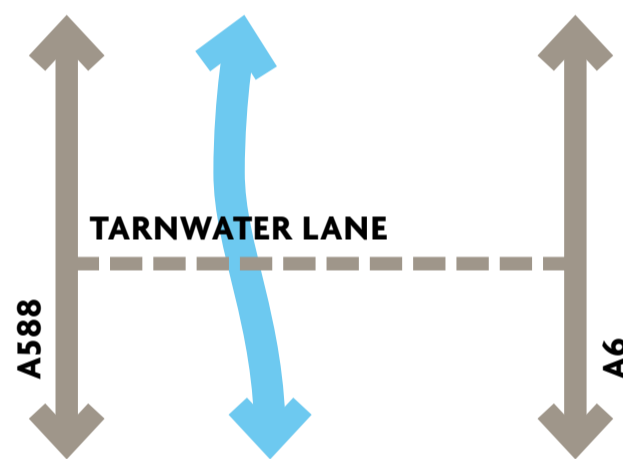
As the site is currently already well connected with a number of north-south connections, the new road will aim to provide that much needed east-west connection, layers with a network of leisure foot and cycle routes will be provided within the green open spaces to create a robust and permeable neighbourhood.

This new road will complement existing bus services, and provide a key bus service connecting the urban village with Lancaster City Centre and also support alternative sustainable modes of transport including walking and cycling with a dedicated cycle lane and footway (to LTN 1/20 standards). Bus stops will be positioned throughout the garden village to ensure all new and existing homes are within a 5-minute walk of a bus stop.

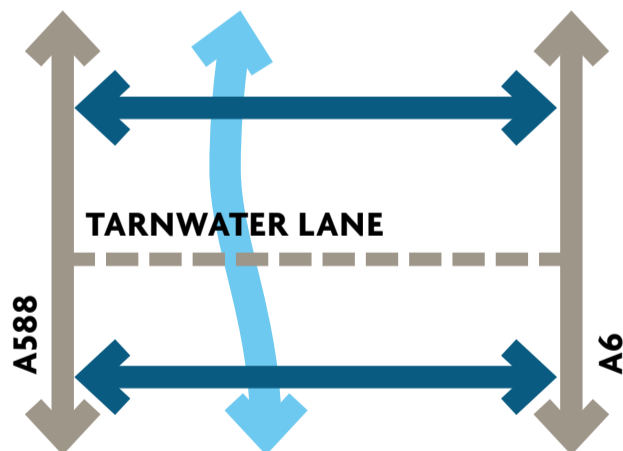
The masterplan will aim to keep as much of the existing roads such as Tarnwater Lane and Burrow Lane as 'quiet lanes' prioritising foot and cycle movements and limited vehicular access to existing settlements on the site.

Water transport is also a key opportunity for Bailrigg Garden Village with a water taxi service is being promoted to connect the new garden village to Lancaster City Centre.

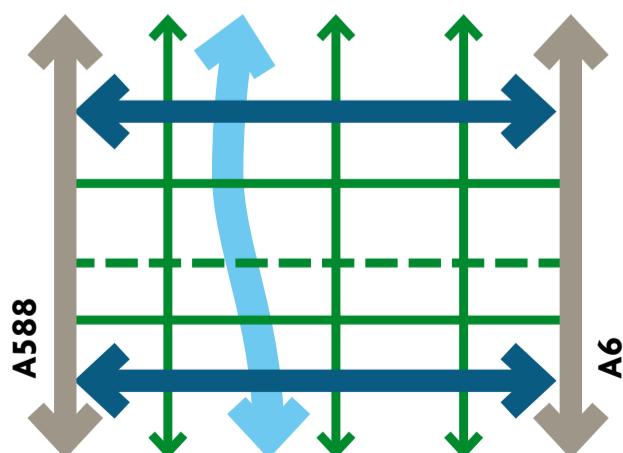
**EXISTING:  
LIMITED EAST-  
WEST VEHICULAR  
CONNECTIONS**



**NEW ROAD:  
IMPROVED EAST-WEST  
VEHICULAR & BUS  
CONNECTIONS**



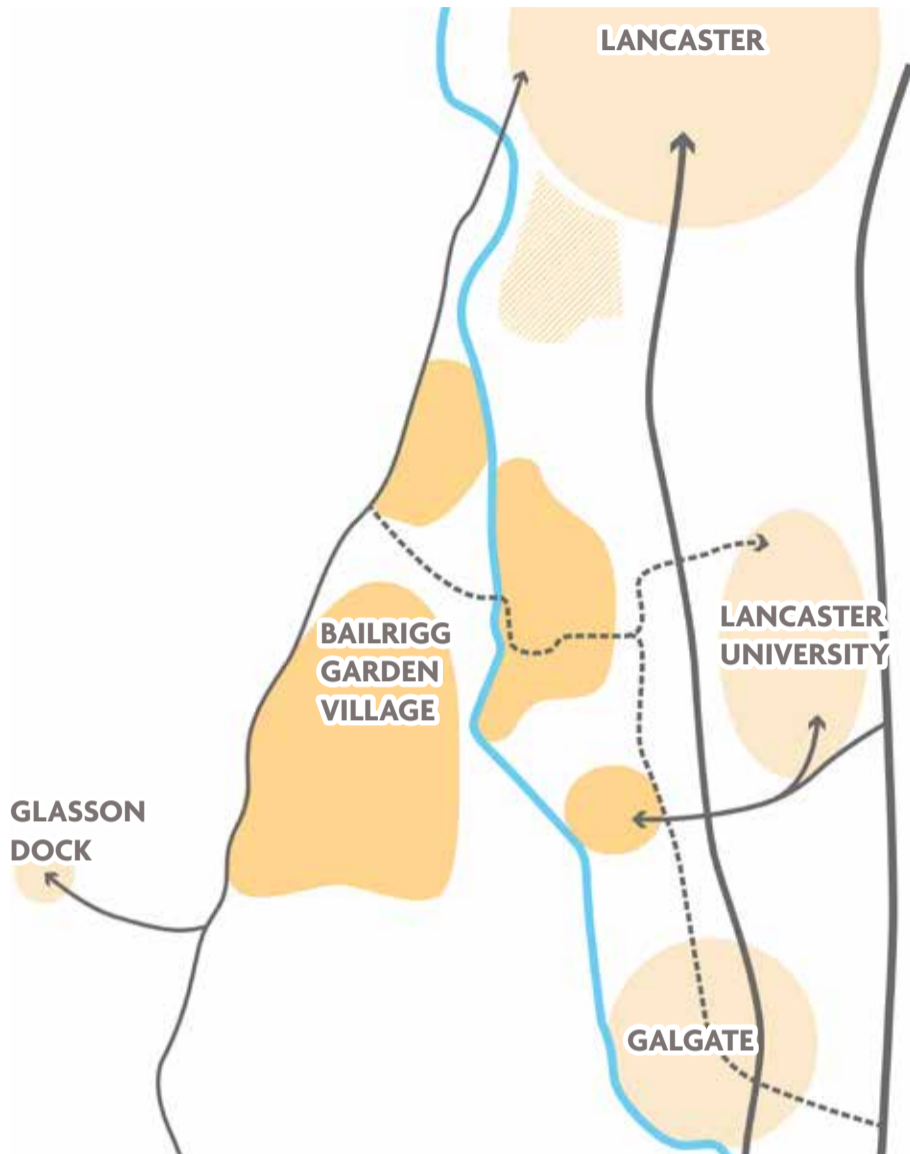
**NEW & IMPROVED  
WALKING AND CYCLE  
CONNECTIONS**



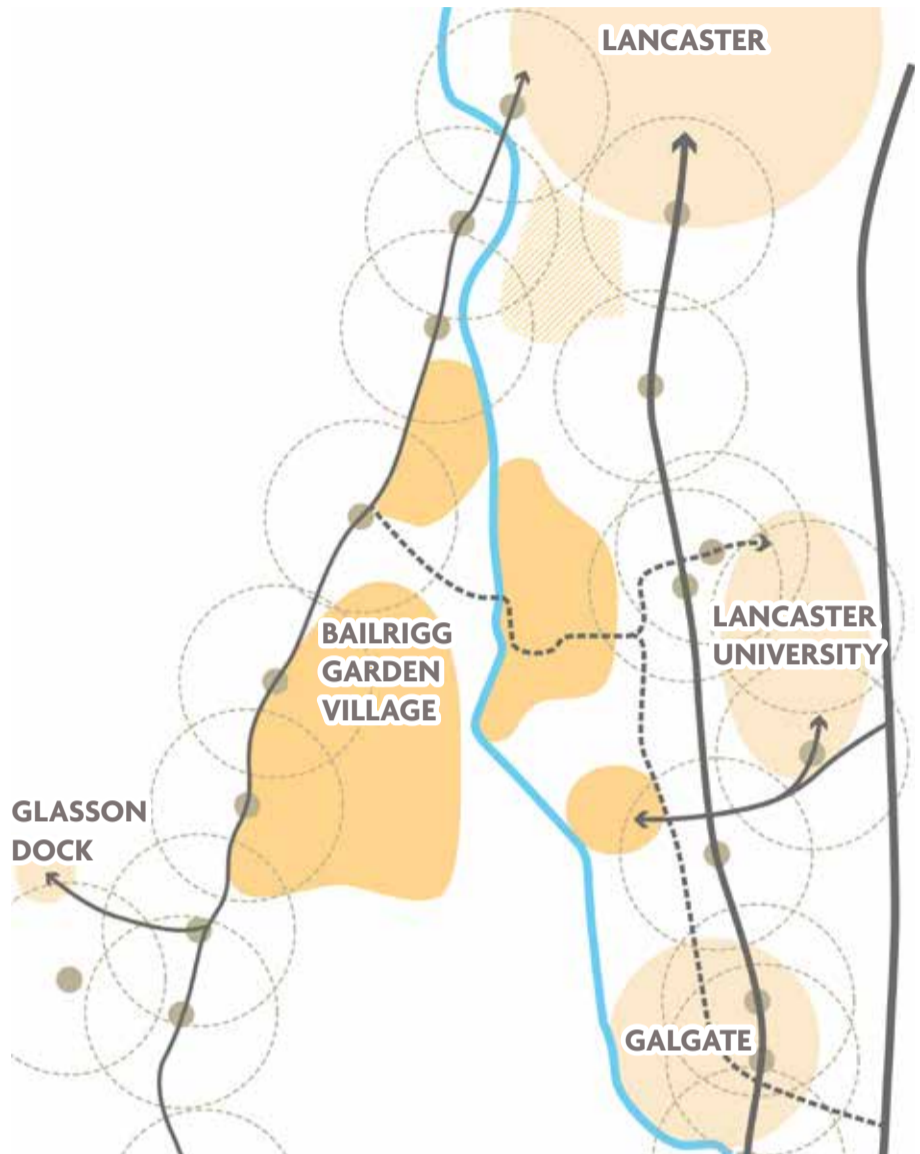


# CONNECTING THE GARDEN VILLAGE

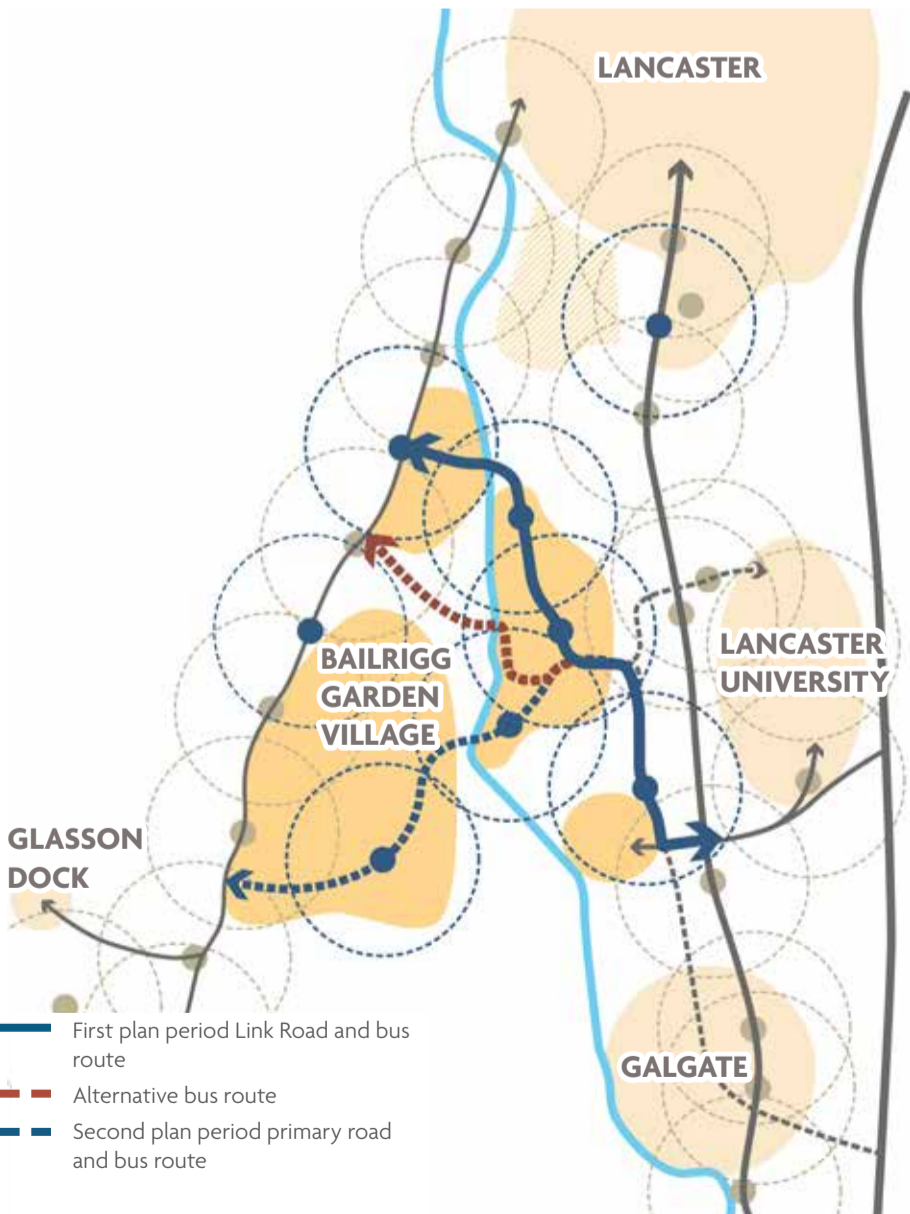
EXISTING ROAD CONNECTIONS



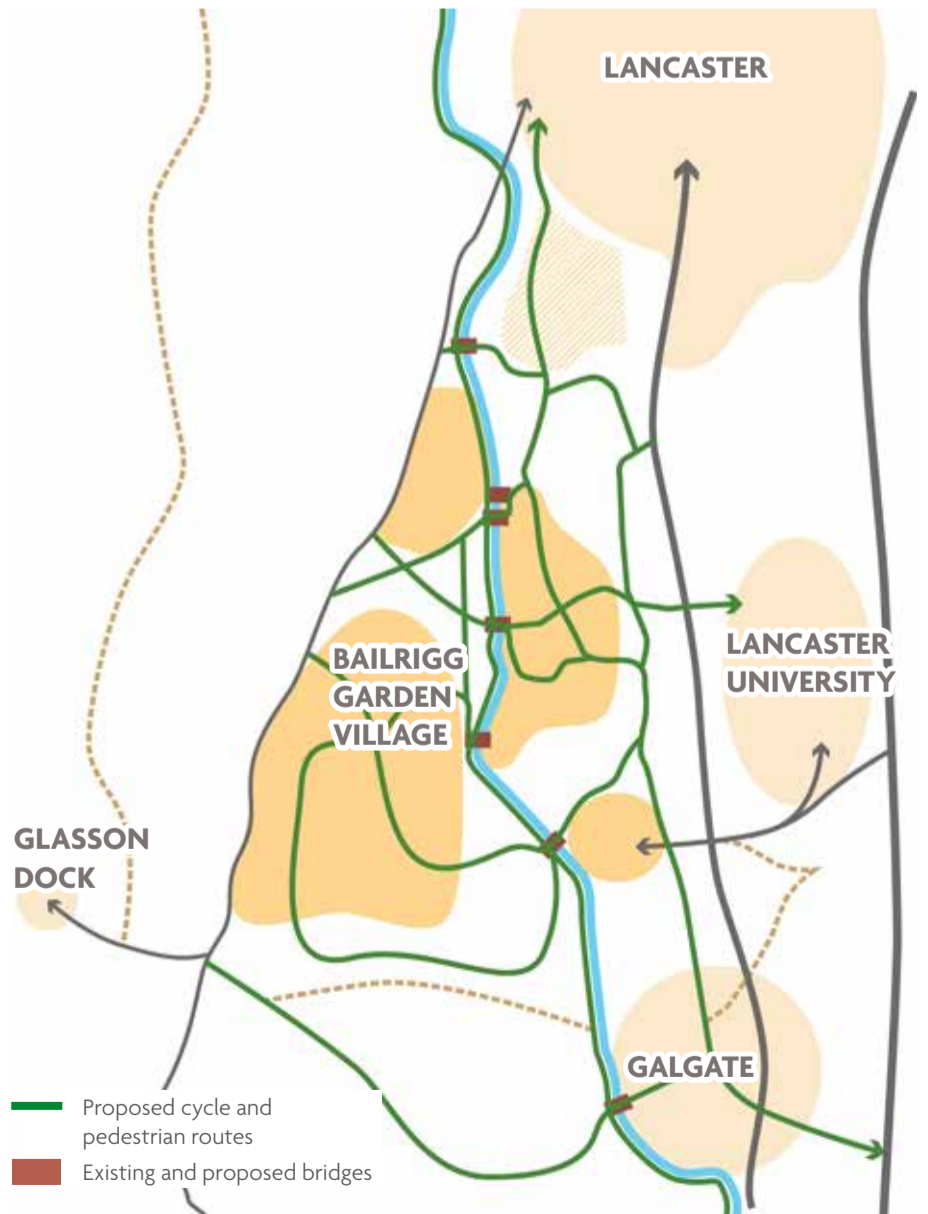
EXISTING BUS NETWORK



PROPOSED NEW ROAD & BUS ROUTE(S)



PROPOSED KEY CYCLE AND WALKING CONNECTIONS



# SUSTAINABLE MOVEMENTS

## NEW LINK ROAD





The proposed new link road will provide a core sustainable movement route to advantage bus, cycle and pedestrian movements over car traffic for both the garden village and the wider South Lancaster Area of Growth, and will be constructed to adoptable standards.

The routing through the garden village will be an extension to the existing bus network and alignment of this route will be developed in further detail with the Highways team at Lancashire County Council.

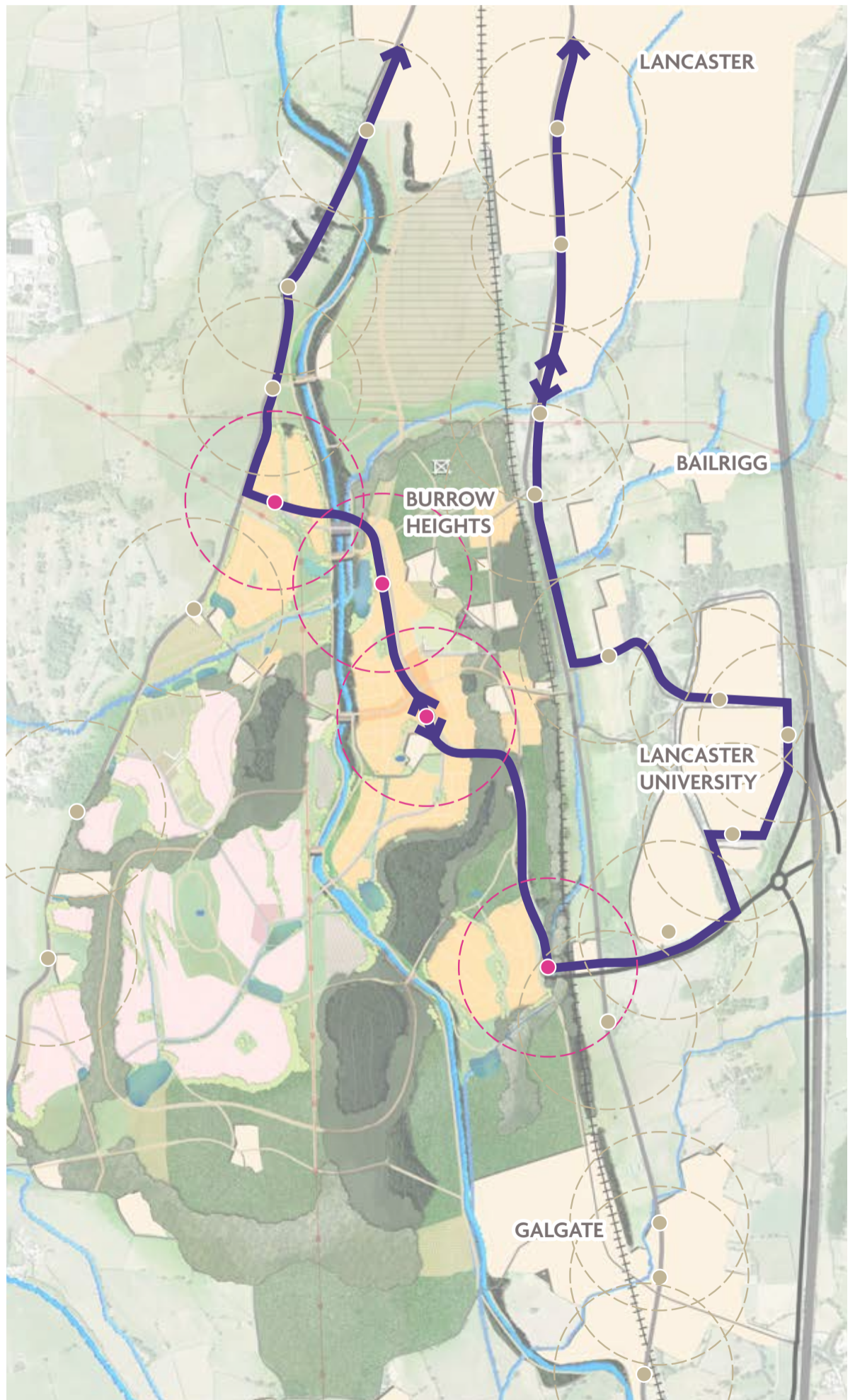
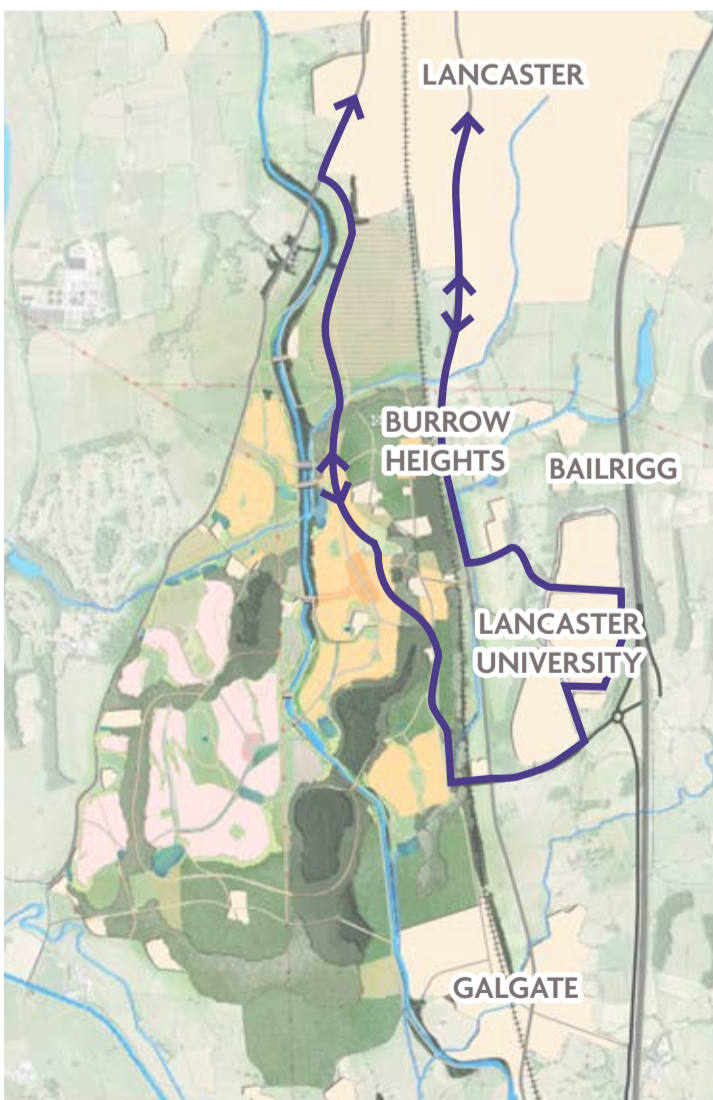
The objective is to provide bus stops within 300m or 5 minutes walk of every home, with bus stops being compliant with Equality Act 2010 and fully accessible to all with raised kerbs and bus stop clearways.

The village will advantage sustainable modes of transport by integrating cycling infrastructure and bus infrastructure. For example, cycle hubs and e-bike hire hubs will be strategically co-located with bus stops, to enable cyclists to easily become bus users and vice versa.

**KEY**

-  Proposed bus route option (two ways)
-  Proposed bus stops
-  Existing bus stops
-  300m walking distance (5 minute walk)

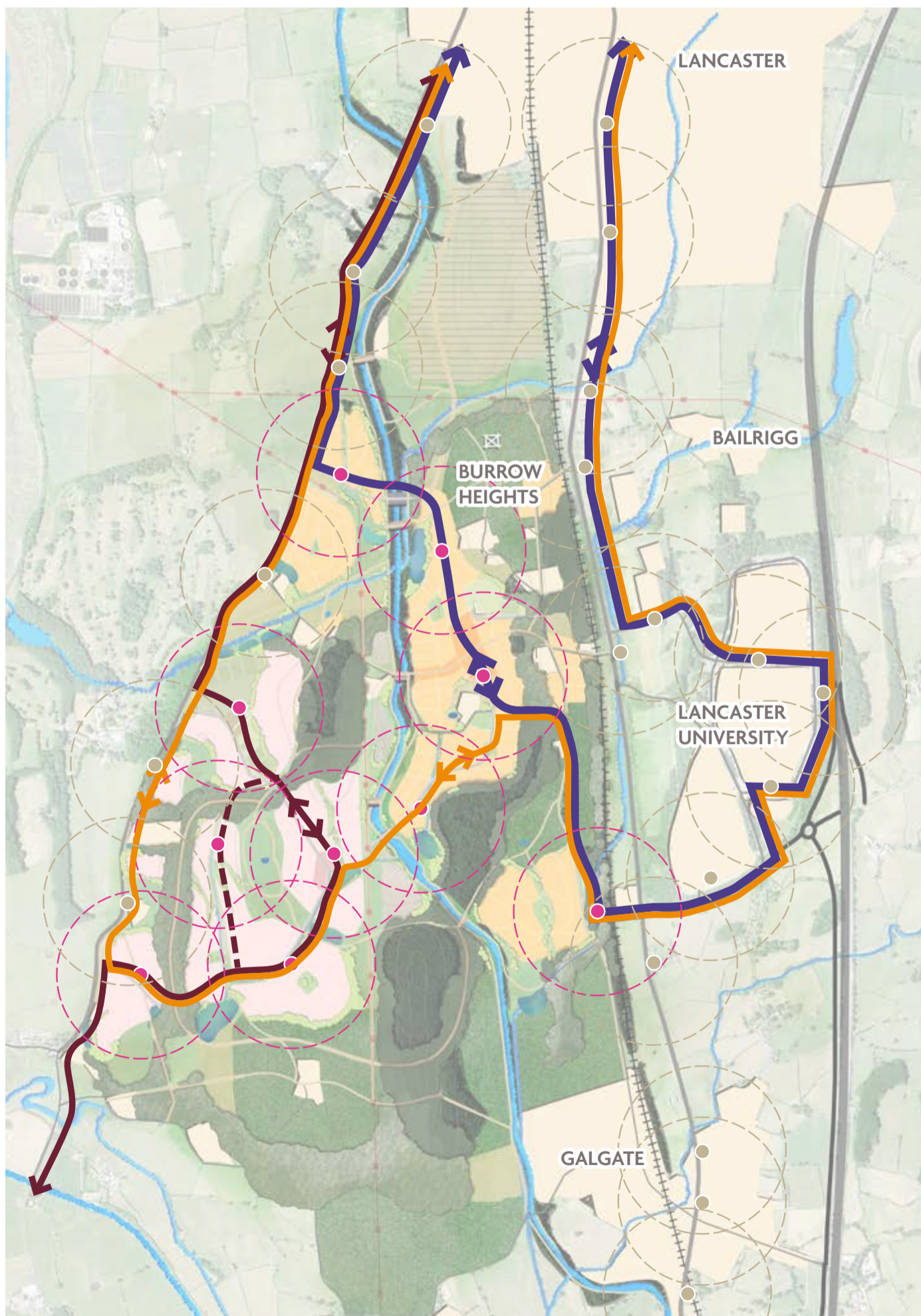
Alternative route option as first suggested in 2019



## 5. SPATIAL MASTERPLAN FRAMEWORK

# SUSTAINABLE MOVEMENTS

The diagrams below illustrates the options which are currently being explored for the core route alignment through the garden village, and demonstrates how the new road could link into the future expansion of the garden village in the second plan period (2031 onwards).



### KEY

-  Proposed bus route option for the current plan period (two ways)
-  Potential extension or additional route for the future plan period (two ways)
-  Potential rerouting of existing services (two ways)
-  Proposed bus stops
-  Existing bus stops
-  300m walking distance (5 minute walk)

# SUSTAINABLE MOVEMENTS

## WALKING & CYCLING











The Bailrigg Garden Village masterplan prioritises the movement and cycles within the site through a network of strategic and leisure pedestrian and cycle routes connecting the garden village to Lancaster City Centre, Lancaster University, Glasson Dock, existing canal, lanes, PRoWs, cycle routes, bridges, drumlins and green halo.

This is achieved by the following interventions:

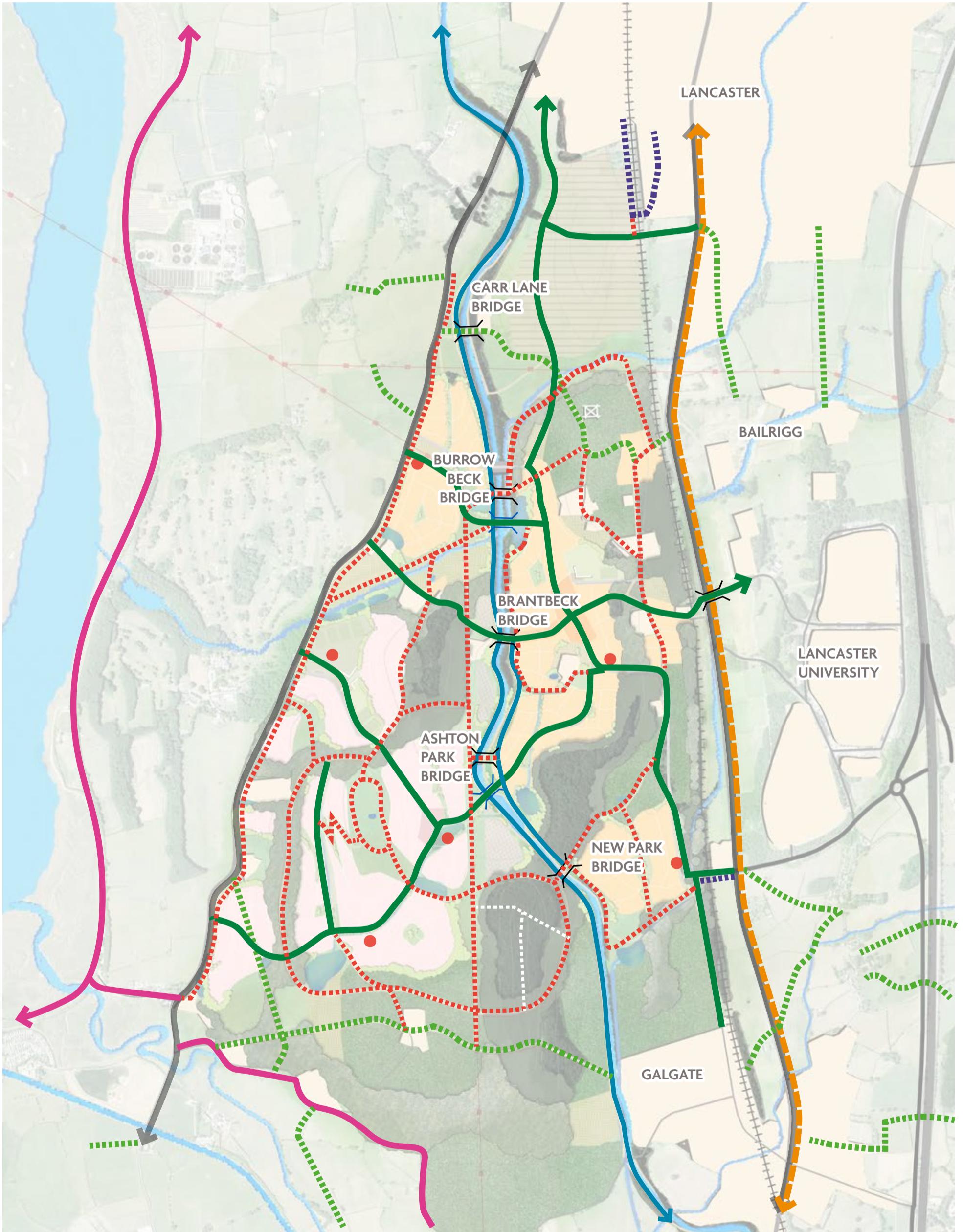
- Reduce traffic speeds - design of streets with the desires for 20mph zones;
- Quiet routes along existing roads to discourage being used as a rat-run by private cars. Vehicle access will be limited to residents of existing settlements. Quiet routes will permit bus, cycling and pedestrian movements.
- Dedicated cycle hubs and bikes for hire will be distributed evenly through the garden village to provide sustainable movements for residents an easy choice.



### KEY

-  Existing strategic cycle routes
-  Existing PRoWs
-  Existing bridleways
-  Proposed super cycleway
-  Proposed strategic pedestrian and cycle routes
-  Proposed improvements to the canal towpath (pedestrian, cycle and bridle)
-  Proposed pedestrian and cycle 'quiet' leisure routes.
-  Existing bridges
-  Proposed bridges for sustainable modes
-  E-bike cycle hire hubs

# SUSTAINABLE MOVEMENTS



# WATER MANAGEMENT

## SUSTAINABLE WATER MANAGEMENT PRINCIPLES

The following key strategic principles have been followed in developing a sustainable water management strategy across the development site:

1. Avoiding any increase in flood risk and, where possible, reducing flood risk to site and across wider area
2. Contribute to addressing on-going flooding issues in the wider area, where possible
3. Attenuation in multi-function open water bodies (ponds) integrated into blue-green corridors and site topography with a particular focus on integration within the landscape strategy, amenity and biodiversity enhancement proposals.
4. Pollution control and water quality management
5. Smart harvesting and retention of rainwater
6. Efficient use of water

### Waterlogging - Lower Burrow (March 2021)



Photographs by local residents of Lower Burrow

## MINIMISING FLOOD RISK

Minimising the risk of flooding within the Garden Village and to the wider area will be achieved through the following approaches:

- Reducing surface water runoff at source in line with best practice from the SUDS Manual
- Maximising infiltration drainage in line with the drainage hierarchy set out by Policy DM34 of the Lancaster District Council Local Plan.
- Attenuated discharge to the watercourses, limited to greenfield runoff rate for all events up to the 1:100 year + 40% allowance for climate change.
- Climate resilience and consideration of overland flows in extreme events in exceedance of the 1:100+40% event.
- Source control measures will include permeable paving, roadside swales and bio-retention systems, rain gardens and green roofs where appropriate.

The infiltration potential of surface water runoff across the site is varied. For infiltration drainage to operate satisfactorily the following criteria must be met:

- The ground must be sufficiently permeable
- The water table must be relatively deep,
- The ground should be uncontaminated
- Percolating water must not cause ground instability or problems elsewhere.

Ground investigation will be required to confirm the infiltration potential. It is anticipated that the potential for infiltration drainage will be higher in the River Terrace Deposits and coarser glacio-fluvial deposits.

In a meeting with Lancaster District Council, the Lead Local Flood Authority (LLFA) it was confirmed that peak surface water discharge could be restricted to:

- Either the  $Q_{bar}$  \* greenfield runoff rate, which is equivalent to a 1:2.3 year greenfield runoff rate
- Or greenfield runoff rates calculated for a range of return periods up to 1:100 year as well as not exceeding the greenfield runoff volume as set out by the DEFRA Technical Standards 2015.

\* $Q_{bar}$  is the peak greenfield run-off rate for the mean annual flood event, with a return period of approximately 1 in 2.3 years.

Overland flow routes will be considered for events in excess of the 1:100+40% event, and up to 1:1000 + 40%, to ensure that overflow from attenuation ponds and flooding for the surface water drainage system does not affect existing and proposed buildings and residents within Bailrigg garden Village and the wider area.

**ADDRESSING ONGOING FLOODING ISSUES**

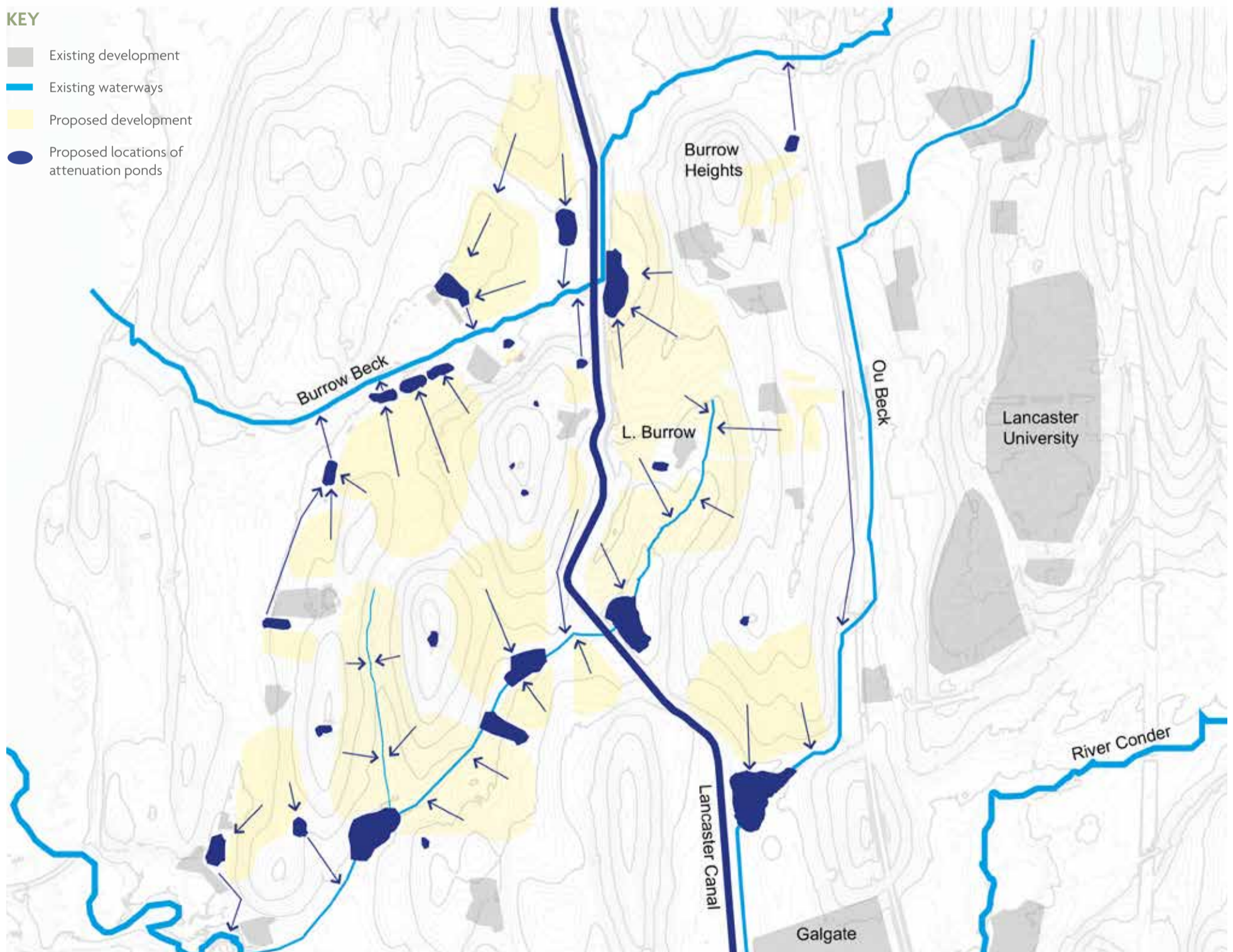
As part of the development of the masterplan for the Bailrigg Garden Village, the floodplain and hydraulic conveyance function of the watercourses will be protected and, where possible, enhanced, in consultation with the Environment Agency.

Development will be kept out of Flood Zone 3b (except for essential infrastructure and water compatible elements, and generally kept out of the floodplain of the watercourse and above the 1:100 + climate change flood fluvial level. Any minor loss of fluvial floodplain storage below the 1:100 + climate change flood level will be compensated.

It is proposed to introduce a fluvial flood retention basin on the Ou Beck, integrated with the surface water drainage attenuation proposals described below. This will contribute to alleviate flooding at the siphon crossing under the Lancaster Canal, and increasing overall resilience of on-going flood mitigation works in Galgate. The benefits to on-going flooding in Galgate will be relatively limited as the Ou Beck joins the River Conder downstream of Galgate. This will therefore have a limited influence on flood levels in the village.

Additionally, existing localised issues will also be addressed as part of the development of the masterplan. This includes improving and repairing the local drainage system at Lower Burrow farm and ensuring it is well connected to the wider drainage and watercourse system.

Indicative locations and sizing of attenuation ponds



# WATER MANAGEMENT

## MULTI-FUNCTION ATTENUATION & INTEGRATION WITH TOPOGRAPHY

A series of attenuation ponds will be integrated into the landscape and topography. In addition to controlling discharge to the watercourse and mitigating existing flood risk, these ponds will provide valuable ecological habitats for local flora and fauna, enhance the relationship of the site to water courses, and enable amenity uses for residents and visitors.

Some of these ponds will include a permanent water volume, to support ecology and amenity functions in dry periods. Consideration will also be given to potentially designing some of the ponds for natural swimming.

The ponds will be optimised within the site topography to minimise earthworks and impact on the landscape character associated with significant embankments. Where necessary, in the steeper parts of the site, the ponds will be broken into smaller stepped ponds. Efficient attenuation design will allow for containing the 1:30 event within the pond, in addition to controlled flooding for 1:100+40% events in the surrounding landscape..

## POLLUTION CONTROL & WATER QUALITY MANAGEMENT

Pollution control will follow established best practice defined by the SuDS Manual to ensure the receiving watercourses and aquifers are protected from pollution. The source control measures which help reduce surface water runoff, will also contribute to intercepting diffuse urban pollution at source. Roadside swales and bio-retention systems will play a key role in removing small amounts of hydrocarbons, tyre residues and heavy metals from roads. Hydrocarbon interceptors will be provided where pollution loads are higher.

The design of the ponds will include sediment forebays and measures to achieve good water quality within the pond, for discharge to the watercourses or ground.

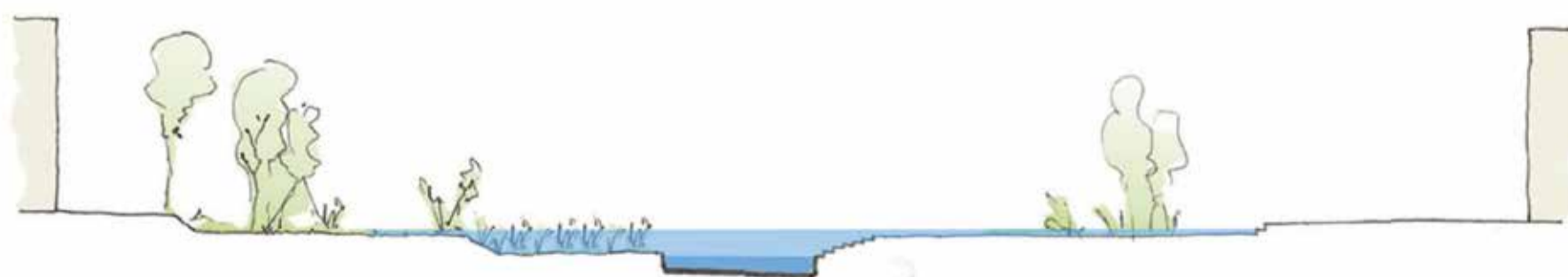
Drainage, amenity and ecology functions mapped to water level regime



Dry weather: permanent water supports ecology and amenity



1:30 year: "pond full"



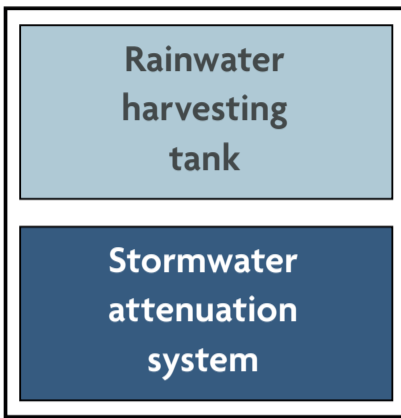
1:100 year + 40%: controlled flooding of landscape



# 5. SPATIAL MASTERPLAN FRAMEWORK

## WATER MANAGEMENT

### Conventional approach



Tank kept as full as possible to provide secured water supply during dry periods.

Stormwater management volume empties as quickly as possible to protect the next storm.

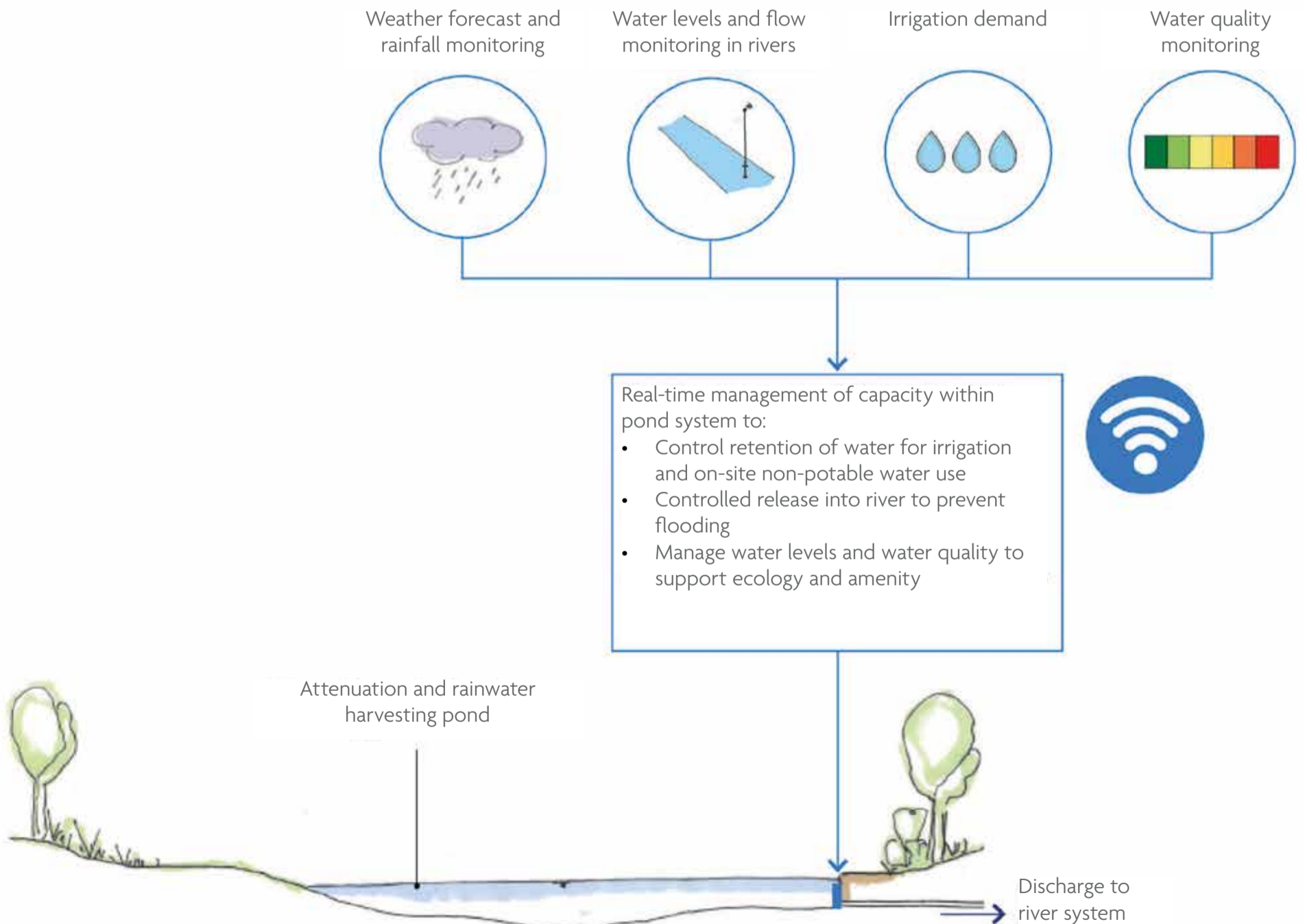
### Proposed approach



### SMART HARVESTING & RETENTION OF RAINWATER

Conventional rainwater harvesting systems are no longer considered sustainable best practice in the UK climate, as the carbon embedded in the manufacture and operation of the systems outweighs any savings. However, Smart rainwater harvesting systems provide a solution to this by integrating rainwater harvesting and stormwater attenuation tanks into an integrated water management system which only requires a single tank. This is enabled by real-time monitoring of local weather conditions to control retention or release of water. Harvested rainwater will primarily be used for irrigation of the productive landscape and potentially non-potable water use in specific buildings, such as the schools.

Real time monitoring of irrigation requirements, water levels in rivers and water levels in the pond can also be fed into the control system. This approach has been used extensively in mainland Europe and the United States. In addition to removing the need for a dedicated harvesting tank it also allows for controlling water level within the pond, to support ecological and amenity functions.



# CHAPTER 6



# Landscape Framework



# LANDSCAPE VISION

## PRECISE & FLEXIBLE: A FRAMEWORK ADAPTABLE TO FUTURE CHANGES

The masterplan provides a baseline for a collective site vision: an attractive, healthy and sustainable community, respectful of nature and its existing drumlin landscape.

This section defines the Landscape Vision, revealing it through the themes and 'layers' which shape the emerging masterplan.

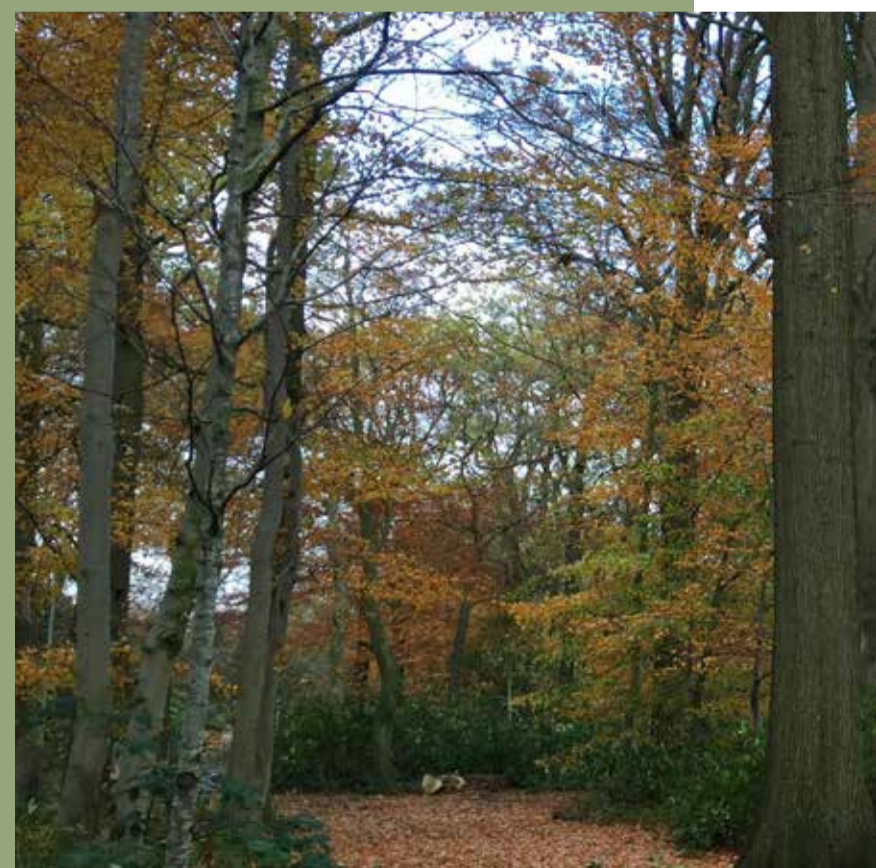
The landscape themes describe an overarching set of principles around which the masterplan is built. These acknowledge current aspirations and policies, whilst affording flexibility for inevitable future changes in needs, climate and policy.

The landscape 'layers' describe the environmental, social and cultural infrastructure embedded in the masterplan in order to achieve the project aims.

Lancaster Council has an opportunity to further collaborate with Lancaster University at Bailrigg Garden Village, to explore, benchmark and measure approaches that meet this and future project's sustainability aspirations.

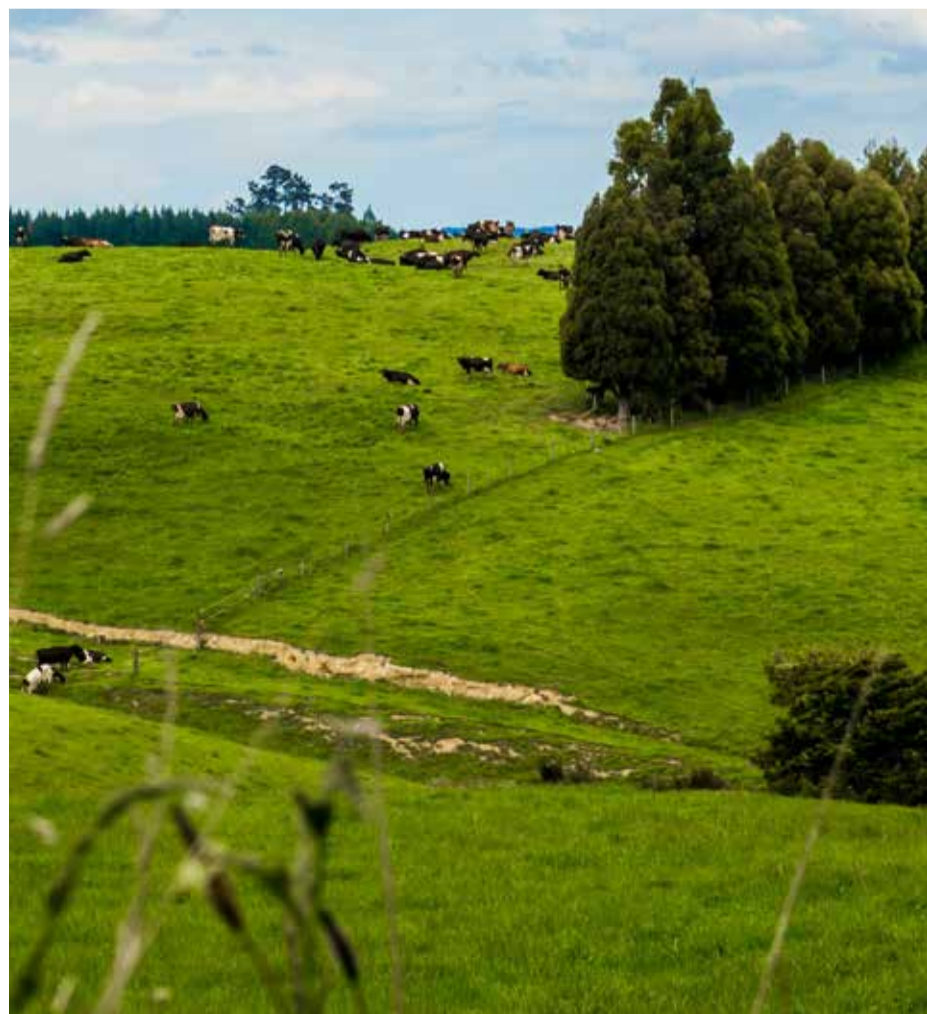
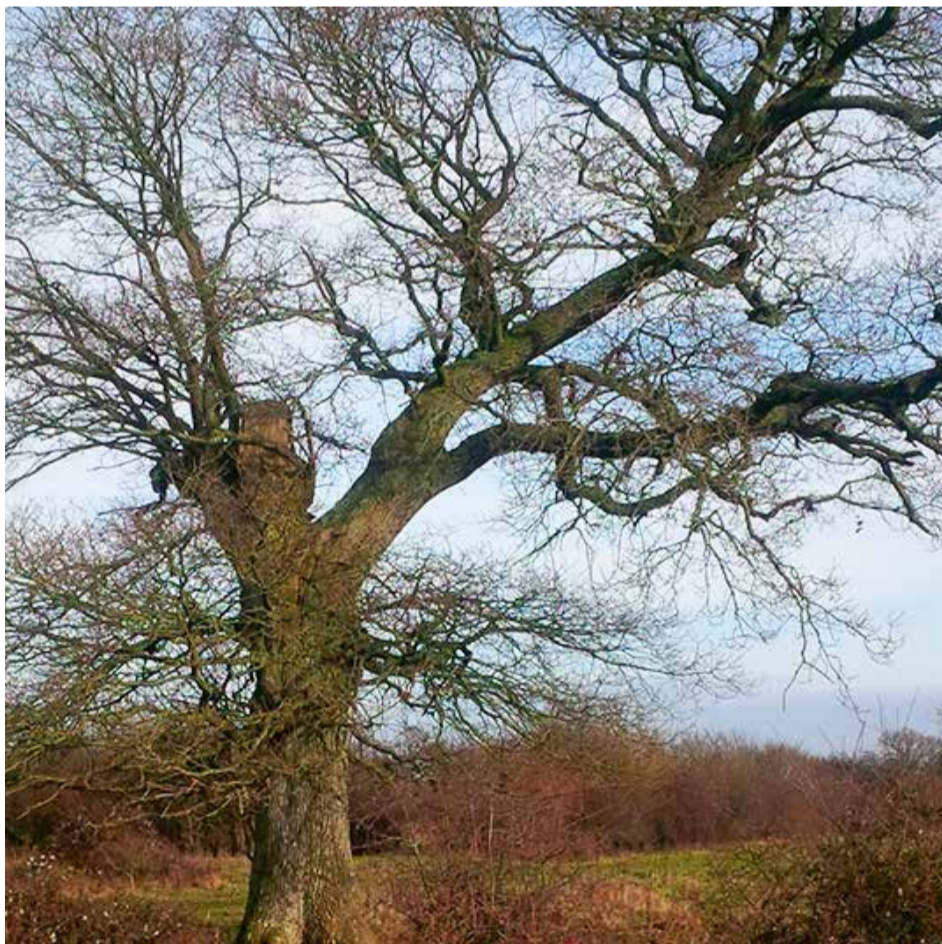
The chapter will cover:

- Landscape Layers
- Illustrative Journeys
- Cultural Benefits
- Landscape Themes
  1. Sustainable soils in urban development
  2. Net Environmental Gain (NeG) / hydrology and water science
  3. Monitoring, managing and conserving biodiversity
  4. Food
  5. Community / culture
  6. Employment
  7. Management and maintenance



“Create a place where people and wildlife can thrive. A place that is sustainable, eco-friendly with cycle tracks and walkways.”

Quote form Community Consultation event 2021



“Progress is measured by the speed at which we destroy the conditions that sustain life.”

G. Monbiot

# LANDSCAPE LAYERS

## A LANDSCAPE LED APPROACH

### A Mosaic of Landscape Uses

This section explores the landscape layers. A number of landscape layers form the emerging vision masterplan promoting a move from monoculture to permaculture. In other words, moving from singular agricultural use of discrete land parcels to a varied and smaller scale network of regenerative farming uses. Regenerative farming will be combined with Nature Recovery Networks, areas left untouched for rewilding, open space for leisure and recreation, and 'green' routes for cycling and walking.

The emerging vision masterplan adopts a holistic, layered approach to landscape, which will see:

- Land-demanding farming developed into a varied and smaller scale network of regenerative farming
- Monoculture developed into permaculture; land, people and nature becoming part of a co-dependent ecosystem
- Pockets of biodiversity developed into a connected mosaic of varied habitats, microsystems and vegetation

At Bailrigg Garden Village the proposed landscape layers are:

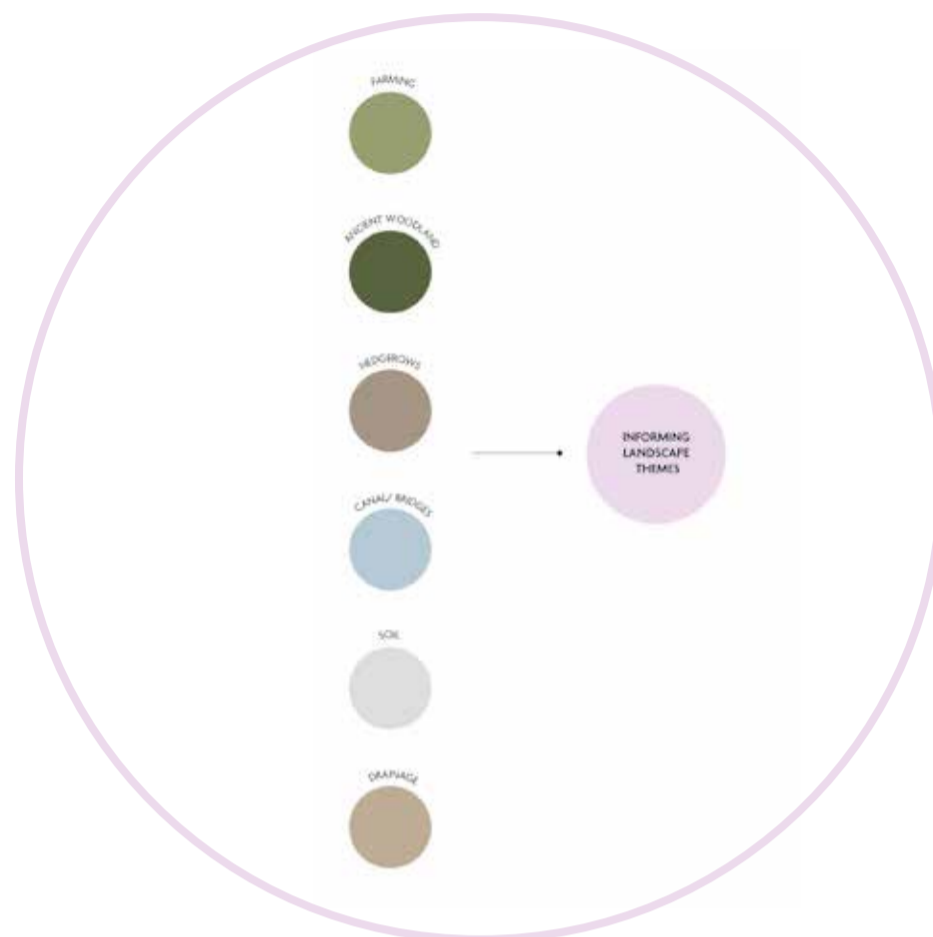
### 1. Rewilding

### 2. Nature Recovery Network

- 2.1 Woodlands
- 2.2 Marshy Wetland
- 2.3 Grazing land
- 2.4 Agroforestry including orchards

### 3. Community, Culture, Employment

- 3.1 Productive landscape including community growing areas
- 3.2 Open green space



# LANDSCAPE LAYERS

## 1. REWILDING

### Let Nature Do What Is Best

Defined by 'Rewilding Britain', rewilding is: 'the large-scale restoration of ecosystems to the point where nature is allowed to take care of itself'.

Rewilding seeks to reinstate natural processes, allowing them to shape the landscape and the habitats within. It encourages people and the rest of nature to thrive together.

The masterplan endorses the 5 principles of rewilding.

## THE 5 PRINCIPLES OF REWILDING

### 1. Support People and Nature Together

- Finding ways to work and live within healthy, flourishing ecosystems.
- Enrich our lives and reconnect us with wild nature.
- Provide a sustainable future for local and wider communities.

### 2. Let Nature Lead

- Reinstating natural processes and seeing where nature takes it.

### 3. Create Resilient Local Economies

- Create resilient new nature-based economies where livelihoods thrive alongside each other and enrich nature.

### 4. Work at Nature's Scale

- Restore ecosystems and give nature enough space to shape the living systems on which we all depend.

### 5. Secure Benefits for the Long-term

- Secure the continued, long-term benefits of rewilding as key to a healthy, prosperous future for generations to come.

“Given sufficient seed sources and suitable site conditions, trees will plant themselves in their millions for free over as large an area of land as we are willing to spare.”

Source: [rewildingbritain.org.uk](http://rewildingbritain.org.uk)

## 2. NATURE RECOVERY NETWORK (NRN)

### A Layered Landscape

An intricately linked landscape with many uses and habitats forms the basis of the masterplan combined with the principles of Nature Recovery Networks.

### What is a Nature Recovery Network (NRN)?

The NRN is a major commitment in the government's 25 year Environment Plan and part of the forthcoming Nature Strategy. It will protect, restore, connect and enhance wildlife and habitats across towns and the countryside.

## THE BIG 3 OF THE NRN:

### 1. Biodiversity Loss

- Enhance sites designated for nature conservation and other wildlife-rich places e.g. newly created or restored wildlife-rich habitats / corridors which act as stepping stones for wildlife populations to grow and move.

### 2. Climate Change

- Improve the landscape's resilience to climate change by providing natural solutions to reduce carbon, manage flood risk and sustain vital ecosystems such as soil, clean water and air.

### 3. Wellbeing

- Reinforce the natural and cultural diversity of our landscapes and protect our historic natural environments thus benefitting health and wellbeing by enabling people to connect with nature where they live, work and play.

### The Government's Main Objectives in Creating the NRN by 2042:

- Restore 75% of protected sites on land (including freshwater) to favourable conditions so nature can thrive.
- Create or restore 500,000 hectares of additional wildlife-rich habitat outside of protected sites.
- Recover threatened and iconic animal and plant species by providing more, diverse and better connected habitats.
- Support work to increase woodland cover.
- Achieve a range of environmental, economic and social benefits, such as carbon capture, flood management, clean water, pollination, and recreation, as well as provide greater public enjoyment of the countryside.

### Delivery:

- Establish partnerships with organisations and across sectors to work together and share skills, knowledge and resources e.g. government, land owners and managers, businesses, local communities and conservation groups.

### Ongoing Campaigns:

- Launched in 2019, the 'Wilder Future Campaign' by the Wildlife Trust Cumbria campaigns for Nature Recovery Network maps to be required by law.

# LANDSCAPE LAYERS

## 2.1 WOODLANDS

Of all land in the UK 13% is woodland, compared with 37% in the EU. In 2018 more stringent protection of ancient woodlands as irreplaceable habitats was set out by the Government in the National Planning Policy Framework (NPPF).

**The Bailrigg Garden Village proposes to:**

- Create a connected network of new and existing woodlands for a richer and more disease and climate change resilient forest future
- Encourage natural regeneration for woodland creation (natural seed dispersal) which favours selection of locally native trees
- Assist natural regeneration through ground preparation, direct seeding and grazing control
- Introduce ‘browsing’ animals who eat woody vegetation
- Protect, expand and connect ancient woodlands to increase carbon storage and enable a diverse range of wildlife to establish

**Viability / Economic Potential:**

- Skilled and expert foresters and forest workers needed to maintain and manage the expanding woodlands
- Tree planting can affect the value of land and change the holding’s status for agricultural use
- Tenants and landlords to be flexible enough to enable diversification such as agroforestry and forestry
- Timber production (local biomass) / coppice

**Community Benefits:**

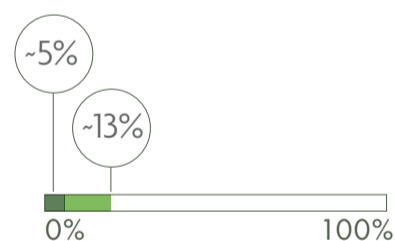
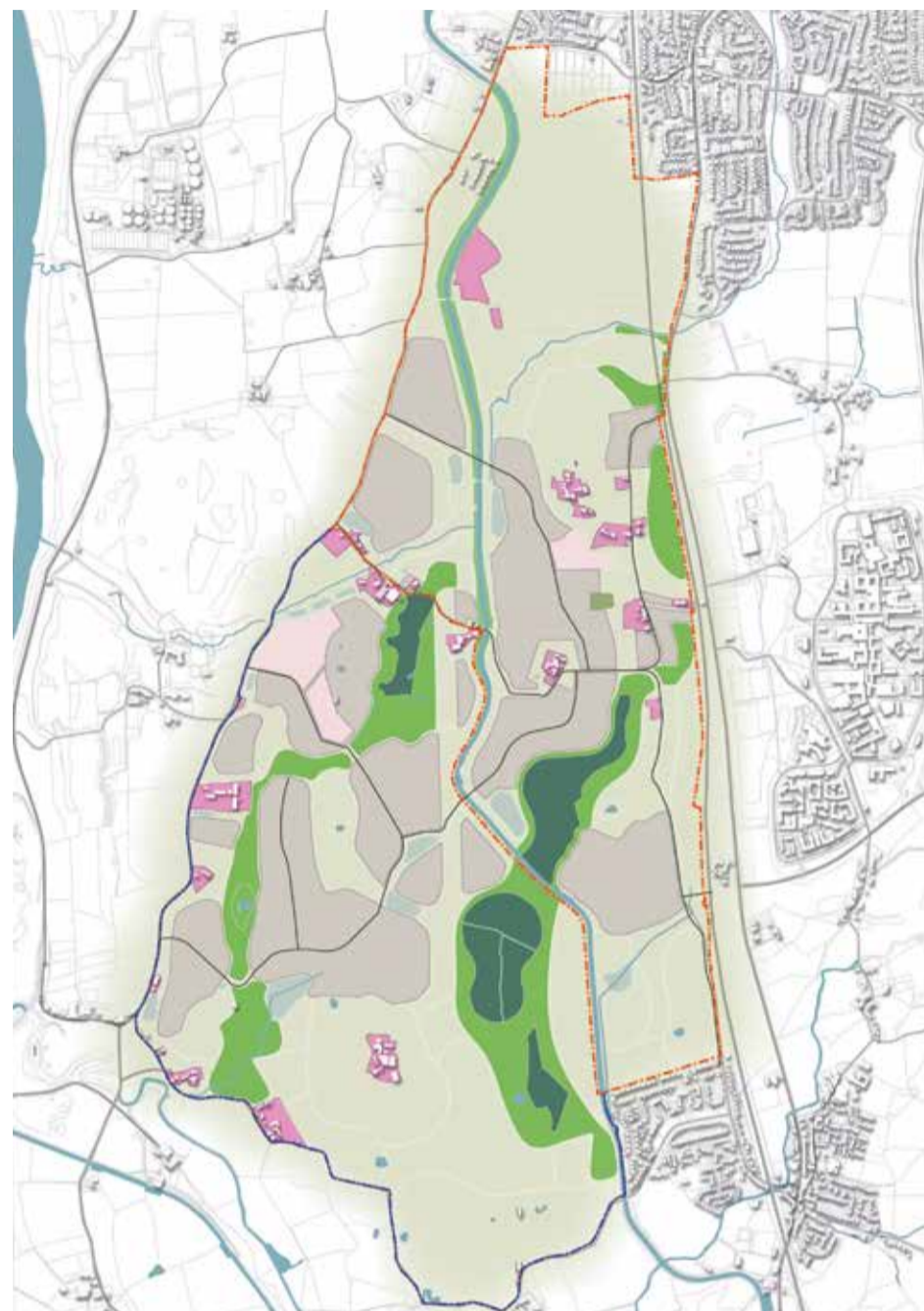
- Amenity for public leisure activities throughout the year
- Educational stations (facts and statistics about what the forest does/ captures/ produces)

**Health and Wellbeing Benefits:**

- Exercise
- Observing nature (academics at the University of Derby found that improving a person’s connection with nature leads to significant increases in their wellbeing)
- Forest bathing (reduces blood pressure, lowers cortisol levels and improves concentration and memory)

**Policy / Advice / Standards:**

- Committee on Climate Change (CCC) advice to increase and maintain planting rates (to between 30,000 and 50,000 hectares per year to and beyond 2050) to reach net zero emissions
- Woodland creation plans must comply with the UK Forestry Standard (UKFS)



**KEY**

- Existing ancient woodland
- Proposed woodland
- Proposed development areas
- Existing farms



# LANDSCAPE LAYERS

## 2.2 MARSHY WETLANDS

Historically, 'clay ponds' are found on some Drumlin tops. These are likely to be natural water storage ponds for livestock.

**The Bailrigg Garden Village proposes to:**

- Revert low and high drumlin land into 'marshy' landscapes with reeds, sedges and long grass creating a rich habitat
- Create open wetlands, which work well in tandem with the restoration of wilder grazing approaches
- Ensure grazing methods encourage emerging habitats, such as floodplain woodlands, reeds and fen meadows, by introducing naturalistic grazers and grazing regimes
- Create habitats by allowing fallen deadwood to remain
- Reduce damage caused by floods by slowing and storing flood water in the marshy landscapes

**Community Benefits:**

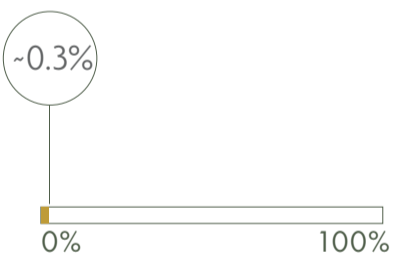
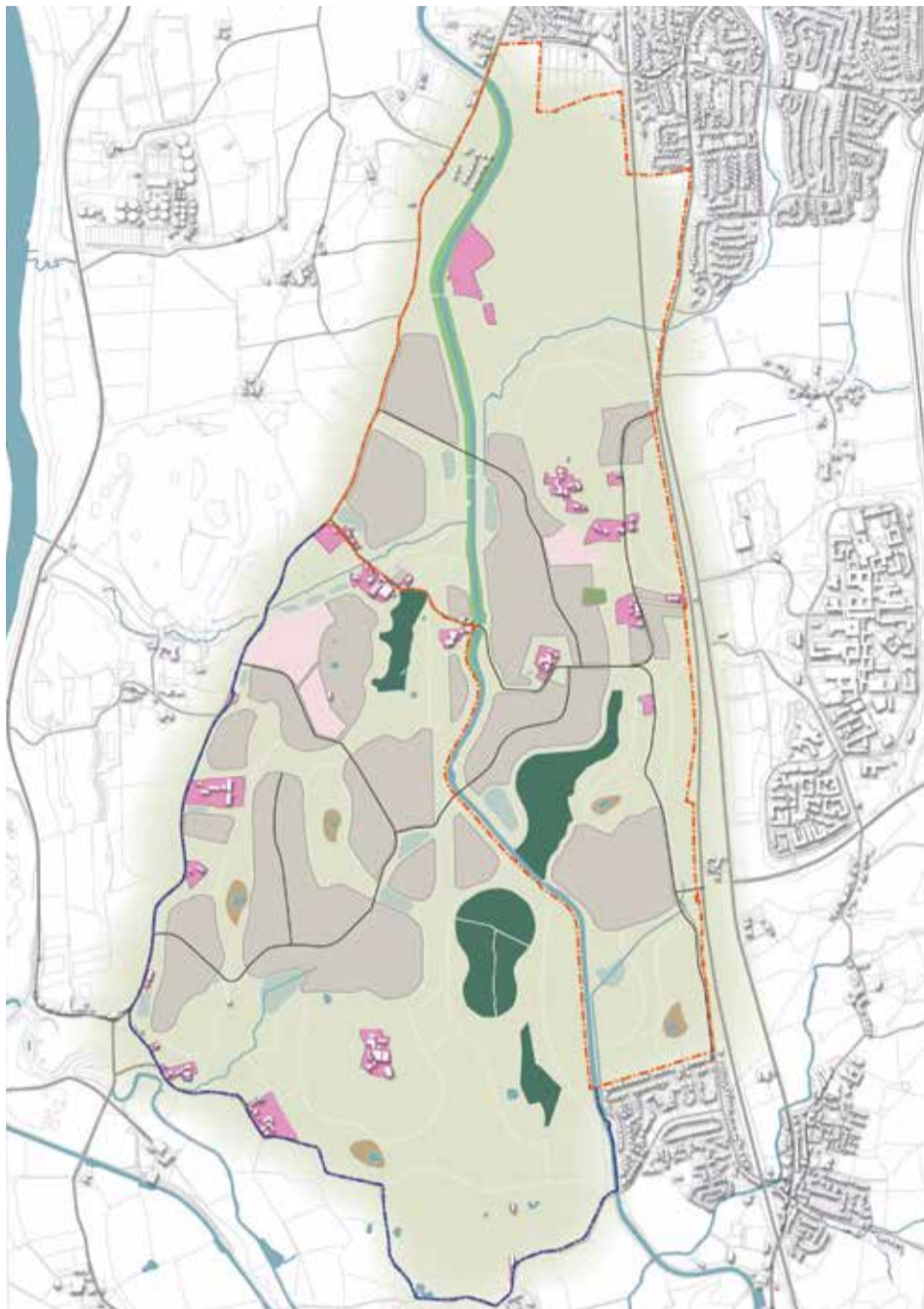
- Amenity for public
- Education resource

**Health and Wellbeing Benefits:**

- Beneficial to people and land

**Policy / Advice / Standards:**

- Wildlife Trust - maintain and manage e.g. peatland restoration in Cumbria
- ELMS Environmental Land Management scheme; standards and payment scheme



**KEY**

- Existing ancient woodland
- Marshy wetlands
- Proposed attenuation basins
- Proposed development areas
- Existing farms

# LANDSCAPE LAYERS

## 2.3 GRAZING LAND

At present, large portions of the land provide crop (grass/ pasture) for animals, to be converted into meat, dairy, eggs or wool. This approach results in monoculture.

**The Bailrigg Garden Village proposes to:**

- Reduce the high populations of grazing animals to help trees and other vegetation grow
- Introduce herbivores with different grazing habits (e.g. grazing together on the same patch of land without competing for food); this affects what does and doesn't grow on the land
- Consider introducing some 'Grazers' such as Longhorn cattle
- Protect livestock with natural boundaries

**Viability / Economic Potential:**

- In organic dairy systems a 100 dairy cows produce between 8600 to 10,000 litres of milk/ha annually
- Employment: 7 people
- This land is also suitable for beef cow and sheep grazing
- Creative approach to land rental to ensure a successful future farming industry e.g. tenant farmers must be afforded the flexibility to diversify and expand, and land rental must provide a way into farming for new farmers/ entrepreneurs

**Community Benefits:**

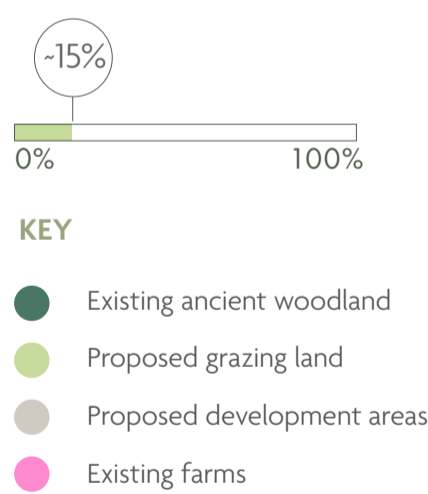
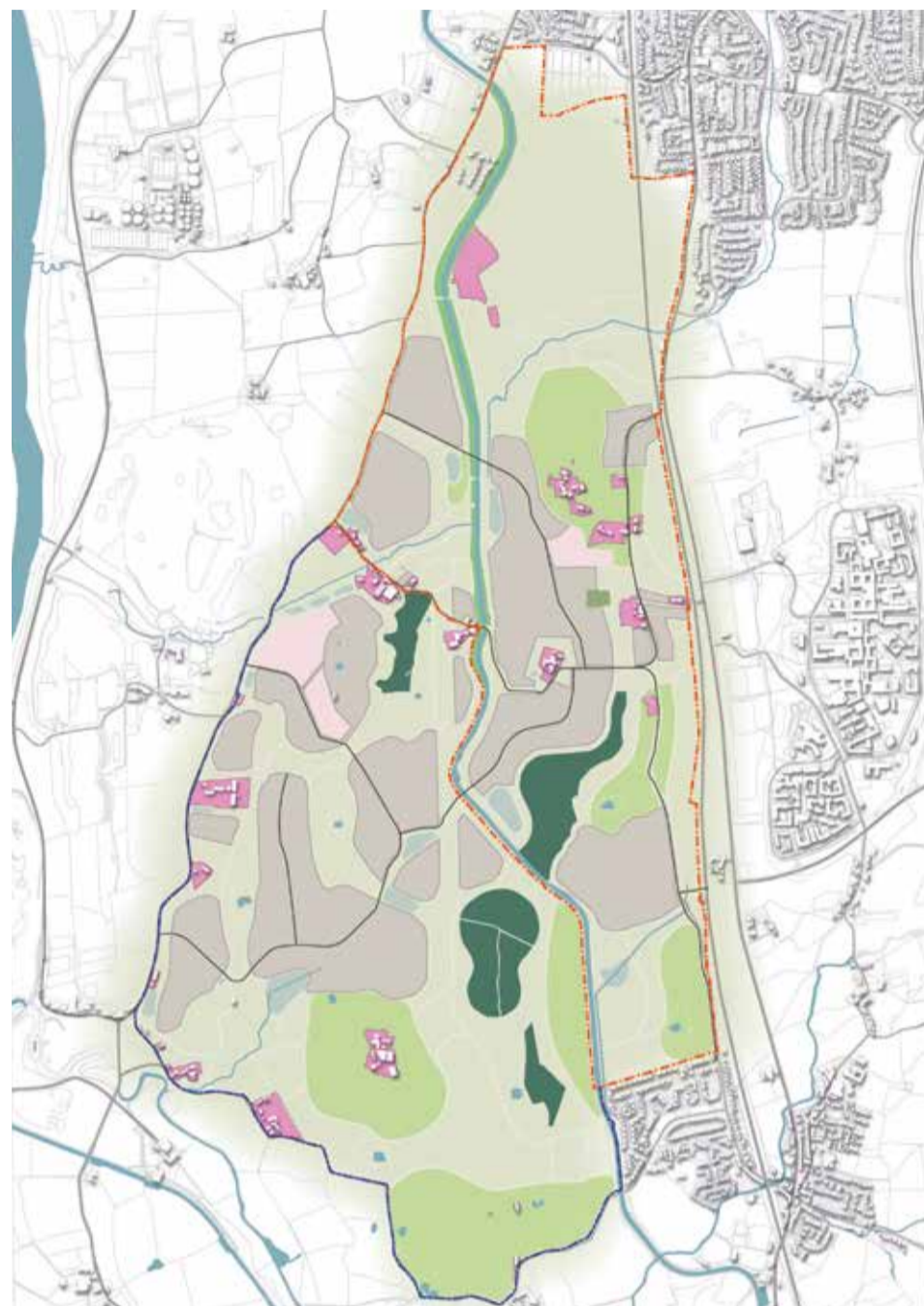
- Closer relationship with animals; fostering awareness, understanding and respect

**Health and Wellbeing Benefits:**

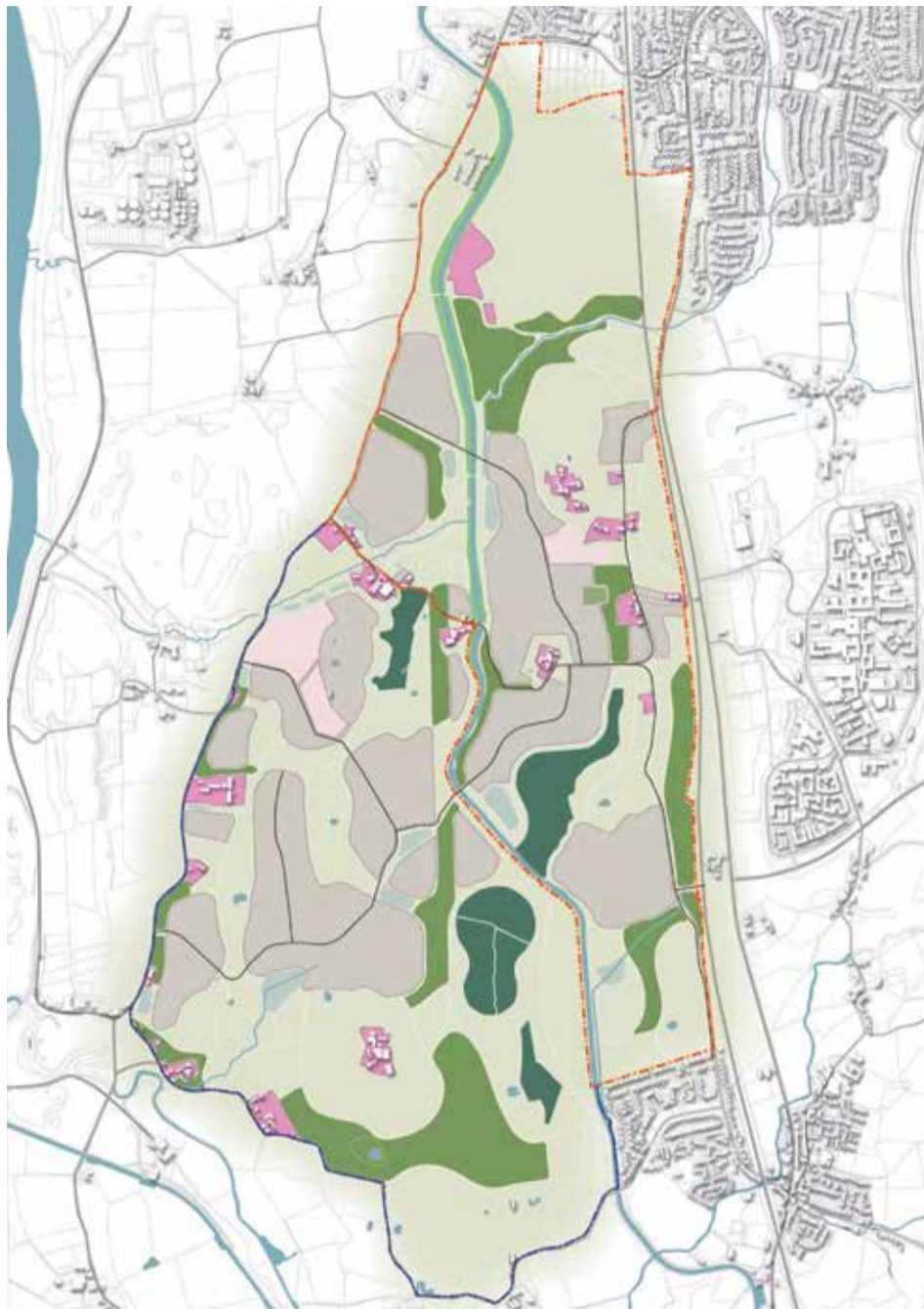
- High-quality produce from animals kept outside on soils that are farmed to organic standards e.g. no antibiotics that have negative effects on animals, the environment and health
- Outdoor grazing which is predominantly grass or hay produces meat higher in Omega-3 and lower in saturated fats

**Policy / Advice / Standards:**

- DEFRA 2006 Animal Welfare Act and subsequent codes of good practice
- Rare Breeds Survival Trust; charity promoting the use and preservation of rare breeds in agri conservation environments
- Nature Friendly Farming Network; network of farmers using ecologically focussed approaches
- Lancashire Wildlife Trust; promoting and supporting wildlife conservation in the North-west
- Organic standards to provide a blueprint for standard setting
- Higher level stewardship
- ELMS Environmental Land Management scheme; standards and payment scheme
- Quality assurance schemes; Red Tractor, organic standards



# LANDSCAPE LAYERS



## KEY

- Existing ancient woodland
- Proposed agroforestry
- Proposed development areas
- Existing farms

## 2.4 AGROFORESTRY

In agroforestry, trees share the same piece of land as crops (Silvoarable) and/or animals (Silvopasture) to create a more productive, diverse and healthy environment.

This approach has many benefits such as increasing soil health, managing water flows, increasing biodiversity and habitats whilst providing products derived from trees, crops and animals.

At present only 3% of UK farmland practices Agroforestry.

### The Bailrigg Garden Village proposes to:

- Plant rows of trees/ crop, ideally orientated north-south facing
- Protect all livestock with fences, which could be vegetated boundaries

### Viability / Economic Potential:

- Permanent labour to work with the land and animals
- Seasonal labour for harvesting
- Produce production such as crops, timber, nuts, animals (and by products such as eggs), and fruit (and by products such as juice, vinegar and cider)

### Community Benefits:

- Community and school involvement during seasonal events, such as harvesting, cider production and pruning days, to share skills and knowledge
- Community orchards in rural and urban areas to bring people and nature together

### Health and Wellbeing Benefits:

- Direct access to fresh, locally grown food

### Policy / Advice / Standards:

- Funds available under the Basic Payment Scheme (BPS): rules for 2021
- Advice and support will be available to farmers to develop new, sustainable and innovative approaches to production e.g. "Local Nature Recovery Strategies" proposals for creating and improving habitats and agree priorities for nature's recovery founded on nature based solutions.
- People's Trust for Endangered Species (PTES); managing and restoring orchards and woodlands
- Woodland Trust; charity promoting the use of trees in the landscape
- Soil Association
- Natural England
- Defra's Sustainable Farming Incentive (Annex 1)
- Organic standards to provide a blueprint for standard setting
- Higher level stewardship
- ELMS Environmental Land Management scheme

# LANDSCAPE LAYERS

## 3.1 HORTICULTURAL ENTERPRISE

The large amount of land on the site is to be developed into a network of horticultural enterprises, comprising a mix of small-scale and field-scale production.

**The Bailrigg Garden Village proposes to:**

- Create enterprises varying in size between max. 2.5 - 3Ha
- Provide a mix of protective structures (polytunnels) / intensive bed systems and open field production
- Locate small-scale horticultural enterprises on the best land (sunny aspect and level topography), balanced with development needs for the same land
- Locate horticultural enterprises close to the settlements for ease of access/ transport for farmers and residents
- Integrate seasonal gardens/ allotments into proposed settlements or in close proximity
- Create opportunities for farming and food production enterprises, which are flexible enough to accommodate changes in climate, lifestyles and demand

**Viability / Economic Potential:**

- 2 hectares of intensive horticulture will produce enough food for 100 individuals/ households and employ 3 people
- Horticultural enterprise could produce mixed seasonal vegetables for 1500 households and employ 20 people

**Community Benefits:**

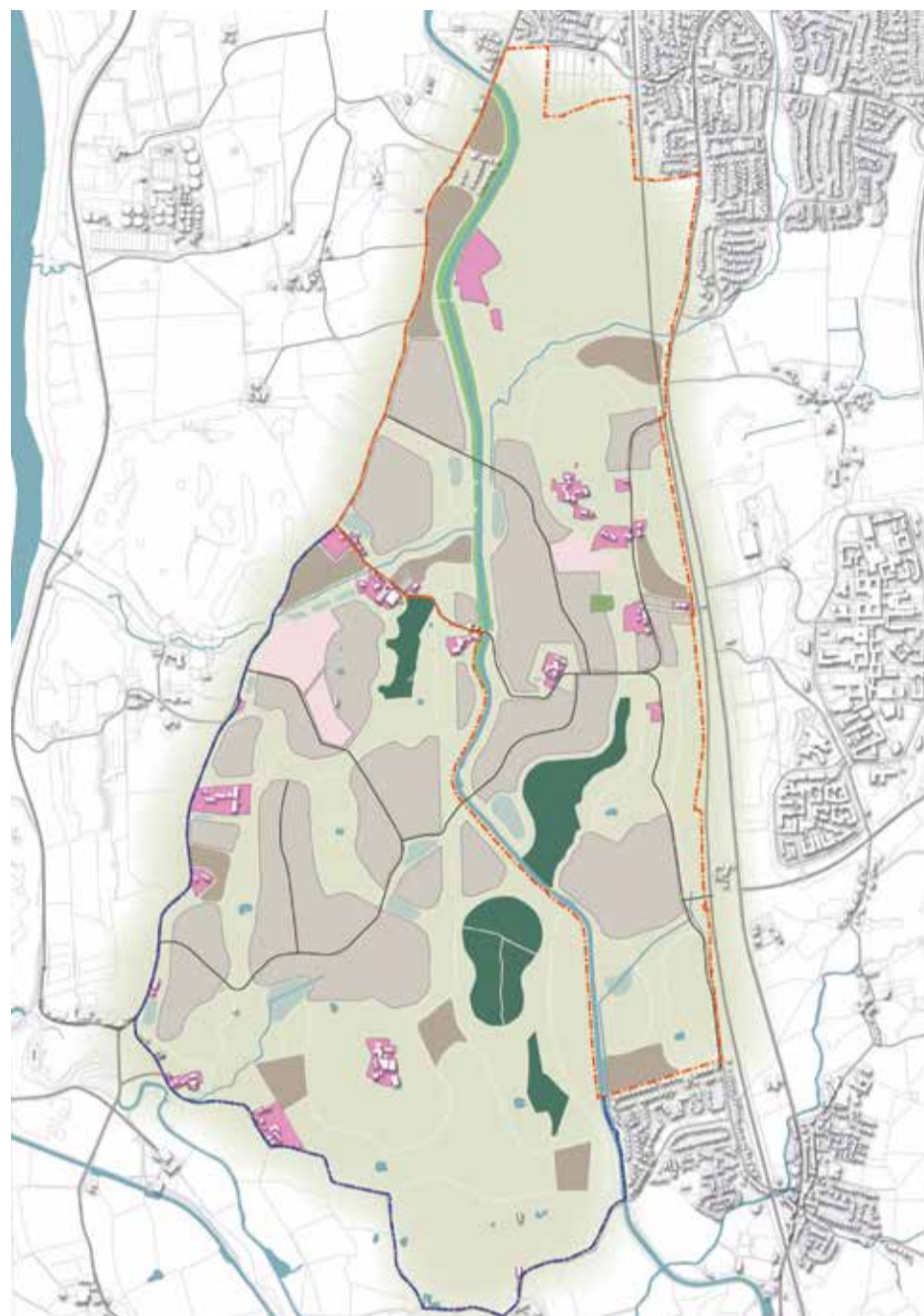
- Employment, knowledge and skills sharing
- Cutting out the 'Middleman' to ensure people have direct access to food

**Health and Wellbeing Benefits:**

- Fresh, healthy produce for residents

**Policy / Advice / Standards:**

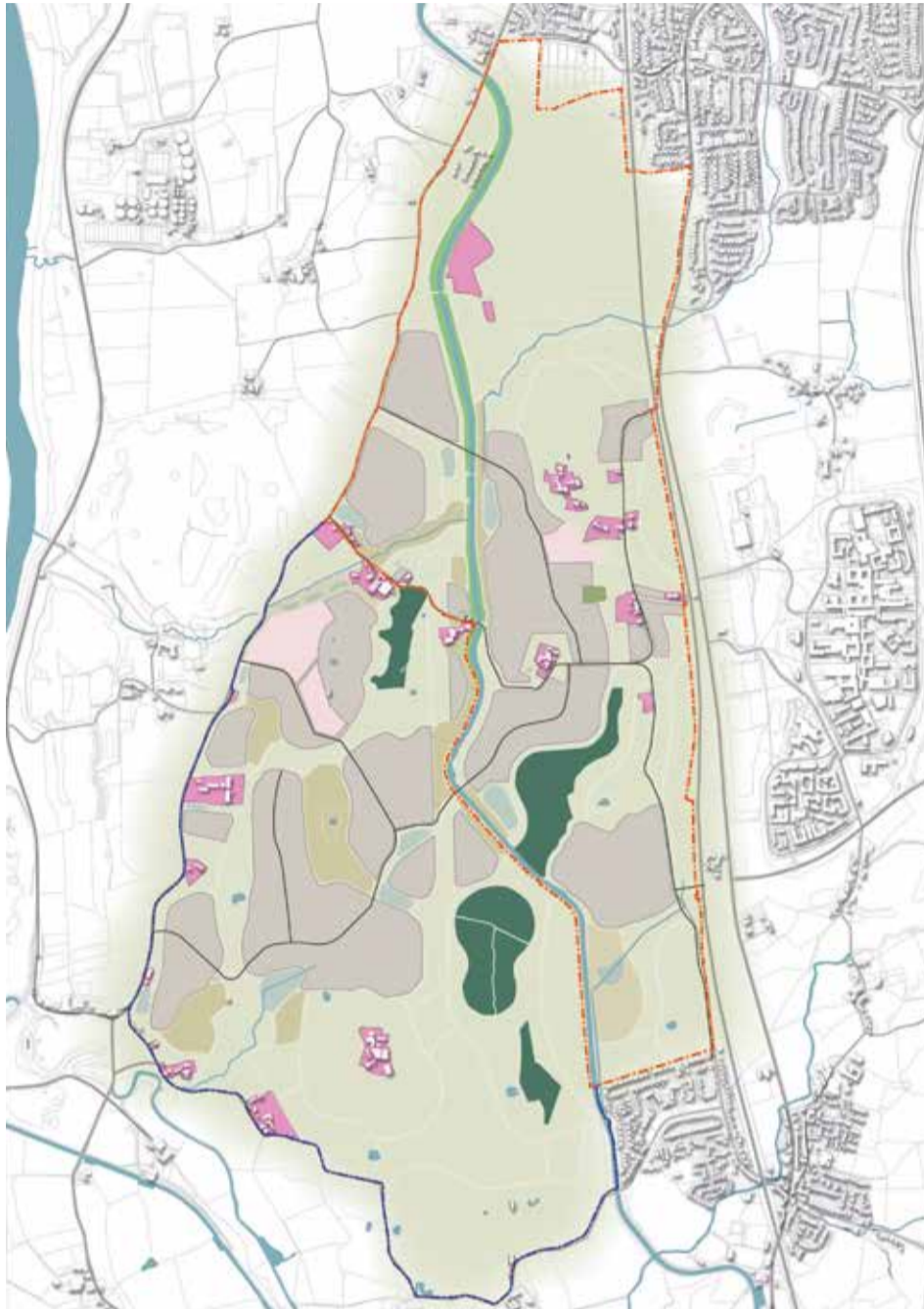
- The Kindling Trust; farm and food growing with community activities and knowledge sharing at its heart
- Soil Association; charity promoting organic farming and horticulture
- Agriculture and Horticulture Development Board (AHDB)
- Community supported agriculture network; membership organisation representing and supporting community-led agriculture and horticulture
- LESS Lancaster; projects including Food Futures North Lancashire, Sustainable Food City Lancaster, FarmStart, FoodFriends
- Advice and support will be available to farmers to develop new, sustainable and innovative approaches to production
- Organic standards to provide a blueprint for standard setting
- Countryside Stewardship; standards and payment scheme
- ELMS Environmental Land Management scheme; standards and payment scheme



**KEY**

- Existing ancient woodland
- Productive landscape (including community growing areas)
- Proposed development areas
- Existing farms

# LANDSCAPE LAYERS



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## PROPOSED

- Existing ancient woodland
- Open space
- Proposed development areas
- Existing farms

## 3.2 OPEN GREEN SPACE

Creating high-quality open green space will enhance Bailrigg Garden Village and bring people together.

According to the 2010 Open Space Assessment, the levels of accessible recreational space in Lancaster was below minimum standard.

### The Bailrigg Garden Village proposes to:

- Allow sizes of open space to vary between max. 1 - 7.5Ha
- Consider a range of open green space e.g. parks and gardens, natural and semi-natural green space, equipped and natural play areas, informal and amenity green space, outdoor sports facilities, allotments
- Take a flexible approach to allow open space provision to serve both Bailrigg residents and existing communities
- Ensure all public open space is well-connected and easy to reach via walking or cycling
- Ensure that any development proposals in the vicinity of designated open spaces will require design measures that enhance amenity, play, and ecological value

### Viability / Economic Potential:

- The creation of open green space would fall under the responsibility of developers as per the Section 106 Agreement
- Quality open green space would increase desirability, adding value to real estate

### Community Benefits:

- Green amenity is essential for a positive sense of place

### Health and Wellbeing Benefits:

- Open space is a vital part of play provision and overall resident wellbeing

### Policy / Advice:

- Lancaster Council Open Space Assessment (2010)
- Local Plan for Lancaster District (2011-2031)
- PPG17 - Open Space Assessment
- Policy DM25 - Green Infrastructure
- Policy DM26 - Open Space, Sports and Recreational Facilities

# LANDSCAPE LAYERS

## LANDSCAPE LAYERS SUMMARY

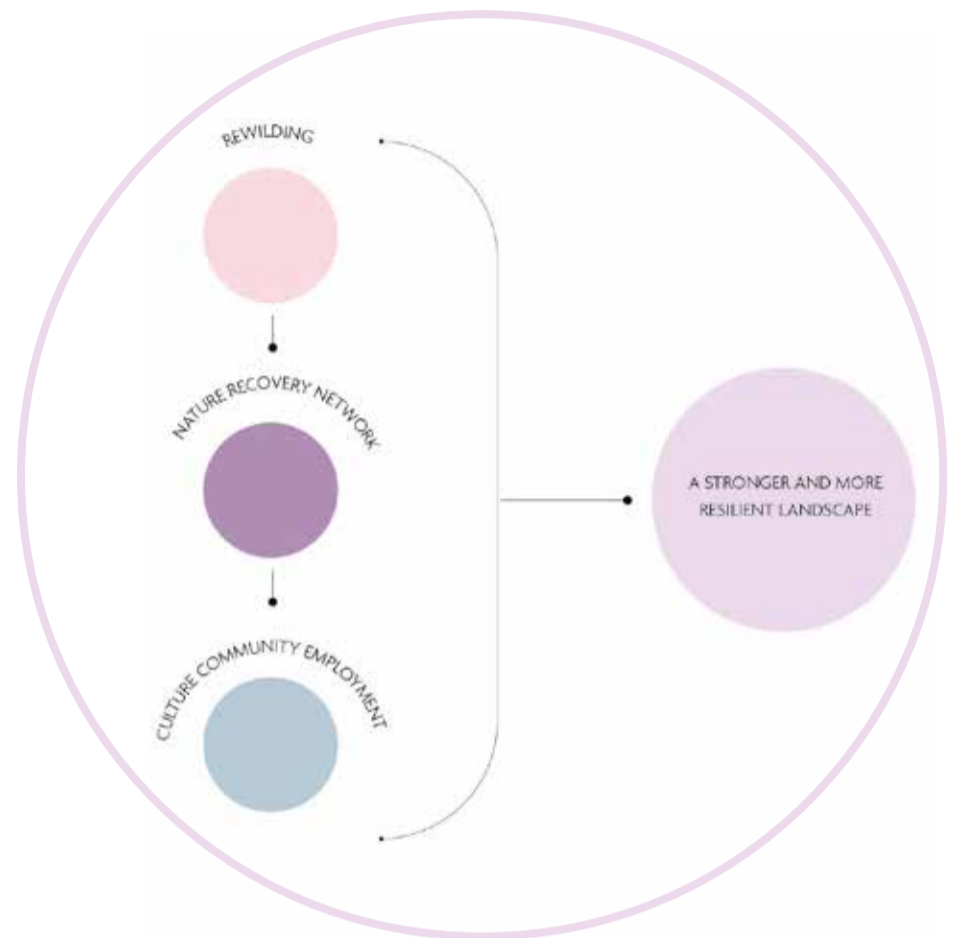
The Bailrigg Garden Village masterplan is rooted in a landscape-led approach which considers and accommodates all of the site's natural assets. A layered landscape strategy builds on these assets as a basis for long-term regeneration.

Each landscape layer is inextricably linked with the other, forming an integrated network in which people and nature thrive together.

Rewilding, Nature Recovery Networks, culture, community and employment, will together create a more resilient, distinct and dynamic place.

The Garden Village will offer a new definition of development which allows people to:

- Live and learn from the land
- Be part of a strong and cherished community
- Set up local enterprises
- Be responsible for working and sustaining the land
- Enjoy the richness of the many landscapes and habitats of the transformed land



# LANDSCAPE LAYERS



- KEY**
- Existing ancient woodland
  - Proposed woodland including areas for rewilding
  - Grazing land
  - Open green space
  - Agroforestry incl. orchards
  - Productive landscape including community growing areas
  - Marshy wetlands
  - Proposed development area
  - Existing farms

# ILLUSTRATIVE JOURNEYS

## BRINGING THE PLACE TO LIFE

### A Walk Through the 'Village'

This section explores what the Garden Village might look and feel like, what people can do and explore, and how they might be involved in day-to-day community activities.

It illustrates the richness of the developed Bailrigg Garden Village; a lively, versatile place to live and work. A place where people can reconnect with nature and have access to fresh food and clean air.

Over the next pages illustrations describe what it might be like to live and work at Bailrigg Garden Village.

Illustrative journeys include three walks through the Village (see below for indicative locations):

1. Community growing and skills sharing
2. Growing gardens and market days
3. Leisure activities and access to nature



### KEY

- Existing ancient woodland
- Proposed woodland
- Grazing land
- Open green space
- Agroforestry incl. orchards
- Productive landscape
- Marshy wetlands
- Proposed settlements
- Existing farms / settlements
- Canal and water



# ILLUSTRATIVE JOURNEYS

## 1. COMMUNITY GROWING & SKILLS SHARING



"From my window I can see the community orchard. I normally go for a walk along the canal and have a quick peep into the 'Grow Green' horticultural enterprise to learn about nature and food growing, and perhaps buy a tea. I am planning to volunteer in the autumn to help with some of the harvest and started thinking about joining the allotment group just down the street from where I live."

**KEY**

-  Agroforestry (silvoarable)
-  Community Orchard
-  Canal
-  Open access / amenity
-  Productive landscape
-  Hedgerows

# ILLUSTRATIVE JOURNEYS

## 2. GROWING GARDENS & MARKET DAYS



### KEY

- Existing ancient woodland
- Area dedicated to rewilding (self seeded)
- Growing areas for the community
- Hedgerows

"Just walking back from my allotment patch; big day today as I am selling my produce at the local Yard. There are other people from the allotment there and also from the 'Grow Green' horticultural enterprise. I am very excited to get to know them and see if we can swap some ideas and knowledge. This is a first for me growing and selling food but it really got me to spend more time outside and with other people."

# ILLUSTRATIVE JOURNEYS

## 3. LEISURE ACTIVITIES & ACCESS TO NATURE



"My house fronts straight onto the new footway. I can easily cycle to Lancaster now and see the changes in the countryside and what is happening. The agroforestry areas are something I never understood before but seeing trees and food growing in the same patch is amazing. Also I love the little woodland by the Beck, it's a wonderful spot for picnics in the late summer evenings."

### KEY

-  Agroforestry (silvoarable)
-  Proposed woodland
-  Attenuation basin
-  Open access/ amenity
-  Hedgerows

# ILLUSTRATIVE JOURNEYS

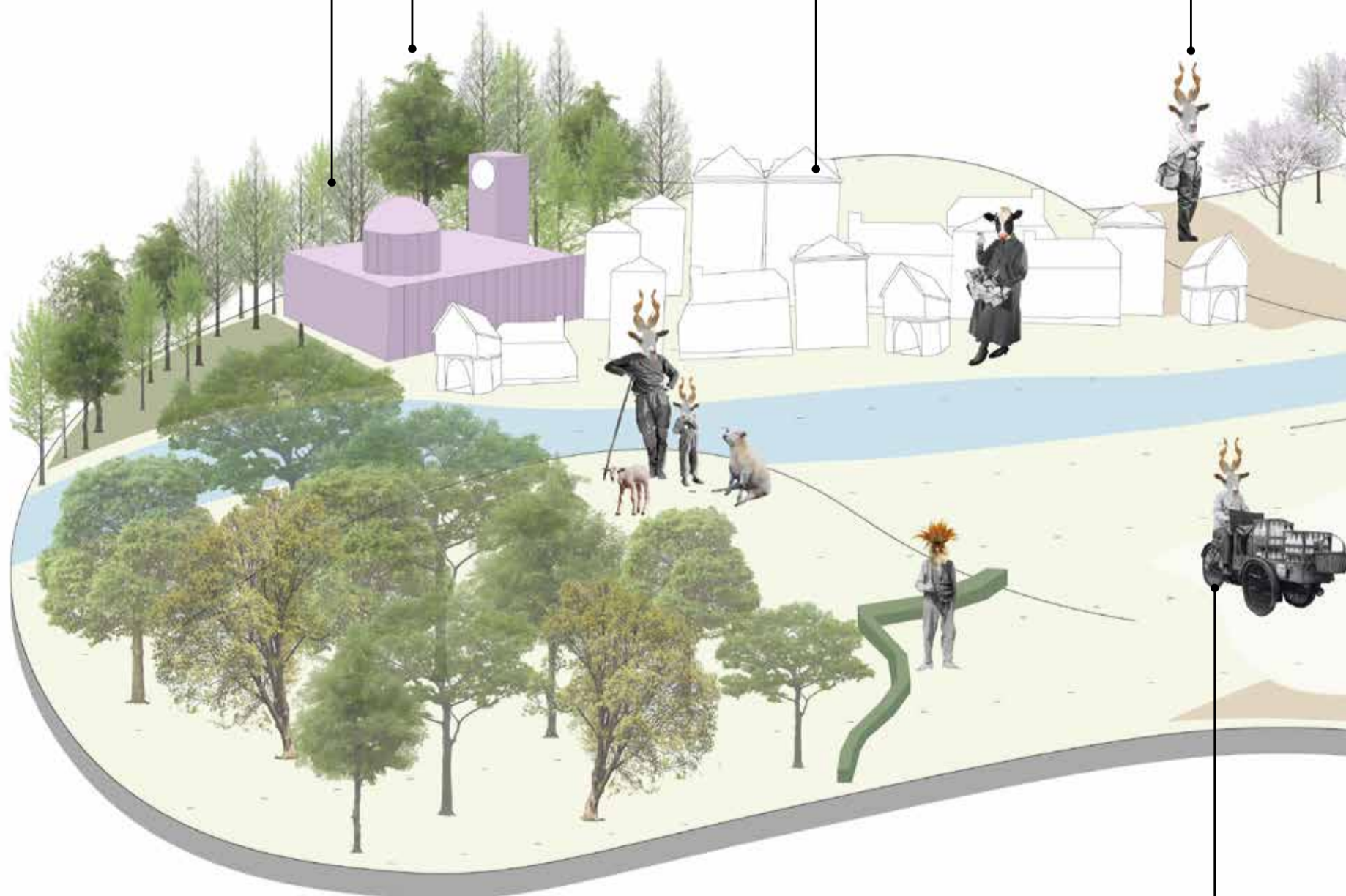
## A HEALTHY & HAPPY PLACE

Me and my family work the land using organic methods to feed the community. We have rare breed cattle who graze on the land in rotation with the other farmers' livestock in the village.

Children walk to the local school and play on the sports pitches

I live in a flat in the village with my dog (who I always keep on a lead while walking through farmland). I've never done farming before but living here and seeing food being grown and ending up on my plate has made me better understand and really respect those who do.

On the weekends I work in the community garden alongside my neighbours. This week we're harvesting our tomatoes - seeing our hard work pay off is so rewarding and helps keep food costs low!



Every Sunday I take the milk from my cows down to the community market to sell to locals and visitors. I get a fair price for it because I don't have to sell to the big supermarkets, and it's great to get to know all the regulars.

# ILLUSTRATIVE JOURNEYS

Community orchards and agroforestry add to the new expanse of woodland within the garden village.

I can see my friends paddling along the canal in a canoe.

My sister grows fields of flowers just outside the village. Every day I pick up bunches of flowers to arrange into bouquets and sell at the community workshop. I share a studio with a baker so the workshop always smells amazing!



I love shopping at the market because I know everything is locally grown and organic. I can also see all the hard work that had gone into the food so don't mind paying a little extra for more special products - like buffalo mozzarella! There is also talk about some truffle pigs...

Lunchboxes delivery by E-bike from the local farmers to schools within the Village.

Students and researchers study the environmental and social aspects of the landscape to try to keep improving the village's sustainability.

# CULTURAL BENEFITS

## RESTORING OUR UNDERSTANDING OF NATURE & EACH OTHER

### A Healthy and Positive Environment

This section explores how communities, nature and cultures are interlinked, despite our fast-changing way of life.

70% of the world's population live in urban places and numbers are rising. People's connection to the built environment is much stronger these days than that to the natural world.

The proposed integrated landscape approach aims to strengthen people's connection with nature, affording happier lives and stronger communities.

The masterplan needs to be responsive to the relationships and needs of people, communities and places and involve residents from existing and emerging communities right from the start, to ensure strong, long-lasting relationships are formed.

### The Bailrigg Garden Village proposes to:

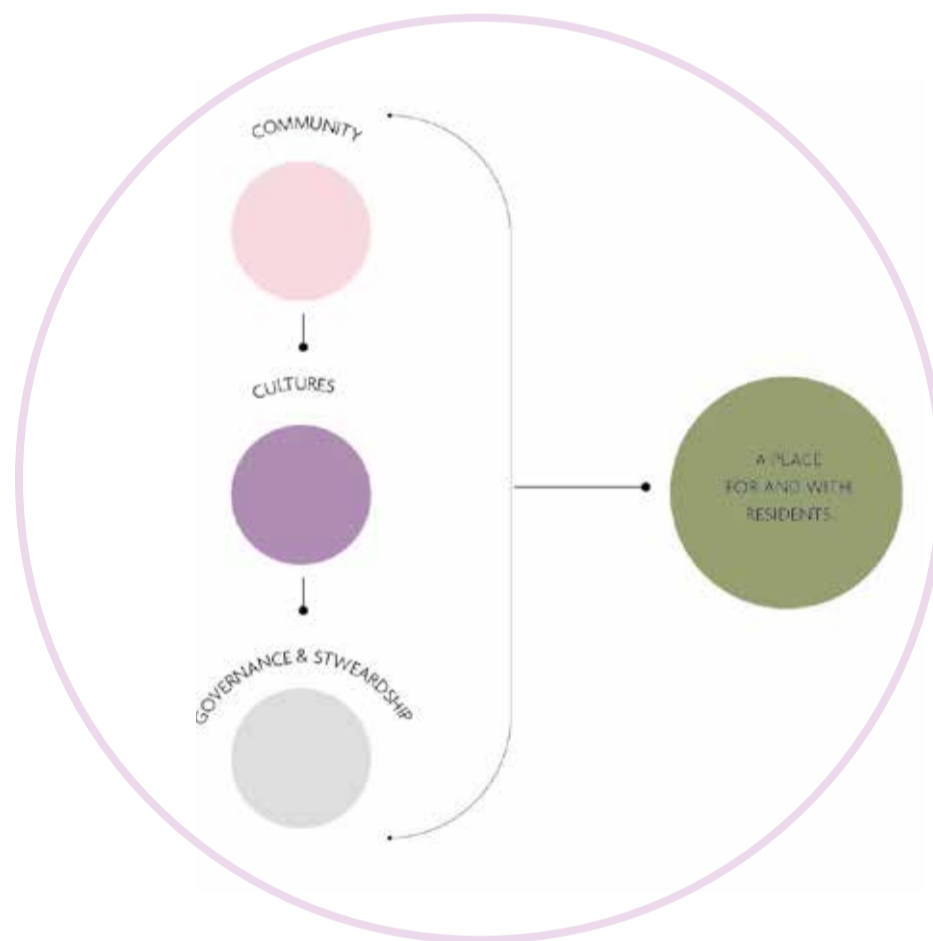
- Gain early seed funding and Council support to establish the involvement of residents and existing communities, promoting their active involvement in decision making and the shaping of the masterplan; this will foster a sense of ownership and identity
- Create settlements that are resilient to changes in climate and lifestyle
- Involve existing communities as the first residents of the new Garden Village, building on their existing cultures, communities and connections
- Understand the cultural background and concerns of the present landscape farmers/ guardians to inform planning policies concerned with protecting the natural environment

## CULTURAL BENEFITS: SUMMARY

People define a place's identity, communities and ways of life. This attracts like-minded people, and the place grows culturally.

Local people 'in the know' can drive change, voice concerns and take ownership of the place. The masterplan seeks to fully involve local people in the management and governance of where they live, work and learn.

It is them who will remain involved in the long term management long after the development is finished.



## LANDSCAPE THEMES

### NATURE & PEOPLE WORKING TOGETHER

#### Themes to define, shape and embed the Vision

This section establishes the baseline surveys, themes and targets which form the basis for the success of the emerging vision masterplan.

This is essential in understanding the site's current baseline and to inform the landscape themes and targets.

It also touches on the established relationship between Lancaster University, LCC and the design teams.

The eight landscape themes describe the different needs to be addressed through the masterplan; from soil to food, employment and communities. The themes set out the existing conditions and future aspirations/ guidance..

The eight themes are:

- Sustainable soils in urban development
- Net Environmental Gain (NeG)/ Hydrology and water science
- Monitoring, managing and conserving biodiversity
- Food
- Community / culture
- Employment
- Management and maintenance
- Nurturing relations

**51m tonnes of soil are excavated annually, of which 26m tonnes are sent to landfill.**

**As a comparison, approx. 2.6m tonnes of soil are eroded annually in the UK (2016).**

Source from Lancaster University soil workshop

### 1. SUSTAINABLE SOILS IN URBAN DEVELOPMENT

Soils provide a wide range of other functions and ecosystem services other than food production, such as storing carbon and water, supporting above and below ground biodiversity, and filtering contaminants from water.

#### The Bailrigg Garden Village proposes to:

- Prepare an initial assessment of soils, which considers multiple functions apart from agricultural land classification
- Plan for no net loss of soil function as a result of the development
- Minimise soil degradation and disturbance; soil is a very good carbon storage sink
- Create and map soil protection zones so that no soil in future green space (including gardens) will be trafficked by construction machinery, contaminated by construction, or stripped and stored; these activities cause irreversible soil damage
- Introduce a Soil Protection Order (similar to a Tree Protection Order) to protect soils and ensure the right people assess proposed changes that will affect the soil
- Create a set of 'do no harm' principles which stop soil from being classified as waste and sent to landfill
- Set up a 'material management plan' from the outset, to ensure soil is kept on site, is re-used where possible, and isn't classified as waste during earthworks
- Define what the contractor must do to protect soil during construction; this should ideally form part of future planning guidance
- Adhere to current good practice and standards promoted by the British Society of Soil Science (this standard would represent a baseline)
- Maintain vegetation (or geotextile cover where vegetation is not possible) to prevent soil exposure, subsequent erosion, degradation and potential surface water pollution
- Manage soil storage so that soil stores maintain a coherent soil structure and horizonation; stacking soil in large piles creates an anaerobic environment and damages soil structure, impacting negatively on soil biodiversity
- Minimise the total sealed area and maximise use of permeable surfaces, allowing soils to respire and infiltrate water
- Increase the organic matter in the soil to aid carbon storage
- Create the mechanisms and infrastructure to enable good re-use of farm and resident waste as fertiliser/ soil improver
- Work with and utilise the expertise of Lancaster University to measure existing conditions and test principles on future land parcels due for early delivery at Bailrigg; this will positively inform future development strategies

## LANDSCAPE THEMES

### 2. NET ENVIRONMENTAL GAIN (NEG) / HYDROLOGY & WATER SCIENCE

England currently has 5 million properties affected by flooding; only £200 is available per property for remediation.

Site specific factors at Bailrigg Garden Village, such as hedges and walls, may significantly contribute to flooding. The masterplan must acknowledge these existing factors and incorporate solutions and actions to reduce flood risk and set targets.

#### The Bailrigg Garden Village proposes to:

- Collect hydrology data on the existing site, based on and supported by scientific facts
- Develop a conceptual hydrology model to identify areas suitable for development (based on baseline water balance) and determine the level/ type of flood measures to be implemented (areas defined as suitable, sensitive, vulnerable, etc.)
- Monitor and measure hydrology as early as possible; data to be shared with the Environmental Agency (AG) to define site specific water mitigation
- Undertake secondary site-specific models ahead of relevant pre-planning applications
- Utilise baseline findings to influence forthcoming flood/ drainage solutions in the AAP
- Record baseline water balance on the site in order to measure any future changes resulting from development; this would examine all natural and man-made water pathways in the system and assess storage in soils, shallow groundwater (if and where it exists), wetlands, river channels, etc.
- Set targets must act as the baseline for solutions to reduce flood risk
- Set targets for reducing fluvial flows for at risk communities within the Ou Beck catchment – 20% reduction in risk by 2030
- Set targets for increasing terrestrial and aquatic wildlife populations across the Ou Beck catchment – 20% increase in populations by 2030
- Set targets to increase income from products and services for those in the rural economy who deliver flood risk and wildlife targets – 20% increase by 2030
- Incorporate direct monitoring to demonstrate real progress towards targets – 10% of intervention budgets to be utilised on Cumbria effectiveness modelling, monitoring and reporting
- Ensure a baseline for riparian/ ancient woodland and hedgerows is measured and that continued monitoring occurs
- Retain the existing character of the riparian woodland along the canal with lighting implemented sensitively so as not to disturb wildlife
- Enhance hedgerow and woodland with native species where possible, and implement quieter pedestrian traffic areas where existing or potential biodiversity is high; where new tow paths should have a landscape buffer installed

### 3. MONITORING, MANAGING & CONSERVING BIODIVERSITY

Biodiversity can be measured e.g. plant species, bees, fauna, etc. For this measure to be valid it needs to be done successfully in order to quantify what has been measured e.g. no. of birds, bees etc.

As a baseline, the established 10 Principles for Biodiversity Net Gain (Good Practice Principles for Development) are to be followed, adhered to and made mandatory.

#### The Bailrigg Garden Village proposes to:

- Understand the current biodiversity situation locally and regionally in order to inform future targets; findings should be mapped and updated at regular intervals e.g. every 3 years
- Set targets that are realistic locally and regionally and establish how progress towards these targets will be measured
- Offset habitat loss within a relevant location for nature network and biodiversity purposes (identify and safeguard area in advance); this location may not necessarily be nearby
- Impacts on irreplaceable habitats like ancient woodland cannot be mitigated and hence will be avoided
- Enhance biodiversity by creating new habitats and enhance existing ones to improve local and regional connectivity
- Allow spaces dedicated to nature to achieve a range of habitat types with minimal disturbance
- Integrate open water and wetlands to help maximise the mosaic of habitats available in close proximity
- Create new hedgerows, widen existing ones to a minimum of 4m, and include trees to make landscapes more permeable for wildlife whilst defining field boundaries
- Identify hedges that are in poor health and/ or at peril in order to define targets for replacement
- Exceed BNG obligations beyond the mandated “10%” margin
- Promote resilience of populations and ecosystems to climate change by retaining a wide variety of connected resources (i.e. habitat mosaic) and planting appropriate tree species
- Engage stakeholders to jointly agree practical solutions which secure ecological gains in perpetuity
- Make gains measurable: define multiple characteristics representative of ecosystem integrity that can be routinely, reliably and consistently measured, and establish baseline data to demonstrate future biodiversity net gain
- Commit to transparent and verifiable monitoring
- Establish synergies between small scale intensively managed land, productivity and biodiversity net gain
- Create habitats that will adapt to climate change and remain vital environments for wildlife
- Achieve the best outcomes for biodiversity using robust, credible evidence that will contribute to broader landscape conservation priorities; compensation must be the last resort



## LANDSCAPE THEMES

### 4. FOOD

To produce food is to produce meaningful landscapes. At present the food industry has many negative impacts on the environment and our lives.

#### The Bailrigg Garden Village proposes to:

- Renew current food systems by creating a localised relationship between landscape, agriculture and food production
- Provide access to fresh, healthy produce in close proximity to where people live; this will cut out the middleman, create a resilient social system, and engage people with food growing
- Enable and encourage sustainable farming; develop innovative ways of working the land, which also allow for diversification when needed
- Provide opportunities for small enterprises to sustainably farm the land and/ or support food processing and vending; this will support the growth of a sustainable local economy
- Apply principles of localised circular economy e.g. provide the infrastructure for utilising composted household food waste within food growing areas; where possible, incentivise permaculture
- Consider access to good quality growing space (healthy soils, light, access to water infrastructure) for every household; at least a small plot (e.g. 2m<sup>2</sup>)
- Consider planting fruit bearing trees in urban and rural areas; this provides both food and environmental benefits, and increases the pervasiveness of healthy foods in the urban environment
- Consider incorporating food growing facilities in recreational spaces e.g. schools and playgrounds; growing food is an educational, enjoyable, social pastime for many

**“This is a fantastic opportunity for a development that prioritises sustainability and wellbeing above profit. Keeping the wild and green aspects of the area should be a priority.”**

Quote from: Community Consultation event 2021

### 5. COMMUNITY / CULTURE

Good landscapes build strong communities, improving social connection, interaction, quality of life and safety. At the heart of the masterplan is the aim to create meaningful places for people, which are responsive to the needs of communities and nature.

Engaging local communities in decision making during the evolution of the masterplan is a central part of the placemaking and community building process; it increases resident power and influence in shaping the environment.

#### The Bailrigg Garden Village proposes to:

- Establish a baseline of the current social condition, including indicators of health, deprivation, loneliness, quality of life etc, and positively address these through the masterplan; this baseline should be monitored and updated through ongoing research and community engagement
- Create well-designed, equitable housing and landscapes with the aim of directly influencing the quality of life of residents and those living within the surrounding communities
- Engage local communities in decision making during the evolution of the masterplan as a central part of placemaking
- Establish a 'new normal' where nature and people work and live in balance
- Build the community before the development by ensuring that residents from existing local communities understand that can live/work there and have a role in shaping the place
- Include good-quality social and affordable housing to ensure a multi-generational, equitable community
- Provide access to nature for everyone (including within the settlements) to combat our disconnect from nature and prevent/reduce health issues such as anxiety, loneliness and obesity
- Encourage sustainable modes of transport; favouring walking and cycling over vehicular journeys
- Encourage a more understanding relationship between local residents, farmers and land; creating a community built on foundations of stewardship and knowledge sharing
- Encourage people who already have links with farming to set up businesses
- Ensure that self-governance within the Garden Village becomes part of community building e.g. through the development of a community land trust

# LANDSCAPE THEMES

## 6. EMPLOYMENT

The masterplan seeks to create a desirable place to live, learn and work.

Transport links must be addressed to allow people from further afield, such as Lancaster, to commute to Bailrigg. The masterplan must also consider solutions for decentralised ways of working both now and in the future.

**The Bailrigg Garden Village proposes to:**

- Be a thriving place to work, not a base from which to commute
- Create a local and diverse employment offer, making work more convenient and people's lives easier
- Provide employment opportunities through a varied landscape and an active town centre
- Offer diverse economic opportunities that increase productivity, create employment and help communities to prosper
- Provide shared work spaces for hot desking, and design dwellings suitable for use as 'home offices'
- Create hubs where people can come together to work, share knowledge and skills, and sell their products, produce or services

## 7. MAINTENANCE & MANAGEMENT

Maintenance, management and a sense of ownership are key to the success of the Garden Village - it is a place designed for and with residents.

**The Bailrigg Garden Village proposes to:**

- Ensure measures are in place to maintain and sustain the settlement and its landscape in perpetuity
- Establish an organisation or Land Trust, which will take responsibility for working with the community to deliver the masterplan aims
- Create a culture of community engagement, which can mature into a governance structure with direct answerability to local people
- Provide the support of an overarching professional body which has the legal expertise to address day-to-day bureaucratic tasks

“I dream of being able to start a construction company to work on the village. I would like to build quality, well-designed homes at genuinely affordable prices and carbon neutral, so much so that my proposed company would be a not-for-profit.”

Quote from: Community Consultation event 2021

“Design flood alleviation into the development in such a way that it will reduce runoff for the foreseeable future, including making a worst-case allowance for climate change AND ensuring that SUDS schemes are properly maintained.”

Quote from: Community Consultation event 2021

# LANDSCAPE THEMES

## 8. NURTURING RELATIONSHIPS

The site is a unique place, yet it has characteristics in common with many other large-scale greenfield sites. The Bailrigg Garden Village project provides an invaluable opportunity for the design teams and LCC to collaborate from the early stages with Lancaster University, a leading centre for a wide range of environmental studies.

As a strategic stakeholder in the Garden Village, Lancaster University can provide invaluable knowledge and expertise to inform the themes, the setting of targets and the Area Action Plan.

The university have shown a keen interest in providing guidance and active input into the landscape themes as part of the masterplan development process, and numerous meetings have been held to address specific topics. Both this, and earlier work with LCC have established a good working relationship with the university.

This had led to further collaboration with other groups such as 'Rurban Revolution' and 'Green Lancaster'. There also is a strong desire to share knowledge and skills across other Garden Village projects in the UK, especially in relation to soils in construction.

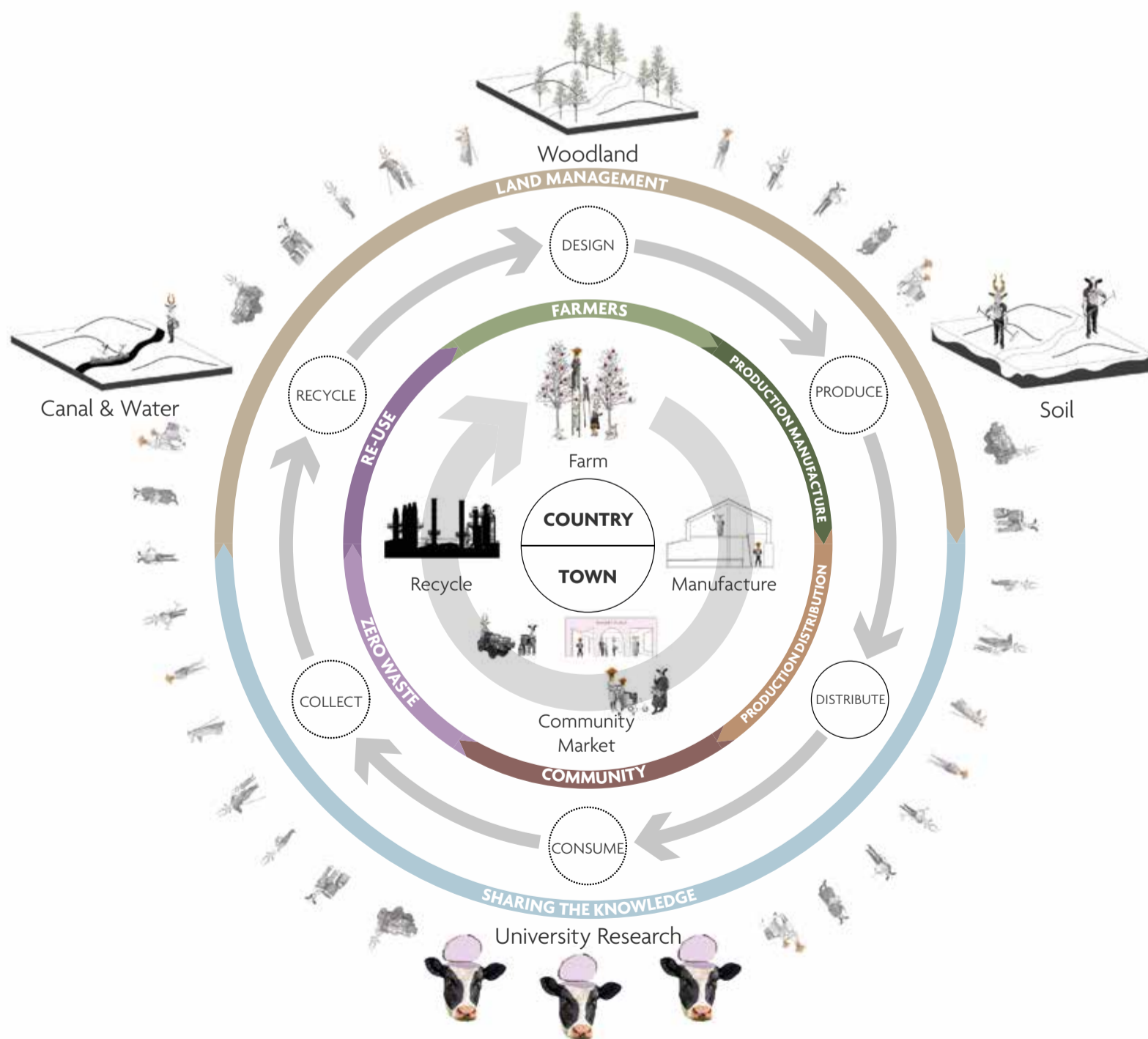
The university is ideally positioned and its role in research and innovation is to be continued throughout all stages of the Garden Village development, in order to ensure the masterplan targets are achieved and/ or exceeded.

The main areas of potential collaboration and research are:

- Soils
- Hydrology
- Biodiversity
- Food growing
- Community building and participation

**The Bailrigg Garden Village proposes to:**

- Utilise the data collected to influence defining future Garden Village planning requirements, policies and management procedures.
- Ensure this environmentally responsible development fulfils its potential to inform best practice and policy for other future greenfield site developments and the creation of new settlements nationally and internationally.
- Ensure that everyone, including contractors and developers during construction, adheres to the emerging themes for the Bailrigg Garden Village project, in order for this to be a thriving and lasting place.



# LANDSCAPE THEMES

### LANDSCAPE THEMES: SUMMARY

In this section eight landscape themes have been identified:

1. Soils
2. Water
3. Biodiversity
4. Food
5. Community & Culture
6. Employment
7. Management & Maintenance
8. Nurturing relationships

They define the landscape thinking and inform the masterplan development process. This will eventually help to determine the development of the particular policies to be set out in the Area Action Plan (AAP).

For the themes to work it is critical that the proposed targets are realistic, achievable, and measurable based on scientific baseline measurements of the existing site. The existing working relationship with Lancaster University is to be nurtured and their expertise applied to in aiding this process.

The goal is to understand the natural, cultural and biodiversity aspects of the site with the intent to preserve and enhance these through a dynamic process which can evolve over time.

The themes have been shaped by input provided by local stakeholders and residents at the public engagement events, the design teams involved, and a newly formed partnership with specialists from Lancaster University.

At the core of this thinking is the transformation of a predominantly mono-cultural landscape into a mosaic of integrated and diverse landscape uses with food growing as a central theme.

It is envisaged that the landscape is established from the outset, before new residents are in occupation. This allows the landscape to mature and provides a platform to bring local people together, promoting the growth of community capacity early on.

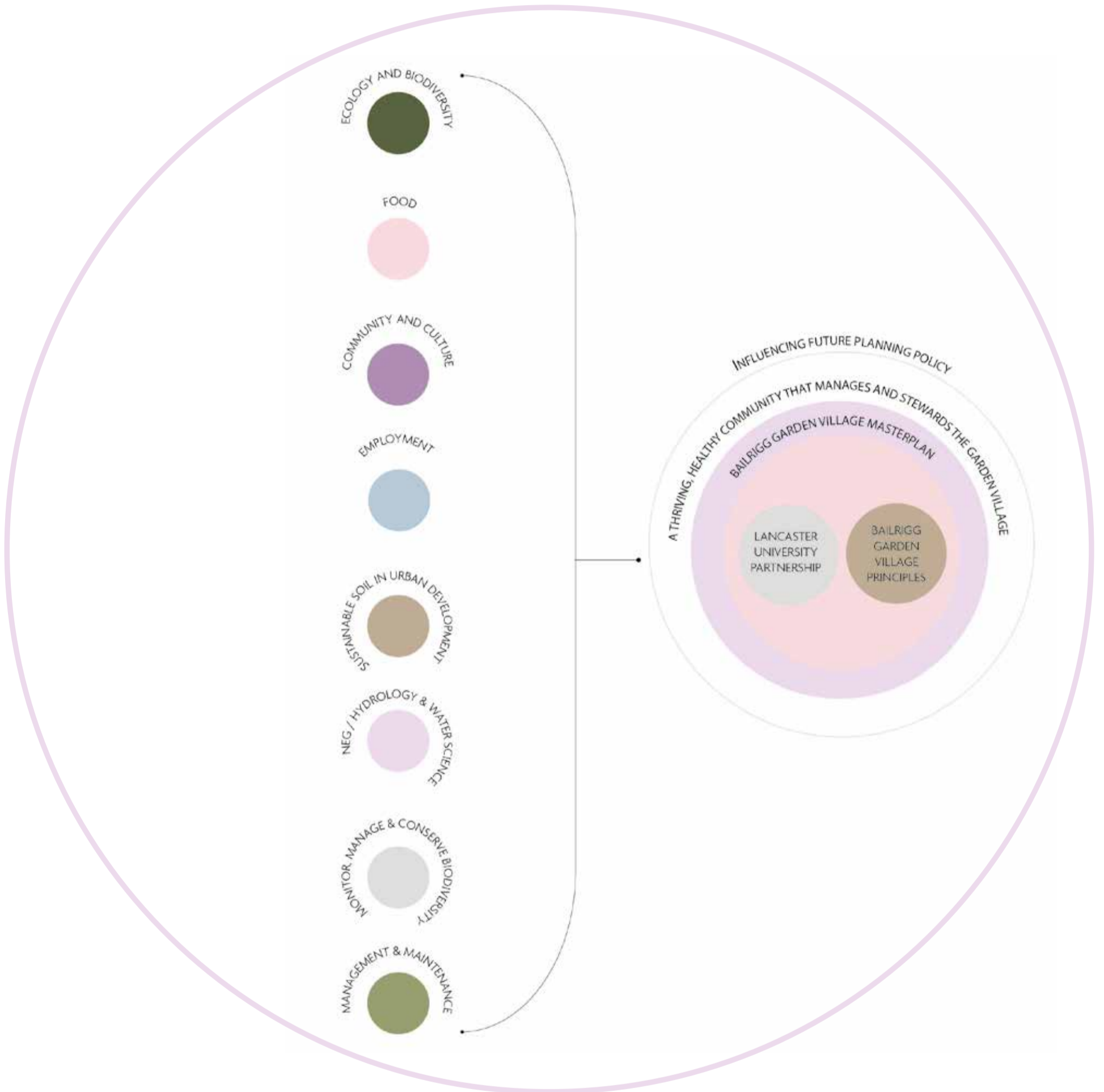
The existing skill set of the farmers should be preserved and shared with new and existing residents and be applied differently respecting the transformed landscape and its uses.

This approach will allow for flexibility in planning policies, lifestyles and to climate change thus achieving a thriving community in a healthy environment managed and maintained by and for residents.

**“No one will protect what they don't care about, and no one will care about what they have never experienced.”**

**D. Attenborough**

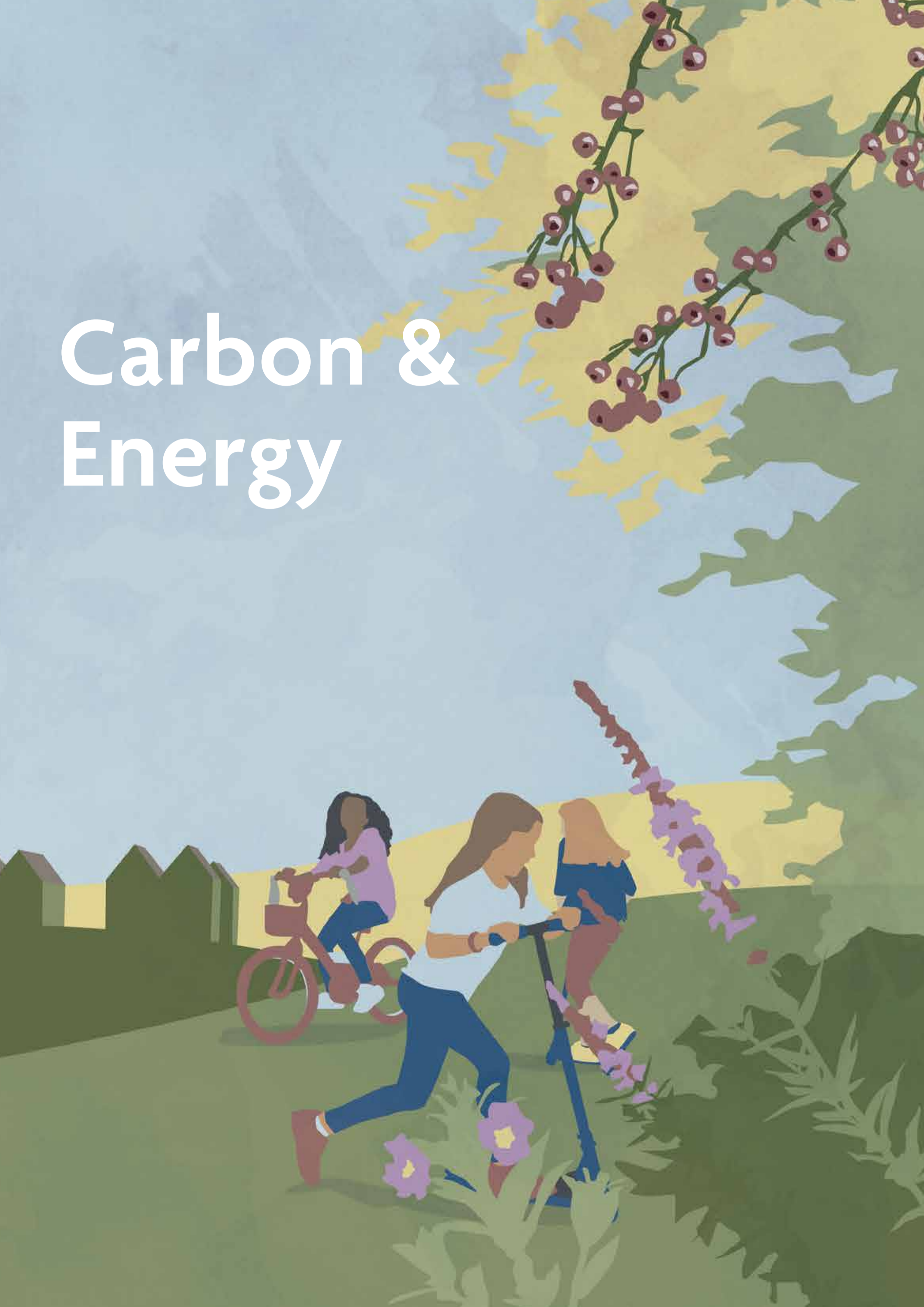
# LANDSCAPE THEMES



# CHAPTER 7



# Carbon & Energy



# NET ZERO CARBON DEVELOPMENT

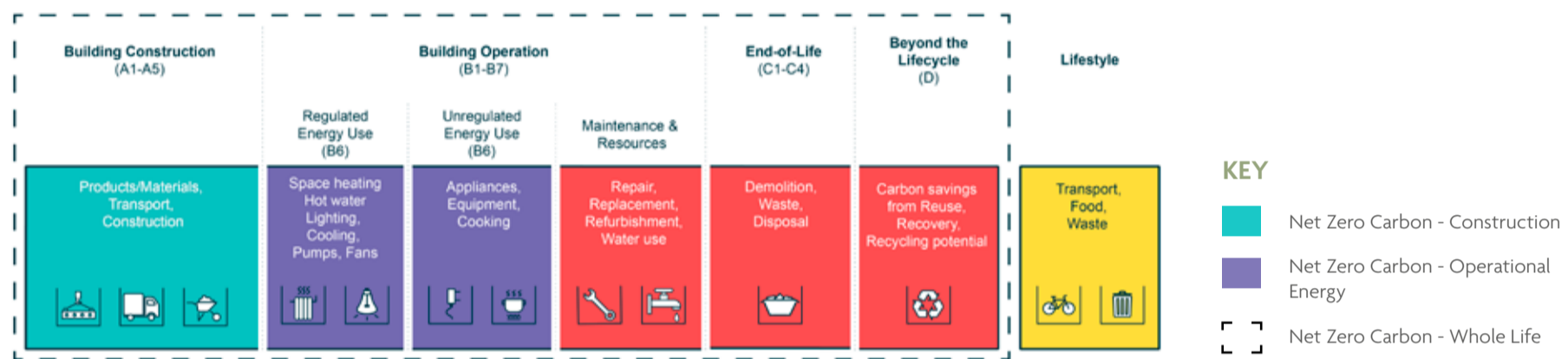
## INTRODUCTION

This chapter sets out a vision and route map of how Bailrigg Garden Village can become a net zero carbon development. We also include a preliminary carbon balance analysis to understand what proportion of the embodied carbon offset could potentially be provided on-site.

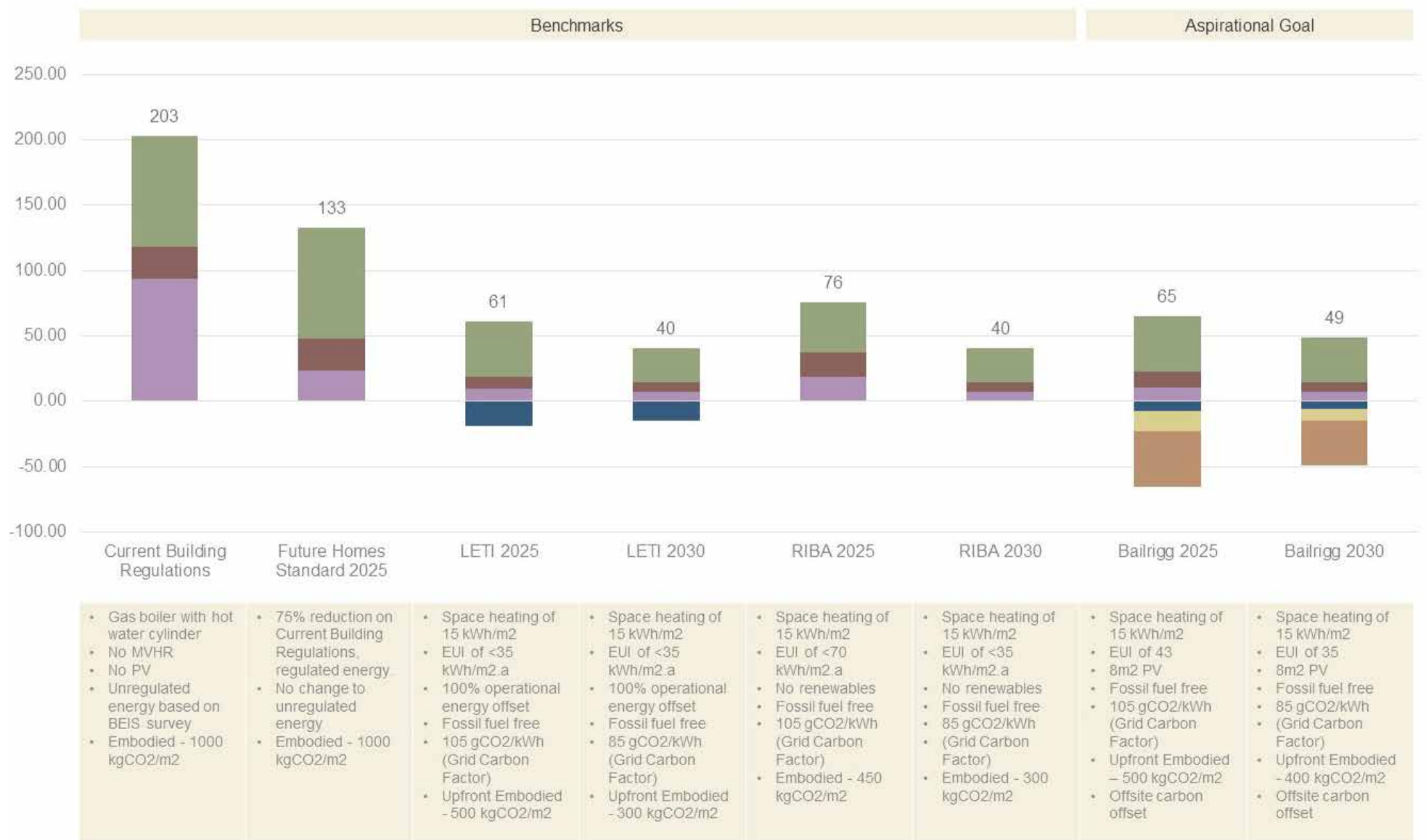
The energy strategy adopts the structure of the energy hierarchy, focusing on passive design principles, then low carbon active design and then finally exploring the potential for energy generation from renewable sources.

The Bailrigg Garden Village development will be constructed over the course of around 20 years. The UK Government has committed to decarbonisation of the whole economy by 2050; to achieve this, it is necessary for all homes being built from now onwards to achieve as close to 'net zero' as possible, with those constructed during the later phases achieving full net zero, or even 'net carbon positive'. For this report, we have adopted the widely accepted UK Green Building Council (UKGBC) version of net zero which includes the carbon emissions associated with the whole lifecycle of a building, including its construction, lifetime energy use in operation, maintenance, and end-of-life (deconstruction/demolition).

### What is included in 'net zero'? (adapted from UKGBC)



### Zero Carbon Route Map - Lifetime carbon (60 years) for a single home



**KEY**

- Regulated (Purple)
- On-site Offset (Dark Blue)
- Operational Carbon Offset (Light Green)
- Unregulated (Dark Red)
- Embodied (Light Purple)
- Whole Life Carbon Offset (Brown)



# NET ZERO CARBON DEVELOPMENT

## ZERO CARBON ROUTE MAP

We have set out a suggested route map for achieving net zero carbon at Bailrigg Garden Village. The route map summarises benchmark targets for new housing, set by the Future Homes Standard, London Energy Transformation Initiative (LETI) and the Royal Institute of British Architects (RIBA) 2030 Climate Challenge. Each bar of the route map shows a breakdown of operational energy targets (both regulated and unregulated energy), and embodied carbon, based on a typical dwelling with a 60-year life span. Where benchmarks reference on-site renewables, their targets have also been incorporated within the benchmarking bars; these include the LETI 2025 and 2030 targets below.

Based on a study of suitable technologies, projected decarbonisation of the national grid and available rooftop space for on-site photovoltaics, the route map sets out aspirational but achievable targets for new homes to be constructed at Bailrigg. The targets have been split into two phases, with slightly lower requirements for 2025/Phase 1, and aiming to meet more stringent targets by 2030/Phase 2. The embodied carbon targets set within the route map are based on construction using technologies and materials available today, and therefore are not as low as the targets set by LETI and RIBA 2030, both aspirational benchmarks based on expected introduction of new, lower carbon construction materials and techniques.

The aspiration is to deliver a net zero carbon development. For the 2025 target, the route map shows that on-site renewable energy is only able to cover 7.1 kgCO<sub>2</sub> of the operational energy (regulated & unregulated) used for a typical home. Further offset of 15.6 kgCO<sub>2</sub> would be required to achieve zero carbon in operation. A further 42.5 kgCO<sub>2</sub> would then be required to meet the net zero carbon whole life target (which includes embodied carbon), for each home.

## CARBON OFFSETTING

### Carbon balance analysis

Options have been explored to deliver the additional carbon offset required to achieve net zero carbon on the Bailrigg Garden Village site; these are presented below. This local offset could be made up of a mix of on-site solar (rooftop PV), off-site co-location farms (including wind and solar) and sequestration through the landscaping for the new Garden Village. Based on these proposed technologies, it is possible to offset 75% of the whole life carbon for all new homes. Further details including a breakdown of annual carbon offset achieved through renewables and sequestration are given in proceeding section, Energy strategy - renewables.

Zero Carbon Route Map - Lifetime carbon (60 years) for a single home



**KEY**

- Regulated
- Unregulated
- Embodied
- Operational Carbon Offset
- Embodied Offset
- On-site Offset
- Sequestration
- Site Wide Offset
- Additional Site Wider Offset (Optimised)

# ENERGY STRATEGY

## PASSIVE DESIGN PRINCIPLES

Massing and orientation for Bailrigg Garden Village should be designed to take advantage of the local microclimate in support of energy conservation. Owing to the topography of the site, building types and overshadowing should be considered to maximise solar heating across all buildings.

At building level, developments will be designed to take advantage of climate and natural resources, prioritise passive design measures and target high levels of energy efficiency to reduce energy consumption as far as possible. Key considerations that should be considered include:

- Infrastructure and massing for the site to consider design, massing and orientation to reduce energy consumption balancing day lighting, solar gain and overheating.
- Achieve good levels of sunlight in external public spaces, particularly play spaces, green areas and allotments.
- Building and street design to incorporate greening and waterways to minimise urban heat island effect.
- Deliver high level of fabric efficiency to reduce space heating demand (to 15kWh/m<sup>2</sup>/y).
- Ventilation heat recovery.
- Internal layouts and orientation of buildings to take advantage of natural ventilation, and balance access to natural light with mitigation of solar gains in summer.
- Promote natural ventilation to minimise overheating and reduce demand for active cooling.
- Low energy lighting and energy efficient appliances (minimum 'A rated') with smart sensor and controls.

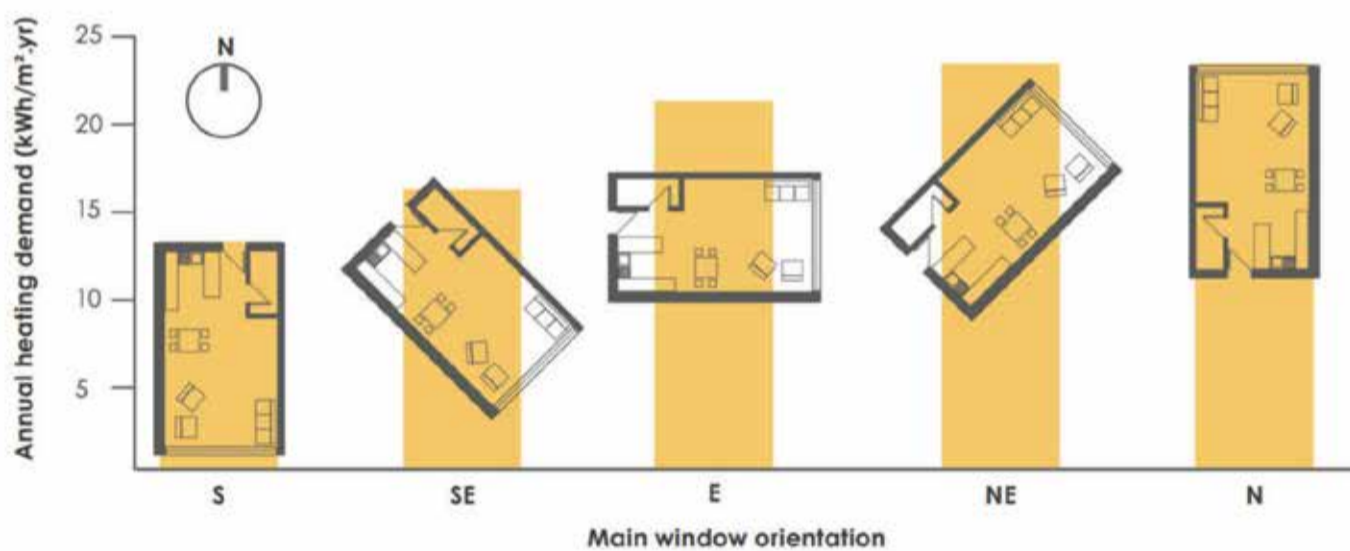
## LOW CARBON ACTIVE DESIGN

All buildings on the development must provide heating and hot water that is generated from fossil fuel-free sources. The development should make use of low-carbon heating systems such as heat pumps and explore the potential for low carbon heat networks to enable energy sharing.

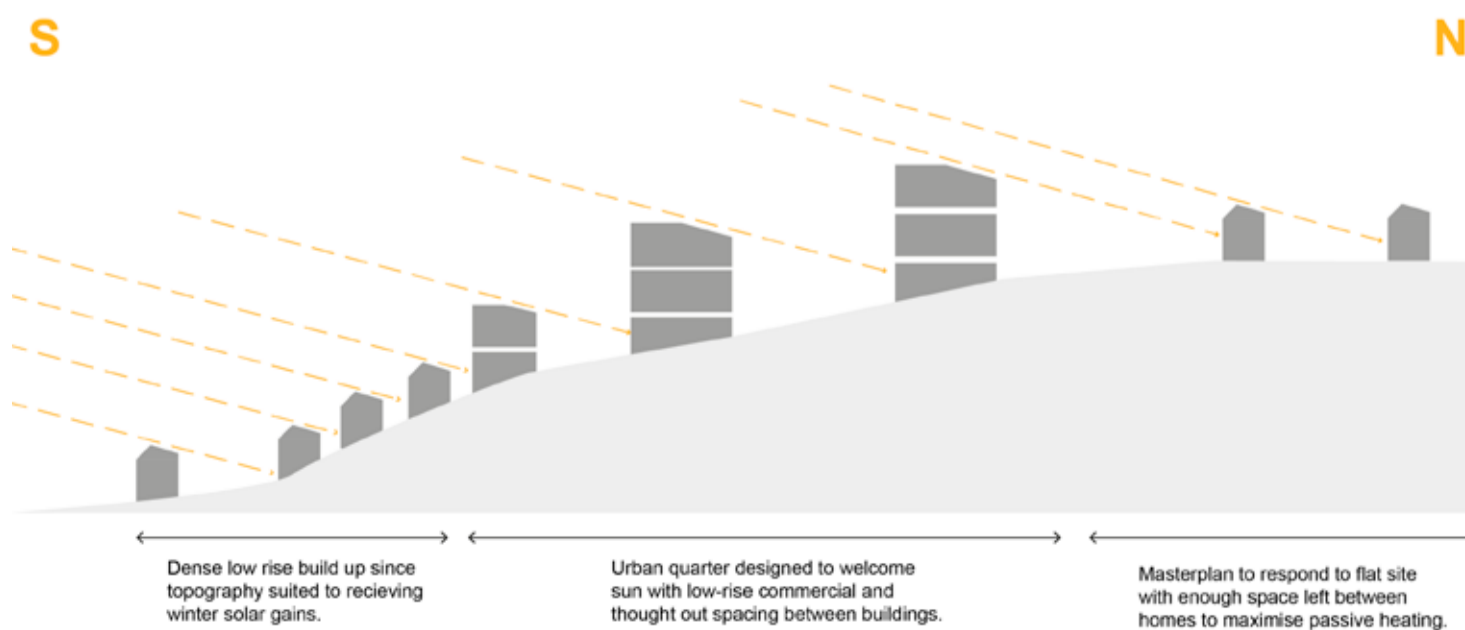
Engaging homeowners and placing them in control of their own energy management can be achieved using smart meters, which indicate in real time the amount and cost of energy being consumed. This could encourage behaviour change among homeowners and allow them to benefit from savings on the cost of energy, and reduce their overall carbon impact.

Active demand response measures must be considered to reduce peak energy demands and smooth energy consumption, including thermal and battery storage. Electric vehicles with vehicle to grid charging could also be used to provide power to buildings.

### Orientation



### Responding to the topography



# ENERGY STRATEGY

## HEAT NETWORKS

The potential for community wide ambient loop heat networks with the ability to share heat and coolth should be considered as a heating options. Low temperature heat networks like this have the ability to maximise efficiencies and integrate low carbon heating more easily.

The viability of this will need to be assessed against the site-wide requirements for heating and cooling. Heat network proposals should consider:

- Balance of domestic versus non-domestic buildings with the potential for sharing heat and coolth.
- Local sources to recover heat, such as water and ground.
- Use of smart thermal storage to store heat for later use when renewable heating is available.
- Available space within the masterplan for locating shared water source or air source heat pumps
- Accessibility and suitability of infrastructure to connect buildings to heat network.

Some buildings may favour localised heat networks or a standalone heating solutions. This should also be explored if the typology mix is not optimised to favour heat networks.

## ENERGY TARGETS

Exemplary energy targets, with a focus on demand reduction, are recommended for all developments within Bailrigg Garden Village. This will support the development and Lancaster City Council's aspiration to meet net zero carbon targets. The targets have been set to get progressively stronger over the course of the development construction life span.

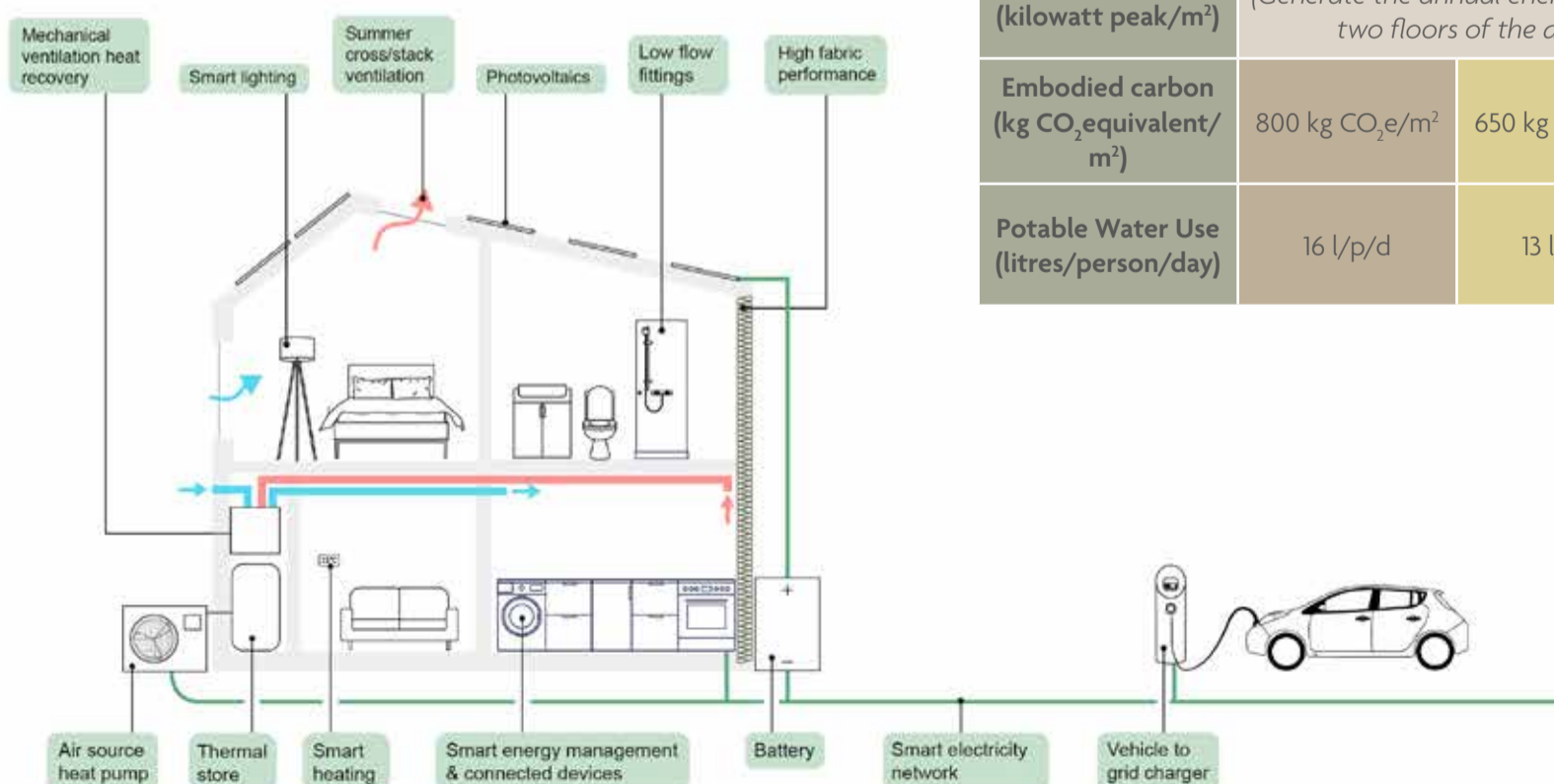
### Targets for domestic buildings

	2020 TARGETS	2025 TARGETS	2030 TARGETS
Operational Energy (kilowatt hour/m <sup>2</sup> /year)	105 kWh/m <sup>2</sup> /y	70 kWh/m <sup>2</sup> /y	0 to 35 kWh/m <sup>2</sup> /y
Space Heating (kilowatt hour/m <sup>2</sup> /year)	15 to 20 kWh/m <sup>2</sup> /y	15 kWh/m <sup>2</sup> /y	15 kWh/m <sup>2</sup> /y
Peak Heat Loss, including ventilation (watt/m <sup>2</sup> )		10 W/m <sup>2</sup>	10 W/m <sup>2</sup>
Renewable Generation, in photovoltaics (kilowatt peak)	1.5 kWp of photovoltaics	2.5 kWp of photovoltaics	4 kWp of photovoltaics
<i>(small scale housing, 100% of annual energy requirement is generated on site)</i>			
Embodied carbon (kg CO <sub>2</sub> e/m <sup>2</sup> )	600 kg CO <sub>2</sub> e/m <sup>2</sup>	450 kg CO <sub>2</sub> e/m <sup>2</sup>	300 kg CO <sub>2</sub> e/m <sup>2</sup>
Potable Water Use (litres/person/day)	110 l/p/d	95 l/p/d	75 l/p/d

### Targets for non-domestic buildings

	2020 TARGETS	2025 TARGETS	2030 TARGETS
Operational Energy (kilowatt hour/m <sup>2</sup> /year)	170 kWh/m <sup>2</sup> /y	110 kWh/m <sup>2</sup> /y	0 to 55 kWh/m <sup>2</sup> /y
Space Heating (kilowatt hour/m <sup>2</sup> /year)	15 to 20 kWh/m <sup>2</sup> /y	15 kWh/m <sup>2</sup> /y	15 kWh/m <sup>2</sup> /y
Peak Heat Loss, including ventilation (watt/m <sup>2</sup> )		10 W/m <sup>2</sup>	10 W/m <sup>2</sup>
Renewable Generation, in photovoltaics (kilowatt peak/m <sup>2</sup> )	0.15 kWp/m <sup>2</sup>	0.20 kWp/m <sup>2</sup>	0.20 kWp/m <sup>2</sup>
<i>(Generate the annual energy requirement for at least two floors of the development on-site)</i>			
Embodied carbon (kg CO <sub>2</sub> e/m <sup>2</sup> )	800 kg CO <sub>2</sub> e/m <sup>2</sup>	650 kg CO <sub>2</sub> e/m <sup>2</sup>	500 kg CO <sub>2</sub> e/m <sup>2</sup>
Potable Water Use (litres/person/day)	16 l/p/d	13 l/p/d	10 l/p/d

### Components of a low carbon home



# ENERGY STRATEGY

## RENEWABLES

Investment in and installation of local renewable energy will be important to ensure that Bailrigg Garden Village will be self-sufficient in operation. Additional options to use renewable energy to offset embodied carbon emissions could also be considered for the new garden village.

### Local offset

On-site renewable energy will be maximised, and developments should aim to install rooftop solar energy on all buildings, to provide renewable electricity for non-domestic and domestic buildings.

### Site-wide offset

Bailrigg has access to open space and therefore could present an opportunity for off-site renewable farms which are local to the new garden village. A feasibility assessment has been carried out for the Bailrigg Garden Village to provide additional carbon offset via local wind and solar farms. Co-location has also been explored where wind turbines & Photovoltaics can be installed on the same land; this has the advantage of saving on capital costs as they use the same grid connection and infrastructure.

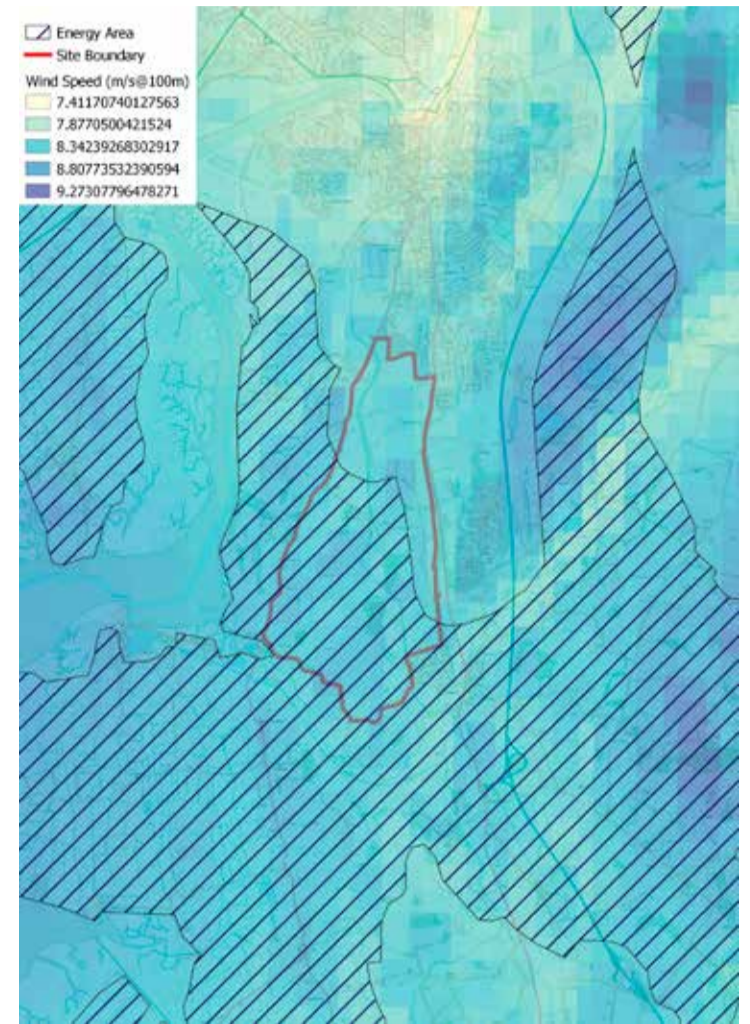
An assessment on the land surrounding Bailrigg Garden Village has been carried out. It was found the land has great potential for wind and solar energy generation across the area proposed masterplan. A further assessment was undertaken to assess the suitable locations of wind turbines in relation to local constraints. We have visually presented the spaces where wind turbines can be placed based on the local plan, spatial constraints (including homes, canals, woodlands etc), and open grazing land. For this assessment, the proposed grazing areas have been taken as spaces which have the potential to accommodate wind turbines.

Based on this initial analysis, a more detailed assessment, as shown adjacent, considers the location of wind turbines based on the minimum distances between turbines and from existing infrastructure and dwellings. The spatial plan shows a variety of wind turbine locations based on a range of separate distances, from 100m up to 300m. These are important to consider to ensure turbines operate optimally and do not affect local residents through noise and safety risks.

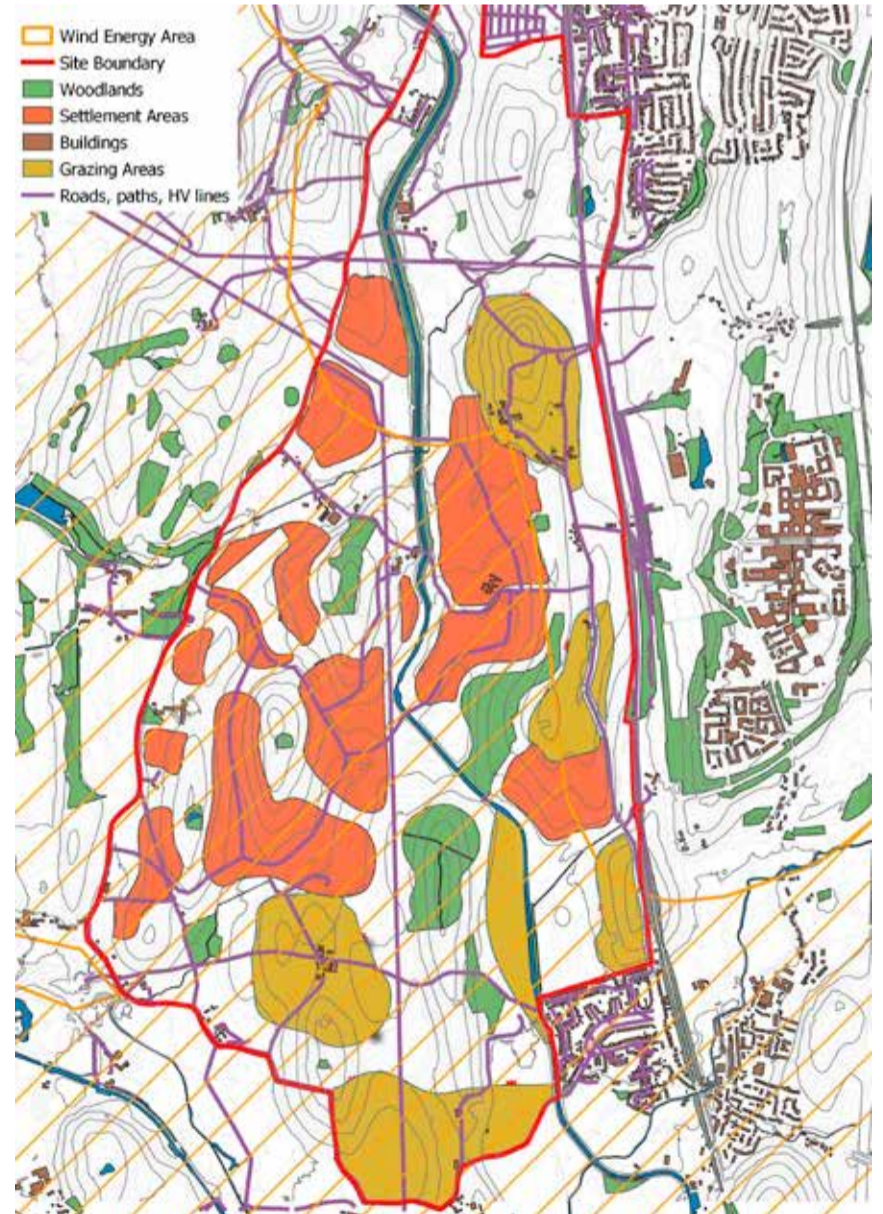
With the current masterplan design and ensuring we leave a 200m buffer zone around existing dwellings we can site a minimum of 8 turbines (baseline option). With adjusted landscaping layout and a 200m buffer distance, we can site up to 16 turbines (optimised option). Using co-location, we can also install 135kWp of solar panels per turbine. A summary of the two renewable options have been assessed for the Bailrigg Garden Village.

### Annual Carbon Yields from local renewable forms

		BASELINE	OPTIMISED
Solar	Installed Peak (megawatt peak)	1.1 MWp	2.2 MWp
	Annual Carbon Offset (kilogram CO <sub>2</sub> equivalent/year)	80 kgCO <sub>2</sub> /year	160 kgCO <sub>2</sub> /year
Wind	Installed Peak (megawatt Peak)	8 turbines, 7.2 MWp	16 turbines, 14.4 MWp
	Annual Carbon Offset (kilogram CO <sub>2</sub> equivalent/year)	2,100 kgCO <sub>2</sub> /year	4,200 kgCO <sub>2</sub> /year
TOTAL	<b>TOTAL ANNUAL CARBON OFFSET</b>	<b>2,180 kgCO<sub>2</sub>/year</b>	<b>4,360 kgCO<sub>2</sub>/year</b>
	<b>ANNUAL CARBON OFFSET PER HOME</b>	<b>20 kgCO<sub>2</sub>/year/home</b>	<b>40 kgCO<sub>2</sub>/year/home</b>

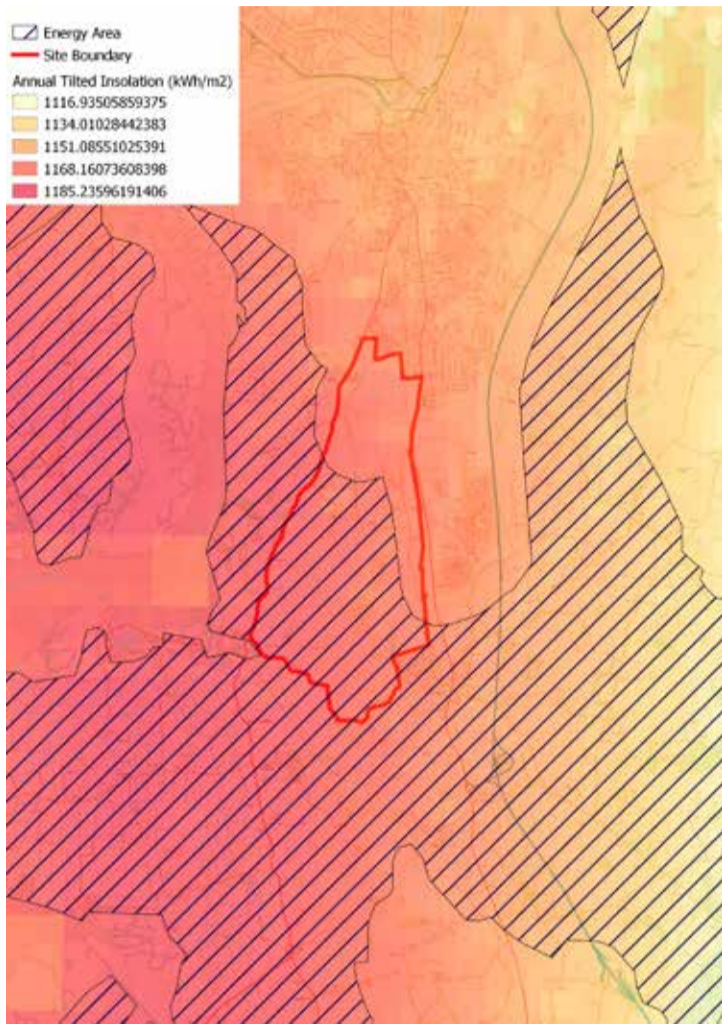


Feasibility of site and surrounding spaces to understand suitability of renewable generation - wind speed at 100m height (kWh/m<sup>2</sup>)

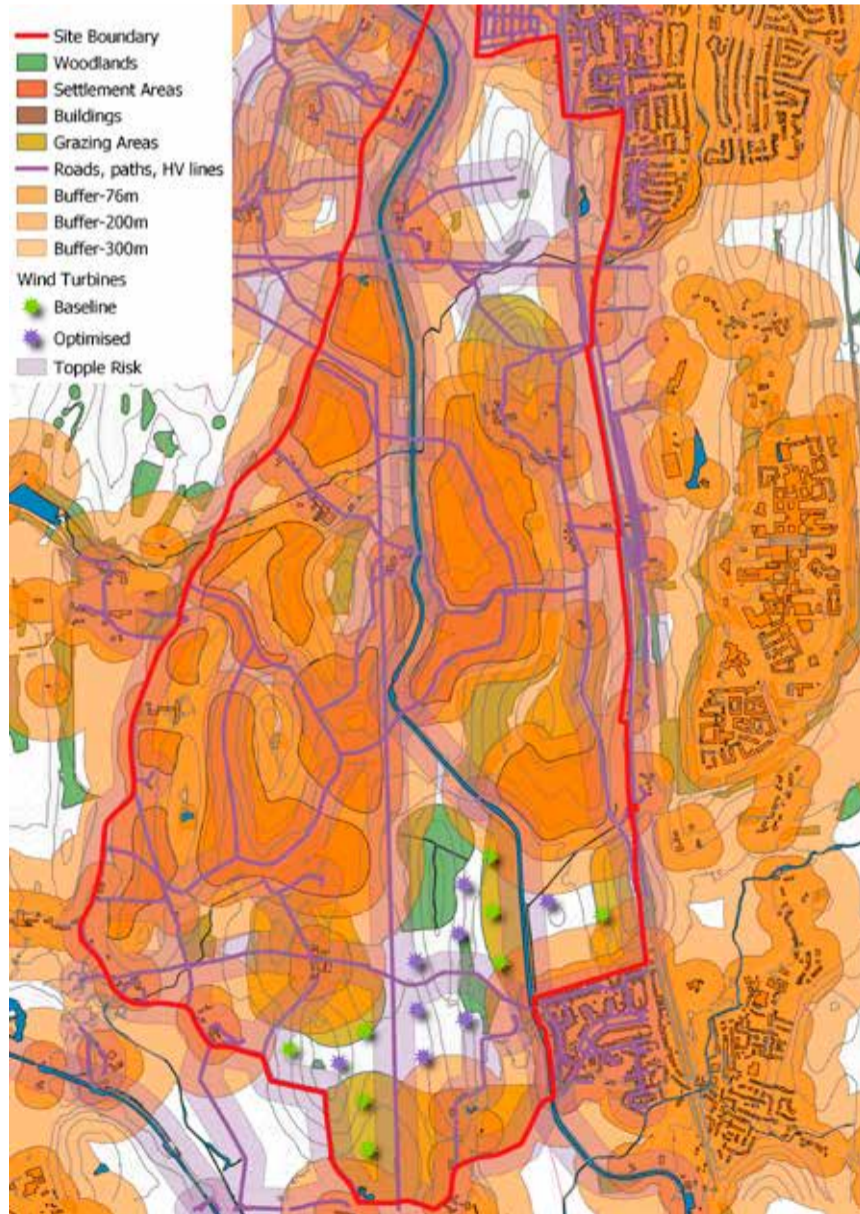


Spatial constraints

# ENERGY STRATEGY



Feasibility of site and surrounding spaces to understand suitability of renewable generation - tilted annual solar insolation (kWh/m<sup>2</sup>)



Wind Turbine Siting

### On-site Carbon Sequestration

Another source for carbon offset could be to use the proposed green infrastructure to sequester carbon locally. A calculation was carried out to quantify the carbon footprint of the new development. With a significant increase in proposed woodlands and more biodiverse landscapes the proposed masterplan will sequester approximately 3 time more carbon than the current landscape, which is dominated by agriculture.

	CARBON SEQUESTERED
CURRENT SITE	17 kgCO <sub>2</sub> /year/home
PROPOSED SITE	53 kgCO <sub>2</sub> /year/home

Carbon Sequestration across the site, presented per household.

### Battery Storage and Smart Networks

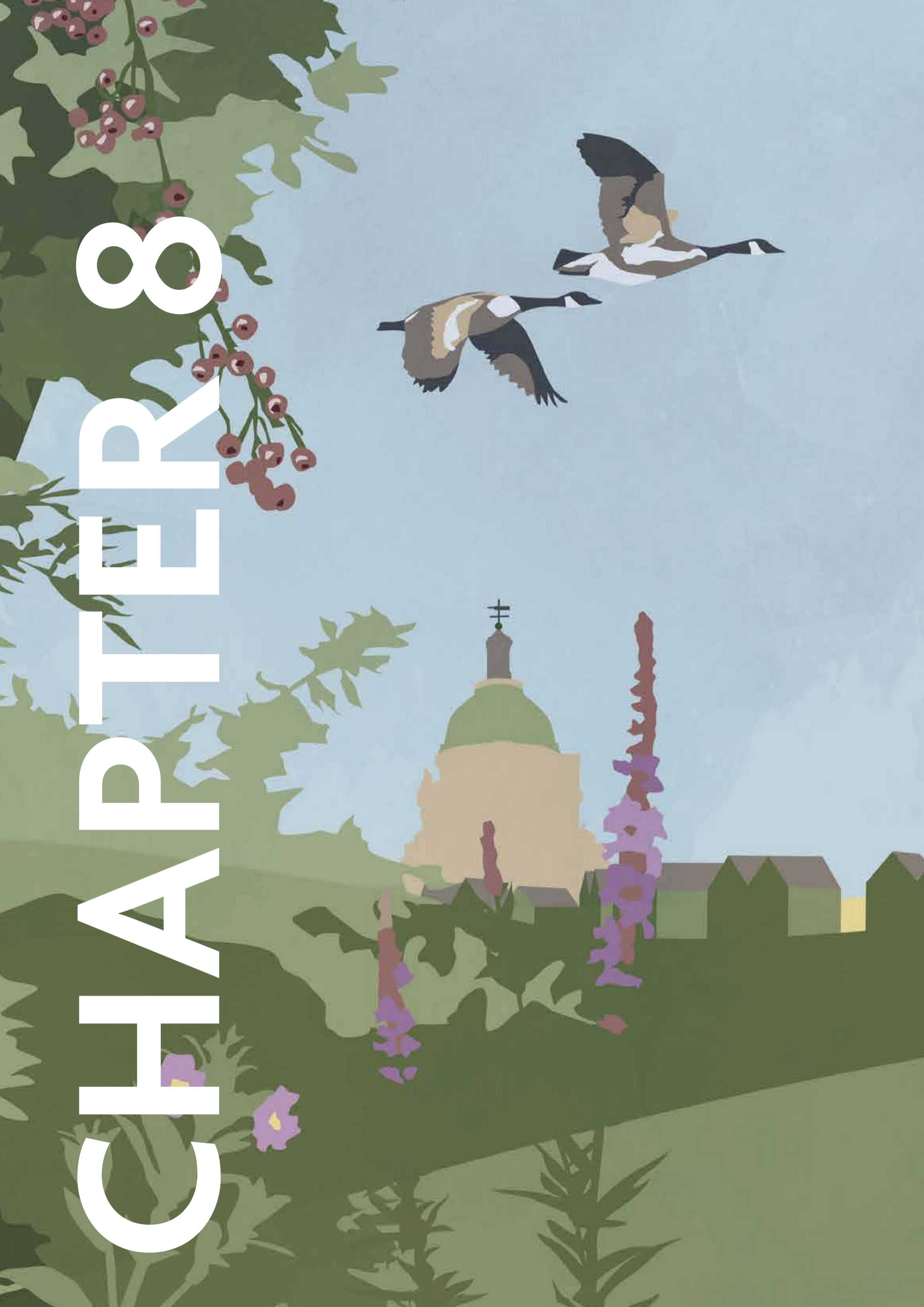
There is also potential to incorporate large scale energy storage coupled with renewable energy generation to further improve the carbon savings. The use of batteries should be considered to store all renewables generated across the local renewable farms. Using batteries also has the potential to control and reduce costs to residents of the Bailrigg Garden Village by maximising use of renewable energy on site and reducing reliance on the national grid.

Developments should be designed with the flexibility and ability to connect into a local electricity network for future transition to net zero carbon. In order to support a smart power network, developments should be designed to:

- Accommodate electrically led heat solutions and increased uptake of electric vehicles.
- Include battery storage to support reduction and shifting of peak energy demands and integration of renewable energy sources.
- Enable multi-directional power flows including for Vehicle to Grid charging and to enable energy sharing.
- Take advantage of integration with heat networks to help store and balance energy demand and supply.
- Enable future integration with city wide renewables and power networks.
- Explore opportunities to house local renewables and/or battery storage where community buildings and amenities are to be provided.

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# CHAPTER



An illustration of a garden scene. In the foreground, a woman in a white shirt and blue pants is pushing a stroller with a child inside. To her left, a girl in a pink shirt is riding a red bicycle. In the background, there are green houses and a yellow sky. The scene is framed by green foliage and purple flowers in the top right corner.

# Placemaking

*Bairigg Garden Village will be a place where people and landscape can co-exist; flexible ways of living are encouraged through innovative design; and community is formed through built-in opportunities and ownership.*

*The various physical spaces and interactive offers will breathe life into the garden village and bring communities together. There will be an offer for everybody, within the well-established high street, flexible community hubs and its programme of events.*

# BAILRIGG GARDEN VILLAGE

The following chapter provides delves into more detail of the key components of the masterplan, to demonstrate how they can come together to realise the overarching Vision for the garden village. The illustration below summarises all the placemaking aspirations and community benefits of Bailrigg Garden Village.



The quiet canal maintains the tranquil and natural character of existing Lancaster Canal and its rich hedges. It supports wildlife and pedestrian connections towards Lancaster City Centre.

The diverse productive landscape offers support local food production and sustainable living.

Bus connection from Lancaster University towards Lancaster City Centre.

E-cycle hire hubs encourage sustainable movements within the Garden Village.

Cycleway connecting Glasson Dock, cycle highway (route 6) and Lancaster University.

Landscape buffer protects and respects the character of existing dwellings.

Hamlets are nestled within the mosaic of landscape offers, creating bespoke residential clusters and pockets of unique character areas within the Garden Village.

Village centre offers a range of services and shops that support local production and work. The village centre will become a community hub, full of activity and life.



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y focal  
nd life.

The active offers of the high  
street are supported by a  
denser residential cluster.

Cycleway to Lancaster  
University.

Park & Ride

The Marina forms an activity  
hub and celebrates Lancaster  
Canal as one of Bailrigg  
Garden Village's key feature.  
It will host mooring and water  
taxi services.

The active canal  
offers residents and  
visitors opportunity  
to engage in various  
water activities, such  
as rowing and paddle  
boarding

Diverse housing offers of Bailrigg Garden  
Village, including self-build areas, attracts  
residents of all ages and professions.



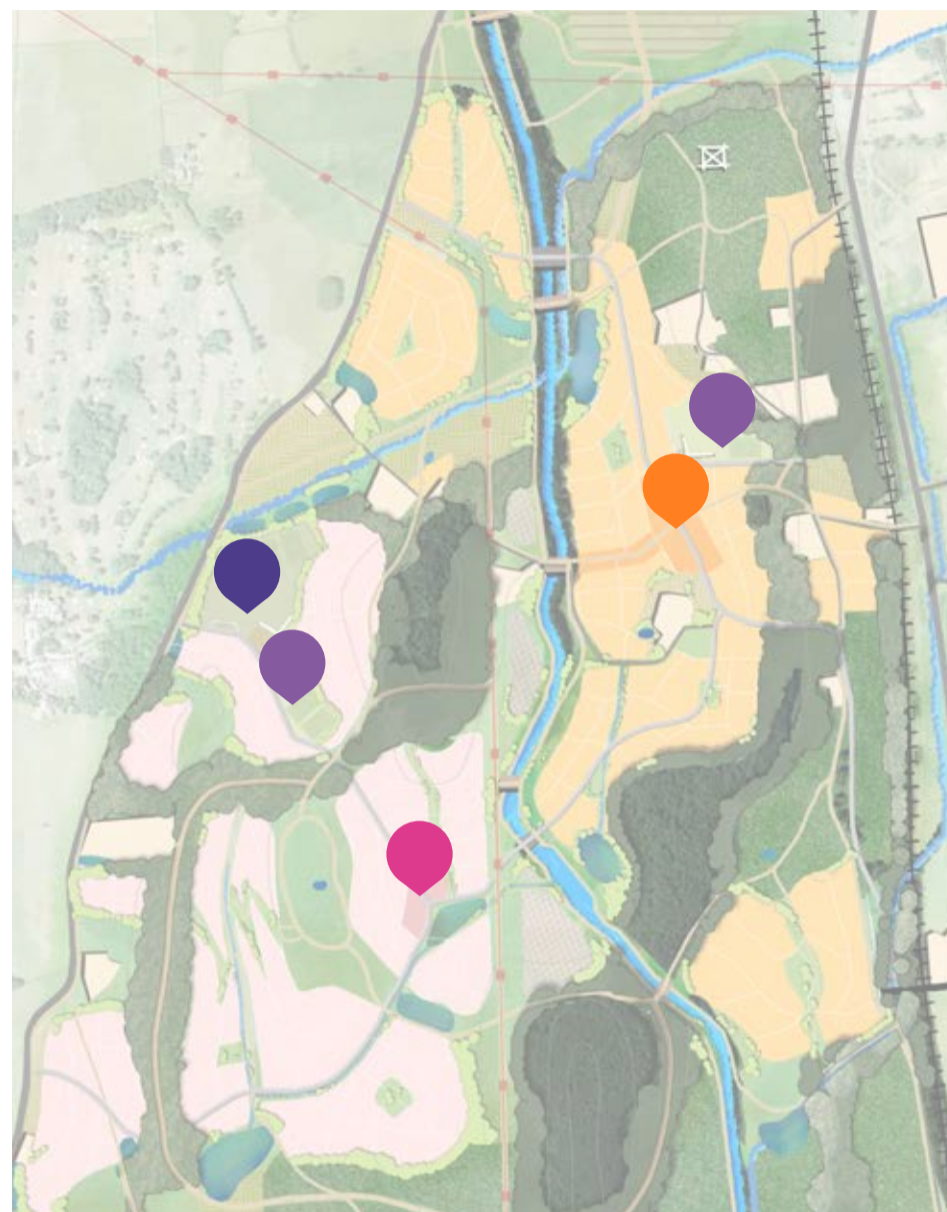
## 8. PLACEMAKING

# VILLAGE CENTRE

The mixed-use local centre forms an integral part of Bailrigg Garden Village community infrastructure. Centrally located it is easily accessible for both current and new plan period parts of the development and also existing residents of the surrounding villages. It also has direct access to the Lancaster Canal and the surrounding drumlin landscape.

Mixed-uses at the local centre include convenience store, retail units, primary school, community, worship and flexible commercial spaces clustered around the high street. These uses have the ability to spill out onto the street and the village square during the day with outdoor seating and trees for shading. Productive landscape and community allotments are also proposed in close proximity to the high street.

Located along the primary vehicular route the high street is a natural gathering point for the new community. The bus route will serve the local centre in addition to other sustainable transport modes which will encourage connection to Lancaster and the University for all residents, existing and new.



### KEY

-  Village centre first plan period
-  Neighbourhood centre second plan period
-  Primary school
-  Secondary school



# VILLAGE CENTRE



Pedestrian-friendly retail area



Area for outdoor seating / street market



**KEY**

**Education**

-  Primary school
-  Nursery

**Open Space**

-  Productive landscape
-  Play area


**Community**

-  Health centre
-  Multi-faith worship / community

**Commercial**

-  Convenience store
-  Retail
-  Café / restaurant
-  Village Square - market stalls

**Employment**

-  Flexible workspace

# WORKING IN THE GARDEN VILLAGE

COVID-19 has driven and accelerated a shift in work pattern from the traditional office scene in large employment clusters towards favouring shared and homes offices. This change is expected to continue post-COVID, with many prioritising to work flexibly and close to home.

Bailrigg Garden Village will be sustainable and resilient to future change in demands, creating opportunities for small scale offices and workshops to be built amongst homes. Spaces will be designed to encourage residents to work close to home, reducing the need for travel and creating a diverse and active streetscene.

The range of activities/businesses that might be appropriate within the mainly residential areas include, but is not limited to:

- Craft workshop and showroom – eg. dressmaker, cabinet maker, etc.
- Small office – eg. graphic designer, architect, IT professional, etc.
- Artist’s studio
- Hairdresser
- Artisan cake maker/ baker
- Small scale storage/workshop – eg. plumber, electrician, etc.

This mix of uses will be delivered by a combination of methods that will be used in varying proportions across the garden village, to create a flexible, rich and characterful development. Some of these will be built at the outset, while others will be added over time to respond to future demands.



# WORKING IN THE GARDEN VILLAGE



Garden art studio

## GARDEN STUDIO / HOME OFFICE

Houses will be designed with appropriate space to allow home working and flexibility to adjust to lifestyle changes in the future. In addition, high-speed internet connections will be provided throughout the garden village to support home working and other small scale workspaces.

In the low development density areas, many homes will have large enough gardens to accommodate stand-alone studio/office buildings. These outbuildings can be built from the outset or in the future, easily adaptable to the demand at the time. Where possible these will be designed and located to facilitate independent access without the need to pass through the existing home.



Large studio spaces to host small meetings



Home office



Craft and carpentry workshop

## CONVERSION OF GARAGES

Bailrigg Garden Village will be built with strong sustainable movement connections. It supports a future where private vehicles are not the main source of transport, and thus garages may become less important over time.

In this event, appropriate workspaces may be created in the future through the conversion of an existing garage, subject to it no longer being required. To facilitate this process, the garages will be carefully designed, with considerations of size, ventilation (windows), provision of electric and water services, and pedestrian access doors.



Pottery and ceramics studio

# WORKING IN THE GARDEN VILLAGE

## EXTENSION OF DWELLING

Bailrigg Garden Village will be designed flexibly, to allow possible extension at some point in the future. Majority of new homes will be purely residential, but in some locations, it will be possible to provide new workspace instead of homes, workspace extension to the site of the dwelling, or workspace with residential above.

Where workspaces are located to the side of the dwelling, they will be visible from the street and have their own access, separate from that of the main dwelling and clearly distinct from it. This type of workspace has a potential to create a workshop cluster around mews street, creating attractive pockets of activity within the residential setting. The small clusters of workspaces and mixed-uses offers a chance for businesses to support each other and, in the case of those selling directly to the public, benefit from great visibility and footfall.

**Extension of dwelling will be managed and designed carefully, to create distinct character and level of vibrancy, without compromising the quality of homes.**



Brick housing with separate entrance to ground floor shop



Artisan bakery



Cluster of workshops/shops around a courtyard (Helmsley, North Yorkshire)



Flower shop with spillover space and distinct entrance

# WORKING IN THE GARDEN VILLAGE

## OUTDOOR & SMART WORKING

Bairrigg Garden Village will exploit smart technology to enable new and flexible ways of working and reconnect people with nature in everyday life, including providing the ability to work outdoors. Below illustrates ways in which this could be achieved.

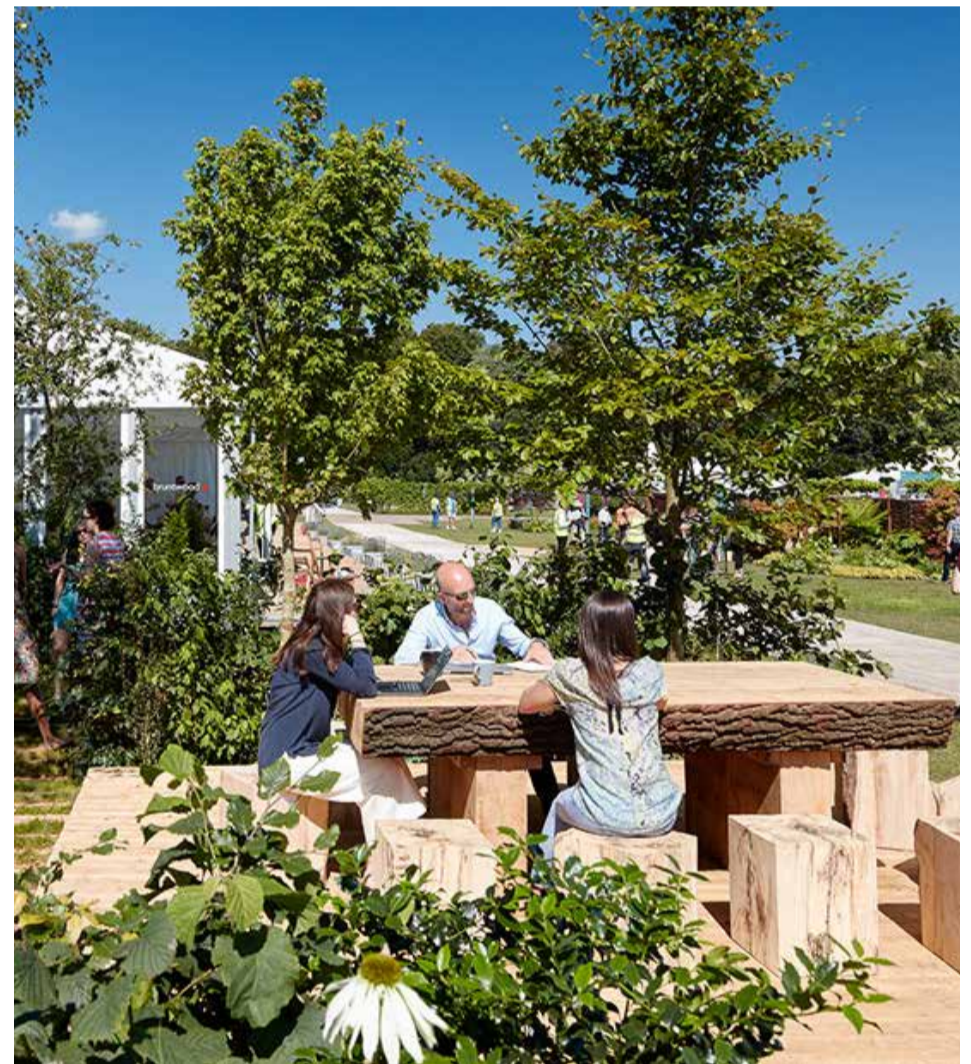
“Digital transformation will have a profound effect on our ways of working and living. This is obviously tricky to plan for but as we’ve seen in the last year things are changing fast.”



**Smart Furniture:** Multi functional furniture providing wi-fi hotspots, solar powered charging points for electrical devices. These devices typically contain air quality sensors to monitor environmental changes



**Furniture.** A range of individual and grouped seating areas provide flexibility and opportunity for collaboration between users.



**Structure.** Temporary / permanent pavilions set in the landscape provide shelter and the opportunity to conduct meetings with an element of privacy



## 8. PLACEMAKING

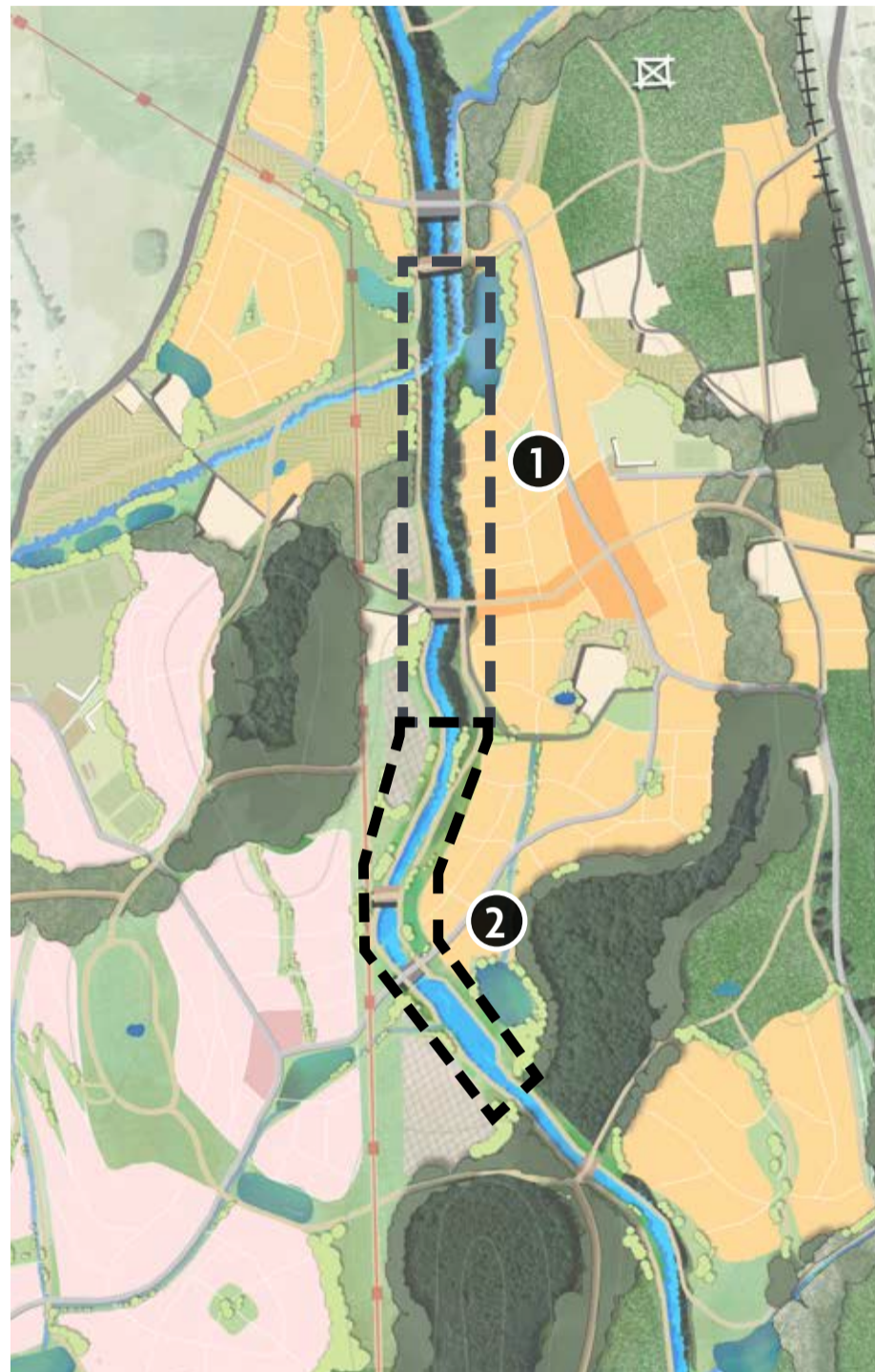
# THE QUIET CANAL WALK

The Lancaster Canal is one of the key site assets with more than 200-year history. It is running from Kendal to Preston and belongs to the UK's small group of coastal canals. In 2002 it has been connected to the national network via the new link which significantly increased boating activity. Locally, the Lancaster Canal is an important green walking and cycling route connecting the site to the Lancaster Town Centre and Galgate. A combination of wonderful views, nature, wildlife, heritage and tranquillity makes it a very popular recreational area for the local community. Being naturally level it is also popular for water activities such as rowing and canoeing.

The canal forms the primary piece of Bailrigg Garden Village's green infrastructure. Therefore after several meetings with Canal and River Trust, the following design principles have been agreed:

- For preservation and protection of its unique character and environment 40m green buffer will be incorporated in the masterplan.
- The vehicular movement across the canal will be limited which will enhance biodiversity and wildlife.
- The existing bridges as important features of the canal architecture will only serve as walking and cycling links across the waterway (with exception of Brantbeck Bridge).
- In addition to pedestrian and cycle connection, Brantbeck Bridge can also serve as a bus link.
- The existing towpath will be upgraded and made suitable for walking and cycling through all seasons which will significantly improve connectivity and promote active lifestyle for the local community.

The canal corridor treatment and character differs through the development which is shown on the illustrative sections on the right. The northern part of the corridor **1** has a quiet tranquil towpath on the eastern side of the canal enclosed by steep green banks and mature trees. The southern part of the corridor **2** will have walking routes on both sides and open up views toward the development. This area creates opportunity to connect the development to the canal through 'special moments' - non-residential buildings such as a community centre, a pub or workshops generating activity and providing natural surveillance on the canal walk.

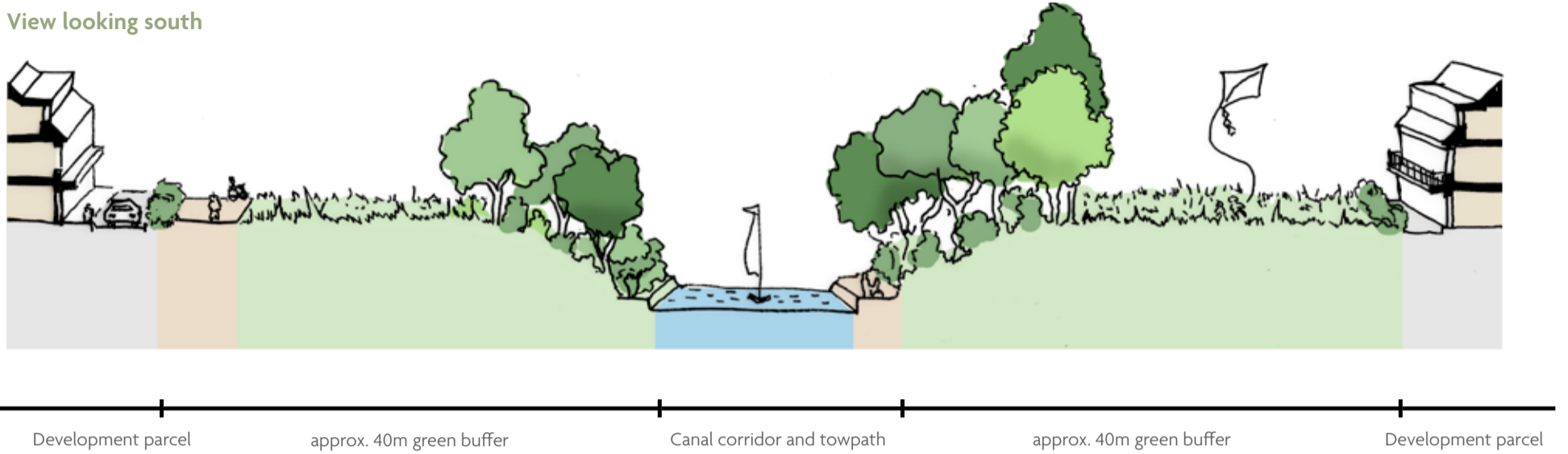


**1** Illustrative view of the Northern part of the Canal corridor

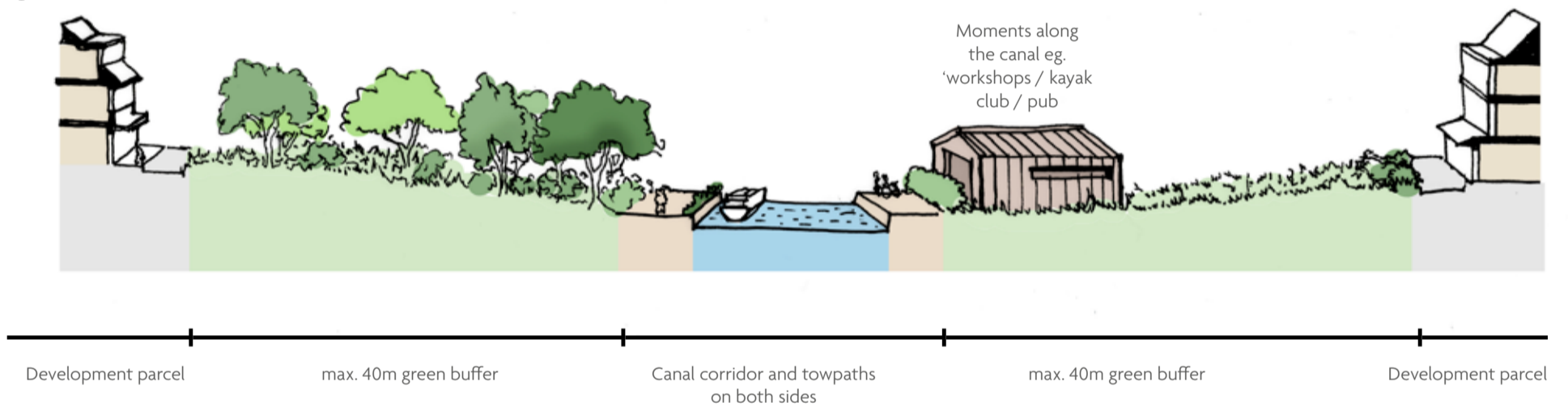


# THE QUIET CANAL WALK

**1** View looking south



**2** View looking south



**2** Illustrative view of the Southern part of the Canal corridor

## 8. PLACEMAKING

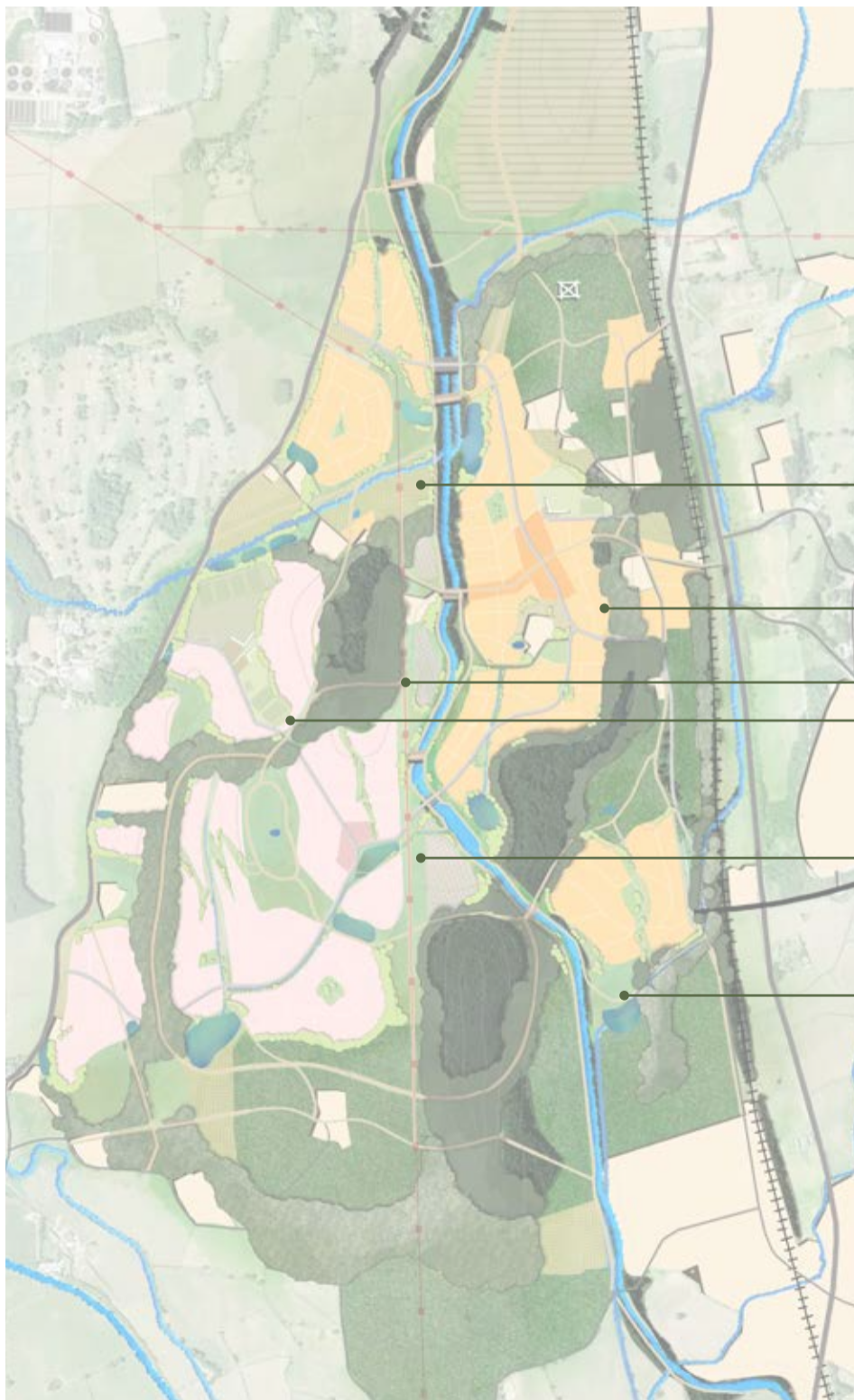
# COMMUNITY HUBS

Vibrant villages and working communities are shaped around shared spaces and experiences. Bailrigg Garden Village will provide exciting opportunities for communities to come together and mingle through creating spaces for natural engagement and hosting programme of events.

Series of activity hubs will be scattered and nestled within the characterful landscape offers of the village. Each hub will host and support bespoke activity that attract and retain diverse local residents and visitors with unique interests and habits.

The hubs will support programmes that provide benefits and services to the wider community. It will be built as flexible indoor/outdoor spaces respond to and make most of the landscape around it. The hubs can also be a temporary feature that connect and engage existing and new residents together across various phases of the development.

## INSPIRATIONS



The Stretch Space

The Garden Kitchen

The Bike Shed  
The Reading Room

The Studio

The Potting Shed



The illustrative location plan of potential community hubs scattered around Bailrigg Garden Village show how each activity shed will carefully respond to the surrounding land use.

# COMMUNITY HUBS

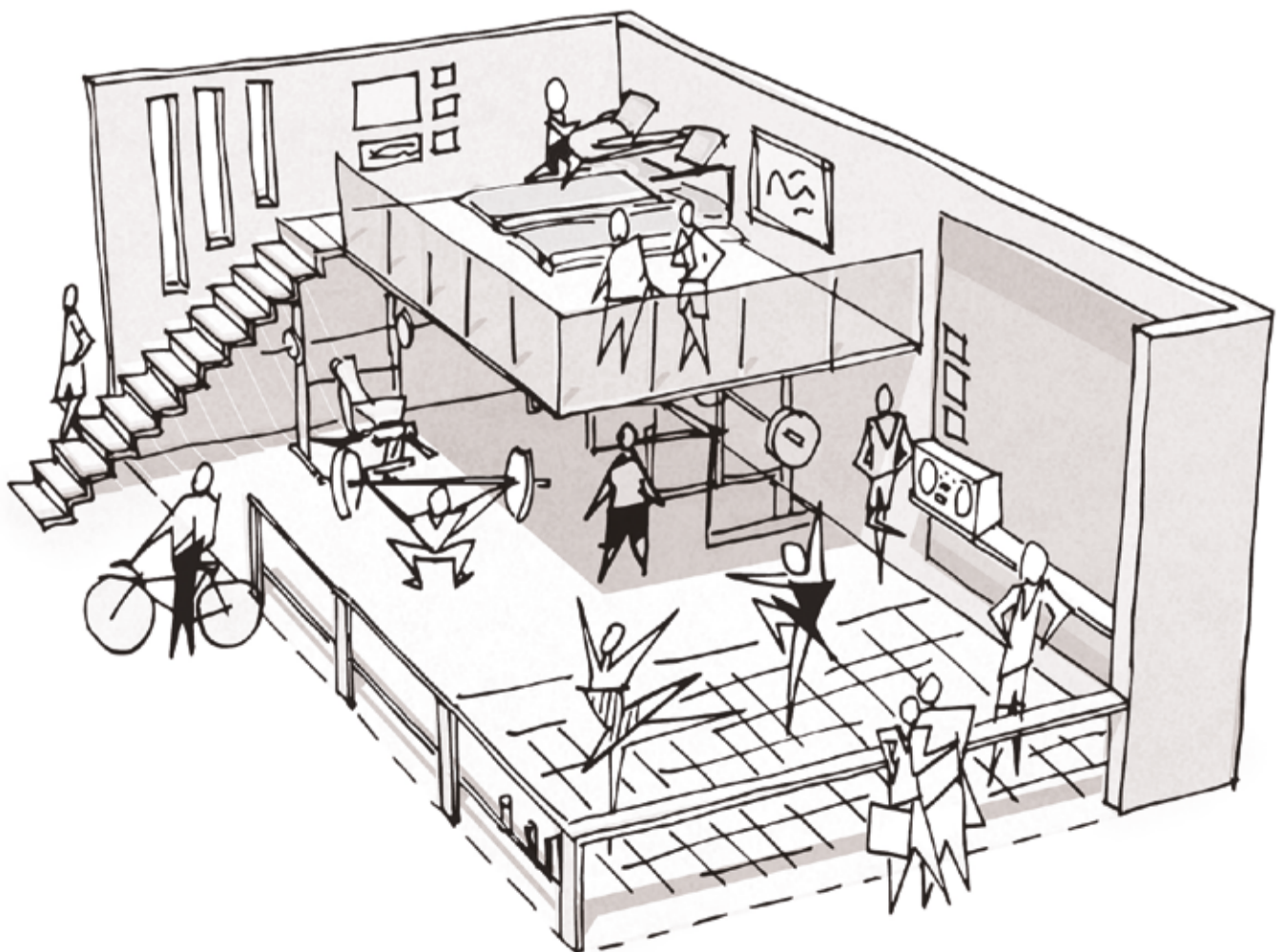
## THE BIKE SHED

- Housing bike tools
- Supporting an active community
- Activated by visiting bike mechanic and series of classes to learn cycling techniques and manners



## THE STRETCH SPACE

- Housing yoga and training equipment
- Supporting a healthy community
- Activated by visiting yoga teachers

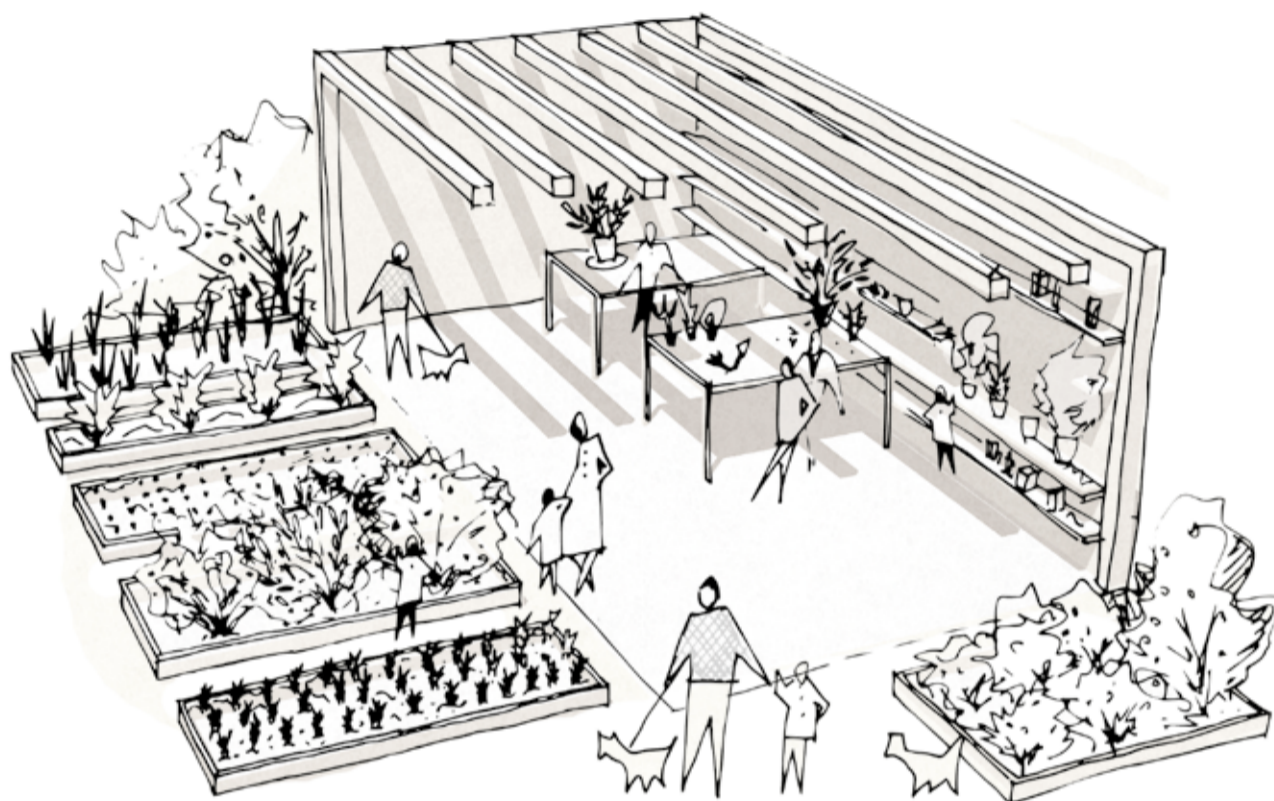


# COMMUNITY HUBS



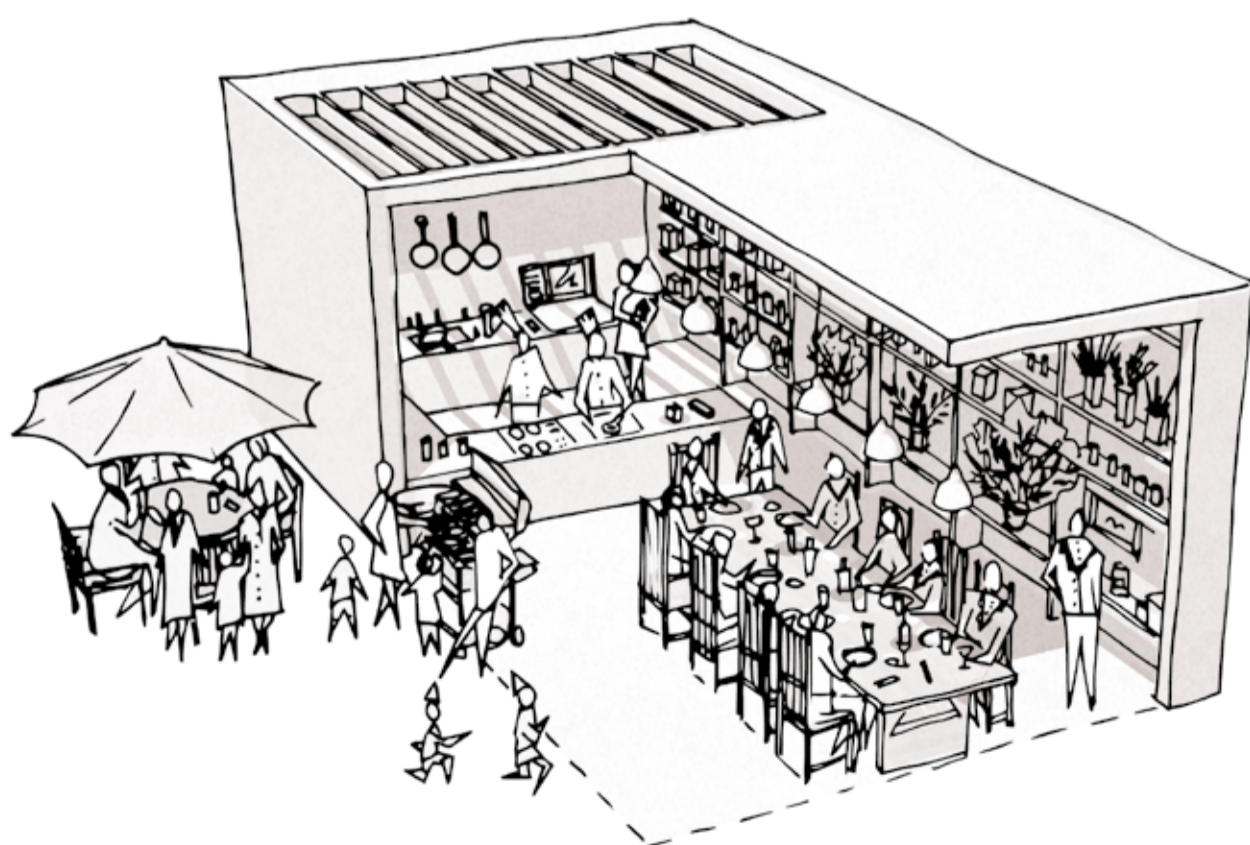
## THE POTTING SHED

- Housing gardening tools
- Supporting an active community gardens
- Activated through gardening workshops
- Applying knowledge learnt from the Reading Room



## THE GARDEN KITCHEN

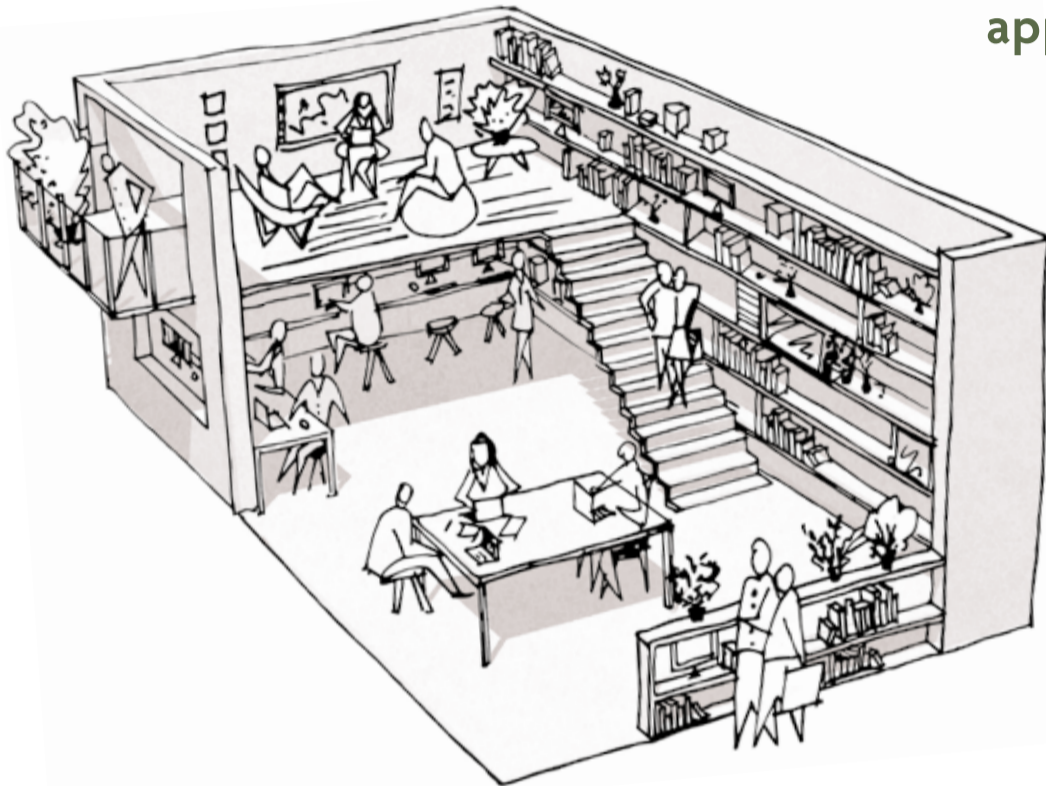
- Housing community kitchen and dining
- Supporting community celebrations and harvests from potting sheds and local food productions
- Activated by visiting supper clubs recipe swapping



# COMMUNITY HUBS

## THE STUDIO

- Housing co-working hot desks
- Supporting flexible working
- Activated by start-up support
- Educational studios for collaborative learning with the university and schools
- Special activity: work experience placements

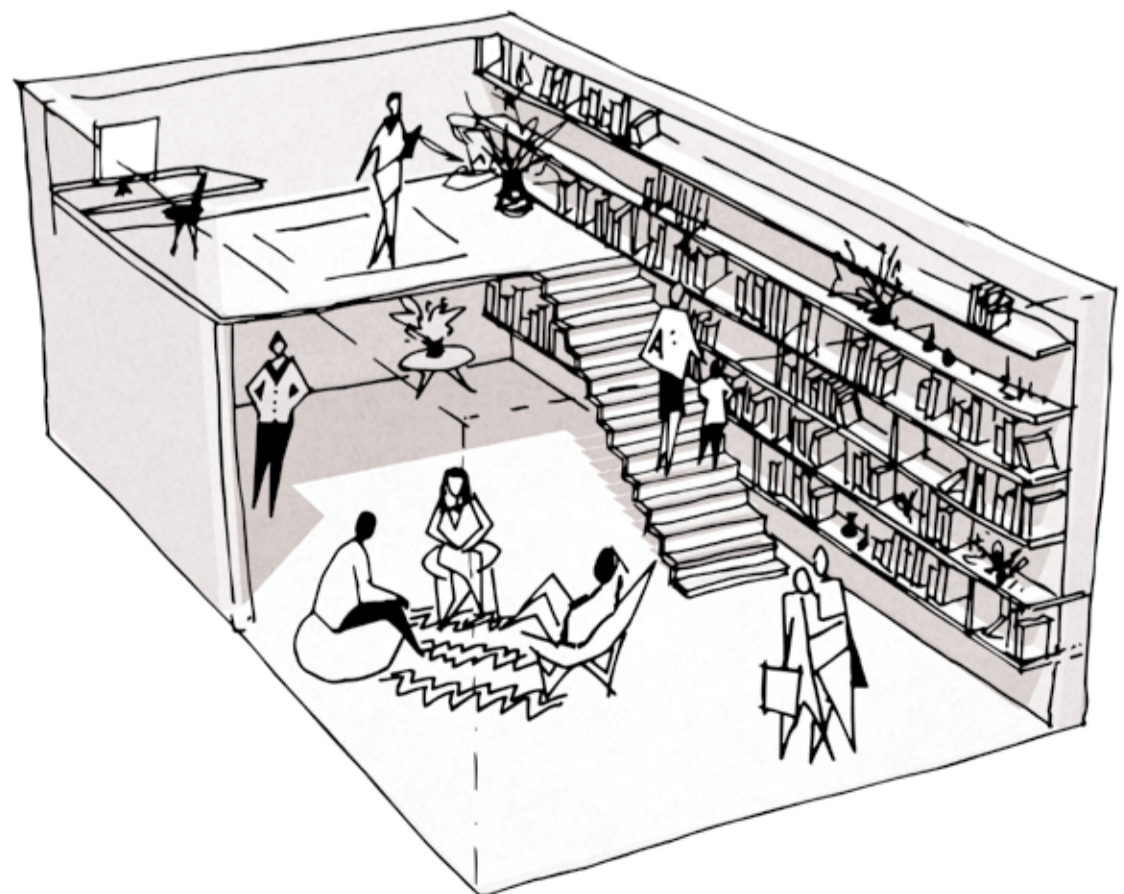


“One of the most obvious changes might be that people would prefer one or even two dedicated home-office rooms in each dwelling. A community work hub might also be very well appreciated.”



## THE READING ROOM

- Housing collection of local books
- Supporting local history, ecology and biodiversity studies
- Activated by book clubs, schools and university
- Special event: seminar by visiting professors, workshops on sustainable farming and soil health



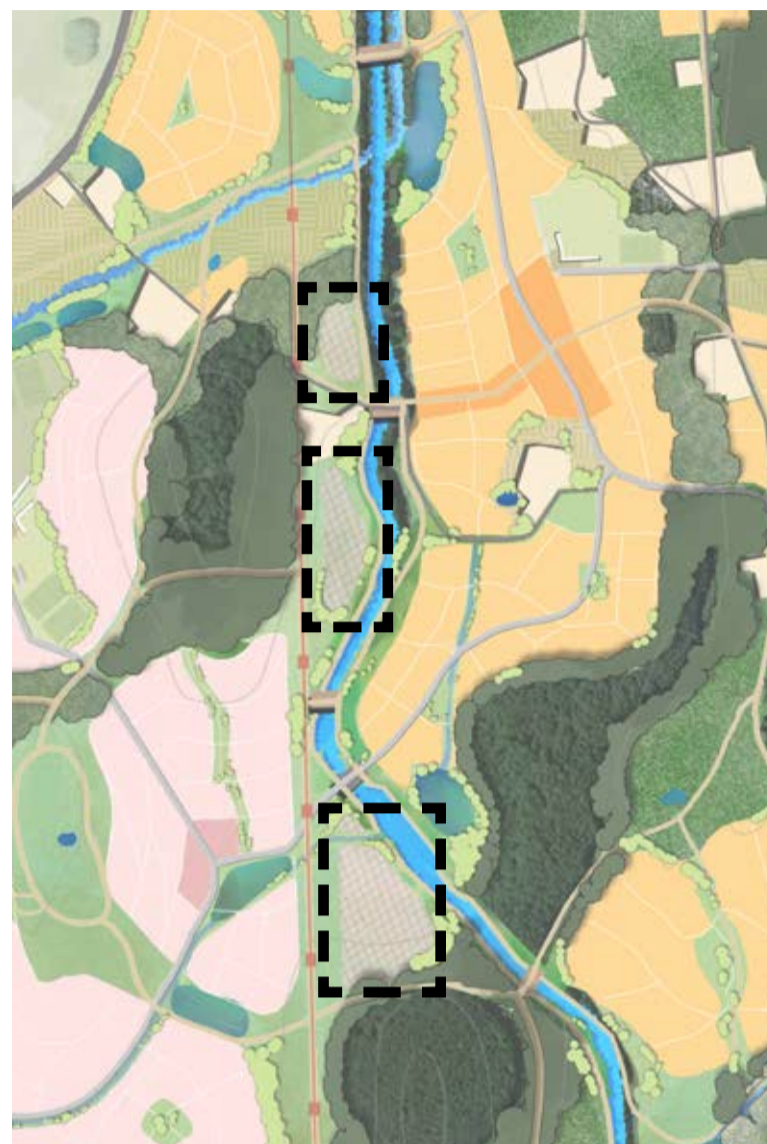
## 8. PLACEMAKING

# SELF-BUILD AREAS

The ambition at Bailrigg Garden Village is to create a high-quality environment with character that will grow and support a thriving new community. This means having a balanced mix of homes in a variety of sizes and tenures to meet the needs and aspirations of people at various stages of their lives. As part of this, Bailrigg Garden Village will offer the opportunity for individuals to pursue self-build housing projects.

Self-build housing can be defined as new build housing where someone directly organises the design and construction of their new home. There are numerous different forms of self-build housing; from the individual who wishes to physically build the home themselves, to community self-build projects. Most people however, will probably utilise either factory built homes, which are delivered and erected onto a prepared site, or will appoint their own architect and contractor to create their dream house.

Lancaster City Council has produced a Planning Advisory Note (PAN) which provides detail and further clarifications on the self-build and custom house building process, how the Council will support the delivery of plots and sources of further information and advice.



@ Hive Design Studio, <http://hivedesignstudio.co.uk/project/self-build-houses>

@ Heb Homes, <https://www.hebhomes.com/>



# DAY IN THE LIFE

Bailrigg Garden Village will be a sustainable development based on the 20-minute neighbourhood principles. Members of inclusive Garden Village community will have opportunities for working, shopping, exercising and learning on their doorstep.

Day in Life section explores different scenarios of future residents' daily routine and movement within the masterplan and key destinations around. It demonstrates how community members independently of their age or status could participate in community life, enjoy the landscape and have a wide range of activities to support their wellbeing and health.



**1 8:30 - 9:30**  
Cycling to the campus



**2 9:30 - 12:30**  
Attending lectures at Lancaster University



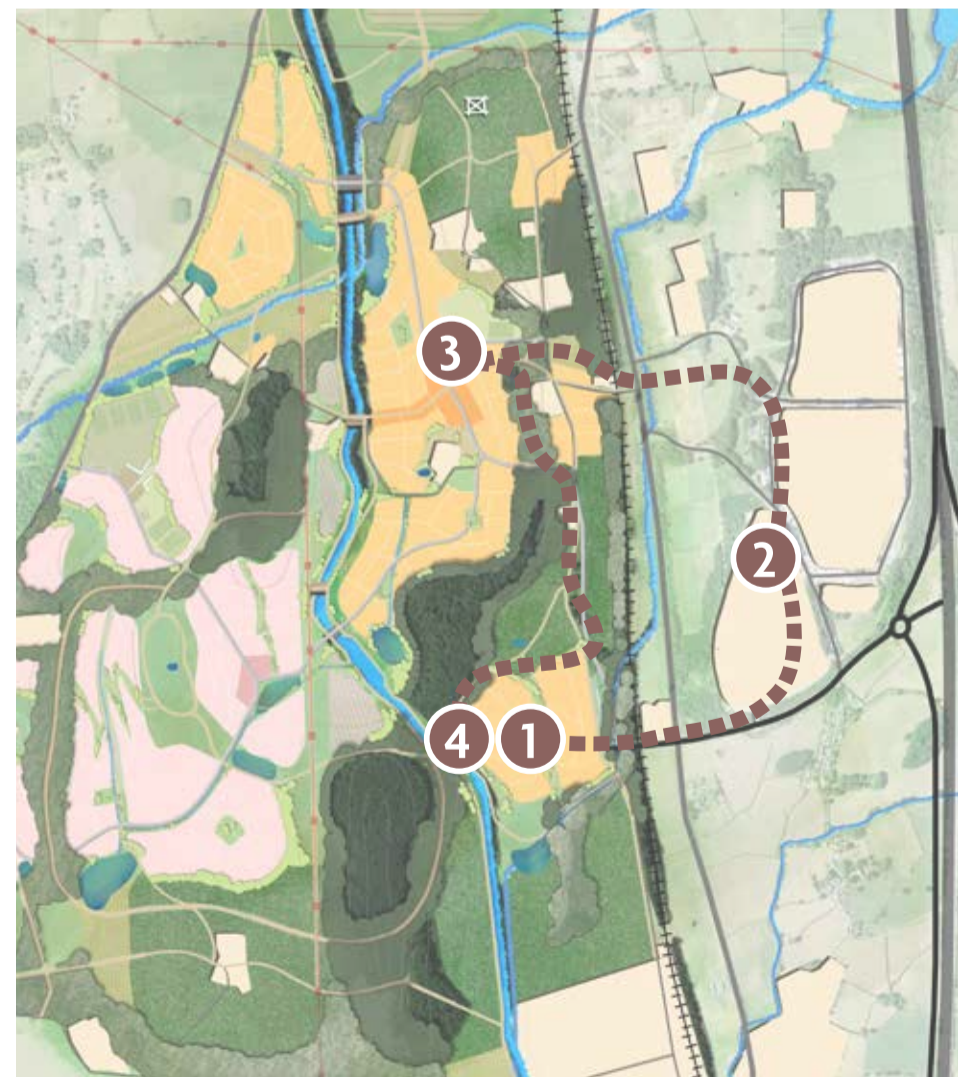
**3 13:00 - 16:30**  
Working in the village centre cafe



**4 17:00 - 19:30**  
Walking home through the drumlin landscape

## HUONG, STUDENT, 19

Huong is living with her parents close to the canal and woodlands. She is studying at the Lancaster University and working part time in the village centre cafe. She loves peaceful morning cycle to the university and evening walks with her family in beautiful drumlin landscape.



## 8. PLACEMAKING

# DAY IN THE LIFE

### LANA, FREELANCE EDITOR, 29

Lana is very passionate about graphic design and is inspired by beautiful nature and local vernacular around the Garden Village. She likes working in the co-working centre on high street and going out for lunch with her neighbours. In her spare time she enjoys morning yoga, cooking with fresh local products, gardening and dining out in Lancaster City Centre.



**1 7:30 - 8:30**  
Morning yoga class in the community centre



**2 9:00 - 14:00**  
Working in the co-working space on the high street



**3 14:30 - 16:30**  
Growing vegetables on community allotments



**4 17:00 - 18:00**  
Taking river taxi to Lancaster City Centre to meet with friends for dinner

### ARJUN, EXPLORER, 8

Arjun's family lives in the canal boat on new Bailrigg Marina. He is attending a primary school in the Garden Village. He likes learning about nature and farming, and playing football with friends from the neighbourhood. He is attending weekend forest school and taking pictures of local wildlife.



**1 7:30 - 8:30**  
Walking to the school along the canal



**2 8:30 - 12:30**  
Attending lessons at the primary school



**3 14:30 - 16:30**  
Helping at the local farm and learning about the nature and growing



**4 16:30 - 17:30**  
Playing football with friends from the neighbourhood



# DAY IN THE LIFE



**1 8:00 - 8:30**  
Morning walk with the dog



**2 9:00 - 15:00**  
Working on the farm



**3 15:00 - 17:30**  
Taking fresh dairy produce to local shops and restaurants



**4 18:00 - 19:30**  
Enjoying a pint in the local beer garden

## DAVID, LOCAL FARMER, 59

David is working on the farm close to the Lancaster Canal. He is supplying local cafe and convenience store with fresh dairy and meats and feels that he is an important member of local community. He enjoys a peaceful walk with his dog in the forest and a pint of beer in the local pub's garden with his neighbours and friends.



**1 8:00 - 9:00**  
Walking grandchildren to the school



**2 10:00 - 13:30**  
Visiting Lancaster City centre by bus



**3 14:00 - 17:00**  
Helping at the community book shop



**4 17:30 - 18:30**  
Evening kayaking class on the canal

## FRANCESCA, RETIRED, 62

Francesca has retired, but she enjoys helping at the community book shop. She loves walking her grandchildren to school in the morning and visiting her friends in Lancaster. She is taking lessons at the local kayak club and this keeps her healthy and active.



# CHAPTER 9



# Next Steps





# STAGE 3

The design team will continue to work on the masterplan and as part of this will work closely with the preparations for the AAP. This includes the following workstreams:

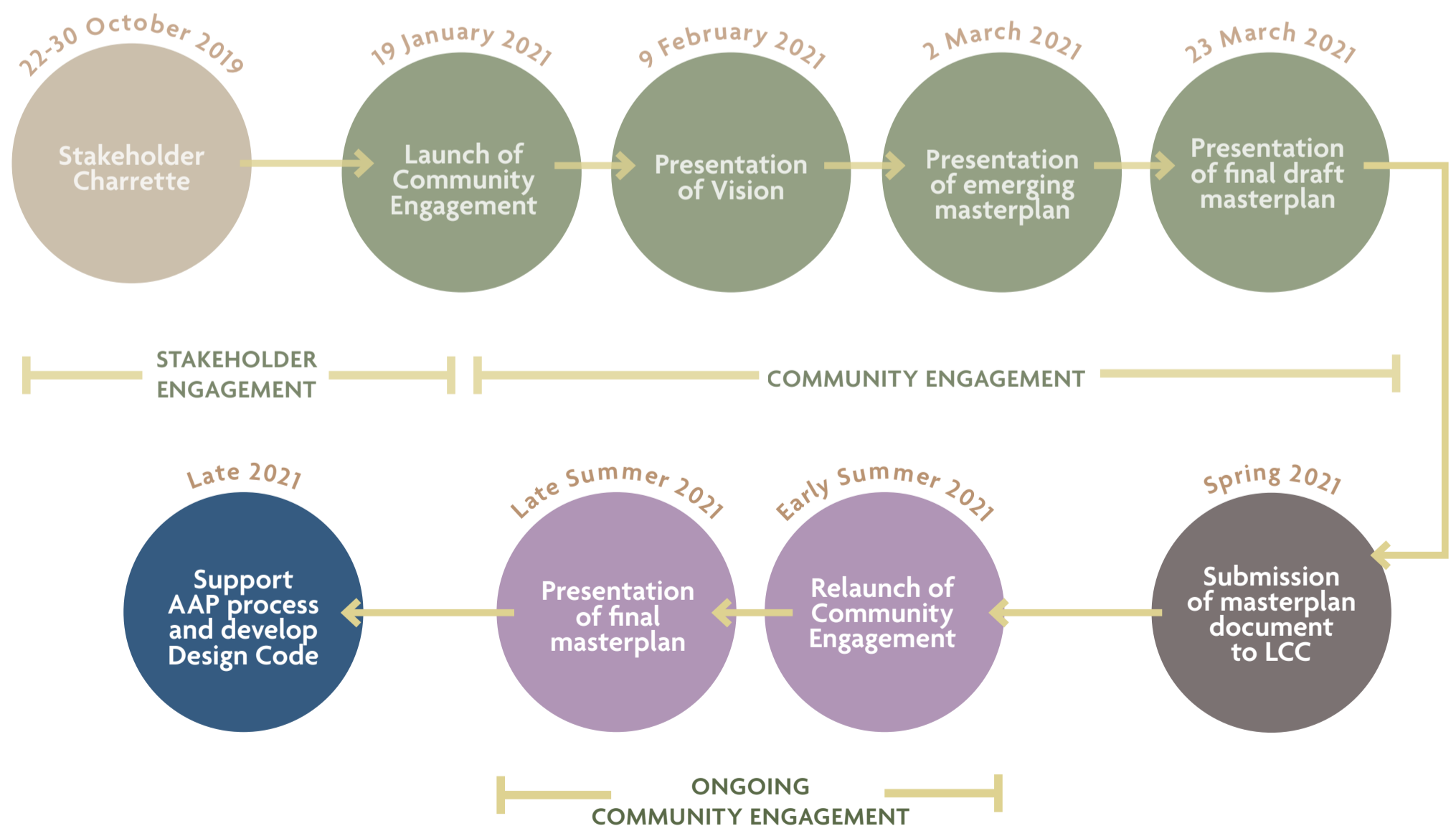
- Further community engagement including a relaunch, presentation and newsletter
- Towards planning and the AAP
- Infrastructure
- Phasing
- Delivery arrangements – integrated green, blue and brown
- Governance
- Management

The next stage of consultation will inform the development of the masterplan and will focus in more detail on a number of key aspects of the proposals:

- Development of the Main Street and road network, working collaboratively with Lancaster County Highways.
- Further work on density, character and definition of the built form in the Garden Village
- Phasing, delivery and governance

Following feeding into and supporting the AAP process, the team will start developing the Design Code for Bailrigg Garden Village.

## TIMELINE OF EVENTS



# STREET MAP

## IMMEDIATE

### 1. VISIONING

Stakeholder Workshop

Stage 1 Report

Community Planning Event March 2020

### 2. STAKEHOLDER DIALOGUE

University Canal and Rivers Trust Environment Agency Homes England

### 3. HIF / INFRASTRUCTURE

Decision

Yes

No

- Option Appraisal
- Assessment of alternative routes
  - Review of previous options and modelling
  - City Council and County Council

### 4. LAND OWNERSHIP

Understand land options/control

### 5. DELIVERY STUDY

Recommendation

- Undertake study options of delivery and role of council
- Masterdeveloper?
  - Housing and community provider
  - Energy provider
  - Joint venture? Procurement process?
  - Role of existing developer interests

### 6. PLANNING / LOCAL PLAN

Area action plan preparation

# STREET MAP

## MEDIUM TERM

